

Addendum D

Final Remedial Action Plan
DOE-EM/GJ1547
December 2023

Crescent Junction Disposal Site Evapotranspiration Cover System Design Report

Number	Title
D-01	Crescent Junction Disposal Site Evapotranspiration Cover System Design Report
D-01, App A	RETC Output
D-01, App B	ET Cover Water Balance Modeling
D-01, App C	Drainage Rock Design Calculations
D-01, App D	Settlement Calculations
D-01, App E	Liquefaction Design Calculations
D-01, App F	Surface Admixture Design Calculations
D-01, App G	Cover Cracking Calculations and Slope Reduction
D-01, App H	Radon Flux Calculations
D-01, App I	Stability Calculations
D-01, App J	Surface Admixture Compliance with NUREG-1623

Dwyer Engineering LLC

Crescent Junction Disposal Site
Evapotranspiration Cover System
Design Report
Stephen F Dwyer, PhD, PE

2023

Submitted to North Wind Portage

Crescent Junction Disposal Site

Evapotranspiration Cover System Design Report

PREPARED FOR:

North Wind Portage
Crescent Junction UMTRA Project Site
15 CR 223
Thompson Springs, UT 84540

PREPARED BY:

Dwyer Engineering LLC
Stephen F Dwyer, PhD, PE
1813 Stagecoach Rd. SE
Albuquerque, NM 87123

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EXECUTIVE SUMMARY

The Moab Uranium Mill Tailings Remedial Action (UMTRA) Project is in the process of relocating mill tailings and other contaminated materials from a former uranium-ore processing facility and from off-site properties known as vicinity properties in Moab, Utah, to an engineered disposal cell (Crescent Junction Disposal Site) constructed near Thompson Springs, Utah. The tailings have a relatively high water content as they exist in Moab. These tailings are reconditioned and dried prior to shipment from Moab to the Crescent Junction Disposal Site. The tailings are then shipped by rail and disposed of in the tailings impoundment.

This design report summarizes the calculations performed to demonstrate that the proposed evapotranspiration (ET) cover meets all applicable performance objectives to replace the previously approved UMTRA final cover system. The ET cover is a multilayered cover system that includes from bottom to top: a 1-ft-thick interim soil cover; 4-ft-thick clay radon barrier; and 38.5- in.-thick frost protection soil layer that includes a surface layer 10 in. thick composed of a mixture of rock and soil.

The overall profile provides ample storage capacity to minimize flux through the cover and attenuate radon gas from the covered tailings below established performance criteria. The rock/soil admixture surface layer is designed to minimize erosion while providing a rooting medium for native vegetation and storage capacity for infiltrated precipitation. This report demonstrates the ability of the cover to provide adequate protection for a design life of 1,000 years.

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ACRONYMS AND ABBREVIATIONS

ASTM	American Society for Testing and Materials
AZ	Arizona
CFR	Code of Federal Regulations
cfs	cubic feet per second
cm	centimeters
cm/sec	centimeters per second
cm/yr	centimeters per year
dry wt %	soil moisture dry weight percentage
D _c	critical particle size
D ₅₀	portion of particles with diameters below this value is 50%
D ₇₅	portion of particles with diameters below this value is 75%
DOE	United States Department of Energy
e.g.	for example
E _p	potential evaporation
ET	evapotranspiration
et al.	and others
ft	feet
FRAP	Final Remedial Action Plan
i.e.	that is
in.	inch
ITRC	Interstate Technology and Regulatory Council
LAI	leaf area index
L	slope length
m	meter
MDD	maximum dry density
NM	New Mexico
NOAA	National Oceanic and Atmospheric Administration
NRC	U.S. Nuclear Regulatory Commission
NUREG	U.S. Nuclear Regulatory Commission technical report designation
NWS	National Weather Service
pCi/g	picocuries per gram
pCi/L	picocuries per liter
pCi/m ² s	picocuries per square meter per second
pcf	pounds per cubic feet

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PET	potential evapotranspiration
PI	plasticity index
PMP	Probable Maximum Precipitation
PODR	point of diminishing returns
Q	peak rate of runoff
Ra	radium
RAECOM	Radon Attenuation Effectiveness and Cover Optimization with Moisture Effect
RD	rainfall duration
RETC	retention curve
RLD	root length density
Rn	radon
RRM	residual radioactive material
sf	square feet
S	Slope
Ss	Stable slope
SSR	seismic stress ratio
TAD	Technical Approach Document
T _p	potential transpiration
t _c	time of concentration
UMTRA	Uranium Mill Tailings Remedial Action
USEPA	United States Environmental Protection Agency
UT	Utah
Vol.	volume

1.0 UMTRA FINAL COVER SYSTEM TO BE REPLACED

The prior approved design of the final cover system for closure of the Crescent Junction Disposal Site Uranium Mill Tailings Remedial Action (UMTRA) cover (Final Remedial Action Plan [FRAP] 2008) is a minimum 9-ft-thick multi-layered profile, herein referred to as the UMTRA cover (Figure 1).

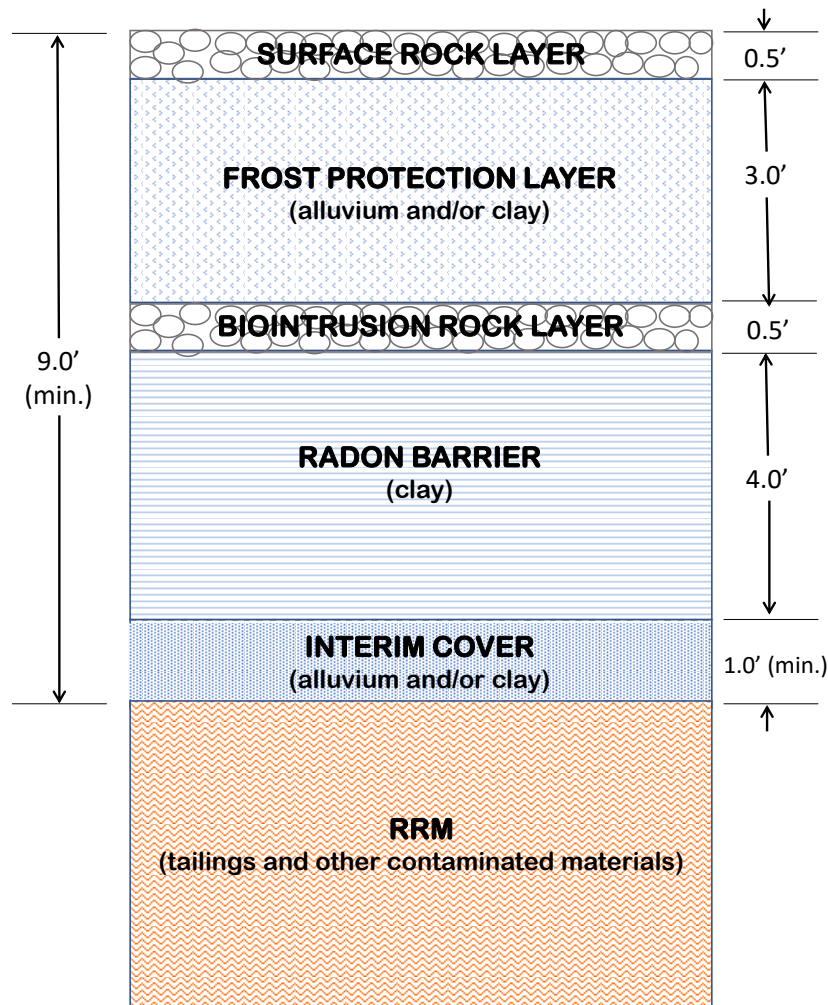


Figure 1. UMTRA Cover Profile

There are multiple issues with this cover profile, including:

- The cover system is very expensive to construct and requires a significant amount of imported rock.
- The surface rock layer and the biointrusion rock layers are repetitive. That is, they are both 6 in. thick and of the same rock composition (Figures 1 and 3).
- The cover was designed layer by layer rather than as a system.

- The surface rock layer was designed to minimize erosion. However, it has created a problem with the flux of meteoric water through the cover. The cover allows infiltration into the cover profile (approximately 100% of precipitation) while restricting removal via evapotranspiration (ET), as would take place anywhere in the vicinity not covered by rock. Thus, the cover allows full infiltration of precipitation into the cover profile and reduces surface removal of water (Figure 2).
- The surface rock layer on top of the finer-grained frost protection soil creates a capillary barrier in reverse. That is, precipitation goes in while the capillary barrier in reverse prevents it from coming back out, as it would without the rock there. This leads to buildup of moisture in underlying layers. Saturated conditions have been identified in monitoring wells located immediately south of the cover.

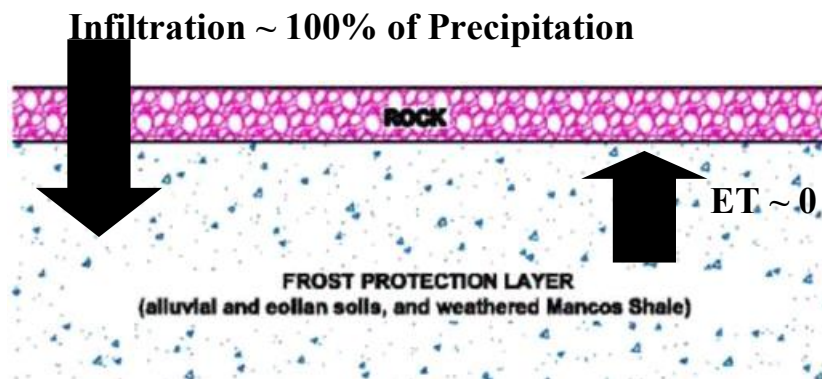


Figure 2. Upper Portion of UMTRA Cover

The rock is the most expensive element in the cover as it is purchased off-site and trucked on-site from 93 miles away in Fremont Junction, Utah. There are two rock layers in the existing cover profile (Figure 1): the surface layer and biointrusion rock layer below the frost protection layer of soil (Figure 3). The Moab/Crescent Junction FRAP (2008, p. 7-5) states that the biointrusion rock layer was included to: (a) provide positive drainage of any seepage at this depth; (b) provide a capillary barrier to reduce infiltration; (c) prevent burrowing animals; and (d) discourage root intrusion. Each of these objectives are discussed below:

- An intent of the cover is to prevent percolation into the underlying residual radioactive material (RRM) and thus remain as dry as possible and in an unsaturated state. Consequently, if saturated seepage occurs, the performance objective has not been satisfied. Therefore, the inclusion of this biointrusion rock layer to laterally route saturated flow to the perimeter of the cover contradicts this performance criterion. There should never be saturated flow at a depth of 4 ft (Figure 1), as demonstrated in Section 6 of this report. Thus, the inclusion of a lateral drainage layer is not required.
- The surface rock layer and biointrusion rock layer were each installed with no filter medium above or below it (Figures 1 and 3). Thus, the fine-grained soils above the biointrusion rock layer are free to migrate into the voids in the rock. By filling these voids,

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the effectiveness of a capillary barrier in limiting moisture movement from above down through it is reduced or even eliminated.

- (c) There were no specific performance criteria associated with the biointrusion rock layer. The type of burrowing animal the layer is intended to prevent from burrowing was not cited.
- (d) As previously stated, the biointrusion rock layer has no filter layer above it and thus the fine-grained upper soil is free to move into the pore spaces of the rock layer. Consequently, over a long period of time, the layer is not likely to prevent root intrusion from passing through it. Conversely, the moisture content in the radon barrier is increasing with time. This increased moisture content will attract root intrusion should any vegetation be established on the cover. The surface rock armor may have wind-blown sediment deposited within it over time and allow for the establishment of some vegetation. The vegetation will likely be deep, woody-rooted plants.

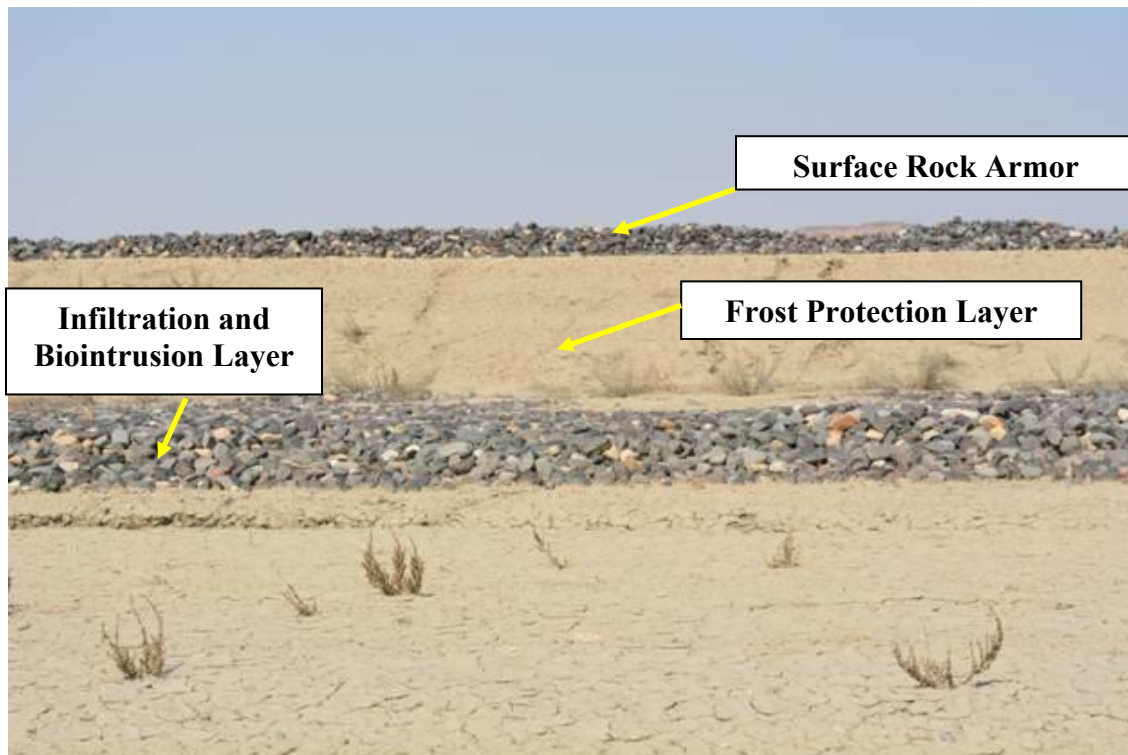


Figure 3. Installed Cover Profile at Crescent Junction

2.0 EVAPOTRANSPIRATION COVER SYSTEM DESIGN

This ET cover is proposed to replace the UMTRA cover system (Figure 1). The design of an ET cover system for closure of the tailings impoundment is described in the following sections. The ET cover design (Figure 5) meets the following performance objectives (40 CFR 192) as demonstrated in the following sections:

- Maintain a design life of at least 200 years up to 1,000 years;
- Minimize meteoric flux into the underlying RRM (includes providing a rooting medium for native vegetation);
- Minimize erosion;
- Attenuate emanation of radon-222 (Rn-222) from the RRM to a rate less than 20 picocuries per square meter per second (pCi/m²s) average over the final cover surface; and
- Design to accommodate minimum reliance on active maintenance.

The ET cover described in the following sections was designed as a system rather than as individual layers. The surface admixture layer, composed of a mixture of rock and soil, is summarized in Section 3. It is designed to provide for a cover system that effectively minimizes erosion while allowing for removal of infiltrated water via ET. The surface admixture layer is also intended to provide a quality rooting medium in conjunction with the remainder of the frost protection layer for native vegetation while mitigating the potential for burrowing animals. Section 4 provides a summary of the drainage rock requirements for the cover side slopes and perimeter drainage system. Section 5 demonstrates the cover's ability to reduce the emanation of Rn-222 from the RRM to a rate less than 20 pCi/m²s. Section 6 demonstrates the ET cover's ability to minimize flux due to meteoric water. Section 7 demonstrates the cover's ability to tolerate the maximum potential differential settlement. Section 8 demonstrates that surface cracking in the cover system is not an issue. Section 9 demonstrates that liquefaction in the impoundment is not an issue. Section 10 states that the stability concerns evaluated in the FRAP (2008) have not changed and therefore were not reevaluated. Section 11 describes biointrusion considerations for the final cover system. Finally, a brief summary of calculation results is included in Section 12.

The portion of the UMTRA cover system that has been placed to date above the radon barrier will be replaced with an ET cover (Figure 4). Specifically, the materials placed above the radon barrier layer (Figure 3) will be removed and reworked per Figure 5. The previously placed interim cover and radon barrier will remain in place.

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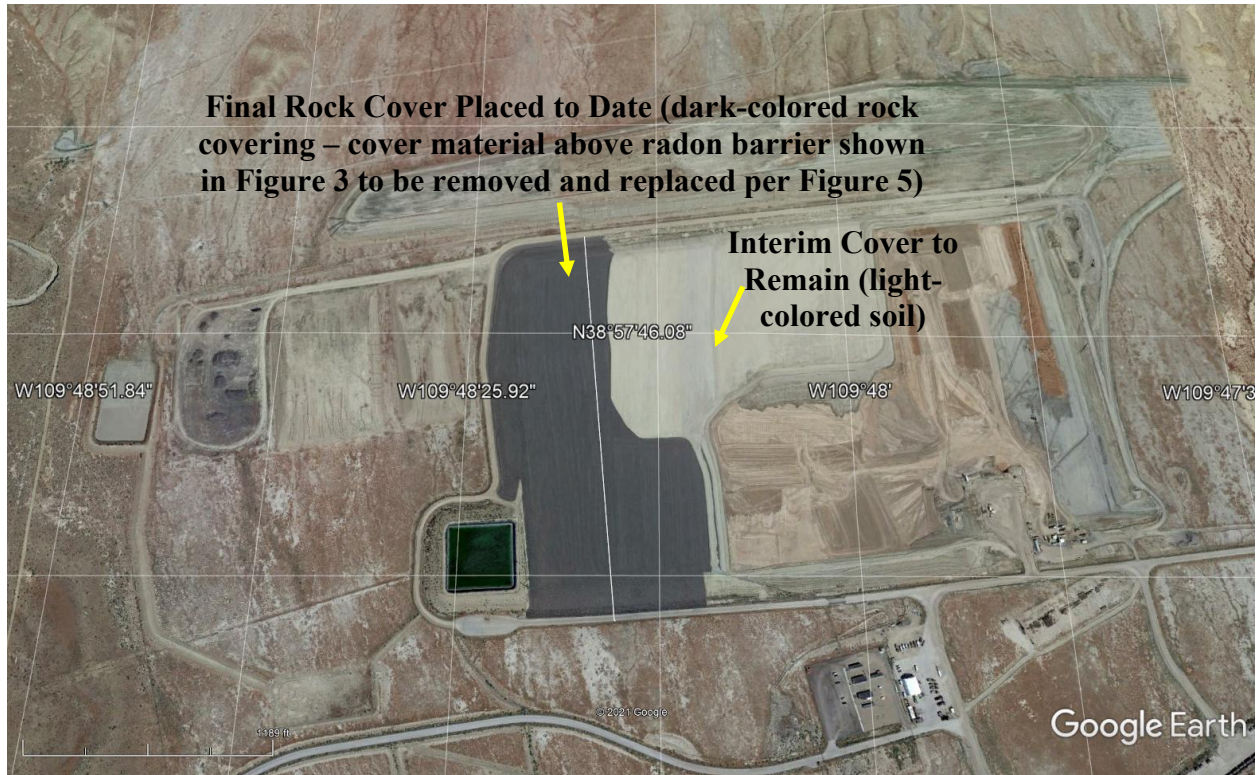


Figure 4. Aerial View of Existing Crescent Junction Disposal Site

3.0 EROSION ANALYSIS OF COVER

The performance objectives related to the ET cover's ability to resist erosion and demonstrate the long-term stability of the cover surface (U.S. Nuclear Regulatory Commission [NRC] 2002) are intended to be satisfied with the inclusion of a rock/soil admixture, sometimes referred to as a "desert pavement." The cover surface layer is composed of a mixture of rock and cover soil designed to mitigate the potential for rill or gully formation as well as minimize soil loss. Rock/soil admixtures provide a proven means to minimize erosion while allowing for vegetation establishment without a significant reduction in evaporation (Waugh et al. 1994, Dwyer 2003, Dwyer et al. 2007). Erosion (Ligotke 1994) and water balance studies (Waugh 1994) suggest that moderate amounts of gravel mixed into the cover topsoil will control both water and wind erosion. As wind and water pass over the cover surface, some winnowing of fines from the admixture is expected, creating a vegetated erosion-resistant surface referred to as a desert pavement.

The surface erosion admixture has been successfully deployed on multiple sites throughout the southwestern United States, including a uranium mine site closure near San Mateo, NM (semi-arid climate); hazardous waste closure in Los Alamos, NM (semi-arid climate), that served as the landfill during the Manhattan Project; Cyprus Tohono Superfund Site Closure, near Casa Grande, AZ (arid climate); and the Lee Acres Superfund Site near Farmington, NM (arid climate). Native vegetation was well established via seeding without supplemental irrigation on all cover systems. The vegetation on the San Mateo cover exceeded performance requirements to have perennial plant coverage meet comparable undisturbed reference sites after only four years (Cedar Creek Associates 2016). There has been no significant soil loss due to erosion nor any rill or gully formation in the cover system.

This erosion-resistant admixture was designed consistent with guidance summarized in the *Cover System Design Guidance and Requirements Document* (Dwyer et al. 2007) and *Closing Small Tribal Landfills and Open Dumps How to Design Environmentally Safe Covers Including Additional Design Guidance for Arid Regions* (U.S. Environmental Protection Agency [USEPA] 2012); refer to Section 3.1. The admixture design is also compliant with long-term stability of the final slope as a rocky soil per NUREG-1623 (NRC 2002); refer to Section 3.2.

The design methods and calculations performed to develop the cover's top layer as summarized in Section 3.1 are contained in Appendix F. The surface admixture design was then analyzed utilizing the long-term stability of the final slope as a rocky soil per NUREG-1623 (NRC 2002) as described in Section 3.2. Refer to Appendix J for calculations related to this analysis.

3.1 Admixture Design

The top layer of the cover profile shall be composed of an admixture of rock mixed into soil referred to as the surface admixture layer. The incipient or critical particle size (D_c) is the particle that is on the brink of movement at the assumed conditions. Any increase in the erosional forces acting on the particle (e.g., due to an increase in velocity or slope) will cause its movement. For construction purposes, the incipient particle size is assumed to be the D_{50} (50% of the rock passing the given sieve size). The critical particle sizes (D_c) and admixture depth are computed based on the slope length and respective slope.

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The D₅₀ rock shall have a 2.0-in. diameter and the admixture depth of 10 in. (Figure 5). The mixture is 60% rock to 40% soil by volume for the full admixture depth. The design and all calculations related to the admixture are found in Appendix F: Surface Admixture Design Calculations.

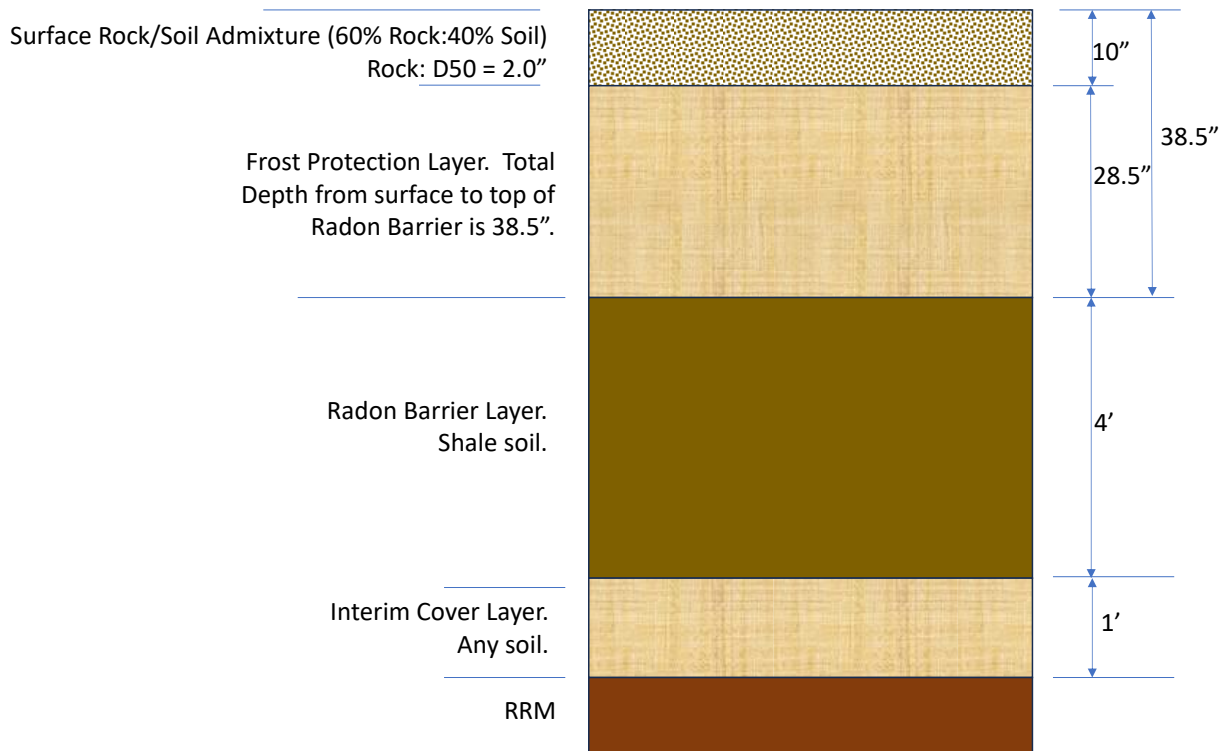


Figure 5. ET Cover Profile with Surface Admixture Depth

3.2 Admixture Design Compliance with NUREG-1623

The surface admixture design was analyzed to ensure the long-term stability of the final slope as a rocky soil per NUREG-1623 (NRC 2002). The previous UMTRA cover design included a 6-in.-thick layer of 2-in. D₅₀ rock. A significant fault of this design includes the allowance of full infiltration and thus build-up of subsurface saturation while disallowing removal of infiltrated water via ET. This revised design with the surface admixture layer replacing the 6-in. layer of rock allows the removal of infiltrated water via ET and thus improves the performance of the cover system while satisfying erosion control issues.

The surface admixture layer utilizes the prior 6-in.-thick, 2-in. D₅₀ rock mixed with cover soil at a volumetric ratio of 60% rock to 40% soil. This mixture improves on the prior design. Abt et al. (1988; NUREG/CR-4651) states that results of rock mixed with soil are more stable than riprap only. Furthermore, the admixture layer will allow the establishment of vegetation that will add additional resistance to erosion.

Appendix J provides a summary of the calculations performed to verify compliance with the long-term stability of a rocky soil slope per NUREG-1623.

4.0 EROSION CONTROL FOR SURFACE DRAINAGE

The calculations performed to compute the drainage rock requirements around the perimeter of the final cover system are found in Appendix C. The area and flow length of these drainage areas were approximated based on the FRAP (2008, Addendum C, Final Design Drawings).

4.1 Riprap Sizing for Side Slopes

The erosional stability of the side slopes is analyzed using the Abt and Johnson (1991) method, as discussed in NUREG-1623 (NRC 2002). This method is recommended for slopes greater than 10%. Table 1 includes a summary of the computed results. Refer to Appendix C for details of calculations performed.

Table 1. Riprap – Drainage Trench Side Slopes Adjacent to Cover

Section	Use D ₅₀ (in.)	Rock Layer Thickness (in.)
North Trench Slope	3	6
South Trench Slope	3	6
West Trench Slope	2	4
East Trench Slope	2	4

4.2 Riprap Sizing for Bottom of Side Slopes

The perimeter apron will: (1) serve as an impact basin and provide for energy dissipation of runoff, (2) provide erosion protection, and (3) transition flow from side slopes to natural ground. The median rock size required in the perimeter apron was calculated using the equations derived by Abt et al. (1998), as outlined in NUREG-1623 (NRC 2002). Table 2 provides a summary of the computed results. Refer to Appendix C for details of calculations performed.

Table 2. Riprap – Drainage Trench Apron Below Side Slopes Adjacent to Cover

Section	Use D ₅₀ (in.)	Rock Layer Thickness (in.)
North Trench Bottom	8	24
South Trench Bottom	12	36
West Trench Bottom	6	18
East Trench Bottom	6	18

4.3 Riprap Bedding

The need for bedding material beneath the riprap was evaluated and is summarized in this section. Table 3 provides a summary of the calculations performed.

Table 3. Interstitial Velocity

Slope	D ₅₀	Slope (ft/ft)	V (ft/sec)	Comment
North Slope	3	0.2	0.66	Bedding material may be warranted ¹
North Ditch	8	0.02	0.32	No bedding material required
West Slope	2	0.2	0.56	Bedding material may be warranted ¹
West Ditch	6	0.02	0.28	No bedding material required
East Slope	2	0.2	0.56	Bedding material may be warranted ¹
East Ditch	6	0.02	0.28	No bedding material required
South Slope	3	0.2	0.66	Bedding material may be warranted ¹
South Ditch	12	0.02	0.39	No bedding material required

¹ Bedding shall be included on the side slopes.

NUREG-1623 recommends that when the computed interstitial velocity is less than 0.5 ft per second, a filter is not needed. When velocities are between 0.5 and 1.0 ft per second, the need for a filter layer will be dependent upon the type of soil material placed at the interface. A filter should be provided when velocities are 1.0 ft per second or greater. Alluvium is intended to be the soil placed at the interface and thus a bedding material may be installed beneath the riprap on the north, south, west, and east slopes of the impoundment. Because there will be no specified soil texture requirements for the upper layer of soil on the side slopes, bedding material will be included as specified in Specification 32 11 22, Section 2.2 and as depicted on the contract drawings. No bedding material is required within the perimeter ditches.

5.0 RADON ATTENUATION

Federal regulations limiting radon releases to the atmosphere are contained in 40 CFR 192.02. These regulations require that release of Rn-222 to the atmosphere not exceed: (1) an average release rate of 20 pCi/m²s; *or* (2) increase the annual average concentration of Rn-222 in the air at or above any location outside of the disposal site by more than 1/2 picocurie per liter (pCi/L).

The ET cover soil functions as an effective barrier to gas diffusion; the air-filled voids in the soil are generally discontinuous. Gas diffuses slowly through soils that contain only occasional, unconnected air bubbles. The ET cover system was evaluated for its ability to limit radon flux (NRC 1989, 2003). The radon flux through the ET cover soil was computed using the Uranium Mill Tailings Cover Calculator (<http://www.wise-uranium.org/ctc.html>) that is a clone of the Radon Attenuation Effectiveness and Cover Optimization with Moisture Effect (RAECOM) code, as described in Rogers and Associates Engineering (1984a, 1984b). It performs one-dimensional, steady-state radon diffusion calculations for a multi-layer system.

5.1 Input Data for Radon Flux Modeling

5.1.1 Cover Thickness and Layer Data

The ET cover profile (Figure 5) was modeled to compute the radon flux. The ET cover profile (about 8.2 ft [250 cm] thick) was adequate to limit radon flux to less than 20 pCi/m²s. Table 4 provides a summary of the input parameters and output for the radon flux calculations performed on the cover profile (Figure 5). Refer to Appendix H for details of the radon flux calculations.

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Table 4. Radon Flux Calculations Summary

Layer (bottom to top)	Thickness	Ra-226 Activity Conc. (pCi/g)	Ra-226 Emanation	Porosity	Moisture (dry wt %)	Rn-222 Diff. Coeff – calculated (m ² /s)	Exit Flux (pCi/m ² s)
Tailings, below 7 ft	2.866 m (9 ft)	455.5	0.35	0.44	15	1.121E-6	7.3
Tailings, upper 7 ft	2.134 m (7 ft)	455.5	0.35	0.44	15	1.121E-06	135.9
Interim Cover	0.305 m (1 ft)	1.9	0.35	0.38	9	1.620E-06	46.6
Mancos Shale Soil Layer	1.219 m (4 ft)	2.3	0.35	0.31	12	2.087E-7	2.1
Frost Protection Layer	0.724 m (28.5 in.)	1.9	0.35	0.38	9	1.620E-6	0.4
Top Layer (Admixture) of Cover	0.254 m (10 in.)	0.76	0.35	0.15	3.6	1.809E-97	0.6

6.0 UNSATURATED MODELING OF COVER SYSTEM

Unsaturated flow modeling of a cover profile is a useful tool in developing a minimum cover thickness and evaluating the cover profile that is subjected to a variety of parameters and conditions (Dwyer et al. 2007, USEPA 2012). Modeling was performed to determine an ET cover profile that minimizes flux given the envelope of possible input parameters (i.e., cover soil, layering, and vegetation data) and historical climate data for the site.

Multiple sensitivity analyses were performed (Appendix B) that included input parameters for vegetation maturation (i.e., reclaimed vegetation, grassland vegetation, and shrub vegetation), soil hydraulic properties for varied borrow soil, and climate uncertainty. The input parameters utilized in the computer simulations for the ET cover were developed based on values reported in the FRAP (2008), various literature cited, laboratory analyses (DBSA 2020), and experience. Hydraulic property derivation of input parameters for the RRM utilized in the modeling are contained in Appendix A. Parameter descriptions are summarized in Appendix B.

The sensitivity analyses performed evaluated potential input parameters and climate scenarios expected over the performance period of the cover system. The input parameters evaluated included the potential cover soil borrow sources and variability in the hydraulic properties of these soils, as well as variability in vegetation. The upper boundary condition or climate was also evaluated from typical to beyond extreme wet conditions. The simulations performed determined the minimum cover depth required given the worst-case set of cover input parameters and climate conditions. The worst-case conditions required the thickest cover profile to minimize flux or have the deepest point of diminishing returns (PODR) according to Dwyer et al. (2007). That is, the PODR determines the required cover depth that minimizes flux whereby an additional inch of soil no longer reduces flux.

The worst-case PODR for the cover profile was achieved at a depth of about 6.7 ft (205 cm) (Figure 6). An additional scenario with no vegetation was performed that produced a PODR of 6.9 ft (210 cm). Thus, the PODR is achieved at a depth significantly less than the cover thickness of 8.2 ft (250 cm) even without the benefit of any vegetation.

Refer to Appendix B for details of modeling performed including the sensitivity analyses. All input files for the UNSAT H computer simulations are provided as Attachment A to Appendix B. All output files for the UNSAT H computer simulations are provided as Attachment B to Appendix B.

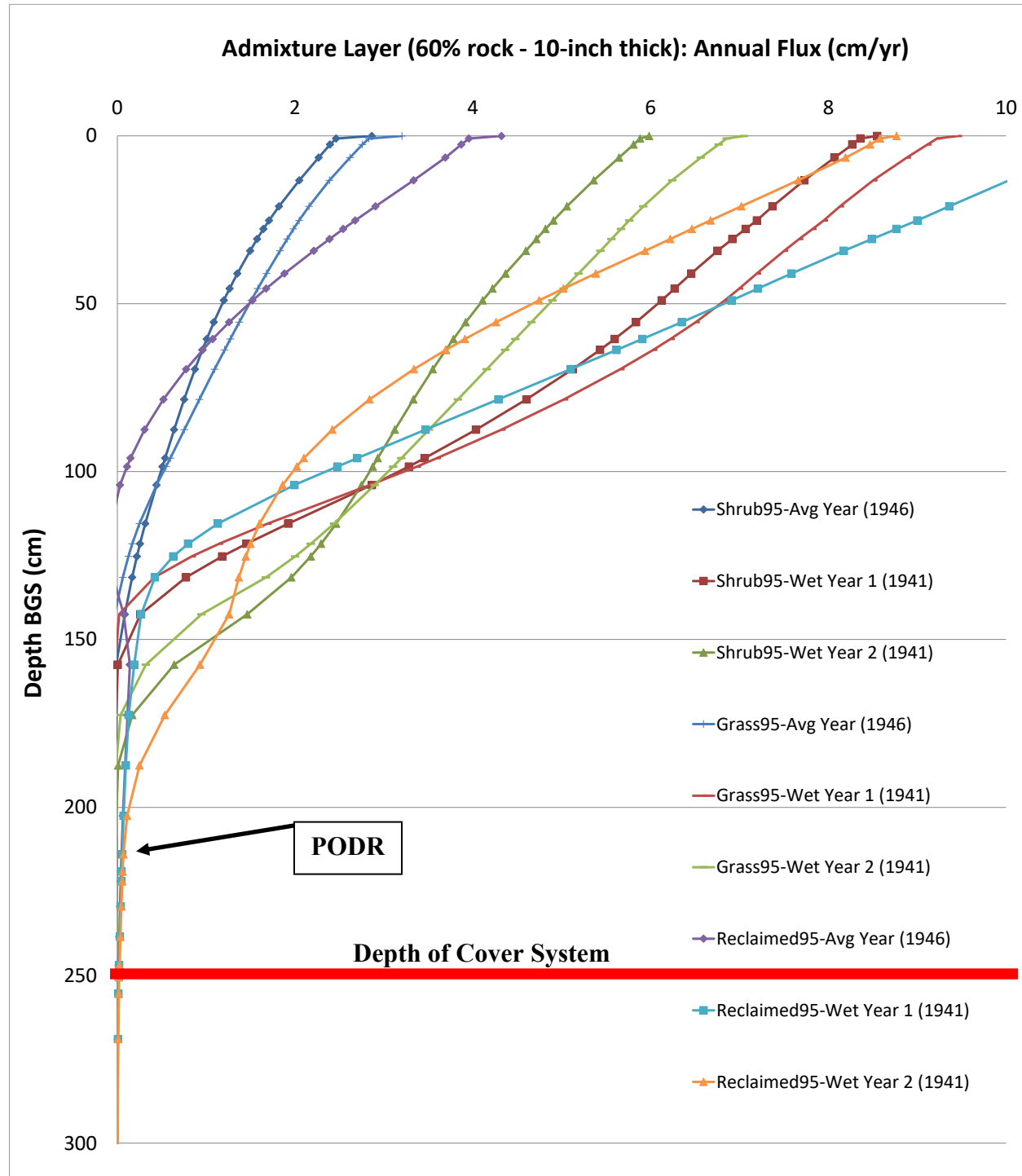


Figure 6. Worst-Case Modeling Simulations

7.0 DIFFERENTIAL SETTLEMENT

Differential settlement commonly occurs because of the non-uniform movement of the underlying soils (i.e., soils settle at different rates). Significant differential settlement in a tailings impoundment could potentially lead to surface ponding on the final cover system. The placed tailings have varied depths; consequently, the potential for significant differential settlement that could result in surface ponding was evaluated.

Consolidation of soil occurs in three stages:

1. Immediate – takes place as the soil is placed or generally within days after placement.
2. Primary – occurs after soil placement and impacts relatively fine-grained soils (i.e., fine-grained tailings or slimes); involves the removal of excess pore water from the soil.
3. Secondary – this stage is time dependent and occurs following primary consolidation.

Immediate consolidation occurs as the load is applied or within approximately 7 days and is defined as elastic deformation of soils. Immediate consolidation was not considered relevant to this analysis, as this type of settlement has occurred prior to placement of the cover system.

This analysis considered both primary and secondary settlement in the tailings. Primary consolidation typically dominates in saturated or nearly saturated fine-grained soils where the consolidation theory applies. It is caused by a reduction in void space and subsequent squeezing of excess pore water from the materials. Terzaghi's theory of consolidation is a common engineering concept utilized to compute primary consolidation in fine-grained soils. The use of Terzaghi's theory of consolidation for primary settlement is conservative, given it assumes full saturation and the actual tailings are unsaturated.

Secondary consolidation occurs after primary consolidation where excess pore water pressures have dissipated in the soil. Secondary consolidation generally occurs more slowly than primary consolidation.

7.1 Differential Settlement Results

The differential settlement results are based on the difference in tailings depth on the north side of the impoundment compared with those beneath the crest or center of the impoundment (FRAP 2008, Addendum C, Drawings E-02-C-102 and E-02-C-103). The center of the impoundment has a tailings depth of approximately 48 ft, while the far northern perimeter of the impoundment has a tailings depth of approximately 26 ft.

The primary settlement in the center of the impoundment was calculated to be 9.2 in. The settlement along the northern perimeter was calculated to be 8.3 in. The differential settlement of 0.96 in. will not create ponding issues along the northern slope of the impoundment with a slope length of 566 ft with a slope of 2%. Refer to Appendix D.

Secondary settlement was computed at the same two locations. The secondary settlement, given a performance period of 1,000 years in the center of the impoundment, was calculated to be 12.7 in. The secondary settlement, calculated for the same 1,000-year period along the northern perimeter, was 6.9 in. for the same 1,000-year period. The differential settlement, due to the secondary consolidation of 5.8 in., will not create ponding along the slope length of 566 ft with a slope of

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2%. The total differential settlement of the combined primary and secondary consolidation of approximately 6.8 in. will not create ponding along the slope length of 566 ft with a slope of 2%. Details of the calculations performed are provided in Appendix D.

The potential slope reduction due to the total differential settlement of 6.8 in. is 0.1%. This is significantly less than the cover slope of 2%; thus, surface ponding should not occur. Refer to Appendix G for details of this calculation.

8.0 COVER CRACKING

Cover cracking was evaluated by comparison of allowable horizontal strain for the cover materials with maximum calculated strain due to differential settlement in the cover. The area of the cell with the highest anticipated differential settlement (and associated largest horizontal strain) is in the northern portion of the cell due to the largest differential in tailings thickness (26 ft at northern perimeter versus 48 ft at center crest).

The differential settlement of tailings from the northern perimeter to the crest is 6.8 in. (adding primary and secondary settlement – Appendix D). This amount of differential settlement over the slope distance (566 ft) is equivalent to a horizontal tensile strain of approximately 5.01E-05%. This calculated strain is significantly lower than the allowable tensile strain for the soil of 0.072%, indicating acceptable cover performance. Refer to Appendix G for details of the calculations performed.

9.0 LIQUEFACTION

The tailings are reconditioned and dried prior to shipment from Moab to the Crescent Junction Disposal Site. The tailings are then placed in the repository in an unsaturated condition. This analysis assumes a beyond-worst-case condition that downward migration of porewater or inclusion of meteoric water may create zones in the tailings with saturated conditions. Given the inclusion of a well-designed ET cover, this scenario is highly unlikely; however, it is analyzed for conservatism.

The potential liquefaction of saturated zones of the tailings was checked with standard procedures outlined in Day (1999), based on the paper by Seed and Idriss (1971). This involves comparison of the seismic stress ratio (SSR) due to the design seismic event with the SSR that would cause liquefaction of the tailings at a specific depth of analysis. The analysis was performed assuming the entire tailings thickness is saturated. This situation is extremely unlikely, but was used to conservatively analyze the liquefaction potential.

These SSRs were calculated at the top and bottom of the tailings. The SSR due to the design seismic event was calculated from the peak estimated acceleration at the ground surface of 0.22 g. The SSR required for liquefaction was based on a conservatively estimated relative density of the tailings of 50 percent, based on the tailings compaction at 90 percent of Standard Proctor density (using a correlation in Holtz and Kovacs [1981]). For this tailings relative density, fines content values ranging from 17 to 46 percent (representing the minimum and mean measured values), and the two depths of analysis, the SSR required to cause liquefaction was higher than the SSR from the design earthquake. This indicates that if the tailings were to become saturated, the tailings would not liquefy under peak seismic ground acceleration conditions.

Tailings liquefaction is not likely because of the placement of unsaturated tailings in the cell (as described above), the density that the tailings will achieve with placement in lifts and rolling with construction equipment, and the fines content of the tailings. In the event of zones of tailings becoming saturated, the calculated SSR required to cause liquefaction of the tailings is higher than the SSR for all of the cases considered, indicating that liquefaction would not occur. Note references below include that cited above and in the following liquefaction calculations.

Refer to Appendix E for details of the calculations performed.

10.0 STABILITY

There is no change to the slope stability analysis from the original design contained in the FRAP (2008). The slope and slope lengths have not changed for the perimeter of the impoundment. The water balance condition of the slope should improve with the substitution of an ET cover for the existing rock cover and thus the stability conditions should improve. That is, the ET cover will not allow for net percolation of meteoric water; thus, underlying cover soil layers including the RRM should dry over time and respective strength parameters will improve. This contrasts with the existing rock cover, which allows for infiltration while restricting the removal of this infiltrated water, thus allowing continued recharge of water into the underlying cover soil layers and RRM. Consequently, the original stability calculations submitted and approved with the FRAP (2008) will not be changed or amended.

Refer to Appendix I for details of the stability calculations.

11.0 BIOINTRUSION

The biointrusion layer in the “to-be-replaced” UMTRA cover includes a 6-in. (15-cm) layer of rock (Figures 1 and 3). This volume of rock will remain 6 in. and will be uniformly mixed into the surface admixture layer (10 in. deep). That is, the proposed ET cover will have its top surface admixture composed of rock uniformly mixed with cover soil at a volumetric ratio of 60% rock to 40% soil. The D₅₀ will remain 2.0 in. for the admixture.

As discussed in Section 1, the biointrusion layer in the existing final cover system has multiple issues. The ET cover system with the surface admixture will better mitigate potential biointrusion issues. First, the rock/soil admixture layer of 2.0-in.-diameter D₅₀ rock, which composes 60% of the volume of this surface layer, will discourage burrowing of small mammals.

Second, the design of the ET cover allows for removal of all infiltrated water via ET. Thus, there will be no elevated levels of moisture at depth to attract deep-rooting vegetation. This is not the case with the existing UMTRA cover. As soils begin to fill in the surface rock with time, this will allow for deep-rooted vegetation to establish due to the availability of elevated moisture levels in the lower soil layers and tailings due to the high percentage of infiltration of meteoric water.

There is no specified performance criterion for biointrusion at the Crescent Junction Disposal Site. Waugh et al. (2009) showed that biointrusion can potentially lead to an increase in near-surface soil’s saturated hydraulic conductivity. The rock/soil admixture should mitigate burrowing, but some root intrusion will still alter the upper soil’s hydraulic conductivity. This was considered in the modeling performed as summarized in this report (Appendix B) by increasing the modeled cover soil’s saturated hydraulic conductivity in the upper portion of the cover (Dwyer 2014).

The biointrusion risk at the site is minimal. For comparative purposes, biointrusion risk from MDA G at Los Alamos, NM, is summarized here. The Technical Area 54 at Los Alamos National Laboratory (LANL), referred to as MDA G, is a 63-acre site that has served as the Laboratory’s principal radioactive solid waste storage and disposal site since routine operations began in 1957, containing about 1 million cubic meters of radioactive wastes and contaminated backfill (<https://nukewatch.org/fact-sheets-item/clean-up-area-g-hundreds-of-jobs-could-be-created-that-protect-the-environment/>). LANL’s transuranic waste and low-level waste are stored at this site. The radioactive waste disposal area includes 32 pits, 194 shafts, and four trenches. In-depth studies of the potential upward mobility of radioactive contaminants showed that this site, even without a final cover system, poses minimal biointrusion risk and thus would not require a biointrusion layer in its final cover system. MDA G Performance Assessment and Composite Analysis (LANL 2008) and the Area G Radiological Risk Assessment (Neptune and Company 2020) reveal that doses from the upward biotic pathway are very low (for exposure scenarios that do not include human intrusion into the waste cover).

12.0 SUMMARY OF RESULTS

The design methods and calculations in this design report demonstrate that the ET cover design (Figure 5) will meet the objectives of performance for at least 200 years (40 CFR 192) to include limiting meteoric flux into the underlying RRM, minimizing erosion, providing a rooting medium for native vegetation, and attenuating emanation of Rn-222 from the RRM. This conclusion is based on the computations summarized in this design report.

12.1 Erosion Protection

Section 3 described the surface admixture design for the proposed ET cover. The cover is composed of multiple layers. The top layer is a rock/soil admixture referred to as a desert pavement. This layer is designed to mitigate erosion by adding rock to the engineer-approved cover soil. This surface layer satisfies NUREG-1623 (NRC 2002) for the long-term stability of a rocky soil cover. The overall cover thickness (including both layers) is 8.2 ft (250 cm), while the surface admixture (Figure 5) is 10 in. (25 cm) thick. The lower radon barrier layer is composed of weathered shale soil excavated from within the Crescent Junction footprint, while the admixture is composed of a sandier loam material excavated from the upper region of the Crescent Junction footprint uniformly mixed with 60% by volume 2.0-in.-diameter rock (D₅₀).

Section 4 summarized the engineering performed to develop riprap requirements to reinforce perimeter drainage trenches. Table 5 provides a summary of the riprap requirements. Some of the size and thickness of the riprap are reduced from the original design summarized in the FRAP (2008).

Table 5. Riprap Perimeter Ditch Requirements

Perimeter Ditch	Final Design of ET Cover		Prior Values (FRAP 2008)	
	Riprap Size (D ₅₀)	Min. Riprap Thickness	Riprap Size (D ₅₀)	Min. Riprap Thickness
North Side Slope	3 in.	6 in.	4 in.	8 in.
North Base of Ditch	8 in.	24 in.	8 in.	24 in.
South Side Slope	3 in.	6 in.	6 in.	12 in.
South Base of Ditch	12 in.	36 in.	12 in.	36 in.
East Side Slope	2 in.	4 in.	4 in.	8 in.
East Base of Ditch	6 in.	18 in.	6 in.	18 in.
West Side Slope	2 in.	4 in.	4 in.	8 in.
West Base of Ditch	6 in.	18 in.	6 in.	18 in.

12.2 Radon Flux

The 4-ft-thick radon barrier for the ET cover design composed of compacted shale clay material remains the same thickness and density as the original UMTRA cover design. It will have a minimum of 38.5 in. of soil above it to protect from damage due to freeze/thaw cycles. Section 5 provided an overview of the estimated radon release rate through the cover profile (Figure 5). The computed radon flux for the given profiles was 0.6 pCi/m²s for Sensitivity Analysis 2 (Appendix H, Table H-2). This value is less than the maximum allowable flux of 20 pCi/m²s per 40 CFR 192.02.

12.3 Water Balance and Flux Minimization of Cover System

Section 6 summarized the sensitivity analyses evaluating myriad input parameters that demonstrate the 8.2-ft-thick cover system's effectiveness for the 1,000-year performance period. The estimated flux through the cover is minimized even while applying the wettest year on record in two consecutive years to the worst-case profile and set of input parameters.

12.4 Settlement

Section 7 summarized an analysis performed to evaluate the potential for ponding on the cover surface due to differential settlement caused by uneven tailings depth. The estimated total differential settlement of approximately 6.8 in. (17 cm) over the 1,000-year performance period will not create ponding on the cover given the proposed surface slopes.

12.5 Biointrusion

As discussed in Section 1, the biointrusion layer in the existing UMTRA final cover system has multiple issues. The proposed ET cover system will better mitigate potential biointrusion issues. First, the rock/soil admixture layer of 2.0-in.-diameter D₅₀ rock, which composes 60% of the volume of this surface layer, will discourage burrowing of small mammals. Second, the design of the ET cover allows for removal of all infiltrated water via ET. Thus, there will be no elevated levels of moisture at depth to attract deep rooting vegetation.

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APPENDIX A

RETC OUTPUT

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RETC Model Runs for Transition Tailings (Sample GATB-09)

```
*****
*
* Analysis of soil hydraulic properties      *
*
* Welcome to RETC                          *
*
* Mualem-based restriction, M=1-1/N        *
* Analysis of retention data only          *
* MType= 3  Method= 3                     *
*
*****
```

Initial values of the coefficients

```
=====
No  Name  Initial value  Index
1  ThetaR  .0670    1
2  ThetaS  .4500    1
3  Alpha   .0200    1
4  n       1.4100   1
5  m       .2908    0
6  l       .5000    0
7  Ks      .0001    0
```

Observed data

```
=====
Obs. No.  Pressure head  Water content  Weighting coefficient
1   700.000   .3810    1.0000
2   700.000   .3760    1.0000
3   700.000   .3470    1.0000
4   800.000   .3160    1.0000
5   900.000   .2970    1.0000
6  1200.000   .2690    1.0000
7  1300.000   .2240    1.0000
8  1400.000   .1850    1.0000
9  1700.000   .1460    1.0000
10 2300.000   .1250    1.0000
11 3100.000   .1100    1.0000
12 4100.000   .0850    1.0000
13 6400.000   .0670    1.0000
14 12100.000  .0430    1.0000
```

```
NIT  SSQ  ThetaR  ThetaS  Alpha  n
0  .14200 .0670  .4500  .0200  1.4100
1  .07356 .0616  .5373  .0090  1.3797
```

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2	.05662	.0339	.5548	.0082	1.3999
3	.04052	.0046	.5959	.0069	1.4215
4	.03909	.0018	.6000	.0068	1.4238
5	.03517	.0272	.9556	.0038	1.8287
6	.01427	.0368	.8348	.0026	2.0574
7	.01116	.0396	.5041	.0013	2.2562
8	.00345	.0379	.5646	.0017	2.2568
9	.00324	.0396	.5834	.0017	2.3241
10	.00324	.0399	.5764	.0016	2.3389
11	.00324	.0400	.5752	.0016	2.3422
12	.00324	.0401	.5749	.0016	2.3429
13	.00324	.0401	.5748	.0016	2.3431
14	.00324	.0401	.5748	.0016	2.3431

Correlation matrix

```

=====
ThetaR ThetaS Alpha n
1 2 3 4
1 1.0000
2 -.7170 1.0000
3 -.7407 .9957 1.0000
4 .8779 -.9292 -.9526 1.0000

```

RSquared for regression of observed vs fitted values = .98236530

Nonlinear least-squares analysis: final results

```

=====
          95% Confidence limits
Variable Value S.E.Coeff. T-Value Lower Upper
ThetaR .04006 .02418 1.66 -.0138 .0939
ThetaS .57481 .23731 2.42 .0461 1.1036
Alpha .00164 .00107 1.53 -.0007 .0040
n 2.34308 .51562 4.54 1.1942 3.4920

```

Observed abd fitted data

```

=====
NO P log-P WC-obs WC-fit WC-dev
1 .7000E+03 2.8451 .3810 .3653 .0157
2 .7000E+03 2.8451 .3760 .3653 .0107
3 .7000E+03 2.8451 .3470 .3653 -.0183
4 .8000E+03 2.9031 .3160 .3312 -.0152
5 .9000E+03 2.9542 .2970 .3014 -.0044
6 .1200E+04 3.0792 .2690 .2337 .0353
7 .1300E+04 3.1139 .2240 .2170 .0070
8 .1400E+04 3.1461 .1850 .2024 -.0174
9 .1700E+04 3.2304 .1460 .1685 -.0225
10 .2300E+04 3.3617 .1250 .1278 -.0028
11 .3100E+04 3.4914 .1100 .0995 .0105

```

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12 .4100E+04 3.6128 .0850 .0812 .0038
13 .6400E+04 3.8062 .0670 .0628 .0042
14 .1210E+05 4.0828 .0430 .0497 -.0067

Sum of squares of observed versus fitted values

=====

Unweighted Weighted

Retention data .00324 .00324

Cond/Diff data .00000 .00000

All data .00324 .00324

Soil hydraulic properties (MType = 3)

=====

WC	P	logP	Cond	logK	Dif	logD
.0414	-.5202E+05	4.716	.1856E-14	-14.731	.5270E-07	-7.278
.0428	-.3104E+05	4.492	.2948E-13	-13.531	.2498E-06	-6.602
.0455	-.1853E+05	4.268	.4681E-12	-12.330	.1184E-05	-5.927
.0510	-.1105E+05	4.044	.7437E-11	-11.129	.5615E-05	-5.251
.0564	-.8170E+04	3.912	.3750E-10	-10.426	.1397E-04	-4.855
.0619	-.6590E+04	3.819	.1182E-09	-9.927	.2668E-04	-4.574
.0673	-.5577E+04	3.746	.2882E-09	-9.540	.4410E-04	-4.356
.0728	-.4865E+04	3.687	.5969E-09	-9.224	.6654E-04	-4.177
.0783	-.4333E+04	3.637	.1105E-08	-8.957	.9428E-04	-4.026
.0837	-.3918E+04	3.593	.1885E-08	-8.725	.1276E-03	-3.894
.0892	-.3585E+04	3.554	.3019E-08	-8.520	.1666E-03	-3.778
.0946	-.3310E+04	3.520	.4602E-08	-8.337	.2118E-03	-3.674
.1001	-.3079E+04	3.488	.6740E-08	-8.171	.2632E-03	-3.580
.1055	-.2881E+04	3.460	.9552E-08	-8.020	.3212E-03	-3.493
.1110	-.2710E+04	3.433	.1317E-07	-7.881	.3859E-03	-3.414
.1165	-.2560E+04	3.408	.1773E-07	-7.751	.4576E-03	-3.339
.1219	-.2427E+04	3.385	.2339E-07	-7.631	.5366E-03	-3.270
.1274	-.2308E+04	3.363	.3032E-07	-7.518	.6232E-03	-3.205
.1328	-.2202E+04	3.343	.3869E-07	-7.412	.7176E-03	-3.144
.1383	-.2105E+04	3.323	.4870E-07	-7.312	.8200E-03	-3.086
.1437	-.2018E+04	3.305	.6057E-07	-7.218	.9308E-03	-3.031
.1492	-.1937E+04	3.287	.7450E-07	-7.128	.1050E-02	-2.979
.1547	-.1864E+04	3.270	.9073E-07	-7.042	.1179E-02	-2.929
.1601	-.1795E+04	3.254	.1095E-06	-6.961	.1317E-02	-2.881
.1656	-.1732E+04	3.239	.1311E-06	-6.882	.1464E-02	-2.834
.1710	-.1673E+04	3.224	.1558E-06	-6.807	.1622E-02	-2.790
.1765	-.1618E+04	3.209	.1839E-06	-6.735	.1789E-02	-2.747
.1819	-.1567E+04	3.195	.2157E-06	-6.666	.1968E-02	-2.706
.1874	-.1519E+04	3.181	.2515E-06	-6.599	.2158E-02	-2.666
.1928	-.1473E+04	3.168	.2917E-06	-6.535	.2360E-02	-2.627
.1983	-.1430E+04	3.155	.3367E-06	-6.473	.2573E-02	-2.590
.2038	-.1390E+04	3.143	.3867E-06	-6.413	.2800E-02	-2.553
.2092	-.1351E+04	3.131	.4423E-06	-6.354	.3039E-02	-2.517
.2147	-.1315E+04	3.119	.5039E-06	-6.298	.3292E-02	-2.483

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.2201 -.1280E+04 3.107 .5718E-06 -6.243 .3559E-02 -2.449
.2256 -.1247E+04 3.096 .6466E-06 -6.189 .3841E-02 -2.416
.2310 -.1215E+04 3.085 .7288E-06 -6.137 .4139E-02 -2.383
.2365 -.1185E+04 3.074 .8188E-06 -6.087 .4453E-02 -2.351
.2420 -.1156E+04 3.063 .9172E-06 -6.038 .4784E-02 -2.320
.2474 -.1128E+04 3.052 .1025E-05 -5.989 .5132E-02 -2.290
.2529 -.1101E+04 3.042 .1142E-05 -5.943 .5499E-02 -2.260
.2583 -.1075E+04 3.031 .1269E-05 -5.897 .5886E-02 -2.230
.2638 -.1050E+04 3.021 .1407E-05 -5.852 .6293E-02 -2.201
.2692 -.1026E+04 3.011 .1556E-05 -5.808 .6721E-02 -2.173
.2747 -.1003E+04 3.001 .1718E-05 -5.765 .7172E-02 -2.144
.2802 -.9808E+03 2.992 .1892E-05 -5.723 .7646E-02 -2.117
.2856 -.9591E+03 2.982 .2080E-05 -5.682 .8145E-02 -2.089
.2911 -.9380E+03 2.972 .2283E-05 -5.641 .8670E-02 -2.062
.2965 -.9176E+03 2.963 .2501E-05 -5.602 .9223E-02 -2.035
.3020 -.8978E+03 2.953 .2736E-05 -5.563 .9805E-02 -2.009
.3074 -.8785E+03 2.944 .2988E-05 -5.525 .1042E-01 -1.982
.3129 -.8597E+03 2.934 .3258E-05 -5.487 .1106E-01 -1.956
.3183 -.8414E+03 2.925 .3547E-05 -5.450 .1174E-01 -1.930
.3238 -.8236E+03 2.916 .3857E-05 -5.414 .1246E-01 -1.905
.3293 -.8061E+03 2.906 .4188E-05 -5.378 .1321E-01 -1.879
.3347 -.7891E+03 2.897 .4542E-05 -5.343 .1401E-01 -1.854
.3402 -.7725E+03 2.888 .4920E-05 -5.308 .1485E-01 -1.828
.3456 -.7562E+03 2.879 .5324E-05 -5.274 .1574E-01 -1.803
.3511 -.7402E+03 2.869 .5754E-05 -5.240 .1668E-01 -1.778
.3565 -.7245E+03 2.860 .6213E-05 -5.207 .1767E-01 -1.753
.3620 -.7092E+03 2.851 .6702E-05 -5.174 .1871E-01 -1.728
.3675 -.6941E+03 2.841 .7222E-05 -5.141 .1982E-01 -1.703
.3729 -.6792E+03 2.832 .7776E-05 -5.109 .2100E-01 -1.678
.3784 -.6646E+03 2.823 .8366E-05 -5.077 .2224E-01 -1.653
.3838 -.6502E+03 2.813 .8992E-05 -5.046 .2357E-01 -1.628
.3893 -.6360E+03 2.803 .9659E-05 -5.015 .2497E-01 -1.603
.3947 -.6220E+03 2.794 .1037E-04 -4.984 .2647E-01 -1.577
.4002 -.6081E+03 2.784 .1112E-04 -4.954 .2806E-01 -1.552
.4057 -.5944E+03 2.774 .1192E-04 -4.924 .2976E-01 -1.526
.4111 -.5809E+03 2.764 .1277E-04 -4.894 .3157E-01 -1.501
.4166 -.5674E+03 2.754 .1367E-04 -4.864 .3351E-01 -1.475
.4220 -.5541E+03 2.744 .1463E-04 -4.835 .3559E-01 -1.449
.4275 -.5409E+03 2.733 .1565E-04 -4.806 .3782E-01 -1.422
.4329 -.5277E+03 2.722 .1673E-04 -4.777 .4022E-01 -1.396
.4384 -.5146E+03 2.712 .1788E-04 -4.748 .4280E-01 -1.369
.4439 -.5016E+03 2.700 .1910E-04 -4.719 .4560E-01 -1.341
.4493 -.4886E+03 2.689 .2040E-04 -4.690 .4863E-01 -1.313
.4548 -.4756E+03 2.677 .2178E-04 -4.662 .5191E-01 -1.285
.4602 -.4626E+03 2.665 .2325E-04 -4.634 .5549E-01 -1.256
.4657 -.4495E+03 2.653 .2482E-04 -4.605 .5941E-01 -1.226

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.4711 -.4364E+03 2.640 .2648E-04 -4.577 .6370E-01 -1.196
.4766 -.4233E+03 2.627 .2826E-04 -4.549 .6844E-01 -1.165
.4820 -.4100E+03 2.613 .3016E-04 -4.521 .7367E-01 -1.133
.4875 -.3966E+03 2.598 .3220E-04 -4.492 .7950E-01 -1.100
.4930 -.3830E+03 2.583 .3437E-04 -4.464 .8602E-01 -1.065
.4984 -.3693E+03 2.567 .3670E-04 -4.435 .9336E-01 -1.030
.5039 -.3553E+03 2.551 .3921E-04 -4.407 .1017E+00 -.993
.5093 -.3409E+03 2.533 .4190E-04 -4.378 .1112E+00 -.954
.5148 -.3263E+03 2.514 .4482E-04 -4.349 .1223E+00 -.913
.5202 -.3111E+03 2.493 .4797E-04 -4.319 .1352E+00 -.869
.5257 -.2955E+03 2.471 .5141E-04 -4.289 .1505E+00 -.822
.5312 -.2791E+03 2.446 .5516E-04 -4.258 .1691E+00 -.772
.5366 -.2620E+03 2.418 .5929E-04 -4.227 .1920E+00 -.717
.5421 -.2437E+03 2.387 .6387E-04 -4.195 .2212E+00 -.655
.5475 -.2240E+03 2.350 .6901E-04 -4.161 .2598E+00 -.585
.5530 -.2024E+03 2.306 .7487E-04 -4.126 .3137E+00 -.504
.5584 -.1779E+03 2.250 .8170E-04 -4.088 .3954E+00 -.403
.5639 -.1487E+03 2.172 .8998E-04 -4.046 .5383E+00 -.269
.5694 -.1100E+03 2.041 .1009E-03 -3.996 .8803E+00 -.055
.5721 -.8155E+02 1.911 .1086E-03 -3.964 .1395E+01 .145
.5734 -.6058E+02 1.782 .1139E-03 -3.944 .2166E+01 .336
.5743 -.4093E+02 1.612 .1184E-03 -3.927 .3796E+01 .579
.5748 -.1531E+02 1.185 .1232E-03 -3.909 .1476E+02 1.169
.5748 -.5731E+01 .758 .1245E-03 -3.905 .5582E+02 1.747
.5748 .0000E+00 .1250E-03 -3.903

End of problem

APPENDIX B

WATER BALANCE MODELING

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Water Balance Analysis of ET Cover

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer 

Date December 18, 2023

Checked by: Mike Beardsley 

Date December 18, 2023

Approved by: Greg Church 

Date December 18, 2023

B.1 UNSATURATED MODELING OF COVER SYSTEM

Modeling was performed to develop an evapotranspiration (ET) cover profile that minimizes flux given the myriad of input parameters (i.e., cover soil, layering, and vegetation data) and historical climate data for the site. Unsaturated flow modeling of an earthen cover profile is a useful tool in developing a minimum cover thickness and evaluating the cover profile that is subjected to a variety of parameters and conditions (Dwyer et al. 2007, USEPA 2011).

B.1.1 Overview of UNSAT-H

The software most applicable for the analyses of water flow within an alternative earthen cover system is based on Richard's equation (Interstate Technology and Regulatory Council [ITRC] 2003). One of the most common software (ITRC 2003) based on the Richard's equation is UNSAT-H (Fayer 2000). It has been recommended for use on alternative earthen covers in the ITRC (2003) design guidance documents. Consequently, UNSAT-H was used on this project.

UNSAT-H is a one-dimensional, finite-difference computer program developed specifically for earthen cover systems at the Pacific Northwest National Laboratory by Fayer and Jones (1990). UNSAT-H can be used to simulate the water balance of earthen covers and soil heat flow (Fayer 2000). UNSAT-H simulates water flow through soils by solving Richard's equation and simulates heat flow by solving Fourier's heat conduction equation.

A schematic illustration showing how UNSAT-H computes the water balance is provided as Figure B-1. UNSAT-H separates precipitation falling on an earthen cover into infiltration and overland flow. The quantity of water that infiltrates depends on the infiltration capacity of the soil profile immediately prior to rainfall (e.g., total available porosity), the climate, and precipitation applied. Thus, the fraction of precipitation shed as overland flow depends on saturated and unsaturated hydraulic conductivities of the final cover. If the rate of precipitation exceeds the soil's infiltration capacity, the extra water is shed as surface runoff. UNSAT-H does not consider absorption and interception of water by the plant canopy, or the effect of slope and slope-length, when computing surface runoff. This allows conservative infiltration and percolation estimates since cover systems are generally sloped to encourage runoff.

Water infiltrating a soil profile during an UNSAT-H simulation moves upward or downward because of gravity and matric potential gradients. Evaporation from the cover surface is computed using Fick's law. Water removal by transpiration of plants is treated as a sink term in Richard's equation. Potential evapotranspiration (PET) is computed from site-specific daily weather data (Hargreaves and Samani 1982, Hargreaves and Samani 1985). Soil water storage is computed by integrating the water content profile. Flux from the lower boundary is via percolation. UNSAT-H, being a one-dimensional program, does not compute lateral drainage.

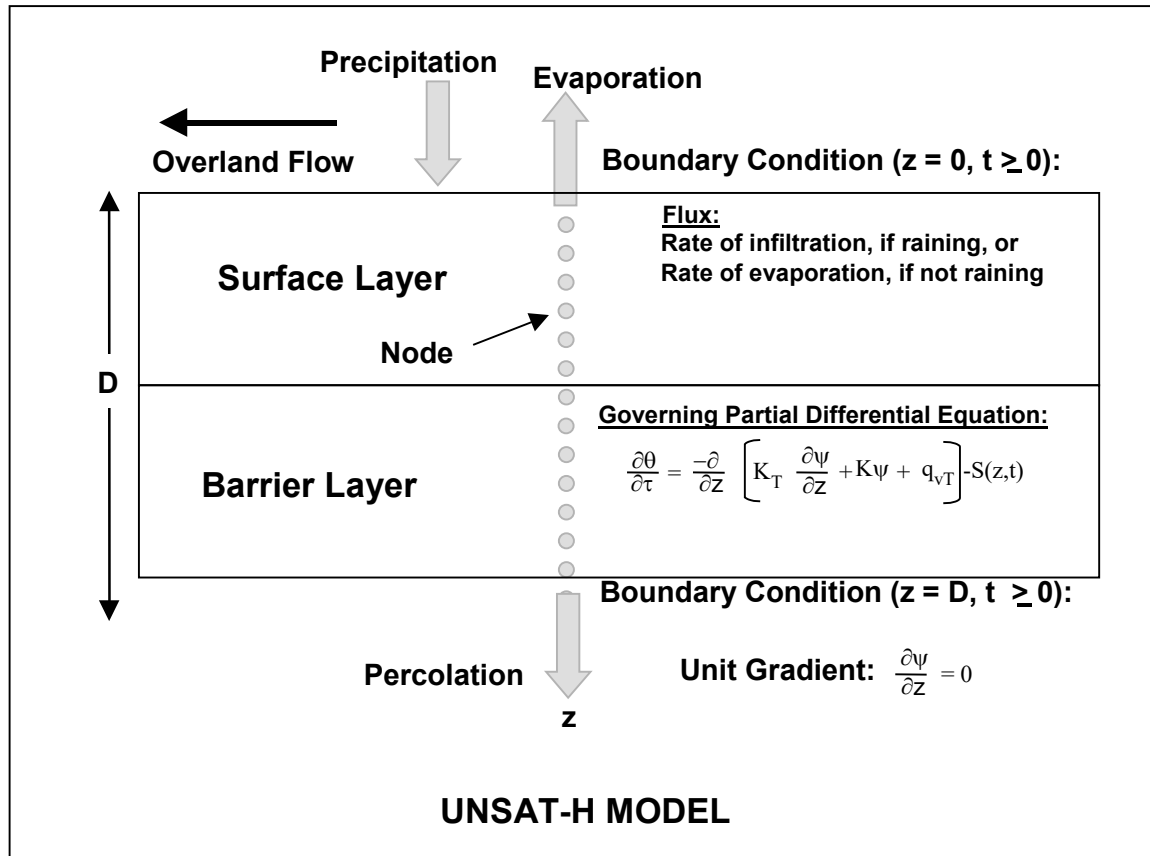


Figure B-1. Schematic Representation of Water Balance Computation by UNSAT-H

B.1.2 UNSAT-H Input Parameters

Input parameters utilized in the computer simulations with UNSAT-H for the ET cover were developed based on values reported in the FRAP (2008), various literature cited, laboratory analyses (DBSA 2020 – FRAP 2023, Attachment 5), and experience. Parameter descriptions are summarized in Sections B.1.3 through B.1.7.

The sensitivity analyses performed evaluated potential input parameters and climate scenarios expected over the performance period of the cover system. The input parameters evaluated include the potential cover soil borrow sources and variability in vegetation. The upper boundary condition or climate was evaluated from typical to beyond extreme wet conditions.

B.1.3 Model Geometry

The model geometry was based on the cover profile (Figure B-6). The nodal spacing was set at a range narrow enough to accurately represent the modeled cover profile. For these computer simulations, the rock/soil admixture layer was 10 inches (25 centimeters) thick (Appendix F). The modeled soil layers are depicted in Figure B-6. The RRM (residual radioactive material) beneath the cover profile was included in the final computer simulations.

B.1.4 Boundary Conditions

Historical weather data from the Crescent Junction, UT, area, including Moab and Thompson Springs, were evaluated to derive typical and extreme climate scenarios. Weather data from Moab are available from 1893 to present and Thompson Springs from 1911 to 1994. The mean precipitation for Thompson Springs, UT, is 8.85 inches (22.5 centimeters) per year. Weather information from 1946 (Thompson Springs, UT, weather station) was utilized as the simulated “typical year,” with an annual precipitation volume of 8.9 inches (22.6 centimeters). This typical climate year had just above the average annual precipitation volume and was distributed throughout the year, as shown in Figure B-2.

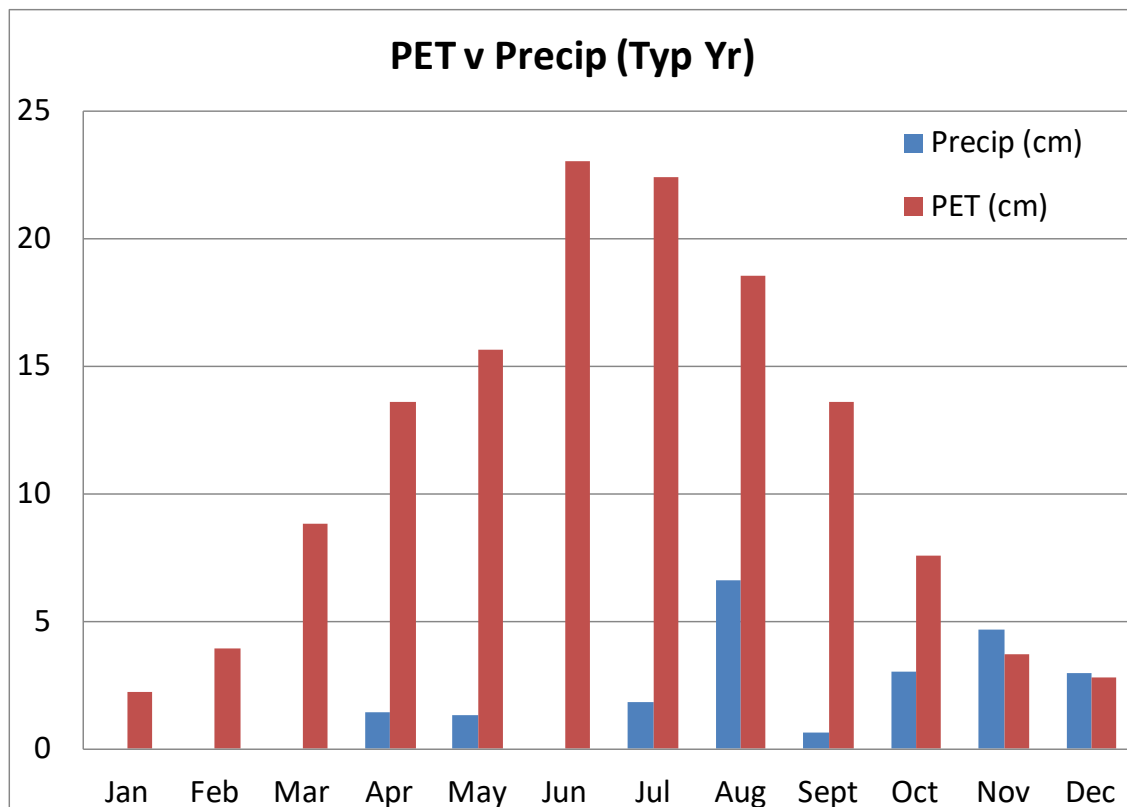


Figure B-2. Typical Climate: Monthly Precip. Vs. PET for Thompson Springs, UT (1946)

For every month of the year, the climate’s demand for water (PET) far exceeds the actual supply of water (precipitation) (Figure B-2). PET is can be referred to as the climate’s ‘demand for water’ whereas precipitation is the ‘supply of water’. The PET is 53.5 inches (135.8 centimeters) for this typical year or approximately six times more than the actual supply of water (i.e., precipitation). Consequently, a “store and release” or ET cover designed to take advantage of the climate’s demand for water far exceeding the supply of water is well suited for the Crescent Junction, UT, site.

Because the design requires long-term effectiveness, extreme climate conditions were also evaluated. The climate can get wetter or drier. If it gets warmer and drier, the admixture surface layer was designed to mitigate erosion without the benefit of vegetation to assist. The water balance

of the cover system will not be stressed with less precipitation. Consequently, the potential for more precipitation was evaluated to determine storage requirements for extreme conditions. The wettest year on record for the area was 1941 (Thompson Springs, UT, weather station) - more than double the average annual precipitation volume (20.0 inches [50.7 centimeters]). The monthly distribution of precipitation and PET are presented in Figure B-3 for this wettest year on record. This wettest year was modeled two consecutive years to add conservatism to the analyses. The wettest year on record is assumed to produce the worst-case scenario for required storage capacity of the cover system, while modeling the wettest year on record two years in a row is assumed to produce a beyond-worst-case scenario. To further add conservatism, the precipitation was allowed to fully infiltrate the cover (no runoff).

For each computer simulation, 10 typical climate years were applied followed by the wettest year on record two years in a row. The 10th year of the 10 consecutive years of typical climate is that presented as the results for the typical climate year. The 10 consecutive typical years were performed to develop appropriate antecedent conditions while eliminating any biases placed in the initial moisture conditions for the modeled soil profile.

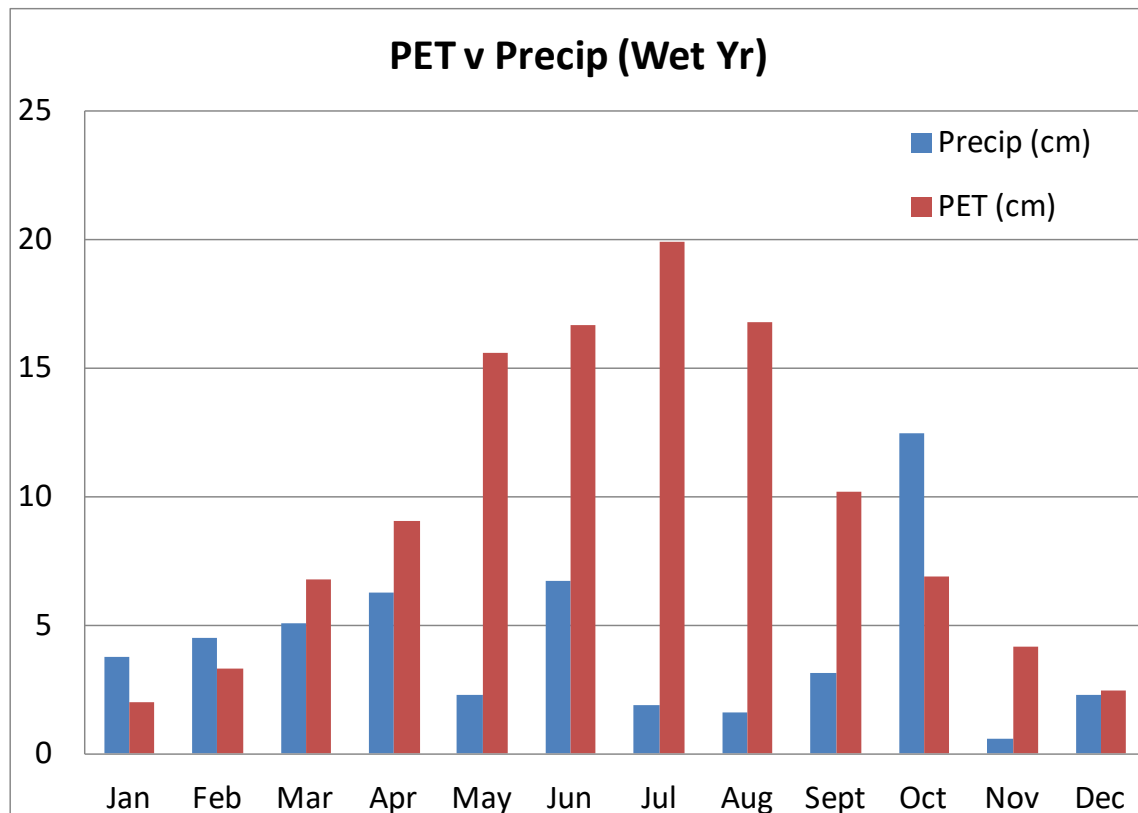


Figure B-3. Wettest Year on Record: Monthly Precip. Vs. PET for Thompson Springs, UT (1941)

Water flow across the surface and lower boundary of the cover profile of interest is determined by boundary condition specifications. For infiltration events, the upper boundary was conservatively adjusted so that the precipitation rate was less than one centimeter per hour that minimized runoff (zero in most cases) while maximizing infiltration. This is conservative because the bigger

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precipitation events at the Crescent Junction site generally comes from high-intensity storms where much of the precipitation will run off rather than infiltrate into the cover profile.

The UNSAT-H program partitions PET into potential evaporation (E_p) and potential transpiration (T_p). PET is estimated or derived from daily weather parameters (Fayer 2000). PET is calculated using a function (Equation B-1) based on the value of the assigned leaf area index (LAI) and an equation developed by Ritchie and Burnett (1971), as follows:

$$T_p = PET [a + b(LAI)^c] \text{ where } d \leq LAI \leq e \quad \text{Equation B-1}$$

where:

a, b, c, d, and e = fitting parameters (a = 0.0, b = 0.52, and c = 0.5, d = 0.1, and e = 2.7 [Fayer 2000]).

The maximum and minimum daily temperatures, daily precipitation values, and site latitude were input parameters used to calculate PET (Samani and Pessarakli 1986). The Samani method used to calculate PET correlates well with the Penman method utilized within UNSAT-H (Samani and Pessarakli 1986). The UNSAT-H program then partitioned the daily PET values into E_p and T_p . T_p was calculated using a function shown in Equation B-1. Two separate files were written for each year modeled; one file represented the daily PET values and the other file consisted of the daily precipitation values.

The lower boundary condition was a unit gradient. With the unit gradient, the calculated drainage flux depends on the hydraulic conductivity of the lower boundary node. The unit gradient corresponded to gravity-induced drainage and was most appropriate because drainage was not impeded. The base of the modeled profile was placed well below transient activity and in relative steady-state conditions to ensure that the unit gradient bottom boundary condition used did not affect the output for the cover system.

B.1.5 Vegetation Data

Vegetation will generally increase ET from the cover because a plant's matric potential or suction can be orders of magnitude higher than that of the soil (Figure B-4).

The input parameters representing vegetation include the LAI, rooting depth and density, root growth rate, suction head values corresponding to the wilting point, head corresponding to the water content below which plant transpiration starts to decrease, and a head value corresponding to the water content above which plants do not transpire because of anaerobic conditions. The onset and termination of the growing season for the site are defined in terms of Julian days. The maximum rooting depth is based on expected vegetation characteristics. The root length density (RLD) is assumed to follow an exponential function, such as that defined in Equation B-2:

$$RLD = a \exp(-bz) + c \quad \text{Equation B-2}$$

where:

a, b, and c = fitting parameters

z = depth below surface

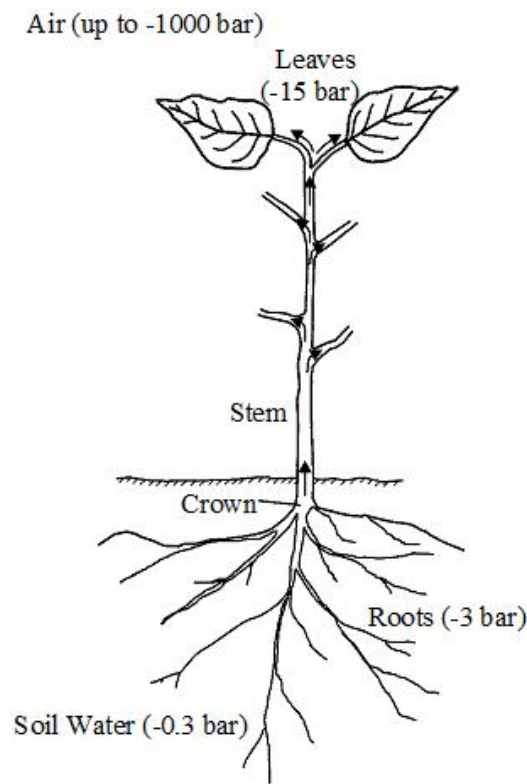


Figure B-4. Typical Soil-Plant-Atmosphere Water Potential Variation (Hillel 1998)

Measured vegetation parameters are not available for the Crescent Junction site. Consequently, parameters from a study performed at the Northeast Church Rock, NM, site were used (Cedar Creek 2014). This is an arid site with similar vegetation and climate. This vegetation analog study represents a natural succession for vegetation in this arid climate (Cedar Creek 2014). The reclaimed community of vegetation represents vegetation in a disturbed area and generally considered from seeding upon construction completion up to about 50 years. The grassland community represents undisturbed vegetation and is assumed to represent vegetation on the cover from about 25 to 100 years after construction. The shrubland community represents vegetation in an undisturbed setting and is assumed to represent vegetation on the cover from about 50 to 1,000 years. The vegetation input parameters utilized in the computer simulations are summarized in Table B-1 for root density parameters.

Table B-1. Rooting Parameters (Cedar Creek 2014)

Parameter	Reclaimed Analog	Grass Analog	Shrub Analog
a	261.3858	0.1868	0.1975
b	5.43E-06	0.0705	0.0341
c	-261.2148	0.0741	0.0443

Other vegetation parameters, including the LAI, percent bare area, and maximum rooting depths for the respective vegetation used in a computer simulation, are summarized in Table B-2. The Crescent Junction vegetation appeared to be less abundant than the Church Rock, NM, site; consequently, the amount of vegetation surface coverage was reduced by 50% compared to the Church Rock site. The percent bare area was thus increased (Table B-2). For example, the percent of vegetation cover on the reclaimed vegetation analog site surface (Cedar Creek 2014) was 47.7% (100% – 52.3%). The vegetation coverage for Crescent Junction was reduced to 23.85% (47.7% divided by 2). Consequently, the revised percent bare area utilized in the computer simulation was 76.15% (100% – 23.85%).

Within the UNSAT H model, the percent area is used to reduce the LAI. For example, for the simulations utilizing reclaimed vegetation, the LAI is $0.91 \times (1 - 0.7615)$ equal to 0.22. The maximum rooting length for grass vegetation was 56 inches (142 centimeters) (Cedar Creek 2014).

Table B-2. Vegetation Parameters (Cedar Creek 2014)

Parameter	Reclaim Analog	Grass Analog	Shrub Analog
LAI	0.91	0.64	0.52
% Bare Area ¹	52.30%	64.90%	75.20%
% Bare Area, used in simulations ²	76.15%	82.45%	87.60%
Max. Root Length	147 cm	142 cm	155 cm

¹ %bare area from natural analog study (Cedar Creek 2014)

² Increased % bare area utilized in computer simulations

In the modeled simulations that included vegetation, the onset and termination of the growing season for the site were Julian days 70 and 300, respectively. This was computed from the typical climate conditions for the Crescent Junction site and the respective growing degree days. The LAI was transitioned from 0 to the full LAI starting with Julian days 70 to 103. The full LAI (Days 104 through 274) was utilized. The LAI was then transitioned down from the full LAI to 0 from Julian days 275 to 300. This was conservative since it is realistic that plants can transpire longer than indicated at this site.

B.1.6 Soil Properties Related to Vegetation

Suction head values corresponding to the wilting point, head values corresponding to the water content below which plant transpiration starts to decrease, and a head value corresponding to the water content above which plants do not transpire because of anaerobic conditions were defined.

Matric potential or suction heads are generally written as positive numbers but are actually negative values. Consequently, the higher the value, the greater the soil suction.

Not all the water stored in the soil can be removed via transpiration. Vegetation is generally assumed to reduce the soil moisture content to the permanent wilting point. The wilting point for these computer simulations was set at 1,312 feet (40,000 centimeters) for reclaimed vegetation and grassland and 2,297 feet (70,000 centimeters) for shrubland vegetation (Fayer and Walters 1995). This was conservatively used, although some shrubs can remove water from the soil to a suction of 3,281 feet (100,000 centimeters) (Hillel 1998). Evaporation from the soil surface can further reduce the soil moisture below the wilting point toward the residual saturation, which is the water content at an infinite matric potential. The suction head corresponding to the water content below which plant transpiration starts to decrease was defined as 33 feet (1,000 centimeters) (Fayer and Walters 1995, Fayer 2000). The head value corresponding to the water content above which plants do not transpire because of anaerobic conditions was defined at 4 inches (30 centimeters) (Fayer and Walters 1995).

B.1.7 Soil Properties

Ten different sets of soil hydraulic properties were evaluated in a set of sensitivity analyses to determine the worst case combination of input parameters for the final cover system profile design (Figure B-6). Refer to Table B-3 for the soil hydraulic properties of each sample. This set of analyses is collectively referred to as sensitivity analysis #1 with output described in Sections B2 and B3. These computer simulations performed attempted to bound the reported soil sample properties.

There are two different types of soil texture to be utilized in the cover profile: alluvium and clay (Mancos shale). There are multiple sets of soil properties for each soil texture reported in the FRAP (2008, Attachment 5, Vol. 1, Appendix K, Table 1). The alluvium soil sample chosen for inclusion in this sensitivity analysis from the FRAP 2008 results had a higher measured hydraulic conductivity and lower fines content represented by Sample TP153 (FRAP 2008, Attachment 5, Vol. 1, Appendix K, Table 1) compared to other similar soil samples reported. The saturated hydraulic conductivity value of 10^{-4} cm/sec for Sample TP153 with a fines content of 67% appears high. Experience with these types of soils at a moderate compaction shows that the hydraulic conductivities tend to be one to two orders of magnitude lower than that measured. Thus, use of this set of data should provide conservative results. The van Genuchten parameters were developed using the RETC software (van Genuchten et al. 1991) from the pressure plate measurements available for these two samples (Appendix A). The moisture retention data for the soil samples presented in the FRAP (2008) were measured only by pressure plates from a low suction to about 15 bars. Additional alluvium soil samples (soil samples 1 to 4) were collected in the field (Figure B-5) from the existing interim cover and available borrow sources and remolded at 90% of the maximum dry density (MDD) per ASTM D698 (DBSA 2020). The additional field obtained samples (DBSA 2020) moisture retention data were measured using a combination of three different types of measurements depending on the soil suction (pressure plates, hanging columns, and relative humidity box) to represent a soil texture at a given density.

Clay soil excavated from the Mancos shale layer is a fine-grained soil and is represented by Sample TP154 (FRAP 2008, Attachment 5, Vol. 1, Appendix K, Table 1). The moisture retention data for the soil samples presented in the FRAP (2008) were measured only by pressure plates from a low

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suction to about -15 bars. Two more clay soil samples (soil samples 5 and 6) were collected in the field (Figure B-5) from the existing radon barrier and remolded at 90% of the MDD per ASTM D698 (DBSA 2020). These additional field obtained samples (DBSA 2020) moisture retention data were measured using a combination of three different types of measurements depending on the soil suction (pressure plates, hanging columns, and relative humidity box) to represent a soil texture at a given density.

Alluvium and shale soil properties measured from the Grand Junction, Colorado, UMTRA site were also evaluated as cover soil input parameters. The values for each soil texture (alluvium and shale) included the saturated hydraulic conductivity, saturated moisture content, residual moisture content, and van Genuchten parameters alpha and 'n' were average parameters for each as reported in DOE (2013), Tables 4 and 5.

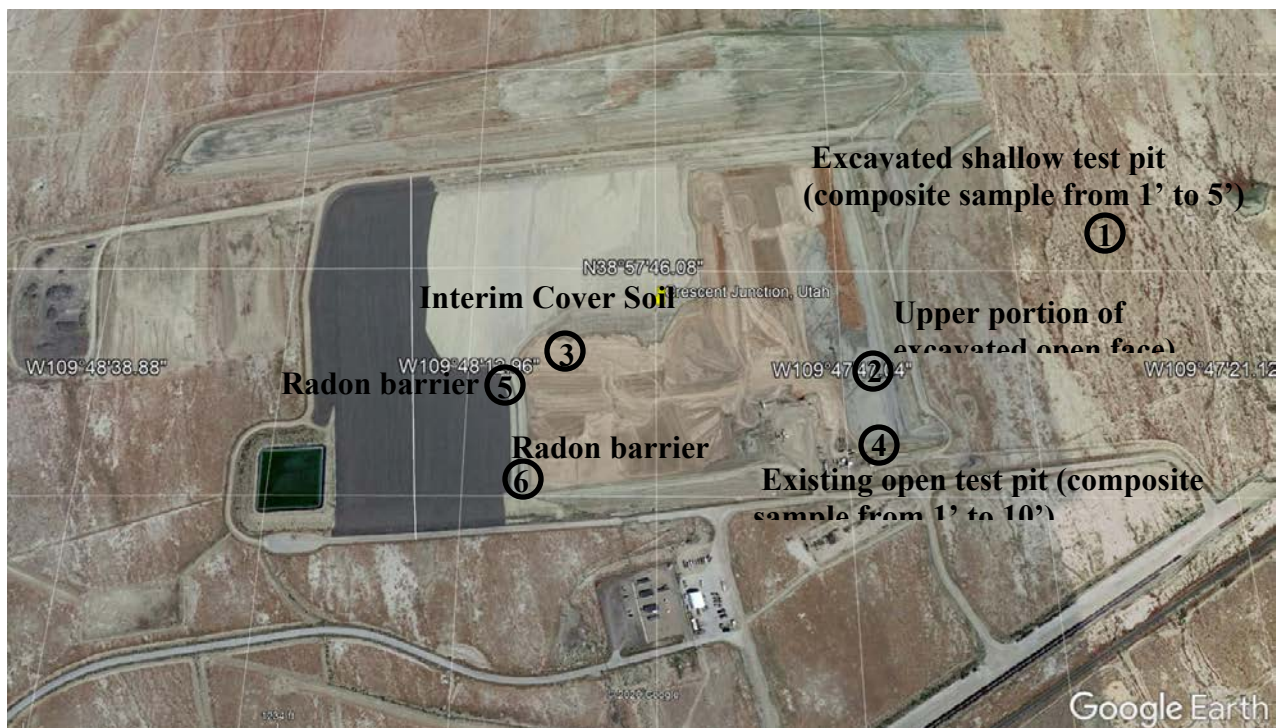


Figure B-5. Soil Sample Locations

Table B-3 provides a summary of the cover soil hydraulic properties included in the sensitivity analyses performed of the cover water balance.

Table B-3. Soil Samples Hydraulic Properties

Soil Sample	Sample Depth (ft)	K _s (cm/sec)	van Genuchten (VG) parameters				Description
			Θ _s (vol.)	Θ _r (vol.)	alpha	n	
1	1 to 5	1.1E-04	0.3799	0.0303	0.0085	1.3505	Composite from excavated shallow test pit (DBSA 2020)

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Soil Sample	Sample Depth (ft)	K _s (cm/sec)	van Genuchten (VG) parameters				Description
			Θ _s (vol.)	Θ _r (vol.)	alpha	n	
2	1 to 15	1.7E-04	0.3915	0.0161	0.0148	1.2785	Composite from open excavated alluvium borrow soil face (DBSA 2020)
3	NA	2.8E-04	0.3725	0.0432	0.0168	1.4153	Existing interim cover soil (DBSA 2020)
4	1 to 10	1.5E-04	0.4094	0.0106	0.0059	1.3171	Composite from existing open test pit (DBSA 2020)
5	NA	3.2E-06	0.4171	0	0.0053	1.2373	Existing radon barrier soil (DBSA 2020) mixed with frost soil layer
6	NA	2.1E-05	0.4203	0	0.0056	1.2439	Existing radon barrier soil (DBSA 2020)
TP153	8.5	1.4E-04	0.3584	0	0.0912	1.1415	Alluvium (Final Remedial Action Plan 2008, Attachment 5, Vol.1, Appendix K, Table 1)
TP154	20	8.0E-07	0.4803	0	0.1748	1.1004	Shale (Final Remedial Action Plan 2008, Attachment 5, Vol.1, Appendix K, Table 1)
Grand Junction–Alluvium	NA	4.6E-05	0.42	0	0.016	1.25	Alluvium average values (DOE 2013, Tables 4 and 5)
Grand Junction–Shale	NA	2.1E-07	0.38	0	0.008	1.26	Shale average values (DOE 2013, Tables 4 and 5)

The top admixture layer has rock mixed into it at a volumetric ratio of 60% rock to 40% soil. The mixture of rock into the soil effectively alters its hydraulic properties. Consequently, the hydraulic properties were adjusted for the admixture layer (ASTM 2015). Equation B-3 was used to adjust the saturated hydraulic conductivity based on the addition of rock (Peck and Watson 1979).

$$K_b = [K_s * 2(1 - V_r)] / (2 + V_r)$$

Equation B-3

where: K_b = saturated hydraulic conductivity, bulk

K_s = saturated hydraulic conductivity, soil

V_r = volume of rock

For all computer simulations, the calculated bulk saturated hydraulic conductivity was then increased in the top foot of the modeled cover system to account for dynamic processes (i.e., freeze/thaw cycles, wet/dry cycles, and biointrusion). This corresponds with findings from an in-situ soil analog site whereby soils in undisturbed settings have a saturated hydraulic conductivity

of one order of magnitude higher in the upper foot than the lower portions of the soil profile (Dwyer 2014).

The moisture retention data for the cover soil were also adjusted to reflect the addition of the rock in the surface admixture layer. The actual volumetric moisture content versus soil suction measurements made in the laboratory was utilized as the basis. Each respective measured volumetric moisture content was lowered per Equation B-4 (ASTM 2015 and Bouwer and Rice 1984).

$$\theta_b = (1 - V_r) * \theta_s \quad \text{Equation B-4}$$

where: θ_b = bulk volumetric moisture content

θ_s = saturated volumetric moisture content

V_r = volume of rock.

The Mualem conductivity function was used to describe the unsaturated hydraulic conductivity of the soils (van Genuchten et al. 1991). The van Genuchten 'm' parameter for this function is assumed to be '1-1/n'; 'n' being one of the established van Genuchten parameters. The initial soil conditions were expressed in terms of suction head values that correspond to the average moisture content between each soil layer's field capacity and permanent wilting point determined from each respective soil layer's moisture characteristic curve.

B.2 COVER PERFORMANCE SIMULATIONS

Multiple sets of sensitivity analyses were performed to evaluate the cover profile's ability to minimize flux due to precipitation. All input files are contained in Attachment 1. The first set of sensitivity analyses was performed to determine the worst-case soils for both alluvium and clay (Mancos shale). Alluvium is intended to be mixed within the top rock/soil admixture layer and can be used as interim cover soil and/or frost protection layer. The shale is intended to be used as the radon barrier soil layer. It can also be used as interim cover soil and frost protection layer. The worst-case soil is that which requires the thickest cover profile to minimize flux or has the deepest point of diminishing returns (PODR) according to Dwyer et al. (2007). The subsequent sensitivity analyses evaluated the alluvium and shale soils deemed to be the worst-case soils within the cover profile as shown in Figure B-6.

The alluvium soil has less fines with more sand than the Mancos shale soil utilized in the radon barrier. The alluvium is less erosive than the shale soils; consequently, it is used in the upper portions of the cover. The fine-grained shale soil with more clay has a lower hydraulic conductivity and thus slows infiltration, and is also better at reducing radon gas flux. Thus, the shale soils are used in the lower portion of the cover system.

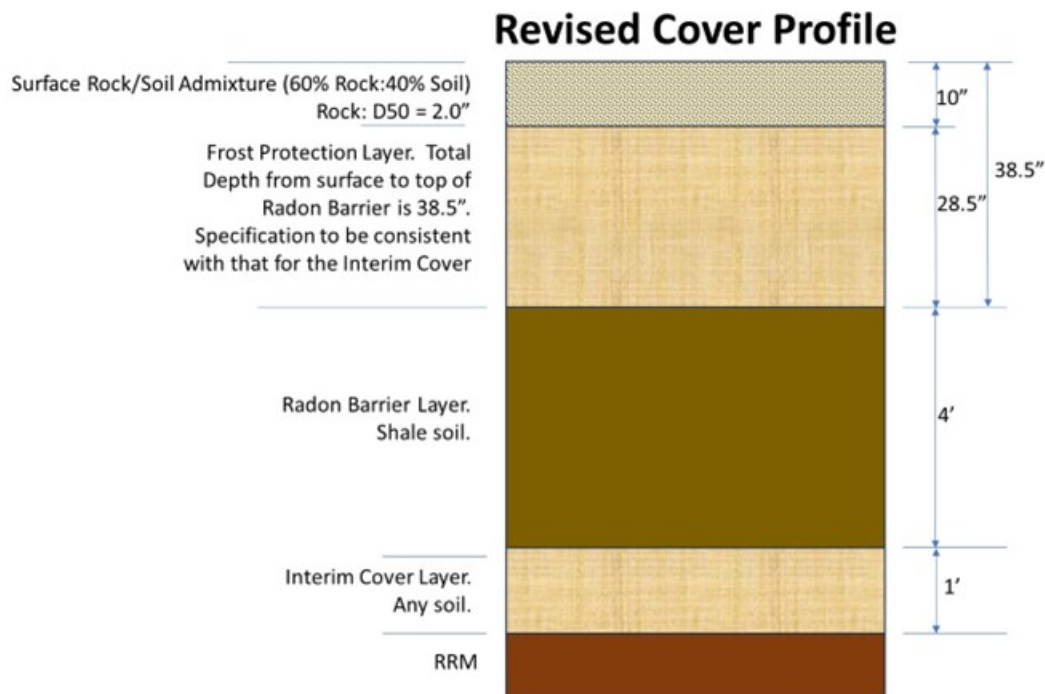


Figure B-6. ET Cover Profile

B.2.1 Sensitivity Analysis #1: Cover Soil Input Properties

The initial set of simulations was performed to evaluate the envelope of cover soil data. Each simulation was performed utilizing consistent climate and vegetation input to allow for evaluation of each respective set of soil hydraulic properties' impact on the output. The climate utilized is described in Section B.1.4. The vegetation parameters utilized in sensitivity analysis #1 was from a grassland analog site described in Sections B.1.5 and B.1.6.

The soil hydraulic properties were varied for each simulation to determine the worst-case set of cover soil data for both alluvium (used in surface admixture and interim cover) and shale (used in the radon barrier). The worst-case for each soil texture was the soil that allowed the deepest PODR. The profiles in each respective simulation included a homogeneous soil profile consisting of the respective soil hydraulic properties for each soil sample (Table B-3).

B.2.2 Sensitivity Analysis #2: Cover Soil Input Properties

The soil deemed to be worst-case (alluvium – sample 4; shale – sample 6) was then included in a second set of simulations (Table B-4) with a profile geometry as shown in Figure B-6. This allowed for evaluation of the cover profile options given the layering and soil texture possibilities. The top foot of the cover profile had its saturated hydraulic conductivity increased by an order of magnitude. This allowed for 100% infiltration of all precipitation (no runoff). It is important to note that erosion calculations assumed worst-case runoff created by the probable maximum precipitation (PMP) event. The measured cover soil hydraulic properties used in these sensitivity analyses are based on remolded densities equal to 85% of the MDD per ASTM D1557. This is assumed to be equivalent to an MDD per ASTM D698 of about 90%.

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The climate utilized is described in Section B.1.4. The vegetation included the envelope of possibilities (reclaimed, grass, and shrub) that represents a natural succession for vegetation in this arid climate, as described in Sections B.1.5 and B.1.6.

The hydraulic properties from Sample GATB-09 were utilized for the tailings material or RRM, referred to as transition tailings (FRAP, Attachment 5, Vol 2, Appendix N). The tailings (sand, transition, and slime) are mixed at the Moab site and then hauled to and placed in the Crescent Junction impoundment. The transition tailings have the best available representative properties of the mixed tailings. The van Genuchten properties shown in Table B-4 for the tailings material are the results of the available moisture content and respective matric potential (FRAP, Attachment 5, Vol. 2, Appendix N) used as input into the retention curve (RETC) model (van Genuchten et al. 1991). The RETC model output results are provided in Appendix A. The soil input parameters for the sensitivity analysis #2 UNSAT-H simulations are summarized in Table B-4.

Table B-4. Sensitivity Analysis #2: Soil Input Properties

Soil Sample	Layer – ordered top to bottom	Layer Thickness (cm)	K _s (cm/hr)	van Genuchten (VG) parameters			
				Θ _s (vol.)	Θ _r (vol.)	alpha	n
4	Surface Admixture	25	1.8783	0.1638	0.0042	0.0059	1.3171
4	Frost Protection Soil	6	5.4	0.4094	0.0106	0.0059	1.3171
4	Frost Protection Soil	67	0.54	0.4094	0.0106	0.0059	1.3171
6	Radon Barrier (Shale)	122	0.0756	0.4203	0	0.0056	1.2439
4	Interim Cover Soil	30	0.54	0.4094	0.0106	0.0059	1.3171
GATB-09	Tailings	268	0.2484	0.5748	0.0401	0.0016	2.3431

B.3 COMPUTER SIMULATIONS OUTPUT SUMMARY

The computer simulations are intended to identify the minimum cover depth that will minimize flux through the cover system. The PODR method was used (Dwyer et al. 2007, EPA 2011) to identify the “point of diminishing returns” given the myriad of input parameters and boundary conditions whereby an additional increment of soil depth no longer helps to minimize the flux.

B.3.1 Sensitivity Analysis #1: Computer Simulations

The simulations attempted to identify the worst-case scenario given the variation in soil texture, vegetation, and climate. All output files are contained in Attachment 2. The first set of computer simulations was performed utilizing the hydraulic properties from the cover borrow materials (Table B-3, Figure B-5). The different soil samples were evaluated separately while applying the same vegetation (grassland) parameters and climate. The profile modeled in this set of sensitivity analyses was simply a monolithic soil profile consisting of the respective soil sample hydraulic properties.

B.3.1.1 Sensitivity Analysis #1: Alluvium Soil

For alluvium soil, it was determined that Soil Sample 4 was the worst-performing soil because it produced the deepest PODR. Figure B-7 shows the combination of results. It is important to note that this set of results is not indicative of the final cover system; rather, the set was performed to compare the various hydraulic properties of the most permeable soils intended for the upper portion of the cover and interim cover layer.

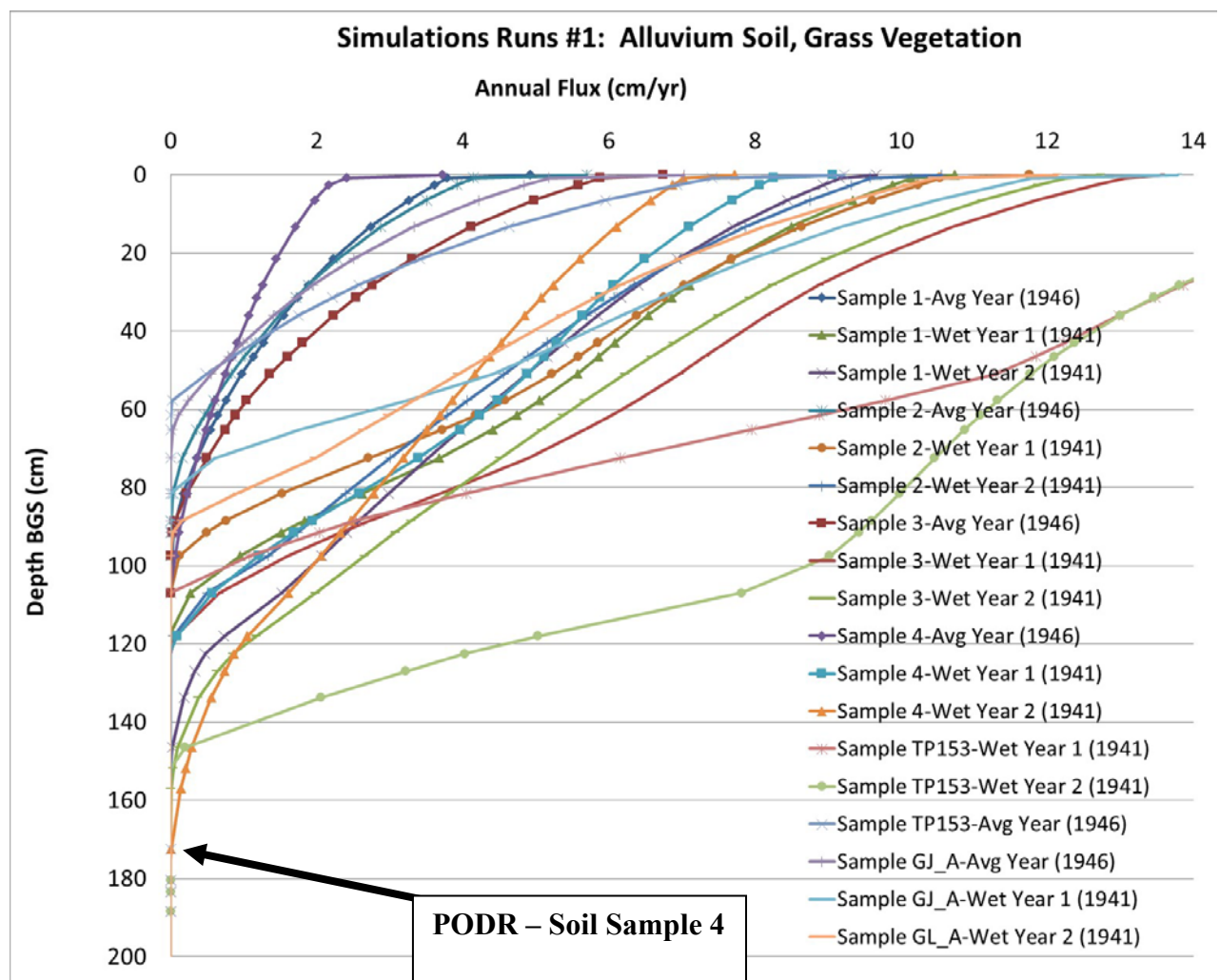


Figure B-7.

Alluvium Soil

It can be seen in the second of two (Figure B-7) that Sample 4 produced the deepest PODR (Figure B-7) at an annual flux of zero (Table B-5).

et Year 2) that Sample 4 produced the deepest PODR in all cases occurs at a net

Table B-6 summarizes the annual water balance results for each simulation utilizing alluvium soils in sensitivity analysis #1.

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Table B-5. Alluvium Soil Results

Simulation	Depth of PODR (cm)			Flux @ PODR (cm/yr)		
	Avg	Wet1	Wet2	Avg	Wet1	Wet2
DBSA Alluvium Sample 1	105	113	152	0	0	0
DBSA Alluvium Sample 2	102	105	122	0	0	0
DBSA Alluvium Sample 3	109	121	160	0	0	0
DBSA Alluvium Sample 4	105	122	175	0	0	0
Sample TP153	92	110	150	0	0	0
Grand Junction Alluvium	94	94	102	0	0	0

Table B-6. Sensitivity Analysis #1 – Annual Water Balance Results for Alluvium Soil

Soil Sample	Vegetation	Year	Precip (cm)	PET (cm)	Transp (cm)	Evap (cm)	Runoff (cm)	Depth of PODR (cm)
1	Grass	Typ	22.53	135.832	3.852	18.739	0	105
		Wet Yr 1	50.698	113.7	6.48	40.472	0	113
		Wet Yr 2	50.698	113.759	7.827	41.466	0	152
2	Grass	Typ	22.53	135.832	4.156	18.428	0	102
		Wet Yr 1	50.698	113.7	7.027	40.086	0	105
		Wet Yr 2	50.698	113.759	8.569	41.054	0	122
3	Grass	Typ	22.53	135.832	6.03	16.53	0	109
		Wet Yr 1	50.698	113.7	9.497	37.476	0	121
		Wet Yr 2	50.698	113.759	10.987	38.295	0	160
4	Grass	Typ	22.53	135.832	2.278	20.386	0	105
		Wet Yr 1	50.698	113.7	4.401	42.457	0	122
		Wet Yr 2	50.698	113.759	5.356	43.698	0	175
TP153	Grass	Typ	22.53	135.832	7.573	14.983	0	92
		Wet Yr 1	50.698	113.7	9.632	31.513	0	110
		Wet Yr 2	50.698	113.759	10.723	31.948	0	150
Grand Junction Alluvium	Grass	Typ	22.53	135.832	5.234	17.34	0	94
		Wet Yr. 1	50.698	113.7	7.95	38.78	0	94
		Wet Yr. 2	50.698	113.759	9.342	40.142	0	102

B.3.1.2 Sensitivity Analysis #1: Shale Soil

For shale soil, it was determined that Soil Sample 6 was the worst-performing soil because it produced the deepest PODR. Figure B-8 shows the combination of results. It is important to note that this set of results is not indicative of the final cover system; rather, it was performed simply to compare the various hydraulic properties of the most permeable soils intended for the upper portion of the cover and interim cover layer.

It can be seen in the second of two consecutive wet years (Wet Year 2) that Sample 6 produced the deepest PODR (Figure B-8) of 99 cm (Table B-7). The PODR in all cases occurs at a net annual flux of zero (Table B-8).

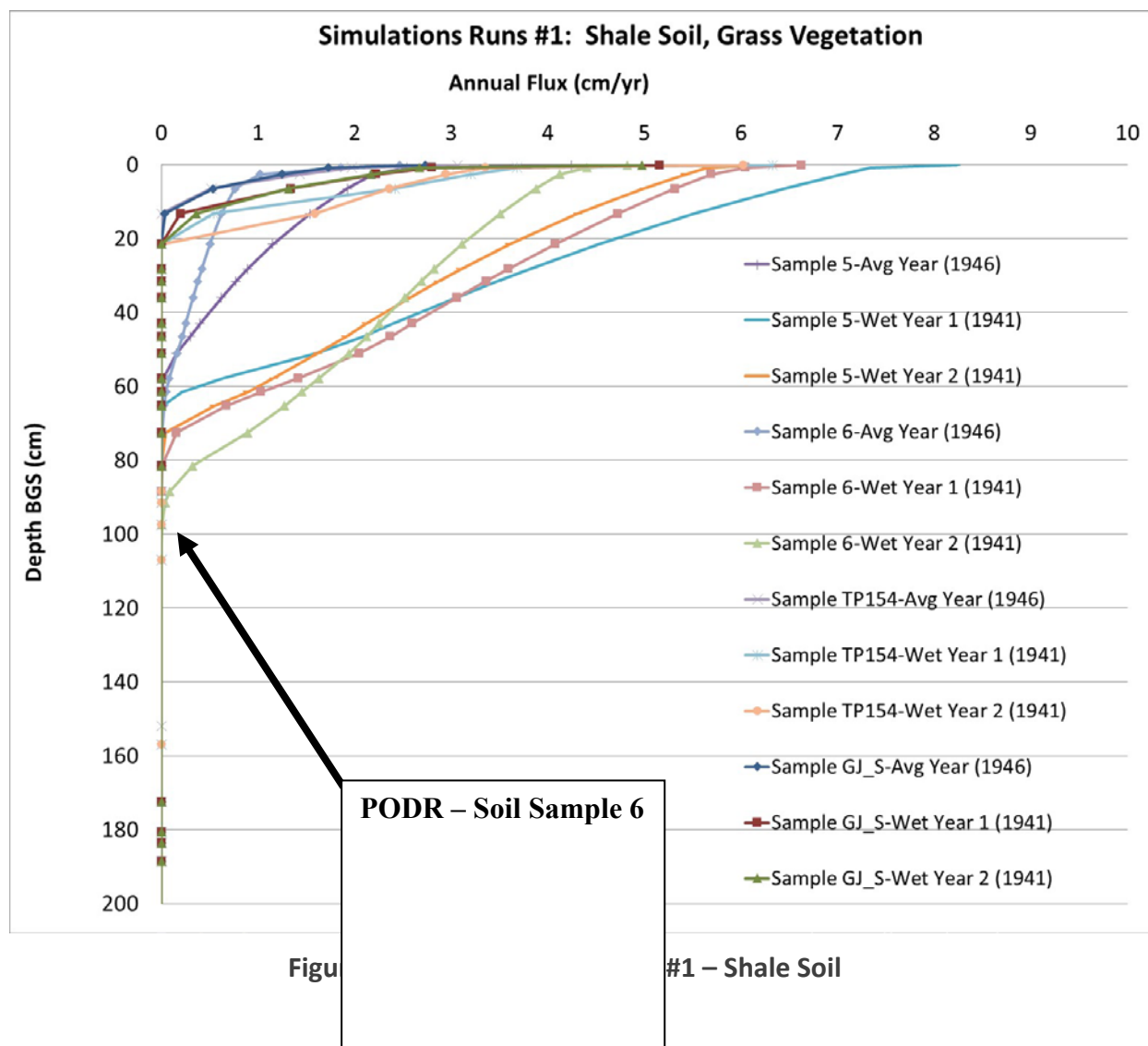


Table B-7. Shale Soil Results

Simulation	Depth of PODR (cm)			Flux @ PODR (cm/yr)		
	Avg	Wet1	Wet2	Avg	Wet1	Wet2
DBSA Shale Sample 5	89	89	90	0	0	0
DBSA Shale Sample 6	89	90	99	0	0	0
Sample TP154	80	80	80	0	0	0
Grand Junction Shale	71	71	71	0	0	0

Table B-8 summarizes the annual water balance results for each simulation utilizing shale soils in the sensitivity analysis #1.

Table B-8. Sensitivity Analysis #1 – Annual Water Balance Results for Shale Soil

Soil Sample	Vegetation	Year	Precip (cm)	PET (cm)	Transp (cm)	Evap (cm)	Runoff (cm)	Depth of PODR (cm)
5	Grass	Typ	22.53	135.832	2.26	20.323	0	89
		Wet Yr 1	50.698	113.7	4.229	43.352	0	89
		Wet Yr 2	50.698	113.759	4.999	45.073	0	90
6	Grass	Typ	22.53	135.832	0.876	21.741	0	89
		Wet Yr 1	50.698	113.7	2.536	44.878	0	90
		Wet Yr 2	50.698	113.759	3.433	46.532	0	99
TP154	Grass	Typ	22.53	135.832	2.259	5.583	14.975	80
		Wet Yr 1	50.698	113.7	2.686	11.226	35.847	80
		Wet Yr 2	50.698	113.759	2.82	11.842	35.791	80
Grand Junction Shale	Grass	Typ	22.53	135.832	1.964	4.716	15.961	71
		Wet Yr. 1	50.698	113.7	2.578	9.618	38.159	71
		Wet Yr. 2	50.698	113.759	2.792	9.88	38.176	71

B.3.2 Sensitivity Analysis #2: Computer Simulations

The second set of simulations consisted of the cover profile as shown in Figure B-6, utilizing the worst-performing alluvium soil from samples 1 to 4, TP153, and Grand Junction Alluvium (Sample 4) and shale soil from samples 5, 6, TP154, and Grand Junction Shale (Sample 6), respectively. Again, for each computer simulation, 10 typical climate years were applied followed by the wettest year on record 2 years in a row. The 10th year of the 10 consecutive years of typical climate is that presented with the results for the typical climate year. The 10 consecutive typical years were performed to develop appropriate antecedent conditions while eliminating any biases placed in the initial moisture conditions for the modeled soil profile.

The profile (Figure B-6) was modeled with soil summarized in Table B-4. Input parameters for reclaimed, grass, and shrub vegetation were each evaluated.

The PODR results was about 155 cm (5.1 ft) for typical climate conditions, 190 cm (6.2 ft) for the wettest year on record, and 205 cm (6.7 ft) for the second consecutive wet year (Figure B-9). The PODR results for the cover system without any vegetation was about 210 cm (6.9 ft) for typical climate conditions, 215 cm (7.1 ft) for the wettest year on record, and 230 cm (7.5 ft) for the second consecutive wet year. For all assumed conditions, the net annual flux rate is easily minimized within the 250 cm (8.2 ft) cover depth.

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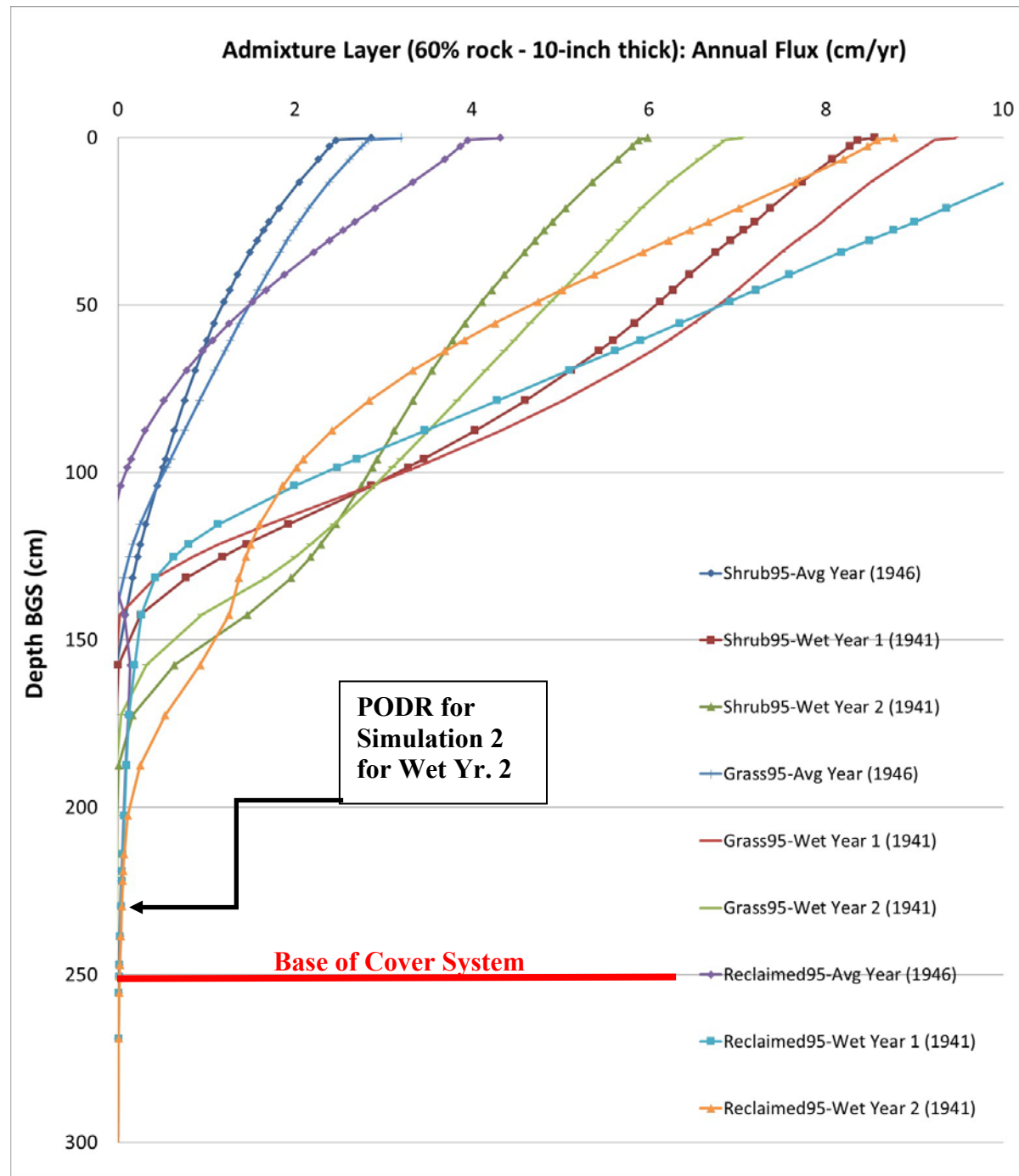


Figure B-9. Sensitivity Analysis #2

Table B-9 provides a summary of the annual water balance variables for the sensitivity analysis #2.

Table B-9. Sensitivity Analyses #2 Results

Vegetation	Year	Precip (cm)	PET (cm)	Transp (cm)	Evap (cm)	Runoff (cm)	Depth of PODR (cm)
Reclaimed	Typ	22.53	135.832	3.713	18.604	0	106
	Wet Yr 1	50.698	113.7	5.722	39.632	0	190
	Wet Yr 2	50.698	113.759	6.111	42.091	0	205
Grass	Typ	22.53	135.832	2.847	19.725	0	140
	Wet Yr 1	50.698	113.7	3.989	41.451	0	145
	Wet Yr 2	50.698	113.759	4.678	43.821	0	180
Shrub	Typ	22.53	135.832	2.442	20.092	0	155
	Wet Yr 1	50.698	113.7	3.057	42.317	0	160
	Wet Yr 2	50.698	113.759	3.443	44.8	0	190

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ATTACHMENT 1. UNSAT H INPUT FILES

Sensitivity Analysis #1: Soil Sample 1

```

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!               Program DATAINH               !
!               Version 3.01                     !
-----

```

Input Filename: C:\A\1_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:02:53.92

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

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IPLANT = 1    NGRAV = 1
IFDEND = 366  IDTBEG = 1  IDTEND = 366
  IYS = 1946  NYEARS = 12  ISTEAD = 0
IFLIST = 1    NFLIST = 24
NPRINT = 0    STOPHR = 2.400E+01
ISMETH = 1    INMAX = 5    ISWDIF = 1    DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
  KOPT = 4    KEST = 3    WTF = 5.000E-01
ITOPBC = 0    IEVOPT = 1    NFHOUR = 2    LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0    ICLOUD = 0    ISHOPT = 0
IRAIN = 0     HPR = 1.000E+00

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Hysteresis options:

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IHYS = 0    AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

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Heat flow options:

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IHEAT = 0    ICONVH = 0    DMAXHE = 0.000E+00
UPPERH = 0    TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0    QHLEAK = 0.000E+00 TGRAD = 0.000E+00

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Vapor flow options:

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IVAPOR = 1    TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

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Grid options:

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MATN = 5    NPT = 120

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Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

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Material No. 1

THETA = f(H), Layer 1: Soil 1

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 1: Soil 1 plus 1 order

RKMOD = 2.0000 SK = 3.9600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 1

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 2: Soil 1

RKMOD = 2.0000 SK = 0.39600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Radon Barrier Soil 5

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 3: Soil 1

RKMOD = 2.0000 SK = 0.39600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil 1

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 4: Soil 1

RKMOD = 2.0000 SK = 0.39600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 1

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 5: Soil 1

RKMOD = 2.0000 SK = 0.39600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.799E-01 K = 3.960E+00 C = -1.740E-08

HDRY = 1.000E+08 THETA = 3.322E-02 K = 2.353E-18 C = -1.023E-11

Initial Conditions:

NDAY = 0

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NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
2	0.10	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
3	0.30	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
4	0.60	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
5	1.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
6	1.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
7	2.20	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
8	3.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
9	4.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
10	5.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
11	7.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
12	9.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
13	12.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
14	14.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
15	17.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
16	20.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
17	23.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
18	25.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
19	27.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
20	29.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
21	30.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
22	31.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
23	32.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
24	33.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
25	35.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
26	37.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
27	40.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
28	42.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
29	44.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
30	45.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
31	46.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
32	47.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
33	48.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
34	50.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
35	52.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
36	54.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
37	57.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
38	58.50	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
39	60.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
40	61.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
41	62.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
42	63.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
43	64.50	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
44	66.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
45	68.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
46	71.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
47	74.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1

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48	77.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
49	80.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
50	83.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
51	86.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
52	88.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
53	89.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
54	90.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
55	91.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
56	92.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
57	94.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
58	96.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
59	99.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
60	102.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
61	105.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
62	109.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
63	114.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
64	117.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
65	119.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
66	121.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
67	122.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
68	123.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
69	124.50	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
70	126.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
71	128.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
72	130.50	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
73	132.50	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
74	135.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
75	140.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
76	145.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
77	148.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
78	150.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
79	151.40	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
80	152.40	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
81	153.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
82	154.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
83	160.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
84	165.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
85	170.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
86	175.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
87	178.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
88	180.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
89	181.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
90	182.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
91	183.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
92	184.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
93	185.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
94	187.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
95	190.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
96	195.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1

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97	202.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
98	210.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
99	220.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
100	235.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
101	240.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
102	260.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
103	280.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
104	300.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
105	320.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
106	340.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
107	360.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
108	380.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
109	400.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
110	420.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
111	440.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
112	455.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
113	465.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
114	473.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
115	478.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
116	482.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
117	485.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
118	487.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
119	488.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
120	489.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1

Total Initial Storage (cm) = 5.082211E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300,
BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
70	0.000
103	0.640
274	0.640
300	0.000

DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI
1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000

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37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272
85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000

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331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote) = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX ROOT DEPTH (cm/cm)	ROOT DENSITY (1/cm)	NORMALIZED DENSITY

0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135
0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071

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0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065
0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

For Material No. 2

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

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For Material No. 3

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

For Material No. 4

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

For Material No. 5

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0150	0.0440
0.0699	0.0911	0.1061	0.1139	0.1139	0.1061	0.0911	0.0699
0.0440	0.0150	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1	c:\a\PET1946.pen
2	c:\a\PET1947.pen
3	c:\a\PET1948.pen
4	c:\a\PET1949.pen
5	c:\a\PET1950.pen
6	c:\a\PET1951.pen
7	c:\a\PET1952.pen
8	c:\a\PET1953.pen
9	c:\a\PET1954.pen
10	c:\a\PET1955.pen
11	c:\a\PET1956.pen
12	c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1	c:\a\precip1946.dat
2	c:\a\precip1947.dat
3	c:\a\precip1948.dat
4	c:\a\precip1949.dat
5	c:\a\precip1950.dat

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6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000

b = 0.520

c = 0.500

d = 0.000 (below this LAI, PT is zero)

e = 2.700 (above this LAI, PT=f(e))

DAY	PET	PTRANS	PEVAPO	DAY	PET	PTRANS	PEVAPO
1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003

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55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686
85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776

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153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577
157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698
229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419

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251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137
301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309
319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339
337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263

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349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

Totals: PET = 135.8321
PTRANS = 16.7189
PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time (hr)	Amount (cm)	Application Type	Efficiency	Changes In Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			

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12.000	1.0000			
13.000	0.0000			
22.000	0.0320			
23.000	0.0000			
224	12.000 1.0000	1	1.000	4
	13.000 0.0000			
	22.000 0.5240			
	23.000 0.0000			
227	0.000 1.0000	1	1.000	4
	1.000 0.0000			
	12.000 0.5240			
	13.000 0.0000			
233	0.000 0.7620	1	1.000	2
	1.000 0.0000			
235	0.000 0.2540	1	1.000	2
	1.000 0.0000			
238	0.000 0.5080	1	1.000	2
	1.000 0.0000			
256	0.000 0.3302	1	1.000	2
	1.000 0.0000			
258	0.000 0.3302	1	1.000	2
	1.000 0.0000			
275	0.000 0.7620	1	1.000	2
	1.000 0.0000			
278	0.000 0.1524	1	1.000	2
	1.000 0.0000			
279	0.000 0.2794	1	1.000	2
	1.000 0.0000			
290	0.000 0.5080	1	1.000	2
	1.000 0.0000			
300	0.000 0.3048	1	1.000	2
	1.000 0.0000			
302	0.000 1.0000	1	1.000	4
	1.000 0.0000			
	12.000 0.0414			
	13.000 0.0000			
305	0.000 0.0762	1	1.000	2
	1.000 0.0000			
312	0.000 1.0000	1	1.000	4
	1.000 0.0000			
	12.000 0.7780			
	13.000 0.0000			
313	0.000 1.0000	1	1.000	4
	1.000 0.0000			
	12.000 0.2700			
	13.000 0.0000			
317	0.000 0.3048	1	1.000	2
	1.000 0.0000			
328	0.000 1.0000	1	1.000	4

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1.000	0.0000			
12.000	0.2700			
13.000	0.0000			
341	0.000	1.0000	1	1.000 4
1.000	0.0000			
12.000	0.4732			
13.000	0.0000			
360	0.000	1.0000	1	1.000 4
1.000	0.0000			
12.000	0.0160			
13.000	0.0000			
362	0.000	0.4572	1	1.000 2
1.000	0.0000			

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 2

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\2_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:14:11.13

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K = f(H), Layer 1: Soil 2 plus 1 order

RKMOD = 2.0000 SK = 6.1200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K = f(H), Layer 2: Soil 2

RKMOD = 2.0000 SK = 0.61200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K = f(H), Layer 3: Soil 2

RKMOD = 2.0000 SK = 0.61200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K =f(H), Layer 4: Soil 2

RKMOD = 2.0000 SK = 0.61200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K =f(H), Layer 5: Soil 2

RKMOD = 2.0000 SK = 0.61200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.915E-01 K = 6.120E+00 C =-1.793E-08

HDRY = 1.000E+08 THETA = 2.328E-02 K = 6.706E-18 C =-1.999E-11

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
2	0.10	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
3	0.30	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
4	0.60	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
5	1.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
6	1.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
7	2.20	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
8	3.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1

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9	4.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
10	5.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
11	7.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
12	9.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
13	12.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
14	14.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
15	17.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
16	20.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
17	23.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
18	25.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
19	27.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
20	29.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
21	30.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
22	31.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
23	32.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
24	33.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
25	35.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
26	37.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
27	40.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
28	42.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
29	44.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
30	45.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
31	46.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
32	47.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
33	48.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
34	50.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
35	52.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
36	54.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
37	57.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
38	58.50	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
39	60.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
40	61.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
41	62.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
42	63.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
43	64.50	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
44	66.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1

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45	68.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
46	71.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
47	74.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
48	77.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
49	80.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
50	83.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
51	86.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
52	88.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
53	89.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
54	90.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
55	91.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
56	92.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
57	94.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
58	96.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
59	99.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
60	102.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
61	105.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
62	109.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
63	114.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
64	117.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
65	119.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
66	121.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
67	122.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
68	123.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
69	124.50	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
70	126.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
71	128.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
72	130.50	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
73	132.50	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
74	135.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
75	140.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
76	145.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
77	148.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
78	150.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
79	151.40	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
80	152.40	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1

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81	153.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
82	154.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
83	160.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
84	165.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
85	170.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
86	175.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
87	178.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
88	180.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
89	181.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
90	182.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
91	183.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
92	184.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
93	185.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
94	187.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
95	190.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
96	195.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
97	202.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
98	210.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
99	220.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
100	235.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
101	240.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
102	260.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
103	280.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
104	300.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
105	320.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
106	340.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
107	360.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
108	380.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
109	400.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
110	420.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
111	440.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
112	455.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
113	465.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
114	473.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
115	478.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
116	482.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1

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117	485.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
118	487.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
119	488.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
120	489.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1

Total Initial Storage (cm) = 5.350274E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

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70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

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1	0.000	2	0.000	3	0.000	4	0.000
5	0.000	6	0.000	7	0.000	8	0.000
9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000
17	0.000	18	0.000	19	0.000	20	0.000
21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000
29	0.000	30	0.000	31	0.000	32	0.000
33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000
41	0.000	42	0.000	43	0.000	44	0.000
45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000
53	0.000	54	0.000	55	0.000	56	0.000
57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000
65	0.000	66	0.000	67	0.000	68	0.000
69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116
77	0.136	78	0.155	79	0.175	80	0.194
81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

For Material No. 2

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

For Material No. 3

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

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For Material No. 4

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

For Material No. 5

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157 0.7671 0.1120 0.6551	158 0.7911 0.1155 0.6756
159 0.8382 0.1224 0.7158	160 0.8671 0.1266 0.7405
161 0.8498 0.1241 0.7257	162 0.8019 0.1171 0.6848
163 0.7987 0.1166 0.6821	164 0.8331 0.1216 0.7115
165 0.8448 0.1234 0.7214	166 0.8476 0.1238 0.7238
167 0.8315 0.1214 0.7101	168 0.7796 0.1138 0.6658
169 0.7765 0.1134 0.6631	170 0.8071 0.1178 0.6893
171 0.6348 0.0927 0.5421	172 0.6437 0.0940 0.5497
173 0.6686 0.0976 0.5710	174 0.7005 0.1023 0.5982
175 0.7419 0.1083 0.6336	176 0.7160 0.1045 0.6115
177 0.7348 0.1073 0.6275	178 0.7275 0.1062 0.6213
179 0.7271 0.1062 0.6209	180 0.7359 0.1075 0.6284
181 0.7635 0.1115 0.6520	182 0.7608 0.1111 0.6497
183 0.7506 0.1096 0.6410	184 0.7427 0.1084 0.6343
185 0.6581 0.0961 0.5620	186 0.6694 0.0977 0.5717
187 0.7095 0.1036 0.6059	188 0.7180 0.1048 0.6132
189 0.7125 0.1040 0.6085	190 0.7904 0.1154 0.6750
191 0.7524 0.1099 0.6425	192 0.7512 0.1097 0.6415
193 0.7125 0.1040 0.6085	194 0.6653 0.0971 0.5682
195 0.7235 0.1056 0.6179	196 0.7713 0.1126 0.6587
197 0.8165 0.1192 0.6973	198 0.7191 0.1050 0.6141
199 0.7959 0.1162 0.6797	200 0.7298 0.1066 0.6232
201 0.7164 0.1046 0.6118	202 0.6947 0.1014 0.5933
203 0.6953 0.1015 0.5938	204 0.7389 0.1079 0.6310
205 0.7455 0.1089 0.6366	206 0.7191 0.1050 0.6141
207 0.7042 0.1028 0.6014	208 0.6759 0.0987 0.5772
209 0.7596 0.1109 0.6487	210 0.6731 0.0983 0.5748
211 0.6379 0.0931 0.5448	212 0.6763 0.0988 0.5775
213 0.8013 0.1170 0.6843	214 0.7565 0.1105 0.6460
215 0.7107 0.1038 0.6069	216 0.7511 0.1097 0.6414
217 0.7599 0.1110 0.6489	218 0.5801 0.0847 0.4954
219 0.6442 0.0941 0.5501	220 0.6917 0.1010 0.5907
221 0.7298 0.1066 0.6232	222 0.7155 0.1045 0.6110
223 0.6367 0.0930 0.5437	224 0.4384 0.0640 0.3744
225 0.4302 0.0628 0.3674	226 0.4221 0.0616 0.3605
227 0.4229 0.0618 0.3611	228 0.5501 0.0803 0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type	Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2
	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			
360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 3

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\3_.inp

Date Processed: 08 Jun 2021

Time Processed: 12:23:22.76

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRIY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

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MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 3

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

N = 1.4153 M = 0.29344

K = f(H), Layer 1: Soil 3 plus 1 order

RKMOD = 2.0000 SK = 10.080 A = 1.68000E-02

N = 1.4153 M = 0.29344 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 3

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

N = 1.4153 M = 0.29344

K = f(H), Layer 2: Soil 3

RKMOD = 2.0000 SK = 1.0080 A = 1.68000E-02

N = 1.4153 M = 0.29344 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Radon Barrier Soil 5

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

N = 1.4153 M = 0.29344

K = f(H), Layer 3: Soil 3

RKMOD = 2.0000 SK = 1.0080 A = 1.68000E-02

N = 1.4153 M = 0.29344 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil 3

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

N = 1.4153 M = 0.29344

K = f(H), Layer 4: Soil 3

RKMOD = 2.0000 SK = 1.0080 A = 1.68000E-02

N = 1.4153 M = 0.29344 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 3

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

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N = 1.4153 M = 0.29344
K =f(H), Layer 5: Soil 3
RKMOD = 2.0000 SK = 1.0080 A = 1.68000E-02
N = 1.4153 M = 0.29344 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.725E-01 K = 1.008E+01 C = -1.706E-08
HDRV = 1.000E+08 THETA = 4.406E-02 K = 1.058E-19 C = -3.553E-12

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
2	0.10	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
3	0.30	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
4	0.60	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
5	1.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
6	1.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
7	2.20	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
8	3.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
9	4.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
10	5.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
11	7.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
12	9.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
13	12.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
14	14.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
15	17.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
16	20.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
17	23.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
18	25.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
19	27.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
20	29.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
21	30.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
22	31.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
23	32.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
24	33.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
25	35.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
26	37.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1

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27	40.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
28	42.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
29	44.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
30	45.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
31	46.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
32	47.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
33	48.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
34	50.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
35	52.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
36	54.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
37	57.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
38	58.50	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
39	60.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
40	61.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
41	62.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
42	63.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
43	64.50	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
44	66.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
45	68.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
46	71.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
47	74.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
48	77.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
49	80.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
50	83.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
51	86.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
52	88.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
53	89.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
54	90.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
55	91.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
56	92.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
57	94.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
58	96.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
59	99.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
60	102.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
61	105.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
62	109.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
63	114.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
64	117.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
65	119.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
66	121.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
67	122.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
68	123.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1

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69	124.50	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
70	126.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
71	128.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
72	130.50	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
73	132.50	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
74	135.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
75	140.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
76	145.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
77	148.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
78	150.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
79	151.40	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
80	152.40	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
81	153.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
82	154.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
83	160.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
84	165.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
85	170.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
86	175.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
87	178.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
88	180.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
89	181.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
90	182.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
91	183.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
92	184.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
93	185.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
94	187.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
95	190.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
96	195.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
97	202.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
98	210.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
99	220.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
100	235.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
101	240.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
102	260.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
103	280.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
104	300.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
105	320.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
106	340.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
107	360.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
108	380.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
109	400.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
110	420.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1

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111	440.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
112	455.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
113	465.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
114	473.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
115	478.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
116	482.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
117	485.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
118	487.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
119	488.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
120	489.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1

Total Initial Storage (cm) = 4.029799E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
70	0.000
103	0.640
274	0.640
300	0.000

DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI
1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000

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337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135
0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079

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0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065
0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

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NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

For Material No. 2

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

For Material No. 3

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

For Material No. 4

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

For Material No. 5

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

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Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen
- 12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

- 1 c:\a\precip1946.dat
- 2 c:\a\precip1947.dat
- 3 c:\a\precip1948.dat
- 4 c:\a\precip1949.dat
- 5 c:\a\precip1950.dat
- 6 c:\a\precip1951.dat
- 7 c:\a\precip1952.dat
- 8 c:\a\precip1953.dat
- 9 c:\a\precip1954.dat
- 10 c:\a\precip1955.dat
- 11 c:\a\precip1956.dat
- 12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000

b = 0.520

c = 0.500

d = 0.000 (below this LAI, PT is zero)

e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

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1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577
157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658

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169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698
229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402

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253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137
301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309
319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339

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337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263
349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

Totals: PET = 135.8321

PTRANS = 16.7189

PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type		Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2

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1.000	0.0000				
131	0.000 0.7620	1	1.000	2	
1.000	0.0000				
185	0.000 0.3810	1	1.000	2	
1.000	0.0000				
194	0.000 0.5080	1	1.000	2	
1.000	0.0000				
200	0.000 0.7620	1	1.000	2	
1.000	0.0000				
209	0.000 0.1524	1	1.000	2	
1.000	0.0000				
223	0.000 1.0000	1	1.000	6	
1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000 1.0000	1	1.000	4	
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000 1.0000	1	1.000	4	
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000 0.7620	1	1.000	2	
1.000	0.0000				
235	0.000 0.2540	1	1.000	2	
1.000	0.0000				
238	0.000 0.5080	1	1.000	2	
1.000	0.0000				
256	0.000 0.3302	1	1.000	2	
1.000	0.0000				
258	0.000 0.3302	1	1.000	2	
1.000	0.0000				
275	0.000 0.7620	1	1.000	2	
1.000	0.0000				
278	0.000 0.1524	1	1.000	2	
1.000	0.0000				
279	0.000 0.2794	1	1.000	2	
1.000	0.0000				
290	0.000 0.5080	1	1.000	2	

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1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				
13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 4

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\4_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:19:06.96

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Soil 4 plus 1 order

RKMOD = 2.0000 SK = 5.4000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 2: Soil 4

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 3: Soil 4

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K =f(H), Layer 4: Soil 4

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K =f(H), Layer 5: Soil 4

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.094E-01 K = 5.400E+00 C =-1.875E-08

HDRV = 1.000E+08 THETA = 1.650E-02 K = 2.393E-17 C =-1.871E-11

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP

1	0.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
2	0.10	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
3	0.30	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
4	0.60	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
5	1.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
6	1.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
7	2.20	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
8	3.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1

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9	4.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
10	5.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
11	7.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
12	9.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
13	12.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
14	14.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
15	17.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
16	20.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
17	23.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
18	25.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
19	27.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
20	29.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
21	30.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	31.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	32.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	33.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	35.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	37.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
27	40.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
28	42.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
29	44.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
30	45.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
31	46.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
32	47.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	48.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	50.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	52.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	54.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	57.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	58.50	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	60.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	61.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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45	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
48	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
50	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
51	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	88.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	90.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	91.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	94.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	96.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	99.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	102.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	105.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
62	109.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
63	114.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
64	117.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
65	119.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
66	121.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
67	122.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
68	123.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
69	124.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
70	126.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
71	128.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
72	130.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
73	132.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
74	135.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
75	140.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
76	145.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
77	148.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
78	150.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
79	151.40	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
80	152.40	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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81	153.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
82	154.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
83	160.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
84	165.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
85	170.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
86	175.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
87	178.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
88	180.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
89	181.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
90	182.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
91	183.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
92	184.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
93	185.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
94	187.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
95	190.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
96	195.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
97	202.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
98	210.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
99	220.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	235.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	240.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	260.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	280.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	300.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	320.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	340.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	360.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	380.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	400.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
110	420.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
111	440.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	455.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	465.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
114	473.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
115	478.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
116	482.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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117	485.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
118	487.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
119	488.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
120	489.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

Total Initial Storage (cm) = 5.864738E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

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NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 2

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 3

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

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For Material No. 4

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 5

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, $PT=f(e)$)

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157 0.7671 0.1120 0.6551	158 0.7911 0.1155 0.6756
159 0.8382 0.1224 0.7158	160 0.8671 0.1266 0.7405
161 0.8498 0.1241 0.7257	162 0.8019 0.1171 0.6848
163 0.7987 0.1166 0.6821	164 0.8331 0.1216 0.7115
165 0.8448 0.1234 0.7214	166 0.8476 0.1238 0.7238
167 0.8315 0.1214 0.7101	168 0.7796 0.1138 0.6658
169 0.7765 0.1134 0.6631	170 0.8071 0.1178 0.6893
171 0.6348 0.0927 0.5421	172 0.6437 0.0940 0.5497
173 0.6686 0.0976 0.5710	174 0.7005 0.1023 0.5982
175 0.7419 0.1083 0.6336	176 0.7160 0.1045 0.6115
177 0.7348 0.1073 0.6275	178 0.7275 0.1062 0.6213
179 0.7271 0.1062 0.6209	180 0.7359 0.1075 0.6284
181 0.7635 0.1115 0.6520	182 0.7608 0.1111 0.6497
183 0.7506 0.1096 0.6410	184 0.7427 0.1084 0.6343
185 0.6581 0.0961 0.5620	186 0.6694 0.0977 0.5717
187 0.7095 0.1036 0.6059	188 0.7180 0.1048 0.6132
189 0.7125 0.1040 0.6085	190 0.7904 0.1154 0.6750
191 0.7524 0.1099 0.6425	192 0.7512 0.1097 0.6415
193 0.7125 0.1040 0.6085	194 0.6653 0.0971 0.5682
195 0.7235 0.1056 0.6179	196 0.7713 0.1126 0.6587
197 0.8165 0.1192 0.6973	198 0.7191 0.1050 0.6141
199 0.7959 0.1162 0.6797	200 0.7298 0.1066 0.6232
201 0.7164 0.1046 0.6118	202 0.6947 0.1014 0.5933
203 0.6953 0.1015 0.5938	204 0.7389 0.1079 0.6310
205 0.7455 0.1089 0.6366	206 0.7191 0.1050 0.6141
207 0.7042 0.1028 0.6014	208 0.6759 0.0987 0.5772
209 0.7596 0.1109 0.6487	210 0.6731 0.0983 0.5748
211 0.6379 0.0931 0.5448	212 0.6763 0.0988 0.5775
213 0.8013 0.1170 0.6843	214 0.7565 0.1105 0.6460
215 0.7107 0.1038 0.6069	216 0.7511 0.1097 0.6414
217 0.7599 0.1110 0.6489	218 0.5801 0.0847 0.4954
219 0.6442 0.0941 0.5501	220 0.6917 0.1010 0.5907
221 0.7298 0.1066 0.6232	222 0.7155 0.1045 0.6110
223 0.6367 0.0930 0.5437	224 0.4384 0.0640 0.3744
225 0.4302 0.0628 0.3674	226 0.4221 0.0616 0.3605
227 0.4229 0.0618 0.3611	228 0.5501 0.0803 0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type		Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 5

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\5_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:23:55.34

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K = f(H), Layer 1: Soil 5 plus 2 order

RKMOD = 2.0000 SK = 1.1500 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K = f(H), Layer 2: Soil 5

RKMOD = 2.0000 SK = 1.15000E-02 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K = f(H), Layer 3: Soil 5

RKMOD = 2.0000 SK = 1.15000E-02 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K =f(H), Layer 4: Soil 5

RKMOD = 2.0000 SK = 1.15000E-02 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K =f(H), Layer 5: Soil 5

RKMOD = 2.0000 SK = 1.15000E-02 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.171E-01 K = 1.150E+00 C =-1.910E-08

HDRY = 1.000E+08 THETA = 1.828E-02 K = 6.052E-17 C =-4.337E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1 0.00 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
2 0.10 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
3 0.30 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
4 0.60 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
5 1.00 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
6 1.50 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
7 2.20 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
8 3.00 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1

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9	4.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
10	5.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
11	7.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
12	9.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
13	12.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
14	14.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
15	17.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
16	20.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
17	23.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
18	25.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
19	27.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
20	29.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
21	30.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
22	31.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
23	32.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
24	33.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
25	35.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
26	37.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
27	40.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
28	42.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
29	44.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
30	45.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
31	46.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
32	47.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
33	48.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
34	50.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
35	52.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
36	54.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
37	57.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
38	58.50	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
39	60.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
40	61.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
41	62.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
42	63.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
43	64.50	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
44	66.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1

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45	68.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
46	71.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
47	74.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
48	77.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
49	80.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
50	83.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
51	86.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
52	88.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
53	89.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
54	90.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
55	91.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
56	92.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
57	94.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
58	96.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
59	99.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
60	102.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
61	105.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
62	109.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
63	114.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
64	117.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
65	119.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
66	121.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
67	122.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
68	123.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
69	124.50	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
70	126.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
71	128.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
72	130.50	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
73	132.50	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
74	135.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
75	140.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
76	145.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
77	148.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
78	150.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
79	151.40	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
80	152.40	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1

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81	153.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
82	154.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
83	160.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
84	165.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
85	170.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
86	175.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
87	178.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
88	180.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
89	181.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
90	182.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
91	183.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
92	184.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
93	185.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
94	187.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
95	190.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
96	195.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
97	202.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
98	210.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
99	220.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
100	235.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
101	240.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
102	260.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
103	280.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
104	300.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
105	320.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
106	340.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
107	360.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
108	380.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
109	400.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
110	420.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
111	440.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
112	455.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
113	465.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
114	473.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
115	478.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
116	482.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1

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117	485.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
118	487.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
119	488.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
120	489.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1

Total Initial Storage (cm) = 7.939255E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

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NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

For Material No. 2

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

For Material No. 3

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

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For Material No. 4

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

For Material No. 5

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1 c:\a\PET1946.pen
2 c:\a\PET1947.pen
3 c:\a\PET1948.pen
4 c:\a\PET1949.pen
5 c:\a\PET1950.pen
6 c:\a\PET1951.pen
7 c:\a\PET1952.pen
8 c:\a\PET1953.pen
9 c:\a\PET1954.pen
10 c:\a\PET1955.pen
11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157 0.7671 0.1120 0.6551	158 0.7911 0.1155 0.6756
159 0.8382 0.1224 0.7158	160 0.8671 0.1266 0.7405
161 0.8498 0.1241 0.7257	162 0.8019 0.1171 0.6848
163 0.7987 0.1166 0.6821	164 0.8331 0.1216 0.7115
165 0.8448 0.1234 0.7214	166 0.8476 0.1238 0.7238
167 0.8315 0.1214 0.7101	168 0.7796 0.1138 0.6658
169 0.7765 0.1134 0.6631	170 0.8071 0.1178 0.6893
171 0.6348 0.0927 0.5421	172 0.6437 0.0940 0.5497
173 0.6686 0.0976 0.5710	174 0.7005 0.1023 0.5982
175 0.7419 0.1083 0.6336	176 0.7160 0.1045 0.6115
177 0.7348 0.1073 0.6275	178 0.7275 0.1062 0.6213
179 0.7271 0.1062 0.6209	180 0.7359 0.1075 0.6284
181 0.7635 0.1115 0.6520	182 0.7608 0.1111 0.6497
183 0.7506 0.1096 0.6410	184 0.7427 0.1084 0.6343
185 0.6581 0.0961 0.5620	186 0.6694 0.0977 0.5717
187 0.7095 0.1036 0.6059	188 0.7180 0.1048 0.6132
189 0.7125 0.1040 0.6085	190 0.7904 0.1154 0.6750
191 0.7524 0.1099 0.6425	192 0.7512 0.1097 0.6415
193 0.7125 0.1040 0.6085	194 0.6653 0.0971 0.5682
195 0.7235 0.1056 0.6179	196 0.7713 0.1126 0.6587
197 0.8165 0.1192 0.6973	198 0.7191 0.1050 0.6141
199 0.7959 0.1162 0.6797	200 0.7298 0.1066 0.6232
201 0.7164 0.1046 0.6118	202 0.6947 0.1014 0.5933
203 0.6953 0.1015 0.5938	204 0.7389 0.1079 0.6310
205 0.7455 0.1089 0.6366	206 0.7191 0.1050 0.6141
207 0.7042 0.1028 0.6014	208 0.6759 0.0987 0.5772
209 0.7596 0.1109 0.6487	210 0.6731 0.0983 0.5748
211 0.6379 0.0931 0.5448	212 0.6763 0.0988 0.5775
213 0.8013 0.1170 0.6843	214 0.7565 0.1105 0.6460
215 0.7107 0.1038 0.6069	216 0.7511 0.1097 0.6414
217 0.7599 0.1110 0.6489	218 0.5801 0.0847 0.4954
219 0.6442 0.0941 0.5501	220 0.6917 0.1010 0.5907
221 0.7298 0.1066 0.6232	222 0.7155 0.1045 0.6110
223 0.6367 0.0930 0.5437	224 0.4384 0.0640 0.3744
225 0.4302 0.0628 0.3674	226 0.4221 0.0616 0.3605
227 0.4229 0.0618 0.3611	228 0.5501 0.0803 0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time (hr)	Amount (cm)	Application Type	Efficiency	Changes In Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 6

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\6_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:32:45.40

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K = f(H), Layer 1: Soil 6 plus 2 order

RKMOD = 2.0000 SK = 7.5600 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K = f(H), Layer 2: Soil 6

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K = f(H), Layer 3: Soil 6

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K =f(H), Layer 4: Soil 6

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K =f(H), Layer 5: Soil 6

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.203E-01 K = 7.560E+00 C =-1.925E-08

HDRY = 1.000E+08 THETA = 1.666E-02 K = 2.898E-16 C =-4.062E-11

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
2	0.10	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
3	0.30	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
4	0.60	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
5	1.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
6	1.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
7	2.20	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
8	3.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1

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9	4.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
10	5.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
11	7.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
12	9.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
13	12.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
14	14.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
15	17.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
16	20.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
17	23.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
18	25.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
19	27.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
20	29.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
21	30.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
22	31.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
23	32.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
24	33.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
25	35.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
26	37.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
27	40.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
28	42.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
29	44.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
30	45.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
31	46.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
32	47.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
33	48.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
34	50.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
35	52.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
36	54.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
37	57.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
38	58.50	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
39	60.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
40	61.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
41	62.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
42	63.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
43	64.50	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
44	66.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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45	68.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
46	71.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
47	74.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
48	77.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
49	80.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
50	83.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
51	86.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
52	88.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
53	89.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
54	90.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
55	91.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
56	92.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
57	94.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
58	96.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
59	99.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
60	102.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
61	105.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	109.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	114.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	117.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	119.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	121.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	122.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	123.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	124.50	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	126.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	128.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	130.50	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	132.50	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	135.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	140.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	145.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	148.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	150.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	151.40	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
80	152.40	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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81	153.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	154.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	178.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	181.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	182.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	183.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	184.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	185.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	187.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	190.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	195.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
97	202.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	210.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
100	235.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
101	240.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
102	260.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
103	280.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
104	300.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
105	320.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
106	340.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
107	360.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
108	380.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
109	400.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
110	420.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
111	440.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
112	455.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
113	465.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
114	473.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
115	478.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
116	482.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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117	485.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
118	487.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
119	488.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
120	489.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

Total Initial Storage (cm) = 7.690062E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs - 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

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0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 2

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 3

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

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For Material No. 4

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 5

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type	Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample TP153

December 2023

! Program DATAINH !
! Version 3.01 !

Input Filename: C:\A\TP153_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:57:32.13

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K = f(H), Layer 1: Soil TP153 plus 1 order

RKMOD = 2.0000 SK = 5.0400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K = f(H), Layer 2: Soil TP153

RKMOD = 2.0000 SK = 0.50400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K = f(H), Layer 3: Soil TP153

RKMOD = 2.0000 SK = 0.50400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K =f(H), Layer 4: Soil TP153

RKMOD = 2.0000 SK = 0.50400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K =f(H), Layer 5: Soil TP153

RKMOD = 2.0000 SK = 0.50400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.584E-01 K = 5.040E+00 C =-1.641E-08

HDRV = 1.000E+08 THETA = 3.711E-02 K = 3.213E-18 C =-5.252E-11

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP

1	0.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
2	0.10	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
3	0.30	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
4	0.60	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
5	1.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
6	1.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
7	2.20	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
8	3.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1

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9	4.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
10	5.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
11	7.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
12	9.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
13	12.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
14	14.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
15	17.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
16	20.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
17	23.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
18	25.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
19	27.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
20	29.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
21	30.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
22	31.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
23	32.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
24	33.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
25	35.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
26	37.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
27	40.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
28	42.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
29	44.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
30	45.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
31	46.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
32	47.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
33	48.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
34	50.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
35	52.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
36	54.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
37	57.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
38	58.50	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
39	60.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
40	61.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
41	62.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
42	63.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
43	64.50	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
44	66.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1

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45	68.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
46	71.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
47	74.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
48	77.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
49	80.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
50	83.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
51	86.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
52	88.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
53	89.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
54	90.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
55	91.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
56	92.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
57	94.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
58	96.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
59	99.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
60	102.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
61	105.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
62	109.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
63	114.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
64	117.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
65	119.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
66	121.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
67	122.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
68	123.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
69	124.50	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
70	126.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
71	128.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
72	130.50	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
73	132.50	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
74	135.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
75	140.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
76	145.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
77	148.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
78	150.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
79	151.40	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
80	152.40	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1

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81	153.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
82	154.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
83	160.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
84	165.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
85	170.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
86	175.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
87	178.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
88	180.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
89	181.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
90	182.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
91	183.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
92	184.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
93	185.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
94	187.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
95	190.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
96	195.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
97	202.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
98	210.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
99	220.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
100	235.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
101	240.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
102	260.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
103	280.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
104	300.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
105	320.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
106	340.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
107	360.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
108	380.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
109	400.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
110	420.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
111	440.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
112	455.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
113	465.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
114	473.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
115	478.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
116	482.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1

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117	485.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
118	487.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
119	488.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
120	489.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1

Total Initial Storage (cm) = 6.680780E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

For Material No. 2

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

For Material No. 3

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

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For Material No. 4

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

For Material No. 5

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type		Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample TP154

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! Program DATAINH !
! Version 3.01 !

Input Filename: C:\A\TP154_.inp

Date Processed: 08 Jun 2021

Time Processed: 15:03:31.91

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00

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UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

N = 1.1004 M = 9.12395E-02

K = f(H), Layer 1: Soil TP154 plus 2 order

RKMOD = 2.0000 SK = 0.29000 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

N = 1.1004 M = 9.12395E-02

K = f(H), Layer 2: Soil TP154

RKMOD = 2.0000 SK = 2.90000E-03 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

December 2023

N = 1.1004 M = 9.12395E-02

K =f(H), Layer 3: Soil TP154

RKMOD = 2.0000 SK = 2.90000E-03 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

N = 1.1004 M = 9.12395E-02

K =f(H), Layer 4: Soil TP154

RKMOD = 2.0000 SK = 2.90000E-03 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

N = 1.1004 M = 9.12395E-02

K =f(H), Layer 5: Soil TP154

RKMOD = 2.0000 SK = 2.90000E-03 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.803E-01 K = 2.900E-01 C =-2.200E-08

HDRY = 1.000E+08 THETA = 9.002E-02 K = 1.202E-19 C =-9.038E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1 0.00 1 1.0000E+04 1.2125E-10 -2.2781E-06 0.2270 293.1
2 0.10 1 1.0000E+04 1.2125E-10 -2.2781E-06 0.2270 293.1

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3	0.30	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
4	0.60	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
5	1.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
6	1.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
7	2.20	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
8	3.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
9	4.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
10	5.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
11	7.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
12	9.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
13	12.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
14	14.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
15	17.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
16	20.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
17	23.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
18	25.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
19	27.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
20	29.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
21	30.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
22	31.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
23	32.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
24	33.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
25	35.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
26	37.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
27	40.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
28	42.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
29	44.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
30	45.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
31	46.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
32	47.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
33	48.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
34	50.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
35	52.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
36	54.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1

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37	57.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
38	58.50	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
39	60.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
40	61.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
41	62.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
42	63.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
43	64.50	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
44	66.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
45	68.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
46	71.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
47	74.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
48	77.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
49	80.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
50	83.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
51	86.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
52	88.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
53	89.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
54	90.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
55	91.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
56	92.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
57	94.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
58	96.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
59	99.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
60	102.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
61	105.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
62	109.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
63	114.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
64	117.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
65	119.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
66	121.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
67	122.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
68	123.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
69	124.50	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
70	126.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1

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71	128.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
72	130.50	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
73	132.50	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
74	135.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
75	140.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
76	145.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
77	148.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
78	150.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
79	151.40	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
80	152.40	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
81	153.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
82	154.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
83	160.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
84	165.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
85	170.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
86	175.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
87	178.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
88	180.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
89	181.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
90	182.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
91	183.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
92	184.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
93	185.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
94	187.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
95	190.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
96	195.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
97	202.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
98	210.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
99	220.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
100	235.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
101	240.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
102	260.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
103	280.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
104	300.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1

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105	320.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
106	340.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
107	360.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
108	380.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
109	400.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
110	420.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
111	440.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
112	455.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
113	465.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
114	473.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
115	478.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
116	482.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
117	485.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
118	487.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
119	488.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
120	489.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1

Total Initial Storage (cm) = 1.109859E+02

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

70 0.000

103 0.640

274 0.640

300 0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

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1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272
85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640

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205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

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DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	
---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135
0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072

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0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065
0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065

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0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

For Material No. 2

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

For Material No. 3

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

For Material No. 4

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

For Material No. 5

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

ET parameters:

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NFHOURL = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1 c:\a\PET1946.pen
2 c:\a\PET1947.pen
3 c:\a\PET1948.pen
4 c:\a\PET1949.pen
5 c:\a\PET1950.pen
6 c:\a\PET1951.pen
7 c:\a\PET1952.pen
8 c:\a\PET1953.pen
9 c:\a\PET1954.pen
10 c:\a\PET1955.pen
11 c:\a\PET1956.pen
12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat

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- 8 c:\a\precip1953.dat
- 9 c:\a\precip1954.dat
- 10 c:\a\precip1955.dat
- 11 c:\a\precip1956.dat
- 12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000

b = 0.520

c = 0.500

d = 0.000 (below this LAI, PT is zero)

e = 2.700 (above this LAI, $PT=f(e)$)

DAY	PET	PTRANS	PEVAPO	DAY	PET	PTRANS	PEVAPO
1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664

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29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686
85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461

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97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577
157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115

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165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698
229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091

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233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309
319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339
337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263
349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

December 2023

Totals: PET = 135.8321

PTRANS = 16.7189

PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
(hr)	(cm)	Type		Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2

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	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			
	12.000	1.0000			
	13.000	0.0000			
	22.000	0.0320			
	23.000	0.0000			
224	12.000	1.0000	1	1.000	4
	13.000	0.0000			
	22.000	0.5240			
	23.000	0.0000			
227	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.5240			
	13.000	0.0000			
233	0.000	0.7620	1	1.000	2
	1.000	0.0000			
235	0.000	0.2540	1	1.000	2
	1.000	0.0000			
238	0.000	0.5080	1	1.000	2
	1.000	0.0000			
256	0.000	0.3302	1	1.000	2
	1.000	0.0000			
258	0.000	0.3302	1	1.000	2
	1.000	0.0000			
275	0.000	0.7620	1	1.000	2
	1.000	0.0000			
278	0.000	0.1524	1	1.000	2
	1.000	0.0000			
279	0.000	0.2794	1	1.000	2
	1.000	0.0000			
290	0.000	0.5080	1	1.000	2

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1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				
13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

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Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample Grand Junction - Alluvium

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\GJ_A.inp

Date Processed: 07 Dec 2021

Time Processed: 08:46:52.46

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02
N = 1.2500 M = 0.20000

K = f(H), Layer 1: Soil Grand Junction average alluvium parameters plu

RKMOD = 2.0000 SK = 1.6540 A = 1.60000E-02
N = 1.2500 M = 0.20000 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02
N = 1.2500 M = 0.20000

K = f(H), Layer 2: Soil Grand Junction average alluvium parameters

RKMOD = 2.0000 SK = 0.16540 A = 1.60000E-02
N = 1.2500 M = 0.20000 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02
N = 1.2500 M = 0.20000

K = f(H), Layer 3: Soil Grand Junction average alluvium parameters

RKMOD = 2.0000 SK = 0.16540 A = 1.60000E-02
N = 1.2500 M = 0.20000 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02

N = 1.2500 M = 0.20000

K =f(H), Layer 4: Soil Grand Junction average alluvium parameters

RKMOD = 2.0000 SK = 0.16540 A = 1.60000E-02

N = 1.2500 M = 0.20000 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02

N = 1.2500 M = 0.20000

K =f(H), Layer 5: Soil Grand Junction average alluvium parameters

RKMOD = 2.0000 SK = 0.16540 A = 1.60000E-02

N = 1.2500 M = 0.20000 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.200E-01 K = 1.654E+00 C =-1.924E-08

HDRY = 1.000E+08 THETA = 1.181E-02 K = 3.426E-18 C =-2.952E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1	0.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
2	0.10	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
3	0.30	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
4	0.60	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
5	1.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
6	1.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
7	2.20	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
8	3.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1

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9	4.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
10	5.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
11	7.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
12	9.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
13	12.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
14	14.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
15	17.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
16	20.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
17	23.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
18	25.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
19	27.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
20	29.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
21	30.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
22	31.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
23	32.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
24	33.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
25	35.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
26	37.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
27	40.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
28	42.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
29	44.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
30	45.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
31	46.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
32	47.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
33	48.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
34	50.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
35	52.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
36	54.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
37	57.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
38	58.50	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
39	60.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
40	61.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
41	62.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
42	63.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
43	64.50	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
44	66.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1

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45	68.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
46	71.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
47	74.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
48	77.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
49	80.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
50	83.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
51	86.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
52	88.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
53	89.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
54	90.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
55	91.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
56	92.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
57	94.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
58	96.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
59	99.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
60	102.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
61	105.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
62	109.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
63	114.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
64	117.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
65	119.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
66	121.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
67	122.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
68	123.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
69	124.50	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
70	126.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
71	128.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
72	130.50	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
73	132.50	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
74	135.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
75	140.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
76	145.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
77	148.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
78	150.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
79	151.40	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
80	152.40	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1

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81	153.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
82	154.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
83	160.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
84	165.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
85	170.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
86	175.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
87	178.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
88	180.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
89	181.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
90	182.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
91	183.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
92	184.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
93	185.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
94	187.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
95	190.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
96	195.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
97	202.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
98	210.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
99	220.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
100	235.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
101	240.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
102	260.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
103	280.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
104	300.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
105	320.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
106	340.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
107	360.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
108	380.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
109	400.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
110	420.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
111	440.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
112	455.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
113	465.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
114	473.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
115	478.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
116	482.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1

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117	485.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
118	487.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
119	488.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
120	489.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1

Total Initial Storage (cm) = 5.772909E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

For Material No. 2

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

For Material No. 3

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

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For Material No. 4

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

For Material No. 5

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type		Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample Grand Junction - Shale

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\GJ_S.inp

Date Processed: 07 Dec 2021

Time Processed: 08:56:49.37

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03
N = 1.2600 M = 0.20635

K = f(H), Layer 1: Soil Grand Junction average shale parameters plus 1

RKMOD = 2.0000 SK = 7.38000E-03 A = 8.00000E-03
N = 1.2600 M = 0.20635 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03
N = 1.2600 M = 0.20635

K = f(H), Layer 2: Soil Grand Junction average shale parameters

RKMOD = 2.0000 SK = 7.38000E-04 A = 8.00000E-03
N = 1.2600 M = 0.20635 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03
N = 1.2600 M = 0.20635

K = f(H), Layer 3: Soil Grand Junction average shale parameters

RKMOD = 2.0000 SK = 7.38000E-04 A = 8.00000E-03
N = 1.2600 M = 0.20635 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03

N = 1.2600 M = 0.20635

K =f(H), Layer 4: Soil Grand Junction average shale parameters

RKMOD = 2.0000 SK = 7.38000E-04 A = 8.00000E-03

N = 1.2600 M = 0.20635 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03

N = 1.2600 M = 0.20635

K =f(H), Layer 5: Soil Grand Junction average shale parameters

RKMOD = 2.0000 SK = 7.38000E-04 A = 8.00000E-03

N = 1.2600 M = 0.20635 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.800E-01 K = 7.380E-03 C =-1.740E-08

HDRY = 1.000E+08 THETA = 1.109E-02 K = 7.146E-20 C =-2.884E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1 0.00 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
2 0.10 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
3 0.30 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
4 0.60 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
5 1.00 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
6 1.50 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
7 2.20 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
8 3.00 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1

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9	4.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
10	5.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
11	7.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
12	9.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
13	12.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
14	14.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
15	17.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
16	20.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
17	23.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
18	25.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
19	27.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
20	29.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
21	30.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
22	31.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
23	32.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
24	33.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
25	35.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
26	37.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
27	40.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
28	42.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
29	44.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
30	45.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
31	46.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
32	47.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
33	48.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
34	50.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
35	52.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
36	54.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
37	57.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
38	58.50	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
39	60.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
40	61.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
41	62.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
42	63.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
43	64.50	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
44	66.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1

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45	68.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
46	71.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
47	74.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
48	77.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
49	80.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
50	83.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
51	86.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
52	88.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
53	89.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
54	90.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
55	91.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
56	92.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
57	94.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
58	96.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
59	99.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
60	102.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
61	105.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
62	109.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
63	114.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
64	117.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
65	119.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
66	121.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
67	122.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
68	123.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
69	124.50	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
70	126.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
71	128.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
72	130.50	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
73	132.50	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
74	135.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
75	140.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
76	145.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
77	148.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
78	150.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
79	151.40	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
80	152.40	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1

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81	153.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
82	154.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
83	160.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
84	165.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
85	170.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
86	175.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
87	178.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
88	180.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
89	181.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
90	182.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
91	183.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
92	184.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
93	185.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
94	187.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
95	190.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
96	195.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
97	202.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
98	210.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
99	220.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
100	235.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
101	240.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
102	260.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
103	280.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
104	300.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
105	320.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
106	340.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
107	360.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
108	380.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
109	400.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
110	420.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
111	440.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
112	455.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
113	465.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
114	473.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
115	478.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
116	482.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1

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117	485.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
118	487.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
119	488.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
120	489.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1

Total Initial Storage (cm) = 5.942198E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs - 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

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0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

For Material No. 2

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

For Material No. 3

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

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For Material No. 4

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

For Material No. 5

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type		Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #2: Grass Vegetation

```

-----
!               Program DATAINH               !
!               Version 3.01                     !
-----

```

Input Filename: c:\a\60_10g.inp

Date Processed: 19 Oct 2023

Time Processed: 14:20:51.88

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

```

IPLANT = 1    NGRAV = 1
IFDEND = 366  IDTBEG = 1  IDTEND = 366
  IYS = 1946  NYEARS = 12  ISTEAD = 0
IFLIST = 1    NFLIST = 24
NPRINT = 0    STOPHR = 2.400E+01
ISMETH = 1    INMAX = 5    ISWDIF = 1    DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
  KOPT = 4    KEST = 3    WTF = 5.000E-01
ITOPBC = 0    IEVOPT = 1    NFHOUR = 2    LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0    ICLOUD = 0    ISHOPT = 0
IRAIN = 0     HPR = 1.000E+00

```

Hysteresis options:

```

IHYS = 0    AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

```

Heat flow options:

```

IHEAT = 0    ICONVH = 0    DMAXHE = 0.000E+00
UPPERH = 0    TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0    QHLEAK = 0.000E+00 TGRAD = 0.000E+00

```

Vapor flow options:

```

IVAPOR = 1    TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

```

Grid options:

```

MATN = 5    NPT = 141

```

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

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Material No. 1

THETA = f(H), Layer 1: Admixture (Sample 4)

THET = 0.16380 THTR = 4.20000E-03 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Admixture (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 1.8783 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 2: Alluvium (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 5.4000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 3: Alluvium (Sample 4)

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Shale (Sample 6)

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K = f(H), Layer 4: Shale (Sample 6)

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Tailings

THET = 0.57480 THTR = 4.01000E-02 ALPHA = 1.60000E-03

N = 2.3431 M = 0.57321

K = f(H), Layer 5: Tailings

RKMOD = 2.0000 SK = 0.24840 A = 1.60000E-03

N = 2.3431 M = 0.57321 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 1.638E-01 K = 1.878E+00 C = -7.502E-09

HDRY = 1.000E+08 THETA = 6.561E-03 K = 8.325E-18 C = -7.487E-12

Initial Conditions:

NDAY = 0

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NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
2	0.10	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
3	0.30	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
4	0.60	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
5	1.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
6	1.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
7	2.20	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
8	3.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
9	4.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
10	5.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
11	7.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
12	9.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
13	12.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
14	14.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
15	17.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
16	20.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
17	22.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
18	23.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
19	25.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
20	25.40	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
21	26.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	27.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	28.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	29.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	30.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	31.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
27	32.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
28	33.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
29	35.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
30	37.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
31	40.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
32	42.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	44.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	45.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	46.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	47.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	48.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	50.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	52.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	54.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	57.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	58.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	60.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	61.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
45	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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48	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
50	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
51	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	95.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	97.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	97.80	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	98.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	99.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	101.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	103.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	105.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	109.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	114.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	117.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	119.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	121.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	122.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	123.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	124.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	126.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	128.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	130.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	132.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	135.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	140.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
80	145.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
81	150.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	155.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	185.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	190.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	195.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	200.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	205.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	210.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	213.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	215.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	217.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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97	218.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	219.70	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	221.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	223.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	225.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	228.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	231.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	234.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	237.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	240.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	243.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	246.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
110	248.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
111	249.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	250.20	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	251.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
114	252.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
115	254.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
116	257.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
117	260.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
118	265.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
119	273.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
120	280.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
121	290.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
122	315.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
123	325.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
124	350.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
125	375.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
126	400.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
127	420.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
128	440.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
129	455.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
130	470.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
131	480.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
132	488.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
133	495.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
134	500.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
135	505.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
136	509.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
137	512.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
138	515.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
139	517.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
140	518.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
141	519.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

Total Initial Storage (cm) = 4.698430E+01

Plant parameters:

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LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300,
BARE=0.825

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
70	0.000
103	0.640
274	0.640
300	0.000

DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI
1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272
85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640

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205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote) = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX ROOT DEPTH (cm/cm)	ROOT DENSITY (1/cm)	NORMALIZED DENSITY

0	0.00	0.000	0.0000
0	0.10	0.260	0.0200
0	0.30	0.257	0.0198
0	0.60	0.253	0.0195
0	1.00	0.248	0.0191
0	1.50	0.242	0.0186
0	2.20	0.234	0.0180
0	3.00	0.225	0.0173
0	4.00	0.215	0.0165
0	5.50	0.201	0.0154

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0	7.50	0.184	0.0142
0	9.50	0.170	0.0131
0	12.00	0.154	0.0119
0	14.50	0.141	0.0109
0	17.50	0.128	0.0099
0	20.00	0.120	0.0092
0	22.00	0.114	0.0087
0	23.50	0.110	0.0084
0	25.00	0.106	0.0082
0	25.40	0.105	0.0081
0	26.00	0.104	0.0080
0	27.00	0.102	0.0078
0	28.50	0.099	0.0076
0	29.50	0.097	0.0075
0	30.50	0.096	0.0074
0	31.00	0.095	0.0073
0	32.00	0.094	0.0072
0	33.50	0.092	0.0071
0	35.00	0.090	0.0069
0	37.00	0.088	0.0068
0	40.00	0.085	0.0066
0	42.00	0.084	0.0064
0	44.00	0.082	0.0063
0	45.00	0.082	0.0063
0	46.00	0.081	0.0063
0	47.00	0.081	0.0062
0	48.00	0.080	0.0062
0	50.00	0.080	0.0061
0	52.00	0.079	0.0061
0	54.00	0.078	0.0060
0	57.00	0.077	0.0060
0	58.50	0.077	0.0059
0	60.00	0.077	0.0059
0	61.00	0.077	0.0059
0	62.00	0.076	0.0059
0	63.00	0.076	0.0059
0	64.50	0.076	0.0059
0	66.00	0.076	0.0058
0	68.00	0.076	0.0058
0	71.00	0.075	0.0058
0	74.00	0.075	0.0058
0	77.00	0.075	0.0058
0	80.00	0.075	0.0058
0	83.00	0.075	0.0057
0	86.00	0.075	0.0057
0	89.00	0.074	0.0057
0	92.00	0.074	0.0057
0	95.00	0.074	0.0057
0	97.00	0.074	0.0057

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0	97.80	0.074	0.0057
0	98.00	0.074	0.0057
0	99.00	0.074	0.0057
0	101.00	0.074	0.0057
0	103.00	0.074	0.0057
0	105.00	0.074	0.0057
0	109.00	0.074	0.0057
0	114.00	0.074	0.0057
0	117.00	0.074	0.0057
0	119.00	0.074	0.0057
0	121.00	0.074	0.0057
0	122.00	0.074	0.0057
0	123.00	0.074	0.0057
0	124.50	0.074	0.0057
0	126.00	0.074	0.0057
0	128.00	0.074	0.0057
0	130.50	0.074	0.0057
0	132.50	0.074	0.0057
0	135.00	0.074	0.0057
0	140.00	0.074	0.0057

MXROOT (deepest node that roots penetrate) = 79

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0324
THETAD (lower limit of optimum moisture content) = 0.0931
THETAN (upper limit of optimum moisture content) = 0.1601

For Material No. 2

THETAW (wilting point moisture content) = 0.0811
THETAD (lower limit of optimum moisture content) = 0.2328
THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 3

THETAW (wilting point moisture content) = 0.0811
THETAD (lower limit of optimum moisture content) = 0.2328
THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 4

THETAW (wilting point moisture content) = 0.1123
THETAD (lower limit of optimum moisture content) = 0.2702
THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 5

THETAW (wilting point moisture content) = 0.0421
THETAD (lower limit of optimum moisture content) = 0.2814
THETAN (upper limit of optimum moisture content) = 0.5746

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ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0150	0.0440
0.0699	0.0911	0.1061	0.1139	0.1139	0.1061	0.0911	0.0699
0.0440	0.0150	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1	c:\a\PET1946.pen
2	c:\a\PET1947.pen
3	c:\a\PET1948.pen
4	c:\a\PET1949.pen
5	c:\a\PET1950.pen
6	c:\a\PET1951.pen
7	c:\a\PET1952.pen
8	c:\a\PET1953.pen
9	c:\a\PET1954.pen
10	c:\a\PET1955.pen
11	c:\a\PET1956.pen
12	c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1	c:\a\precip1946.dat
2	c:\a\precip1947.dat
3	c:\a\precip1948.dat
4	c:\a\precip1949.dat
5	c:\a\precip1950.dat
6	c:\a\precip1951.dat
7	c:\a\precip1952.dat
8	c:\a\precip1953.dat
9	c:\a\precip1954.dat
10	c:\a\precip1955.dat
11	c:\a\precip1956.dat
12	c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

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a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY	PET	PTRANS	PEVAPO	DAY	PET	PTRANS	PEVAPO
---	-----	-----	---	-----	-----	-----	-----
1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0032	0.2521	72	0.2725	0.0049	0.2676
73	0.2837	0.0062	0.2775	74	0.2939	0.0075	0.2864
75	0.2345	0.0067	0.2278	76	0.2442	0.0076	0.2366
77	0.2617	0.0088	0.2529	78	0.2728	0.0098	0.2630
79	0.3043	0.0116	0.2927	80	0.3028	0.0122	0.2906
81	0.3149	0.0133	0.3016	82	0.3135	0.0138	0.2997

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83	0.3066	0.0140	0.2926	84	0.2968	0.0141	0.2827
85	0.3497	0.0172	0.3325	86	0.3786	0.0192	0.3594
87	0.3860	0.0202	0.3658	88	0.4112	0.0222	0.3890
89	0.3988	0.0221	0.3767	90	0.4044	0.0230	0.3814
91	0.3917	0.0228	0.3689	92	0.2526	0.0151	0.2375
93	0.3088	0.0188	0.2900	94	0.3152	0.0196	0.2956
95	0.3355	0.0213	0.3142	96	0.2827	0.0183	0.2644
97	0.3122	0.0206	0.2916	98	0.3170	0.0213	0.2957
99	0.3499	0.0239	0.3260	100	0.3550	0.0247	0.3303
101	0.4501	0.0318	0.4183	102	0.4749	0.0341	0.4408
103	0.4304	0.0314	0.3990	104	0.4507	0.0329	0.4178
105	0.4870	0.0356	0.4514	106	0.5513	0.0402	0.5111
107	0.5363	0.0392	0.4971	108	0.5484	0.0400	0.5084
109	0.5297	0.0387	0.4910	110	0.4348	0.0317	0.4031
111	0.4778	0.0349	0.4429	112	0.5265	0.0384	0.4881
113	0.5414	0.0395	0.5019	114	0.5652	0.0413	0.5239
115	0.5894	0.0430	0.5464	116	0.5743	0.0419	0.5324
117	0.6020	0.0440	0.5580	118	0.5581	0.0407	0.5174
119	0.5856	0.0428	0.5428	120	0.4824	0.0352	0.4472
121	0.4808	0.0351	0.4457	122	0.4843	0.0354	0.4489
123	0.5146	0.0376	0.4770	124	0.4946	0.0361	0.4585
125	0.4720	0.0345	0.4375	126	0.5010	0.0366	0.4644
127	0.5573	0.0407	0.5166	128	0.5157	0.0377	0.4780
129	0.5619	0.0410	0.5209	130	0.4645	0.0339	0.4306
131	0.2429	0.0177	0.2252	132	0.4160	0.0304	0.3856
133	0.5162	0.0377	0.4785	134	0.4225	0.0308	0.3917
135	0.5080	0.0371	0.4709	136	0.5150	0.0376	0.4774
137	0.5485	0.0400	0.5085	138	0.5598	0.0409	0.5189
139	0.5673	0.0414	0.5259	140	0.5792	0.0423	0.5369
141	0.5725	0.0418	0.5307	142	0.5969	0.0436	0.5533
143	0.4947	0.0361	0.4586	144	0.4957	0.0362	0.4595
145	0.5142	0.0375	0.4767	146	0.4890	0.0357	0.4533
147	0.4812	0.0351	0.4461	148	0.4990	0.0364	0.4626
149	0.4959	0.0362	0.4597	150	0.5189	0.0379	0.4810
151	0.5334	0.0389	0.4945	152	0.7934	0.0579	0.7355
153	0.7705	0.0563	0.7142	154	0.7370	0.0538	0.6832
155	0.7268	0.0531	0.6737	156	0.7702	0.0562	0.7140
157	0.7671	0.0560	0.7111	158	0.7911	0.0578	0.7333
159	0.8382	0.0612	0.7770	160	0.8671	0.0633	0.8038
161	0.8498	0.0620	0.7878	162	0.8019	0.0585	0.7434
163	0.7987	0.0583	0.7404	164	0.8331	0.0608	0.7723
165	0.8448	0.0617	0.7831	166	0.8476	0.0619	0.7857
167	0.8315	0.0607	0.7708	168	0.7796	0.0569	0.7227
169	0.7765	0.0567	0.7198	170	0.8071	0.0589	0.7482
171	0.6348	0.0463	0.5885	172	0.6437	0.0470	0.5967
173	0.6686	0.0488	0.6198	174	0.7005	0.0511	0.6494
175	0.7419	0.0542	0.6877	176	0.7160	0.0523	0.6637
177	0.7348	0.0536	0.6812	178	0.7275	0.0531	0.6744
179	0.7271	0.0531	0.6740	180	0.7359	0.0537	0.6822

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181	0.7635	0.0557	0.7078	182	0.7608	0.0555	0.7053
183	0.7506	0.0548	0.6958	184	0.7427	0.0542	0.6885
185	0.6581	0.0480	0.6101	186	0.6694	0.0489	0.6205
187	0.7095	0.0518	0.6577	188	0.7180	0.0524	0.6656
189	0.7125	0.0520	0.6605	190	0.7904	0.0577	0.7327
191	0.7524	0.0549	0.6975	192	0.7512	0.0548	0.6964
193	0.7125	0.0520	0.6605	194	0.6653	0.0486	0.6167
195	0.7235	0.0528	0.6707	196	0.7713	0.0563	0.7150
197	0.8165	0.0596	0.7569	198	0.7191	0.0525	0.6666
199	0.7959	0.0581	0.7378	200	0.7298	0.0533	0.6765
201	0.7164	0.0523	0.6641	202	0.6947	0.0507	0.6440
203	0.6953	0.0508	0.6445	204	0.7389	0.0539	0.6850
205	0.7455	0.0544	0.6911	206	0.7191	0.0525	0.6666
207	0.7042	0.0514	0.6528	208	0.6759	0.0493	0.6266
209	0.7596	0.0555	0.7041	210	0.6731	0.0491	0.6240
211	0.6379	0.0466	0.5913	212	0.6763	0.0494	0.6269
213	0.8013	0.0585	0.7428	214	0.7565	0.0552	0.7013
215	0.7107	0.0519	0.6588	216	0.7511	0.0548	0.6963
217	0.7599	0.0555	0.7044	218	0.5801	0.0424	0.5377
219	0.6442	0.0470	0.5972	220	0.6917	0.0505	0.6412
221	0.7298	0.0533	0.6765	222	0.7155	0.0522	0.6633
223	0.6367	0.0465	0.5902	224	0.4384	0.0320	0.4064
225	0.4302	0.0314	0.3988	226	0.4221	0.0308	0.3913
227	0.4229	0.0309	0.3920	228	0.5501	0.0402	0.5099
229	0.6081	0.0444	0.5637	230	0.5980	0.0437	0.5543
231	0.6020	0.0440	0.5580	232	0.5961	0.0435	0.5526
233	0.6102	0.0445	0.5657	234	0.5637	0.0412	0.5225
235	0.5239	0.0382	0.4857	236	0.5544	0.0405	0.5139
237	0.5700	0.0416	0.5284	238	0.5633	0.0411	0.5222
239	0.5712	0.0417	0.5295	240	0.5492	0.0401	0.5091
241	0.5400	0.0394	0.5006	242	0.5294	0.0387	0.4907
243	0.5318	0.0388	0.4930	244	0.5299	0.0387	0.4912
245	0.5275	0.0385	0.4890	246	0.5379	0.0393	0.4986
247	0.5395	0.0394	0.5001	248	0.5107	0.0373	0.4734
249	0.5125	0.0374	0.4751	250	0.5174	0.0378	0.4796
251	0.5117	0.0374	0.4743	252	0.5155	0.0376	0.4779
253	0.5342	0.0390	0.4952	254	0.5186	0.0379	0.4807
255	0.5027	0.0367	0.4660	256	0.4922	0.0359	0.4563
257	0.4885	0.0357	0.4528	258	0.4676	0.0341	0.4335
259	0.4343	0.0317	0.4026	260	0.3901	0.0285	0.3616
261	0.3208	0.0234	0.2974	262	0.3577	0.0261	0.3316
263	0.3796	0.0277	0.3519	264	0.4253	0.0311	0.3942
265	0.4088	0.0298	0.3790	266	0.3640	0.0266	0.3374
267	0.4042	0.0295	0.3747	268	0.4303	0.0314	0.3989
269	0.4179	0.0305	0.3874	270	0.4201	0.0307	0.3894
271	0.4120	0.0301	0.3819	272	0.4037	0.0295	0.3742
273	0.3331	0.0243	0.3088	274	0.3252	0.0237	0.3015
275	0.3210	0.0230	0.2980	276	0.2905	0.0204	0.2701
277	0.2323	0.0160	0.2163	278	0.1890	0.0127	0.1763

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279	0.2158	0.0142	0.2016	280	0.2130	0.0136	0.1994
281	0.2225	0.0139	0.2086	282	0.2347	0.0143	0.2204
283	0.2394	0.0141	0.2253	284	0.1835	0.0105	0.1730
285	0.2376	0.0132	0.2244	286	0.2734	0.0146	0.2588
287	0.2954	0.0152	0.2802	288	0.2914	0.0145	0.2769
289	0.2940	0.0140	0.2800	290	0.2831	0.0128	0.2703
291	0.2881	0.0124	0.2757	292	0.2871	0.0116	0.2755
293	0.2768	0.0105	0.2663	294	0.2613	0.0092	0.2521
295	0.2742	0.0088	0.2654	296	0.2520	0.0072	0.2448
297	0.2422	0.0060	0.2362	298	0.2326	0.0047	0.2279
299	0.2349	0.0034	0.2315	300	0.2137	0.0000	0.2137
301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309
319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339
337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263
349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

Totals: PET = 135.8321
PTRANS = 8.3595
PEVAPO = 127.4726

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Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time (hr)	Amount (cm)	Application Type	Efficiency	Changes In Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			
	12.000	1.0000			
	13.000	0.0000			
	22.000	0.0320			
	23.000	0.0000			
224	12.000	1.0000	1	1.000	4
	13.000	0.0000			
	22.000	0.5240			
	23.000	0.0000			
227	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.5240			
	13.000	0.0000			
233	0.000	0.7620	1	1.000	2
	1.000	0.0000			

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235	0.000	0.2540	1	1.000	2
	1.000	0.0000			
238	0.000	0.5080	1	1.000	2
	1.000	0.0000			
256	0.000	0.3302	1	1.000	2
	1.000	0.0000			
258	0.000	0.3302	1	1.000	2
	1.000	0.0000			
275	0.000	0.7620	1	1.000	2
	1.000	0.0000			
278	0.000	0.1524	1	1.000	2
	1.000	0.0000			
279	0.000	0.2794	1	1.000	2
	1.000	0.0000			
290	0.000	0.5080	1	1.000	2
	1.000	0.0000			
300	0.000	0.3048	1	1.000	2
	1.000	0.0000			
302	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0414			
	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2
	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			
360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

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Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #2: Reclaimed Vegetation

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\60_10r.inp

Date Processed: 19 Oct 2023

Time Processed: 14:25:52.36

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 141

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Admixture (Sample 4)

THET = 0.16380 THTR = 4.20000E-03 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Admixture (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 1.8783 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 2: Alluvium (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 5.4000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 3: Alluvium (Sample 4)

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Shale (Sample 6)

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K =f(H), Layer 4: Shale (Sample 6)

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Tailings

THET = 0.57480 THTR = 4.01000E-02 ALPHA = 1.60000E-03

N = 2.3431 M = 0.57321

K =f(H), Layer 5: Tailings

RKMOD = 2.0000 SK = 0.24840 A = 1.60000E-03

N = 2.3431 M = 0.57321 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 1.638E-01 K = 1.878E+00 C =-7.502E-09

Hdry = 1.000E+08 THETA = 6.561E-03 K = 8.325E-18 C =-7.487E-12

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP

1	0.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
2	0.10	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
3	0.30	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
4	0.60	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
5	1.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
6	1.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
7	2.20	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
8	3.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1

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9	4.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
10	5.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
11	7.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
12	9.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
13	12.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
14	14.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
15	17.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
16	20.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
17	22.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
18	23.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
19	25.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
20	25.40	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
21	26.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	27.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	28.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	29.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	30.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	31.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
27	32.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
28	33.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
29	35.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
30	37.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
31	40.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
32	42.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	44.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	45.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	46.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	47.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	48.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	50.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	52.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	54.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	57.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	58.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	60.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	61.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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45	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
48	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
50	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
51	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	95.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	97.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	97.80	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	98.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	99.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	101.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	103.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	105.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	109.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	114.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	117.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	119.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	121.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	122.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	123.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	124.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	126.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	128.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	130.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	132.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	135.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	140.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
80	145.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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81	150.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	155.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	185.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	190.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	195.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	200.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	205.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	210.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	213.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	215.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	217.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
97	218.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	219.70	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	221.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	223.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	225.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	228.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	231.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	234.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	237.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	240.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	243.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	246.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
110	248.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
111	249.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	250.20	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	251.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
114	252.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
115	254.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
116	257.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

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117	260.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
118	265.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
119	273.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
120	280.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
121	290.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
122	315.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
123	325.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
124	350.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
125	375.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
126	400.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
127	420.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
128	440.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
129	455.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
130	470.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
131	480.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
132	488.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
133	495.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
134	500.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
135	505.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
136	509.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
137	512.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
138	515.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
139	517.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
140	518.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
141	519.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

Total Initial Storage (cm) = 4.698430E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.761

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

December 2023

70 0.000
103 0.640
274 0.640
300 0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

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1 0.000 2 0.000 3 0.000 4 0.000 5 0.000 6 0.000
7 0.000 8 0.000 9 0.000 10 0.000 11 0.000 12 0.000
13 0.000 14 0.000 15 0.000 16 0.000 17 0.000 18 0.000
19 0.000 20 0.000 21 0.000 22 0.000 23 0.000 24 0.000
25 0.000 26 0.000 27 0.000 28 0.000 29 0.000 30 0.000
31 0.000 32 0.000 33 0.000 34 0.000 35 0.000 36 0.000
37 0.000 38 0.000 39 0.000 40 0.000 41 0.000 42 0.000
43 0.000 44 0.000 45 0.000 46 0.000 47 0.000 48 0.000
49 0.000 50 0.000 51 0.000 52 0.000 53 0.000 54 0.000
55 0.000 56 0.000 57 0.000 58 0.000 59 0.000 60 0.000
61 0.000 62 0.000 63 0.000 64 0.000 65 0.000 66 0.000
67 0.000 68 0.000 69 0.000 70 0.000 71 0.019 72 0.039
73 0.058 74 0.078 75 0.097 76 0.116 77 0.136 78 0.155
79 0.175 80 0.194 81 0.213 82 0.233 83 0.252 84 0.272
85 0.291 86 0.310 87 0.330 88 0.349 89 0.368 90 0.388
91 0.407 92 0.427 93 0.446 94 0.465 95 0.485 96 0.504
97 0.524 98 0.543 99 0.562 100 0.582 101 0.601 102 0.621
103 0.640 104 0.640 105 0.640 106 0.640 107 0.640 108 0.640
109 0.640 110 0.640 111 0.640 112 0.640 113 0.640 114 0.640
115 0.640 116 0.640 117 0.640 118 0.640 119 0.640 120 0.640
121 0.640 122 0.640 123 0.640 124 0.640 125 0.640 126 0.640
127 0.640 128 0.640 129 0.640 130 0.640 131 0.640 132 0.640
133 0.640 134 0.640 135 0.640 136 0.640 137 0.640 138 0.640
139 0.640 140 0.640 141 0.640 142 0.640 143 0.640 144 0.640
145 0.640 146 0.640 147 0.640 148 0.640 149 0.640 150 0.640
151 0.640 152 0.640 153 0.640 154 0.640 155 0.640 156 0.640
157 0.640 158 0.640 159 0.640 160 0.640 161 0.640 162 0.640
163 0.640 164 0.640 165 0.640 166 0.640 167 0.640 168 0.640
169 0.640 170 0.640 171 0.640 172 0.640 173 0.640 174 0.640

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175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 261.386

B1 (coefficient defining degree of curvature) = 0.000

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B2 (coefficient determining the value of asymptote = -261.215

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	
---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.171	0.0173
0	0.30	0.171	0.0173
0	0.60	0.170	0.0173
0	1.00	0.170	0.0172
0	1.50	0.169	0.0171
0	2.20	0.168	0.0170
0	3.00	0.167	0.0169
0	4.00	0.165	0.0168
0	5.50	0.163	0.0165
0	7.50	0.160	0.0163
0	9.50	0.158	0.0160
0	12.00	0.154	0.0156
0	14.50	0.150	0.0153
0	17.50	0.146	0.0148
0	20.00	0.143	0.0145
0	22.00	0.140	0.0142
0	23.50	0.138	0.0140
0	25.00	0.136	0.0137
0	25.40	0.135	0.0137
0	26.00	0.134	0.0136
0	27.00	0.133	0.0135
0	28.50	0.131	0.0132
0	29.50	0.129	0.0131
0	30.50	0.128	0.0129
0	31.00	0.127	0.0129
0	32.00	0.126	0.0127
0	33.50	0.123	0.0125

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0	35.00	0.121	0.0123
0	37.00	0.119	0.0120
0	40.00	0.114	0.0116
0	42.00	0.111	0.0113
0	44.00	0.109	0.0110
0	45.00	0.107	0.0109
0	46.00	0.106	0.0107
0	47.00	0.104	0.0106
0	48.00	0.103	0.0104
0	50.00	0.100	0.0101
0	52.00	0.097	0.0099
0	54.00	0.094	0.0096
0	57.00	0.090	0.0091
0	58.50	0.088	0.0089
0	60.00	0.086	0.0087
0	61.00	0.084	0.0086
0	62.00	0.083	0.0084
0	63.00	0.082	0.0083
0	64.50	0.079	0.0081
0	66.00	0.077	0.0078
0	68.00	0.075	0.0076
0	71.00	0.070	0.0071
0	74.00	0.066	0.0067
0	77.00	0.062	0.0063
0	80.00	0.057	0.0058
0	83.00	0.053	0.0054
0	86.00	0.049	0.0050
0	89.00	0.045	0.0045
0	92.00	0.040	0.0041
0	95.00	0.036	0.0037
0	97.00	0.033	0.0034
0	97.80	0.032	0.0033
0	98.00	0.032	0.0032
0	99.00	0.031	0.0031
0	101.00	0.028	0.0028
0	103.00	0.025	0.0025

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0	105.00	0.022	0.0022
0	109.00	0.016	0.0017
0	114.00	0.009	0.0009
0	117.00	0.005	0.0005
0	119.00	0.002	0.0002
0	121.00	-0.001	-0.0001
0	122.00	-0.002	-0.0002
0	123.00	-0.003	-0.0004
0	124.50	-0.006	-0.0006
0	126.00	-0.008	-0.0008
0	128.00	-0.011	-0.0011
0	130.50	-0.014	-0.0014
0	132.50	-0.017	-0.0017
0	135.00	-0.021	-0.0021
0	140.00	-0.028	-0.0028
0	145.00	-0.035	-0.0035

MXROOT (deepest node that roots penetrate) = 80

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0324

THETAD (lower limit of optimum moisture content) = 0.0931

THETAN (upper limit of optimum moisture content) = 0.1601

For Material No. 2

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 3

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

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For Material No. 4

THETA_W (wilting point moisture content) = 0.1123

THETA_D (lower limit of optimum moisture content) = 0.2702

THETA_N (upper limit of optimum moisture content) = 0.4119

For Material No. 5

THETA_W (wilting point moisture content) = 0.0421

THETA_D (lower limit of optimum moisture content) = 0.2814

THETA_N (upper limit of optimum moisture content) = 0.5746

ET parameters:

NF_{HO} = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0044	0.2509	72	0.2725	0.0067	0.2658
73	0.2837	0.0085	0.2752	74	0.2939	0.0102	0.2837
75	0.2345	0.0091	0.2254	76	0.2442	0.0103	0.2339
77	0.2617	0.0120	0.2497	78	0.2728	0.0133	0.2595
79	0.3043	0.0158	0.2885	80	0.3028	0.0165	0.2863
81	0.3149	0.0180	0.2969	82	0.3135	0.0188	0.2947
83	0.3066	0.0191	0.2875	84	0.2968	0.0192	0.2776

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85	0.3497	0.0234	0.3263	86	0.3786	0.0262	0.3524
87	0.3860	0.0275	0.3585	88	0.4112	0.0301	0.3811
89	0.3988	0.0300	0.3688	90	0.4044	0.0312	0.3732
91	0.3917	0.0310	0.3607	92	0.2526	0.0205	0.2321
93	0.3088	0.0256	0.2832	94	0.3152	0.0267	0.2885
95	0.3355	0.0290	0.3065	96	0.2827	0.0249	0.2578
97	0.3122	0.0280	0.2842	98	0.3170	0.0290	0.2880
99	0.3499	0.0325	0.3174	100	0.3550	0.0336	0.3214
101	0.4501	0.0433	0.4068	102	0.4749	0.0464	0.4285
103	0.4304	0.0427	0.3877	104	0.4507	0.0447	0.4060
105	0.4870	0.0483	0.4387	106	0.5513	0.0547	0.4966
107	0.5363	0.0532	0.4831	108	0.5484	0.0544	0.4940
109	0.5297	0.0526	0.4771	110	0.4348	0.0431	0.3917
111	0.4778	0.0474	0.4304	112	0.5265	0.0522	0.4743
113	0.5414	0.0537	0.4877	114	0.5652	0.0561	0.5091
115	0.5894	0.0585	0.5309	116	0.5743	0.0570	0.5173
117	0.6020	0.0597	0.5423	118	0.5581	0.0554	0.5027
119	0.5856	0.0581	0.5275	120	0.4824	0.0479	0.4345
121	0.4808	0.0477	0.4331	122	0.4843	0.0481	0.4362
123	0.5146	0.0511	0.4635	124	0.4946	0.0491	0.4455
125	0.4720	0.0468	0.4252	126	0.5010	0.0497	0.4513
127	0.5573	0.0553	0.5020	128	0.5157	0.0512	0.4645
129	0.5619	0.0557	0.5062	130	0.4645	0.0461	0.4184
131	0.2429	0.0241	0.2188	132	0.4160	0.0413	0.3747
133	0.5162	0.0512	0.4650	134	0.4225	0.0419	0.3806
135	0.5080	0.0504	0.4576	136	0.5150	0.0511	0.4639
137	0.5485	0.0544	0.4941	138	0.5598	0.0555	0.5043
139	0.5673	0.0563	0.5110	140	0.5792	0.0575	0.5217
141	0.5725	0.0568	0.5157	142	0.5969	0.0592	0.5377
143	0.4947	0.0491	0.4456	144	0.4957	0.0492	0.4465
145	0.5142	0.0510	0.4632	146	0.4890	0.0485	0.4405
147	0.4812	0.0477	0.4335	148	0.4990	0.0495	0.4495
149	0.4959	0.0492	0.4467	150	0.5189	0.0515	0.4674
151	0.5334	0.0529	0.4805	152	0.7934	0.0787	0.7147
153	0.7705	0.0764	0.6941	154	0.7370	0.0731	0.6639
155	0.7268	0.0721	0.6547	156	0.7702	0.0764	0.6938

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157 0.7671 0.0761 0.6910	158 0.7911 0.0785 0.7126
159 0.8382 0.0832 0.7550	160 0.8671 0.0860 0.7811
161 0.8498 0.0843 0.7655	162 0.8019 0.0796 0.7223
163 0.7987 0.0792 0.7195	164 0.8331 0.0827 0.7504
165 0.8448 0.0838 0.7610	166 0.8476 0.0841 0.7635
167 0.8315 0.0825 0.7490	168 0.7796 0.0773 0.7023
169 0.7765 0.0770 0.6995	170 0.8071 0.0801 0.7270
171 0.6348 0.0630 0.5718	172 0.6437 0.0639 0.5798
173 0.6686 0.0663 0.6023	174 0.7005 0.0695 0.6310
175 0.7419 0.0736 0.6683	176 0.7160 0.0710 0.6450
177 0.7348 0.0729 0.6619	178 0.7275 0.0722 0.6553
179 0.7271 0.0721 0.6550	180 0.7359 0.0730 0.6629
181 0.7635 0.0758 0.6877	182 0.7608 0.0755 0.6853
183 0.7506 0.0745 0.6761	184 0.7427 0.0737 0.6690
185 0.6581 0.0653 0.5928	186 0.6694 0.0664 0.6030
187 0.7095 0.0704 0.6391	188 0.7180 0.0712 0.6468
189 0.7125 0.0707 0.6418	190 0.7904 0.0784 0.7120
191 0.7524 0.0747 0.6777	192 0.7512 0.0745 0.6767
193 0.7125 0.0707 0.6418	194 0.6653 0.0660 0.5993
195 0.7235 0.0718 0.6517	196 0.7713 0.0765 0.6948
197 0.8165 0.0810 0.7355	198 0.7191 0.0713 0.6478
199 0.7959 0.0790 0.7169	200 0.7298 0.0724 0.6574
201 0.7164 0.0711 0.6453	202 0.6947 0.0689 0.6258
203 0.6953 0.0690 0.6263	204 0.7389 0.0733 0.6656
205 0.7455 0.0740 0.6715	206 0.7191 0.0713 0.6478
207 0.7042 0.0699 0.6343	208 0.6759 0.0671 0.6088
209 0.7596 0.0754 0.6842	210 0.6731 0.0668 0.6063
211 0.6379 0.0633 0.5746	212 0.6763 0.0671 0.6092
213 0.8013 0.0795 0.7218	214 0.7565 0.0751 0.6814
215 0.7107 0.0705 0.6402	216 0.7511 0.0745 0.6766
217 0.7599 0.0754 0.6845	218 0.5801 0.0576 0.5225
219 0.6442 0.0639 0.5803	220 0.6917 0.0686 0.6231
221 0.7298 0.0724 0.6574	222 0.7155 0.0710 0.6445
223 0.6367 0.0632 0.5735	224 0.4384 0.0435 0.3949
225 0.4302 0.0427 0.3875	226 0.4221 0.0419 0.3802
227 0.4229 0.0420 0.3809	228 0.5501 0.0546 0.4955

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229	0.6081	0.0603	0.5478	230	0.5980	0.0593	0.5387
231	0.6020	0.0597	0.5423	232	0.5961	0.0591	0.5370
233	0.6102	0.0605	0.5497	234	0.5637	0.0559	0.5078
235	0.5239	0.0520	0.4719	236	0.5544	0.0550	0.4994
237	0.5700	0.0566	0.5134	238	0.5633	0.0559	0.5074
239	0.5712	0.0567	0.5145	240	0.5492	0.0545	0.4947
241	0.5400	0.0536	0.4864	242	0.5294	0.0525	0.4769
243	0.5318	0.0528	0.4790	244	0.5299	0.0526	0.4773
245	0.5275	0.0523	0.4752	246	0.5379	0.0534	0.4845
247	0.5395	0.0535	0.4860	248	0.5107	0.0507	0.4600
249	0.5125	0.0508	0.4617	250	0.5174	0.0513	0.4661
251	0.5117	0.0508	0.4609	252	0.5155	0.0511	0.4644
253	0.5342	0.0530	0.4812	254	0.5186	0.0515	0.4671
255	0.5027	0.0499	0.4528	256	0.4922	0.0488	0.4434
257	0.4885	0.0485	0.4400	258	0.4676	0.0464	0.4212
259	0.4343	0.0431	0.3912	260	0.3901	0.0387	0.3514
261	0.3208	0.0318	0.2890	262	0.3577	0.0355	0.3222
263	0.3796	0.0377	0.3419	264	0.4253	0.0422	0.3831
265	0.4088	0.0406	0.3682	266	0.3640	0.0361	0.3279
267	0.4042	0.0401	0.3641	268	0.4303	0.0427	0.3876
269	0.4179	0.0415	0.3764	270	0.4201	0.0417	0.3784
271	0.4120	0.0409	0.3711	272	0.4037	0.0401	0.3636
273	0.3331	0.0330	0.3001	274	0.3252	0.0323	0.2929
275	0.3210	0.0312	0.2898	276	0.2905	0.0277	0.2628
277	0.2323	0.0217	0.2106	278	0.1890	0.0172	0.1718
279	0.2158	0.0192	0.1966	280	0.2130	0.0185	0.1945
281	0.2225	0.0189	0.2036	282	0.2347	0.0194	0.2153
283	0.2394	0.0192	0.2202	284	0.1835	0.0143	0.1692
285	0.2376	0.0179	0.2197	286	0.2734	0.0199	0.2535
287	0.2954	0.0207	0.2747	288	0.2914	0.0196	0.2718
289	0.2940	0.0190	0.2750	290	0.2831	0.0174	0.2657
291	0.2881	0.0168	0.2713	292	0.2871	0.0158	0.2713
293	0.2768	0.0142	0.2626	294	0.2613	0.0125	0.2488
295	0.2742	0.0119	0.2623	296	0.2520	0.0098	0.2422
297	0.2422	0.0082	0.2340	298	0.2326	0.0064	0.2262
299	0.2349	0.0046	0.2303	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 11.3603

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PEVAPO = 124.4718

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type	Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #2: Shrub Vegetation

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\60_10s.inp

Date Processed: 19 Oct 2023

Time Processed: 14:07:20.66

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 141

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Admixture (Sample 4)

THET = 0.16380 THTR = 4.20000E-03 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Admixture (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 1.8783 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

$$N = 1.3171 \quad M = 0.24076$$

K = f(H), Layer 2: Alluvium (Sample 4) plus 1 order

$$RKMOD = 2.0000 \quad SK = 5.4000 \quad A = 5.90000E-03$$

$$N = 1.3171 \quad M = 0.24076 \quad EPIT = 0.50000$$

Material No. 3

THETA = f(H), Layer 3: Alluvium (Sample 4)

$$THET = 0.40940 \quad THTR = 1.06000E-02 \quad ALPHA = 5.90000E-03$$

$$N = 1.3171 \quad M = 0.24076$$

K = f(H), Layer 3: Alluvium (Sample 4)

$$RKMOD = 2.0000 \quad SK = 0.54000 \quad A = 5.90000E-03$$

$$N = 1.3171 \quad M = 0.24076 \quad EPIT = 0.50000$$

Material No. 4

THETA = f(H), Layer 4: Shale (Sample 6)

$$THET = 0.42030 \quad THTR = 0.0000 \quad ALPHA = 5.60000E-03$$

$$N = 1.2439 \quad M = 0.19608$$

K = f(H), Layer 4: Shale (Sample 6)

$$RKMOD = 2.0000 \quad SK = 7.56000E-02 \quad A = 5.60000E-03$$

$$N = 1.2439 \quad M = 0.19608 \quad EPIT = 0.50000$$

Material No. 5

THETA = f(H), Layer 5: Tailings

$$THET = 0.57480 \quad THTR = 4.01000E-02 \quad ALPHA = 1.60000E-03$$

$$N = 2.3431 \quad M = 0.57321$$

K = f(H), Layer 5: Tailings

$$RKMOD = 2.0000 \quad SK = 0.24840 \quad A = 1.60000E-03$$

$$N = 2.3431 \quad M = 0.57321 \quad EPIT = 0.50000$$

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 1.638E-01 K = 1.878E+00 C = -7.502E-09

HDRY = 1.000E+08 THETA = 6.561E-03 K = 8.325E-18 C = -7.487E-12

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
2	0.10	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
3	0.30	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
4	0.60	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
5	1.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
6	1.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
7	2.20	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
8	3.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
9	4.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
10	5.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
11	7.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
12	9.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
13	12.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
14	14.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
15	17.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
16	20.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
17	22.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
18	23.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
19	25.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
20	25.40	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1

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21	26.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	27.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	28.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	29.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	30.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	31.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
27	32.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
28	33.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
29	35.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
30	37.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
31	40.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
32	42.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	44.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	45.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	46.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	47.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	48.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	50.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	52.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	54.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	57.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	58.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	60.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	61.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
45	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
48	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
50	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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51	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	95.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	97.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	97.80	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	98.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	99.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	101.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	103.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	105.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	109.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	114.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	117.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	119.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	121.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	122.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	123.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	124.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	126.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	128.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	130.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	132.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	135.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	140.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
80	145.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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81	150.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	155.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	185.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	190.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	195.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	200.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	205.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	210.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	213.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	215.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	217.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
97	218.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	219.70	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	221.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	223.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	225.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	228.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	231.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	234.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	237.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	240.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	243.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	246.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
110	248.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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111	249.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	250.20	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	251.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
114	252.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
115	254.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
116	257.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
117	260.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
118	265.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
119	273.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
120	280.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
121	290.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
122	315.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
123	325.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
124	350.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
125	375.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
126	400.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
127	420.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
128	440.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
129	455.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
130	470.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
131	480.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
132	488.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
133	495.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
134	500.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
135	505.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
136	509.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
137	512.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
138	515.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
139	517.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
140	518.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

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141 519.00 5 1.0000E+04 2.8787E-08 -1.7296E-06 0.0530 293.1

Total Initial Storage (cm) = 4.698430E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300,
BARE=0.876

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
70	0.000
103	0.640
274	0.640
300	0.000

DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI
1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000

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61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272
85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640

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241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.198

B1 (coefficient defining degree of curvature) = 0.034

B2 (coefficient determining the value of asymptote = 0.044

Root depth, density, and weight/node versus depth

DAY MAX ROOT NORMALIZED

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	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	
---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.241	0.0191
0	0.30	0.240	0.0190
0	0.60	0.238	0.0189
0	1.00	0.235	0.0187
0	1.50	0.232	0.0184
0	2.20	0.228	0.0180
0	3.00	0.223	0.0177
0	4.00	0.217	0.0172
0	5.50	0.208	0.0165
0	7.50	0.197	0.0156
0	9.50	0.187	0.0148
0	12.00	0.175	0.0139
0	14.50	0.165	0.0131
0	17.50	0.153	0.0121
0	20.00	0.144	0.0114
0	22.00	0.138	0.0109
0	23.50	0.133	0.0105
0	25.00	0.129	0.0102
0	25.40	0.127	0.0101
0	26.00	0.126	0.0100
0	27.00	0.123	0.0098
0	28.50	0.119	0.0094
0	29.50	0.117	0.0092
0	30.50	0.114	0.0091
0	31.00	0.113	0.0090
0	32.00	0.111	0.0088

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0	33.50	0.107	0.0085
0	35.00	0.104	0.0083
0	37.00	0.100	0.0079
0	40.00	0.095	0.0075
0	42.00	0.091	0.0073
0	44.00	0.088	0.0070
0	45.00	0.087	0.0069
0	46.00	0.085	0.0068
0	47.00	0.084	0.0067
0	48.00	0.083	0.0066
0	50.00	0.080	0.0064
0	52.00	0.078	0.0062
0	54.00	0.076	0.0060
0	57.00	0.073	0.0058
0	58.50	0.071	0.0056
0	60.00	0.070	0.0055
0	61.00	0.069	0.0055
0	62.00	0.068	0.0054
0	63.00	0.067	0.0053
0	64.50	0.066	0.0053
0	66.00	0.065	0.0052
0	68.00	0.064	0.0051
0	71.00	0.062	0.0049
0	74.00	0.060	0.0048
0	77.00	0.059	0.0046
0	80.00	0.057	0.0045
0	83.00	0.056	0.0044
0	86.00	0.055	0.0043
0	89.00	0.054	0.0043
0	92.00	0.053	0.0042

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0	95.00	0.052	0.0041
0	97.00	0.052	0.0041
0	97.80	0.051	0.0041
0	98.00	0.051	0.0041
0	99.00	0.051	0.0040
0	101.00	0.051	0.0040
0	103.00	0.050	0.0040
0	105.00	0.050	0.0040
0	109.00	0.049	0.0039
0	114.00	0.048	0.0038
0	117.00	0.048	0.0038
0	119.00	0.048	0.0038
0	121.00	0.047	0.0038
0	122.00	0.047	0.0038
0	123.00	0.047	0.0038
0	124.50	0.047	0.0037
0	126.00	0.047	0.0037
0	128.00	0.047	0.0037
0	130.50	0.047	0.0037
0	132.50	0.046	0.0037
0	135.00	0.046	0.0037
0	140.00	0.046	0.0036
0	145.00	0.046	0.0036
0	150.00	0.045	0.0036
0	155.00	0.045	0.0036

MXROOT (deepest node that roots penetrate) = 82

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

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For Material No. 1

THETAW (wilting point moisture content) = 0.0278

THETAD (lower limit of optimum moisture content) = 0.0931

THETAN (upper limit of optimum moisture content) = 0.1601

For Material No. 2

THETAW (wilting point moisture content) = 0.0696

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 3

THETAW (wilting point moisture content) = 0.0696

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 4

THETAW (wilting point moisture content) = 0.0980

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 5

THETAW (wilting point moisture content) = 0.0410

THETAD (lower limit of optimum moisture content) = 0.2814

THETAN (upper limit of optimum moisture content) = 0.5746

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440

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0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen
- 12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

- 1 c:\a\precip1946.dat
- 2 c:\a\precip1947.dat
- 3 c:\a\precip1948.dat
- 4 c:\a\precip1949.dat
- 5 c:\a\precip1950.dat
- 6 c:\a\precip1951.dat

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- 7 c:\a\precip1952.dat
- 8 c:\a\precip1953.dat
- 9 c:\a\precip1954.dat
- 10 c:\a\precip1955.dat
- 11 c:\a\precip1956.dat
- 12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000

b = 0.520

c = 0.500

d = 0.000 (below this LAI, PT is zero)

e = 2.700 (above this LAI, PT=f(e))

DAY	PET	PTRANS	PEVAPO	DAY	PET	PTRANS	PEVAPO

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1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734

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19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0023	0.2530	72	0.2725	0.0035	0.2690
73	0.2837	0.0044	0.2793	74	0.2939	0.0053	0.2886
75	0.2345	0.0047	0.2298	76	0.2442	0.0054	0.2388
77	0.2617	0.0062	0.2555	78	0.2728	0.0069	0.2659

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79	0.3043	0.0082	0.2961	80	0.3028	0.0086	0.2942
81	0.3149	0.0094	0.3055	82	0.3135	0.0098	0.3037
83	0.3066	0.0099	0.2967	84	0.2968	0.0100	0.2868
85	0.3497	0.0122	0.3375	86	0.3786	0.0136	0.3650
87	0.3860	0.0143	0.3717	88	0.4112	0.0157	0.3955
89	0.3988	0.0156	0.3832	90	0.4044	0.0162	0.3882
91	0.3917	0.0161	0.3756	92	0.2526	0.0106	0.2420
93	0.3088	0.0133	0.2955	94	0.3152	0.0139	0.3013
95	0.3355	0.0151	0.3204	96	0.2827	0.0129	0.2698
97	0.3122	0.0146	0.2976	98	0.3170	0.0151	0.3019
99	0.3499	0.0169	0.3330	100	0.3550	0.0175	0.3375
101	0.4501	0.0225	0.4276	102	0.4749	0.0241	0.4508
103	0.4304	0.0222	0.4082	104	0.4507	0.0232	0.4275
105	0.4870	0.0251	0.4619	106	0.5513	0.0284	0.5229
107	0.5363	0.0277	0.5086	108	0.5484	0.0283	0.5201
109	0.5297	0.0273	0.5024	110	0.4348	0.0224	0.4124
111	0.4778	0.0246	0.4532	112	0.5265	0.0272	0.4993
113	0.5414	0.0279	0.5135	114	0.5652	0.0292	0.5360
115	0.5894	0.0304	0.5590	116	0.5743	0.0296	0.5447
117	0.6020	0.0311	0.5709	118	0.5581	0.0288	0.5293
119	0.5856	0.0302	0.5554	120	0.4824	0.0249	0.4575
121	0.4808	0.0248	0.4560	122	0.4843	0.0250	0.4593
123	0.5146	0.0265	0.4881	124	0.4946	0.0255	0.4691
125	0.4720	0.0243	0.4477	126	0.5010	0.0258	0.4752
127	0.5573	0.0287	0.5286	128	0.5157	0.0266	0.4891
129	0.5619	0.0290	0.5329	130	0.4645	0.0240	0.4405
131	0.2429	0.0125	0.2304	132	0.4160	0.0215	0.3945
133	0.5162	0.0266	0.4896	134	0.4225	0.0218	0.4007
135	0.5080	0.0262	0.4818	136	0.5150	0.0266	0.4884
137	0.5485	0.0283	0.5202	138	0.5598	0.0289	0.5309

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139	0.5673	0.0293	0.5380	140	0.5792	0.0299	0.5493
141	0.5725	0.0295	0.5430	142	0.5969	0.0308	0.5661
143	0.4947	0.0255	0.4692	144	0.4957	0.0256	0.4701
145	0.5142	0.0265	0.4877	146	0.4890	0.0252	0.4638
147	0.4812	0.0248	0.4564	148	0.4990	0.0257	0.4733
149	0.4959	0.0256	0.4703	150	0.5189	0.0268	0.4921
151	0.5334	0.0275	0.5059	152	0.7934	0.0409	0.7525
153	0.7705	0.0397	0.7308	154	0.7370	0.0380	0.6990
155	0.7268	0.0375	0.6893	156	0.7702	0.0397	0.7305
157	0.7671	0.0396	0.7275	158	0.7911	0.0408	0.7503
159	0.8382	0.0432	0.7950	160	0.8671	0.0447	0.8224
161	0.8498	0.0438	0.8060	162	0.8019	0.0414	0.7605
163	0.7987	0.0412	0.7575	164	0.8331	0.0430	0.7901
165	0.8448	0.0436	0.8012	166	0.8476	0.0437	0.8039
167	0.8315	0.0429	0.7886	168	0.7796	0.0402	0.7394
169	0.7765	0.0401	0.7364	170	0.8071	0.0416	0.7655
171	0.6348	0.0327	0.6021	172	0.6437	0.0332	0.6105
173	0.6686	0.0345	0.6341	174	0.7005	0.0361	0.6644
175	0.7419	0.0383	0.7036	176	0.7160	0.0369	0.6791
177	0.7348	0.0379	0.6969	178	0.7275	0.0375	0.6900
179	0.7271	0.0375	0.6896	180	0.7359	0.0380	0.6979
181	0.7635	0.0394	0.7241	182	0.7608	0.0392	0.7216
183	0.7506	0.0387	0.7119	184	0.7427	0.0383	0.7044
185	0.6581	0.0339	0.6242	186	0.6694	0.0345	0.6349
187	0.7095	0.0366	0.6729	188	0.7180	0.0370	0.6810
189	0.7125	0.0368	0.6757	190	0.7904	0.0408	0.7496
191	0.7524	0.0388	0.7136	192	0.7512	0.0387	0.7125
193	0.7125	0.0368	0.6757	194	0.6653	0.0343	0.6310
195	0.7235	0.0373	0.6862	196	0.7713	0.0398	0.7315
197	0.8165	0.0421	0.7744	198	0.7191	0.0371	0.6820

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199	0.7959	0.0411	0.7548	200	0.7298	0.0376	0.6922
201	0.7164	0.0370	0.6794	202	0.6947	0.0358	0.6589
203	0.6953	0.0359	0.6594	204	0.7389	0.0381	0.7008
205	0.7455	0.0385	0.7070	206	0.7191	0.0371	0.6820
207	0.7042	0.0363	0.6679	208	0.6759	0.0349	0.6410
209	0.7596	0.0392	0.7204	210	0.6731	0.0347	0.6384
211	0.6379	0.0329	0.6050	212	0.6763	0.0349	0.6414
213	0.8013	0.0413	0.7600	214	0.7565	0.0390	0.7175
215	0.7107	0.0367	0.6740	216	0.7511	0.0387	0.7124
217	0.7599	0.0392	0.7207	218	0.5801	0.0299	0.5502
219	0.6442	0.0332	0.6110	220	0.6917	0.0357	0.6560
221	0.7298	0.0376	0.6922	222	0.7155	0.0369	0.6786
223	0.6367	0.0328	0.6039	224	0.4384	0.0226	0.4158
225	0.4302	0.0222	0.4080	226	0.4221	0.0218	0.4003
227	0.4229	0.0218	0.4011	228	0.5501	0.0284	0.5217
229	0.6081	0.0314	0.5767	230	0.5980	0.0308	0.5672
231	0.6020	0.0311	0.5709	232	0.5961	0.0307	0.5654
233	0.6102	0.0315	0.5787	234	0.5637	0.0291	0.5346
235	0.5239	0.0270	0.4969	236	0.5544	0.0286	0.5258
237	0.5700	0.0294	0.5406	238	0.5633	0.0291	0.5342
239	0.5712	0.0295	0.5417	240	0.5492	0.0283	0.5209
241	0.5400	0.0279	0.5121	242	0.5294	0.0273	0.5021
243	0.5318	0.0274	0.5044	244	0.5299	0.0273	0.5026
245	0.5275	0.0272	0.5003	246	0.5379	0.0277	0.5102
247	0.5395	0.0278	0.5117	248	0.5107	0.0263	0.4844
249	0.5125	0.0264	0.4861	250	0.5174	0.0267	0.4907
251	0.5117	0.0264	0.4853	252	0.5155	0.0266	0.4889
253	0.5342	0.0276	0.5066	254	0.5186	0.0268	0.4918
255	0.5027	0.0259	0.4768	256	0.4922	0.0254	0.4668
257	0.4885	0.0252	0.4633	258	0.4676	0.0241	0.4435

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259	0.4343	0.0224	0.4119	260	0.3901	0.0201	0.3700
261	0.3208	0.0165	0.3043	262	0.3577	0.0185	0.3392
263	0.3796	0.0196	0.3600	264	0.4253	0.0219	0.4034
265	0.4088	0.0211	0.3877	266	0.3640	0.0188	0.3452
267	0.4042	0.0209	0.3833	268	0.4303	0.0222	0.4081
269	0.4179	0.0216	0.3963	270	0.4201	0.0217	0.3984
271	0.4120	0.0213	0.3907	272	0.4037	0.0208	0.3829
273	0.3331	0.0172	0.3159	274	0.3252	0.0168	0.3084
275	0.3210	0.0162	0.3048	276	0.2905	0.0144	0.2761
277	0.2323	0.0113	0.2210	278	0.1890	0.0090	0.1800
279	0.2158	0.0100	0.2058	280	0.2130	0.0096	0.2034
281	0.2225	0.0098	0.2127	282	0.2347	0.0101	0.2246
283	0.2394	0.0100	0.2294	284	0.1835	0.0074	0.1761
285	0.2376	0.0093	0.2283	286	0.2734	0.0103	0.2631
287	0.2954	0.0108	0.2846	288	0.2914	0.0102	0.2812
289	0.2940	0.0099	0.2841	290	0.2831	0.0091	0.2740
291	0.2881	0.0087	0.2794	292	0.2871	0.0082	0.2789
293	0.2768	0.0074	0.2694	294	0.2613	0.0065	0.2548
295	0.2742	0.0062	0.2680	296	0.2520	0.0051	0.2469
297	0.2422	0.0042	0.2380	298	0.2326	0.0033	0.2293
299	0.2349	0.0024	0.2325	300	0.2137	0.0000	0.2137
301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309

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319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339
337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263
349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

Totals: PET = 135.8321

PTRANS = 5.9064

PEVAPO = 129.9257

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time (hr)	Amount (cm)	Application Type	Efficiency Rate/Head	Changes In
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			

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209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			
	12.000	1.0000			
	13.000	0.0000			
	22.000	0.0320			
	23.000	0.0000			
224	12.000	1.0000	1	1.000	4
	13.000	0.0000			
	22.000	0.5240			
	23.000	0.0000			
227	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.5240			
	13.000	0.0000			
233	0.000	0.7620	1	1.000	2
	1.000	0.0000			
235	0.000	0.2540	1	1.000	2
	1.000	0.0000			
238	0.000	0.5080	1	1.000	2
	1.000	0.0000			
256	0.000	0.3302	1	1.000	2
	1.000	0.0000			
258	0.000	0.3302	1	1.000	2
	1.000	0.0000			
275	0.000	0.7620	1	1.000	2
	1.000	0.0000			
278	0.000	0.1524	1	1.000	2
	1.000	0.0000			

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279	0.000	0.2794	1	1.000	2
	1.000	0.0000			
290	0.000	0.5080	1	1.000	2
	1.000	0.0000			
300	0.000	0.3048	1	1.000	2
	1.000	0.0000			
302	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0414			
	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2
	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			

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360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

Total Water Applied (cm) = 2.252980E+01

Program DATANH terminated normally.

Sensitivity Analysis #2: No Vegetation

! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\60_10NV.inp

Date Processed: 19 Oct 2023

Time Processed: 14:13:52.57

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 0 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

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IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00

UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00

LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 141

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Admixture (Sample 4)

THET = 0.16380 THTR = 4.20000E-03 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Admixture (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 1.8783 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Alluvium (Sample 4)

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THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K =f(H), Layer 2: Alluvium (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 5.4000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K =f(H), Layer 3: Alluvium (Sample 4)

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Shale (Sample 6)

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K =f(H), Layer 4: Shale (Sample 6)

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Tailings

THET = 0.57480 THTR = 4.01000E-02 ALPHA = 1.60000E-03

N = 2.3431 M = 0.57321

K =f(H), Layer 5: Tailings

RKMOD = 2.0000 SK = 0.24840 A = 1.60000E-03

N = 2.3431 M = 0.57321 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 1.638E-01 K = 1.878E+00 C = -7.502E-09

HDRY = 1.000E+08 THETA = 6.561E-03 K = 8.325E-18 C = -7.487E-12

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP

1	0.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
2	0.10	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
3	0.30	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
4	0.60	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
5	1.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
6	1.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
7	2.20	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
8	3.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
9	4.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
10	5.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
11	7.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
12	9.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
13	12.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
14	14.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
15	17.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
16	20.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
17	22.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
18	23.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
19	25.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1

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20	25.40	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
21	26.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	27.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	28.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	29.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	30.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	31.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
27	32.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
28	33.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
29	35.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
30	37.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
31	40.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
32	42.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	44.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	45.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	46.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	47.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	48.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	50.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	52.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	54.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	57.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	58.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	60.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	61.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
45	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
48	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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50	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
51	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	95.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	97.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	97.80	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	98.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	99.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	101.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	103.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	105.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	109.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	114.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	117.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	119.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	121.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	122.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	123.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	124.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	126.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	128.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	130.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	132.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	135.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	140.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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80	145.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
81	150.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	155.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	185.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	190.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	195.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	200.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	205.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	210.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	213.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	215.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	217.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
97	218.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	219.70	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	221.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	223.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	225.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	228.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	231.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	234.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	237.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	240.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	243.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	246.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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110	248.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
111	249.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	250.20	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	251.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
114	252.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
115	254.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
116	257.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
117	260.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
118	265.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
119	273.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
120	280.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
121	290.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
122	315.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
123	325.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
124	350.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
125	375.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
126	400.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
127	420.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
128	440.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
129	455.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
130	470.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
131	480.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
132	488.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
133	495.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
134	500.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
135	505.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
136	509.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
137	512.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
138	515.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
139	517.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

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140	518.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
141	519.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

Total Initial Storage (cm) = 4.698430E+01

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0150	0.0440
0.0699	0.0911	0.1061	0.1139	0.1139	0.1061	0.0911	0.0699
0.0440	0.0150	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen

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11 c:\a\PET1956.pen

12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat

2 c:\a\precip1947.dat

3 c:\a\precip1948.dat

4 c:\a\precip1949.dat

5 c:\a\precip1950.dat

6 c:\a\precip1951.dat

7 c:\a\precip1952.dat

8 c:\a\precip1953.dat

9 c:\a\precip1954.dat

10 c:\a\precip1955.dat

11 c:\a\precip1956.dat

12 c:\a\precip1957.dat

Potential Evaporation Values (no plants):

DAY PEVAPO DAY PEVAPO DAY PEVAPO DAY PEVAPO DAY PEVAPO

```

-----
1 0.0684  2 0.0552  3 0.0553  4 0.0604  5 0.0700
6 0.0733  7 0.0565  8 0.0432  9 0.0835 10 0.0618
11 0.0518 12 0.0524 13 0.0524 14 0.0723 15 0.0740
16 0.0688 17 0.0663 18 0.0734 19 0.0898 20 0.0938
21 0.0747 22 0.0538 23 0.0888 24 0.0872 25 0.1086
26 0.1064 27 0.0594 28 0.0664 29 0.0973 30 0.0739
31 0.0677 32 0.0793 33 0.0946 34 0.1396 35 0.1099
36 0.0899 37 0.0794 38 0.1228 39 0.1044 40 0.0973

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41	0.1177	42	0.1095	43	0.0911	44	0.1068	45	0.1070
46	0.1233	47	0.1427	48	0.1701	49	0.1766	50	0.1642
51	0.1528	52	0.1695	53	0.1839	54	0.2003	55	0.2210
56	0.2158	57	0.1782	58	0.1848	59	0.1829	60	0.2100
61	0.2231	62	0.2431	63	0.2512	64	0.2594	65	0.2255
66	0.1544	67	0.1954	68	0.2448	69	0.2931	70	0.2153
71	0.2553	72	0.2725	73	0.2837	74	0.2939	75	0.2345
76	0.2442	77	0.2617	78	0.2728	79	0.3043	80	0.3028
81	0.3149	82	0.3135	83	0.3066	84	0.2968	85	0.3497
86	0.3786	87	0.3860	88	0.4112	89	0.3988	90	0.4044
91	0.3917	92	0.2526	93	0.3088	94	0.3152	95	0.3355
96	0.2827	97	0.3122	98	0.3170	99	0.3499	100	0.3550
101	0.4501	102	0.4749	103	0.4304	104	0.4507	105	0.4870
106	0.5513	107	0.5363	108	0.5484	109	0.5297	110	0.4348
111	0.4778	112	0.5265	113	0.5414	114	0.5652	115	0.5894
116	0.5743	117	0.6020	118	0.5581	119	0.5856	120	0.4824
121	0.4808	122	0.4843	123	0.5146	124	0.4946	125	0.4720
126	0.5010	127	0.5573	128	0.5157	129	0.5619	130	0.4645
131	0.2429	132	0.4160	133	0.5162	134	0.4225	135	0.5080
136	0.5150	137	0.5485	138	0.5598	139	0.5673	140	0.5792
141	0.5725	142	0.5969	143	0.4947	144	0.4957	145	0.5142
146	0.4890	147	0.4812	148	0.4990	149	0.4959	150	0.5189
151	0.5334	152	0.7934	153	0.7705	154	0.7370	155	0.7268
156	0.7702	157	0.7671	158	0.7911	159	0.8382	160	0.8671
161	0.8498	162	0.8019	163	0.7987	164	0.8331	165	0.8448
166	0.8476	167	0.8315	168	0.7796	169	0.7765	170	0.8071
171	0.6348	172	0.6437	173	0.6686	174	0.7005	175	0.7419
176	0.7160	177	0.7348	178	0.7275	179	0.7271	180	0.7359
181	0.7635	182	0.7608	183	0.7506	184	0.7427	185	0.6581
186	0.6694	187	0.7095	188	0.7180	189	0.7125	190	0.7904

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191	0.7524	192	0.7512	193	0.7125	194	0.6653	195	0.7235
196	0.7713	197	0.8165	198	0.7191	199	0.7959	200	0.7298
201	0.7164	202	0.6947	203	0.6953	204	0.7389	205	0.7455
206	0.7191	207	0.7042	208	0.6759	209	0.7596	210	0.6731
211	0.6379	212	0.6763	213	0.8013	214	0.7565	215	0.7107
216	0.7511	217	0.7599	218	0.5801	219	0.6442	220	0.6917
221	0.7298	222	0.7155	223	0.6367	224	0.4384	225	0.4302
226	0.4221	227	0.4229	228	0.5501	229	0.6081	230	0.5980
231	0.6020	232	0.5961	233	0.6102	234	0.5637	235	0.5239
236	0.5544	237	0.5700	238	0.5633	239	0.5712	240	0.5492
241	0.5400	242	0.5294	243	0.5318	244	0.5299	245	0.5275
246	0.5379	247	0.5395	248	0.5107	249	0.5125	250	0.5174
251	0.5117	252	0.5155	253	0.5342	254	0.5186	255	0.5027
256	0.4922	257	0.4885	258	0.4676	259	0.4343	260	0.3901
261	0.3208	262	0.3577	263	0.3796	264	0.4253	265	0.4088
266	0.3640	267	0.4042	268	0.4303	269	0.4179	270	0.4201
271	0.4120	272	0.4037	273	0.3331	274	0.3252	275	0.3210
276	0.2905	277	0.2323	278	0.1890	279	0.2158	280	0.2130
281	0.2225	282	0.2347	283	0.2394	284	0.1835	285	0.2376
286	0.2734	287	0.2954	288	0.2914	289	0.2940	290	0.2831
291	0.2881	292	0.2871	293	0.2768	294	0.2613	295	0.2742
296	0.2520	297	0.2422	298	0.2326	299	0.2349	300	0.2137
301	0.2333	302	0.1667	303	0.1442	304	0.1406	305	0.1187
306	0.1227	307	0.1350	308	0.1468	309	0.1409	310	0.1407
311	0.1331	312	0.1205	313	0.0964	314	0.1106	315	0.1029
316	0.1055	317	0.1416	318	0.1309	319	0.1175	320	0.1210
321	0.1214	322	0.1234	323	0.1249	324	0.1292	325	0.1399
326	0.1313	327	0.1352	328	0.1424	329	0.1385	330	0.0864
331	0.1010	332	0.1071	333	0.1211	334	0.1314	335	0.1222
336	0.1339	337	0.1124	338	0.0889	339	0.0802	340	0.0898

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341	0.0910	342	0.0996	343	0.0818	344	0.0815	345	0.0802
346	0.0921	347	0.1033	348	0.1263	349	0.1231	350	0.1171
351	0.0770	352	0.0718	353	0.0748	354	0.0959	355	0.0853
356	0.0756	357	0.0851	358	0.1032	359	0.0997	360	0.0989
361	0.0943	362	0.0740	363	0.0441	364	0.0542	365	0.0397

Totals: PEVAPO = 135.8321

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type		Rate/Head

---	---	-----	-----	-----	-----
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2

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	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			
	12.000	1.0000			
	13.000	0.0000			
	22.000	0.0320			
	23.000	0.0000			
224	12.000	1.0000	1	1.000	4
	13.000	0.0000			
	22.000	0.5240			
	23.000	0.0000			
227	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.5240			
	13.000	0.0000			
233	0.000	0.7620	1	1.000	2
	1.000	0.0000			
235	0.000	0.2540	1	1.000	2
	1.000	0.0000			
238	0.000	0.5080	1	1.000	2

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	1.000	0.0000			
256	0.000	0.3302	1	1.000	2
	1.000	0.0000			
258	0.000	0.3302	1	1.000	2
	1.000	0.0000			
275	0.000	0.7620	1	1.000	2
	1.000	0.0000			
278	0.000	0.1524	1	1.000	2
	1.000	0.0000			
279	0.000	0.2794	1	1.000	2
	1.000	0.0000			
290	0.000	0.5080	1	1.000	2
	1.000	0.0000			
300	0.000	0.3048	1	1.000	2
	1.000	0.0000			
302	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0414			
	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2

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	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			
360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

Total Water Applied (cm) = 2.252980E+01

Program DATANH terminated normally.

ATTACHMENT 2. UNSAT H OUTPUT FILES

Sensitivity Analysis #1: Soil Sample 1 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\1_.inp

Results File: c:\a\1_1955.res

Date of Run: 08 Jun 2021

Time of Run: 14:03:04.38

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.387E+03	0.1515	293.15	2	1.000E-01	1.984E+03	0.1594 293.15
3	3.000E-01	1.980E+03	0.1595	293.15	4	6.000E-01	2.031E+03	0.1584 293.15
5	1.000E+00	2.021E+03	0.1586	293.15	6	1.500E+00	2.015E+03	0.1588 293.15
7	2.200E+00	2.009E+03	0.1589	293.15	8	3.000E+00	2.002E+03	0.1590 293.15
9	4.000E+00	1.993E+03	0.1593	293.15	10	5.500E+00	1.977E+03	0.1596 293.15
11	7.500E+00	1.957E+03	0.1601	293.15	12	9.500E+00	1.938E+03	0.1605 293.15
13	1.200E+01	1.919E+03	0.1609	293.15	14	1.450E+01	1.906E+03	0.1612 293.15
15	1.750E+01	1.901E+03	0.1613	293.15	16	2.000E+01	1.904E+03	0.1613 293.15
17	2.300E+01	1.915E+03	0.1610	293.15	18	2.550E+01	1.930E+03	0.1607 293.15
19	2.750E+01	1.945E+03	0.1603	293.15	20	2.900E+01	1.957E+03	0.1600 293.15
21	3.000E+01	1.966E+03	0.1598	293.15	22	3.100E+01	1.975E+03	0.1596 293.15
23	3.200E+01	1.985E+03	0.1594	293.15	24	3.350E+01	2.000E+03	0.1591 293.15
25	3.500E+01	2.016E+03	0.1587	293.15	26	3.700E+01	2.038E+03	0.1583 293.15
27	4.000E+01	2.070E+03	0.1576	293.15	28	4.200E+01	2.091E+03	0.1571 293.15
29	4.400E+01	2.111E+03	0.1567	293.15	30	4.500E+01	2.120E+03	0.1565 293.15
31	4.600E+01	2.129E+03	0.1563	293.15	32	4.700E+01	2.158E+03	0.1558 293.15
33	4.800E+01	2.253E+03	0.1539	293.15	34	5.000E+01	2.449E+03	0.1504 293.15
35	5.200E+01	2.641E+03	0.1473	293.15	36	5.400E+01	2.824E+03	0.1447 293.15
37	5.700E+01	3.098E+03	0.1410	293.15	38	5.850E+01	3.259E+03	0.1391 293.15
39	6.000E+01	3.447E+03	0.1370	293.15	40	6.100E+01	3.594E+03	0.1355 293.15
41	6.200E+01	3.763E+03	0.1338	293.15	42	6.300E+01	3.960E+03	0.1320 293.15
43	6.450E+01	4.320E+03	0.1290	293.15	44	6.600E+01	4.787E+03	0.1255 293.15
45	6.800E+01	5.656E+03	0.1201	293.15	46	7.100E+01	7.952E+03	0.1101 293.15
47	7.400E+01	1.218E+04	0.0990	293.15	48	7.700E+01	1.687E+04	0.0916 293.15
49	8.000E+01	1.981E+04	0.0883	293.15	50	8.300E+01	2.173E+04	0.0864 293.15
51	8.600E+01	2.347E+04	0.0849	293.15	52	8.800E+01	2.467E+04	0.0840 293.15
53	8.900E+01	2.529E+04	0.0835	293.15	54	9.000E+01	2.592E+04	0.0831 293.15
55	9.100E+01	2.655E+04	0.0826	293.15	56	9.200E+01	2.719E+04	0.0822 293.15
57	9.400E+01	2.846E+04	0.0814	293.15	58	9.600E+01	2.966E+04	0.0806 293.15

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59 9.900E+01 3.121E+04 0.0797 293.15	60 1.020E+02 3.230E+04 0.0791 293.15
61 1.050E+02 3.281E+04 0.0789 293.15	62 1.090E+02 3.245E+04 0.0791 293.15
63 1.140E+02 3.028E+04 0.0803 293.15	64 1.170E+02 2.822E+04 0.0815 293.15
65 1.190E+02 2.670E+04 0.0825 293.15	66 1.210E+02 2.518E+04 0.0836 293.15
67 1.220E+02 2.445E+04 0.0841 293.15	68 1.230E+02 2.374E+04 0.0847 293.15
69 1.245E+02 2.274E+04 0.0855 293.15	70 1.260E+02 2.181E+04 0.0863 293.15
71 1.280E+02 2.070E+04 0.0874 293.15	72 1.305E+02 1.950E+04 0.0886 293.15
73 1.325E+02 1.867E+04 0.0895 293.15	74 1.350E+02 1.778E+04 0.0905 293.15
75 1.400E+02 1.634E+04 0.0923 293.15	76 1.450E+02 1.525E+04 0.0938 293.15
77 1.480E+02 1.471E+04 0.0946 293.15	78 1.500E+02 1.439E+04 0.0951 293.15
79 1.514E+02 1.419E+04 0.0954 293.15	80 1.524E+02 1.404E+04 0.0957 293.15
81 1.530E+02 1.396E+04 0.0958 293.15	82 1.540E+02 1.383E+04 0.0960 293.15
83 1.600E+02 1.314E+04 0.0972 293.15	84 1.650E+02 1.267E+04 0.0981 293.15
85 1.700E+02 1.228E+04 0.0988 293.15	86 1.750E+02 1.195E+04 0.0995 293.15
87 1.780E+02 1.177E+04 0.0998 293.15	88 1.800E+02 1.166E+04 0.1001 293.15
89 1.810E+02 1.161E+04 0.1002 293.15	90 1.820E+02 1.156E+04 0.1003 293.15
91 1.830E+02 1.152E+04 0.1004 293.15	92 1.840E+02 1.147E+04 0.1005 293.15
93 1.850E+02 1.142E+04 0.1006 293.15	94 1.870E+02 1.134E+04 0.1008 293.15
95 1.900E+02 1.122E+04 0.1010 293.15	96 1.950E+02 1.104E+04 0.1014 293.15
97 2.020E+02 1.083E+04 0.1019 293.15	98 2.100E+02 1.064E+04 0.1023 293.15
99 2.200E+02 1.046E+04 0.1028 293.15	100 2.350E+02 1.028E+04 0.1032 293.15
101 2.400E+02 1.023E+04 0.1033 293.15	102 2.600E+02 1.011E+04 0.1036 293.15
103 2.800E+02 1.005E+04 0.1038 293.15	104 3.000E+02 1.002E+04 0.1039 293.15
105 3.200E+02 1.001E+04 0.1039 293.15	106 3.400E+02 1.000E+04 0.1039 293.15
107 3.600E+02 1.000E+04 0.1039 293.15	108 3.800E+02 1.000E+04 0.1039 293.15
109 4.000E+02 1.000E+04 0.1039 293.15	110 4.200E+02 1.000E+04 0.1039 293.15
111 4.400E+02 1.000E+04 0.1039 293.15	112 4.550E+02 1.000E+04 0.1039 293.15
113 4.650E+02 1.000E+04 0.1039 293.15	114 4.730E+02 1.000E+04 0.1039 293.15
115 4.780E+02 1.000E+04 0.1039 293.15	116 4.820E+02 1.000E+04 0.1039 293.15
117 4.850E+02 1.000E+04 0.1039 293.15	118 4.870E+02 1.000E+04 0.1039 293.15
119 4.880E+02 1.000E+04 0.1039 293.15	120 4.890E+02 1.000E+04 0.1039 293.15

Initial Water Storage = 52.5367 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.14578
Head (cm) = 2.74479E+03

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LiqWater Flow (cm)=-6.80734E-02
IsoVapor Flow (cm)=-4.16804E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

52.5367+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 52.4683 vs. 52.4683

Mass Balance = -1.3772E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.15148
Head (cm) = 2.38730E+03
LiqWater Flow (cm)=-3.95908E-02
IsoVapor Flow (cm)=-3.19382E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

52.5188+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 52.4790 vs. 52.4790

Mass Balance = -7.2562E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

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Potential Transpiration = 1.6719E+01 [cm]
 Actual Transpiration = 3.8522E+00 [cm]
 Potential Evaporation = 1.1911E+02 [cm]
 Actual Evaporation = 1.8739E+01 [cm]
 Evaporation during Growth = 1.0575E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 6.5705E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.2479E+01 [cm]
 Mass Balance Error = -4.6945E-03 [cm]
 Total Successful Time Steps = 11355
 Total Attempted Time Steps = 12580
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6514
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	3.7905E+00	0.050	4.9197E+00	0.200	4.3694E+00
0.450	3.9301E+00	0.800	3.7862E+00	1.250	3.7373E+00
1.850	3.6800E+00	2.600	3.6107E+00	3.500	3.5288E+00
4.750	3.4166E+00	6.500	3.2632E+00	8.500	3.0960E+00
10.750	2.9187E+00	13.250	2.7369E+00	16.000	2.5526E+00
18.750	2.3844E+00	21.500	2.2275E+00	24.250	2.0821E+00
26.500	1.9699E+00	28.250	1.8862E+00	29.500	1.8281E+00
30.500	1.7825E+00	31.500	1.7378E+00	32.750	1.6827E+00
34.250	1.6182E+00	36.000	1.5446E+00	38.500	1.4423E+00
41.000	1.3436E+00	43.000	1.2663E+00	44.500	1.2094E+00
45.500	1.1718E+00	46.500	1.1343E+00	47.500	1.0969E+00
49.000	1.0423E+00	51.000	9.7205E-01	53.000	9.0459E-01
55.500	8.2393E-01	57.750	7.5531E-01	59.250	7.1092E-01
60.500	6.7487E-01	61.500	6.4652E-01	62.500	6.1861E-01
63.750	5.8428E-01	65.250	5.4389E-01	67.000	4.9775E-01
69.500	4.3372E-01	72.500	3.6025E-01	75.500	2.9097E-01
78.500	2.2684E-01	81.500	1.6912E-01	84.500	1.1939E-01
87.000	8.5795E-02	88.500	6.9123E-02	89.500	5.9336E-02
90.500	5.0734E-02	91.500	4.3257E-02	93.000	3.3804E-02
95.000	2.4358E-02	97.500	1.5845E-02	100.500	8.8558E-03

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103.500	3.6388E-03	107.000	-1.6314E-03	111.500	-9.0001E-03
115.500	-1.8483E-02	118.000	-2.7101E-02	120.000	-3.6353E-02
121.500	-3.7582E-02	122.500	-3.8243E-02	123.750	-3.8914E-02
125.250	-3.9525E-02	127.000	-3.9993E-02	129.250	-4.0275E-02
131.500	-4.0268E-02	133.750	-4.0022E-02	137.500	-3.9214E-02
142.500	-3.7645E-02	146.500	-3.6134E-02	149.000	-3.5111E-02
150.700	-3.4393E-02	151.900	-3.3877E-02	152.700	-3.3529E-02
153.500	-3.3179E-02	157.000	-3.1613E-02	162.500	-2.9167E-02
167.500	-2.6957E-02	172.500	-2.4795E-02	176.500	-2.3125E-02
179.000	-2.2104E-02	180.500	-2.1503E-02	181.500	-2.1105E-02
182.500	-2.0711E-02	183.500	-2.0320E-02	184.500	-1.9934E-02
186.000	-1.9359E-02	188.500	-1.8423E-02	192.500	-1.6972E-02
198.500	-1.4925E-02	206.000	-1.2597E-02	215.000	-1.0118E-02
227.500	-7.2062E-03	237.500	-5.4673E-03	250.000	-3.5080E-03
270.000	-1.5656E-03	290.000	-4.5168E-04	310.000	1.3961E-04
330.000	4.3073E-04	350.000	5.6406E-04	370.000	6.2108E-04
390.000	6.4392E-04	410.000	6.5252E-04	430.000	6.5558E-04
447.500	6.5651E-04	460.000	6.5680E-04	469.000	6.5692E-04
475.500	6.5697E-04	480.000	6.5700E-04	483.500	6.5702E-04
486.000	6.5704E-04	487.500	6.5705E-04	488.500	6.5705E-04
489.000	6.5705E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.0313E-02	0.300	1.7869E-02
0.600	2.6118E-02	1.000	3.5101E-02	1.500	4.8695E-02
2.200	6.3086E-02	3.000	7.7400E-02	4.000	1.0851E-01
5.500	1.5040E-01	7.500	1.6522E-01	9.500	1.7600E-01
12.000	1.8102E-01	14.500	1.8376E-01	17.500	1.6790E-01
20.000	1.5668E-01	23.000	1.4519E-01	25.500	1.1213E-01
27.500	8.3628E-02	29.000	5.8019E-02	30.000	4.5568E-02
31.000	4.4768E-02	32.000	5.5018E-02	33.500	6.4461E-02
35.000	7.3568E-02	37.000	1.0231E-01	40.000	9.8698E-02
42.000	7.7309E-02	44.000	5.6897E-02	45.000	3.7607E-02
46.000	3.7309E-02	47.000	3.6928E-02	48.000	5.4345E-02
50.000	6.9654E-02	52.000	6.6813E-02	54.000	8.0037E-02
57.000	6.7880E-02	58.500	4.3996E-02	60.000	3.5720E-02
61.000	2.8114E-02	62.000	2.7682E-02	63.000	3.4095E-02
64.500	4.0055E-02	66.000	4.5757E-02	68.000	6.3480E-02
71.000	7.2392E-02	74.000	6.7817E-02	77.000	6.2231E-02
80.000	5.5462E-02	83.000	4.7427E-02	86.000	3.1970E-02

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88.000	1.6113E-02	89.000	9.7564E-03	90.000	8.8171E-03
91.000	7.9391E-03	92.000	1.0700E-02	94.000	1.1538E-02
96.000	1.1804E-02	99.000	1.1042E-02	102.000	9.3097E-03
105.000	1.0049E-02	109.000	1.3514E-02	114.000	1.5400E-02
117.000	1.2131E-02	119.000	1.1647E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 1 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\1_in.p
Results File: c:\a\1_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:03:04.38
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.387E+03	0.1515	293.15	2	1.000E-01	1.984E+03	0.1594 293.15
3	3.000E-01	1.980E+03	0.1595	293.15	4	6.000E-01	2.031E+03	0.1584 293.15
5	1.000E+00	2.020E+03	0.1586	293.15	6	1.500E+00	2.015E+03	0.1588 293.15
7	2.200E+00	2.009E+03	0.1589	293.15	8	3.000E+00	2.002E+03	0.1590 293.15
9	4.000E+00	1.992E+03	0.1593	293.15	10	5.500E+00	1.977E+03	0.1596 293.15
11	7.500E+00	1.957E+03	0.1601	293.15	12	9.500E+00	1.938E+03	0.1605 293.15
13	1.200E+01	1.919E+03	0.1609	293.15	14	1.450E+01	1.906E+03	0.1612 293.15
15	1.750E+01	1.901E+03	0.1613	293.15	16	2.000E+01	1.904E+03	0.1613 293.15
17	2.300E+01	1.915E+03	0.1610	293.15	18	2.550E+01	1.930E+03	0.1607 293.15
19	2.750E+01	1.944E+03	0.1603	293.15	20	2.900E+01	1.957E+03	0.1601 293.15
21	3.000E+01	1.966E+03	0.1599	293.15	22	3.100E+01	1.975E+03	0.1596 293.15
23	3.200E+01	1.985E+03	0.1594	293.15	24	3.350E+01	2.000E+03	0.1591 293.15
25	3.500E+01	2.016E+03	0.1587	293.15	26	3.700E+01	2.037E+03	0.1583 293.15
27	4.000E+01	2.070E+03	0.1576	293.15	28	4.200E+01	2.091E+03	0.1571 293.15
29	4.400E+01	2.111E+03	0.1567	293.15	30	4.500E+01	2.120E+03	0.1565 293.15
31	4.600E+01	2.129E+03	0.1564	293.15	32	4.700E+01	2.158E+03	0.1558 293.15
33	4.800E+01	2.253E+03	0.1539	293.15	34	5.000E+01	2.449E+03	0.1504 293.15
35	5.200E+01	2.641E+03	0.1473	293.15	36	5.400E+01	2.824E+03	0.1447 293.15
37	5.700E+01	3.098E+03	0.1411	293.15	38	5.850E+01	3.259E+03	0.1391 293.15
39	6.000E+01	3.447E+03	0.1370	293.15	40	6.100E+01	3.594E+03	0.1355 293.15
41	6.200E+01	3.763E+03	0.1338	293.15	42	6.300E+01	3.959E+03	0.1320 293.15
43	6.450E+01	4.320E+03	0.1290	293.15	44	6.600E+01	4.786E+03	0.1255 293.15
45	6.800E+01	5.656E+03	0.1201	293.15	46	7.100E+01	7.953E+03	0.1101 293.15
47	7.400E+01	1.218E+04	0.0990	293.15	48	7.700E+01	1.688E+04	0.0916 293.15
49	8.000E+01	1.983E+04	0.0882	293.15	50	8.300E+01	2.175E+04	0.0864 293.15
51	8.600E+01	2.350E+04	0.0849	293.15	52	8.800E+01	2.471E+04	0.0839 293.15
53	8.900E+01	2.533E+04	0.0835	293.15	54	9.000E+01	2.597E+04	0.0830 293.15
55	9.100E+01	2.661E+04	0.0826	293.15	56	9.200E+01	2.725E+04	0.0821 293.15
57	9.400E+01	2.853E+04	0.0813	293.15	58	9.600E+01	2.974E+04	0.0806 293.15
59	9.900E+01	3.132E+04	0.0797	293.15	60	1.020E+02	3.245E+04	0.0791 293.15
61	1.050E+02	3.300E+04	0.0788	293.15	62	1.090E+02	3.272E+04	0.0789 293.15
63	1.140E+02	3.067E+04	0.0800	293.15	64	1.170E+02	2.868E+04	0.0812 293.15

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65 1.190E+02 2.720E+04 0.0822 293.15	66 1.210E+02 2.570E+04 0.0832 293.15
67 1.220E+02 2.497E+04 0.0837 293.15	68 1.230E+02 2.427E+04 0.0843 293.15
69 1.245E+02 2.326E+04 0.0851 293.15	70 1.260E+02 2.233E+04 0.0859 293.15
71 1.280E+02 2.121E+04 0.0869 293.15	72 1.305E+02 1.999E+04 0.0881 293.15
73 1.325E+02 1.915E+04 0.0890 293.15	74 1.350E+02 1.824E+04 0.0900 293.15
75 1.400E+02 1.677E+04 0.0917 293.15	76 1.450E+02 1.564E+04 0.0933 293.15
77 1.480E+02 1.508E+04 0.0941 293.15	78 1.500E+02 1.475E+04 0.0946 293.15
79 1.514E+02 1.453E+04 0.0949 293.15	80 1.524E+02 1.438E+04 0.0951 293.15
81 1.530E+02 1.430E+04 0.0953 293.15	82 1.540E+02 1.416E+04 0.0955 293.15
83 1.600E+02 1.343E+04 0.0967 293.15	84 1.650E+02 1.294E+04 0.0976 293.15
85 1.700E+02 1.252E+04 0.0984 293.15	86 1.750E+02 1.217E+04 0.0990 293.15
87 1.780E+02 1.199E+04 0.0994 293.15	88 1.800E+02 1.187E+04 0.0996 293.15
89 1.810E+02 1.182E+04 0.0997 293.15	90 1.820E+02 1.177E+04 0.0999 293.15
91 1.830E+02 1.171E+04 0.1000 293.15	92 1.840E+02 1.166E+04 0.1001 293.15
93 1.850E+02 1.162E+04 0.1002 293.15	94 1.870E+02 1.152E+04 0.1004 293.15
95 1.900E+02 1.139E+04 0.1006 293.15	96 1.950E+02 1.120E+04 0.1011 293.15
97 2.020E+02 1.098E+04 0.1016 293.15	98 2.100E+02 1.077E+04 0.1020 293.15
99 2.200E+02 1.056E+04 0.1025 293.15	100 2.350E+02 1.035E+04 0.1030 293.15
101 2.400E+02 1.030E+04 0.1032 293.15	102 2.600E+02 1.015E+04 0.1035 293.15
103 2.800E+02 1.007E+04 0.1037 293.15	104 3.000E+02 1.003E+04 0.1038 293.15
105 3.200E+02 1.001E+04 0.1039 293.15	106 3.400E+02 1.001E+04 0.1039 293.15
107 3.600E+02 1.000E+04 0.1039 293.15	108 3.800E+02 1.000E+04 0.1039 293.15
109 4.000E+02 1.000E+04 0.1039 293.15	110 4.200E+02 1.000E+04 0.1039 293.15
111 4.400E+02 1.000E+04 0.1039 293.15	112 4.550E+02 1.000E+04 0.1039 293.15
113 4.650E+02 1.000E+04 0.1039 293.15	114 4.730E+02 1.000E+04 0.1039 293.15
115 4.780E+02 1.000E+04 0.1039 293.15	116 4.820E+02 1.000E+04 0.1039 293.15
117 4.850E+02 1.000E+04 0.1039 293.15	118 4.870E+02 1.000E+04 0.1039 293.15
119 4.880E+02 1.000E+04 0.1039 293.15	120 4.890E+02 1.000E+04 0.1039 293.15

Initial Water Storage = 52.4790 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.14905
Head (cm) = 2.53173E+03
LiqWater Flow (cm)=-4.41494E-02
IsoVapor Flow (cm)=-2.90319E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

52.4790+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 52.4347 vs. 52.4347

Mass Balance = -8.0154E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.16014

Head (cm) = 1.95316E+03

LiqWater Flow (cm)=-1.92912E-06

IsoVapor Flow (cm)=-6.29370E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.2302+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 56.2302 vs. 56.2302

Mass Balance = -8.7350E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1370E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 6.4798E+00 [cm]

Potential Evaporation = 9.9853E+01 [cm]

Actual Evaporation = 4.0472E+01 [cm]

Evaporation during Growth = 2.6287E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 6.5885E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6230E+01 [cm]
 Mass Balance Error = -5.6584E-03 [cm]
 Total Successful Time Steps = 12348
 Total Attempted Time Steps = 13686
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3594
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.0226E+01	0.050	1.0728E+01	0.200	1.0247E+01
0.450	1.0189E+01	0.800	1.0138E+01	1.250	1.0074E+01
1.850	9.9880E+00	2.600	9.8805E+00	3.500	9.7520E+00
4.750	9.5752E+00	6.500	9.3336E+00	8.500	9.0694E+00
10.750	8.7871E+00	13.250	8.4945E+00	16.000	8.1948E+00
18.750	7.9193E+00	21.500	7.6615E+00	24.250	7.4219E+00
26.500	7.2367E+00	28.250	7.0986E+00	29.500	7.0029E+00
30.500	6.9278E+00	31.500	6.8541E+00	32.750	6.7636E+00
34.250	6.6576E+00	36.000	6.5368E+00	38.500	6.3689E+00
41.000	6.2066E+00	43.000	6.0790E+00	44.500	5.9846E+00
45.500	5.9219E+00	46.500	5.8596E+00	47.500	5.7971E+00
49.000	5.7010E+00	51.000	5.5651E+00	53.000	5.4213E+00
55.500	5.2327E+00	57.750	5.0529E+00	59.250	4.9299E+00
60.500	4.8249E+00	61.500	4.7395E+00	62.500	4.6526E+00
63.750	4.5421E+00	65.250	4.4057E+00	67.000	4.2417E+00
69.500	3.9967E+00	72.500	3.6784E+00	75.500	3.3346E+00
78.500	2.9784E+00	81.500	2.6239E+00	84.500	2.2776E+00
87.000	1.9982E+00	88.500	1.8350E+00	89.500	1.7281E+00
90.500	1.6228E+00	91.500	1.5194E+00	93.000	1.3679E+00
95.000	1.1744E+00	97.500	9.4610E-01	100.500	6.9892E-01
103.500	4.8310E-01	107.000	2.7267E-01	111.500	7.2305E-02
115.500	-1.2413E-03	118.000	-1.9442E-02	120.000	-3.0278E-02
121.500	-3.2493E-02	122.500	-3.3673E-02	123.750	-3.4873E-02
125.250	-3.5960E-02	127.000	-3.6877E-02	129.250	-3.7599E-02
131.500	-3.7917E-02	133.750	-3.7941E-02	137.500	-3.7503E-02
142.500	-3.6306E-02	146.500	-3.5048E-02	149.000	-3.4171E-02
150.700	-3.3547E-02	151.900	-3.3096E-02	152.700	-3.2791E-02
153.500	-3.2482E-02	157.000	-3.1094E-02	162.500	-2.8897E-02
167.500	-2.6889E-02	172.500	-2.4908E-02	176.500	-2.3365E-02
179.000	-2.2418E-02	180.500	-2.1857E-02	181.500	-2.1486E-02
182.500	-2.1118E-02	183.500	-2.0753E-02	184.500	-2.0390E-02

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186.000	-1.9851E-02	188.500	-1.8969E-02	192.500	-1.7597E-02
198.500	-1.5645E-02	206.000	-1.3399E-02	215.000	-1.0974E-02
227.500	-8.0696E-03	237.500	-6.2786E-03	250.000	-4.2358E-03
270.000	-2.1041E-03	290.000	-8.0761E-04	310.000	-7.3137E-05
330.000	3.1488E-04	350.000	5.0645E-04	370.000	5.9506E-04
390.000	6.3358E-04	410.000	6.4937E-04	430.000	6.5550E-04
447.500	6.5752E-04	460.000	6.5820E-04	469.000	6.5849E-04
475.500	6.5863E-04	480.000	6.5871E-04	483.500	6.5877E-04
486.000	6.5881E-04	487.500	6.5883E-04	488.500	6.5885E-04
489.000	6.5885E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7200E-02	0.300	2.9308E-02
0.600	4.1841E-02	1.000	5.4777E-02	1.500	7.4116E-02
2.200	9.3630E-02	3.000	1.1265E-01	4.000	1.5549E-01
5.500	2.1305E-01	7.500	2.3346E-01	9.500	2.4981E-01
12.000	2.5947E-01	14.500	2.6649E-01	17.500	2.4616E-01
20.000	2.3170E-01	23.000	2.1715E-01	25.500	1.6931E-01
27.500	1.2718E-01	29.000	8.8691E-02	30.000	6.9894E-02
31.000	6.8902E-02	32.000	8.4968E-02	33.500	1.0004E-01
35.000	1.1470E-01	37.000	1.6046E-01	40.000	1.5617E-01
42.000	1.2302E-01	44.000	9.1010E-02	45.000	6.0297E-02
46.000	5.9947E-02	47.000	5.9679E-02	48.000	8.9368E-02
50.000	1.1865E-01	52.000	1.1802E-01	54.000	1.4647E-01
57.000	1.2993E-01	58.500	8.5773E-02	60.000	7.0658E-02
61.000	5.6051E-02	62.000	5.5547E-02	63.000	6.8777E-02
64.500	8.1282E-02	66.000	9.3289E-02	68.000	1.3016E-01
71.000	1.5016E-01	74.000	1.4355E-01	77.000	1.3631E-01
80.000	1.2835E-01	83.000	1.1943E-01	86.000	9.0977E-02
88.000	5.0716E-02	89.000	3.2424E-02	90.000	3.0970E-02
91.000	2.9449E-02	92.000	4.1789E-02	94.000	4.9027E-02
96.000	5.2349E-02	99.000	4.6116E-02	102.000	3.0682E-02
105.000	2.2064E-02	109.000	1.7026E-02	114.000	1.4022E-02
117.000	1.0265E-02	119.000	9.5857E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00-

Sensitivity Analysis #1: Soil Sample 1 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\1_in.p
Results File: c:\a\1_1957.res
Date of Run: 08 Jun 2021
Time of Run: 14:03:04.38
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.953E+03	0.1601	293.15	2	1.000E-01	1.487E+03	0.1728 293.15
3	3.000E-01	1.320E+03	0.1787	293.15	4	6.000E-01	1.357E+03	0.1773 293.15
5	1.000E+00	1.406E+03	0.1755	293.15	6	1.500E+00	1.406E+03	0.1755 293.15
7	2.200E+00	1.398E+03	0.1758	293.15	8	3.000E+00	1.400E+03	0.1758 293.15
9	4.000E+00	1.402E+03	0.1757	293.15	10	5.500E+00	1.406E+03	0.1755 293.15
11	7.500E+00	1.415E+03	0.1752	293.15	12	9.500E+00	1.428E+03	0.1748 293.15
13	1.200E+01	1.448E+03	0.1741	293.15	14	1.450E+01	1.474E+03	0.1732 293.15
15	1.750E+01	1.513E+03	0.1720	293.15	16	2.000E+01	1.551E+03	0.1708 293.15
17	2.300E+01	1.605E+03	0.1692	293.15	18	2.550E+01	1.654E+03	0.1677 293.15
19	2.750E+01	1.697E+03	0.1665	293.15	20	2.900E+01	1.730E+03	0.1656 293.15
21	3.000E+01	1.753E+03	0.1650	293.15	22	3.100E+01	1.775E+03	0.1645 293.15
23	3.200E+01	1.798E+03	0.1639	293.15	24	3.350E+01	1.831E+03	0.1630 293.15
25	3.500E+01	1.864E+03	0.1622	293.15	26	3.700E+01	1.905E+03	0.1613 293.15
27	4.000E+01	1.958E+03	0.1600	293.15	28	4.200E+01	1.985E+03	0.1594 293.15
29	4.400E+01	2.004E+03	0.1590	293.15	30	4.500E+01	2.011E+03	0.1589 293.15
31	4.600E+01	2.015E+03	0.1588	293.15	32	4.700E+01	2.024E+03	0.1586 293.15
33	4.800E+01	2.033E+03	0.1584	293.15	34	5.000E+01	2.004E+03	0.1590 293.15
35	5.200E+01	1.951E+03	0.1602	293.15	36	5.400E+01	1.895E+03	0.1615 293.15
37	5.700E+01	1.825E+03	0.1632	293.15	38	5.850E+01	1.798E+03	0.1639 293.15
39	6.000E+01	1.775E+03	0.1645	293.15	40	6.100E+01	1.762E+03	0.1648 293.15
41	6.200E+01	1.751E+03	0.1651	293.15	42	6.300E+01	1.742E+03	0.1653 293.15
43	6.450E+01	1.731E+03	0.1656	293.15	44	6.600E+01	1.725E+03	0.1658 293.15
45	6.800E+01	1.721E+03	0.1659	293.15	46	7.100E+01	1.726E+03	0.1657 293.15
47	7.400E+01	1.744E+03	0.1653	293.15	48	7.700E+01	1.776E+03	0.1644 293.15
49	8.000E+01	1.822E+03	0.1633	293.15	50	8.300E+01	1.884E+03	0.1618 293.15
51	8.600E+01	1.966E+03	0.1598	293.15	52	8.800E+01	2.034E+03	0.1583 293.15
53	8.900E+01	2.073E+03	0.1575	293.15	54	9.000E+01	2.115E+03	0.1566 293.15
55	9.100E+01	2.162E+03	0.1557	293.15	56	9.200E+01	2.212E+03	0.1547 293.15
57	9.400E+01	2.329E+03	0.1525	293.15	58	9.600E+01	2.471E+03	0.1500 293.15
59	9.900E+01	2.750E+03	0.1457	293.15	60	1.020E+02	3.149E+03	0.1404 293.15
61	1.050E+02	3.756E+03	0.1339	293.15	62	1.090E+02	5.311E+03	0.1221 293.15
63	1.140E+02	1.307E+04	0.0973	293.15	64	1.170E+02	2.141E+04	0.0867 293.15

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65	1.190E+02	2.417E+04	0.0844	293.15	66	1.210E+02	2.445E+04	0.0841	293.15
67	1.220E+02	2.421E+04	0.0843	293.15	68	1.230E+02	2.383E+04	0.0846	293.15
69	1.245E+02	2.314E+04	0.0852	293.15	70	1.260E+02	2.240E+04	0.0858	293.15
71	1.280E+02	2.144E+04	0.0867	293.15	72	1.305E+02	2.032E+04	0.0877	293.15
73	1.325E+02	1.951E+04	0.0886	293.15	74	1.350E+02	1.862E+04	0.0895	293.15
75	1.400E+02	1.714E+04	0.0913	293.15	76	1.450E+02	1.599E+04	0.0928	293.15
77	1.480E+02	1.542E+04	0.0936	293.15	78	1.500E+02	1.507E+04	0.0941	293.15
79	1.514E+02	1.485E+04	0.0944	293.15	80	1.524E+02	1.470E+04	0.0946	293.15
81	1.530E+02	1.461E+04	0.0948	293.15	82	1.540E+02	1.446E+04	0.0950	293.15
83	1.600E+02	1.371E+04	0.0962	293.15	84	1.650E+02	1.319E+04	0.0971	293.15
85	1.700E+02	1.276E+04	0.0979	293.15	86	1.750E+02	1.239E+04	0.0986	293.15
87	1.780E+02	1.219E+04	0.0990	293.15	88	1.800E+02	1.207E+04	0.0992	293.15
89	1.810E+02	1.202E+04	0.0993	293.15	90	1.820E+02	1.196E+04	0.0995	293.15
91	1.830E+02	1.190E+04	0.0996	293.15	92	1.840E+02	1.185E+04	0.0997	293.15
93	1.850E+02	1.180E+04	0.0998	293.15	94	1.870E+02	1.170E+04	0.1000	293.15
95	1.900E+02	1.156E+04	0.1003	293.15	96	1.950E+02	1.136E+04	0.1007	293.15
97	2.020E+02	1.112E+04	0.1013	293.15	98	2.100E+02	1.089E+04	0.1018	293.15
99	2.200E+02	1.066E+04	0.1023	293.15	100	2.350E+02	1.043E+04	0.1029	293.15
101	2.400E+02	1.036E+04	0.1030	293.15	102	2.600E+02	1.019E+04	0.1034	293.15
103	2.800E+02	1.010E+04	0.1037	293.15	104	3.000E+02	1.005E+04	0.1038	293.15
105	3.200E+02	1.002E+04	0.1039	293.15	106	3.400E+02	1.001E+04	0.1039	293.15
107	3.600E+02	1.000E+04	0.1039	293.15	108	3.800E+02	1.000E+04	0.1039	293.15
109	4.000E+02	1.000E+04	0.1039	293.15	110	4.200E+02	1.000E+04	0.1039	293.15
111	4.400E+02	1.000E+04	0.1039	293.15	112	4.550E+02	1.000E+04	0.1039	293.15
113	4.650E+02	1.000E+04	0.1039	293.15	114	4.730E+02	1.000E+04	0.1039	293.15
115	4.780E+02	1.000E+04	0.1039	293.15	116	4.820E+02	1.000E+04	0.1039	293.15
117	4.850E+02	1.000E+04	0.1039	293.15	118	4.870E+02	1.000E+04	0.1039	293.15
119	4.880E+02	1.000E+04	0.1039	293.15	120	4.890E+02	1.000E+04	0.1039	293.15

Initial Water Storage = 56.2302 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.15527
Head (cm) = 2.18295E+03
LiqWater Flow (cm)=-4.39896E-02
IsoVapor Flow (cm)=-6.62752E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.2302+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.1859 vs. 56.1859

Mass Balance = -1.6879E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.15654

Head (cm) = 2.11984E+03

LiqWater Flow (cm)=-5.81601E-02

IsoVapor Flow (cm)=-7.98961E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.6977+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 57.6392 vs. 57.6392

Mass Balance = -2.6497E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1376E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 7.8274E+00 [cm]

Potential Evaporation = 9.9911E+01 [cm]

Actual Evaporation = 4.1466E+01 [cm]

Evaporation during Growth = 2.7222E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 6.5885E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.7639E+01 [cm]
 Mass Balance Error = -5.0773E-03 [cm]
 Total Successful Time Steps = 12241
 Total Attempted Time Steps = 13535
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3508
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	9.2320E+00	0.050	9.6585E+00	0.200	9.2417E+00
0.450	9.2013E+00	0.800	9.1571E+00	1.250	9.1008E+00
1.850	9.0254E+00	2.600	8.9309E+00	3.500	8.8176E+00
4.750	8.6616E+00	6.500	8.4479E+00	8.500	8.2134E+00
10.750	7.9618E+00	13.250	7.6994E+00	16.000	7.4284E+00
18.750	7.1764E+00	21.500	6.9378E+00	24.250	6.7128E+00
26.500	6.5364E+00	28.250	6.4034E+00	29.500	6.3104E+00
30.500	6.2370E+00	31.500	6.1645E+00	32.750	6.0750E+00
34.250	5.9694E+00	36.000	5.8481E+00	38.500	5.6780E+00
41.000	5.5119E+00	43.000	5.3810E+00	44.500	5.2840E+00
45.500	5.2197E+00	46.500	5.1558E+00	47.500	5.0922E+00
49.000	4.9966E+00	51.000	4.8692E+00	53.000	4.7418E+00
55.500	4.5827E+00	57.750	4.4397E+00	59.250	4.3445E+00
60.500	4.2655E+00	61.500	4.2024E+00	62.500	4.1395E+00
63.750	4.0611E+00	65.250	3.9676E+00	67.000	3.8590E+00
69.500	3.7050E+00	72.500	3.5224E+00	75.500	3.3419E+00
78.500	3.1636E+00	81.500	2.9874E+00	84.500	2.8130E+00
87.000	2.6691E+00	88.500	2.5833E+00	89.500	2.5262E+00
90.500	2.4693E+00	91.500	2.4125E+00	93.000	2.3274E+00
95.000	2.2142E+00	97.500	2.0728E+00	100.500	1.9024E+00
103.500	1.7298E+00	107.000	1.5232E+00	111.500	1.2382E+00
115.500	9.2898E-01	118.000	7.2762E-01	120.000	5.7340E-01
121.500	5.1371E-01	122.500	4.7623E-01	123.750	4.3222E-01
125.250	3.8408E-01	127.000	3.3327E-01	129.250	2.7589E-01
131.500	2.2640E-01	133.750	1.8245E-01	137.500	1.1948E-01
142.500	5.7529E-02	146.500	2.4267E-02	149.000	8.9606E-03
150.700	7.3659E-04	151.900	-4.1011E-03	152.700	-6.9055E-03
153.500	-9.4710E-03	157.000	-1.9068E-02	162.500	-2.4076E-02
167.500	-2.4956E-02	172.500	-2.4222E-02	176.500	-2.3134E-02
179.000	-2.2370E-02	180.500	-2.1895E-02	181.500	-2.1573E-02
182.500	-2.1250E-02	183.500	-2.0924E-02	184.500	-2.0598E-02

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186.000	-2.0108E-02	188.500	-1.9295E-02	192.500	-1.8014E-02
198.500	-1.6167E-02	206.000	-1.4015E-02	215.000	-1.1663E-02
227.500	-8.8012E-03	237.500	-6.9893E-03	250.000	-4.9020E-03
270.000	-2.6301E-03	290.000	-1.1797E-03	310.000	-3.1229E-04
330.000	1.7394E-04	350.000	4.2972E-04	370.000	5.5625E-04
390.000	6.1525E-04	410.000	6.4126E-04	430.000	6.5215E-04
447.500	6.5602E-04	460.000	6.5739E-04	469.000	6.5801E-04
475.500	6.5833E-04	480.000	6.5852E-04	483.500	6.5865E-04
486.000	6.5874E-04	487.500	6.5880E-04	488.500	6.5883E-04
489.000	6.5885E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7607E-02	0.300	2.9956E-02
0.600	4.2723E-02	1.000	5.5884E-02	1.500	7.5555E-02
2.200	9.5370E-02	3.000	1.1466E-01	4.000	1.5818E-01
5.500	2.1664E-01	7.500	2.3732E-01	9.500	2.5394E-01
12.000	2.6383E-01	14.500	2.7112E-01	17.500	2.5066E-01
20.000	2.3609E-01	23.000	2.2144E-01	25.500	1.7279E-01
27.500	1.2989E-01	29.000	9.0621E-02	30.000	7.1439E-02
31.000	7.0448E-02	32.000	8.6903E-02	33.500	1.0237E-01
35.000	1.1742E-01	37.000	1.6437E-01	40.000	1.6014E-01
42.000	1.2623E-01	44.000	9.3447E-02	45.000	6.1933E-02
46.000	6.1595E-02	47.000	6.1385E-02	48.000	9.2230E-02
50.000	1.2324E-01	52.000	1.2335E-01	54.000	1.5412E-01
57.000	1.3822E-01	58.500	9.1871E-02	60.000	7.6203E-02
61.000	6.0727E-02	62.000	6.0472E-02	63.000	7.5252E-02
64.500	8.9655E-02	66.000	1.0380E-01	68.000	1.4669E-01
71.000	1.7300E-01	74.000	1.6975E-01	77.000	1.6637E-01
80.000	1.6288E-01	83.000	1.5929E-01	86.000	1.2964E-01
88.000	7.6503E-02	89.000	5.0564E-02	90.000	5.0121E-02
91.000	4.9670E-02	92.000	7.3819E-02	94.000	9.6552E-02
96.000	1.1828E-01	99.000	1.3740E-01	102.000	1.3265E-01
105.000	1.4894E-01	109.000	1.8089E-01	114.000	1.4811E-01
117.000	8.7656E-02	119.000	6.7504E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00--

Sensitivity Analysis #1: Soil Sample 1 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\1_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                    50.822
 1 22.530 135.832  3.633 16.394  0.000  0.001  53.328  11333 -0.00462
 2 22.530 135.832  3.985 18.711  0.000  0.001  53.166  11341 -0.00488
 3 22.530 135.832  3.939 18.734  0.000  0.001  53.026  11370 -0.00473
 4 22.530 135.832  3.911 18.735  0.000  0.001  52.914  11343 -0.00480
 5 22.530 135.832  3.889 18.740  0.000  0.001  52.819  11349 -0.00474
 6 22.530 135.832  3.876 18.740  0.000  0.001  52.737  11355 -0.00471
 7 22.530 135.832  3.867 18.740  0.000  0.001  52.664  11381 -0.00476
 8 22.530 135.832  3.864 18.734  0.000  0.001  52.600  11351 -0.00465
 9 22.530 135.832  3.857 18.740  0.000  0.001  52.537  11351 -0.00472
10 22.530 135.832  3.852 18.739  0.000  0.001  52.479  11355 -0.00469
11 50.698 113.700  6.480 40.472  0.000  0.001  56.230  12348 -0.00566
12 50.698 113.759  7.827 41.466  0.000  0.001  57.639  12241 -0.00508
-----
SUM= 326.6951585.780 52.981 266.947  0.000  0.008                -0.05803
```

Sensitivity Analysis #1: Soil Sample 2 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\2_.inp
Results File: c:\a\2_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:14:19.88
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.747E+03	0.1673	293.15	2	1.000E-01	1.401E+03	0.1767 293.15
3	3.000E-01	1.430E+03	0.1759	293.15	4	6.000E-01	1.457E+03	0.1750 293.15
5	1.000E+00	1.447E+03	0.1753	293.15	6	1.500E+00	1.443E+03	0.1755 293.15
7	2.200E+00	1.437E+03	0.1756	293.15	8	3.000E+00	1.429E+03	0.1759 293.15
9	4.000E+00	1.419E+03	0.1762	293.15	10	5.500E+00	1.404E+03	0.1766 293.15
11	7.500E+00	1.384E+03	0.1773	293.15	12	9.500E+00	1.368E+03	0.1778 293.15
13	1.200E+01	1.354E+03	0.1782	293.15	14	1.450E+01	1.349E+03	0.1784 293.15
15	1.750E+01	1.353E+03	0.1783	293.15	16	2.000E+01	1.364E+03	0.1779 293.15
17	2.300E+01	1.385E+03	0.1772	293.15	18	2.550E+01	1.409E+03	0.1765 293.15
19	2.750E+01	1.432E+03	0.1758	293.15	20	2.900E+01	1.450E+03	0.1752 293.15
21	3.000E+01	1.463E+03	0.1748	293.15	22	3.100E+01	1.477E+03	0.1744 293.15
23	3.200E+01	1.491E+03	0.1740	293.15	24	3.350E+01	1.512E+03	0.1734 293.15
25	3.500E+01	1.535E+03	0.1728	293.15	26	3.700E+01	1.565E+03	0.1720 293.15
27	4.000E+01	1.609E+03	0.1708	293.15	28	4.200E+01	1.636E+03	0.1701 293.15
29	4.400E+01	1.661E+03	0.1694	293.15	30	4.500E+01	1.672E+03	0.1692 293.15
31	4.600E+01	1.682E+03	0.1689	293.15	32	4.700E+01	1.714E+03	0.1681 293.15
33	4.800E+01	1.813E+03	0.1658	293.15	34	5.000E+01	2.011E+03	0.1616 293.15
35	5.200E+01	2.211E+03	0.1579	293.15	36	5.400E+01	2.439E+03	0.1541 293.15
37	5.700E+01	2.924E+03	0.1473	293.15	38	5.850E+01	3.289E+03	0.1431 293.15
39	6.000E+01	3.800E+03	0.1382	293.15	40	6.100E+01	4.263E+03	0.1343 293.15
41	6.200E+01	4.872E+03	0.1300	293.15	42	6.300E+01	5.693E+03	0.1252 293.15
43	6.450E+01	7.574E+03	0.1169	293.15	44	6.600E+01	1.059E+04	0.1079 293.15
45	6.800E+01	1.550E+04	0.0987	293.15	46	7.100E+01	1.951E+04	0.0936 293.15
47	7.400E+01	2.190E+04	0.0911	293.15	48	7.700E+01	2.423E+04	0.0890 293.15
49	8.000E+01	2.678E+04	0.0870	293.15	50	8.300E+01	2.941E+04	0.0852 293.15
51	8.600E+01	3.186E+04	0.0837	293.15	52	8.800E+01	3.329E+04	0.0829 293.15
53	8.900E+01	3.392E+04	0.0825	293.15	54	9.000E+01	3.450E+04	0.0822 293.15
55	9.100E+01	3.502E+04	0.0819	293.15	56	9.200E+01	3.548E+04	0.0817 293.15
57	9.400E+01	3.623E+04	0.0813	293.15	58	9.600E+01	3.676E+04	0.0811 293.15
59	9.900E+01	3.720E+04	0.0808	293.15	60	1.020E+02	3.725E+04	0.0808 293.15
61	1.050E+02	3.692E+04	0.0810	293.15	62	1.090E+02	3.584E+04	0.0815 293.15
63	1.140E+02	3.313E+04	0.0830	293.15	64	1.170E+02	3.062E+04	0.0844 293.15

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65 1.190E+02 2.871E+04 0.0857 293.15	66 1.210E+02 2.676E+04 0.0871 293.15
67 1.220E+02 2.581E+04 0.0878 293.15	68 1.230E+02 2.489E+04 0.0885 293.15
69 1.245E+02 2.359E+04 0.0896 293.15	70 1.260E+02 2.240E+04 0.0907 293.15
71 1.280E+02 2.098E+04 0.0920 293.15	72 1.305E+02 1.949E+04 0.0936 293.15
73 1.325E+02 1.848E+04 0.0948 293.15	74 1.350E+02 1.741E+04 0.0961 293.15
75 1.400E+02 1.575E+04 0.0983 293.15	76 1.450E+02 1.453E+04 0.1002 293.15
77 1.480E+02 1.395E+04 0.1012 293.15	78 1.500E+02 1.361E+04 0.1017 293.15
79 1.514E+02 1.339E+04 0.1021 293.15	80 1.524E+02 1.324E+04 0.1024 293.15
81 1.530E+02 1.316E+04 0.1026 293.15	82 1.540E+02 1.302E+04 0.1028 293.15
83 1.600E+02 1.233E+04 0.1041 293.15	84 1.650E+02 1.188E+04 0.1050 293.15
85 1.700E+02 1.152E+04 0.1058 293.15	86 1.750E+02 1.123E+04 0.1064 293.15
87 1.780E+02 1.108E+04 0.1068 293.15	88 1.800E+02 1.099E+04 0.1070 293.15
89 1.810E+02 1.095E+04 0.1071 293.15	90 1.820E+02 1.091E+04 0.1072 293.15
91 1.830E+02 1.087E+04 0.1073 293.15	92 1.840E+02 1.083E+04 0.1074 293.15
93 1.850E+02 1.080E+04 0.1074 293.15	94 1.870E+02 1.073E+04 0.1076 293.15
95 1.900E+02 1.064E+04 0.1078 293.15	96 1.950E+02 1.051E+04 0.1081 293.15
97 2.020E+02 1.037E+04 0.1085 293.15	98 2.100E+02 1.025E+04 0.1088 293.15
99 2.200E+02 1.015E+04 0.1090 293.15	100 2.350E+02 1.007E+04 0.1092 293.15
101 2.400E+02 1.005E+04 0.1093 293.15	102 2.600E+02 1.002E+04 0.1094 293.15
103 2.800E+02 1.000E+04 0.1094 293.15	104 3.000E+02 1.000E+04 0.1094 293.15
105 3.200E+02 1.000E+04 0.1094 293.15	106 3.400E+02 1.000E+04 0.1094 293.15
107 3.600E+02 1.000E+04 0.1094 293.15	108 3.800E+02 1.000E+04 0.1094 293.15
109 4.000E+02 1.000E+04 0.1094 293.15	110 4.200E+02 1.000E+04 0.1094 293.15
111 4.400E+02 1.000E+04 0.1094 293.15	112 4.550E+02 1.000E+04 0.1094 293.15
113 4.650E+02 1.000E+04 0.1094 293.15	114 4.730E+02 1.000E+04 0.1094 293.15
115 4.780E+02 1.000E+04 0.1094 293.15	116 4.820E+02 1.000E+04 0.1094 293.15
117 4.850E+02 1.000E+04 0.1094 293.15	118 4.870E+02 1.000E+04 0.1094 293.15
119 4.880E+02 1.000E+04 0.1094 293.15	120 4.890E+02 1.000E+04 0.1094 293.15

Initial Water Storage = 55.3509 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
 Depth (cm) = 0.00000
 Water (cm³/cm³) = 0.16063
 Head (cm) = 2.06021E+03
 LiqWater Flow (cm)=-6.80291E-02
 IsoVapor Flow (cm)=-3.59577E-05
 Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

55.3509+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 55.2825 vs. 55.2825

Mass Balance = -1.8971E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.16732

Head (cm) = 1.74749E+03

LiqWater Flow (cm)=-3.95889E-02

IsoVapor Flow (cm)=-2.67214E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

55.3407+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 55.3010 vs. 55.3010

Mass Balance = -8.2209E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]
Potential Transpiration = 1.6719E+01 [cm]
Actual Transpiration = 4.1564E+00 [cm]
Potential Evaporation = 1.1911E+02 [cm]
Actual Evaporation = 1.8428E+01 [cm]
Evaporation during Growth = 1.0533E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 2.2530E+01 [cm]
Total Basal Liquid Flux (drainage) = 3.5725E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.5301E+01 [cm]
 Mass Balance Error = -5.1560E-03 [cm]
 Total Successful Time Steps = 11576
 Total Attempted Time Steps = 12983
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6475
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	4.1017E+00	0.050	5.6938E+00	0.200	4.9520E+00
0.450	4.3750E+00	0.800	4.1432E+00	1.250	4.0720E+00
1.850	3.9992E+00	2.600	3.9153E+00	3.500	3.8178E+00
4.750	3.6848E+00	6.500	3.5030E+00	8.500	3.3052E+00
10.750	3.0962E+00	13.250	2.8826E+00	16.000	2.6663E+00
18.750	2.4688E+00	21.500	2.2849E+00	24.250	2.1149E+00
26.500	1.9837E+00	28.250	1.8860E+00	29.500	1.8182E+00
30.500	1.7651E+00	31.500	1.7128E+00	32.750	1.6487E+00
34.250	1.5735E+00	36.000	1.4879E+00	38.500	1.3692E+00
41.000	1.2550E+00	43.000	1.1658E+00	44.500	1.1003E+00
45.500	1.0572E+00	46.500	1.0140E+00	47.500	9.7043E-01
49.000	9.0801E-01	51.000	8.2871E-01	53.000	7.5327E-01
55.500	6.6372E-01	57.750	5.8716E-01	59.250	5.3757E-01
60.500	4.9714E-01	61.500	4.6534E-01	62.500	4.3404E-01
63.750	3.9567E-01	65.250	3.5083E-01	67.000	3.0031E-01
69.500	2.3227E-01	72.500	1.5952E-01	75.500	9.9339E-02
78.500	5.6159E-02	81.500	3.0664E-02	84.500	1.7321E-02
87.000	1.1231E-02	88.500	8.7545E-03	89.500	7.4092E-03
90.500	6.2707E-03	91.500	5.2977E-03	93.000	4.0586E-03
95.000	2.7631E-03	97.500	1.4651E-03	100.500	1.8022E-04
103.500	-1.0625E-03	107.000	-2.7523E-03	111.500	-6.0521E-03
115.500	-1.1644E-02	118.000	-1.7548E-02	120.000	-2.4669E-02
121.500	-2.6172E-02	122.500	-2.7044E-02	123.750	-2.7989E-02
125.250	-2.8917E-02	127.000	-2.9713E-02	129.250	-3.0329E-02
131.500	-3.0557E-02	133.750	-3.0450E-02	137.500	-2.9711E-02
142.500	-2.8067E-02	146.500	-2.6435E-02	149.000	-2.5326E-02
150.700	-2.4548E-02	151.900	-2.3992E-02	152.700	-2.3620E-02
153.500	-2.3245E-02	157.000	-2.1569E-02	162.500	-1.9049E-02
167.500	-1.6845E-02	172.500	-1.4771E-02	176.500	-1.3233E-02
179.000	-1.2319E-02	180.500	-1.1789E-02	181.500	-1.1442E-02
182.500	-1.1102E-02	183.500	-1.0768E-02	184.500	-1.0441E-02

186.000	-9.9593E-03	188.500	-9.1898E-03	192.500	-8.0361E-03
198.500	-6.4969E-03	206.000	-4.8906E-03	215.000	-3.3565E-03
227.500	-1.8094E-03	237.500	-1.0980E-03	250.000	-3.7421E-04
270.000	1.0317E-04	290.000	2.7749E-04	310.000	3.3445E-04
330.000	3.5127E-04	350.000	3.5580E-04	370.000	3.5692E-04
390.000	3.5718E-04	410.000	3.5723E-04	430.000	3.5724E-04
447.500	3.5725E-04	460.000	3.5725E-04	469.000	3.5725E-04
475.500	3.5725E-04	480.000	3.5725E-04	483.500	3.5725E-04
486.000	3.5725E-04	487.500	3.5725E-04	488.500	3.5725E-04
489.000	3.5725E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	9.3802E-03	0.300	1.7119E-02
0.600	2.6362E-02	1.000	3.7093E-02	1.500	5.3491E-02
2.200	7.1598E-02	3.000	8.9642E-02	4.000	1.2730E-01
5.500	1.7771E-01	7.500	1.9540E-01	9.500	2.0768E-01
12.000	2.1275E-01	14.500	2.1577E-01	17.500	1.9713E-01
20.000	1.8375E-01	23.000	1.6999E-01	25.500	1.3115E-01
27.500	9.7681E-02	29.000	6.7711E-02	30.000	5.3163E-02
31.000	5.2218E-02	32.000	6.4152E-02	33.500	7.5090E-02
35.000	8.5583E-02	37.000	1.1874E-01	40.000	1.1413E-01
42.000	8.9147E-02	44.000	6.5440E-02	45.000	4.3203E-02
46.000	4.2820E-02	47.000	4.2281E-02	48.000	6.1816E-02
50.000	7.8303E-02	52.000	7.4454E-02	54.000	8.8856E-02
57.000	7.5701E-02	58.500	4.9203E-02	60.000	3.9985E-02
61.000	3.1430E-02	62.000	3.0844E-02	63.000	3.7774E-02
64.500	4.3781E-02	66.000	4.9031E-02	68.000	6.5512E-02
71.000	6.8464E-02	74.000	5.5660E-02	77.000	4.0968E-02
80.000	2.7522E-02	83.000	1.7901E-02	86.000	9.9191E-03
88.000	4.6177E-03	89.000	2.7289E-03	90.000	2.4324E-03
91.000	2.1808E-03	92.000	2.9510E-03	94.000	3.2771E-03
96.000	3.5296E-03	99.000	3.6901E-03	102.000	3.6330E-03
105.000	4.7274E-03	109.000	8.1289E-03	114.000	1.1755E-02
117.000	1.0352E-02	119.000	1.0648E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00-

Sensitivity Analysis #1: Soil Sample 2 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\2_.inp
Results File: c:\a\2_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:14:19.88
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.747E+03	0.1673	293.15	2	1.000E-01	1.401E+03	0.1767
3	3.000E-01	1.430E+03	0.1759	293.15	4	6.000E-01	1.457E+03	0.1750
5	1.000E+00	1.447E+03	0.1753	293.15	6	1.500E+00	1.443E+03	0.1755
7	2.200E+00	1.437E+03	0.1756	293.15	8	3.000E+00	1.429E+03	0.1759
9	4.000E+00	1.419E+03	0.1762	293.15	10	5.500E+00	1.404E+03	0.1766
11	7.500E+00	1.384E+03	0.1773	293.15	12	9.500E+00	1.368E+03	0.1778
13	1.200E+01	1.354E+03	0.1782	293.15	14	1.450E+01	1.349E+03	0.1784
15	1.750E+01	1.353E+03	0.1783	293.15	16	2.000E+01	1.364E+03	0.1779
17	2.300E+01	1.385E+03	0.1772	293.15	18	2.550E+01	1.409E+03	0.1765
19	2.750E+01	1.432E+03	0.1758	293.15	20	2.900E+01	1.450E+03	0.1752
21	3.000E+01	1.463E+03	0.1748	293.15	22	3.100E+01	1.477E+03	0.1744
23	3.200E+01	1.491E+03	0.1740	293.15	24	3.350E+01	1.512E+03	0.1734
25	3.500E+01	1.535E+03	0.1728	293.15	26	3.700E+01	1.565E+03	0.1720
27	4.000E+01	1.609E+03	0.1708	293.15	28	4.200E+01	1.636E+03	0.1701
29	4.400E+01	1.661E+03	0.1694	293.15	30	4.500E+01	1.672E+03	0.1691
31	4.600E+01	1.682E+03	0.1689	293.15	32	4.700E+01	1.714E+03	0.1681
33	4.800E+01	1.813E+03	0.1658	293.15	34	5.000E+01	2.011E+03	0.1616
35	5.200E+01	2.211E+03	0.1578	293.15	36	5.400E+01	2.439E+03	0.1541
37	5.700E+01	2.924E+03	0.1473	293.15	38	5.850E+01	3.289E+03	0.1431
39	6.000E+01	3.801E+03	0.1382	293.15	40	6.100E+01	4.263E+03	0.1343
41	6.200E+01	4.872E+03	0.1300	293.15	42	6.300E+01	5.694E+03	0.1252
43	6.450E+01	7.576E+03	0.1169	293.15	44	6.600E+01	1.060E+04	0.1079
45	6.800E+01	1.551E+04	0.0987	293.15	46	7.100E+01	1.952E+04	0.0936
47	7.400E+01	2.191E+04	0.0911	293.15	48	7.700E+01	2.425E+04	0.0890
49	8.000E+01	2.680E+04	0.0870	293.15	50	8.300E+01	2.944E+04	0.0852
51	8.600E+01	3.190E+04	0.0837	293.15	52	8.800E+01	3.332E+04	0.0829
53	8.900E+01	3.396E+04	0.0825	293.15	54	9.000E+01	3.454E+04	0.0822
55	9.100E+01	3.506E+04	0.0819	293.15	56	9.200E+01	3.552E+04	0.0817
57	9.400E+01	3.628E+04	0.0813	293.15	58	9.600E+01	3.682E+04	0.0810
59	9.900E+01	3.728E+04	0.0808	293.15	60	1.020E+02	3.735E+04	0.0808
61	1.050E+02	3.706E+04	0.0809	293.15	62	1.090E+02	3.605E+04	0.0814
63	1.140E+02	3.348E+04	0.0828	293.15	64	1.170E+02	3.107E+04	0.0842

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65	1.190E+02	2.922E+04	0.0853	293.15	66	1.210E+02	2.731E+04	0.0866	293.15
67	1.220E+02	2.638E+04	0.0873	293.15	68	1.230E+02	2.547E+04	0.0880	293.15
69	1.245E+02	2.418E+04	0.0891	293.15	70	1.260E+02	2.299E+04	0.0901	293.15
71	1.280E+02	2.157E+04	0.0914	293.15	72	1.305E+02	2.006E+04	0.0930	293.15
73	1.325E+02	1.903E+04	0.0941	293.15	74	1.350E+02	1.793E+04	0.0954	293.15
75	1.400E+02	1.621E+04	0.0977	293.15	76	1.450E+02	1.494E+04	0.0996	293.15
77	1.480E+02	1.432E+04	0.1005	293.15	78	1.500E+02	1.396E+04	0.1011	293.15
79	1.514E+02	1.373E+04	0.1015	293.15	80	1.524E+02	1.358E+04	0.1018	293.15
81	1.530E+02	1.349E+04	0.1020	293.15	82	1.540E+02	1.334E+04	0.1022	293.15
83	1.600E+02	1.261E+04	0.1036	293.15	84	1.650E+02	1.213E+04	0.1045	293.15
85	1.700E+02	1.174E+04	0.1053	293.15	86	1.750E+02	1.142E+04	0.1060	293.15
87	1.780E+02	1.126E+04	0.1064	293.15	88	1.800E+02	1.116E+04	0.1066	293.15
89	1.810E+02	1.111E+04	0.1067	293.15	90	1.820E+02	1.107E+04	0.1068	293.15
91	1.830E+02	1.103E+04	0.1069	293.15	92	1.840E+02	1.099E+04	0.1070	293.15
93	1.850E+02	1.095E+04	0.1071	293.15	94	1.870E+02	1.087E+04	0.1073	293.15
95	1.900E+02	1.077E+04	0.1075	293.15	96	1.950E+02	1.062E+04	0.1079	293.15
97	2.020E+02	1.046E+04	0.1082	293.15	98	2.100E+02	1.032E+04	0.1086	293.15
99	2.200E+02	1.020E+04	0.1089	293.15	100	2.350E+02	1.010E+04	0.1092	293.15
101	2.400E+02	1.007E+04	0.1092	293.15	102	2.600E+02	1.003E+04	0.1093	293.15
103	2.800E+02	1.001E+04	0.1094	293.15	104	3.000E+02	1.000E+04	0.1094	293.15
105	3.200E+02	1.000E+04	0.1094	293.15	106	3.400E+02	1.000E+04	0.1094	293.15
107	3.600E+02	1.000E+04	0.1094	293.15	108	3.800E+02	1.000E+04	0.1094	293.15
109	4.000E+02	1.000E+04	0.1094	293.15	110	4.200E+02	1.000E+04	0.1094	293.15
111	4.400E+02	1.000E+04	0.1094	293.15	112	4.550E+02	1.000E+04	0.1094	293.15
113	4.650E+02	1.000E+04	0.1094	293.15	114	4.730E+02	1.000E+04	0.1094	293.15
115	4.780E+02	1.000E+04	0.1094	293.15	116	4.820E+02	1.000E+04	0.1094	293.15
117	4.850E+02	1.000E+04	0.1094	293.15	118	4.870E+02	1.000E+04	0.1094	293.15
119	4.880E+02	1.000E+04	0.1094	293.15	120	4.890E+02	1.000E+04	0.1094	293.15

Initial Water Storage = 55.3010 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.16449
Head (cm) = 1.87171E+03
LiqWater Flow (cm)=-4.41349E-02
IsoVapor Flow (cm)=-2.38938E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

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PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

55.3010+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 55.2567 vs. 55.2567

Mass Balance = -8.6885E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.20215

Head (cm) = 8.13901E+02

LiqWater Flow (cm)= 3.58622E-04

IsoVapor Flow (cm)=-2.17277E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

58.8922+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 58.8922 vs. 58.8922

Mass Balance = -1.7339E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]
Potential Transpiration = 1.3848E+01 [cm]
Actual Transpiration = 7.0269E+00 [cm]
Potential Evaporation = 9.9853E+01 [cm]
Actual Evaporation = 4.0086E+01 [cm]
Evaporation during Growth = 2.5915E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 3.5823E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.8892E+01 [cm]
 Mass Balance Error = -6.2318E-03 [cm]
 Total Successful Time Steps = 12647
 Total Attempted Time Steps = 14241
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3582
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.0612E+01	0.050	1.1758E+01	0.200	1.0814E+01
0.450	1.0607E+01	0.800	1.0532E+01	1.250	1.0458E+01
1.850	1.0360E+01	2.600	1.0237E+01	3.500	1.0090E+01
4.750	9.8865E+00	6.500	9.6068E+00	8.500	9.2998E+00
10.750	8.9720E+00	13.250	8.6330E+00	16.000	8.2869E+00
18.750	7.9695E+00	21.500	7.6731E+00	24.250	7.3983E+00
26.500	7.1863E+00	28.250	7.0283E+00	29.500	6.9188E+00
30.500	6.8328E+00	31.500	6.7483E+00	32.750	6.6443E+00
34.250	6.5222E+00	36.000	6.3825E+00	38.500	6.1871E+00
41.000	5.9960E+00	43.000	5.8446E+00	44.500	5.7319E+00
45.500	5.6569E+00	46.500	5.5820E+00	47.500	5.5065E+00
49.000	5.3888E+00	51.000	5.2207E+00	53.000	5.0427E+00
55.500	4.8088E+00	57.750	4.5824E+00	59.250	4.4256E+00
60.500	4.2895E+00	61.500	4.1774E+00	62.500	4.0617E+00
63.750	3.9120E+00	65.250	3.7218E+00	67.000	3.4867E+00
69.500	3.1348E+00	72.500	2.7121E+00	75.500	2.2998E+00
78.500	1.9023E+00	81.500	1.5243E+00	84.500	1.1723E+00
87.000	9.0581E-01	88.500	7.5846E-01	89.500	6.6560E-01
90.500	5.7792E-01	91.500	4.9564E-01	93.000	3.8275E-01
95.000	2.5183E-01	97.500	1.1677E-01	100.500	2.1806E-02
103.500	2.4025E-03	107.000	-1.9058E-03	111.500	-5.7631E-03
115.500	-1.1081E-02	118.000	-1.6351E-02	120.000	-2.2430E-02
121.500	-2.3888E-02	122.500	-2.4766E-02	123.750	-2.5750E-02
125.250	-2.6751E-02	127.000	-2.7669E-02	129.250	-2.8466E-02
131.500	-2.8880E-02	133.750	-2.8964E-02	137.500	-2.8534E-02
142.500	-2.7252E-02	146.500	-2.5877E-02	149.000	-2.4915E-02
150.700	-2.4233E-02	151.900	-2.3741E-02	152.700	-2.3409E-02
153.500	-2.3075E-02	157.000	-2.1569E-02	162.500	-1.9268E-02
167.500	-1.7226E-02	172.500	-1.5279E-02	176.500	-1.3819E-02
179.000	-1.2944E-02	180.500	-1.2434E-02	181.500	-1.2100E-02
182.500	-1.1771E-02	183.500	-1.1448E-02	184.500	-1.1130E-02

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186.000	-1.0661E-02	188.500	-9.9078E-03	192.500	-8.7696E-03
198.500	-7.2302E-03	206.000	-5.5906E-03	215.000	-3.9842E-03
227.500	-2.3057E-03	237.500	-1.4869E-03	250.000	-6.3338E-04
270.000	-1.8518E-05	290.000	2.2827E-04	310.000	3.1727E-04
330.000	3.4636E-04	350.000	3.5505E-04	370.000	3.5743E-04
390.000	3.5804E-04	410.000	3.5819E-04	430.000	3.5822E-04
447.500	3.5822E-04	460.000	3.5823E-04	469.000	3.5823E-04
475.500	3.5823E-04	480.000	3.5823E-04	483.500	3.5823E-04
486.000	3.5823E-04	487.500	3.5823E-04	488.500	3.5823E-04
489.000	3.5823E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7213E-02	0.300	3.0212E-02
0.600	4.4402E-02	1.000	5.9674E-02	1.500	8.2508E-02
2.200	1.0627E-01	3.000	1.2963E-01	4.000	1.8085E-01
5.500	2.5005E-01	7.500	2.7565E-01	9.500	2.9566E-01
12.000	3.0716E-01	14.500	3.1522E-01	17.500	2.9137E-01
20.000	2.7440E-01	23.000	2.5712E-01	25.500	2.0042E-01
27.500	1.5051E-01	29.000	1.0493E-01	30.000	8.2672E-02
31.000	8.1487E-02	32.000	1.0048E-01	33.500	1.1829E-01
35.000	1.3561E-01	37.000	1.8968E-01	40.000	1.8456E-01
42.000	1.4534E-01	44.000	1.0750E-01	45.000	7.1213E-02
46.000	7.0793E-02	47.000	7.0459E-02	48.000	1.0543E-01
50.000	1.3977E-01	52.000	1.3870E-01	54.000	1.7167E-01
57.000	1.5172E-01	58.500	9.9904E-02	60.000	8.1941E-02
61.000	6.4734E-02	62.000	6.3873E-02	63.000	7.8710E-02
64.500	9.2288E-02	66.000	1.0500E-01	68.000	1.4454E-01
71.000	1.6258E-01	74.000	1.5021E-01	77.000	1.3552E-01
80.000	1.1750E-01	83.000	9.5875E-02	86.000	5.9120E-02
88.000	2.6621E-02	89.000	1.4860E-02	90.000	1.2146E-02
91.000	9.6866E-03	92.000	1.1328E-02	94.000	8.9651E-03
96.000	6.7123E-03	99.000	4.6109E-03	102.000	3.5538E-03
105.000	4.1694E-03	109.000	6.8976E-03	114.000	9.8091E-03
117.000	8.5139E-03	119.000	8.6346E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00-----

Sensitivity Analysis #1: Soil Sample 2 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\2_.inp
Results File: c:\a\2_1957.res
Date of Run: 08 Jun 2021
Time of Run: 14:14:19.88
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	8.139E+02	0.2022	293.15	2	1.000E-01	9.814E+02	0.1930 293.15
3	3.000E-01	1.019E+03	0.1912	293.15	4	6.000E-01	9.709E+02	0.1935 293.15
5	1.000E+00	9.685E+02	0.1937	293.15	6	1.500E+00	9.731E+02	0.1934 293.15
7	2.200E+00	9.729E+02	0.1934	293.15	8	3.000E+00	9.739E+02	0.1934 293.15
9	4.000E+00	9.761E+02	0.1933	293.15	10	5.500E+00	9.811E+02	0.1930 293.15
11	7.500E+00	9.909E+02	0.1926	293.15	12	9.500E+00	1.005E+03	0.1919 293.15
13	1.200E+01	1.027E+03	0.1909	293.15	14	1.450E+01	1.056E+03	0.1896 293.15
15	1.750E+01	1.099E+03	0.1877	293.15	16	2.000E+01	1.142E+03	0.1859 293.15
17	2.300E+01	1.201E+03	0.1836	293.15	18	2.550E+01	1.255E+03	0.1816 293.15
19	2.750E+01	1.300E+03	0.1800	293.15	20	2.900E+01	1.334E+03	0.1789 293.15
21	3.000E+01	1.356E+03	0.1782	293.15	22	3.100E+01	1.377E+03	0.1775 293.15
23	3.200E+01	1.398E+03	0.1768	293.15	24	3.350E+01	1.427E+03	0.1759 293.15
25	3.500E+01	1.454E+03	0.1751	293.15	26	3.700E+01	1.483E+03	0.1743 293.15
27	4.000E+01	1.513E+03	0.1734	293.15	28	4.200E+01	1.525E+03	0.1731 293.15
29	4.400E+01	1.529E+03	0.1729	293.15	30	4.500E+01	1.530E+03	0.1729 293.15
31	4.600E+01	1.528E+03	0.1730	293.15	32	4.700E+01	1.522E+03	0.1731 293.15
33	4.800E+01	1.496E+03	0.1739	293.15	34	5.000E+01	1.433E+03	0.1757 293.15
35	5.200E+01	1.378E+03	0.1775	293.15	36	5.400E+01	1.334E+03	0.1789 293.15
37	5.700E+01	1.289E+03	0.1804	293.15	38	5.850E+01	1.274E+03	0.1810 293.15
39	6.000E+01	1.264E+03	0.1813	293.15	40	6.100E+01	1.259E+03	0.1815 293.15
41	6.200E+01	1.256E+03	0.1816	293.15	42	6.300E+01	1.255E+03	0.1816 293.15
43	6.450E+01	1.257E+03	0.1816	293.15	44	6.600E+01	1.262E+03	0.1814 293.15
45	6.800E+01	1.276E+03	0.1809	293.15	46	7.100E+01	1.309E+03	0.1798 293.15
47	7.400E+01	1.360E+03	0.1781	293.15	48	7.700E+01	1.432E+03	0.1758 293.15
49	8.000E+01	1.534E+03	0.1728	293.15	50	8.300E+01	1.675E+03	0.1691 293.15
51	8.600E+01	1.878E+03	0.1644	293.15	52	8.800E+01	2.065E+03	0.1605 293.15
53	8.900E+01	2.181E+03	0.1584	293.15	54	9.000E+01	2.318E+03	0.1560 293.15
55	9.100E+01	2.479E+03	0.1534	293.15	56	9.200E+01	2.674E+03	0.1506 293.15
57	9.400E+01	3.218E+03	0.1439	293.15	58	9.600E+01	4.140E+03	0.1353 293.15
59	9.900E+01	8.491E+03	0.1137	293.15	60	1.020E+02	2.414E+04	0.0891 293.15
61	1.050E+02	3.355E+04	0.0827	293.15	62	1.090E+02	3.505E+04	0.0819 293.15
63	1.140E+02	3.315E+04	0.0829	293.15	64	1.170E+02	3.098E+04	0.0842 293.15

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65	1.190E+02	2.929E+04	0.0853	293.15	66	1.210E+02	2.751E+04	0.0865	293.15
67	1.220E+02	2.663E+04	0.0871	293.15	68	1.230E+02	2.578E+04	0.0878	293.15
69	1.245E+02	2.455E+04	0.0888	293.15	70	1.260E+02	2.341E+04	0.0897	293.15
71	1.280E+02	2.203E+04	0.0910	293.15	72	1.305E+02	2.053E+04	0.0925	293.15
73	1.325E+02	1.951E+04	0.0936	293.15	74	1.350E+02	1.840E+04	0.0949	293.15
75	1.400E+02	1.664E+04	0.0971	293.15	76	1.450E+02	1.531E+04	0.0990	293.15
77	1.480E+02	1.468E+04	0.1000	293.15	78	1.500E+02	1.430E+04	0.1006	293.15
79	1.514E+02	1.406E+04	0.1010	293.15	80	1.524E+02	1.389E+04	0.1013	293.15
81	1.530E+02	1.380E+04	0.1014	293.15	82	1.540E+02	1.365E+04	0.1017	293.15
83	1.600E+02	1.287E+04	0.1031	293.15	84	1.650E+02	1.236E+04	0.1041	293.15
85	1.700E+02	1.195E+04	0.1049	293.15	86	1.750E+02	1.161E+04	0.1056	293.15
87	1.780E+02	1.143E+04	0.1060	293.15	88	1.800E+02	1.133E+04	0.1062	293.15
89	1.810E+02	1.128E+04	0.1063	293.15	90	1.820E+02	1.123E+04	0.1064	293.15
91	1.830E+02	1.118E+04	0.1066	293.15	92	1.840E+02	1.114E+04	0.1067	293.15
93	1.850E+02	1.109E+04	0.1068	293.15	94	1.870E+02	1.101E+04	0.1069	293.15
95	1.900E+02	1.090E+04	0.1072	293.15	96	1.950E+02	1.074E+04	0.1076	293.15
97	2.020E+02	1.056E+04	0.1080	293.15	98	2.100E+02	1.040E+04	0.1084	293.15
99	2.200E+02	1.026E+04	0.1087	293.15	100	2.350E+02	1.013E+04	0.1091	293.15
101	2.400E+02	1.010E+04	0.1091	293.15	102	2.600E+02	1.004E+04	0.1093	293.15
103	2.800E+02	1.001E+04	0.1094	293.15	104	3.000E+02	1.000E+04	0.1094	293.15
105	3.200E+02	1.000E+04	0.1094	293.15	106	3.400E+02	1.000E+04	0.1094	293.15
107	3.600E+02	1.000E+04	0.1094	293.15	108	3.800E+02	1.000E+04	0.1094	293.15
109	4.000E+02	1.000E+04	0.1094	293.15	110	4.200E+02	1.000E+04	0.1094	293.15
111	4.400E+02	1.000E+04	0.1094	293.15	112	4.550E+02	1.000E+04	0.1094	293.15
113	4.650E+02	1.000E+04	0.1094	293.15	114	4.730E+02	1.000E+04	0.1094	293.15
115	4.780E+02	1.000E+04	0.1094	293.15	116	4.820E+02	1.000E+04	0.1094	293.15
117	4.850E+02	1.000E+04	0.1094	293.15	118	4.870E+02	1.000E+04	0.1094	293.15
119	4.880E+02	1.000E+04	0.1094	293.15	120	4.890E+02	1.000E+04	0.1094	293.15

Initial Water Storage = 58.8922 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.19451
Head (cm) = 9.51636E+02
LiqWater Flow (cm)=-4.38849E-02
IsoVapor Flow (cm)=-3.18758E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

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PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

58.8922+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 58.8479 vs. 58.8479

Mass Balance = -1.7036E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.17406

Head (cm) = 1.48992E+03

LiqWater Flow (cm)=-5.78867E-02

IsoVapor Flow (cm)=-4.62308E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

60.0312+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 59.9727 vs. 59.9727

Mass Balance = -2.8060E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1376E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 8.5689E+00 [cm]

Potential Evaporation = 9.9911E+01 [cm]

Actual Evaporation = 4.1054E+01 [cm]

Evaporation during Growth = 2.6810E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 3.5823E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.9973E+01 [cm]
 Mass Balance Error = -5.6663E-03 [cm]
 Total Successful Time Steps = 12475
 Total Attempted Time Steps = 13996
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3535
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	9.6441E+00	0.050	1.0551E+01	0.200	9.7772E+00
0.450	9.6335E+00	0.800	9.5763E+00	1.250	9.5116E+00
1.850	9.4256E+00	2.600	9.3174E+00	3.500	9.1868E+00
4.750	9.0056E+00	6.500	8.7556E+00	8.500	8.4796E+00
10.750	8.1828E+00	13.250	7.8729E+00	16.000	7.5533E+00
18.750	7.2561E+00	21.500	6.9748E+00	24.250	6.7098E+00
26.500	6.5025E+00	28.250	6.3464E+00	29.500	6.2374E+00
30.500	6.1514E+00	31.500	6.0666E+00	32.750	5.9619E+00
34.250	5.8385E+00	36.000	5.6969E+00	38.500	5.4987E+00
41.000	5.3057E+00	43.000	5.1536E+00	44.500	5.0410E+00
45.500	4.9664E+00	46.500	4.8923E+00	47.500	4.8185E+00
49.000	4.7076E+00	51.000	4.5596E+00	53.000	4.4115E+00
55.500	4.2265E+00	57.750	4.0603E+00	59.250	3.9498E+00
60.500	3.8580E+00	61.500	3.7848E+00	62.500	3.7118E+00
63.750	3.6211E+00	65.250	3.5130E+00	67.000	3.3879E+00
69.500	3.2110E+00	72.500	3.0020E+00	75.500	2.7962E+00
78.500	2.5934E+00	81.500	2.3933E+00	84.500	2.1958E+00
87.000	2.0325E+00	88.500	1.9348E+00	89.500	1.8696E+00
90.500	1.8043E+00	91.500	1.7387E+00	93.000	1.6397E+00
95.000	1.5050E+00	97.500	1.3295E+00	100.500	1.0824E+00
103.500	7.9625E-01	107.000	4.9980E-01	111.500	2.3042E-01
115.500	9.2180E-02	118.000	3.9630E-02	120.000	1.1249E-02
121.500	2.0368E-03	122.500	-3.1068E-03	123.750	-8.5392E-03
125.250	-1.3584E-02	127.000	-1.8097E-02	129.250	-2.2070E-02
131.500	-2.4404E-02	133.750	-2.5793E-02	137.500	-2.6687E-02
142.500	-2.6155E-02	146.500	-2.5123E-02	149.000	-2.4331E-02
150.700	-2.3750E-02	151.900	-2.3325E-02	152.700	-2.3036E-02
153.500	-2.2742E-02	157.000	-2.1406E-02	162.500	-1.9316E-02
167.500	-1.7432E-02	172.500	-1.5613E-02	176.500	-1.4234E-02
179.000	-1.3402E-02	180.500	-1.2915E-02	181.500	-1.2595E-02
182.500	-1.2280E-02	183.500	-1.1969E-02	184.500	-1.1663E-02

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186.000	-1.1210E-02	188.500	-1.0480E-02	192.500	-9.3685E-03
198.500	-7.8486E-03	206.000	-6.2022E-03	215.000	-4.5550E-03
227.500	-2.7830E-03	237.500	-1.8754E-03	250.000	-9.1060E-04
270.000	-1.6206E-04	290.000	1.6361E-04	310.000	2.9148E-04
330.000	3.3712E-04	350.000	3.5204E-04	370.000	3.5654E-04
390.000	3.5780E-04	410.000	3.5812E-04	430.000	3.5820E-04
447.500	3.5822E-04	460.000	3.5822E-04	469.000	3.5823E-04
475.500	3.5823E-04	480.000	3.5823E-04	483.500	3.5823E-04
486.000	3.5823E-04	487.500	3.5823E-04	488.500	3.5823E-04
489.000	3.5823E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7775E-02	0.300	3.1061E-02
0.600	4.5519E-02	1.000	6.1020E-02	1.500	8.4200E-02
2.200	1.0826E-01	3.000	1.3188E-01	4.000	1.8380E-01
5.500	2.5387E-01	7.500	2.7969E-01	9.500	2.9994E-01
12.000	3.1167E-01	14.500	3.1996E-01	17.500	2.9585E-01
20.000	2.7874E-01	23.000	2.6136E-01	25.500	2.0385E-01
27.500	1.5316E-01	29.000	1.0682E-01	30.000	8.4196E-02
31.000	8.3015E-02	32.000	1.0239E-01	33.500	1.2059E-01
35.000	1.3830E-01	37.000	1.9354E-01	40.000	1.8848E-01
42.000	1.4851E-01	44.000	1.0991E-01	45.000	7.2831E-02
46.000	7.2424E-02	47.000	7.2155E-02	48.000	1.0831E-01
50.000	1.4449E-01	52.000	1.4438E-01	54.000	1.7998E-01
57.000	1.6109E-01	58.500	1.0693E-01	60.000	8.8619E-02
61.000	7.0572E-02	62.000	7.0190E-02	63.000	8.7154E-02
64.500	1.0350E-01	66.000	1.1943E-01	68.000	1.6802E-01
71.000	1.9678E-01	74.000	1.9174E-01	77.000	1.8651E-01
80.000	1.8083E-01	83.000	1.7458E-01	86.000	1.3994E-01
88.000	8.1618E-02	89.000	5.3601E-02	90.000	5.2767E-02
91.000	5.1909E-02	92.000	7.6538E-02	94.000	9.8339E-02
96.000	1.1794E-01	99.000	1.3157E-01	102.000	1.2002E-01
105.000	1.2387E-01	109.000	1.2215E-01	114.000	6.0433E-02
117.000	2.4452E-02	119.000	1.5864E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00-

Sensitivity Analysis #1: Soil Sample 2 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\2_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

Initial storage =					53.503				
1	22.530	135.832	3.915	16.000	0.000	0.000	56.122	11559	-0.00496
2	22.530	135.832	4.344	18.372	0.000	0.000	55.941	11576	-0.00508
3	22.530	135.832	4.262	18.425	0.000	0.000	55.789	11565	-0.00520
4	22.530	135.832	4.219	18.422	0.000	0.000	55.682	11564	-0.00506
5	22.530	135.832	4.193	18.428	0.000	0.000	55.596	11577	-0.00501
6	22.530	135.832	4.178	18.428	0.000	0.000	55.524	11555	-0.00519
7	22.530	135.832	4.170	18.428	0.000	0.000	55.461	11597	-0.00520
8	22.530	135.832	4.168	18.423	0.000	0.000	55.405	11573	-0.00492
9	22.530	135.832	4.161	18.428	0.000	0.000	55.351	11572	-0.00520
10	22.530	135.832	4.156	18.428	0.000	0.000	55.301	11576	-0.00516
11	50.698	113.700	7.027	40.086	0.000	0.000	58.892	12647	-0.00623
12	50.698	113.759	8.569	41.054	0.000	0.000	59.973	12475	-0.00567

SUM= 326.6951585.780 57.362 262.922 0.000 0.004 -0.06288-----									

Sensitivity Analysis #1: Soil Sample 3 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\3_.inp
Results File: c:\a\3_1955.res
Date of Run: 08 Jun 2021
Time of Run: 12:23:48.73
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.056E+03	0.1425	293.15	2	1.000E-01	9.028E+02	0.1490
3	3.000E-01	8.847E+02	0.1499	293.15	4	6.000E-01	9.101E+02	0.1487
5	1.000E+00	9.084E+02	0.1487	293.15	6	1.500E+00	9.047E+02	0.1489
7	2.200E+00	9.026E+02	0.1490	293.15	8	3.000E+00	8.997E+02	0.1491
9	4.000E+00	8.958E+02	0.1493	293.15	10	5.500E+00	8.896E+02	0.1496
11	7.500E+00	8.811E+02	0.1500	293.15	12	9.500E+00	8.728E+02	0.1505
13	1.200E+01	8.632E+02	0.1509	293.15	14	1.450E+01	8.552E+02	0.1514
15	1.750E+01	8.480E+02	0.1517	293.15	16	2.000E+01	8.441E+02	0.1519
17	2.300E+01	8.418E+02	0.1520	293.15	18	2.550E+01	8.416E+02	0.1521
19	2.750E+01	8.423E+02	0.1520	293.15	20	2.900E+01	8.433E+02	0.1520
21	3.000E+01	8.442E+02	0.1519	293.15	22	3.100E+01	8.453E+02	0.1519
23	3.200E+01	8.464E+02	0.1518	293.15	24	3.350E+01	8.484E+02	0.1517
25	3.500E+01	8.506E+02	0.1516	293.15	26	3.700E+01	8.539E+02	0.1514
27	4.000E+01	8.593E+02	0.1511	293.15	28	4.200E+01	8.631E+02	0.1509
29	4.400E+01	8.671E+02	0.1507	293.15	30	4.500E+01	8.690E+02	0.1506
31	4.600E+01	8.710E+02	0.1506	293.15	32	4.700E+01	8.795E+02	0.1501
33	4.800E+01	9.100E+02	0.1487	293.15	34	5.000E+01	9.785E+02	0.1456
35	5.200E+01	1.054E+03	0.1425	293.15	36	5.400E+01	1.131E+03	0.1397
37	5.700E+01	1.244E+03	0.1360	293.15	38	5.850E+01	1.302E+03	0.1343
39	6.000E+01	1.362E+03	0.1326	293.15	40	6.100E+01	1.405E+03	0.1315
41	6.200E+01	1.451E+03	0.1303	293.15	42	6.300E+01	1.502E+03	0.1291
43	6.450E+01	1.590E+03	0.1271	293.15	44	6.600E+01	1.699E+03	0.1249
45	6.800E+01	1.892E+03	0.1213	293.15	46	7.100E+01	2.375E+03	0.1143
47	7.400E+01	3.468E+03	0.1040	293.15	48	7.700E+01	8.273E+03	0.0856
49	8.000E+01	1.614E+04	0.0753	293.15	50	8.300E+01	1.931E+04	0.0730
51	8.600E+01	2.159E+04	0.0717	293.15	52	8.800E+01	2.326E+04	0.0708
53	8.900E+01	2.415E+04	0.0704	293.15	54	9.000E+01	2.506E+04	0.0700
55	9.100E+01	2.599E+04	0.0696	293.15	56	9.200E+01	2.692E+04	0.0692
57	9.400E+01	2.875E+04	0.0685	293.15	58	9.600E+01	3.045E+04	0.0679
59	9.900E+01	3.262E+04	0.0672	293.15	60	1.020E+02	3.420E+04	0.0667
61	1.050E+02	3.512E+04	0.0665	293.15	62	1.090E+02	3.531E+04	0.0664
63	1.140E+02	3.380E+04	0.0668	293.15	64	1.170E+02	3.191E+04	0.0674

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65 1.190E+02 3.031E+04 0.0679 293.15	66 1.210E+02 2.851E+04 0.0686 293.15
67 1.220E+02 2.757E+04 0.0689 293.15	68 1.230E+02 2.663E+04 0.0693 293.15
69 1.245E+02 2.523E+04 0.0699 293.15	70 1.260E+02 2.387E+04 0.0705 293.15
71 1.280E+02 2.219E+04 0.0714 293.15	72 1.305E+02 2.034E+04 0.0724 293.15
73 1.325E+02 1.907E+04 0.0732 293.15	74 1.350E+02 1.771E+04 0.0741 293.15
75 1.400E+02 1.564E+04 0.0758 293.15	76 1.450E+02 1.417E+04 0.0771 293.15
77 1.480E+02 1.350E+04 0.0778 293.15	78 1.500E+02 1.312E+04 0.0782 293.15
79 1.514E+02 1.288E+04 0.0785 293.15	80 1.524E+02 1.273E+04 0.0787 293.15
81 1.530E+02 1.264E+04 0.0788 293.15	82 1.540E+02 1.249E+04 0.0789 293.15
83 1.600E+02 1.179E+04 0.0798 293.15	84 1.650E+02 1.136E+04 0.0804 293.15
85 1.700E+02 1.103E+04 0.0808 293.15	86 1.750E+02 1.078E+04 0.0812 293.15
87 1.780E+02 1.066E+04 0.0814 293.15	88 1.800E+02 1.059E+04 0.0815 293.15
89 1.810E+02 1.055E+04 0.0815 293.15	90 1.820E+02 1.052E+04 0.0816 293.15
91 1.830E+02 1.049E+04 0.0816 293.15	92 1.840E+02 1.046E+04 0.0817 293.15
93 1.850E+02 1.044E+04 0.0817 293.15	94 1.870E+02 1.039E+04 0.0818 293.15
95 1.900E+02 1.032E+04 0.0819 293.15	96 1.950E+02 1.024E+04 0.0820 293.15
97 2.020E+02 1.015E+04 0.0822 293.15	98 2.100E+02 1.009E+04 0.0823 293.15
99 2.200E+02 1.004E+04 0.0823 293.15	100 2.350E+02 1.001E+04 0.0824 293.15
101 2.400E+02 1.001E+04 0.0824 293.15	102 2.600E+02 1.000E+04 0.0824 293.15
103 2.800E+02 1.000E+04 0.0824 293.15	104 3.000E+02 1.000E+04 0.0824 293.15
105 3.200E+02 1.000E+04 0.0824 293.15	106 3.400E+02 1.000E+04 0.0824 293.15
107 3.600E+02 1.000E+04 0.0824 293.15	108 3.800E+02 1.000E+04 0.0824 293.15
109 4.000E+02 1.000E+04 0.0824 293.15	110 4.200E+02 1.000E+04 0.0824 293.15
111 4.400E+02 1.000E+04 0.0824 293.15	112 4.550E+02 1.000E+04 0.0824 293.15
113 4.650E+02 1.000E+04 0.0824 293.15	114 4.730E+02 1.000E+04 0.0824 293.15
115 4.780E+02 1.000E+04 0.0824 293.15	116 4.820E+02 1.000E+04 0.0824 293.15
117 4.850E+02 1.000E+04 0.0824 293.15	118 4.870E+02 1.000E+04 0.0824 293.15
119 4.880E+02 1.000E+04 0.0824 293.15	120 4.890E+02 1.000E+04 0.0824 293.15

Initial Water Storage = 43.9699 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.13774
Head (cm) = 1.18933E+03
LiqWater Flow (cm)=-6.81484E-02
IsoVapor Flow (cm)=-1.60346E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

43.9699+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 43.9015 vs. 43.9015

Mass Balance = -1.2460E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.14245

Head (cm) = 1.05592E+03

LiqWater Flow (cm)=-3.96244E-02

IsoVapor Flow (cm)=-1.25597E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

43.9835+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 43.9438 vs. 43.9438

Mass Balance = -7.0589E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]
Potential Transpiration = 1.6719E+01 [cm]
Actual Transpiration = 6.0304E+00 [cm]
Potential Evaporation = 1.1911E+02 [cm]
Actual Evaporation = 1.6530E+01 [cm]
Evaporation during Growth = 8.5310E+00 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 2.2530E+01 [cm]
Total Basal Liquid Flux (drainage) = 1.3167E-04 [cm]

December 2023

Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 4.3944E+01 [cm]
 Mass Balance Error = -4.3779E-03 [cm]
 Total Successful Time Steps = 11055
 Total Attempted Time Steps = 12115
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6677
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	6.0000E+00	0.050	6.7418E+00	0.200	6.2645E+00
0.450	5.9639E+00	0.800	5.8824E+00	1.250	5.8057E+00
1.850	5.7052E+00	2.600	5.5816E+00	3.500	5.4363E+00
4.750	5.2403E+00	6.500	4.9786E+00	8.500	4.6997E+00
10.750	4.4082E+00	13.250	4.1128E+00	16.000	3.8159E+00
18.750	3.5477E+00	21.500	3.2993E+00	24.250	3.0704E+00
26.500	2.8943E+00	28.250	2.7634E+00	29.500	2.6728E+00
30.500	2.6018E+00	31.500	2.5320E+00	32.750	2.4465E+00
34.250	2.3465E+00	36.000	2.2325E+00	38.500	2.0745E+00
41.000	1.9225E+00	43.000	1.8036E+00	44.500	1.7162E+00
45.500	1.6585E+00	46.500	1.6011E+00	47.500	1.5441E+00
49.000	1.4611E+00	51.000	1.3556E+00	53.000	1.2554E+00
55.500	1.1371E+00	57.750	1.0387E+00	59.250	9.7573E-01
60.500	9.2514E-01	61.500	8.8566E-01	62.500	8.4704E-01
63.750	7.9990E-01	65.250	7.4474E-01	67.000	6.8201E-01
69.500	5.9493E-01	72.500	4.9343E-01	75.500	3.9587E-01
78.500	3.0342E-01	81.500	2.1741E-01	84.500	1.3988E-01
87.000	8.4879E-02	88.500	5.7231E-02	89.500	4.1621E-02
90.500	2.9185E-02	91.500	2.0135E-02	93.000	1.1842E-02
95.000	6.4574E-03	97.500	3.4549E-03	100.500	1.7887E-03
103.500	8.7260E-04	107.000	1.3928E-04	111.500	-7.4414E-04
115.500	-1.9416E-03	118.000	-3.2547E-03	120.000	-5.0455E-03
121.500	-5.6862E-03	122.500	-6.1344E-03	123.750	-6.7117E-03
125.250	-7.4149E-03	127.000	-8.2248E-03	129.250	-9.1936E-03
131.500	-1.0023E-02	133.750	-1.0659E-02	137.500	-1.1233E-02
142.500	-1.1239E-02	146.500	-1.0789E-02	149.000	-1.0359E-02
150.700	-1.0023E-02	151.900	-9.7706E-03	152.700	-9.5970E-03
153.500	-9.4184E-03	157.000	-8.5767E-03	162.500	-7.3077E-03
167.500	-6.1912E-03	172.500	-5.1616E-03	176.500	-4.4265E-03
179.000	-3.9995E-03	180.500	-3.7569E-03	181.500	-3.5994E-03
182.500	-3.4465E-03	183.500	-3.2981E-03	184.500	-3.1542E-03

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186.000	-2.9448E-03	188.500	-2.6180E-03	192.500	-2.1458E-03
198.500	-1.5575E-03	206.000	-1.0061E-03	215.000	-5.4765E-04
227.500	-1.6797E-04	237.500	-4.0565E-05	250.000	7.1559E-05
270.000	1.1842E-04	290.000	1.2907E-04	310.000	1.3121E-04
330.000	1.3160E-04	350.000	1.3166E-04	370.000	1.3167E-04
390.000	1.3167E-04	410.000	1.3167E-04	430.000	1.3167E-04
447.500	1.3167E-04	460.000	1.3167E-04	469.000	1.3167E-04
475.500	1.3167E-04	480.000	1.3167E-04	483.500	1.3167E-04
486.000	1.3167E-04	487.500	1.3167E-04	488.500	1.3167E-04
489.000	1.3167E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE	DEPTH WATER UPTAKE	DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.5331E-02	0.300	4.2251E-02
0.600	5.9029E-02	1.000	7.5537E-02	1.500	9.9910E-02
2.200	1.2312E-01	3.000	1.4488E-01	4.000	1.9567E-01
5.500	2.6128E-01	7.500	2.7849E-01	9.500	2.9121E-01
12.000	2.9511E-01	14.500	2.9671E-01	17.500	2.6809E-01
20.000	2.4839E-01	23.000	2.2881E-01	25.500	1.7603E-01
27.500	1.3086E-01	29.000	9.0581E-02	30.000	7.1043E-02
31.000	6.9700E-02	32.000	8.5548E-02	33.500	1.0003E-01
35.000	1.1390E-01	37.000	1.5801E-01	40.000	1.5206E-01
42.000	1.1890E-01	44.000	8.7391E-02	45.000	5.7733E-02
46.000	5.7250E-02	47.000	5.6578E-02	48.000	8.2870E-02
50.000	1.0517E-01	52.000	9.9742E-02	54.000	1.1786E-01
57.000	9.7679E-02	58.500	6.2473E-02	60.000	5.0074E-02
61.000	3.9101E-02	62.000	3.8246E-02	63.000	4.6868E-02
64.500	5.4858E-02	66.000	6.2685E-02	68.000	8.7409E-02
71.000	1.0097E-01	74.000	9.6214E-02	77.000	9.0201E-02
80.000	8.2473E-02	83.000	7.2308E-02	86.000	4.8704E-02
88.000	2.3377E-02	89.000	1.3481E-02	90.000	1.1395E-02
91.000	9.4670E-03	92.000	1.1702E-02	94.000	1.0717E-02
96.000	9.5234E-03	99.000	7.5493E-03	102.000	5.5562E-03
105.000	5.3698E-03	109.000	6.6010E-03	114.000	7.5131E-03
117.000	6.2976E-03	119.000	6.4875E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 3

Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\3_.inp

Results File: c:\a\3_1956.res

Date of Run: 08 Jun 2021

Time of Run: 12:23:48.73

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.056E+03	0.1425	293.15	2	1.000E-01	9.028E+02	0.1490 293.15
3	3.000E-01	8.847E+02	0.1499	293.15	4	6.000E-01	9.100E+02	0.1487 293.15
5	1.000E+00	9.083E+02	0.1487	293.15	6	1.500E+00	9.047E+02	0.1489 293.15
7	2.200E+00	9.025E+02	0.1490	293.15	8	3.000E+00	8.996E+02	0.1491 293.15
9	4.000E+00	8.957E+02	0.1493	293.15	10	5.500E+00	8.896E+02	0.1496 293.15
11	7.500E+00	8.811E+02	0.1501	293.15	12	9.500E+00	8.727E+02	0.1505 293.15
13	1.200E+01	8.631E+02	0.1509	293.15	14	1.450E+01	8.551E+02	0.1514 293.15
15	1.750E+01	8.479E+02	0.1517	293.15	16	2.000E+01	8.441E+02	0.1519 293.15
17	2.300E+01	8.418E+02	0.1520	293.15	18	2.550E+01	8.415E+02	0.1521 293.15
19	2.750E+01	8.423E+02	0.1520	293.15	20	2.900E+01	8.433E+02	0.1520 293.15
21	3.000E+01	8.442E+02	0.1519	293.15	22	3.100E+01	8.452E+02	0.1519 293.15
23	3.200E+01	8.464E+02	0.1518	293.15	24	3.350E+01	8.483E+02	0.1517 293.15
25	3.500E+01	8.506E+02	0.1516	293.15	26	3.700E+01	8.538E+02	0.1514 293.15
27	4.000E+01	8.592E+02	0.1511	293.15	28	4.200E+01	8.631E+02	0.1510 293.15
29	4.400E+01	8.670E+02	0.1508	293.15	30	4.500E+01	8.689E+02	0.1507 293.15
31	4.600E+01	8.709E+02	0.1506	293.15	32	4.700E+01	8.794E+02	0.1501 293.15
33	4.800E+01	9.099E+02	0.1487	293.15	34	5.000E+01	9.784E+02	0.1456 293.15
35	5.200E+01	1.054E+03	0.1425	293.15	36	5.400E+01	1.131E+03	0.1397 293.15
37	5.700E+01	1.244E+03	0.1360	293.15	38	5.850E+01	1.302E+03	0.1343 293.15
39	6.000E+01	1.362E+03	0.1326	293.15	40	6.100E+01	1.404E+03	0.1315 293.15
41	6.200E+01	1.451E+03	0.1303	293.15	42	6.300E+01	1.502E+03	0.1291 293.15
43	6.450E+01	1.590E+03	0.1271	293.15	44	6.600E+01	1.699E+03	0.1249 293.15
45	6.800E+01	1.892E+03	0.1213	293.15	46	7.100E+01	2.375E+03	0.1143 293.15
47	7.400E+01	3.468E+03	0.1040	293.15	48	7.700E+01	8.273E+03	0.0856 293.15
49	8.000E+01	1.615E+04	0.0753	293.15	50	8.300E+01	1.933E+04	0.0730 293.15
51	8.600E+01	2.161E+04	0.0717	293.15	52	8.800E+01	2.329E+04	0.0708 293.15
53	8.900E+01	2.418E+04	0.0704	293.15	54	9.000E+01	2.509E+04	0.0700 293.15
55	9.100E+01	2.602E+04	0.0696	293.15	56	9.200E+01	2.696E+04	0.0692 293.15
57	9.400E+01	2.879E+04	0.0685	293.15	58	9.600E+01	3.050E+04	0.0679 293.15

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59 9.900E+01 3.268E+04 0.0672 293.15	60 1.020E+02 3.427E+04 0.0667 293.15
61 1.050E+02 3.521E+04 0.0664 293.15	62 1.090E+02 3.545E+04 0.0664 293.15
63 1.140E+02 3.405E+04 0.0668 293.15	64 1.170E+02 3.225E+04 0.0673 293.15
65 1.190E+02 3.072E+04 0.0678 293.15	66 1.210E+02 2.900E+04 0.0684 293.15
67 1.220E+02 2.810E+04 0.0687 293.15	68 1.230E+02 2.719E+04 0.0691 293.15
69 1.245E+02 2.582E+04 0.0696 293.15	70 1.260E+02 2.450E+04 0.0702 293.15
71 1.280E+02 2.284E+04 0.0710 293.15	72 1.305E+02 2.100E+04 0.0720 293.15
73 1.325E+02 1.971E+04 0.0728 293.15	74 1.350E+02 1.833E+04 0.0737 293.15
75 1.400E+02 1.617E+04 0.0753 293.15	76 1.450E+02 1.462E+04 0.0767 293.15
77 1.480E+02 1.391E+04 0.0774 293.15	78 1.500E+02 1.350E+04 0.0778 293.15
79 1.514E+02 1.324E+04 0.0781 293.15	80 1.524E+02 1.307E+04 0.0783 293.15
81 1.530E+02 1.298E+04 0.0784 293.15	82 1.540E+02 1.282E+04 0.0786 293.15
83 1.600E+02 1.205E+04 0.0795 293.15	84 1.650E+02 1.158E+04 0.0801 293.15
85 1.700E+02 1.122E+04 0.0806 293.15	86 1.750E+02 1.094E+04 0.0810 293.15
87 1.780E+02 1.080E+04 0.0812 293.15	88 1.800E+02 1.072E+04 0.0813 293.15
89 1.810E+02 1.068E+04 0.0813 293.15	90 1.820E+02 1.064E+04 0.0814 293.15
91 1.830E+02 1.061E+04 0.0815 293.15	92 1.840E+02 1.058E+04 0.0815 293.15
93 1.850E+02 1.055E+04 0.0815 293.15	94 1.870E+02 1.049E+04 0.0816 293.15
95 1.900E+02 1.041E+04 0.0818 293.15	96 1.950E+02 1.031E+04 0.0819 293.15
97 2.020E+02 1.020E+04 0.0821 293.15	98 2.100E+02 1.012E+04 0.0822 293.15
99 2.200E+02 1.006E+04 0.0823 293.15	100 2.350E+02 1.002E+04 0.0824 293.15
101 2.400E+02 1.001E+04 0.0824 293.15	102 2.600E+02 1.000E+04 0.0824 293.15
103 2.800E+02 1.000E+04 0.0824 293.15	104 3.000E+02 1.000E+04 0.0824 293.15
105 3.200E+02 1.000E+04 0.0824 293.15	106 3.400E+02 1.000E+04 0.0824 293.15
107 3.600E+02 1.000E+04 0.0824 293.15	108 3.800E+02 1.000E+04 0.0824 293.15
109 4.000E+02 1.000E+04 0.0824 293.15	110 4.200E+02 1.000E+04 0.0824 293.15
111 4.400E+02 1.000E+04 0.0824 293.15	112 4.550E+02 1.000E+04 0.0824 293.15
113 4.650E+02 1.000E+04 0.0824 293.15	114 4.730E+02 1.000E+04 0.0824 293.15
115 4.780E+02 1.000E+04 0.0824 293.15	116 4.820E+02 1.000E+04 0.0824 293.15
117 4.850E+02 1.000E+04 0.0824 293.15	118 4.870E+02 1.000E+04 0.0824 293.15
119 4.880E+02 1.000E+04 0.0824 293.15	120 4.890E+02 1.000E+04 0.0824 293.15

Initial Water Storage = 43.9438 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.14050
Head (cm) = 1.10868E+03

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LiqWater Flow (cm)=-4.41906E-02
IsoVapor Flow (cm)=-1.15185E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

43.9438+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 43.8995 vs. 43.8995

Mass Balance = -7.8448E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.14412
Head (cm) = 1.01383E+03
LiqWater Flow (cm)=-3.60501E-05
IsoVapor Flow (cm)=-3.54633E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

47.6738+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 47.6738 vs. 47.6738

Mass Balance = -1.2937E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 9.4972E+00 [cm]
 Potential Evaporation = 9.9853E+01 [cm]
 Actual Evaporation = 3.7476E+01 [cm]
 Evaporation during Growth = 2.3380E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 1.3204E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 4.7674E+01 [cm]
 Mass Balance Error = -4.6000E-03 [cm]
 Total Successful Time Steps = 11918
 Total Attempted Time Steps = 12973
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3951
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.3223E+01	0.050	1.3554E+01	0.200	1.3237E+01
0.450	1.3139E+01	0.800	1.3056E+01	1.250	1.2954E+01
1.850	1.2821E+01	2.600	1.2657E+01	3.500	1.2465E+01
4.750	1.2207E+01	6.500	1.1863E+01	8.500	1.1496E+01
10.750	1.1109E+01	13.250	1.0715E+01	16.000	1.0314E+01
18.750	9.9484E+00	21.500	9.6093E+00	24.250	9.2969E+00
26.500	9.0568E+00	28.250	8.8787E+00	29.500	8.7556E+00
30.500	8.6591E+00	31.500	8.5646E+00	32.750	8.4488E+00
34.250	8.3137E+00	36.000	8.1601E+00	38.500	7.9476E+00
41.000	7.7437E+00	43.000	7.5843E+00	44.500	7.4671E+00
45.500	7.3895E+00	46.500	7.3124E+00	47.500	7.2356E+00
49.000	7.1200E+00	51.000	6.9618E+00	53.000	6.7975E+00
55.500	6.5842E+00	57.750	6.3824E+00	59.250	6.2448E+00
60.500	6.1278E+00	61.500	6.0330E+00	62.500	5.9369E+00
63.750	5.8152E+00	65.250	5.6661E+00	67.000	5.4886E+00
69.500	5.2270E+00	72.500	4.8948E+00	75.500	4.5360E+00
78.500	4.1281E+00	81.500	3.6992E+00	84.500	3.2765E+00
87.000	2.9326E+00	88.500	2.7301E+00	89.500	2.5970E+00
90.500	2.4656E+00	91.500	2.3353E+00	93.000	2.1440E+00
95.000	1.8957E+00	97.500	1.5987E+00	100.500	1.2675E+00

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103.500	9.6659E-01	107.000	6.6381E-01	111.500	3.6748E-01
115.500	1.6214E-01	118.000	6.2481E-02	120.000	8.6762E-03
121.500	-2.7397E-03	122.500	-4.5924E-03	123.750	-5.5897E-03
125.250	-6.4083E-03	127.000	-7.2663E-03	129.250	-8.2699E-03
131.500	-9.1333E-03	133.750	-9.8288E-03	137.500	-1.0551E-02
142.500	-1.0781E-02	146.500	-1.0507E-02	149.000	-1.0179E-02
150.700	-9.9072E-03	151.900	-9.6976E-03	152.700	-9.5512E-03
153.500	-9.3989E-03	157.000	-8.6636E-03	162.500	-7.5172E-03
167.500	-6.4781E-03	172.500	-5.4977E-03	176.500	-4.7837E-03
179.000	-4.3637E-03	180.500	-4.1231E-03	181.500	-3.9663E-03
182.500	-3.8134E-03	183.500	-3.6644E-03	184.500	-3.5194E-03
186.000	-3.3074E-03	188.500	-2.9738E-03	192.500	-2.4857E-03
198.500	-1.8642E-03	206.000	-1.2623E-03	215.000	-7.4087E-04
227.500	-2.8374E-04	237.500	-1.1683E-04	250.000	3.6393E-05
270.000	1.0840E-04	290.000	1.2682E-04	310.000	1.3100E-04
330.000	1.3185E-04	350.000	1.3200E-04	370.000	1.3203E-04
390.000	1.3203E-04	410.000	1.3204E-04	430.000	1.3204E-04
447.500	1.3204E-04	460.000	1.3204E-04	469.000	1.3204E-04
475.500	1.3204E-04	480.000	1.3204E-04	483.500	1.3204E-04
486.000	1.3204E-04	487.500	1.3204E-04	488.500	1.3204E-04
489.000	1.3204E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	3.2791E-02	0.300	5.4557E-02
0.600	7.5977E-02	1.000	9.6819E-02	1.500	1.2744E-01
2.200	1.5612E-01	3.000	1.8274E-01	4.000	2.4566E-01
5.500	3.2702E-01	7.500	3.4923E-01	9.500	3.6741E-01
12.000	3.7645E-01	14.500	3.8335E-01	17.500	3.5120E-01
20.000	3.2821E-01	23.000	3.0516E-01	25.500	2.3664E-01
27.500	1.7708E-01	29.000	1.2317E-01	30.000	9.6914E-02
31.000	9.5399E-02	32.000	1.1748E-01	33.500	1.3804E-01
35.000	1.5796E-01	37.000	2.2043E-01	40.000	2.1383E-01
42.000	1.6812E-01	44.000	1.2417E-01	45.000	8.2214E-02
46.000	8.1686E-02	47.000	8.1178E-02	48.000	1.2097E-01
50.000	1.5933E-01	52.000	1.5754E-01	54.000	1.9495E-01
57.000	1.7315E-01	58.500	1.1473E-01	60.000	9.5025E-02
61.000	7.5704E-02	62.000	7.5403E-02	63.000	9.3890E-02
64.500	1.1199E-01	66.000	1.2972E-01	68.000	1.8350E-01
71.000	2.1627E-01	74.000	2.1133E-01	77.000	2.0432E-01
80.000	1.9576E-01	83.000	1.8607E-01	86.000	1.4563E-01

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88.000	8.3250E-02	89.000	5.4036E-02	90.000	5.2495E-02
91.000	5.0856E-02	92.000	7.3640E-02	94.000	9.0535E-02
96.000	1.0234E-01	99.000	1.0063E-01	102.000	7.4152E-02
105.000	5.1054E-02	109.000	2.2964E-02	114.000	9.7757E-03
117.000	6.0784E-03	119.000	5.6599E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 3 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\3_.inp

Results File: c:\a\3_1957.res

Date of Run: 08 Jun 2021

Time of Run: 12:23:48.73

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.014E+03	0.1441	293.15	2	1.000E-01	7.713E+02	0.1560 293.15
3	3.000E-01	6.792E+02	0.1619	293.15	4	6.000E-01	6.928E+02	0.1610 293.15
5	1.000E+00	7.193E+02	0.1592	293.15	6	1.500E+00	7.219E+02	0.1590 293.15
7	2.200E+00	7.168E+02	0.1594	293.15	8	3.000E+00	7.166E+02	0.1594 293.15
9	4.000E+00	7.173E+02	0.1593	293.15	10	5.500E+00	7.184E+02	0.1593 293.15
11	7.500E+00	7.212E+02	0.1591	293.15	12	9.500E+00	7.254E+02	0.1588 293.15
13	1.200E+01	7.328E+02	0.1583	293.15	14	1.450E+01	7.426E+02	0.1577 293.15
15	1.750E+01	7.575E+02	0.1568	293.15	16	2.000E+01	7.725E+02	0.1559 293.15
17	2.300E+01	7.936E+02	0.1547	293.15	18	2.550E+01	8.135E+02	0.1536 293.15
19	2.750E+01	8.308E+02	0.1526	293.15	20	2.900E+01	8.443E+02	0.1519 293.15
21	3.000E+01	8.536E+02	0.1514	293.15	22	3.100E+01	8.630E+02	0.1510 293.15
23	3.200E+01	8.725E+02	0.1505	293.15	24	3.350E+01	8.867E+02	0.1498 293.15
25	3.500E+01	9.008E+02	0.1491	293.15	26	3.700E+01	9.187E+02	0.1482 293.15
27	4.000E+01	9.427E+02	0.1472	293.15	28	4.200E+01	9.555E+02	0.1466 293.15
29	4.400E+01	9.650E+02	0.1462	293.15	30	4.500E+01	9.684E+02	0.1460 293.15
31	4.600E+01	9.708E+02	0.1459	293.15	32	4.700E+01	9.774E+02	0.1456 293.15
33	4.800E+01	9.908E+02	0.1451	293.15	34	5.000E+01	9.910E+02	0.1451 293.15
35	5.200E+01	9.714E+02	0.1459	293.15	36	5.400E+01	9.455E+02	0.1470 293.15
37	5.700E+01	9.077E+02	0.1488	293.15	38	5.850E+01	8.918E+02	0.1495 293.15
39	6.000E+01	8.778E+02	0.1502	293.15	40	6.100E+01	8.695E+02	0.1506 293.15
41	6.200E+01	8.621E+02	0.1510	293.15	42	6.300E+01	8.554E+02	0.1513 293.15
43	6.450E+01	8.468E+02	0.1518	293.15	44	6.600E+01	8.398E+02	0.1522 293.15
45	6.800E+01	8.326E+02	0.1525	293.15	46	7.100E+01	8.264E+02	0.1529 293.15
47	7.400E+01	8.252E+02	0.1529	293.15	48	7.700E+01	8.288E+02	0.1527 293.15
49	8.000E+01	8.372E+02	0.1523	293.15	50	8.300E+01	8.506E+02	0.1516 293.15
51	8.600E+01	8.696E+02	0.1506	293.15	52	8.800E+01	8.858E+02	0.1498 293.15
53	8.900E+01	8.950E+02	0.1494	293.15	54	9.000E+01	9.051E+02	0.1489 293.15
55	9.100E+01	9.161E+02	0.1484	293.15	56	9.200E+01	9.280E+02	0.1478 293.15
57	9.400E+01	9.552E+02	0.1466	293.15	58	9.600E+01	9.874E+02	0.1452 293.15

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59 9.900E+01 1.048E+03 0.1428 293.15	60 1.020E+02 1.127E+03 0.1399 293.15
61 1.050E+02 1.235E+03 0.1363 293.15	62 1.090E+02 1.456E+03 0.1302 293.15
63 1.140E+02 2.056E+03 0.1187 293.15	64 1.170E+02 3.027E+03 0.1075 293.15
65 1.190E+02 4.972E+03 0.0956 293.15	66 1.210E+02 1.382E+04 0.0775 293.15
67 1.220E+02 2.067E+04 0.0722 293.15	68 1.230E+02 2.400E+04 0.0705 293.15
69 1.245E+02 2.480E+04 0.0701 293.15	70 1.260E+02 2.425E+04 0.0703 293.15
71 1.280E+02 2.302E+04 0.0709 293.15	72 1.305E+02 2.141E+04 0.0718 293.15
73 1.325E+02 2.021E+04 0.0725 293.15	74 1.350E+02 1.886E+04 0.0733 293.15
75 1.400E+02 1.667E+04 0.0749 293.15	76 1.450E+02 1.505E+04 0.0763 293.15
77 1.480E+02 1.430E+04 0.0770 293.15	78 1.500E+02 1.387E+04 0.0774 293.15
79 1.514E+02 1.359E+04 0.0777 293.15	80 1.524E+02 1.341E+04 0.0779 293.15
81 1.530E+02 1.331E+04 0.0780 293.15	82 1.540E+02 1.314E+04 0.0782 293.15
83 1.600E+02 1.232E+04 0.0792 293.15	84 1.650E+02 1.180E+04 0.0798 293.15
85 1.700E+02 1.141E+04 0.0803 293.15	86 1.750E+02 1.110E+04 0.0807 293.15
87 1.780E+02 1.094E+04 0.0810 293.15	88 1.800E+02 1.085E+04 0.0811 293.15
89 1.810E+02 1.081E+04 0.0812 293.15	90 1.820E+02 1.077E+04 0.0812 293.15
91 1.830E+02 1.073E+04 0.0813 293.15	92 1.840E+02 1.069E+04 0.0813 293.15
93 1.850E+02 1.066E+04 0.0814 293.15	94 1.870E+02 1.059E+04 0.0815 293.15
95 1.900E+02 1.051E+04 0.0816 293.15	96 1.950E+02 1.039E+04 0.0818 293.15
97 2.020E+02 1.026E+04 0.0820 293.15	98 2.100E+02 1.017E+04 0.0821 293.15
99 2.200E+02 1.009E+04 0.0823 293.15	100 2.350E+02 1.003E+04 0.0823 293.15
101 2.400E+02 1.002E+04 0.0824 293.15	102 2.600E+02 1.001E+04 0.0824 293.15
103 2.800E+02 1.000E+04 0.0824 293.15	104 3.000E+02 1.000E+04 0.0824 293.15
105 3.200E+02 1.000E+04 0.0824 293.15	106 3.400E+02 1.000E+04 0.0824 293.15
107 3.600E+02 1.000E+04 0.0824 293.15	108 3.800E+02 1.000E+04 0.0824 293.15
109 4.000E+02 1.000E+04 0.0824 293.15	110 4.200E+02 1.000E+04 0.0824 293.15
111 4.400E+02 1.000E+04 0.0824 293.15	112 4.550E+02 1.000E+04 0.0824 293.15
113 4.650E+02 1.000E+04 0.0824 293.15	114 4.730E+02 1.000E+04 0.0824 293.15
115 4.780E+02 1.000E+04 0.0824 293.15	116 4.820E+02 1.000E+04 0.0824 293.15
117 4.850E+02 1.000E+04 0.0824 293.15	118 4.870E+02 1.000E+04 0.0824 293.15
119 4.880E+02 1.000E+04 0.0824 293.15	120 4.890E+02 1.000E+04 0.0824 293.15

Initial Water Storage = 47.6738 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.13950
Head (cm) = 1.13685E+03

December 2023

LiqWater Flow (cm)=-4.40286E-02
IsoVapor Flow (cm)=-3.93919E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

47.6738+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 47.6295 vs. 47.6295

Mass Balance = -2.1586E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.13874
Head (cm) = 1.15922E+03
LiqWater Flow (cm)=-5.81939E-02
IsoVapor Flow (cm)=-5.48841E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

49.1530+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 49.0945 vs. 49.0946

Mass Balance = -7.5156E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 1.0987E+01 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 3.8295E+01 [cm]
 Evaporation during Growth = 2.4115E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 1.3204E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 4.9095E+01 [cm]
 Mass Balance Error = -4.6564E-03 [cm]
 Total Successful Time Steps = 11905
 Total Attempted Time Steps = 12945
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3866
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	1.2403E+01	0.050	1.2733E+01	0.200	1.2417E+01
0.450	1.2322E+01	0.800	1.2246E+01	1.250	1.2150E+01
1.850	1.2023E+01	2.600	1.1869E+01	3.500	1.1687E+01
4.750	1.1443E+01	6.500	1.1119E+01	8.500	1.0772E+01
10.750	1.0406E+01	13.250	1.0031E+01	16.000	9.6480E+00
18.750	9.2959E+00	21.500	8.9658E+00	24.250	8.6580E+00
26.500	8.4186E+00	28.250	8.2392E+00	29.500	8.1142E+00
30.500	8.0157E+00	31.500	7.9188E+00	32.750	7.7993E+00
34.250	7.6586E+00	36.000	7.4976E+00	38.500	7.2725E+00
41.000	7.0538E+00	43.000	6.8817E+00	44.500	6.7545E+00
45.500	6.6703E+00	46.500	6.5865E+00	47.500	6.5032E+00
49.000	6.3790E+00	51.000	6.2150E+00	53.000	6.0525E+00
55.500	5.8507E+00	57.750	5.6707E+00	59.250	5.5511E+00
60.500	5.4517E+00	61.500	5.3723E+00	62.500	5.2931E+00
63.750	5.1942E+00	65.250	5.0759E+00	67.000	4.9381E+00
69.500	4.7419E+00	72.500	4.5076E+00	75.500	4.2748E+00
78.500	4.0438E+00	81.500	3.8150E+00	84.500	3.5897E+00
87.000	3.4048E+00	88.500	3.2950E+00	89.500	3.2222E+00
90.500	3.1497E+00	91.500	3.0775E+00	93.000	2.9698E+00
95.000	2.8273E+00	97.500	2.6506E+00	100.500	2.4405E+00

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103.500	2.2316E+00	107.000	1.9880E+00	111.500	1.6714E+00
115.500	1.3740E+00	118.000	1.1720E+00	120.000	9.9209E-01
121.500	9.1514E-01	122.500	8.6026E-01	123.750	7.9331E-01
125.250	7.1639E-01	127.000	6.3269E-01	129.250	5.3551E-01
131.500	4.5070E-01	133.750	3.7632E-01	137.500	2.7265E-01
142.500	1.6441E-01	146.500	9.8287E-02	149.000	6.5512E-02
150.700	4.7212E-02	151.900	3.6260E-02	152.700	2.9873E-02
153.500	2.4083E-02	157.000	3.8004E-03	162.500	-4.7958E-03
167.500	-6.0504E-03	172.500	-5.6276E-03	176.500	-5.0318E-03
179.000	-4.6444E-03	180.500	-4.4151E-03	181.500	-4.2639E-03
182.500	-4.1152E-03	183.500	-3.9692E-03	184.500	-3.8261E-03
186.000	-3.6159E-03	188.500	-3.2820E-03	192.500	-2.7875E-03
198.500	-2.1460E-03	206.000	-1.5078E-03	215.000	-9.3574E-04
227.500	-4.1019E-04	237.500	-2.0399E-04	250.000	-8.1096E-06
270.000	9.3777E-05	290.000	1.2270E-04	310.000	1.2998E-04
330.000	1.3162E-04	350.000	1.3196E-04	370.000	1.3202E-04
390.000	1.3203E-04	410.000	1.3204E-04	430.000	1.3204E-04
447.500	1.3204E-04	460.000	1.3204E-04	469.000	1.3204E-04
475.500	1.3204E-04	480.000	1.3204E-04	483.500	1.3204E-04
486.000	1.3204E-04	487.500	1.3204E-04	488.500	1.3204E-04
489.000	1.3204E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	3.3071E-02	0.300	5.5027E-02
0.600	7.6630E-02	1.000	9.7643E-02	1.500	1.2851E-01
2.200	1.5741E-01	3.000	1.8423E-01	4.000	2.4762E-01
5.500	3.2955E-01	7.500	3.5185E-01	9.500	3.7011E-01
12.000	3.7917E-01	14.500	3.8610E-01	17.500	3.5380E-01
20.000	3.3073E-01	23.000	3.0757E-01	25.500	2.3857E-01
27.500	1.7857E-01	29.000	1.2423E-01	30.000	9.7756E-02
31.000	9.6240E-02	32.000	1.1853E-01	33.500	1.3932E-01
35.000	1.5947E-01	37.000	2.2262E-01	40.000	2.1606E-01
42.000	1.6992E-01	44.000	1.2554E-01	45.000	8.3131E-02
46.000	8.2609E-02	47.000	8.2128E-02	48.000	1.2255E-01
50.000	1.6181E-01	52.000	1.6037E-01	54.000	1.9893E-01
57.000	1.7734E-01	58.500	1.1774E-01	60.000	9.7727E-02
61.000	7.7983E-02	62.000	7.7797E-02	63.000	9.7026E-02
64.500	1.1606E-01	66.000	1.3492E-01	68.000	1.9183E-01
71.000	2.2839E-01	74.000	2.2627E-01	77.000	2.2376E-01
80.000	2.2063E-01	83.000	2.1621E-01	86.000	1.7630E-01

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88.000	1.0423E-01	89.000	6.8969E-02	90.000	6.8455E-02
91.000	6.7941E-02	92.000	1.0114E-01	94.000	1.3281E-01
96.000	1.6346E-01	99.000	1.9161E-01	102.000	1.8717E-01
105.000	2.1332E-01	109.000	2.6546E-01	114.000	2.2644E-01
117.000	1.3880E-01	119.000	1.0994E-01	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 3 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\3_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                40.298
 1 22.530 135.832  4.717 13.987  0.000  0.000 44.127  11138 -0.00397
 2 22.530 135.832  5.977 16.475  0.000  0.000 44.209  11053 -0.00423
 3 22.530 135.832  6.040 16.527  0.000  0.000 44.176  11086 -0.00427
 4 22.530 135.832  6.056 16.518  0.000  0.000 44.136  11068 -0.00423
 5 22.530 135.832  6.044 16.531  0.000  0.000 44.096  11057 -0.00434
 6 22.530 135.832  6.039 16.531  0.000  0.000 44.060  11061 -0.00433
 7 22.530 135.832  6.036 16.530  0.000  0.000 44.028  11083 -0.00436
 8 22.530 135.832  6.038 16.524  0.000  0.000 43.999  11070 -0.00436
 9 22.530 135.832  6.033 16.531  0.000  0.000 43.970  11051 -0.00431
10 22.530 135.832  6.030 16.530  0.000  0.000 43.944  11055 -0.00438
11 50.698 113.700  9.497 37.476  0.000  0.000 47.674  11918 -0.00460
12 50.698 113.759 10.987 38.295  0.000  0.000 49.095  11905 -0.00466
-----
SUM= 326.6951585.780 79.494 238.454  0.000  0.002          -0.05205--
```

Sensitivity Analysis #1: Soil Sample 4 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\4_.inp
Results File: c:\a\4_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:19:15.89
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	5.526E+03	0.1424	293.15	2	1.000E-01	4.567E+03	0.1505
3	3.000E-01	4.577E+03	0.1504	293.15	4	6.000E-01	4.691E+03	0.1493
5	1.000E+00	4.665E+03	0.1496	293.15	6	1.500E+00	4.653E+03	0.1497
7	2.200E+00	4.640E+03	0.1498	293.15	8	3.000E+00	4.623E+03	0.1500
9	4.000E+00	4.600E+03	0.1502	293.15	10	5.500E+00	4.564E+03	0.1505
11	7.500E+00	4.515E+03	0.1510	293.15	12	9.500E+00	4.471E+03	0.1514
13	1.200E+01	4.428E+03	0.1518	293.15	14	1.450E+01	4.403E+03	0.1521
15	1.750E+01	4.396E+03	0.1522	293.15	16	2.000E+01	4.409E+03	0.1520
17	2.300E+01	4.443E+03	0.1517	293.15	18	2.550E+01	4.485E+03	0.1513
19	2.750E+01	4.526E+03	0.1509	293.15	20	2.900E+01	4.560E+03	0.1506
21	3.000E+01	4.584E+03	0.1503	293.15	22	3.100E+01	4.609E+03	0.1501
23	3.200E+01	4.635E+03	0.1498	293.15	24	3.350E+01	4.675E+03	0.1495
25	3.500E+01	4.717E+03	0.1491	293.15	26	3.700E+01	4.773E+03	0.1486
27	4.000E+01	4.857E+03	0.1478	293.15	28	4.200E+01	4.909E+03	0.1474
29	4.400E+01	4.958E+03	0.1469	293.15	30	4.500E+01	4.981E+03	0.1467
31	4.600E+01	5.002E+03	0.1466	293.15	32	4.700E+01	5.068E+03	0.1460
33	4.800E+01	5.273E+03	0.1443	293.15	34	5.000E+01	5.673E+03	0.1413
35	5.200E+01	6.035E+03	0.1388	293.15	36	5.400E+01	6.360E+03	0.1367
37	5.700E+01	6.827E+03	0.1339	293.15	38	5.850E+01	7.096E+03	0.1324
39	6.000E+01	7.405E+03	0.1308	293.15	40	6.100E+01	7.638E+03	0.1296
41	6.200E+01	7.899E+03	0.1284	293.15	42	6.300E+01	8.192E+03	0.1270
43	6.450E+01	8.699E+03	0.1248	293.15	44	6.600E+01	9.302E+03	0.1225
45	6.800E+01	1.029E+04	0.1190	293.15	46	7.100E+01	1.223E+04	0.1132
47	7.400E+01	1.475E+04	0.1073	293.15	48	7.700E+01	1.757E+04	0.1021
49	8.000E+01	2.013E+04	0.0982	293.15	50	8.300E+01	2.202E+04	0.0958
51	8.600E+01	2.329E+04	0.0943	293.15	52	8.800E+01	2.391E+04	0.0936
53	8.900E+01	2.417E+04	0.0933	293.15	54	9.000E+01	2.439E+04	0.0931
55	9.100E+01	2.460E+04	0.0928	293.15	56	9.200E+01	2.478E+04	0.0927
57	9.400E+01	2.507E+04	0.0924	293.15	58	9.600E+01	2.529E+04	0.0921
59	9.900E+01	2.549E+04	0.0919	293.15	60	1.020E+02	2.550E+04	0.0919
61	1.050E+02	2.533E+04	0.0921	293.15	62	1.090E+02	2.481E+04	0.0926
63	1.140E+02	2.375E+04	0.0938	293.15	64	1.170E+02	2.298E+04	0.0946

December 2023

65	1.190E+02	2.244E+04	0.0953	293.15	66	1.210E+02	2.189E+04	0.0959	293.15
67	1.220E+02	2.162E+04	0.0963	293.15	68	1.230E+02	2.134E+04	0.0966	293.15
69	1.245E+02	2.094E+04	0.0971	293.15	70	1.260E+02	2.055E+04	0.0977	293.15
71	1.280E+02	2.005E+04	0.0983	293.15	72	1.305E+02	1.945E+04	0.0992	293.15
73	1.325E+02	1.901E+04	0.0998	293.15	74	1.350E+02	1.848E+04	0.1006	293.15
75	1.400E+02	1.756E+04	0.1021	293.15	76	1.450E+02	1.677E+04	0.1034	293.15
77	1.480E+02	1.635E+04	0.1042	293.15	78	1.500E+02	1.610E+04	0.1047	293.15
79	1.514E+02	1.592E+04	0.1050	293.15	80	1.524E+02	1.581E+04	0.1052	293.15
81	1.530E+02	1.574E+04	0.1053	293.15	82	1.540E+02	1.562E+04	0.1056	293.15
83	1.600E+02	1.501E+04	0.1068	293.15	84	1.650E+02	1.456E+04	0.1077	293.15
85	1.700E+02	1.416E+04	0.1085	293.15	86	1.750E+02	1.381E+04	0.1093	293.15
87	1.780E+02	1.361E+04	0.1098	293.15	88	1.800E+02	1.349E+04	0.1101	293.15
89	1.810E+02	1.343E+04	0.1102	293.15	90	1.820E+02	1.337E+04	0.1103	293.15
91	1.830E+02	1.331E+04	0.1105	293.15	92	1.840E+02	1.326E+04	0.1106	293.15
93	1.850E+02	1.320E+04	0.1107	293.15	94	1.870E+02	1.309E+04	0.1110	293.15
95	1.900E+02	1.294E+04	0.1114	293.15	96	1.950E+02	1.270E+04	0.1120	293.15
97	2.020E+02	1.240E+04	0.1127	293.15	98	2.100E+02	1.211E+04	0.1135	293.15
99	2.200E+02	1.179E+04	0.1144	293.15	100	2.350E+02	1.140E+04	0.1155	293.15
101	2.400E+02	1.129E+04	0.1158	293.15	102	2.600E+02	1.093E+04	0.1169	293.15
103	2.800E+02	1.066E+04	0.1177	293.15	104	3.000E+02	1.047E+04	0.1184	293.15
105	3.200E+02	1.033E+04	0.1188	293.15	106	3.400E+02	1.023E+04	0.1192	293.15
107	3.600E+02	1.015E+04	0.1194	293.15	108	3.800E+02	1.010E+04	0.1196	293.15
109	4.000E+02	1.007E+04	0.1197	293.15	110	4.200E+02	1.004E+04	0.1198	293.15
111	4.400E+02	1.003E+04	0.1198	293.15	112	4.550E+02	1.002E+04	0.1199	293.15
113	4.650E+02	1.002E+04	0.1199	293.15	114	4.730E+02	1.002E+04	0.1199	293.15
115	4.780E+02	1.002E+04	0.1199	293.15	116	4.820E+02	1.002E+04	0.1199	293.15
117	4.850E+02	1.002E+04	0.1199	293.15	118	4.870E+02	1.002E+04	0.1199	293.15
119	4.880E+02	1.002E+04	0.1199	293.15	120	4.890E+02	1.002E+04	0.1199	293.15

Initial Water Storage = 57.5409 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.13653
Head (cm) = 6.38415E+03
LiqWater Flow (cm)=-6.79953E-02
IsoVapor Flow (cm)=-1.12428E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.5409+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 57.4725 vs. 57.4725

Mass Balance = -1.3735E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.14237

Head (cm) = 5.52688E+03

LiqWater Flow (cm)=-3.95353E-02

IsoVapor Flow (cm)=-8.66396E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.4479+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 57.4082 vs. 57.4082

Mass Balance = -7.2269E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.3583E+02 [cm]

Potential Transpiration = 1.6719E+01 [cm]

Actual Transpiration = 2.2780E+00 [cm]

Potential Evaporation = 1.1911E+02 [cm]

Actual Evaporation = 2.0386E+01 [cm]

Evaporation during Growth = 1.1999E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 2.2530E+01 [cm]

Total Basal Liquid Flux (drainage) = 3.0704E-03 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.7408E+01 [cm]
 Mass Balance Error = -4.6132E-03 [cm]
 Total Successful Time Steps = 11350
 Total Attempted Time Steps = 12594
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6269
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.1437E+00	0.050	3.7192E+00	0.200	3.3310E+00
0.450	2.7116E+00	0.800	2.4058E+00	1.250	2.2917E+00
1.850	2.2186E+00	2.600	2.1596E+00	3.500	2.1073E+00
4.750	2.0469E+00	6.500	1.9702E+00	8.500	1.8873E+00
10.750	1.7990E+00	13.250	1.7070E+00	16.000	1.6124E+00
18.750	1.5244E+00	21.500	1.4414E+00	24.250	1.3635E+00
26.500	1.3028E+00	28.250	1.2572E+00	29.500	1.2255E+00
30.500	1.2005E+00	31.500	1.1759E+00	32.750	1.1455E+00
34.250	1.1099E+00	36.000	1.0691E+00	38.500	1.0121E+00
41.000	9.5685E-01	43.000	9.1349E-01	44.500	8.8150E-01
45.500	8.6035E-01	46.500	8.3961E-01	47.500	8.1925E-01
49.000	7.8750E-01	51.000	7.4602E-01	53.000	7.0564E-01
55.500	6.5676E-01	57.750	6.1434E-01	59.250	5.8669E-01
60.500	5.6405E-01	61.500	5.4617E-01	62.500	5.2849E-01
63.750	5.0665E-01	65.250	4.8083E-01	67.000	4.5118E-01
69.500	4.0973E-01	72.500	3.6155E-01	75.500	3.1520E-01
78.500	2.7098E-01	81.500	2.2923E-01	84.500	1.9026E-01
87.000	1.6027E-01	88.500	1.4334E-01	89.500	1.3243E-01
90.500	1.2187E-01	91.500	1.1166E-01	93.000	9.6907E-02
95.000	7.8528E-02	97.500	5.7125E-02	100.500	3.3714E-02
103.500	1.1980E-02	107.000	-1.2266E-02	111.500	-4.3326E-02
115.500	-7.3133E-02	118.000	-9.3530E-02	120.000	-1.1111E-01
121.500	-1.1081E-01	122.500	-1.1057E-01	123.750	-1.1023E-01
125.250	-1.0978E-01	127.000	-1.0919E-01	129.250	-1.0834E-01
131.500	-1.0741E-01	133.750	-1.0641E-01	137.500	-1.0461E-01
142.500	-1.0200E-01	146.500	-9.9781E-02	149.000	-9.8347E-02
150.700	-9.7356E-02	151.900	-9.6648E-02	152.700	-9.6174E-02
153.500	-9.5697E-02	157.000	-9.3589E-02	162.500	-9.0214E-02
167.500	-8.7105E-02	172.500	-8.3980E-02	176.500	-8.1480E-02
179.000	-7.9920E-02	180.500	-7.8985E-02	181.500	-7.8363E-02
182.500	-7.7741E-02	183.500	-7.7120E-02	184.500	-7.6500E-02

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186.000	-7.5572E-02	188.500	-7.4030E-02	192.500	-7.1579E-02
198.500	-6.7949E-02	206.000	-6.3510E-02	215.000	-5.8339E-02
227.500	-5.1462E-02	237.500	-4.6381E-02	250.000	-4.0200E-02
270.000	-3.1538E-02	290.000	-2.4111E-02	310.000	-1.7879E-02
330.000	-1.2763E-02	350.000	-8.6531E-03	370.000	-5.4204E-03
390.000	-2.9273E-03	410.000	-1.0345E-03	430.000	3.9335E-04
447.500	1.3477E-03	460.000	1.9206E-03	469.000	2.2969E-03
475.500	2.5543E-03	480.000	2.7283E-03	483.500	2.8620E-03
486.000	2.9569E-03	487.500	3.0137E-03	488.500	3.0515E-03
489.000	3.0704E-03				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.4378E-03	0.300	4.4894E-03
0.600	7.1063E-03	1.000	1.0350E-02	1.500	1.5515E-02
2.200	2.1757E-02	3.000	2.8597E-02	4.000	4.3062E-02
5.500	6.4380E-02	7.500	7.5647E-02	9.500	8.4019E-02
12.000	8.9360E-02	14.500	9.2905E-02	17.500	8.6858E-02
20.000	8.2324E-02	23.000	7.7449E-02	25.500	6.0438E-02
27.500	4.5398E-02	29.000	3.1646E-02	30.000	2.4928E-02
31.000	2.4559E-02	32.000	3.0261E-02	33.500	3.5583E-02
35.000	4.0741E-02	37.000	5.6882E-02	40.000	5.5159E-02
42.000	4.3334E-02	44.000	3.1980E-02	45.000	2.1164E-02
46.000	2.1021E-02	47.000	2.0876E-02	48.000	3.1020E-02
50.000	4.0471E-02	52.000	3.9484E-02	54.000	4.8089E-02
57.000	4.1697E-02	58.500	2.7299E-02	60.000	2.2361E-02
61.000	1.7693E-02	62.000	1.7506E-02	63.000	2.1658E-02
64.500	2.5603E-02	66.000	2.9432E-02	68.000	4.1217E-02
71.000	4.7898E-02	74.000	4.6135E-02	77.000	4.4106E-02
80.000	4.1791E-02	83.000	3.9214E-02	86.000	3.0367E-02
88.000	1.7272E-02	89.000	1.1199E-02	90.000	1.0886E-02
91.000	1.0577E-02	92.000	1.5413E-02	94.000	1.9398E-02
96.000	2.2937E-02	99.000	2.5555E-02	102.000	2.4155E-02
105.000	2.7284E-02	109.000	3.5077E-02	114.000	3.3377E-02
117.000	2.2472E-02	119.000	1.9111E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00--

Sensitivity Analysis #1: Soil Sample 4 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\4_.inp
Results File: c:\a\4_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:19:15.89
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	5.527E+03	0.1424	293.15	2	1.000E-01	4.567E+03	0.1505
3	3.000E-01	4.578E+03	0.1504	293.15	4	6.000E-01	4.692E+03	0.1493
5	1.000E+00	4.665E+03	0.1496	293.15	6	1.500E+00	4.653E+03	0.1497
7	2.200E+00	4.640E+03	0.1498	293.15	8	3.000E+00	4.623E+03	0.1500
9	4.000E+00	4.601E+03	0.1502	293.15	10	5.500E+00	4.564E+03	0.1505
11	7.500E+00	4.515E+03	0.1510	293.15	12	9.500E+00	4.472E+03	0.1514
13	1.200E+01	4.429E+03	0.1518	293.15	14	1.450E+01	4.403E+03	0.1521
15	1.750E+01	4.397E+03	0.1522	293.15	16	2.000E+01	4.409E+03	0.1520
17	2.300E+01	4.444E+03	0.1517	293.15	18	2.550E+01	4.486E+03	0.1513
19	2.750E+01	4.526E+03	0.1509	293.15	20	2.900E+01	4.560E+03	0.1506
21	3.000E+01	4.584E+03	0.1503	293.15	22	3.100E+01	4.609E+03	0.1501
23	3.200E+01	4.635E+03	0.1498	293.15	24	3.350E+01	4.676E+03	0.1495
25	3.500E+01	4.717E+03	0.1491	293.15	26	3.700E+01	4.773E+03	0.1486
27	4.000E+01	4.857E+03	0.1478	293.15	28	4.200E+01	4.910E+03	0.1474
29	4.400E+01	4.959E+03	0.1469	293.15	30	4.500E+01	4.982E+03	0.1467
31	4.600E+01	5.003E+03	0.1466	293.15	32	4.700E+01	5.069E+03	0.1460
33	4.800E+01	5.274E+03	0.1443	293.15	34	5.000E+01	5.674E+03	0.1413
35	5.200E+01	6.036E+03	0.1388	293.15	36	5.400E+01	6.361E+03	0.1367
37	5.700E+01	6.830E+03	0.1339	293.15	38	5.850E+01	7.099E+03	0.1324
39	6.000E+01	7.408E+03	0.1308	293.15	40	6.100E+01	7.642E+03	0.1296
41	6.200E+01	7.904E+03	0.1283	293.15	42	6.300E+01	8.197E+03	0.1270
43	6.450E+01	8.705E+03	0.1248	293.15	44	6.600E+01	9.310E+03	0.1224
45	6.800E+01	1.030E+04	0.1189	293.15	46	7.100E+01	1.225E+04	0.1131
47	7.400E+01	1.478E+04	0.1072	293.15	48	7.700E+01	1.762E+04	0.1020
49	8.000E+01	2.019E+04	0.0981	293.15	50	8.300E+01	2.211E+04	0.0957
51	8.600E+01	2.340E+04	0.0942	293.15	52	8.800E+01	2.403E+04	0.0935
53	8.900E+01	2.429E+04	0.0932	293.15	54	9.000E+01	2.453E+04	0.0929
55	9.100E+01	2.474E+04	0.0927	293.15	56	9.200E+01	2.493E+04	0.0925
57	9.400E+01	2.524E+04	0.0922	293.15	58	9.600E+01	2.549E+04	0.0919
59	9.900E+01	2.571E+04	0.0917	293.15	60	1.020E+02	2.577E+04	0.0916
61	1.050E+02	2.564E+04	0.0918	293.15	62	1.090E+02	2.516E+04	0.0923
63	1.140E+02	2.415E+04	0.0933	293.15	64	1.170E+02	2.339E+04	0.0942

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65	1.190E+02	2.285E+04	0.0948	293.15	66	1.210E+02	2.231E+04	0.0954	293.15
67	1.220E+02	2.203E+04	0.0958	293.15	68	1.230E+02	2.176E+04	0.0961	293.15
69	1.245E+02	2.136E+04	0.0966	293.15	70	1.260E+02	2.097E+04	0.0971	293.15
71	1.280E+02	2.046E+04	0.0978	293.15	72	1.305E+02	1.986E+04	0.0986	293.15
73	1.325E+02	1.941E+04	0.0993	293.15	74	1.350E+02	1.888E+04	0.1000	293.15
75	1.400E+02	1.794E+04	0.1015	293.15	76	1.450E+02	1.714E+04	0.1028	293.15
77	1.480E+02	1.671E+04	0.1035	293.15	78	1.500E+02	1.645E+04	0.1040	293.15
79	1.514E+02	1.628E+04	0.1043	293.15	80	1.524E+02	1.616E+04	0.1046	293.15
81	1.530E+02	1.608E+04	0.1047	293.15	82	1.540E+02	1.597E+04	0.1049	293.15
83	1.600E+02	1.534E+04	0.1061	293.15	84	1.650E+02	1.488E+04	0.1070	293.15
85	1.700E+02	1.447E+04	0.1079	293.15	86	1.750E+02	1.410E+04	0.1087	293.15
87	1.780E+02	1.390E+04	0.1091	293.15	88	1.800E+02	1.377E+04	0.1094	293.15
89	1.810E+02	1.371E+04	0.1096	293.15	90	1.820E+02	1.365E+04	0.1097	293.15
91	1.830E+02	1.359E+04	0.1098	293.15	92	1.840E+02	1.353E+04	0.1100	293.15
93	1.850E+02	1.347E+04	0.1101	293.15	94	1.870E+02	1.336E+04	0.1104	293.15
95	1.900E+02	1.320E+04	0.1108	293.15	96	1.950E+02	1.295E+04	0.1114	293.15
97	2.020E+02	1.264E+04	0.1121	293.15	98	2.100E+02	1.233E+04	0.1129	293.15
99	2.200E+02	1.199E+04	0.1138	293.15	100	2.350E+02	1.158E+04	0.1150	293.15
101	2.400E+02	1.146E+04	0.1153	293.15	102	2.600E+02	1.107E+04	0.1165	293.15
103	2.800E+02	1.078E+04	0.1174	293.15	104	3.000E+02	1.057E+04	0.1180	293.15
105	3.200E+02	1.041E+04	0.1186	293.15	106	3.400E+02	1.029E+04	0.1190	293.15
107	3.600E+02	1.020E+04	0.1192	293.15	108	3.800E+02	1.014E+04	0.1195	293.15
109	4.000E+02	1.010E+04	0.1196	293.15	110	4.200E+02	1.007E+04	0.1197	293.15
111	4.400E+02	1.005E+04	0.1198	293.15	112	4.550E+02	1.004E+04	0.1198	293.15
113	4.650E+02	1.003E+04	0.1198	293.15	114	4.730E+02	1.003E+04	0.1198	293.15
115	4.780E+02	1.003E+04	0.1198	293.15	116	4.820E+02	1.003E+04	0.1198	293.15
117	4.850E+02	1.003E+04	0.1198	293.15	118	4.870E+02	1.003E+04	0.1198	293.15
119	4.880E+02	1.003E+04	0.1198	293.15	120	4.890E+02	1.003E+04	0.1198	293.15

Initial Water Storage = 57.4082 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.13989
Head (cm) = 5.87208E+03
LiqWater Flow (cm)=-4.40976E-02
IsoVapor Flow (cm)=-7.81667E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.4082+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 57.3639 vs. 57.3639

Mass Balance = -7.9352E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.15763

Head (cm) = 3.89468E+03

LiqWater Flow (cm)= 9.08724E-05

IsoVapor Flow (cm)=-1.17193E-04

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

61.2510+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 61.2510 vs. 61.2510

Mass Balance = -3.1652E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]
Potential Transpiration = 1.3848E+01 [cm]
Actual Transpiration = 4.4009E+00 [cm]
Potential Evaporation = 9.9853E+01 [cm]
Actual Evaporation = 4.2457E+01 [cm]
Evaporation during Growth = 2.8271E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 3.0678E-03 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.1251E+01 [cm]
 Mass Balance Error = -5.2471E-03 [cm]
 Total Successful Time Steps = 12382
 Total Attempted Time Steps = 13780
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3418
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	8.2416E+00	0.050	9.0595E+00	0.200	8.4181E+00
0.450	8.2996E+00	0.800	8.2484E+00	1.250	8.1959E+00
1.850	8.1335E+00	2.600	8.0590E+00	3.500	7.9717E+00
4.750	7.8519E+00	6.500	7.6864E+00	8.500	7.5025E+00
10.750	7.3036E+00	13.250	7.0947E+00	16.000	6.8784E+00
18.750	6.6769E+00	21.500	6.4867E+00	24.250	6.3082E+00
26.500	6.1692E+00	28.250	6.0650E+00	29.500	5.9925E+00
30.500	5.9355E+00	31.500	5.8794E+00	32.750	5.8103E+00
34.250	5.7293E+00	36.000	5.6366E+00	38.500	5.5073E+00
41.000	5.3819E+00	43.000	5.2830E+00	44.500	5.2097E+00
45.500	5.1611E+00	46.500	5.1127E+00	47.500	5.0644E+00
49.000	4.9893E+00	51.000	4.8827E+00	53.000	4.7695E+00
55.500	4.6206E+00	57.750	4.4778E+00	59.250	4.3798E+00
60.500	4.2958E+00	61.500	4.2274E+00	62.500	4.1577E+00
63.750	4.0690E+00	65.250	3.9594E+00	67.000	3.8278E+00
69.500	3.6325E+00	72.500	3.3840E+00	75.500	3.1225E+00
78.500	2.8513E+00	81.500	2.5757E+00	84.500	2.3012E+00
87.000	2.0768E+00	88.500	1.9447E+00	89.500	1.8577E+00
90.500	1.7717E+00	91.500	1.6869E+00	93.000	1.5617E+00
95.000	1.4000E+00	97.500	1.2054E+00	100.500	9.8680E-01
103.500	7.8479E-01	107.000	5.7050E-01	111.500	3.3437E-01
115.500	1.7098E-01	118.000	8.6630E-02	120.000	2.8184E-02
121.500	3.7682E-03	122.500	-1.0470E-02	123.750	-2.5891E-02
125.250	-4.0587E-02	127.000	-5.3981E-02	129.250	-6.6245E-02
131.500	-7.4313E-02	133.750	-8.0099E-02	137.500	-8.6501E-02
142.500	-9.0214E-02	146.500	-9.1043E-02	149.000	-9.1026E-02
150.700	-9.0827E-02	151.900	-9.0608E-02	152.700	-9.0430E-02
153.500	-9.0233E-02	157.000	-8.9241E-02	162.500	-8.6928E-02
167.500	-8.4497E-02	172.500	-8.1881E-02	176.500	-7.9712E-02
179.000	-7.8338E-02	180.500	-7.7509E-02	181.500	-7.6955E-02
182.500	-7.6400E-02	183.500	-7.5844E-02	184.500	-7.5289E-02

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186.000	-7.4454E-02	188.500	-7.3063E-02	192.500	-7.0841E-02
198.500	-6.7531E-02	206.000	-6.3457E-02	215.000	-5.8683E-02
227.500	-5.2291E-02	237.500	-4.7517E-02	250.000	-4.1689E-02
270.000	-3.3392E-02	290.000	-2.6151E-02	310.000	-1.9955E-02
330.000	-1.4755E-02	350.000	-1.0472E-02	370.000	-7.0088E-03
390.000	-4.2522E-03	410.000	-2.0830E-03	430.000	-3.7953E-04
447.500	8.0956E-04	460.000	1.5461E-03	469.000	2.0387E-03
475.500	2.3795E-03	480.000	2.6110E-03	483.500	2.7893E-03
486.000	2.9160E-03	487.500	2.9919E-03	488.500	3.0425E-03
489.000	3.0678E-03				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	6.8519E-03	0.300	1.2275E-02
0.600	1.8664E-02	1.000	2.5973E-02	1.500	3.7101E-02
2.200	4.9439E-02	3.000	6.1985E-02	4.000	8.8613E-02
5.500	1.2563E-01	7.500	1.4155E-01	9.500	1.5420E-01
12.000	1.6260E-01	14.500	1.6880E-01	17.500	1.5751E-01
20.000	1.4925E-01	23.000	1.4080E-01	25.500	1.1030E-01
27.500	8.3122E-02	29.000	5.8091E-02	30.000	4.5841E-02
31.000	4.5248E-02	32.000	5.5866E-02	33.500	6.5888E-02
35.000	7.5653E-02	37.000	1.0602E-01	40.000	1.0342E-01
42.000	8.1559E-02	44.000	6.0399E-02	45.000	4.0034E-02
46.000	3.9818E-02	47.000	3.9690E-02	48.000	5.9653E-02
50.000	7.9625E-02	52.000	7.9414E-02	54.000	9.8665E-02
57.000	8.7600E-02	58.500	5.7892E-02	60.000	4.7759E-02
61.000	3.7925E-02	62.000	3.7628E-02	63.000	4.6644E-02
64.500	5.5226E-02	66.000	6.3504E-02	68.000	8.8849E-02
71.000	1.0301E-01	74.000	9.9096E-02	77.000	9.4865E-02
80.000	9.0297E-02	83.000	8.5350E-02	86.000	6.6639E-02
88.000	3.8063E-02	89.000	2.4710E-02	90.000	2.4029E-02
91.000	2.3333E-02	92.000	3.3934E-02	94.000	4.2331E-02
96.000	4.9192E-02	99.000	5.2303E-02	102.000	4.5791E-02
105.000	4.6456E-02	109.000	5.0019E-02	114.000	3.7986E-02
117.000	2.2774E-02	119.000	1.8189E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 4 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\4_.inp
Results File: c:\a\4_1957.res
Date of Run: 08 Jun 2021
Time of Run: 14:19:15.89
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	3.895E+03	0.1576	293.15	2	1.000E-01	3.084E+03	0.1687 293.15
3	3.000E-01	2.764E+03	0.1742	293.15	4	6.000E-01	2.801E+03	0.1735 293.15
5	1.000E+00	2.915E+03	0.1715	293.15	6	1.500E+00	2.918E+03	0.1715 293.15
7	2.200E+00	2.901E+03	0.1717	293.15	8	3.000E+00	2.905E+03	0.1717 293.15
9	4.000E+00	2.910E+03	0.1716	293.15	10	5.500E+00	2.920E+03	0.1714 293.15
11	7.500E+00	2.938E+03	0.1711	293.15	12	9.500E+00	2.963E+03	0.1707 293.15
13	1.200E+01	3.004E+03	0.1700	293.15	14	1.450E+01	3.055E+03	0.1692 293.15
15	1.750E+01	3.130E+03	0.1680	293.15	16	2.000E+01	3.203E+03	0.1669 293.15
17	2.300E+01	3.305E+03	0.1653	293.15	18	2.550E+01	3.399E+03	0.1640 293.15
19	2.750E+01	3.480E+03	0.1629	293.15	20	2.900E+01	3.542E+03	0.1620 293.15
21	3.000E+01	3.585E+03	0.1615	293.15	22	3.100E+01	3.628E+03	0.1609 293.15
23	3.200E+01	3.671E+03	0.1604	293.15	24	3.350E+01	3.735E+03	0.1596 293.15
25	3.500E+01	3.797E+03	0.1588	293.15	26	3.700E+01	3.876E+03	0.1578 293.15
27	4.000E+01	3.981E+03	0.1566	293.15	28	4.200E+01	4.037E+03	0.1560 293.15
29	4.400E+01	4.079E+03	0.1555	293.15	30	4.500E+01	4.094E+03	0.1554 293.15
31	4.600E+01	4.105E+03	0.1552	293.15	32	4.700E+01	4.130E+03	0.1550 293.15
33	4.800E+01	4.173E+03	0.1545	293.15	34	5.000E+01	4.159E+03	0.1546 293.15
35	5.200E+01	4.077E+03	0.1555	293.15	36	5.400E+01	3.977E+03	0.1567 293.15
37	5.700E+01	3.837E+03	0.1583	293.15	38	5.850E+01	3.779E+03	0.1590 293.15
39	6.000E+01	3.730E+03	0.1596	293.15	40	6.100E+01	3.702E+03	0.1600 293.15
41	6.200E+01	3.677E+03	0.1603	293.15	42	6.300E+01	3.656E+03	0.1606 293.15
43	6.450E+01	3.630E+03	0.1609	293.15	44	6.600E+01	3.611E+03	0.1611 293.15
45	6.800E+01	3.595E+03	0.1613	293.15	46	7.100E+01	3.593E+03	0.1614 293.15
47	7.400E+01	3.614E+03	0.1611	293.15	48	7.700E+01	3.658E+03	0.1605 293.15
49	8.000E+01	3.726E+03	0.1597	293.15	50	8.300E+01	3.820E+03	0.1585 293.15
51	8.600E+01	3.941E+03	0.1571	293.15	52	8.800E+01	4.040E+03	0.1560 293.15
53	8.900E+01	4.095E+03	0.1553	293.15	54	9.000E+01	4.154E+03	0.1547 293.15
55	9.100E+01	4.218E+03	0.1540	293.15	56	9.200E+01	4.287E+03	0.1533 293.15
57	9.400E+01	4.440E+03	0.1517	293.15	58	9.600E+01	4.618E+03	0.1500 293.15
59	9.900E+01	4.939E+03	0.1471	293.15	60	1.020E+02	5.344E+03	0.1438 293.15
61	1.050E+02	5.859E+03	0.1400	293.15	62	1.090E+02	6.794E+03	0.1341 293.15
63	1.140E+02	8.592E+03	0.1253	293.15	64	1.170E+02	1.012E+04	0.1195 293.15

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65	1.190E+02	1.135E+04	0.1157	293.15	66	1.210E+02	1.270E+04	0.1120	293.15
67	1.220E+02	1.341E+04	0.1103	293.15	68	1.230E+02	1.410E+04	0.1087	293.15
69	1.245E+02	1.509E+04	0.1066	293.15	70	1.260E+02	1.595E+04	0.1049	293.15
71	1.280E+02	1.683E+04	0.1033	293.15	72	1.305E+02	1.748E+04	0.1022	293.15
73	1.325E+02	1.772E+04	0.1018	293.15	74	1.350E+02	1.779E+04	0.1017	293.15
75	1.400E+02	1.751E+04	0.1022	293.15	76	1.450E+02	1.705E+04	0.1030	293.15
77	1.480E+02	1.675E+04	0.1035	293.15	78	1.500E+02	1.655E+04	0.1038	293.15
79	1.514E+02	1.640E+04	0.1041	293.15	80	1.524E+02	1.630E+04	0.1043	293.15
81	1.530E+02	1.625E+04	0.1044	293.15	82	1.540E+02	1.615E+04	0.1046	293.15
83	1.600E+02	1.557E+04	0.1056	293.15	84	1.650E+02	1.513E+04	0.1065	293.15
85	1.700E+02	1.473E+04	0.1073	293.15	86	1.750E+02	1.436E+04	0.1081	293.15
87	1.780E+02	1.416E+04	0.1086	293.15	88	1.800E+02	1.403E+04	0.1088	293.15
89	1.810E+02	1.396E+04	0.1090	293.15	90	1.820E+02	1.390E+04	0.1091	293.15
91	1.830E+02	1.384E+04	0.1093	293.15	92	1.840E+02	1.378E+04	0.1094	293.15
93	1.850E+02	1.372E+04	0.1095	293.15	94	1.870E+02	1.361E+04	0.1098	293.15
95	1.900E+02	1.344E+04	0.1102	293.15	96	1.950E+02	1.318E+04	0.1108	293.15
97	2.020E+02	1.286E+04	0.1116	293.15	98	2.100E+02	1.254E+04	0.1124	293.15
99	2.200E+02	1.218E+04	0.1133	293.15	100	2.350E+02	1.175E+04	0.1145	293.15
101	2.400E+02	1.163E+04	0.1149	293.15	102	2.600E+02	1.121E+04	0.1161	293.15
103	2.800E+02	1.090E+04	0.1170	293.15	104	3.000E+02	1.066E+04	0.1177	293.15
105	3.200E+02	1.049E+04	0.1183	293.15	106	3.400E+02	1.035E+04	0.1187	293.15
107	3.600E+02	1.025E+04	0.1191	293.15	108	3.800E+02	1.018E+04	0.1193	293.15
109	4.000E+02	1.013E+04	0.1195	293.15	110	4.200E+02	1.009E+04	0.1196	293.15
111	4.400E+02	1.007E+04	0.1197	293.15	112	4.550E+02	1.005E+04	0.1197	293.15
113	4.650E+02	1.005E+04	0.1198	293.15	114	4.730E+02	1.004E+04	0.1198	293.15
115	4.780E+02	1.004E+04	0.1198	293.15	116	4.820E+02	1.004E+04	0.1198	293.15
117	4.850E+02	1.004E+04	0.1198	293.15	118	4.870E+02	1.004E+04	0.1198	293.15
119	4.880E+02	1.004E+04	0.1198	293.15	120	4.890E+02	1.004E+04	0.1198	293.15

Initial Water Storage = 61.2510 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.15290
Head (cm) = 4.32490E+03
LiqWater Flow (cm)=-4.39433E-02
IsoVapor Flow (cm)=-1.19706E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

61.2510+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 61.2067 vs. 61.2067

Mass Balance = -1.0274E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.15462

Head (cm) = 4.16169E+03

LiqWater Flow (cm)=-5.80856E-02

IsoVapor Flow (cm)=-1.46973E-04

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

62.9561+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 62.8976 vs. 62.8976

Mass Balance = -1.6394E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]
Potential Transpiration = 1.3848E+01 [cm]
Actual Transpiration = 5.3558E+00 [cm]
Potential Evaporation = 9.9911E+01 [cm]
Actual Evaporation = 4.3698E+01 [cm]
Evaporation during Growth = 2.9454E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 3.0536E-03 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.2898E+01 [cm]
 Mass Balance Error = -4.9977E-03 [cm]
 Total Successful Time Steps = 12263
 Total Attempted Time Steps = 13534
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3314
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	7.0005E+00	0.050	7.7209E+00	0.200	7.1611E+00
0.450	7.0617E+00	0.800	7.0201E+00	1.250	6.9780E+00
1.850	6.9286E+00	2.600	6.8700E+00	3.500	6.8014E+00
4.750	6.7070E+00	6.500	6.5758E+00	8.500	6.4290E+00
10.750	6.2693E+00	13.250	6.1002E+00	16.000	5.9234E+00
18.750	5.7569E+00	21.500	5.5977E+00	24.250	5.4459E+00
26.500	5.3260E+00	28.250	5.2351E+00	29.500	5.1712E+00
30.500	5.1207E+00	31.500	5.0707E+00	32.750	5.0088E+00
34.250	4.9355E+00	36.000	4.8510E+00	38.500	4.7322E+00
41.000	4.6156E+00	43.000	4.5235E+00	44.500	4.4551E+00
45.500	4.4097E+00	46.500	4.3648E+00	47.500	4.3204E+00
49.000	4.2523E+00	51.000	4.1613E+00	53.000	4.0701E+00
55.500	3.9560E+00	57.750	3.8531E+00	59.250	3.7845E+00
60.500	3.7274E+00	61.500	3.6817E+00	62.500	3.6361E+00
63.750	3.5790E+00	65.250	3.5107E+00	67.000	3.4311E+00
69.500	3.3177E+00	72.500	3.1820E+00	75.500	3.0467E+00
78.500	2.9118E+00	81.500	2.7772E+00	84.500	2.6426E+00
87.000	2.5305E+00	88.500	2.4632E+00	89.500	2.4183E+00
90.500	2.3734E+00	91.500	2.3284E+00	93.000	2.2608E+00
95.000	2.1704E+00	97.500	2.0568E+00	100.500	1.9193E+00
103.500	1.7798E+00	107.000	1.6141E+00	111.500	1.3936E+00
115.500	1.1856E+00	118.000	1.0504E+00	120.000	9.3944E-01
121.500	8.9836E-01	122.500	8.7028E-01	123.750	8.3450E-01
125.250	7.9076E-01	127.000	7.3949E-01	129.250	6.7452E-01
131.500	6.1242E-01	133.750	5.5341E-01	137.500	4.6222E-01
142.500	3.5887E-01	146.500	2.8855E-01	149.000	2.4872E-01
150.700	2.2338E-01	151.900	2.0632E-01	152.700	1.9534E-01
153.500	1.8458E-01	157.000	1.3922E-01	162.500	8.2408E-02
167.500	4.0971E-02	172.500	8.8263E-03	176.500	-1.0352E-02
179.000	-2.0189E-02	180.500	-2.5312E-02	181.500	-2.8483E-02
182.500	-3.1420E-02	183.500	-3.4136E-02	184.500	-3.6639E-02

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186.000	-4.0091E-02	188.500	-4.4914E-02	192.500	-5.0688E-02
198.500	-5.5569E-02	206.000	-5.7337E-02	215.000	-5.6163E-02
227.500	-5.1963E-02	237.500	-4.7851E-02	250.000	-4.2620E-02
270.000	-3.4778E-02	290.000	-2.7783E-02	310.000	-2.1691E-02
330.000	-1.6482E-02	350.000	-1.2101E-02	370.000	-8.4741E-03
390.000	-5.5093E-03	410.000	-3.1045E-03	430.000	-1.1510E-03
447.500	2.6176E-04	460.000	1.1589E-03	469.000	1.7673E-03
475.500	2.1917E-03	480.000	2.4811E-03	483.500	2.7044E-03
486.000	2.8633E-03	487.500	2.9585E-03	488.500	3.0219E-03
489.000	3.0536E-03				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	7.3982E-03	0.300	1.3176E-02
0.600	1.9885E-02	1.000	2.7482E-02	1.500	3.9042E-02
2.200	5.1763E-02	3.000	6.4650E-02	4.000	9.2139E-02
5.500	1.3027E-01	7.500	1.4651E-01	9.500	1.5947E-01
12.000	1.6811E-01	14.500	1.7459E-01	17.500	1.6304E-01
20.000	1.5461E-01	23.000	1.4600E-01	25.500	1.1447E-01
27.500	8.6336E-02	29.000	6.0374E-02	30.000	4.7663E-02
31.000	4.7067E-02	32.000	5.8136E-02	33.500	6.8610E-02
35.000	7.8831E-02	37.000	1.1057E-01	40.000	1.0801E-01
42.000	8.5264E-02	44.000	6.3206E-02	45.000	4.1915E-02
46.000	4.1710E-02	47.000	4.1640E-02	48.000	6.2876E-02
50.000	8.4675E-02	52.000	8.5175E-02	54.000	1.0675E-01
57.000	9.6069E-02	58.500	6.3946E-02	60.000	5.3156E-02
61.000	4.2435E-02	62.000	4.2333E-02	63.000	5.2777E-02
64.500	6.3053E-02	66.000	7.3202E-02	68.000	1.0383E-01
71.000	1.2317E-01	74.000	1.2163E-01	77.000	1.1999E-01
80.000	1.1828E-01	83.000	1.1649E-01	86.000	9.5515E-02
88.000	5.6659E-02	89.000	3.7551E-02	90.000	3.7326E-02
91.000	3.7097E-02	92.000	5.5297E-02	94.000	7.2779E-02
96.000	8.9754E-02	99.000	1.0544E-01	102.000	1.0310E-01
105.000	1.1748E-01	109.000	1.4615E-01	114.000	1.2445E-01
117.000	7.5814E-02	119.000	5.9646E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 4 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\4_1946.res

Year	Precip	PET	Transp	Evap	Runoff	Drain	Store	TimeStp	MasBalErr

Initial storage =				58.647					
1	22.530	135.832	2.669	19.079	0.000	0.003	59.431	11387	-0.00464
2	22.530	135.832	2.561	20.419	0.000	0.003	58.982	11371	-0.00469
3	22.530	135.832	2.452	20.403	0.000	0.003	58.658	11400	-0.00461
4	22.530	135.832	2.393	20.393	0.000	0.003	58.403	11373	-0.00456
5	22.530	135.832	2.354	20.392	0.000	0.003	58.188	11375	-0.00453
6	22.530	135.832	2.328	20.389	0.000	0.003	58.001	11390	-0.00449
7	22.530	135.832	2.310	20.388	0.000	0.003	57.834	11385	-0.00450
8	22.530	135.832	2.299	20.383	0.000	0.003	57.683	11364	-0.00448
9	22.530	135.832	2.287	20.387	0.000	0.003	57.541	11382	-0.00466
10	22.530	135.832	2.278	20.386	0.000	0.003	57.408	11350	-0.00461
11	50.698	113.700	4.401	42.457	0.000	0.003	61.251	12382	-0.00525
12	50.698	113.759	5.356	43.698	0.000	0.003	62.898	12263	-0.00500

SUM= 326.6951585.780 33.689 288.774 0.000 0.037									-0.05602

Sensitivity Analysis #1: Soil Sample 5 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\5_.inp
Results File: c:\a\5_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:24:04.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	3.667E+03	0.2053	293.15	2	1.000E-01	2.955E+03	0.2158 293.15
3	3.000E-01	3.067E+03	0.2139	293.15	4	6.000E-01	3.090E+03	0.2136 293.15
5	1.000E+00	3.073E+03	0.2138	293.15	6	1.500E+00	3.064E+03	0.2140 293.15
7	2.200E+00	3.049E+03	0.2142	293.15	8	3.000E+00	3.031E+03	0.2145 293.15
9	4.000E+00	3.006E+03	0.2149	293.15	10	5.500E+00	2.968E+03	0.2156 293.15
11	7.500E+00	2.921E+03	0.2163	293.15	12	9.500E+00	2.886E+03	0.2169 293.15
13	1.200E+01	2.863E+03	0.2173	293.15	14	1.450E+01	2.862E+03	0.2174 293.15
15	1.750E+01	2.887E+03	0.2169	293.15	16	2.000E+01	2.926E+03	0.2163 293.15
17	2.300E+01	2.990E+03	0.2152	293.15	18	2.550E+01	3.055E+03	0.2141 293.15
19	2.750E+01	3.113E+03	0.2132	293.15	20	2.900E+01	3.158E+03	0.2125 293.15
21	3.000E+01	3.189E+03	0.2120	293.15	22	3.100E+01	3.220E+03	0.2115 293.15
23	3.200E+01	3.252E+03	0.2111	293.15	24	3.350E+01	3.298E+03	0.2104 293.15
25	3.500E+01	3.344E+03	0.2097	293.15	26	3.700E+01	3.401E+03	0.2089 293.15
27	4.000E+01	3.477E+03	0.2078	293.15	28	4.200E+01	3.517E+03	0.2073 293.15
29	4.400E+01	3.547E+03	0.2069	293.15	30	4.500E+01	3.559E+03	0.2067 293.15
31	4.600E+01	3.568E+03	0.2066	293.15	32	4.700E+01	3.638E+03	0.2057 293.15
33	4.800E+01	4.182E+03	0.1991	293.15	34	5.000E+01	6.019E+03	0.1829 293.15
35	5.200E+01	1.163E+04	0.1567	293.15	36	5.400E+01	1.954E+04	0.1386 293.15
37	5.700E+01	2.565E+04	0.1300	293.15	38	5.850E+01	2.789E+04	0.1274 293.15
39	6.000E+01	2.982E+04	0.1254	293.15	40	6.100E+01	3.099E+04	0.1243 293.15
41	6.200E+01	3.207E+04	0.1233	293.15	42	6.300E+01	3.306E+04	0.1224 293.15
43	6.450E+01	3.436E+04	0.1213	293.15	44	6.600E+01	3.545E+04	0.1204 293.15
45	6.800E+01	3.660E+04	0.1195	293.15	46	7.100E+01	3.779E+04	0.1186 293.15
47	7.400E+01	3.853E+04	0.1180	293.15	48	7.700E+01	3.900E+04	0.1177 293.15
49	8.000E+01	3.929E+04	0.1175	293.15	50	8.300E+01	3.946E+04	0.1174 293.15
51	8.600E+01	3.955E+04	0.1173	293.15	52	8.800E+01	3.957E+04	0.1173 293.15
53	8.900E+01	3.957E+04	0.1173	293.15	54	9.000E+01	3.957E+04	0.1173 293.15
55	9.100E+01	3.955E+04	0.1173	293.15	56	9.200E+01	3.953E+04	0.1173 293.15
57	9.400E+01	3.947E+04	0.1173	293.15	58	9.600E+01	3.938E+04	0.1174 293.15
59	9.900E+01	3.917E+04	0.1176	293.15	60	1.020E+02	3.882E+04	0.1178 293.15
61	1.050E+02	3.829E+04	0.1182	293.15	62	1.090E+02	3.714E+04	0.1191 293.15
63	1.140E+02	3.442E+04	0.1212	293.15	64	1.170E+02	3.142E+04	0.1239 293.15

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65	1.190E+02	2.881E+04	0.1264	293.15	66	1.210E+02	2.595E+04	0.1296	293.15
67	1.220E+02	2.455E+04	0.1313	293.15	68	1.230E+02	2.322E+04	0.1331	293.15
69	1.245E+02	2.139E+04	0.1357	293.15	70	1.260E+02	1.980E+04	0.1382	293.15
71	1.280E+02	1.804E+04	0.1413	293.15	72	1.305E+02	1.631E+04	0.1446	293.15
73	1.325E+02	1.523E+04	0.1470	293.15	74	1.350E+02	1.416E+04	0.1496	293.15
75	1.400E+02	1.266E+04	0.1536	293.15	76	1.450E+02	1.172E+04	0.1564	293.15
77	1.480E+02	1.132E+04	0.1577	293.15	78	1.500E+02	1.111E+04	0.1584	293.15
79	1.514E+02	1.098E+04	0.1588	293.15	80	1.524E+02	1.090E+04	0.1591	293.15
81	1.530E+02	1.085E+04	0.1593	293.15	82	1.540E+02	1.077E+04	0.1595	293.15
83	1.600E+02	1.045E+04	0.1607	293.15	84	1.650E+02	1.028E+04	0.1613	293.15
85	1.700E+02	1.017E+04	0.1617	293.15	86	1.750E+02	1.010E+04	0.1620	293.15
87	1.780E+02	1.007E+04	0.1621	293.15	88	1.800E+02	1.006E+04	0.1621	293.15
89	1.810E+02	1.005E+04	0.1622	293.15	90	1.820E+02	1.005E+04	0.1622	293.15
91	1.830E+02	1.004E+04	0.1622	293.15	92	1.840E+02	1.004E+04	0.1622	293.15
93	1.850E+02	1.003E+04	0.1622	293.15	94	1.870E+02	1.002E+04	0.1623	293.15
95	1.900E+02	1.002E+04	0.1623	293.15	96	1.950E+02	1.001E+04	0.1623	293.15
97	2.020E+02	1.000E+04	0.1623	293.15	98	2.100E+02	1.000E+04	0.1623	293.15
99	2.200E+02	1.000E+04	0.1624	293.15	100	2.350E+02	1.000E+04	0.1624	293.15
101	2.400E+02	1.000E+04	0.1624	293.15	102	2.600E+02	1.000E+04	0.1624	293.15
103	2.800E+02	1.000E+04	0.1624	293.15	104	3.000E+02	1.000E+04	0.1624	293.15
105	3.200E+02	1.000E+04	0.1624	293.15	106	3.400E+02	1.000E+04	0.1624	293.15
107	3.600E+02	1.000E+04	0.1624	293.15	108	3.800E+02	1.000E+04	0.1624	293.15
109	4.000E+02	1.000E+04	0.1624	293.15	110	4.200E+02	1.000E+04	0.1624	293.15
111	4.400E+02	1.000E+04	0.1624	293.15	112	4.550E+02	1.000E+04	0.1624	293.15
113	4.650E+02	1.000E+04	0.1624	293.15	114	4.730E+02	1.000E+04	0.1624	293.15
115	4.780E+02	1.000E+04	0.1624	293.15	116	4.820E+02	1.000E+04	0.1624	293.15
117	4.850E+02	1.000E+04	0.1624	293.15	118	4.870E+02	1.000E+04	0.1624	293.15
119	4.880E+02	1.000E+04	0.1624	293.15	120	4.890E+02	1.000E+04	0.1624	293.15

Initial Water Storage = 78.5816 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.19812
Head (cm) = 4.27442E+03
LiqWater Flow (cm)=-6.79839E-02
IsoVapor Flow (cm)=-5.73575E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

78.5816+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 78.5132 vs. 78.5132

Mass Balance = -1.4097E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.20529

Head (cm) = 3.66706E+03

LiqWater Flow (cm)=-3.95748E-02

IsoVapor Flow (cm)=-4.63233E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

78.5727+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 78.5330 vs. 78.5330

Mass Balance = -7.8496E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]
Potential Transpiration = 1.6719E+01 [cm]
Actual Transpiration = 2.2597E+00 [cm]
Potential Evaporation = 1.1911E+02 [cm]
Actual Evaporation = 2.0323E+01 [cm]
Evaporation during Growth = 1.1932E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 2.2530E+01 [cm]
Total Basal Liquid Flux (drainage) = 1.2396E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 7.8533E+01 [cm]
 Mass Balance Error = -4.8273E-03 [cm]
 Total Successful Time Steps = 11386
 Total Attempted Time Steps = 12653
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6262
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.2063E+00	0.050	4.2416E+00	0.200	3.9027E+00
0.450	3.0071E+00	0.800	2.5450E+00	1.250	2.3727E+00
1.850	2.2690E+00	2.600	2.1900E+00	3.500	2.1195E+00
4.750	2.0349E+00	6.500	1.9236E+00	8.500	1.8023E+00
10.750	1.6733E+00	13.250	1.5393E+00	16.000	1.4014E+00
18.750	1.2737E+00	21.500	1.1536E+00	24.250	1.0413E+00
26.500	9.5395E-01	28.250	8.8855E-01	29.500	8.4307E-01
30.500	8.0731E-01	31.500	7.7214E-01	32.750	7.2888E-01
34.250	6.7814E-01	36.000	6.2023E-01	38.500	5.3976E-01
41.000	4.6217E-01	43.000	4.0146E-01	44.500	3.5679E-01
45.500	3.2728E-01	46.500	2.9730E-01	47.500	2.6051E-01
49.000	2.1342E-01	51.000	1.5531E-01	53.000	1.0092E-01
55.500	4.7964E-02	57.750	2.3124E-02	59.250	1.4639E-02
60.500	1.0404E-02	61.500	8.0854E-03	62.500	6.3927E-03
63.750	4.8482E-03	65.250	3.5700E-03	67.000	2.5474E-03
69.500	1.6094E-03	72.500	9.6614E-04	75.500	5.8887E-04
78.500	3.5790E-04	81.500	2.0999E-04	84.500	1.0885E-04
87.000	4.4495E-05	88.500	9.3699E-06	89.500	-1.3689E-05
90.500	-3.6920E-05	91.500	-6.0842E-05	93.000	-9.8614E-05
95.000	-1.5721E-04	97.500	-2.4782E-04	100.500	-4.0650E-04
103.500	-6.5219E-04	107.000	-1.1216E-03	111.500	-2.3555E-03
115.500	-5.0983E-03	118.000	-8.6621E-03	120.000	-1.3908E-02
121.500	-1.5660E-02	122.500	-1.6752E-02	123.750	-1.7970E-02
125.250	-1.9146E-02	127.000	-2.0054E-02	129.250	-2.0492E-02
131.500	-2.0247E-02	133.750	-1.9446E-02	137.500	-1.7323E-02
142.500	-1.4091E-02	146.500	-1.1595E-02	149.000	-1.0119E-02
150.700	-9.1717E-03	151.900	-8.5344E-03	152.700	-8.1252E-03
153.500	-7.7245E-03	157.000	-6.0224E-03	162.500	-4.0527E-03
167.500	-2.7045E-03	172.500	-1.7290E-03	176.500	-1.1853E-03
179.000	-9.1637E-04	180.500	-7.7952E-04	181.500	-6.9567E-04
182.500	-6.1877E-04	183.500	-5.4834E-04	184.500	-4.8396E-04

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186.000	-3.9582E-04	188.500	-2.7405E-04	192.500	-1.2884E-04
198.500	8.3882E-07	206.000	7.5390E-05	215.000	1.0921E-04
227.500	1.2152E-04	237.500	1.2313E-04	250.000	1.2386E-04
270.000	1.2395E-04	290.000	1.2396E-04	310.000	1.2396E-04
330.000	1.2396E-04	350.000	1.2396E-04	370.000	1.2396E-04
390.000	1.2396E-04	410.000	1.2396E-04	430.000	1.2396E-04
447.500	1.2396E-04	460.000	1.2396E-04	469.000	1.2396E-04
475.500	1.2396E-04	480.000	1.2396E-04	483.500	1.2396E-04
486.000	1.2396E-04	487.500	1.2396E-04	488.500	1.2396E-04
489.000	1.2396E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.7726E-03	0.300	5.4782E-03
0.600	9.3104E-03	1.000	1.4440E-02	1.500	2.2667E-02
2.200	3.3227E-02	3.000	4.4842E-02	4.000	6.7797E-02
5.500	1.0061E-01	7.500	1.1565E-01	9.500	1.2601E-01
12.000	1.3217E-01	14.500	1.3681E-01	17.500	1.2709E-01
20.000	1.1977E-01	23.000	1.1207E-01	25.500	8.7130E-02
27.500	6.5269E-02	29.000	4.5393E-02	30.000	3.5698E-02
31.000	3.5112E-02	32.000	4.3194E-02	33.500	5.0656E-02
35.000	5.7823E-02	37.000	8.0384E-02	40.000	7.7510E-02
42.000	6.0704E-02	44.000	4.4693E-02	45.000	2.9553E-02
46.000	2.9337E-02	47.000	2.8990E-02	48.000	4.1390E-02
50.000	5.1002E-02	52.000	4.5863E-02	54.000	4.7615E-02
57.000	2.6266E-02	58.500	1.3156E-02	60.000	8.2192E-03
61.000	5.4465E-03	62.000	4.5359E-03	63.000	4.7492E-03
64.500	4.4225E-03	66.000	4.0436E-03	68.000	4.2294E-03
71.000	3.2573E-03	74.000	2.1255E-03	77.000	1.4196E-03
80.000	9.8623E-04	83.000	7.3198E-04	86.000	5.0142E-04
88.000	2.8382E-04	89.000	1.8833E-04	90.000	1.9060E-04
91.000	1.9603E-04	92.000	3.0707E-04	94.000	4.6461E-04
96.000	6.8921E-04	99.000	1.1310E-03	102.000	1.6228E-03
105.000	2.7972E-03	109.000	6.1667E-03	114.000	1.0956E-02
117.000	1.0717E-02	119.000	1.1825E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 5 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\5_.inp
Results File: c:\a\5_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:24:04.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	3.667E+03	0.2053	293.15	2	1.000E-01	2.955E+03	0.2158 293.15
3	3.000E-01	3.067E+03	0.2139	293.15	4	6.000E-01	3.091E+03	0.2136 293.15
5	1.000E+00	3.073E+03	0.2138	293.15	6	1.500E+00	3.065E+03	0.2140 293.15
7	2.200E+00	3.049E+03	0.2142	293.15	8	3.000E+00	3.031E+03	0.2145 293.15
9	4.000E+00	3.006E+03	0.2149	293.15	10	5.500E+00	2.968E+03	0.2156 293.15
11	7.500E+00	2.921E+03	0.2163	293.15	12	9.500E+00	2.886E+03	0.2169 293.15
13	1.200E+01	2.863E+03	0.2173	293.15	14	1.450E+01	2.862E+03	0.2174 293.15
15	1.750E+01	2.887E+03	0.2169	293.15	16	2.000E+01	2.926E+03	0.2163 293.15
17	2.300E+01	2.990E+03	0.2152	293.15	18	2.550E+01	3.055E+03	0.2141 293.15
19	2.750E+01	3.113E+03	0.2132	293.15	20	2.900E+01	3.158E+03	0.2125 293.15
21	3.000E+01	3.189E+03	0.2120	293.15	22	3.100E+01	3.220E+03	0.2115 293.15
23	3.200E+01	3.252E+03	0.2111	293.15	24	3.350E+01	3.298E+03	0.2104 293.15
25	3.500E+01	3.344E+03	0.2097	293.15	26	3.700E+01	3.401E+03	0.2089 293.15
27	4.000E+01	3.477E+03	0.2078	293.15	28	4.200E+01	3.517E+03	0.2073 293.15
29	4.400E+01	3.548E+03	0.2069	293.15	30	4.500E+01	3.559E+03	0.2067 293.15
31	4.600E+01	3.568E+03	0.2066	293.15	32	4.700E+01	3.638E+03	0.2057 293.15
33	4.800E+01	4.182E+03	0.1991	293.15	34	5.000E+01	6.020E+03	0.1829 293.15
35	5.200E+01	1.163E+04	0.1567	293.15	36	5.400E+01	1.956E+04	0.1386 293.15
37	5.700E+01	2.567E+04	0.1299	293.15	38	5.850E+01	2.791E+04	0.1274 293.15
39	6.000E+01	2.985E+04	0.1254	293.15	40	6.100E+01	3.102E+04	0.1242 293.15
41	6.200E+01	3.211E+04	0.1232	293.15	42	6.300E+01	3.309E+04	0.1223 293.15
43	6.450E+01	3.440E+04	0.1212	293.15	44	6.600E+01	3.549E+04	0.1203 293.15
45	6.800E+01	3.664E+04	0.1194	293.15	46	7.100E+01	3.783E+04	0.1185 293.15
47	7.400E+01	3.858E+04	0.1180	293.15	48	7.700E+01	3.905E+04	0.1176 293.15
49	8.000E+01	3.935E+04	0.1174	293.15	50	8.300E+01	3.952E+04	0.1173 293.15
51	8.600E+01	3.961E+04	0.1172	293.15	52	8.800E+01	3.963E+04	0.1172 293.15
53	8.900E+01	3.964E+04	0.1172	293.15	54	9.000E+01	3.963E+04	0.1172 293.15
55	9.100E+01	3.962E+04	0.1172	293.15	56	9.200E+01	3.961E+04	0.1172 293.15
57	9.400E+01	3.955E+04	0.1173	293.15	58	9.600E+01	3.946E+04	0.1173 293.15
59	9.900E+01	3.926E+04	0.1175	293.15	60	1.020E+02	3.894E+04	0.1177 293.15
61	1.050E+02	3.844E+04	0.1181	293.15	62	1.090E+02	3.734E+04	0.1189 293.15
63	1.140E+02	3.475E+04	0.1209	293.15	64	1.170E+02	3.188E+04	0.1234 293.15

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65 1.190E+02 2.938E+04 0.1259 293.15	66 1.210E+02 2.661E+04 0.1288 293.15
67 1.220E+02 2.524E+04 0.1305 293.15	68 1.230E+02 2.393E+04 0.1321 293.15
69 1.245E+02 2.211E+04 0.1346 293.15	70 1.260E+02 2.051E+04 0.1370 293.15
71 1.280E+02 1.870E+04 0.1400 293.15	72 1.305E+02 1.692E+04 0.1434 293.15
73 1.325E+02 1.578E+04 0.1458 293.15	74 1.350E+02 1.464E+04 0.1484 293.15
75 1.400E+02 1.303E+04 0.1525 293.15	76 1.450E+02 1.200E+04 0.1555 293.15
77 1.480E+02 1.156E+04 0.1569 293.15	78 1.500E+02 1.132E+04 0.1577 293.15
79 1.514E+02 1.117E+04 0.1582 293.15	80 1.524E+02 1.108E+04 0.1585 293.15
81 1.530E+02 1.103E+04 0.1587 293.15	82 1.540E+02 1.094E+04 0.1589 293.15
83 1.600E+02 1.056E+04 0.1603 293.15	84 1.650E+02 1.036E+04 0.1610 293.15
85 1.700E+02 1.023E+04 0.1615 293.15	86 1.750E+02 1.014E+04 0.1618 293.15
87 1.780E+02 1.010E+04 0.1620 293.15	88 1.800E+02 1.008E+04 0.1620 293.15
89 1.810E+02 1.008E+04 0.1621 293.15	90 1.820E+02 1.007E+04 0.1621 293.15
91 1.830E+02 1.006E+04 0.1621 293.15	92 1.840E+02 1.005E+04 0.1621 293.15
93 1.850E+02 1.005E+04 0.1622 293.15	94 1.870E+02 1.004E+04 0.1622 293.15
95 1.900E+02 1.003E+04 0.1622 293.15	96 1.950E+02 1.001E+04 0.1623 293.15
97 2.020E+02 1.001E+04 0.1623 293.15	98 2.100E+02 1.000E+04 0.1623 293.15
99 2.200E+02 1.000E+04 0.1624 293.15	100 2.350E+02 1.000E+04 0.1624 293.15
101 2.400E+02 1.000E+04 0.1624 293.15	102 2.600E+02 1.000E+04 0.1624 293.15
103 2.800E+02 1.000E+04 0.1624 293.15	104 3.000E+02 1.000E+04 0.1624 293.15
105 3.200E+02 1.000E+04 0.1624 293.15	106 3.400E+02 1.000E+04 0.1624 293.15
107 3.600E+02 1.000E+04 0.1624 293.15	108 3.800E+02 1.000E+04 0.1624 293.15
109 4.000E+02 1.000E+04 0.1624 293.15	110 4.200E+02 1.000E+04 0.1624 293.15
111 4.400E+02 1.000E+04 0.1624 293.15	112 4.550E+02 1.000E+04 0.1624 293.15
113 4.650E+02 1.000E+04 0.1624 293.15	114 4.730E+02 1.000E+04 0.1624 293.15
115 4.780E+02 1.000E+04 0.1624 293.15	116 4.820E+02 1.000E+04 0.1624 293.15
117 4.850E+02 1.000E+04 0.1624 293.15	118 4.870E+02 1.000E+04 0.1624 293.15
119 4.880E+02 1.000E+04 0.1624 293.15	120 4.890E+02 1.000E+04 0.1624 293.15

Initial Water Storage = 78.5330 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
 Depth (cm) = 0.00000
 Water (cm³/cm³) = 0.20240
 Head (cm) = 3.89806E+03
 LiqWater Flow (cm)=-4.41170E-02
 IsoVapor Flow (cm)=-3.87811E-05
 Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

78.5330+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 78.4887 vs. 78.4887

Mass Balance = -8.0182E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.24484

Head (cm) = 1.69109E+03

LiqWater Flow (cm)= 4.07653E-05

IsoVapor Flow (cm)=-2.78357E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

81.6554+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 81.6554 vs. 81.6554

Mass Balance = -7.5614E-08 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1370E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 4.2289E+00 [cm]

Potential Evaporation = 9.9853E+01 [cm]

Actual Evaporation = 4.3352E+01 [cm]

Evaporation during Growth = 2.9166E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 1.2430E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 8.1655E+01 [cm]
 Mass Balance Error = -5.4184E-03 [cm]
 Total Successful Time Steps = 12331
 Total Attempted Time Steps = 13697
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3308
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	7.3461E+00	0.050	8.2307E+00	0.200	7.6008E+00
0.450	7.4307E+00	0.800	7.3389E+00	1.250	7.2535E+00
1.850	7.1560E+00	2.600	7.0402E+00	3.500	6.9039E+00
4.750	6.7155E+00	6.500	6.4542E+00	8.500	6.1636E+00
10.750	5.8486E+00	13.250	5.5162E+00	16.000	5.1687E+00
18.750	4.8402E+00	21.500	4.5255E+00	24.250	4.2251E+00
26.500	3.9875E+00	28.250	3.8073E+00	29.500	3.6807E+00
30.500	3.5805E+00	31.500	3.4813E+00	32.750	3.3584E+00
34.250	3.2130E+00	36.000	3.0454E+00	38.500	2.8096E+00
41.000	2.5782E+00	43.000	2.3950E+00	44.500	2.2589E+00
45.500	2.1684E+00	46.500	2.0784E+00	47.500	1.9885E+00
49.000	1.8427E+00	51.000	1.6130E+00	53.000	1.3336E+00
55.500	9.6064E-01	57.750	6.4433E-01	59.250	4.4985E-01
60.500	3.0754E-01	61.500	2.1073E-01	62.500	1.3076E-01
63.750	5.6027E-02	65.250	1.6786E-02	67.000	6.5037E-03
69.500	2.7642E-03	72.500	1.3051E-03	75.500	7.0082E-04
78.500	4.0142E-04	81.500	2.3081E-04	84.500	1.2066E-04
87.000	5.2516E-05	88.500	1.5816E-05	89.500	-8.1320E-06
90.500	-3.2129E-05	91.500	-5.6718E-05	93.000	-9.5370E-05
95.000	-1.5491E-04	97.500	-2.4648E-04	100.500	-4.0595E-04
103.500	-6.5163E-04	107.000	-1.1174E-03	111.500	-2.3215E-03
115.500	-4.8979E-03	118.000	-8.0865E-03	120.000	-1.2537E-02
121.500	-1.4162E-02	122.500	-1.5211E-02	123.750	-1.6424E-02
125.250	-1.7652E-02	127.000	-1.8699E-02	129.250	-1.9389E-02
131.500	-1.9426E-02	133.750	-1.8910E-02	137.500	-1.7214E-02
142.500	-1.4380E-02	146.500	-1.2076E-02	149.000	-1.0678E-02
150.700	-9.7675E-03	151.900	-9.1492E-03	152.700	-8.7497E-03
153.500	-8.3568E-03	157.000	-6.6736E-03	162.500	-4.6561E-03
167.500	-3.2278E-03	172.500	-2.1572E-03	176.500	-1.5375E-03
179.000	-1.2235E-03	180.500	-1.0609E-03	181.500	-9.6034E-04
182.500	-8.6731E-04	183.500	-7.8134E-04	184.500	-7.0201E-04

December 2023

186.000	-5.9234E-04	188.500	-4.3787E-04	192.500	-2.4794E-04
198.500	-6.9142E-05	206.000	4.1626E-05	215.000	9.6603E-05
227.500	1.1909E-04	237.500	1.2239E-04	250.000	1.2405E-04
270.000	1.2428E-04	290.000	1.2429E-04	310.000	1.2430E-04
330.000	1.2430E-04	350.000	1.2430E-04	370.000	1.2430E-04
390.000	1.2430E-04	410.000	1.2430E-04	430.000	1.2430E-04
447.500	1.2430E-04	460.000	1.2430E-04	469.000	1.2430E-04
475.500	1.2430E-04	480.000	1.2430E-04	483.500	1.2430E-04
486.000	1.2430E-04	487.500	1.2430E-04	488.500	1.2430E-04
489.000	1.2430E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	8.3339E-03	0.300	1.5797E-02
0.600	2.5275E-02	1.000	3.6444E-02	1.500	5.3245E-02
2.200	7.1849E-02	3.000	9.0490E-02	4.000	1.2944E-01
5.500	1.8298E-01	7.500	2.0503E-01	9.500	2.2201E-01
12.000	2.3251E-01	14.500	2.4056E-01	17.500	2.2427E-01
20.000	2.1239E-01	23.000	2.0007E-01	25.500	1.5655E-01
27.500	1.1791E-01	29.000	8.2377E-02	30.000	6.4995E-02
31.000	6.4146E-02	32.000	7.9186E-02	33.500	9.3366E-02
35.000	1.0716E-01	37.000	1.5006E-01	40.000	1.4621E-01
42.000	1.1521E-01	44.000	8.5249E-02	45.000	5.6479E-02
46.000	5.6147E-02	47.000	5.6007E-02	48.000	8.5026E-02
50.000	1.1055E-01	52.000	1.0336E-01	54.000	1.1623E-01
57.000	7.7728E-02	58.500	3.9895E-02	60.000	2.2649E-02
61.000	1.3134E-02	62.000	9.2708E-03	63.000	8.1759E-03
64.500	6.0999E-03	66.000	4.6854E-03	68.000	4.2146E-03
71.000	2.9443E-03	74.000	1.8433E-03	77.000	1.2016E-03
80.000	8.1520E-04	83.000	5.8829E-04	86.000	3.9153E-04
88.000	2.1827E-04	89.000	1.4408E-04	90.000	1.4534E-04
91.000	1.4930E-04	92.000	2.3401E-04	94.000	3.5611E-04
96.000	5.3337E-04	99.000	8.8967E-04	102.000	1.2953E-03
105.000	2.2579E-03	109.000	5.0236E-03	114.000	8.9507E-03
117.000	8.6952E-03	119.000	9.4822E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 5 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\5_.inp
Results File: c:\a\5_1957.res
Date of Run: 08 Jun 2021
Time of Run: 14:24:04.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.691E+03	0.2448	293.15	2	1.000E-01	1.377E+03	0.2562 293.15
3	3.000E-01	1.250E+03	0.2617	293.15	4	6.000E-01	1.275E+03	0.2605 293.15
5	1.000E+00	1.317E+03	0.2587	293.15	6	1.500E+00	1.316E+03	0.2587 293.15
7	2.200E+00	1.310E+03	0.2590	293.15	8	3.000E+00	1.311E+03	0.2589 293.15
9	4.000E+00	1.313E+03	0.2589	293.15	10	5.500E+00	1.317E+03	0.2587 293.15
11	7.500E+00	1.325E+03	0.2583	293.15	12	9.500E+00	1.337E+03	0.2579 293.15
13	1.200E+01	1.355E+03	0.2571	293.15	14	1.450E+01	1.379E+03	0.2561 293.15
15	1.750E+01	1.413E+03	0.2547	293.15	16	2.000E+01	1.447E+03	0.2534 293.15
17	2.300E+01	1.494E+03	0.2517	293.15	18	2.550E+01	1.537E+03	0.2501 293.15
19	2.750E+01	1.573E+03	0.2488	293.15	20	2.900E+01	1.600E+03	0.2479 293.15
21	3.000E+01	1.619E+03	0.2472	293.15	22	3.100E+01	1.638E+03	0.2466 293.15
23	3.200E+01	1.656E+03	0.2460	293.15	24	3.350E+01	1.684E+03	0.2451 293.15
25	3.500E+01	1.710E+03	0.2442	293.15	26	3.700E+01	1.743E+03	0.2432 293.15
27	4.000E+01	1.785E+03	0.2419	293.15	28	4.200E+01	1.806E+03	0.2413 293.15
29	4.400E+01	1.821E+03	0.2408	293.15	30	4.500E+01	1.826E+03	0.2407 293.15
31	4.600E+01	1.830E+03	0.2406	293.15	32	4.700E+01	1.852E+03	0.2399 293.15
33	4.800E+01	1.904E+03	0.2384	293.15	34	5.000E+01	1.838E+03	0.2403 293.15
35	5.200E+01	1.826E+03	0.2407	293.15	36	5.400E+01	1.897E+03	0.2386 293.15
37	5.700E+01	2.221E+03	0.2303	293.15	38	5.850E+01	2.536E+03	0.2235 293.15
39	6.000E+01	3.064E+03	0.2140	293.15	40	6.100E+01	3.636E+03	0.2057 293.15
41	6.200E+01	4.561E+03	0.1952	293.15	42	6.300E+01	6.236E+03	0.1814 293.15
43	6.450E+01	1.351E+04	0.1512	293.15	44	6.600E+01	2.476E+04	0.1311 293.15
45	6.800E+01	3.214E+04	0.1232	293.15	46	7.100E+01	3.618E+04	0.1198 293.15
47	7.400E+01	3.797E+04	0.1184	293.15	48	7.700E+01	3.882E+04	0.1178 293.15
49	8.000E+01	3.926E+04	0.1175	293.15	50	8.300E+01	3.948E+04	0.1173 293.15
51	8.600E+01	3.959E+04	0.1173	293.15	52	8.800E+01	3.963E+04	0.1172 293.15
53	8.900E+01	3.963E+04	0.1172	293.15	54	9.000E+01	3.963E+04	0.1172 293.15
55	9.100E+01	3.962E+04	0.1172	293.15	56	9.200E+01	3.960E+04	0.1173 293.15
57	9.400E+01	3.955E+04	0.1173	293.15	58	9.600E+01	3.946E+04	0.1174 293.15
59	9.900E+01	3.924E+04	0.1175	293.15	60	1.020E+02	3.890E+04	0.1177 293.15
61	1.050E+02	3.837E+04	0.1181	293.15	62	1.090E+02	3.724E+04	0.1190 293.15
63	1.140E+02	3.465E+04	0.1210	293.15	64	1.170E+02	3.190E+04	0.1234 293.15

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65	1.190E+02	2.955E+04	0.1257	293.15	66	1.210E+02	2.695E+04	0.1284	293.15
67	1.220E+02	2.566E+04	0.1299	293.15	68	1.230E+02	2.442E+04	0.1315	293.15
69	1.245E+02	2.266E+04	0.1338	293.15	70	1.260E+02	2.109E+04	0.1361	293.15
71	1.280E+02	1.930E+04	0.1390	293.15	72	1.305E+02	1.747E+04	0.1423	293.15
73	1.325E+02	1.629E+04	0.1447	293.15	74	1.350E+02	1.510E+04	0.1473	293.15
75	1.400E+02	1.338E+04	0.1516	293.15	76	1.450E+02	1.227E+04	0.1547	293.15
77	1.480E+02	1.179E+04	0.1562	293.15	78	1.500E+02	1.153E+04	0.1570	293.15
79	1.514E+02	1.137E+04	0.1575	293.15	80	1.524E+02	1.127E+04	0.1579	293.15
81	1.530E+02	1.121E+04	0.1581	293.15	82	1.540E+02	1.111E+04	0.1584	293.15
83	1.600E+02	1.069E+04	0.1598	293.15	84	1.650E+02	1.045E+04	0.1607	293.15
85	1.700E+02	1.029E+04	0.1612	293.15	86	1.750E+02	1.019E+04	0.1616	293.15
87	1.780E+02	1.014E+04	0.1618	293.15	88	1.800E+02	1.012E+04	0.1619	293.15
89	1.810E+02	1.011E+04	0.1619	293.15	90	1.820E+02	1.010E+04	0.1620	293.15
91	1.830E+02	1.009E+04	0.1620	293.15	92	1.840E+02	1.008E+04	0.1621	293.15
93	1.850E+02	1.007E+04	0.1621	293.15	94	1.870E+02	1.006E+04	0.1621	293.15
95	1.900E+02	1.004E+04	0.1622	293.15	96	1.950E+02	1.002E+04	0.1623	293.15
97	2.020E+02	1.001E+04	0.1623	293.15	98	2.100E+02	1.000E+04	0.1623	293.15
99	2.200E+02	1.000E+04	0.1623	293.15	100	2.350E+02	1.000E+04	0.1624	293.15
101	2.400E+02	1.000E+04	0.1624	293.15	102	2.600E+02	1.000E+04	0.1624	293.15
103	2.800E+02	1.000E+04	0.1624	293.15	104	3.000E+02	1.000E+04	0.1624	293.15
105	3.200E+02	1.000E+04	0.1624	293.15	106	3.400E+02	1.000E+04	0.1624	293.15
107	3.600E+02	1.000E+04	0.1624	293.15	108	3.800E+02	1.000E+04	0.1624	293.15
109	4.000E+02	1.000E+04	0.1624	293.15	110	4.200E+02	1.000E+04	0.1624	293.15
111	4.400E+02	1.000E+04	0.1624	293.15	112	4.550E+02	1.000E+04	0.1624	293.15
113	4.650E+02	1.000E+04	0.1624	293.15	114	4.730E+02	1.000E+04	0.1624	293.15
115	4.780E+02	1.000E+04	0.1624	293.15	116	4.820E+02	1.000E+04	0.1624	293.15
117	4.850E+02	1.000E+04	0.1624	293.15	118	4.870E+02	1.000E+04	0.1624	293.15
119	4.880E+02	1.000E+04	0.1624	293.15	120	4.890E+02	1.000E+04	0.1624	293.15

Initial Water Storage = 81.6554 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.23978
Head (cm) = 1.85667E+03
LiqWater Flow (cm)=-4.40209E-02
IsoVapor Flow (cm)=-2.62746E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

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PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

81.6554+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 81.6111 vs. 81.6111

Mass Balance = -8.0934E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.24051

Head (cm) = 1.83181E+03

LiqWater Flow (cm)=-5.81665E-02

IsoVapor Flow (cm)=-3.64498E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

82.3446+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 82.2861 vs. 82.2861

Mass Balance = -1.1775E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1376E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 4.9989E+00 [cm]

Potential Evaporation = 9.9911E+01 [cm]

Actual Evaporation = 4.5073E+01 [cm]

Evaporation during Growth = 3.0829E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 1.2430E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 8.2286E+01 [cm]
 Mass Balance Error = -4.5019E-03 [cm]
 Total Successful Time Steps = 12067
 Total Attempted Time Steps = 13219
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3194
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	5.6252E+00	0.050	6.2554E+00	0.200	5.8498E+00
0.450	5.7189E+00	0.800	5.6453E+00	1.250	5.5798E+00
1.850	5.5076E+00	2.600	5.4233E+00	3.500	5.3241E+00
4.750	5.1868E+00	6.500	4.9960E+00	8.500	4.7835E+00
10.750	4.5537E+00	13.250	4.3125E+00	16.000	4.0619E+00
18.750	3.8268E+00	21.500	3.6030E+00	24.250	3.3909E+00
26.500	3.2242E+00	28.250	3.0981E+00	29.500	3.0099E+00
30.500	2.9401E+00	31.500	2.8712E+00	32.750	2.7860E+00
34.250	2.6854E+00	36.000	2.5696E+00	38.500	2.4072E+00
41.000	2.2485E+00	43.000	2.1233E+00	44.500	2.0305E+00
45.500	1.9689E+00	46.500	1.9080E+00	47.500	1.8491E+00
49.000	1.7523E+00	51.000	1.6191E+00	53.000	1.4847E+00
55.500	1.3162E+00	57.750	1.1622E+00	59.250	1.0580E+00
60.500	9.6843E-01	61.500	8.9424E-01	62.500	8.1589E-01
63.750	7.0831E-01	65.250	5.4968E-01	67.000	3.6238E-01
69.500	1.6056E-01	72.500	4.1585E-02	75.500	1.0336E-02
78.500	3.1917E-03	81.500	1.1323E-03	84.500	4.1765E-04
87.000	1.7417E-04	88.500	8.6385E-05	89.500	3.9005E-05
90.500	-1.2480E-06	91.500	-3.7184E-05	93.000	-8.7826E-05
95.000	-1.5623E-04	97.500	-2.5476E-04	100.500	-4.1932E-04
103.500	-6.6646E-04	107.000	-1.1246E-03	111.500	-2.2747E-03
115.500	-4.6646E-03	118.000	-7.5958E-03	120.000	-1.1677E-02
121.500	-1.3095E-02	122.500	-1.4021E-02	123.750	-1.5116E-02
125.250	-1.6276E-02	127.000	-1.7346E-02	129.250	-1.8197E-02
131.500	-1.8468E-02	133.750	-1.8216E-02	137.500	-1.6937E-02
142.500	-1.4496E-02	146.500	-1.2394E-02	149.000	-1.1084E-02
150.700	-1.0219E-02	151.900	-9.6268E-03	152.700	-9.2416E-03
153.500	-8.8613E-03	157.000	-7.2192E-03	162.500	-5.1907E-03
167.500	-3.7131E-03	172.500	-2.5721E-03	176.500	-1.8904E-03
179.000	-1.5378E-03	180.500	-1.3526E-03	181.500	-1.2373E-03
182.500	-1.1297E-03	183.500	-1.0296E-03	184.500	-9.3642E-04

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186.000	-8.0665E-04	188.500	-6.2086E-04	192.500	-3.8654E-04
198.500	-1.5606E-04	206.000	-3.9609E-06	215.000	7.7554E-05
227.500	1.1446E-04	237.500	1.2046E-04	250.000	1.2373E-04
270.000	1.2425E-04	290.000	1.2429E-04	310.000	1.2430E-04
330.000	1.2430E-04	350.000	1.2430E-04	370.000	1.2430E-04
390.000	1.2430E-04	410.000	1.2430E-04	430.000	1.2430E-04
447.500	1.2430E-04	460.000	1.2430E-04	469.000	1.2430E-04
475.500	1.2430E-04	480.000	1.2430E-04	483.500	1.2430E-04
486.000	1.2430E-04	487.500	1.2430E-04	488.500	1.2430E-04
489.000	1.2430E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER
UPTAKE

0.000	0.0000E+00	0.100	9.6642E-03	0.300	1.7898E-02
0.600	2.8023E-02	1.000	3.9754E-02	1.500	5.7389E-02
2.200	7.6667E-02	3.000	9.5897E-02	4.000	1.3645E-01
5.500	1.9197E-01	7.500	2.1437E-01	9.500	2.3175E-01
12.000	2.4250E-01	14.500	2.5079E-01	17.500	2.3380E-01
20.000	2.2144E-01	23.000	2.0868E-01	25.500	1.6334E-01
27.500	1.2305E-01	29.000	8.5987E-02	30.000	6.7853E-02
31.000	6.6976E-02	32.000	8.2693E-02	33.500	9.7527E-02
35.000	1.1197E-01	37.000	1.5687E-01	40.000	1.5294E-01
42.000	1.2058E-01	44.000	8.9268E-02	45.000	5.9158E-02
46.000	5.8825E-02	47.000	5.8839E-02	48.000	9.1597E-02
50.000	1.2524E-01	52.000	1.2455E-01	54.000	1.5272E-01
57.000	1.3114E-01	58.500	8.4561E-02	60.000	6.7634E-02
61.000	5.2366E-02	62.000	5.0403E-02	63.000	6.0218E-02
64.500	6.6276E-02	66.000	6.8502E-02	68.000	7.4497E-02
71.000	3.8243E-02	74.000	1.2350E-02	77.000	4.3239E-03
80.000	1.7650E-03	83.000	8.8586E-04	86.000	4.7579E-04
88.000	2.4343E-04	89.000	1.5608E-04	90.000	1.5422E-04
91.000	1.5620E-04	92.000	2.4260E-04	94.000	3.6634E-04
96.000	5.4811E-04	99.000	9.1629E-04	102.000	1.3348E-03
105.000	2.3187E-03	109.000	5.1061E-03	114.000	8.9164E-03
117.000	8.5307E-03	119.000	9.2199E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 5 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\5_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =              79.393
 1 22.530 135.832  3.279 18.304  0.000  0.000  80.344  11360 -0.00463
 2 22.530 135.832  2.928 20.306  0.000  0.000  79.644  11405 -0.00456
 3 22.530 135.832  2.603 20.330  0.000  0.000  79.245  11415 -0.00468
 4 22.530 135.832  2.439 20.324  0.000  0.000  79.016  11408 -0.00465
 5 22.530 135.832  2.354 20.325  0.000  0.000  78.872  11381 -0.00471
 6 22.530 135.832  2.310 20.324  0.000  0.000  78.772  11385 -0.00472
 7 22.530 135.832  2.286 20.324  0.000  0.000  78.697  11405 -0.00470
 8 22.530 135.832  2.274 20.322  0.000  0.000  78.636  11401 -0.00469
 9 22.530 135.832  2.265 20.323  0.000  0.000  78.582  11385 -0.00477
10 22.530 135.832  2.260 20.323  0.000  0.000  78.533  11386 -0.00483
11 50.698 113.700  4.229 43.352  0.000  0.000  81.655  12331 -0.00542
12 50.698 113.759  4.999 45.073  0.000  0.000  82.286  12067 -0.00450
-----
SUM= 326.6951585.780 34.225 289.632  0.000  0.001              -0.05685
```

Sensitivity Analysis #1: Soil Sample 6 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\6_.inp
Results File: C:\A\6_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:32:53.95
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	8.514E+03	0.1635	293.15	2	1.000E-01	6.993E+03	0.1715 293.15
3	3.000E-01	6.992E+03	0.1715	293.15	4	6.000E-01	7.182E+03	0.1704 293.15
5	1.000E+00	7.141E+03	0.1706	293.15	6	1.500E+00	7.122E+03	0.1707 293.15
7	2.200E+00	7.102E+03	0.1708	293.15	8	3.000E+00	7.076E+03	0.1710 293.15
9	4.000E+00	7.041E+03	0.1712	293.15	10	5.500E+00	6.984E+03	0.1715 293.15
11	7.500E+00	6.907E+03	0.1720	293.15	12	9.500E+00	6.837E+03	0.1724 293.15
13	1.200E+01	6.766E+03	0.1728	293.15	14	1.450E+01	6.719E+03	0.1731 293.15
15	1.750E+01	6.698E+03	0.1733	293.15	16	2.000E+01	6.707E+03	0.1732 293.15
17	2.300E+01	6.745E+03	0.1730	293.15	18	2.550E+01	6.794E+03	0.1727 293.15
19	2.750E+01	6.842E+03	0.1724	293.15	20	2.900E+01	6.882E+03	0.1721 293.15
21	3.000E+01	6.910E+03	0.1720	293.15	22	3.100E+01	6.939E+03	0.1718 293.15
23	3.200E+01	6.969E+03	0.1716	293.15	24	3.350E+01	7.014E+03	0.1713 293.15
25	3.500E+01	7.059E+03	0.1711	293.15	26	3.700E+01	7.119E+03	0.1707 293.15
27	4.000E+01	7.202E+03	0.1703	293.15	28	4.200E+01	7.249E+03	0.1700 293.15
29	4.400E+01	7.288E+03	0.1698	293.15	30	4.500E+01	7.304E+03	0.1697 293.15
31	4.600E+01	7.317E+03	0.1696	293.15	32	4.700E+01	7.438E+03	0.1689 293.15
33	4.800E+01	8.549E+03	0.1633	293.15	34	5.000E+01	1.005E+04	0.1571 293.15
35	5.200E+01	1.196E+04	0.1506	293.15	36	5.400E+01	1.534E+04	0.1417 293.15
37	5.700E+01	2.278E+04	0.1288	293.15	38	5.850E+01	2.619E+04	0.1245 293.15
39	6.000E+01	2.861E+04	0.1218	293.15	40	6.100E+01	2.979E+04	0.1206 293.15
41	6.200E+01	3.071E+04	0.1197	293.15	42	6.300E+01	3.145E+04	0.1190 293.15
43	6.450E+01	3.235E+04	0.1182	293.15	44	6.600E+01	3.313E+04	0.1175 293.15
45	6.800E+01	3.406E+04	0.1167	293.15	46	7.100E+01	3.531E+04	0.1157 293.15
47	7.400E+01	3.637E+04	0.1149	293.15	48	7.700E+01	3.720E+04	0.1143 293.15
49	8.000E+01	3.781E+04	0.1138	293.15	50	8.300E+01	3.821E+04	0.1135 293.15
51	8.600E+01	3.843E+04	0.1134	293.15	52	8.800E+01	3.849E+04	0.1133 293.15
53	8.900E+01	3.849E+04	0.1133	293.15	54	9.000E+01	3.848E+04	0.1133 293.15
55	9.100E+01	3.845E+04	0.1133	293.15	56	9.200E+01	3.840E+04	0.1134 293.15
57	9.400E+01	3.826E+04	0.1135	293.15	58	9.600E+01	3.806E+04	0.1136 293.15
59	9.900E+01	3.760E+04	0.1140	293.15	60	1.020E+02	3.693E+04	0.1145 293.15
61	1.050E+02	3.600E+04	0.1152	293.15	62	1.090E+02	3.424E+04	0.1166 293.15
63	1.140E+02	3.096E+04	0.1195	293.15	64	1.170E+02	2.838E+04	0.1220 293.15

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65	1.190E+02	2.660E+04	0.1240	293.15	66	1.210E+02	2.488E+04	0.1260	293.15
67	1.220E+02	2.406E+04	0.1270	293.15	68	1.230E+02	2.329E+04	0.1281	293.15
69	1.245E+02	2.221E+04	0.1296	293.15	70	1.260E+02	2.123E+04	0.1310	293.15
71	1.280E+02	2.007E+04	0.1328	293.15	72	1.305E+02	1.884E+04	0.1348	293.15
73	1.325E+02	1.800E+04	0.1363	293.15	74	1.350E+02	1.710E+04	0.1380	293.15
75	1.400E+02	1.568E+04	0.1410	293.15	76	1.450E+02	1.460E+04	0.1435	293.15
77	1.480E+02	1.407E+04	0.1448	293.15	78	1.500E+02	1.376E+04	0.1455	293.15
79	1.514E+02	1.356E+04	0.1461	293.15	80	1.524E+02	1.342E+04	0.1464	293.15
81	1.530E+02	1.334E+04	0.1466	293.15	82	1.540E+02	1.322E+04	0.1470	293.15
83	1.600E+02	1.256E+04	0.1488	293.15	84	1.650E+02	1.212E+04	0.1501	293.15
85	1.700E+02	1.176E+04	0.1512	293.15	86	1.750E+02	1.146E+04	0.1521	293.15
87	1.780E+02	1.131E+04	0.1526	293.15	88	1.800E+02	1.121E+04	0.1530	293.15
89	1.810E+02	1.117E+04	0.1531	293.15	90	1.820E+02	1.112E+04	0.1532	293.15
91	1.830E+02	1.108E+04	0.1534	293.15	92	1.840E+02	1.104E+04	0.1535	293.15
93	1.850E+02	1.100E+04	0.1537	293.15	94	1.870E+02	1.093E+04	0.1539	293.15
95	1.900E+02	1.083E+04	0.1542	293.15	96	1.950E+02	1.068E+04	0.1548	293.15
97	2.020E+02	1.052E+04	0.1553	293.15	98	2.100E+02	1.037E+04	0.1559	293.15
99	2.200E+02	1.025E+04	0.1563	293.15	100	2.350E+02	1.013E+04	0.1568	293.15
101	2.400E+02	1.010E+04	0.1569	293.15	102	2.600E+02	1.004E+04	0.1571	293.15
103	2.800E+02	1.001E+04	0.1572	293.15	104	3.000E+02	1.000E+04	0.1572	293.15
105	3.200E+02	1.000E+04	0.1573	293.15	106	3.400E+02	1.000E+04	0.1573	293.15
107	3.600E+02	1.000E+04	0.1573	293.15	108	3.800E+02	1.000E+04	0.1573	293.15
109	4.000E+02	1.000E+04	0.1573	293.15	110	4.200E+02	1.000E+04	0.1573	293.15
111	4.400E+02	1.000E+04	0.1573	293.15	112	4.550E+02	1.000E+04	0.1573	293.15
113	4.650E+02	1.000E+04	0.1573	293.15	114	4.730E+02	1.000E+04	0.1573	293.15
115	4.780E+02	1.000E+04	0.1573	293.15	116	4.820E+02	1.000E+04	0.1573	293.15
117	4.850E+02	1.000E+04	0.1573	293.15	118	4.870E+02	1.000E+04	0.1573	293.15
119	4.880E+02	1.000E+04	0.1573	293.15	120	4.890E+02	1.000E+04	0.1573	293.15

Initial Water Storage = 73.9881 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.15796
Head (cm) = 9.81665E+03
LiqWater Flow (cm)=-6.79612E-02
IsoVapor Flow (cm)=-1.61647E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

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PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

73.9881+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 73.9197 vs. 73.9197

Mass Balance = -1.2642E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.16351

Head (cm) = 8.51277E+03

LiqWater Flow (cm)=-3.94977E-02

IsoVapor Flow (cm)=-1.30500E-04

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

73.9440+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 73.9043 vs. 73.9043

Mass Balance = -7.0051E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]
Potential Transpiration = 1.6719E+01 [cm]
Actual Transpiration = 8.7603E-01 [cm]
Potential Evaporation = 1.1911E+02 [cm]
Actual Evaporation = 2.1741E+01 [cm]
Evaporation during Growth = 1.2879E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 2.2530E+01 [cm]
Total Basal Liquid Flux (drainage) = 6.9151E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 7.3904E+01 [cm]
 Mass Balance Error = -4.3393E-03 [cm]
 Total Successful Time Steps = 11331
 Total Attempted Time Steps = 12599
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 5993
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	7.8850E-01	0.050	2.4686E+00	0.200	3.3835E+00
0.450	2.4601E+00	0.800	1.8554E+00	1.250	1.4631E+00
1.850	1.1940E+00	2.600	1.0184E+00	3.500	9.0906E-01
4.750	8.2786E-01	6.500	7.6165E-01	8.500	7.0990E-01
10.750	6.6449E-01	13.250	6.2145E-01	16.000	5.7926E-01
18.750	5.3990E-01	21.500	5.0255E-01	24.250	4.6694E-01
26.500	4.3885E-01	28.250	4.1751E-01	29.500	4.0251E-01
30.500	3.9064E-01	31.500	3.7889E-01	32.750	3.6437E-01
34.250	3.4718E-01	36.000	3.2741E-01	38.500	2.9970E-01
41.000	2.7266E-01	43.000	2.5141E-01	44.500	2.3572E-01
45.500	2.2535E-01	46.500	2.1769E-01	47.500	2.1869E-01
49.000	1.8997E-01	51.000	1.5868E-01	53.000	1.3223E-01
55.500	1.0277E-01	57.750	7.8731E-02	59.250	6.4747E-02
60.500	5.4526E-02	61.500	4.7289E-02	62.500	4.0901E-02
63.750	3.4009E-02	65.250	2.7310E-02	67.000	2.1184E-02
69.500	1.4848E-02	72.500	9.9376E-03	75.500	6.6888E-03
78.500	4.4367E-03	81.500	2.7970E-03	84.500	1.5297E-03
87.000	6.4394E-04	88.500	1.4519E-04	89.500	-1.8317E-04
90.500	-5.1203E-04	91.500	-8.4577E-04	93.000	-1.3614E-03
95.000	-2.1134E-03	97.500	-3.1921E-03	100.500	-4.8645E-03
103.500	-7.1485E-03	107.000	-1.0951E-02	111.500	-1.8933E-02
115.500	-3.1549E-02	118.000	-4.3276E-02	120.000	-5.5684E-02
121.500	-5.6794E-02	122.500	-5.7305E-02	123.750	-5.7728E-02
125.250	-5.7967E-02	127.000	-5.7924E-02	129.250	-5.7464E-02
131.500	-5.6652E-02	133.750	-5.5565E-02	137.500	-5.3320E-02
142.500	-4.9856E-02	146.500	-4.6890E-02	149.000	-4.4989E-02
150.700	-4.3688E-02	151.900	-4.2769E-02	152.700	-4.2157E-02
153.500	-4.1545E-02	157.000	-3.8851E-02	162.500	-3.4807E-02
167.500	-3.1284E-02	172.500	-2.7948E-02	176.500	-2.5449E-02
179.000	-2.3951E-02	180.500	-2.3079E-02	181.500	-2.2505E-02
182.500	-2.1941E-02	183.500	-2.1386E-02	184.500	-2.0840E-02

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186.000	-2.0034E-02	188.500	-1.8735E-02	192.500	-1.6764E-02
198.500	-1.4073E-02	206.000	-1.1161E-02	215.000	-8.2438E-03
227.500	-5.0931E-03	237.500	-3.4590E-03	250.000	-1.7144E-03
270.000	-3.2607E-04	290.000	2.9708E-04	310.000	5.5079E-04
330.000	6.4508E-04	350.000	6.7727E-04	370.000	6.8743E-04
390.000	6.9041E-04	410.000	6.9123E-04	430.000	6.9144E-04
447.500	6.9149E-04	460.000	6.9150E-04	469.000	6.9150E-04
475.500	6.9150E-04	480.000	6.9150E-04	483.500	6.9151E-04
486.000	6.9151E-04	487.500	6.9151E-04	488.500	6.9151E-04
489.000	6.9151E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	9.6599E-04	0.300	1.8032E-03
0.600	2.8946E-03	1.000	4.2493E-03	1.500	6.4330E-03
2.200	9.0695E-03	3.000	1.1928E-02	4.000	1.7829E-02
5.500	2.6579E-02	7.500	3.1137E-02	9.500	3.4389E-02
12.000	3.6426E-02	14.500	3.8180E-02	17.500	3.6826E-02
20.000	3.5792E-02	23.000	3.4531E-02	25.500	2.7463E-02
27.500	2.0943E-02	29.000	1.4751E-02	30.000	1.1689E-02
31.000	1.1577E-02	32.000	1.4335E-02	33.500	1.6969E-02
35.000	1.9542E-02	37.000	2.7453E-02	40.000	2.6801E-02
42.000	2.1128E-02	44.000	1.5638E-02	45.000	1.0364E-02
46.000	1.0309E-02	47.000	1.0354E-02	48.000	1.6021E-02
50.000	2.1789E-02	52.000	2.1784E-02	54.000	2.6782E-02
57.000	2.2139E-02	58.500	1.3689E-02	60.000	1.0325E-02
61.000	7.6314E-03	62.000	6.9813E-03	63.000	7.9126E-03
64.500	8.0801E-03	66.000	7.9266E-03	68.000	8.9029E-03
71.000	7.4945E-03	74.000	5.3817E-03	77.000	3.9936E-03
80.000	3.0844E-03	83.000	2.5105E-03	86.000	1.8290E-03
88.000	1.0534E-03	89.000	6.9922E-04	90.000	7.0392E-04
91.000	7.1635E-04	92.000	1.1050E-03	94.000	1.6029E-03
96.000	2.2532E-03	99.000	3.3738E-03	102.000	4.3711E-03
105.000	6.7451E-03	109.000	1.2707E-02	114.000	1.8119E-02
117.000	1.5151E-02	119.000	1.4822E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 6 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\6_.inp

Results File: C:\A\6_1956.res

Date of Run: 08 Jun 2021

Time of Run: 14:32:53.95

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	8.513E+03	0.1635	293.15	2	1.000E-01	6.992E+03	0.1715
3	3.000E-01	6.991E+03	0.1715	293.15	4	6.000E-01	7.181E+03	0.1704
5	1.000E+00	7.141E+03	0.1706	293.15	6	1.500E+00	7.121E+03	0.1707
7	2.200E+00	7.102E+03	0.1708	293.15	8	3.000E+00	7.075E+03	0.1710
9	4.000E+00	7.040E+03	0.1712	293.15	10	5.500E+00	6.984E+03	0.1715
11	7.500E+00	6.907E+03	0.1720	293.15	12	9.500E+00	6.836E+03	0.1724
13	1.200E+01	6.765E+03	0.1728	293.15	14	1.450E+01	6.719E+03	0.1731
15	1.750E+01	6.698E+03	0.1733	293.15	16	2.000E+01	6.707E+03	0.1732
17	2.300E+01	6.744E+03	0.1730	293.15	18	2.550E+01	6.793E+03	0.1727
19	2.750E+01	6.841E+03	0.1724	293.15	20	2.900E+01	6.881E+03	0.1721
21	3.000E+01	6.909E+03	0.1720	293.15	22	3.100E+01	6.938E+03	0.1718
23	3.200E+01	6.968E+03	0.1716	293.15	24	3.350E+01	7.013E+03	0.1713
25	3.500E+01	7.059E+03	0.1711	293.15	26	3.700E+01	7.118E+03	0.1707
27	4.000E+01	7.201E+03	0.1703	293.15	28	4.200E+01	7.248E+03	0.1700
29	4.400E+01	7.287E+03	0.1698	293.15	30	4.500E+01	7.303E+03	0.1697
31	4.600E+01	7.317E+03	0.1696	293.15	32	4.700E+01	7.438E+03	0.1689
33	4.800E+01	8.548E+03	0.1633	293.15	34	5.000E+01	1.005E+04	0.1571
35	5.200E+01	1.196E+04	0.1506	293.15	36	5.400E+01	1.534E+04	0.1417
37	5.700E+01	2.279E+04	0.1287	293.15	38	5.850E+01	2.620E+04	0.1244
39	6.000E+01	2.863E+04	0.1218	293.15	40	6.100E+01	2.981E+04	0.1206
41	6.200E+01	3.073E+04	0.1197	293.15	42	6.300E+01	3.147E+04	0.1190
43	6.450E+01	3.238E+04	0.1182	293.15	44	6.600E+01	3.317E+04	0.1175
45	6.800E+01	3.410E+04	0.1167	293.15	46	7.100E+01	3.535E+04	0.1157
47	7.400E+01	3.642E+04	0.1149	293.15	48	7.700E+01	3.726E+04	0.1142
49	8.000E+01	3.788E+04	0.1138	293.15	50	8.300E+01	3.829E+04	0.1135
51	8.600E+01	3.852E+04	0.1133	293.15	52	8.800E+01	3.858E+04	0.1133
53	8.900E+01	3.859E+04	0.1132	293.15	54	9.000E+01	3.859E+04	0.1132
55	9.100E+01	3.856E+04	0.1133	293.15	56	9.200E+01	3.853E+04	0.1133
57	9.400E+01	3.840E+04	0.1134	293.15	58	9.600E+01	3.821E+04	0.1135

December 2023

59 9.900E+01 3.779E+04 0.1138 293.15	60 1.020E+02 3.717E+04 0.1143 293.15
61 1.050E+02 3.629E+04 0.1150 293.15	62 1.090E+02 3.461E+04 0.1163 293.15
63 1.140E+02 3.145E+04 0.1190 293.15	64 1.170E+02 2.894E+04 0.1215 293.15
65 1.190E+02 2.719E+04 0.1233 293.15	66 1.210E+02 2.547E+04 0.1253 293.15
67 1.220E+02 2.466E+04 0.1263 293.15	68 1.230E+02 2.389E+04 0.1273 293.15
69 1.245E+02 2.280E+04 0.1287 293.15	70 1.260E+02 2.181E+04 0.1301 293.15
71 1.280E+02 2.063E+04 0.1319 293.15	72 1.305E+02 1.938E+04 0.1339 293.15
73 1.325E+02 1.852E+04 0.1354 293.15	74 1.350E+02 1.759E+04 0.1371 293.15
75 1.400E+02 1.611E+04 0.1401 293.15	76 1.450E+02 1.499E+04 0.1425 293.15
77 1.480E+02 1.444E+04 0.1438 293.15	78 1.500E+02 1.411E+04 0.1447 293.15
79 1.514E+02 1.390E+04 0.1452 293.15	80 1.524E+02 1.376E+04 0.1456 293.15
81 1.530E+02 1.367E+04 0.1458 293.15	82 1.540E+02 1.354E+04 0.1461 293.15
83 1.600E+02 1.284E+04 0.1480 293.15	84 1.650E+02 1.238E+04 0.1493 293.15
85 1.700E+02 1.199E+04 0.1505 293.15	86 1.750E+02 1.167E+04 0.1515 293.15
87 1.780E+02 1.150E+04 0.1520 293.15	88 1.800E+02 1.140E+04 0.1523 293.15
89 1.810E+02 1.135E+04 0.1525 293.15	90 1.820E+02 1.130E+04 0.1527 293.15
91 1.830E+02 1.126E+04 0.1528 293.15	92 1.840E+02 1.121E+04 0.1530 293.15
93 1.850E+02 1.117E+04 0.1531 293.15	94 1.870E+02 1.109E+04 0.1534 293.15
95 1.900E+02 1.098E+04 0.1537 293.15	96 1.950E+02 1.082E+04 0.1543 293.15
97 2.020E+02 1.063E+04 0.1549 293.15	98 2.100E+02 1.047E+04 0.1555 293.15
99 2.200E+02 1.032E+04 0.1561 293.15	100 2.350E+02 1.017E+04 0.1566 293.15
101 2.400E+02 1.014E+04 0.1567 293.15	102 2.600E+02 1.006E+04 0.1570 293.15
103 2.800E+02 1.002E+04 0.1572 293.15	104 3.000E+02 1.001E+04 0.1572 293.15
105 3.200E+02 1.000E+04 0.1572 293.15	106 3.400E+02 1.000E+04 0.1573 293.15
107 3.600E+02 1.000E+04 0.1573 293.15	108 3.800E+02 1.000E+04 0.1573 293.15
109 4.000E+02 1.000E+04 0.1573 293.15	110 4.200E+02 1.000E+04 0.1573 293.15
111 4.400E+02 1.000E+04 0.1573 293.15	112 4.550E+02 1.000E+04 0.1573 293.15
113 4.650E+02 1.000E+04 0.1573 293.15	114 4.730E+02 1.000E+04 0.1573 293.15
115 4.780E+02 1.000E+04 0.1573 293.15	116 4.820E+02 1.000E+04 0.1573 293.15
117 4.850E+02 1.000E+04 0.1573 293.15	118 4.870E+02 1.000E+04 0.1573 293.15
119 4.880E+02 1.000E+04 0.1573 293.15	120 4.890E+02 1.000E+04 0.1573 293.15

Initial Water Storage = 73.9043 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.16121
Head (cm) = 9.02652E+03

December 2023

LiqWater Flow (cm)=-4.40693E-02
IsoVapor Flow (cm)=-1.15611E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

73.9043+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 73.8600 vs. 73.8600

Mass Balance = -7.6750E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.19928
Head (cm) = 3.73916E+03
LiqWater Flow (cm)= 8.68411E-05
IsoVapor Flow (cm)=-5.34413E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

77.1931+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 77.1931 vs. 77.1931

Mass Balance = -2.5988E-08 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
Actual Transpiration = 2.5359E+00 [cm]
Potential Evaporation = 9.9853E+01 [cm]
Actual Evaporation = 4.4878E+01 [cm]
Evaporation during Growth = 3.0692E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 6.9340E-04 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 5.0698E+01 [cm]
Actual Rainfall = 5.0698E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 7.7193E+01 [cm]
Mass Balance Error = -4.6067E-03 [cm]
Total Successful Time Steps = 12106
Total Attempted Time Steps = 13253
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 3199
Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	5.8208E+00	0.050	6.6269E+00	0.200	6.6269E+00
0.450	6.2599E+00	0.800	6.0458E+00	1.250	5.9019E+00
1.850	5.7900E+00	2.600	5.6926E+00	3.500	5.5974E+00
4.750	5.4777E+00	6.500	5.3167E+00	8.500	5.1367E+00
10.750	4.9391E+00	13.250	4.7267E+00	16.000	4.5013E+00
18.750	4.2852E+00	21.500	4.0758E+00	24.250	3.8733E+00
26.500	3.7115E+00	28.250	3.5879E+00	29.500	3.5006E+00
30.500	3.4312E+00	31.500	3.3623E+00	32.750	3.2768E+00
34.250	3.1750E+00	36.000	3.0572E+00	38.500	2.8904E+00
41.000	2.7255E+00	43.000	2.5945E+00	44.500	2.4967E+00
45.500	2.4317E+00	46.500	2.3678E+00	47.500	2.3088E+00
49.000	2.2021E+00	51.000	2.0496E+00	53.000	1.8823E+00
55.500	1.6513E+00	57.750	1.4199E+00	59.250	1.2638E+00
60.500	1.1343E+00	61.500	1.0323E+00	62.500	9.3222E-01
63.750	8.1074E-01	65.250	6.7168E-01	67.000	5.2050E-01
69.500	3.3114E-01	72.500	1.5803E-01	75.500	5.4876E-02
78.500	1.8514E-02	81.500	7.8236E-03	84.500	3.5212E-03
87.000	1.6182E-03	88.500	7.8758E-04	89.500	2.9816E-04
90.500	-1.4824E-04	91.500	-5.6731E-04	93.000	-1.1750E-03
95.000	-1.9913E-03	97.500	-3.1099E-03	100.500	-4.7939E-03

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103.500	-7.0599E-03	107.000	-1.0782E-02	111.500	-1.8426E-02
115.500	-3.0017E-02	118.000	-4.0350E-02	120.000	-5.0921E-02
121.500	-5.2266E-02	122.500	-5.2968E-02	123.750	-5.3646E-02
125.250	-5.4188E-02	127.000	-5.4492E-02	129.250	-5.4443E-02
131.500	-5.3993E-02	133.750	-5.3235E-02	137.500	-5.1479E-02
142.500	-4.8556E-02	146.500	-4.5964E-02	149.000	-4.4277E-02
150.700	-4.3115E-02	151.900	-4.2290E-02	152.700	-4.1739E-02
153.500	-4.1187E-02	157.000	-3.8747E-02	162.500	-3.5040E-02
167.500	-3.1776E-02	172.500	-2.8657E-02	176.500	-2.6297E-02
179.000	-2.4875E-02	180.500	-2.4043E-02	181.500	-2.3495E-02
182.500	-2.2955E-02	183.500	-2.2423E-02	184.500	-2.1898E-02
186.000	-2.1122E-02	188.500	-1.9866E-02	192.500	-1.7948E-02
198.500	-1.5303E-02	206.000	-1.2392E-02	215.000	-9.4189E-03
227.500	-6.1171E-03	237.500	-4.3229E-03	250.000	-2.3724E-03
270.000	-7.0451E-04	290.000	1.0598E-04	310.000	4.6519E-04
330.000	6.1112E-04	350.000	6.6576E-04	370.000	6.8472E-04
390.000	6.9084E-04	410.000	6.9269E-04	430.000	6.9322E-04
447.500	6.9334E-04	460.000	6.9338E-04	469.000	6.9339E-04
475.500	6.9339E-04	480.000	6.9340E-04	483.500	6.9340E-04
486.000	6.9340E-04	487.500	6.9340E-04	488.500	6.9340E-04
489.000	6.9340E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.3884E-03	0.300	7.6100E-03
0.600	1.1288E-02	1.000	1.5500E-02	1.500	2.2156E-02
2.200	2.9966E-02	3.000	3.8596E-02	4.000	5.7169E-02
5.500	8.4905E-02	7.500	9.9630E-02	9.500	1.1145E-01
12.000	1.2003E-01	14.500	1.2629E-01	17.500	1.1922E-01
20.000	1.1384E-01	23.000	1.0813E-01	25.500	8.5064E-02
27.500	6.4278E-02	29.000	4.4997E-02	30.000	3.5543E-02
31.000	3.5115E-02	32.000	4.3391E-02	33.500	5.1231E-02
35.000	5.8881E-02	37.000	8.2604E-02	40.000	8.0664E-02
42.000	6.3643E-02	44.000	4.7140E-02	45.000	3.1247E-02
46.000	3.1078E-02	47.000	3.1152E-02	48.000	4.9283E-02
50.000	6.8611E-02	52.000	6.8316E-02	54.000	8.2532E-02
57.000	6.8033E-02	58.500	4.2688E-02	60.000	3.3016E-02
61.000	2.4886E-02	62.000	2.3215E-02	63.000	2.6757E-02
64.500	2.7706E-02	66.000	2.6916E-02	68.000	2.8268E-02
71.000	1.9078E-02	74.000	1.0011E-02	77.000	5.4332E-03
80.000	3.3071E-03	83.000	2.3305E-03	86.000	1.5781E-03

December 2023

88.000	8.8418E-04	89.000	5.8128E-04	90.000	5.8088E-04
91.000	5.8783E-04	92.000	9.0288E-04	94.000	1.3029E-03
96.000	1.8270E-03	99.000	2.7348E-03	102.000	3.5493E-03
105.000	5.4895E-03	109.000	1.0364E-02	114.000	1.4762E-02
117.000	1.2261E-02	119.000	1.1898E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 6 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\6_.inp

Results File: C:\A\6_1957.res

Date of Run: 08 Jun 2021

Time of Run: 14:32:53.95

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	3.739E+03	0.1993	293.15	2	1.000E-01	3.249E+03	0.2061 293.15
3	3.000E-01	2.937E+03	0.2111	293.15	4	6.000E-01	2.907E+03	0.2116 293.15
5	1.000E+00	2.988E+03	0.2102	293.15	6	1.500E+00	3.037E+03	0.2094 293.15
7	2.200E+00	3.023E+03	0.2096	293.15	8	3.000E+00	3.015E+03	0.2097 293.15
9	4.000E+00	3.019E+03	0.2097	293.15	10	5.500E+00	3.023E+03	0.2096 293.15
11	7.500E+00	3.030E+03	0.2095	293.15	12	9.500E+00	3.041E+03	0.2093 293.15
13	1.200E+01	3.058E+03	0.2090	293.15	14	1.450E+01	3.078E+03	0.2087 293.15
15	1.750E+01	3.108E+03	0.2082	293.15	16	2.000E+01	3.137E+03	0.2078 293.15
17	2.300E+01	3.175E+03	0.2072	293.15	18	2.550E+01	3.208E+03	0.2067 293.15
19	2.750E+01	3.236E+03	0.2062	293.15	20	2.900E+01	3.257E+03	0.2059 293.15
21	3.000E+01	3.271E+03	0.2057	293.15	22	3.100E+01	3.285E+03	0.2055 293.15
23	3.200E+01	3.299E+03	0.2053	293.15	24	3.350E+01	3.319E+03	0.2050 293.15
25	3.500E+01	3.338E+03	0.2047	293.15	26	3.700E+01	3.362E+03	0.2044 293.15
27	4.000E+01	3.394E+03	0.2039	293.15	28	4.200E+01	3.411E+03	0.2037 293.15
29	4.400E+01	3.424E+03	0.2035	293.15	30	4.500E+01	3.429E+03	0.2034 293.15
31	4.600E+01	3.433E+03	0.2034	293.15	32	4.700E+01	3.471E+03	0.2028 293.15
33	4.800E+01	3.774E+03	0.1988	293.15	34	5.000E+01	3.913E+03	0.1971 293.15
35	5.200E+01	3.815E+03	0.1983	293.15	36	5.400E+01	3.731E+03	0.1994 293.15
37	5.700E+01	3.727E+03	0.1994	293.15	38	5.850E+01	3.785E+03	0.1987 293.15
39	6.000E+01	3.887E+03	0.1974	293.15	40	6.100E+01	3.981E+03	0.1963 293.15
41	6.200E+01	4.099E+03	0.1950	293.15	42	6.300E+01	4.245E+03	0.1933 293.15
43	6.450E+01	4.527E+03	0.1904	293.15	44	6.600E+01	4.905E+03	0.1867 293.15
45	6.800E+01	5.633E+03	0.1806	293.15	46	7.100E+01	7.664E+03	0.1677 293.15
47	7.400E+01	1.278E+04	0.1482	293.15	48	7.700E+01	2.381E+04	0.1274 293.15
49	8.000E+01	3.246E+04	0.1181	293.15	50	8.300E+01	3.600E+04	0.1152 293.15
51	8.600E+01	3.746E+04	0.1141	293.15	52	8.800E+01	3.796E+04	0.1137 293.15
53	8.900E+01	3.811E+04	0.1136	293.15	54	9.000E+01	3.822E+04	0.1135 293.15
55	9.100E+01	3.828E+04	0.1135	293.15	56	9.200E+01	3.830E+04	0.1135 293.15
57	9.400E+01	3.825E+04	0.1135	293.15	58	9.600E+01	3.809E+04	0.1136 293.15

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59 9.900E+01 3.768E+04 0.1139 293.15	60 1.020E+02 3.704E+04 0.1144 293.15
61 1.050E+02 3.615E+04 0.1151 293.15	62 1.090E+02 3.447E+04 0.1164 293.15
63 1.140E+02 3.140E+04 0.1191 293.15	64 1.170E+02 2.903E+04 0.1214 293.15
65 1.190E+02 2.737E+04 0.1231 293.15	66 1.210E+02 2.575E+04 0.1250 293.15
67 1.220E+02 2.498E+04 0.1259 293.15	68 1.230E+02 2.423E+04 0.1268 293.15
69 1.245E+02 2.318E+04 0.1282 293.15	70 1.260E+02 2.222E+04 0.1295 293.15
71 1.280E+02 2.107E+04 0.1312 293.15	72 1.305E+02 1.982E+04 0.1332 293.15
73 1.325E+02 1.896E+04 0.1346 293.15	74 1.350E+02 1.803E+04 0.1363 293.15
75 1.400E+02 1.652E+04 0.1392 293.15	76 1.450E+02 1.536E+04 0.1417 293.15
77 1.480E+02 1.478E+04 0.1430 293.15	78 1.500E+02 1.444E+04 0.1438 293.15
79 1.514E+02 1.422E+04 0.1444 293.15	80 1.524E+02 1.407E+04 0.1448 293.15
81 1.530E+02 1.398E+04 0.1450 293.15	82 1.540E+02 1.384E+04 0.1453 293.15
83 1.600E+02 1.311E+04 0.1473 293.15	84 1.650E+02 1.262E+04 0.1486 293.15
85 1.700E+02 1.221E+04 0.1498 293.15	86 1.750E+02 1.187E+04 0.1509 293.15
87 1.780E+02 1.169E+04 0.1514 293.15	88 1.800E+02 1.158E+04 0.1518 293.15
89 1.810E+02 1.153E+04 0.1519 293.15	90 1.820E+02 1.148E+04 0.1521 293.15
91 1.830E+02 1.143E+04 0.1522 293.15	92 1.840E+02 1.138E+04 0.1524 293.15
93 1.850E+02 1.134E+04 0.1525 293.15	94 1.870E+02 1.125E+04 0.1528 293.15
95 1.900E+02 1.113E+04 0.1532 293.15	96 1.950E+02 1.095E+04 0.1538 293.15
97 2.020E+02 1.075E+04 0.1545 293.15	98 2.100E+02 1.056E+04 0.1552 293.15
99 2.200E+02 1.039E+04 0.1558 293.15	100 2.350E+02 1.022E+04 0.1564 293.15
101 2.400E+02 1.018E+04 0.1566 293.15	102 2.600E+02 1.008E+04 0.1570 293.15
103 2.800E+02 1.003E+04 0.1571 293.15	104 3.000E+02 1.001E+04 0.1572 293.15
105 3.200E+02 1.000E+04 0.1572 293.15	106 3.400E+02 1.000E+04 0.1573 293.15
107 3.600E+02 1.000E+04 0.1573 293.15	108 3.800E+02 1.000E+04 0.1573 293.15
109 4.000E+02 1.000E+04 0.1573 293.15	110 4.200E+02 1.000E+04 0.1573 293.15
111 4.400E+02 1.000E+04 0.1573 293.15	112 4.550E+02 1.000E+04 0.1573 293.15
113 4.650E+02 1.000E+04 0.1573 293.15	114 4.730E+02 1.000E+04 0.1573 293.15
115 4.780E+02 1.000E+04 0.1573 293.15	116 4.820E+02 1.000E+04 0.1573 293.15
117 4.850E+02 1.000E+04 0.1573 293.15	118 4.870E+02 1.000E+04 0.1573 293.15
119 4.880E+02 1.000E+04 0.1573 293.15	120 4.890E+02 1.000E+04 0.1573 293.15

Initial Water Storage = 77.1931 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.19625
Head (cm) = 3.98727E+03

December 2023

LiqWater Flow (cm)=-4.40980E-02
IsoVapor Flow (cm)=-5.03779E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

77.1931+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 77.1488 vs. 77.1488

Mass Balance = -7.6951E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.19725
Head (cm) = 3.90269E+03
LiqWater Flow (cm)=-5.82066E-02
IsoVapor Flow (cm)=-6.28569E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

77.9874+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 77.9289 vs. 77.9289

Mass Balance = -1.0292E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 3.4332E+00 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 4.6532E+01 [cm]
 Evaporation during Growth = 3.2288E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 6.9340E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 7.7929E+01 [cm]
 Mass Balance Error = -3.6261E-03 [cm]
 Total Successful Time Steps = 11887
 Total Attempted Time Steps = 12904
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3088
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	4.1660E+00	0.050	4.8207E+00	0.200	4.9354E+00
0.450	4.5972E+00	0.800	4.4034E+00	1.250	4.2798E+00
1.850	4.1910E+00	2.600	4.1204E+00	3.500	4.0564E+00
4.750	3.9794E+00	6.500	3.8773E+00	8.500	3.7639E+00
10.750	3.6400E+00	13.250	3.5078E+00	16.000	3.3691E+00
18.750	3.2376E+00	21.500	3.1115E+00	24.250	2.9909E+00
26.500	2.8953E+00	28.250	2.8228E+00	29.500	2.7717E+00
30.500	2.7314E+00	31.500	2.6913E+00	32.750	2.6418E+00
34.250	2.5830E+00	36.000	2.5153E+00	38.500	2.4199E+00
41.000	2.3262E+00	43.000	2.2521E+00	44.500	2.1970E+00
45.500	2.1605E+00	46.500	2.1255E+00	47.500	2.0987E+00
49.000	2.0336E+00	51.000	1.9441E+00	53.000	1.8528E+00
55.500	1.7374E+00	57.750	1.6318E+00	59.250	1.5610E+00
60.500	1.5015E+00	61.500	1.4538E+00	62.500	1.4058E+00
63.750	1.3455E+00	65.250	1.2723E+00	67.000	1.1858E+00
69.500	1.0589E+00	72.500	8.9511E-01	75.500	7.0672E-01
78.500	5.0079E-01	81.500	3.2360E-01	84.500	1.9213E-01
87.000	1.1676E-01	88.500	8.4018E-02	89.500	6.6408E-02
90.500	5.1997E-02	91.500	4.0315E-02	93.000	2.6598E-02
95.000	1.4547E-02	97.500	5.0897E-03	100.500	-1.2445E-03

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103.500	-5.4960E-03	107.000	-1.0042E-02	111.500	-1.7568E-02
115.500	-2.8398E-02	118.000	-3.8072E-02	120.000	-4.8040E-02
121.500	-4.9202E-02	122.500	-4.9817E-02	123.750	-5.0426E-02
125.250	-5.0946E-02	127.000	-5.1291E-02	129.250	-5.1382E-02
131.500	-5.1140E-02	133.750	-5.0628E-02	137.500	-4.9315E-02
142.500	-4.6949E-02	146.500	-4.4747E-02	149.000	-4.3283E-02
150.700	-4.2262E-02	151.900	-4.1532E-02	152.700	-4.1043E-02
153.500	-4.0551E-02	157.000	-3.8365E-02	162.500	-3.4987E-02
167.500	-3.1977E-02	172.500	-2.9070E-02	176.500	-2.6852E-02
179.000	-2.5507E-02	180.500	-2.4718E-02	181.500	-2.4198E-02
182.500	-2.3684E-02	183.500	-2.3177E-02	184.500	-2.2676E-02
186.000	-2.1933E-02	188.500	-2.0727E-02	192.500	-1.8877E-02
198.500	-1.6300E-02	206.000	-1.3428E-02	215.000	-1.0445E-02
227.500	-7.0562E-03	237.500	-5.1429E-03	250.000	-3.0324E-03
270.000	-1.1164E-03	290.000	-1.2111E-04	310.000	3.5301E-04
330.000	5.6092E-04	350.000	6.4522E-04	370.000	6.7698E-04
390.000	6.8814E-04	410.000	6.9181E-04	430.000	6.9295E-04
447.500	6.9325E-04	460.000	6.9334E-04	469.000	6.9337E-04
475.500	6.9338E-04	480.000	6.9339E-04	483.500	6.9339E-04
486.000	6.9340E-04	487.500	6.9340E-04	488.500	6.9340E-04
489.000	6.9340E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	5.5425E-03	0.300	9.5219E-03
0.600	1.3891E-02	1.000	1.8717E-02	1.500	2.6316E-02
2.200	3.5007E-02	3.000	4.4419E-02	4.000	6.4827E-02
5.500	9.4849E-02	7.500	1.1000E-01	9.500	1.2223E-01
12.000	1.3098E-01	14.500	1.3745E-01	17.500	1.2953E-01
20.000	1.2356E-01	23.000	1.1729E-01	25.500	9.2252E-02
27.500	6.9711E-02	29.000	4.8806E-02	30.000	3.8556E-02
31.000	3.8096E-02	32.000	4.7081E-02	33.500	5.5603E-02
35.000	6.3923E-02	37.000	8.9715E-02	40.000	8.7675E-02
42.000	6.9215E-02	44.000	5.1301E-02	45.000	3.4017E-02
46.000	3.3845E-02	47.000	3.4042E-02	48.000	5.5315E-02
50.000	8.0092E-02	52.000	8.2918E-02	54.000	1.0484E-01
57.000	9.4156E-02	58.500	6.2349E-02	60.000	5.1464E-02
61.000	4.0848E-02	62.000	4.0476E-02	63.000	5.0067E-02
64.500	5.8983E-02	66.000	6.7321E-02	68.000	9.2825E-02
71.000	1.0388E-01	74.000	9.4274E-02	77.000	8.2024E-02
80.000	6.6503E-02	83.000	4.7949E-02	86.000	2.4661E-02

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88.000	9.8162E-03	89.000	5.2085E-03	90.000	4.1104E-03
91.000	3.2347E-03	92.000	3.8332E-03	94.000	3.4030E-03
96.000	3.1927E-03	99.000	3.3939E-03	102.000	3.8431E-03
105.000	5.6606E-03	109.000	1.0421E-02	114.000	1.4570E-02
117.000	1.1998E-02	119.000	1.1596E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 6 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is C:\A\6_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =              76.901
 1 22.530 135.832  2.138 21.189  0.000  0.001  76.106  11340 -0.00446
 2 22.530 135.832  1.515 21.786  0.000  0.001  75.339  11333 -0.00452
 3 22.530 135.832  1.209 21.758  0.000  0.001  74.905  11344 -0.00451
 4 22.530 135.832  1.058 21.747  0.000  0.001  74.635  11346 -0.00442
 5 22.530 135.832  0.978 21.746  0.000  0.001  74.444  11333 -0.00452
 6 22.530 135.832  0.935 21.743  0.000  0.001  74.300  11330 -0.00438
 7 22.530 135.832  0.909 21.743  0.000  0.001  74.182  11366 -0.00441
 8 22.530 135.832  0.895 21.740  0.000  0.001  74.080  11324 -0.00448
 9 22.530 135.832  0.884 21.742  0.000  0.001  73.988  11330 -0.00442
10 22.530 135.832  0.876 21.741  0.000  0.001  73.904  11331 -0.00434
11 50.698 113.700  2.536 44.878  0.000  0.001  77.193  12106 -0.00461
12 50.698 113.759  3.433 46.532  0.000  0.001  77.929  11887 -0.00363
-----
SUM= 326.6951585.780 17.366 308.345  0.000  0.008              -0.05268
```

Sensitivity Analysis #1: Soil Sample TP3 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP153_.inp
Results File: C:\A\TP153_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:57:47.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.171E+01	0.2626	293.15	2	1.000E-01	1.175E+02	0.2542 293.15
3	3.000E-01	1.077E+02	0.2571	293.15	4	6.000E-01	1.075E+02	0.2572 293.15
5	1.000E+00	1.065E+02	0.2575	293.15	6	1.500E+00	1.051E+02	0.2580 293.15
7	2.200E+00	1.030E+02	0.2586	293.15	8	3.000E+00	1.006E+02	0.2594 293.15
9	4.000E+00	9.754E+01	0.2605	293.15	10	5.500E+00	9.325E+01	0.2620 293.15
11	7.500E+00	8.858E+01	0.2638	293.15	12	9.500E+00	8.530E+01	0.2651 293.15
13	1.200E+01	8.295E+01	0.2660	293.15	14	1.450E+01	8.217E+01	0.2663 293.15
15	1.750E+01	8.299E+01	0.2660	293.15	16	2.000E+01	8.498E+01	0.2652 293.15
17	2.300E+01	8.901E+01	0.2636	293.15	18	2.550E+01	9.372E+01	0.2618 293.15
19	2.750E+01	9.841E+01	0.2602	293.15	20	2.900E+01	1.024E+02	0.2588 293.15
21	3.000E+01	1.054E+02	0.2579	293.15	22	3.100E+01	1.084E+02	0.2569 293.15
23	3.200E+01	1.117E+02	0.2559	293.15	24	3.350E+01	1.169E+02	0.2544 293.15
25	3.500E+01	1.222E+02	0.2529	293.15	26	3.700E+01	1.295E+02	0.2509 293.15
27	4.000E+01	1.401E+02	0.2483	293.15	28	4.200E+01	1.466E+02	0.2468 293.15
29	4.400E+01	1.523E+02	0.2455	293.15	30	4.500E+01	1.548E+02	0.2450 293.15
31	4.600E+01	1.571E+02	0.2445	293.15	32	4.700E+01	1.661E+02	0.2427 293.15
33	4.800E+01	2.032E+02	0.2361	293.15	34	5.000E+01	3.685E+02	0.2175 293.15
35	5.200E+01	4.900E+03	0.1511	293.15	36	5.400E+01	1.417E+04	0.1300 293.15
37	5.700E+01	2.075E+04	0.1232	293.15	38	5.850E+01	2.401E+04	0.1207 293.15
39	6.000E+01	2.709E+04	0.1187	293.15	40	6.100E+01	2.894E+04	0.1175 293.15
41	6.200E+01	3.063E+04	0.1166	293.15	42	6.300E+01	3.212E+04	0.1158 293.15
43	6.450E+01	3.401E+04	0.1149	293.15	44	6.600E+01	3.551E+04	0.1142 293.15
45	6.800E+01	3.699E+04	0.1135	293.15	46	7.100E+01	3.834E+04	0.1130 293.15
47	7.400E+01	3.909E+04	0.1127	293.15	48	7.700E+01	3.949E+04	0.1125 293.15
49	8.000E+01	3.971E+04	0.1124	293.15	50	8.300E+01	3.983E+04	0.1124 293.15
51	8.600E+01	3.989E+04	0.1123	293.15	52	8.800E+01	3.991E+04	0.1123 293.15
53	8.900E+01	3.992E+04	0.1123	293.15	54	9.000E+01	3.993E+04	0.1123 293.15
55	9.100E+01	3.993E+04	0.1123	293.15	56	9.200E+01	3.993E+04	0.1123 293.15
57	9.400E+01	3.992E+04	0.1123	293.15	58	9.600E+01	3.990E+04	0.1123 293.15

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59 9.900E+01 3.984E+04 0.1124 293.15	60 1.020E+02 3.973E+04 0.1124 293.15
61 1.050E+02 3.953E+04 0.1125 293.15	62 1.090E+02 3.902E+04 0.1127 293.15
63 1.140E+02 3.749E+04 0.1133 293.15	64 1.170E+02 3.541E+04 0.1142 293.15
65 1.190E+02 3.341E+04 0.1152 293.15	66 1.210E+02 3.097E+04 0.1164 293.15
67 1.220E+02 2.966E+04 0.1171 293.15	68 1.230E+02 2.832E+04 0.1179 293.15
69 1.245E+02 2.628E+04 0.1192 293.15	70 1.260E+02 2.430E+04 0.1205 293.15
71 1.280E+02 2.182E+04 0.1223 293.15	72 1.305E+02 1.906E+04 0.1247 293.15
73 1.325E+02 1.715E+04 0.1266 293.15	74 1.350E+02 1.516E+04 0.1288 293.15
75 1.400E+02 1.244E+04 0.1325 293.15	76 1.450E+02 1.106E+04 0.1347 293.15
77 1.480E+02 1.061E+04 0.1355 293.15	78 1.500E+02 1.041E+04 0.1358 293.15
79 1.514E+02 1.030E+04 0.1360 293.15	80 1.524E+02 1.024E+04 0.1362 293.15
81 1.530E+02 1.021E+04 0.1362 293.15	82 1.540E+02 1.017E+04 0.1363 293.15
83 1.600E+02 1.005E+04 0.1365 293.15	84 1.650E+02 1.001E+04 0.1366 293.15
85 1.700E+02 1.000E+04 0.1366 293.15	86 1.750E+02 1.000E+04 0.1366 293.15
87 1.780E+02 1.000E+04 0.1366 293.15	88 1.800E+02 1.000E+04 0.1366 293.15
89 1.810E+02 1.000E+04 0.1366 293.15	90 1.820E+02 1.000E+04 0.1366 293.15
91 1.830E+02 1.000E+04 0.1366 293.15	92 1.840E+02 1.000E+04 0.1366 293.15
93 1.850E+02 1.000E+04 0.1366 293.15	94 1.870E+02 1.000E+04 0.1366 293.15
95 1.900E+02 1.000E+04 0.1366 293.15	96 1.950E+02 1.000E+04 0.1366 293.15
97 2.020E+02 1.000E+04 0.1366 293.15	98 2.100E+02 1.000E+04 0.1366 293.15
99 2.200E+02 1.000E+04 0.1366 293.15	100 2.350E+02 1.000E+04 0.1366 293.15
101 2.400E+02 1.000E+04 0.1366 293.15	102 2.600E+02 1.000E+04 0.1366 293.15
103 2.800E+02 1.000E+04 0.1366 293.15	104 3.000E+02 1.000E+04 0.1366 293.15
105 3.200E+02 1.000E+04 0.1366 293.15	106 3.400E+02 1.000E+04 0.1366 293.15
107 3.600E+02 1.000E+04 0.1366 293.15	108 3.800E+02 1.000E+04 0.1366 293.15
109 4.000E+02 1.000E+04 0.1366 293.15	110 4.200E+02 1.000E+04 0.1366 293.15
111 4.400E+02 1.000E+04 0.1366 293.15	112 4.550E+02 1.000E+04 0.1366 293.15
113 4.650E+02 1.000E+04 0.1366 293.15	114 4.730E+02 1.000E+04 0.1366 293.15
115 4.780E+02 1.000E+04 0.1366 293.15	116 4.820E+02 1.000E+04 0.1366 293.15
117 4.850E+02 1.000E+04 0.1366 293.15	118 4.870E+02 1.000E+04 0.1366 293.15
119 4.880E+02 1.000E+04 0.1366 293.15	120 4.890E+02 1.000E+04 0.1366 293.15

Initial Water Storage = 71.1541 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.25130
Head (cm) = 1.27995E+02

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LiqWater Flow (cm)=-6.78266E-02
IsoVapor Flow (cm)=-2.95160E-06
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

71.1541+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 71.0857 vs. 71.0857

Mass Balance = -7.5315E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.26259
Head (cm) = 9.17112E+01
LiqWater Flow (cm)=-3.94241E-02
IsoVapor Flow (cm)=-1.36948E-06
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

71.1715+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 71.1318 vs. 71.1318

Mass Balance = -2.0222E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

December 2023

Potential Transpiration = 1.6719E+01 [cm]
Actual Transpiration = 7.5729E+00 [cm]
Potential Evaporation = 1.1911E+02 [cm]
Actual Evaporation = 1.4983E+01 [cm]
Evaporation during Growth = 8.6212E+00 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 2.2530E+01 [cm]
Total Basal Liquid Flux (drainage) = 7.3146E-06 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 2.2530E+01 [cm]
Actual Rainfall = 2.2530E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 7.1132E+01 [cm]
Mass Balance Error = -4.2128E-03 [cm]
Total Successful Time Steps = 13218
Total Attempted Time Steps = 16298
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 6883
Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	7.5463E+00	0.050	9.2177E+00	0.200	8.2437E+00
0.450	7.6585E+00	0.800	7.4114E+00	1.250	7.2889E+00
1.850	7.1292E+00	2.600	6.9301E+00	3.500	6.6937E+00
4.750	6.3754E+00	6.500	5.9574E+00	8.500	5.5221E+00
10.750	5.0746E+00	13.250	4.6337E+00	16.000	4.1941E+00
18.750	3.7901E+00	21.500	3.4108E+00	24.250	3.0578E+00
26.500	2.7840E+00	28.250	2.5789E+00	29.500	2.4365E+00
30.500	2.3247E+00	31.500	2.2150E+00	32.750	2.0810E+00
34.250	1.9258E+00	36.000	1.7530E+00	38.500	1.5201E+00
41.000	1.3023E+00	43.000	1.1339E+00	44.500	1.0101E+00
45.500	9.2833E-01	46.500	8.4604E-01	47.500	7.6366E-01
49.000	6.4263E-01	51.000	4.8330E-01	53.000	3.2775E-01
55.500	1.3939E-01	57.750	2.2979E-02	59.250	4.2981E-03
60.500	1.9266E-03	61.500	1.2259E-03	62.500	8.4591E-04
63.750	5.6745E-04	65.250	3.7520E-04	67.000	2.4253E-04
69.500	1.3597E-04	72.500	7.2388E-05	75.500	3.9563E-05
78.500	2.1907E-05	81.500	1.2139E-05	84.500	6.5481E-06
87.000	3.6882E-06	88.500	2.3632E-06	89.500	1.5604E-06
90.500	8.0791E-07	91.500	7.8025E-08	93.000	-1.0231E-06
95.000	-2.6683E-06	97.500	-5.2494E-06	100.500	-1.0148E-05

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103.500	-1.8531E-05	107.000	-3.5971E-05	111.500	-8.5635E-05
115.500	-2.0574E-04	118.000	-3.6887E-04	120.000	-6.3008E-04
121.500	-7.2150E-04	122.500	-7.9059E-04	123.750	-8.8678E-04
125.250	-1.0147E-03	127.000	-1.1821E-03	129.250	-1.4142E-03
131.500	-1.6375E-03	133.750	-1.8138E-03	137.500	-1.8530E-03
142.500	-1.4359E-03	146.500	-9.8650E-04	149.000	-7.2074E-04
150.700	-5.6642E-04	151.900	-4.7278E-04	152.700	-4.1776E-04
153.500	-3.6669E-04	157.000	-1.6858E-04	162.500	-5.3257E-05
167.500	-1.2861E-05	172.500	1.2026E-06	176.500	4.9478E-06
179.000	6.0753E-06	180.500	6.4794E-06	181.500	6.6851E-06
182.500	6.8414E-06	183.500	6.9595E-06	184.500	7.0482E-06
186.000	7.1470E-06	188.500	7.2373E-06	192.500	7.2934E-06
198.500	7.3114E-06	206.000	7.3143E-06	215.000	7.3146E-06
227.500	7.3146E-06	237.500	7.3146E-06	250.000	7.3146E-06
270.000	7.3146E-06	290.000	7.3146E-06	310.000	7.3146E-06
330.000	7.3146E-06	350.000	7.3146E-06	370.000	7.3146E-06
390.000	7.3146E-06	410.000	7.3146E-06	430.000	7.3146E-06
447.500	7.3146E-06	460.000	7.3146E-06	469.000	7.3146E-06
475.500	7.3146E-06	480.000	7.3146E-06	483.500	7.3146E-06
486.000	7.3146E-06	487.500	7.3146E-06	488.500	7.3146E-06
489.000	7.3146E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.8783E-02	0.300	5.3369E-02
0.600	8.1282E-02	1.000	1.1106E-01	1.500	1.5385E-01
2.200	1.9596E-01	3.000	2.3458E-01	4.000	3.1689E-01
5.500	4.1742E-01	7.500	4.3516E-01	9.500	4.4711E-01
12.000	4.4051E-01	14.500	4.4051E-01	17.500	4.0417E-01
20.000	3.7921E-01	23.000	3.5286E-01	25.500	2.7382E-01
27.500	2.0496E-01	29.000	1.4234E-01	30.000	1.1171E-01
31.000	1.0951E-01	32.000	1.3393E-01	33.500	1.5481E-01
35.000	1.7247E-01	37.000	2.3229E-01	40.000	2.1723E-01
42.000	1.6863E-01	44.000	1.2416E-01	45.000	8.2188E-02
46.000	8.1672E-02	47.000	8.1208E-02	48.000	1.2080E-01
50.000	1.5651E-01	52.000	1.4900E-01	54.000	1.6992E-01
57.000	8.6255E-02	58.500	2.9455E-02	60.000	1.4253E-02
61.000	8.3652E-03	62.000	6.3220E-03	63.000	6.1038E-03
64.500	5.1531E-03	66.000	4.3345E-03	68.000	4.1158E-03
71.000	2.7836E-03	74.000	1.5800E-03	77.000	8.9740E-04
80.000	5.1217E-04	83.000	2.9868E-04	86.000	1.5469E-04

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88.000	7.2341E-05	89.000	4.4055E-05	90.000	4.1486E-05
91.000	4.0418E-05	92.000	6.1208E-05	94.000	9.1932E-05
96.000	1.4421E-04	99.000	2.7208E-04	102.000	4.5833E-04
105.000	9.2136E-04	109.000	2.4179E-03	114.000	5.1427E-03
117.000	5.6954E-03	119.000	6.9665E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP3 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP153_.inp
Results File: C:\A\TP153_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:57:47.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.171E+01	0.2626	293.15	2	1.000E-01	1.175E+02	0.2542 293.15
3	3.000E-01	1.077E+02	0.2571	293.15	4	6.000E-01	1.075E+02	0.2572 293.15
5	1.000E+00	1.065E+02	0.2575	293.15	6	1.500E+00	1.051E+02	0.2580 293.15
7	2.200E+00	1.030E+02	0.2586	293.15	8	3.000E+00	1.006E+02	0.2594 293.15
9	4.000E+00	9.753E+01	0.2605	293.15	10	5.500E+00	9.325E+01	0.2620 293.15
11	7.500E+00	8.858E+01	0.2638	293.15	12	9.500E+00	8.530E+01	0.2651 293.15
13	1.200E+01	8.295E+01	0.2660	293.15	14	1.450E+01	8.217E+01	0.2663 293.15
15	1.750E+01	8.298E+01	0.2660	293.15	16	2.000E+01	8.498E+01	0.2652 293.15
17	2.300E+01	8.900E+01	0.2636	293.15	18	2.550E+01	9.372E+01	0.2619 293.15
19	2.750E+01	9.840E+01	0.2602	293.15	20	2.900E+01	1.024E+02	0.2588 293.15
21	3.000E+01	1.053E+02	0.2579	293.15	22	3.100E+01	1.084E+02	0.2569 293.15
23	3.200E+01	1.117E+02	0.2559	293.15	24	3.350E+01	1.168E+02	0.2544 293.15
25	3.500E+01	1.222E+02	0.2529	293.15	26	3.700E+01	1.295E+02	0.2509 293.15
27	4.000E+01	1.401E+02	0.2483	293.15	28	4.200E+01	1.466E+02	0.2468 293.15
29	4.400E+01	1.522E+02	0.2455	293.15	30	4.500E+01	1.548E+02	0.2450 293.15
31	4.600E+01	1.570E+02	0.2445	293.15	32	4.700E+01	1.661E+02	0.2427 293.15
33	4.800E+01	2.032E+02	0.2361	293.15	34	5.000E+01	3.684E+02	0.2175 293.15
35	5.200E+01	4.901E+03	0.1511	293.15	36	5.400E+01	1.418E+04	0.1300 293.15
37	5.700E+01	2.078E+04	0.1232	293.15	38	5.850E+01	2.404E+04	0.1207 293.15
39	6.000E+01	2.711E+04	0.1186	293.15	40	6.100E+01	2.897E+04	0.1175 293.15
41	6.200E+01	3.065E+04	0.1166	293.15	42	6.300E+01	3.214E+04	0.1158 293.15
43	6.450E+01	3.403E+04	0.1149	293.15	44	6.600E+01	3.553E+04	0.1142 293.15
45	6.800E+01	3.700E+04	0.1135	293.15	46	7.100E+01	3.835E+04	0.1130 293.15
47	7.400E+01	3.909E+04	0.1127	293.15	48	7.700E+01	3.949E+04	0.1125 293.15
49	8.000E+01	3.971E+04	0.1124	293.15	50	8.300E+01	3.983E+04	0.1124 293.15
51	8.600E+01	3.989E+04	0.1123	293.15	52	8.800E+01	3.992E+04	0.1123 293.15
53	8.900E+01	3.992E+04	0.1123	293.15	54	9.000E+01	3.993E+04	0.1123 293.15
55	9.100E+01	3.993E+04	0.1123	293.15	56	9.200E+01	3.993E+04	0.1123 293.15
57	9.400E+01	3.992E+04	0.1123	293.15	58	9.600E+01	3.990E+04	0.1123 293.15
59	9.900E+01	3.985E+04	0.1123	293.15	60	1.020E+02	3.975E+04	0.1124 293.15
61	1.050E+02	3.956E+04	0.1125	293.15	62	1.090E+02	3.908E+04	0.1127 293.15
63	1.140E+02	3.762E+04	0.1133	293.15	64	1.170E+02	3.564E+04	0.1141 293.15

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65 1.190E+02 3.374E+04 0.1150 293.15	66 1.210E+02 3.143E+04 0.1162 293.15
67 1.220E+02 3.018E+04 0.1169 293.15	68 1.230E+02 2.890E+04 0.1176 293.15
69 1.245E+02 2.695E+04 0.1187 293.15	70 1.260E+02 2.504E+04 0.1200 293.15
71 1.280E+02 2.264E+04 0.1217 293.15	72 1.305E+02 1.993E+04 0.1239 293.15
73 1.325E+02 1.802E+04 0.1257 293.15	74 1.350E+02 1.597E+04 0.1279 293.15
75 1.400E+02 1.302E+04 0.1316 293.15	76 1.450E+02 1.140E+04 0.1341 293.15
77 1.480E+02 1.084E+04 0.1351 293.15	78 1.500E+02 1.058E+04 0.1355 293.15
79 1.514E+02 1.044E+04 0.1358 293.15	80 1.524E+02 1.036E+04 0.1359 293.15
81 1.530E+02 1.032E+04 0.1360 293.15	82 1.540E+02 1.026E+04 0.1361 293.15
83 1.600E+02 1.008E+04 0.1365 293.15	84 1.650E+02 1.003E+04 0.1366 293.15
85 1.700E+02 1.001E+04 0.1366 293.15	86 1.750E+02 1.000E+04 0.1366 293.15
87 1.780E+02 1.000E+04 0.1366 293.15	88 1.800E+02 1.000E+04 0.1366 293.15
89 1.810E+02 1.000E+04 0.1366 293.15	90 1.820E+02 1.000E+04 0.1366 293.15
91 1.830E+02 1.000E+04 0.1366 293.15	92 1.840E+02 1.000E+04 0.1366 293.15
93 1.850E+02 1.000E+04 0.1366 293.15	94 1.870E+02 1.000E+04 0.1366 293.15
95 1.900E+02 1.000E+04 0.1366 293.15	96 1.950E+02 1.000E+04 0.1366 293.15
97 2.020E+02 1.000E+04 0.1366 293.15	98 2.100E+02 1.000E+04 0.1366 293.15
99 2.200E+02 1.000E+04 0.1366 293.15	100 2.350E+02 1.000E+04 0.1366 293.15
101 2.400E+02 1.000E+04 0.1366 293.15	102 2.600E+02 1.000E+04 0.1366 293.15
103 2.800E+02 1.000E+04 0.1366 293.15	104 3.000E+02 1.000E+04 0.1366 293.15
105 3.200E+02 1.000E+04 0.1366 293.15	106 3.400E+02 1.000E+04 0.1366 293.15
107 3.600E+02 1.000E+04 0.1366 293.15	108 3.800E+02 1.000E+04 0.1366 293.15
109 4.000E+02 1.000E+04 0.1366 293.15	110 4.200E+02 1.000E+04 0.1366 293.15
111 4.400E+02 1.000E+04 0.1366 293.15	112 4.550E+02 1.000E+04 0.1366 293.15
113 4.650E+02 1.000E+04 0.1366 293.15	114 4.730E+02 1.000E+04 0.1366 293.15
115 4.780E+02 1.000E+04 0.1366 293.15	116 4.820E+02 1.000E+04 0.1366 293.15
117 4.850E+02 1.000E+04 0.1366 293.15	118 4.870E+02 1.000E+04 0.1366 293.15
119 4.880E+02 1.000E+04 0.1366 293.15	120 4.890E+02 1.000E+04 0.1366 293.15

Initial Water Storage = 71.1318 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.25619
Head (cm) = 1.10718E+02
LiqWater Flow (cm)=-4.39783E-02
IsoVapor Flow (cm)=-1.29906E-06
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

71.1318+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 71.0875 vs. 71.0875

Mass Balance = -1.0172E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.26921

Head (cm) = 7.55970E+01

LiqWater Flow (cm)= 2.96603E-04

IsoVapor Flow (cm)=-3.74237E-07

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

80.6904+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 80.6904 vs. 80.6904

Mass Balance = -1.4141E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1370E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 9.6321E+00 [cm]

Potential Evaporation = 9.9853E+01 [cm]

Actual Evaporation = 3.1513E+01 [cm]

Evaporation during Growth = 2.0321E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 7.3347E-06 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 8.0690E+01 [cm]
 Mass Balance Error = -5.0706E-03 [cm]
 Total Successful Time Steps = 18479
 Total Attempted Time Steps = 25659
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 4508
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.9186E+01	0.050	2.1459E+01	0.200	1.9641E+01
0.450	1.9110E+01	0.800	1.8984E+01	1.250	1.8848E+01
1.850	1.8670E+01	2.600	1.8453E+01	3.500	1.8201E+01
4.750	1.7867E+01	6.500	1.7430E+01	8.500	1.6973E+01
10.750	1.6500E+01	13.250	1.6024E+01	16.000	1.5548E+01
18.750	1.5117E+01	21.500	1.4718E+01	24.250	1.4352E+01
26.500	1.4070E+01	28.250	1.3859E+01	29.500	1.3713E+01
30.500	1.3597E+01	31.500	1.3483E+01	32.750	1.3342E+01
34.250	1.3175E+01	36.000	1.2981E+01	38.500	1.2708E+01
41.000	1.2438E+01	43.000	1.2223E+01	44.500	1.2062E+01
45.500	1.1955E+01	46.500	1.1848E+01	47.500	1.1739E+01
49.000	1.1566E+01	51.000	1.1295E+01	53.000	1.0885E+01
55.500	1.0319E+01	57.750	9.7845E+00	59.250	9.4252E+00
60.500	9.1223E+00	61.500	8.8795E+00	62.500	8.6354E+00
63.750	8.3299E+00	65.250	7.9586E+00	67.000	7.5233E+00
69.500	6.9010E+00	72.500	6.1542E+00	75.500	5.4263E+00
78.500	4.7388E+00	81.500	4.0505E+00	84.500	3.3749E+00
87.000	2.8334E+00	88.500	2.5322E+00	89.500	2.3586E+00
90.500	2.2003E+00	91.500	2.0402E+00	93.000	1.7983E+00
95.000	1.4748E+00	97.500	1.0784E+00	100.500	6.2387E-01
103.500	2.0888E-01	107.000	1.3306E-03	111.500	-8.0945E-05
115.500	-2.0165E-04	118.000	-3.5007E-04	120.000	-5.7384E-04
121.500	-6.5517E-04	122.500	-7.1657E-04	123.750	-8.0189E-04
125.250	-9.1496E-04	127.000	-1.0630E-03	129.250	-1.2708E-03
131.500	-1.4781E-03	133.750	-1.6597E-03	137.500	-1.7841E-03
142.500	-1.5185E-03	146.500	-1.1274E-03	149.000	-8.6524E-04
150.700	-7.0263E-04	151.900	-5.9970E-04	152.700	-5.3747E-04
153.500	-4.7853E-04	157.000	-2.4087E-04	162.500	-8.6552E-05
167.500	-2.6854E-05	172.500	-4.0098E-06	176.500	2.6246E-06
179.000	4.7433E-06	180.500	5.5351E-06	181.500	5.9474E-06
182.500	6.2678E-06	183.500	6.5157E-06	184.500	6.7062E-06

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186.000	6.9241E-06	188.500	7.1333E-06	192.500	7.2740E-06
198.500	7.3243E-06	206.000	7.3334E-06	215.000	7.3346E-06
227.500	7.3347E-06	237.500	7.3347E-06	250.000	7.3347E-06
270.000	7.3347E-06	290.000	7.3347E-06	310.000	7.3347E-06
330.000	7.3347E-06	350.000	7.3347E-06	370.000	7.3347E-06
390.000	7.3347E-06	410.000	7.3347E-06	430.000	7.3347E-06
447.500	7.3347E-06	460.000	7.3347E-06	469.000	7.3347E-06
475.500	7.3347E-06	480.000	7.3347E-06	483.500	7.3347E-06
486.000	7.3347E-06	487.500	7.3347E-06	488.500	7.3347E-06
489.000	7.3347E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER
UPTAKE

0.000	0.0000E+00	0.100	3.7237E-02	0.300	6.5829E-02
0.600	9.5306E-02	1.000	1.2409E-01	1.500	1.6467E-01
2.200	2.0161E-01	3.000	2.3407E-01	4.000	3.1070E-01
5.500	4.0641E-01	7.500	4.2634E-01	9.500	4.4162E-01
12.000	4.4544E-01	14.500	4.4735E-01	17.500	4.0715E-01
20.000	3.7851E-01	23.000	3.4984E-01	25.500	2.6969E-01
27.500	2.0099E-01	29.000	1.3862E-01	30.000	1.0880E-01
31.000	1.0666E-01	32.000	1.3094E-01	33.500	1.5272E-01
35.000	1.7397E-01	37.000	2.3930E-01	40.000	2.2625E-01
42.000	1.7512E-01	44.000	1.2727E-01	45.000	8.3805E-02
46.000	8.2366E-02	47.000	8.1361E-02	48.000	1.2051E-01
50.000	1.5822E-01	52.000	1.5599E-01	54.000	1.9458E-01
57.000	1.7781E-01	58.500	1.1863E-01	60.000	9.8373E-02
61.000	7.8255E-02	62.000	7.7836E-02	63.000	9.7097E-02
64.500	1.1629E-01	66.000	1.3538E-01	68.000	1.9122E-01
71.000	2.2210E-01	74.000	2.0022E-01	77.000	1.7418E-01
80.000	1.6982E-01	83.000	1.5398E-01	86.000	1.0126E-01
88.000	2.5221E-02	89.000	6.6004E-03	90.000	2.8236E-03
91.000	1.3672E-03	92.000	1.0357E-03	94.000	4.5385E-04
96.000	2.4747E-04	99.000	2.6113E-04	102.000	4.0505E-04
105.000	8.0707E-04	109.000	2.1076E-03	114.000	4.4272E-03
117.000	4.8015E-03	119.000	5.7314E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP3 Wet Year 2

December 2023

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INITIAL CONDITIONS

Input File: C:\A\TP153_.inp

Results File: C:\A\TP153_1957.res

Date of Run: 08 Jun 2021

Time of Run: 14:57:47.25

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	7.560E+01	0.2692	293.15	2	1.000E-01	5.573E+01	0.2797
3	3.000E-01	5.984E+01	0.2772	293.15	4	6.000E-01	5.944E+01	0.2775
5	1.000E+00	5.904E+01	0.2777	293.15	6	1.500E+00	5.865E+01	0.2779
7	2.200E+00	5.814E+01	0.2782	293.15	8	3.000E+00	5.766E+01	0.2785
9	4.000E+00	5.718E+01	0.2788	293.15	10	5.500E+00	5.671E+01	0.2791
11	7.500E+00	5.657E+01	0.2792	293.15	12	9.500E+00	5.696E+01	0.2789
13	1.200E+01	5.825E+01	0.2782	293.15	14	1.450E+01	6.045E+01	0.2769
15	1.750E+01	6.438E+01	0.2747	293.15	16	2.000E+01	6.865E+01	0.2725
17	2.300E+01	7.473E+01	0.2696	293.15	18	2.550E+01	7.987E+01	0.2673
19	2.750E+01	8.348E+01	0.2658	293.15	20	2.900E+01	8.562E+01	0.2649
21	3.000E+01	8.671E+01	0.2645	293.15	22	3.100E+01	8.749E+01	0.2642
23	3.200E+01	8.797E+01	0.2640	293.15	24	3.350E+01	8.813E+01	0.2640
25	3.500E+01	8.770E+01	0.2641	293.15	26	3.700E+01	8.639E+01	0.2646
27	4.000E+01	8.337E+01	0.2659	293.15	28	4.200E+01	8.105E+01	0.2668
29	4.400E+01	7.862E+01	0.2679	293.15	30	4.500E+01	7.740E+01	0.2684
31	4.600E+01	7.618E+01	0.2689	293.15	32	4.700E+01	7.449E+01	0.2697
33	4.800E+01	7.148E+01	0.2711	293.15	34	5.000E+01	6.627E+01	0.2737
35	5.200E+01	6.207E+01	0.2760	293.15	36	5.400E+01	5.866E+01	0.2779
37	5.700E+01	5.464E+01	0.2803	293.15	38	5.850E+01	5.301E+01	0.2814
39	6.000E+01	5.158E+01	0.2823	293.15	40	6.100E+01	5.073E+01	0.2829
41	6.200E+01	4.996E+01	0.2834	293.15	42	6.300E+01	4.925E+01	0.2839
43	6.450E+01	4.831E+01	0.2845	293.15	44	6.600E+01	4.750E+01	0.2851
45	6.800E+01	4.661E+01	0.2858	293.15	46	7.100E+01	4.568E+01	0.2864
47	7.400E+01	4.522E+01	0.2868	293.15	48	7.700E+01	4.525E+01	0.2868
49	8.000E+01	4.584E+01	0.2863	293.15	50	8.300E+01	4.713E+01	0.2854
51	8.600E+01	4.934E+01	0.2838	293.15	52	8.800E+01	5.148E+01	0.2824
53	8.900E+01	5.281E+01	0.2815	293.15	54	9.000E+01	5.435E+01	0.2805
55	9.100E+01	5.614E+01	0.2794	293.15	56	9.200E+01	5.823E+01	0.2782
57	9.400E+01	6.355E+01	0.2752	293.15	58	9.600E+01	7.104E+01	0.2713

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59 9.900E+01 9.003E+01 0.2632 293.15	60 1.020E+02 1.347E+02 0.2496 293.15
61 1.050E+02 1.899E+03 0.1728 293.15	62 1.090E+02 3.534E+04 0.1143 293.15
63 1.140E+02 3.731E+04 0.1134 293.15	64 1.170E+02 3.555E+04 0.1142 293.15
65 1.190E+02 3.377E+04 0.1150 293.15	66 1.210E+02 3.161E+04 0.1161 293.15
67 1.220E+02 3.044E+04 0.1167 293.15	68 1.230E+02 2.924E+04 0.1174 293.15
69 1.245E+02 2.742E+04 0.1184 293.15	70 1.260E+02 2.562E+04 0.1196 293.15
71 1.280E+02 2.333E+04 0.1212 293.15	72 1.305E+02 2.070E+04 0.1233 293.15
73 1.325E+02 1.881E+04 0.1249 293.15	74 1.350E+02 1.673E+04 0.1270 293.15
75 1.400E+02 1.360E+04 0.1308 293.15	76 1.450E+02 1.177E+04 0.1335 293.15
77 1.480E+02 1.110E+04 0.1346 293.15	78 1.500E+02 1.078E+04 0.1352 293.15
79 1.514E+02 1.061E+04 0.1355 293.15	80 1.524E+02 1.051E+04 0.1357 293.15
81 1.530E+02 1.045E+04 0.1358 293.15	82 1.540E+02 1.037E+04 0.1359 293.15
83 1.600E+02 1.012E+04 0.1364 293.15	84 1.650E+02 1.004E+04 0.1365 293.15
85 1.700E+02 1.002E+04 0.1366 293.15	86 1.750E+02 1.001E+04 0.1366 293.15
87 1.780E+02 1.000E+04 0.1366 293.15	88 1.800E+02 1.000E+04 0.1366 293.15
89 1.810E+02 1.000E+04 0.1366 293.15	90 1.820E+02 1.000E+04 0.1366 293.15
91 1.830E+02 1.000E+04 0.1366 293.15	92 1.840E+02 1.000E+04 0.1366 293.15
93 1.850E+02 1.000E+04 0.1366 293.15	94 1.870E+02 1.000E+04 0.1366 293.15
95 1.900E+02 1.000E+04 0.1366 293.15	96 1.950E+02 1.000E+04 0.1366 293.15
97 2.020E+02 1.000E+04 0.1366 293.15	98 2.100E+02 1.000E+04 0.1366 293.15
99 2.200E+02 1.000E+04 0.1366 293.15	100 2.350E+02 1.000E+04 0.1366 293.15
101 2.400E+02 1.000E+04 0.1366 293.15	102 2.600E+02 1.000E+04 0.1366 293.15
103 2.800E+02 1.000E+04 0.1366 293.15	104 3.000E+02 1.000E+04 0.1366 293.15
105 3.200E+02 1.000E+04 0.1366 293.15	106 3.400E+02 1.000E+04 0.1366 293.15
107 3.600E+02 1.000E+04 0.1366 293.15	108 3.800E+02 1.000E+04 0.1366 293.15
109 4.000E+02 1.000E+04 0.1366 293.15	110 4.200E+02 1.000E+04 0.1366 293.15
111 4.400E+02 1.000E+04 0.1366 293.15	112 4.550E+02 1.000E+04 0.1366 293.15
113 4.650E+02 1.000E+04 0.1366 293.15	114 4.730E+02 1.000E+04 0.1366 293.15
115 4.780E+02 1.000E+04 0.1366 293.15	116 4.820E+02 1.000E+04 0.1366 293.15
117 4.850E+02 1.000E+04 0.1366 293.15	118 4.870E+02 1.000E+04 0.1366 293.15
119 4.880E+02 1.000E+04 0.1366 293.15	120 4.890E+02 1.000E+04 0.1366 293.15

Initial Water Storage = 80.6904 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.25900
Head (cm) = 1.01908E+02

December 2023

LiqWater Flow (cm)=-4.37871E-02
IsoVapor Flow (cm)=-8.37341E-07
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

80.6904+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 80.6461 vs. 80.6461

Mass Balance = -2.5768E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.26040
Head (cm) = 9.78080E+01
LiqWater Flow (cm)=-5.77587E-02
IsoVapor Flow (cm)=-8.89376E-07
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

88.7816+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 88.7231 vs. 88.7231

Mass Balance = -6.2663E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 1.0723E+01 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 3.1948E+01 [cm]
 Evaporation during Growth = 2.0568E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 7.3347E-06 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 8.8723E+01 [cm]
 Mass Balance Error = -4.5942E-03 [cm]
 Total Successful Time Steps = 18607
 Total Attempted Time Steps = 25900
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 4461
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.8751E+01	0.050	2.0877E+01	0.200	1.9145E+01
0.450	1.8684E+01	0.800	1.8569E+01	1.250	1.8445E+01
1.850	1.8283E+01	2.600	1.8085E+01	3.500	1.7855E+01
4.750	1.7551E+01	6.500	1.7152E+01	8.500	1.6733E+01
10.750	1.6297E+01	13.250	1.5855E+01	16.000	1.5411E+01
18.750	1.5006E+01	21.500	1.4628E+01	24.250	1.4279E+01
26.500	1.4010E+01	28.250	1.3810E+01	29.500	1.3671E+01
30.500	1.3563E+01	31.500	1.3456E+01	32.750	1.3326E+01
34.250	1.3174E+01	36.000	1.3002E+01	38.500	1.2765E+01
41.000	1.2545E+01	43.000	1.2376E+01	44.500	1.2255E+01
45.500	1.2176E+01	46.500	1.2099E+01	47.500	1.2024E+01
49.000	1.1912E+01	51.000	1.1769E+01	53.000	1.1631E+01
55.500	1.1463E+01	57.750	1.1319E+01	59.250	1.1225E+01
60.500	1.1149E+01	61.500	1.1088E+01	62.500	1.1028E+01
63.750	1.0953E+01	65.250	1.0866E+01	67.000	1.0765E+01
69.500	1.0624E+01	72.500	1.0459E+01	75.500	1.0298E+01
78.500	1.0139E+01	81.500	9.9804E+00	84.500	9.8197E+00
87.000	9.6823E+00	88.500	9.5975E+00	89.500	9.5400E+00
90.500	9.4811E+00	91.500	9.4212E+00	93.000	9.3287E+00
95.000	9.1980E+00	97.500	9.0209E+00	100.500	8.7741E+00

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103.500	8.4715E+00	107.000	7.8154E+00	111.500	6.6817E+00
115.500	5.6658E+00	118.000	5.0228E+00	120.000	4.4939E+00
121.500	4.2146E+00	122.500	4.0308E+00	123.750	3.8038E+00
125.250	3.5309E+00	127.000	3.2215E+00	129.250	2.8268E+00
131.500	2.4372E+00	133.750	2.0559E+00	137.500	1.4403E+00
142.500	6.9053E-01	146.500	1.9624E-01	149.000	1.0864E-02
150.700	-5.7103E-04	151.900	-6.9198E-04	152.700	-6.4513E-04
153.500	-5.8645E-04	157.000	-3.2000E-04	162.500	-1.2730E-04
167.500	-4.5703E-05	172.500	-1.1734E-05	176.500	-1.0807E-06
179.000	2.5019E-06	180.500	3.8903E-06	181.500	4.6274E-06
182.500	5.2117E-06	183.500	5.6728E-06	184.500	6.0346E-06
186.000	6.4575E-06	188.500	6.8813E-06	192.500	7.1862E-06
198.500	7.3064E-06	206.000	7.3309E-06	215.000	7.3343E-06
227.500	7.3347E-06	237.500	7.3347E-06	250.000	7.3347E-06
270.000	7.3347E-06	290.000	7.3347E-06	310.000	7.3347E-06
330.000	7.3347E-06	350.000	7.3347E-06	370.000	7.3347E-06
390.000	7.3347E-06	410.000	7.3347E-06	430.000	7.3347E-06
447.500	7.3347E-06	460.000	7.3347E-06	469.000	7.3347E-06
475.500	7.3347E-06	480.000	7.3347E-06	483.500	7.3347E-06
486.000	7.3347E-06	487.500	7.3347E-06	488.500	7.3347E-06
489.000	7.3347E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	3.7466E-02	0.300	6.6079E-02
0.600	9.5560E-02	1.000	1.2428E-01	1.500	1.6485E-01
2.200	2.0173E-01	3.000	2.3411E-01	4.000	3.1072E-01
5.500	4.0609E-01	7.500	4.2587E-01	9.500	4.4107E-01
12.000	4.4475E-01	14.500	4.4638E-01	17.500	4.0509E-01
20.000	3.7809E-01	23.000	3.4861E-01	25.500	2.6777E-01
27.500	1.9918E-01	29.000	1.3812E-01	30.000	1.0821E-01
31.000	1.0589E-01	32.000	1.2982E-01	33.500	1.5095E-01
35.000	1.7126E-01	37.000	2.3561E-01	40.000	2.1881E-01
42.000	1.6769E-01	44.000	1.1983E-01	45.000	7.8372E-02
46.000	7.6272E-02	47.000	7.4954E-02	48.000	1.1027E-01
50.000	1.4068E-01	52.000	1.3618E-01	54.000	1.6381E-01
57.000	1.3998E-01	58.500	9.1174E-02	60.000	7.3940E-02
61.000	5.8441E-02	62.000	5.7586E-02	63.000	7.0848E-02
64.500	8.3287E-02	66.000	9.4961E-02	68.000	1.3142E-01
71.000	1.5032E-01	74.000	1.4406E-01	77.000	1.3744E-01
80.000	1.3233E-01	83.000	1.2833E-01	86.000	1.0404E-01

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88.000	6.1663E-02	89.000	4.0911E-02	90.000	4.1011E-02
91.000	4.0650E-02	92.000	6.1280E-02	94.000	8.2140E-02
96.000	1.0566E-01	99.000	1.3474E-01	102.000	1.4794E-01
105.000	1.9782E-01	109.000	2.8453E-01	114.000	2.6781E-01
117.000	1.7554E-01	119.000	1.5834E-01	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP3 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is C:\A\TP153_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                66.808
 1 22.530 135.832  5.370 12.835  0.000  0.000  71.137  13204 -0.00364
 2 22.530 135.832  7.513 14.805  0.000  0.000  71.353  13208 -0.00416
 3 22.530 135.832  7.588 14.969  0.000  0.000  71.330  13247 -0.00405
 4 22.530 135.832  7.595 14.973  0.000  0.000  71.296  13199 -0.00417
 5 22.530 135.832  7.586 14.983  0.000  0.000  71.261  13215 -0.00415
 6 22.530 135.832  7.581 14.984  0.000  0.000  71.230  13204 -0.00424
 7 22.530 135.832  7.578 14.984  0.000  0.000  71.203  13231 -0.00423
 8 22.530 135.832  7.582 14.975  0.000  0.000  71.179  13202 -0.00418
 9 22.530 135.832  7.576 14.984  0.000  0.000  71.154  13209 -0.00411
10 22.530 135.832  7.573 14.983  0.000  0.000  71.132  13218 -0.00421
11 50.698 113.700  9.632 31.513  0.000  0.000  80.690  18479 -0.00507
12 50.698 113.759 10.723 31.948  0.000  0.000  88.723  18607 -0.00459
-----
SUM= 326.6951585.780 93.895 210.935  0.000  0.000                -0.05082
```

Sensitivity Analysis #1: Soil Sample TP4 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP154_.inp
Results File: C:\A\TP154_1955.res
Date of Run: 08 Jun 2021
Time of Run: 15:03:45.00
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.618E+04	0.1808	293.15	2	1.000E-01	7.348E+04	0.1858
3	3.000E-01	1.318E+03	0.2781	293.15	4	6.000E-01	1.031E+02	0.3579
5	1.000E+00	6.096E+01	0.3763	293.15	6	1.500E+00	4.504E+01	0.3869
7	2.200E+00	3.665E+01	0.3942	293.15	8	3.000E+00	3.347E+01	0.3974
9	4.000E+00	3.430E+01	0.3965	293.15	10	5.500E+00	4.619E+01	0.3861
11	7.500E+00	8.840E+01	0.3633	293.15	12	9.500E+00	5.573E+03	0.2407
13	1.200E+01	2.769E+04	0.2049	293.15	14	1.450E+01	3.434E+04	0.2005
15	1.750E+01	3.721E+04	0.1989	293.15	16	2.000E+01	3.838E+04	0.1983
17	2.300E+01	3.913E+04	0.1979	293.15	18	2.550E+01	3.948E+04	0.1977
19	2.750E+01	3.966E+04	0.1976	293.15	20	2.900E+01	3.975E+04	0.1976
21	3.000E+01	3.980E+04	0.1976	293.15	22	3.100E+01	3.984E+04	0.1976
23	3.200E+01	3.987E+04	0.1975	293.15	24	3.350E+01	3.990E+04	0.1975
25	3.500E+01	3.993E+04	0.1975	293.15	26	3.700E+01	3.995E+04	0.1975
27	4.000E+01	3.997E+04	0.1975	293.15	28	4.200E+01	3.998E+04	0.1975
29	4.400E+01	3.999E+04	0.1975	293.15	30	4.500E+01	3.999E+04	0.1975
31	4.600E+01	3.999E+04	0.1975	293.15	32	4.700E+01	3.999E+04	0.1975
33	4.800E+01	3.999E+04	0.1975	293.15	34	5.000E+01	4.000E+04	0.1975
35	5.200E+01	4.000E+04	0.1975	293.15	36	5.400E+01	4.000E+04	0.1975
37	5.700E+01	4.000E+04	0.1975	293.15	38	5.850E+01	4.000E+04	0.1975
39	6.000E+01	4.000E+04	0.1975	293.15	40	6.100E+01	4.000E+04	0.1975
41	6.200E+01	4.000E+04	0.1975	293.15	42	6.300E+01	4.000E+04	0.1975
43	6.450E+01	4.000E+04	0.1975	293.15	44	6.600E+01	4.000E+04	0.1975
45	6.800E+01	4.000E+04	0.1975	293.15	46	7.100E+01	4.000E+04	0.1975
47	7.400E+01	4.000E+04	0.1975	293.15	48	7.700E+01	4.000E+04	0.1975
49	8.000E+01	3.999E+04	0.1975	293.15	50	8.300E+01	3.999E+04	0.1975
51	8.600E+01	3.998E+04	0.1975	293.15	52	8.800E+01	3.998E+04	0.1975
53	8.900E+01	3.997E+04	0.1975	293.15	54	9.000E+01	3.996E+04	0.1975
55	9.100E+01	3.996E+04	0.1975	293.15	56	9.200E+01	3.995E+04	0.1975
57	9.400E+01	3.993E+04	0.1975	293.15	58	9.600E+01	3.990E+04	0.1975

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59 9.900E+01 3.983E+04 0.1976 293.15	60 1.020E+02 3.971E+04 0.1976 293.15
61 1.050E+02 3.950E+04 0.1977 293.15	62 1.090E+02 3.897E+04 0.1980 293.15
63 1.140E+02 3.742E+04 0.1988 293.15	64 1.170E+02 3.531E+04 0.2000 293.15
65 1.190E+02 3.326E+04 0.2012 293.15	66 1.210E+02 3.075E+04 0.2028 293.15
67 1.220E+02 2.940E+04 0.2037 293.15	68 1.230E+02 2.801E+04 0.2047 293.15
69 1.245E+02 2.591E+04 0.2063 293.15	70 1.260E+02 2.386E+04 0.2080 293.15
71 1.280E+02 2.130E+04 0.2104 293.15	72 1.305E+02 1.843E+04 0.2135 293.15
73 1.325E+02 1.643E+04 0.2159 293.15	74 1.350E+02 1.434E+04 0.2189 293.15
75 1.400E+02 1.167E+04 0.2235 293.15	76 1.450E+02 1.055E+04 0.2257 293.15
77 1.480E+02 1.026E+04 0.2264 293.15	78 1.500E+02 1.015E+04 0.2266 293.15
79 1.514E+02 1.010E+04 0.2267 293.15	80 1.524E+02 1.007E+04 0.2268 293.15
81 1.530E+02 1.006E+04 0.2268 293.15	82 1.540E+02 1.004E+04 0.2269 293.15
83 1.600E+02 1.001E+04 0.2269 293.15	84 1.650E+02 1.000E+04 0.2270 293.15
85 1.700E+02 1.000E+04 0.2270 293.15	86 1.750E+02 1.000E+04 0.2270 293.15
87 1.780E+02 1.000E+04 0.2270 293.15	88 1.800E+02 1.000E+04 0.2270 293.15
89 1.810E+02 1.000E+04 0.2270 293.15	90 1.820E+02 1.000E+04 0.2270 293.15
91 1.830E+02 1.000E+04 0.2270 293.15	92 1.840E+02 1.000E+04 0.2270 293.15
93 1.850E+02 1.000E+04 0.2270 293.15	94 1.870E+02 1.000E+04 0.2270 293.15
95 1.900E+02 1.000E+04 0.2270 293.15	96 1.950E+02 1.000E+04 0.2270 293.15
97 2.020E+02 1.000E+04 0.2270 293.15	98 2.100E+02 1.000E+04 0.2270 293.15
99 2.200E+02 1.000E+04 0.2270 293.15	100 2.350E+02 1.000E+04 0.2270 293.15
101 2.400E+02 1.000E+04 0.2270 293.15	102 2.600E+02 1.000E+04 0.2270 293.15
103 2.800E+02 1.000E+04 0.2270 293.15	104 3.000E+02 1.000E+04 0.2270 293.15
105 3.200E+02 1.000E+04 0.2270 293.15	106 3.400E+02 1.000E+04 0.2270 293.15
107 3.600E+02 1.000E+04 0.2270 293.15	108 3.800E+02 1.000E+04 0.2270 293.15
109 4.000E+02 1.000E+04 0.2270 293.15	110 4.200E+02 1.000E+04 0.2270 293.15
111 4.400E+02 1.000E+04 0.2270 293.15	112 4.550E+02 1.000E+04 0.2270 293.15
113 4.650E+02 1.000E+04 0.2270 293.15	114 4.730E+02 1.000E+04 0.2270 293.15
115 4.780E+02 1.000E+04 0.2270 293.15	116 4.820E+02 1.000E+04 0.2270 293.15
117 4.850E+02 1.000E+04 0.2270 293.15	118 4.870E+02 1.000E+04 0.2270 293.15
119 4.880E+02 1.000E+04 0.2270 293.15	120 4.890E+02 1.000E+04 0.2270 293.15

Initial Water Storage = 108.8100 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.15749
Head (cm) = 3.80927E+05

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LiqWater Flow (cm)=-2.74924E-06
IsoVapor Flow (cm)=-6.72302E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

108.8100+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 108.7416 vs. 108.7416

Mass Balance = -8.5685E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.18095
Head (cm) = 9.55061E+04
LiqWater Flow (cm)=-7.36418E-06
IsoVapor Flow (cm)=-3.97372E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

108.8026+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 108.7629 vs. 108.7629

Mass Balance = -6.8656E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

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Potential Transpiration = 1.6719E+01 [cm]
 Actual Transpiration = 2.2586E+00 [cm]
 Potential Evaporation = 1.1911E+02 [cm]
 Actual Evaporation = 5.5829E+00 [cm]
 Evaporation during Growth = 3.3569E+00 [cm]
 Total Runoff = 1.4975E+01 [cm]
 Total Infiltration = 7.5547E+00 [cm]
 Total Basal Liquid Flux (drainage) = 1.0621E-08 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 1.0876E+02 [cm]
 Mass Balance Error = -2.3970E-01 [cm]
 Total Successful Time Steps = 59299
 Total Attempted Time Steps = 86892
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 37535
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	1.9718E+00	0.050	3.0688E+00	0.200	2.4194E+00
0.450	2.1641E+00	0.800	1.9732E+00	1.250	1.8335E+00
1.850	1.6503E+00	2.600	1.4288E+00	3.500	1.1910E+00
4.750	8.7896E-01	6.500	5.1707E-01	8.500	2.6469E-01
10.750	1.5600E-02	13.250	2.9372E-04	16.000	7.7725E-05
18.750	3.1730E-05	21.500	1.4586E-05	24.250	7.4604E-06
26.500	4.4639E-06	28.250	3.0451E-06	29.500	2.3371E-06
30.500	1.8898E-06	31.500	1.5346E-06	32.750	1.1813E-06
34.250	8.7726E-07	36.000	6.2220E-07	38.500	3.8501E-07
41.000	2.5584E-07	43.000	1.8701E-07	44.500	1.5236E-07
45.500	1.3347E-07	46.500	1.1828E-08	47.500	1.0561E-09
49.000	9.0001E-10	51.000	7.5910E-10	53.000	6.6325E-10
55.500	5.8122E-10	57.750	5.3730E-10	59.250	5.1426E-10
60.500	4.9865E-10	61.500	4.8751E-10	62.500	4.7729E-10
63.750	4.6522E-10	65.250	4.5101E-10	67.000	4.3346E-10
69.500	4.0346E-10	72.500	3.4936E-10	75.500	2.6077E-10
78.500	1.1106E-10	81.500	-1.4467E-10	84.500	-5.8307E-10
87.000	-1.2102E-09	88.500	-1.7539E-09	89.500	-2.1907E-09
90.500	-2.7162E-09	91.500	-3.3483E-09	93.000	-4.4892E-09
95.000	-6.6783E-09	97.500	-1.0635E-08	100.500	-1.8829E-08

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103.500	-3.3176E-08	107.000	-6.3067E-08	111.500	-1.4777E-07
115.500	-3.5170E-07	118.000	-6.2738E-07	120.000	-1.0667E-06
121.500	-1.2217E-06	122.500	-1.3399E-06	123.750	-1.5061E-06
125.250	-1.7298E-06	127.000	-2.0289E-06	129.250	-2.4572E-06
131.500	-2.8821E-06	133.750	-3.2227E-06	137.500	-3.1719E-06
142.500	-2.0302E-06	146.500	-1.1041E-06	149.000	-6.6560E-07
150.700	-4.5304E-07	151.900	-3.4127E-07	152.700	-2.8264E-07
153.500	-2.3226E-07	157.000	-6.4314E-08	162.500	-5.6109E-09
167.500	7.1883E-09	172.500	9.9655E-09	176.500	1.0444E-08
179.000	1.0550E-08	180.500	1.0580E-08	181.500	1.0594E-08
182.500	1.0603E-08	183.500	1.0609E-08	184.500	1.0613E-08
186.000	1.0617E-08	188.500	1.0620E-08	192.500	1.0621E-08
198.500	1.0621E-08	206.000	1.0621E-08	215.000	1.0621E-08
227.500	1.0621E-08	237.500	1.0621E-08	250.000	1.0621E-08
270.000	1.0621E-08	290.000	1.0621E-08	310.000	1.0621E-08
330.000	1.0621E-08	350.000	1.0621E-08	370.000	1.0621E-08
390.000	1.0621E-08	410.000	1.0621E-08	430.000	1.0621E-08
447.500	1.0621E-08	460.000	1.0621E-08	469.000	1.0621E-08
475.500	1.0621E-08	480.000	1.0621E-08	483.500	1.0621E-08
486.000	1.0621E-08	487.500	1.0621E-08	488.500	1.0621E-08
489.000	1.0621E-08				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	5.0446E-02	0.300	8.2695E-02
0.600	1.1286E-01	1.000	1.4139E-01	1.500	1.8305E-01
2.200	2.2019E-01	3.000	2.3912E-01	4.000	3.1241E-01
5.500	3.4467E-01	7.500	2.4736E-01	9.500	1.9923E-01
12.000	5.5052E-02	14.500	2.4795E-02	17.500	1.0089E-02
20.000	4.9932E-03	23.000	2.3195E-03	25.500	1.0350E-03
27.500	5.0398E-04	29.000	2.5517E-04	30.000	1.6263E-04
31.000	1.2989E-04	32.000	1.2994E-04	33.500	1.1234E-04
35.000	9.4704E-05	37.000	8.8442E-05	40.000	4.8320E-05
42.000	2.5831E-05	44.000	1.3052E-05	45.000	7.1391E-06
46.000	5.8679E-06	47.000	4.8285E-06	48.000	5.9706E-06
50.000	5.4944E-06	52.000	3.8545E-06	54.000	3.4590E-06
57.000	2.0606E-06	58.500	1.1610E-06	60.000	8.4951E-07
61.000	6.3797E-07	62.000	6.1138E-07	63.000	7.4813E-07
64.500	9.0494E-07	66.000	1.1134E-06	68.000	1.8151E-06
71.000	2.9329E-06	74.000	4.3166E-06	77.000	6.7270E-06
80.000	1.0869E-05	83.000	1.7965E-05	86.000	2.5096E-05

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88.000	2.1515E-05	89.000	1.7191E-05	90.000	2.0598E-05
91.000	2.4678E-05	92.000	4.4351E-05	94.000	8.4542E-05
96.000	1.5150E-04	99.000	3.1003E-04	102.000	5.3266E-04
105.000	1.0703E-03	109.000	2.7899E-03	114.000	5.8889E-03
117.000	6.4641E-03	119.000	7.8299E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP4 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP154_.inp
Results File: C:\A\TP154_1956.res
Date of Run: 08 Jun 2021
Time of Run: 15:03:45.00
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.551E+04	0.1810	293.15	2	1.000E-01	7.300E+04	0.1859 293.15
3	3.000E-01	3.794E+03	0.2501	293.15	4	6.000E-01	1.119E+02	0.3551 293.15
5	1.000E+00	6.659E+01	0.3732	293.15	6	1.500E+00	4.903E+01	0.3839 293.15
7	2.200E+00	3.986E+01	0.3912	293.15	8	3.000E+00	3.655E+01	0.3943 293.15
9	4.000E+00	3.778E+01	0.3931	293.15	10	5.500E+00	5.114E+01	0.3825 293.15
11	7.500E+00	9.009E+01	0.3626	293.15	12	9.500E+00	4.998E+03	0.2433 293.15
13	1.200E+01	2.754E+04	0.2050	293.15	14	1.450E+01	3.433E+04	0.2005 293.15
15	1.750E+01	3.722E+04	0.1989	293.15	16	2.000E+01	3.840E+04	0.1983 293.15
17	2.300E+01	3.914E+04	0.1979	293.15	18	2.550E+01	3.949E+04	0.1977 293.15
19	2.750E+01	3.967E+04	0.1976	293.15	20	2.900E+01	3.976E+04	0.1976 293.15
21	3.000E+01	3.980E+04	0.1976	293.15	22	3.100E+01	3.984E+04	0.1976 293.15
23	3.200E+01	3.987E+04	0.1975	293.15	24	3.350E+01	3.990E+04	0.1975 293.15
25	3.500E+01	3.993E+04	0.1975	293.15	26	3.700E+01	3.995E+04	0.1975 293.15
27	4.000E+01	3.997E+04	0.1975	293.15	28	4.200E+01	3.998E+04	0.1975 293.15
29	4.400E+01	3.999E+04	0.1975	293.15	30	4.500E+01	3.999E+04	0.1975 293.15
31	4.600E+01	3.999E+04	0.1975	293.15	32	4.700E+01	3.999E+04	0.1975 293.15
33	4.800E+01	3.999E+04	0.1975	293.15	34	5.000E+01	4.000E+04	0.1975 293.15
35	5.200E+01	4.000E+04	0.1975	293.15	36	5.400E+01	4.000E+04	0.1975 293.15
37	5.700E+01	4.000E+04	0.1975	293.15	38	5.850E+01	4.000E+04	0.1975 293.15
39	6.000E+01	4.000E+04	0.1975	293.15	40	6.100E+01	4.000E+04	0.1975 293.15
41	6.200E+01	4.000E+04	0.1975	293.15	42	6.300E+01	4.000E+04	0.1975 293.15
43	6.450E+01	4.000E+04	0.1975	293.15	44	6.600E+01	4.000E+04	0.1975 293.15
45	6.800E+01	4.000E+04	0.1975	293.15	46	7.100E+01	4.000E+04	0.1975 293.15
47	7.400E+01	4.000E+04	0.1975	293.15	48	7.700E+01	4.000E+04	0.1975 293.15
49	8.000E+01	3.999E+04	0.1975	293.15	50	8.300E+01	3.999E+04	0.1975 293.15
51	8.600E+01	3.998E+04	0.1975	293.15	52	8.800E+01	3.998E+04	0.1975 293.15
53	8.900E+01	3.997E+04	0.1975	293.15	54	9.000E+01	3.997E+04	0.1975 293.15
55	9.100E+01	3.996E+04	0.1975	293.15	56	9.200E+01	3.995E+04	0.1975 293.15
57	9.400E+01	3.993E+04	0.1975	293.15	58	9.600E+01	3.990E+04	0.1975 293.15

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59 9.900E+01 3.984E+04 0.1976 293.15	60 1.020E+02 3.972E+04 0.1976 293.15
61 1.050E+02 3.952E+04 0.1977 293.15	62 1.090E+02 3.902E+04 0.1980 293.15
63 1.140E+02 3.755E+04 0.1987 293.15	64 1.170E+02 3.555E+04 0.1998 293.15
65 1.190E+02 3.360E+04 0.2010 293.15	66 1.210E+02 3.122E+04 0.2024 293.15
67 1.220E+02 2.993E+04 0.2033 293.15	68 1.230E+02 2.861E+04 0.2042 293.15
69 1.245E+02 2.660E+04 0.2057 293.15	70 1.260E+02 2.464E+04 0.2073 293.15
71 1.280E+02 2.216E+04 0.2095 293.15	72 1.305E+02 1.934E+04 0.2124 293.15
73 1.325E+02 1.734E+04 0.2148 293.15	74 1.350E+02 1.519E+04 0.2176 293.15
75 1.400E+02 1.221E+04 0.2225 293.15	76 1.450E+02 1.081E+04 0.2252 293.15
77 1.480E+02 1.040E+04 0.2261 293.15	78 1.500E+02 1.024E+04 0.2264 293.15
79 1.514E+02 1.016E+04 0.2266 293.15	80 1.524E+02 1.012E+04 0.2267 293.15
81 1.530E+02 1.010E+04 0.2267 293.15	82 1.540E+02 1.007E+04 0.2268 293.15
83 1.600E+02 1.001E+04 0.2269 293.15	84 1.650E+02 1.000E+04 0.2270 293.15
85 1.700E+02 1.000E+04 0.2270 293.15	86 1.750E+02 1.000E+04 0.2270 293.15
87 1.780E+02 1.000E+04 0.2270 293.15	88 1.800E+02 1.000E+04 0.2270 293.15
89 1.810E+02 1.000E+04 0.2270 293.15	90 1.820E+02 1.000E+04 0.2270 293.15
91 1.830E+02 1.000E+04 0.2270 293.15	92 1.840E+02 1.000E+04 0.2270 293.15
93 1.850E+02 1.000E+04 0.2270 293.15	94 1.870E+02 1.000E+04 0.2270 293.15
95 1.900E+02 1.000E+04 0.2270 293.15	96 1.950E+02 1.000E+04 0.2270 293.15
97 2.020E+02 1.000E+04 0.2270 293.15	98 2.100E+02 1.000E+04 0.2270 293.15
99 2.200E+02 1.000E+04 0.2270 293.15	100 2.350E+02 1.000E+04 0.2270 293.15
101 2.400E+02 1.000E+04 0.2270 293.15	102 2.600E+02 1.000E+04 0.2270 293.15
103 2.800E+02 1.000E+04 0.2270 293.15	104 3.000E+02 1.000E+04 0.2270 293.15
105 3.200E+02 1.000E+04 0.2270 293.15	106 3.400E+02 1.000E+04 0.2270 293.15
107 3.600E+02 1.000E+04 0.2270 293.15	108 3.800E+02 1.000E+04 0.2270 293.15
109 4.000E+02 1.000E+04 0.2270 293.15	110 4.200E+02 1.000E+04 0.2270 293.15
111 4.400E+02 1.000E+04 0.2270 293.15	112 4.550E+02 1.000E+04 0.2270 293.15
113 4.650E+02 1.000E+04 0.2270 293.15	114 4.730E+02 1.000E+04 0.2270 293.15
115 4.780E+02 1.000E+04 0.2270 293.15	116 4.820E+02 1.000E+04 0.2270 293.15
117 4.850E+02 1.000E+04 0.2270 293.15	118 4.870E+02 1.000E+04 0.2270 293.15
119 4.880E+02 1.000E+04 0.2270 293.15	120 4.890E+02 1.000E+04 0.2270 293.15

Initial Water Storage = 108.7629 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.16470
Head (cm) = 2.43898E+05

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LiqWater Flow (cm)=-3.46047E-06
IsoVapor Flow (cm)=-4.34837E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

108.7629+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 108.7186 vs. 108.7186

Mass Balance = -5.2622E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.42377
Head (cm) = 1.52674E+01
LiqWater Flow (cm)=-3.74578E-04
IsoVapor Flow (cm)=-1.09842E-08
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

110.0710+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 110.0710 vs. 110.0710

Mass Balance = -2.2666E-09 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 2.6858E+00 [cm]
 Potential Evaporation = 9.9853E+01 [cm]
 Actual Evaporation = 1.1226E+01 [cm]
 Evaporation during Growth = 7.0812E+00 [cm]
 Total Runoff = 3.5847E+01 [cm]
 Total Infiltration = 1.4852E+01 [cm]
 Total Basal Liquid Flux (drainage) = 1.0650E-08 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 1.1007E+02 [cm]
 Mass Balance Error = -3.6875E-01 [cm]
 Total Successful Time Steps = 69246
 Total Attempted Time Steps = 90725
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 55988
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	3.6251E+00	0.050	6.3285E+00	0.200	4.7760E+00
0.450	4.0283E+00	0.800	3.6823E+00	1.250	3.5422E+00
1.850	3.3837E+00	2.600	3.2031E+00	3.500	2.9985E+00
4.750	2.7408E+00	6.500	2.4174E+00	8.500	2.0681E+00
10.750	1.3840E+00	13.250	5.4142E-01	16.000	7.2986E-03
18.750	1.8708E-04	21.500	5.1669E-05	24.250	1.9364E-05
26.500	9.4411E-06	28.250	5.5967E-06	29.500	3.9279E-06
30.500	2.9664E-06	31.500	2.2663E-06	32.750	1.6259E-06
34.250	1.1323E-06	36.000	7.5693E-07	38.500	4.4199E-07
41.000	2.8468E-07	43.000	2.0416E-07	44.500	1.6464E-07
45.500	1.4330E-07	46.500	1.2627E-08	47.500	1.1216E-09
49.000	9.4870E-10	51.000	7.9354E-10	53.000	6.8836E-10
55.500	5.9851E-10	57.750	5.5042E-10	59.250	5.2522E-10
60.500	5.0817E-10	61.500	4.9602E-10	62.500	4.8492E-10
63.750	4.7185E-10	65.250	4.5659E-10	67.000	4.3788E-10
69.500	4.0620E-10	72.500	3.4958E-10	75.500	2.5721E-10
78.500	1.0125E-10	81.500	-1.6532E-10	84.500	-6.2285E-10
87.000	-1.2783E-09	88.500	-1.8472E-09	89.500	-2.3043E-09
90.500	-2.8546E-09	91.500	-3.5168E-09	93.000	-4.7120E-09
95.000	-7.0053E-09	97.500	-1.1146E-08	100.500	-1.9695E-08

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103.500	-3.4557E-08	107.000	-6.5151E-08	111.500	-1.4984E-07
115.500	-3.4474E-07	118.000	-5.9482E-07	120.000	-9.7066E-07
121.500	-1.1089E-06	122.500	-1.2140E-06	123.750	-1.3613E-06
125.250	-1.5582E-06	127.000	-1.8206E-06	129.250	-2.1984E-06
131.500	-2.5863E-06	133.750	-2.9351E-06	137.500	-3.1098E-06
142.500	-2.3009E-06	146.500	-1.4087E-06	149.000	-9.1503E-07
150.700	-6.5452E-07	151.900	-5.0984E-07	152.700	-4.3100E-07
153.500	-3.6143E-07	157.000	-1.1707E-07	162.500	-2.0230E-08
167.500	3.4002E-09	172.500	9.1133E-09	176.500	1.0200E-08
179.000	1.0458E-08	180.500	1.0536E-08	181.500	1.0572E-08
182.500	1.0597E-08	183.500	1.0614E-08	184.500	1.0625E-08
186.000	1.0637E-08	188.500	1.0646E-08	192.500	1.0649E-08
198.500	1.0650E-08	206.000	1.0650E-08	215.000	1.0650E-08
227.500	1.0650E-08	237.500	1.0650E-08	250.000	1.0650E-08
270.000	1.0650E-08	290.000	1.0650E-08	310.000	1.0650E-08
330.000	1.0650E-08	350.000	1.0650E-08	370.000	1.0650E-08
390.000	1.0650E-08	410.000	1.0650E-08	430.000	1.0650E-08
447.500	1.0650E-08	460.000	1.0650E-08	469.000	1.0650E-08
475.500	1.0650E-08	480.000	1.0650E-08	483.500	1.0650E-08
486.000	1.0650E-08	487.500	1.0650E-08	488.500	1.0650E-08
489.000	1.0650E-08				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.3833E-02	0.300	6.9357E-02
0.600	9.0833E-02	1.000	1.0851E-01	1.500	1.3316E-01
2.200	1.5405E-01	3.000	1.7609E-01	4.000	2.2062E-01
5.500	2.7451E-01	7.500	3.0191E-01	9.500	3.6718E-01
12.000	4.2640E-01	14.500	2.5407E-01	17.500	2.8540E-02
20.000	9.4358E-03	23.000	3.2497E-03	25.500	1.2178E-03
27.500	5.3859E-04	29.000	2.5906E-04	30.000	1.6078E-04
31.000	1.2579E-04	32.000	1.2382E-04	33.500	1.0528E-04
35.000	8.7705E-05	37.000	8.1040E-05	40.000	4.3854E-05
42.000	2.3309E-05	44.000	1.1710E-05	45.000	6.3838E-06
46.000	5.2271E-06	47.000	4.2819E-06	48.000	5.2660E-06
50.000	4.7762E-06	52.000	3.2780E-06	54.000	2.8473E-06
57.000	1.5794E-06	58.500	8.4947E-07	60.000	5.9179E-07
61.000	4.3062E-07	62.000	4.0132E-07	63.000	4.8035E-07
64.500	5.7033E-07	66.000	7.0184E-07	68.000	1.1730E-06
71.000	2.0194E-06	74.000	3.1741E-06	77.000	5.2120E-06
80.000	8.7386E-06	83.000	1.4806E-05	86.000	2.1021E-05

December 2023

88.000	1.8162E-05	89.000	1.4559E-05	90.000	1.7492E-05
91.000	2.1008E-05	92.000	3.7835E-05	94.000	7.2374E-05
96.000	1.3005E-04	99.000	2.6694E-04	102.000	4.5947E-04
105.000	9.2355E-04	109.000	2.4021E-03	114.000	5.0231E-03
117.000	5.4153E-03	119.000	6.4157E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP3 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP154_.inp
Results File: C:\A\TP154_1957.res
Date of Run: 08 Jun 2021
Time of Run: 15:03:45.00
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.527E+01	0.4238	293.15	2	1.000E-01	1.517E+01	0.4240
3	3.000E-01	1.498E+01	0.4244	293.15	4	6.000E-01	1.472E+01	0.4249
5	1.000E+00	1.443E+01	0.4255	293.15	6	1.500E+00	1.416E+01	0.4261
7	2.200E+00	1.401E+01	0.4265	293.15	8	3.000E+00	1.430E+01	0.4258
9	4.000E+00	1.576E+01	0.4228	293.15	10	5.500E+00	2.300E+01	0.4103
11	7.500E+00	4.657E+01	0.3858	293.15	12	9.500E+00	6.316E+01	0.3750
13	1.200E+01	9.190E+01	0.3619	293.15	14	1.450E+01	9.856E+02	0.2863
15	1.750E+01	2.133E+04	0.2103	293.15	16	2.000E+01	3.033E+04	0.2030
17	2.300E+01	3.564E+04	0.1998	293.15	18	2.550E+01	3.785E+04	0.1986
19	2.750E+01	3.881E+04	0.1981	293.15	20	2.900E+01	3.924E+04	0.1979
21	3.000E+01	3.944E+04	0.1978	293.15	22	3.100E+01	3.959E+04	0.1977
23	3.200E+01	3.970E+04	0.1976	293.15	24	3.350E+01	3.981E+04	0.1976
25	3.500E+01	3.987E+04	0.1975	293.15	26	3.700E+01	3.993E+04	0.1975
27	4.000E+01	3.996E+04	0.1975	293.15	28	4.200E+01	3.998E+04	0.1975
29	4.400E+01	3.998E+04	0.1975	293.15	30	4.500E+01	3.999E+04	0.1975
31	4.600E+01	3.999E+04	0.1975	293.15	32	4.700E+01	3.999E+04	0.1975
33	4.800E+01	3.999E+04	0.1975	293.15	34	5.000E+01	4.000E+04	0.1975
35	5.200E+01	4.000E+04	0.1975	293.15	36	5.400E+01	4.000E+04	0.1975
37	5.700E+01	4.000E+04	0.1975	293.15	38	5.850E+01	4.000E+04	0.1975
39	6.000E+01	4.000E+04	0.1975	293.15	40	6.100E+01	4.000E+04	0.1975
41	6.200E+01	4.000E+04	0.1975	293.15	42	6.300E+01	4.000E+04	0.1975
43	6.450E+01	4.000E+04	0.1975	293.15	44	6.600E+01	4.000E+04	0.1975
45	6.800E+01	4.000E+04	0.1975	293.15	46	7.100E+01	4.000E+04	0.1975
47	7.400E+01	4.000E+04	0.1975	293.15	48	7.700E+01	4.000E+04	0.1975
49	8.000E+01	3.999E+04	0.1975	293.15	50	8.300E+01	3.999E+04	0.1975
51	8.600E+01	3.998E+04	0.1975	293.15	52	8.800E+01	3.997E+04	0.1975
53	8.900E+01	3.997E+04	0.1975	293.15	54	9.000E+01	3.996E+04	0.1975
55	9.100E+01	3.996E+04	0.1975	293.15	56	9.200E+01	3.995E+04	0.1975
57	9.400E+01	3.992E+04	0.1975	293.15	58	9.600E+01	3.989E+04	0.1975

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59 9.900E+01 3.981E+04 0.1976 293.15	60 1.020E+02 3.968E+04 0.1976 293.15
61 1.050E+02 3.946E+04 0.1977 293.15	62 1.090E+02 3.891E+04 0.1980 293.15
63 1.140E+02 3.741E+04 0.1988 293.15	64 1.170E+02 3.547E+04 0.1999 293.15
65 1.190E+02 3.364E+04 0.2009 293.15	66 1.210E+02 3.142E+04 0.2023 293.15
67 1.220E+02 3.022E+04 0.2031 293.15	68 1.230E+02 2.898E+04 0.2040 293.15
69 1.245E+02 2.710E+04 0.2053 293.15	70 1.260E+02 2.525E+04 0.2068 293.15
71 1.280E+02 2.289E+04 0.2089 293.15	72 1.305E+02 2.015E+04 0.2115 293.15
73 1.325E+02 1.817E+04 0.2138 293.15	74 1.350E+02 1.599E+04 0.2165 293.15
75 1.400E+02 1.278E+04 0.2214 293.15	76 1.450E+02 1.111E+04 0.2246 293.15
77 1.480E+02 1.058E+04 0.2257 293.15	78 1.500E+02 1.036E+04 0.2262 293.15
79 1.514E+02 1.025E+04 0.2264 293.15	80 1.524E+02 1.019E+04 0.2265 293.15
81 1.530E+02 1.016E+04 0.2266 293.15	82 1.540E+02 1.012E+04 0.2267 293.15
83 1.600E+02 1.003E+04 0.2269 293.15	84 1.650E+02 1.001E+04 0.2269 293.15
85 1.700E+02 1.000E+04 0.2270 293.15	86 1.750E+02 1.000E+04 0.2270 293.15
87 1.780E+02 1.000E+04 0.2270 293.15	88 1.800E+02 1.000E+04 0.2270 293.15
89 1.810E+02 1.000E+04 0.2270 293.15	90 1.820E+02 1.000E+04 0.2270 293.15
91 1.830E+02 1.000E+04 0.2270 293.15	92 1.840E+02 1.000E+04 0.2270 293.15
93 1.850E+02 1.000E+04 0.2270 293.15	94 1.870E+02 1.000E+04 0.2270 293.15
95 1.900E+02 1.000E+04 0.2270 293.15	96 1.950E+02 1.000E+04 0.2270 293.15
97 2.020E+02 1.000E+04 0.2270 293.15	98 2.100E+02 1.000E+04 0.2270 293.15
99 2.200E+02 1.000E+04 0.2270 293.15	100 2.350E+02 1.000E+04 0.2270 293.15
101 2.400E+02 1.000E+04 0.2270 293.15	102 2.600E+02 1.000E+04 0.2270 293.15
103 2.800E+02 1.000E+04 0.2270 293.15	104 3.000E+02 1.000E+04 0.2270 293.15
105 3.200E+02 1.000E+04 0.2270 293.15	106 3.400E+02 1.000E+04 0.2270 293.15
107 3.600E+02 1.000E+04 0.2270 293.15	108 3.800E+02 1.000E+04 0.2270 293.15
109 4.000E+02 1.000E+04 0.2270 293.15	110 4.200E+02 1.000E+04 0.2270 293.15
111 4.400E+02 1.000E+04 0.2270 293.15	112 4.550E+02 1.000E+04 0.2270 293.15
113 4.650E+02 1.000E+04 0.2270 293.15	114 4.730E+02 1.000E+04 0.2270 293.15
115 4.780E+02 1.000E+04 0.2270 293.15	116 4.820E+02 1.000E+04 0.2270 293.15
117 4.850E+02 1.000E+04 0.2270 293.15	118 4.870E+02 1.000E+04 0.2270 293.15
119 4.880E+02 1.000E+04 0.2270 293.15	120 4.890E+02 1.000E+04 0.2270 293.15

Initial Water Storage = 110.0710 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.37887
Head (cm) = 5.66466E+01

December 2023

LiqWater Flow (cm)=-4.20373E-02
IsoVapor Flow (cm)=-1.67620E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

110.0710+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 110.0267 vs. 110.0267

Mass Balance = -1.8825E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.34369
Head (cm) = 1.56626E+02
LiqWater Flow (cm)=-4.64206E-02
IsoVapor Flow (cm)=-8.40479E-03
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

110.7873+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 110.7288 vs. 110.7288

Mass Balance = -1.1117E-05 cm; Time step attempts = 28 and successes = 26

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 2.8205E+00 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 1.1842E+01 [cm]
 Evaporation during Growth = 7.2923E+00 [cm]
 Total Runoff = 3.5791E+01 [cm]
 Total Infiltration = 1.4907E+01 [cm]
 Total Basal Liquid Flux (drainage) = 1.0650E-08 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 1.1073E+02 [cm]
 Mass Balance Error = -4.1266E-01 [cm]
 Total Successful Time Steps = 107824
 Total Attempted Time Steps = 165945
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 58784
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	3.0656E+00	0.050	6.0253E+00	0.200	4.4418E+00
0.450	3.6520E+00	0.800	3.3525E+00	1.250	3.2118E+00
1.850	3.0887E+00	2.600	2.9474E+00	3.500	2.7913E+00
4.750	2.5970E+00	6.500	2.3597E+00	8.500	2.1306E+00
10.750	1.8936E+00	13.250	1.5927E+00	16.000	9.6377E-01
18.750	1.9785E-01	21.500	1.4768E-03	24.250	1.5604E-04
26.500	6.0897E-05	28.250	3.3084E-05	29.500	2.2126E-05
30.500	1.6107E-05	31.500	1.1830E-05	32.750	8.0182E-06
34.250	5.1665E-06	36.000	3.0962E-06	38.500	1.4926E-06
41.000	7.9735E-07	43.000	4.8175E-07	44.500	3.4501E-07
45.500	2.7607E-07	46.500	2.2436E-08	47.500	1.8467E-09
49.000	1.3945E-09	51.000	1.0382E-09	53.000	8.2484E-10
55.500	6.6260E-10	57.750	5.8644E-10	59.250	5.4895E-10
60.500	5.2495E-10	61.500	5.0842E-10	62.500	4.9377E-10
63.750	4.7700E-10	65.250	4.5804E-10	67.000	4.3534E-10
69.500	3.9766E-10	72.500	3.3113E-10	75.500	2.2311E-10
78.500	4.1215E-11	81.500	-2.6861E-10	84.500	-7.9752E-10
87.000	-1.5488E-09	88.500	-2.1954E-09	89.500	-2.7122E-09
90.500	-3.3308E-09	91.500	-4.0705E-09	93.000	-5.3971E-09
95.000	-7.9061E-09	97.500	-1.2363E-08	100.500	-2.1327E-08

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103.500	-3.6472E-08	107.000	-6.6817E-08	111.500	-1.4835E-07
115.500	-3.3155E-07	118.000	-5.6523E-07	120.000	-9.1441E-07
121.500	-1.0332E-06	122.500	-1.1230E-06	123.750	-1.2485E-06
125.250	-1.4170E-06	127.000	-1.6429E-06	129.250	-1.9736E-06
131.500	-2.3242E-06	133.750	-2.6641E-06	137.500	-2.9752E-06
142.500	-2.4761E-06	146.500	-1.6823E-06	149.000	-1.1690E-06
150.700	-8.7418E-07	151.900	-7.0138E-07	152.700	-6.0366E-07
153.500	-5.1516E-07	157.000	-1.8817E-07	162.500	-4.2467E-08
167.500	-3.0430E-09	172.500	7.4636E-09	176.500	9.6454E-09
179.000	1.0197E-08	180.500	1.0371E-08	181.500	1.0454E-08
182.500	1.0513E-08	183.500	1.0554E-08	184.500	1.0583E-08
186.000	1.0613E-08	188.500	1.0636E-08	192.500	1.0647E-08
198.500	1.0650E-08	206.000	1.0650E-08	215.000	1.0650E-08
227.500	1.0650E-08	237.500	1.0650E-08	250.000	1.0650E-08
270.000	1.0650E-08	290.000	1.0650E-08	310.000	1.0650E-08
330.000	1.0650E-08	350.000	1.0650E-08	370.000	1.0650E-08
390.000	1.0650E-08	410.000	1.0650E-08	430.000	1.0650E-08
447.500	1.0650E-08	460.000	1.0650E-08	469.000	1.0650E-08
475.500	1.0650E-08	480.000	1.0650E-08	483.500	1.0650E-08
486.000	1.0650E-08	487.500	1.0650E-08	488.500	1.0650E-08
489.000	1.0650E-08				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.3658E-02	0.300	6.9041E-02
0.600	9.0592E-02	1.000	1.0660E-01	1.500	1.2945E-01
2.200	1.4430E-01	3.000	1.5673E-01	4.000	1.9219E-01
5.500	2.2849E-01	7.500	2.1340E-01	9.500	2.1700E-01
12.000	2.6194E-01	14.500	3.9439E-01	17.500	4.0521E-01
20.000	1.1097E-01	23.000	2.1096E-02	25.500	6.8856E-03
27.500	2.7984E-03	29.000	1.2610E-03	30.000	7.4639E-04
31.000	5.5510E-04	32.000	5.1738E-04	33.500	4.0314E-04
35.000	3.0502E-04	37.000	2.4570E-04	40.000	1.0995E-04
42.000	5.1220E-05	44.000	2.2824E-05	45.000	1.1728E-05
46.000	9.0849E-06	47.000	7.0661E-06	48.000	8.2787E-06
50.000	6.9524E-06	52.000	4.4818E-06	54.000	3.6922E-06
57.000	1.9266E-06	58.500	1.0036E-06	60.000	6.7740E-07
61.000	4.8289E-07	62.000	4.4156E-07	63.000	5.1994E-07
64.500	6.0676E-07	66.000	7.4127E-07	68.000	1.2441E-06
71.000	2.1882E-06	74.000	3.5215E-06	77.000	5.8887E-06
80.000	9.9955E-06	83.000	1.7062E-05	86.000	2.4314E-05

December 2023

88.000	2.1014E-05	89.000	1.6835E-05	90.000	2.0208E-05
91.000	2.4235E-05	92.000	4.3568E-05	94.000	8.2945E-05
96.000	1.4803E-04	99.000	2.9986E-04	102.000	5.0697E-04
105.000	9.9734E-04	109.000	2.5181E-03	114.000	5.0787E-03
117.000	5.3596E-03	119.000	6.2763E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

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Sensitivity Analysis #1: Soil Sample TP3 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is C:\A\TP154_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                110.986
 1 22.530 135.832  3.711  5.283 14.884  0.000 109.874  42462 -0.23658
 2 22.530 135.832  2.866  5.653 14.822  0.000 109.313  71455 -0.24987
 3 22.530 135.832  2.485  5.588 14.929  0.000 109.061  48127 -0.22040
 4 22.530 135.832  2.323  5.596 14.869  0.000 109.025  56942 -0.22177
 5 22.530 135.832  2.318  5.627 14.858  0.000 108.957  40899 -0.20513
 6 22.530 135.832  2.303  5.592 14.860  0.000 108.932  56139 -0.20086
 7 22.530 135.832  2.297  5.639 14.834  0.000 108.915  56787 -0.22415
 8 22.530 135.832  2.315  5.603 14.900  0.000 108.826  40151 -0.19992
 9 22.530 135.832  2.278  5.583 14.890  0.000 108.810  51948 -0.20578
10 22.530 135.832  2.259  5.583 14.975  0.000 108.763  59299 -0.23970
11 50.698 113.700  2.686 11.226 35.847  0.000 110.071  69246 -0.36875
12 50.698 113.759  2.820 11.842 35.791  0.000 110.729 107824 -0.41266
-----
SUM= 326.6951585.780 30.661 78.817 220.460  0.000                -2.98558
```


Sensitivity Analysis #1: Soil Sample Grand Junction (Alluvium) Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_A.inp

Results File: c:\a\gj_a1955.res

Date of Run: 07 Dec 2021

Time of Run: 08:47:06.58

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.640E+02	0.2106	293.15	2	1.000E-01	7.698E+02	0.2223
3	3.000E-01	8.121E+02	0.2195	293.15	4	6.000E-01	8.091E+02	0.2197
5	1.000E+00	8.052E+02	0.2199	293.15	6	1.500E+00	8.011E+02	0.2202
7	2.200E+00	7.948E+02	0.2206	293.15	8	3.000E+00	7.871E+02	0.2211
9	4.000E+00	7.772E+02	0.2218	293.15	10	5.500E+00	7.634E+02	0.2227
11	7.500E+00	7.496E+02	0.2237	293.15	12	9.500E+00	7.429E+02	0.2242
13	1.200E+01	7.446E+02	0.2241	293.15	14	1.450E+01	7.563E+02	0.2232
15	1.750E+01	7.820E+02	0.2215	293.15	16	2.000E+01	8.120E+02	0.2195
17	2.300E+01	8.577E+02	0.2166	293.15	18	2.550E+01	9.022E+02	0.2140
19	2.750E+01	9.408E+02	0.2118	293.15	20	2.900E+01	9.706E+02	0.2102
21	3.000E+01	9.906E+02	0.2092	293.15	22	3.100E+01	1.010E+03	0.2082
23	3.200E+01	1.030E+03	0.2072	293.15	24	3.350E+01	1.058E+03	0.2059
25	3.500E+01	1.085E+03	0.2046	293.15	26	3.700E+01	1.118E+03	0.2032
27	4.000E+01	1.159E+03	0.2014	293.15	28	4.200E+01	1.183E+03	0.2003
29	4.400E+01	1.205E+03	0.1995	293.15	30	4.500E+01	1.215E+03	0.1991
31	4.600E+01	1.225E+03	0.1987	293.15	32	4.700E+01	1.258E+03	0.1974
33	4.800E+01	1.378E+03	0.1930	293.15	34	5.000E+01	1.738E+03	0.1823
35	5.200E+01	2.480E+03	0.1670	293.15	36	5.400E+01	4.703E+03	0.1425
37	5.700E+01	1.135E+04	0.1144	293.15	38	5.850E+01	1.419E+04	0.1082
39	6.000E+01	1.614E+04	0.1048	293.15	40	6.100E+01	1.739E+04	0.1028
41	6.200E+01	1.871E+04	0.1010	293.15	42	6.300E+01	2.013E+04	0.0991
43	6.450E+01	2.241E+04	0.0965	293.15	44	6.600E+01	2.477E+04	0.0941
45	6.800E+01	2.782E+04	0.0914	293.15	46	7.100E+01	3.171E+04	0.0885
47	7.400E+01	3.452E+04	0.0866	293.15	48	7.700E+01	3.640E+04	0.0855
49	8.000E+01	3.762E+04	0.0848	293.15	50	8.300E+01	3.839E+04	0.0844
51	8.600E+01	3.887E+04	0.0841	293.15	52	8.800E+01	3.908E+04	0.0840
53	8.900E+01	3.915E+04	0.0839	293.15	54	9.000E+01	3.921E+04	0.0839
55	9.100E+01	3.926E+04	0.0839	293.15	56	9.200E+01	3.929E+04	0.0839
57	9.400E+01	3.931E+04	0.0839	293.15	58	9.600E+01	3.929E+04	0.0839

December 2023

59 9.900E+01 3.915E+04 0.0839 293.15	60 1.020E+02 3.888E+04 0.0841 293.15
61 1.050E+02 3.843E+04 0.0843 293.15	62 1.090E+02 3.741E+04 0.0849 293.15
63 1.140E+02 3.497E+04 0.0863 293.15	64 1.170E+02 3.236E+04 0.0880 293.15
65 1.190E+02 3.014E+04 0.0896 293.15	66 1.210E+02 2.765E+04 0.0916 293.15
67 1.220E+02 2.639E+04 0.0926 293.15	68 1.230E+02 2.514E+04 0.0938 293.15
69 1.245E+02 2.335E+04 0.0955 293.15	70 1.260E+02 2.171E+04 0.0973 293.15
71 1.280E+02 1.978E+04 0.0996 293.15	72 1.305E+02 1.781E+04 0.1022 293.15
73 1.325E+02 1.652E+04 0.1041 293.15	74 1.350E+02 1.522E+04 0.1063 293.15
75 1.400E+02 1.336E+04 0.1098 293.15	76 1.450E+02 1.218E+04 0.1124 293.15
77 1.480E+02 1.169E+04 0.1135 293.15	78 1.500E+02 1.142E+04 0.1142 293.15
79 1.514E+02 1.125E+04 0.1146 293.15	80 1.524E+02 1.115E+04 0.1149 293.15
81 1.530E+02 1.109E+04 0.1150 293.15	82 1.540E+02 1.100E+04 0.1153 293.15
83 1.600E+02 1.058E+04 0.1164 293.15	84 1.650E+02 1.037E+04 0.1170 293.15
85 1.700E+02 1.023E+04 0.1174 293.15	86 1.750E+02 1.014E+04 0.1176 293.15
87 1.780E+02 1.010E+04 0.1178 293.15	88 1.800E+02 1.008E+04 0.1178 293.15
89 1.810E+02 1.007E+04 0.1178 293.15	90 1.820E+02 1.006E+04 0.1179 293.15
91 1.830E+02 1.006E+04 0.1179 293.15	92 1.840E+02 1.005E+04 0.1179 293.15
93 1.850E+02 1.005E+04 0.1179 293.15	94 1.870E+02 1.004E+04 0.1179 293.15
95 1.900E+02 1.002E+04 0.1180 293.15	96 1.950E+02 1.001E+04 0.1180 293.15
97 2.020E+02 1.001E+04 0.1180 293.15	98 2.100E+02 1.000E+04 0.1180 293.15
99 2.200E+02 1.000E+04 0.1180 293.15	100 2.350E+02 1.000E+04 0.1181 293.15
101 2.400E+02 1.000E+04 0.1181 293.15	102 2.600E+02 1.000E+04 0.1181 293.15
103 2.800E+02 1.000E+04 0.1181 293.15	104 3.000E+02 1.000E+04 0.1181 293.15
105 3.200E+02 1.000E+04 0.1181 293.15	106 3.400E+02 1.000E+04 0.1181 293.15
107 3.600E+02 1.000E+04 0.1181 293.15	108 3.800E+02 1.000E+04 0.1181 293.15
109 4.000E+02 1.000E+04 0.1181 293.15	110 4.200E+02 1.000E+04 0.1181 293.15
111 4.400E+02 1.000E+04 0.1181 293.15	112 4.550E+02 1.000E+04 0.1181 293.15
113 4.650E+02 1.000E+04 0.1181 293.15	114 4.730E+02 1.000E+04 0.1181 293.15
115 4.780E+02 1.000E+04 0.1181 293.15	116 4.820E+02 1.000E+04 0.1181 293.15
117 4.850E+02 1.000E+04 0.1181 293.15	118 4.870E+02 1.000E+04 0.1181 293.15
119 4.880E+02 1.000E+04 0.1181 293.15	120 4.890E+02 1.000E+04 0.1181 293.15

Initial Water Storage = 60.3263 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.20172
Head (cm) = 1.15054E+03

December 2023

LiqWater Flow (cm)=-6.79398E-02
IsoVapor Flow (cm)=-1.71068E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

60.3263+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 60.2579 vs. 60.2579

Mass Balance = -1.5992E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.21057
Head (cm) = 9.64063E+02
LiqWater Flow (cm)=-3.95874E-02
IsoVapor Flow (cm)=-1.26934E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

60.3265+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 60.2868 vs. 60.2868

Mass Balance = -9.5220E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

December 2023

Potential Transpiration = 1.6719E+01 [cm]
 Actual Transpiration = 5.2341E+00 [cm]
 Potential Evaporation = 1.1911E+02 [cm]
 Actual Evaporation = 1.7340E+01 [cm]
 Evaporation during Growth = 1.0069E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 9.4688E-05 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.0287E+01 [cm]
 Mass Balance Error = -4.6467E-03 [cm]
 Total Successful Time Steps = 11430
 Total Attempted Time Steps = 12783
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6675
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	5.1901E+00	0.050	7.0256E+00	0.200	6.1257E+00
0.450	5.4856E+00	0.800	5.1786E+00	1.250	5.0665E+00
1.850	4.9639E+00	2.600	4.8396E+00	3.500	4.6926E+00
4.750	4.4922E+00	6.500	4.2228E+00	8.500	3.9355E+00
10.750	3.6367E+00	13.250	3.3344E+00	16.000	3.0309E+00
18.750	2.7557E+00	21.500	2.5004E+00	24.250	2.2649E+00
26.500	2.0841E+00	28.250	1.9501E+00	29.500	1.8577E+00
30.500	1.7854E+00	31.500	1.7147E+00	32.750	1.6283E+00
34.250	1.5276E+00	36.000	1.4137E+00	38.500	1.2569E+00
41.000	1.1077E+00	43.000	9.9185E-01	44.500	9.0716E-01
45.500	8.5138E-01	46.500	7.9491E-01	47.500	7.3670E-01
49.000	6.5660E-01	51.000	5.5428E-01	53.000	4.5590E-01
55.500	3.3907E-01	57.750	2.4308E-01	59.250	1.8322E-01
60.500	1.3744E-01	61.500	1.0392E-01	62.500	7.4693E-02
63.750	4.6617E-02	65.250	2.6273E-02	67.000	1.4515E-02
69.500	7.2549E-03	72.500	3.6879E-03	75.500	2.0587E-03
78.500	1.2117E-03	81.500	7.3200E-04	84.500	4.4176E-04
87.000	2.8431E-04	88.500	2.1086E-04	89.500	1.6714E-04
90.500	1.2731E-04	91.500	9.0436E-05	93.000	3.8378E-05
95.000	-2.7285E-05	97.500	-1.1183E-04	100.500	-2.3409E-04

December 2023

103.500	-4.0291E-04	107.000	-7.0423E-04	111.500	-1.4509E-03
115.500	-3.0139E-03	118.000	-4.9745E-03	120.000	-7.8295E-03
121.500	-8.8847E-03	122.500	-9.6104E-03	123.750	-1.0517E-02
125.250	-1.1554E-02	127.000	-1.2627E-02	129.250	-1.3668E-02
131.500	-1.4260E-02	133.750	-1.4371E-02	137.500	-1.3644E-02
142.500	-1.1773E-02	146.500	-1.0016E-02	149.000	-8.8881E-03
150.700	-8.1389E-03	151.900	-7.6248E-03	152.700	-7.2908E-03
153.500	-6.9609E-03	157.000	-5.5301E-03	162.500	-3.8218E-03
167.500	-2.6156E-03	172.500	-1.7205E-03	176.500	-1.2098E-03
179.000	-9.5353E-04	180.500	-8.2179E-04	181.500	-7.4067E-04
182.500	-6.6589E-04	183.500	-5.9706E-04	184.500	-5.3382E-04
186.000	-4.4677E-04	188.500	-3.2525E-04	192.500	-1.7794E-04
198.500	-4.2678E-05	206.000	3.8187E-05	215.000	7.6631E-05
227.500	9.1495E-05	237.500	9.3560E-05	250.000	9.4549E-05
270.000	9.4678E-05	290.000	9.4687E-05	310.000	9.4688E-05
330.000	9.4688E-05	350.000	9.4688E-05	370.000	9.4688E-05
390.000	9.4688E-05	410.000	9.4688E-05	430.000	9.4688E-05
447.500	9.4688E-05	460.000	9.4688E-05	469.000	9.4688E-05
475.500	9.4688E-05	480.000	9.4688E-05	483.500	9.4688E-05
486.000	9.4688E-05	487.500	9.4688E-05	488.500	9.4688E-05
489.000	9.4688E-05				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7389E-02	0.300	3.1248E-02
0.600	4.7046E-02	1.000	6.4458E-02	1.500	9.0255E-02
2.200	1.1697E-01	3.000	1.4253E-01	4.000	1.9714E-01
5.500	2.6725E-01	7.500	2.8610E-01	9.500	2.9824E-01
12.000	3.0181E-01	14.500	3.0339E-01	17.500	2.7514E-01
20.000	2.5531E-01	23.000	2.3549E-01	25.500	1.8074E-01
27.500	1.3390E-01	29.000	9.2349E-02	30.000	7.2218E-02
31.000	7.0636E-02	32.000	8.6411E-02	33.500	1.0051E-01
35.000	1.1383E-01	37.000	1.5669E-01	40.000	1.4912E-01
42.000	1.1589E-01	44.000	8.4761E-02	45.000	5.5889E-02
46.000	5.5342E-02	47.000	5.4540E-02	48.000	7.9590E-02
50.000	1.0137E-01	52.000	9.6724E-02	54.000	1.1399E-01
57.000	8.9717E-02	58.500	5.4125E-02	60.000	3.9284E-02
61.000	2.7815E-02	62.000	2.3853E-02	63.000	2.4752E-02
64.500	2.1561E-02	66.000	1.8105E-02	68.000	1.7263E-02
71.000	1.2388E-02	74.000	7.8164E-03	77.000	5.0650E-03
80.000	3.3365E-03	83.000	2.2418E-03	86.000	1.3016E-03

December 2023

88.000	6.3329E-04	89.000	3.8558E-04	90.000	3.5656E-04
91.000	3.3450E-04	92.000	4.7837E-04	94.000	6.1219E-04
96.000	7.9108E-04	99.000	1.1294E-03	102.000	1.4995E-03
105.000	2.4770E-03	109.000	5.2758E-03	114.000	9.0463E-03
117.000	8.6899E-03	119.000	9.5218E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Alluvium) Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_A.inp

Results File: c:\a\gj_a1956.res

Date of Run: 07 Dec 2021

Time of Run: 08:47:06.58

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.641E+02	0.2106	293.15	2	1.000E-01	7.698E+02	0.2223
3	3.000E-01	8.121E+02	0.2195	293.15	4	6.000E-01	8.091E+02	0.2197
5	1.000E+00	8.052E+02	0.2199	293.15	6	1.500E+00	8.011E+02	0.2202
7	2.200E+00	7.948E+02	0.2206	293.15	8	3.000E+00	7.871E+02	0.2211
9	4.000E+00	7.772E+02	0.2218	293.15	10	5.500E+00	7.635E+02	0.2227
11	7.500E+00	7.496E+02	0.2237	293.15	12	9.500E+00	7.429E+02	0.2242
13	1.200E+01	7.446E+02	0.2241	293.15	14	1.450E+01	7.563E+02	0.2232
15	1.750E+01	7.820E+02	0.2215	293.15	16	2.000E+01	8.120E+02	0.2195
17	2.300E+01	8.577E+02	0.2166	293.15	18	2.550E+01	9.023E+02	0.2140
19	2.750E+01	9.408E+02	0.2118	293.15	20	2.900E+01	9.706E+02	0.2102
21	3.000E+01	9.906E+02	0.2092	293.15	22	3.100E+01	1.010E+03	0.2082
23	3.200E+01	1.030E+03	0.2072	293.15	24	3.350E+01	1.058E+03	0.2059
25	3.500E+01	1.085E+03	0.2046	293.15	26	3.700E+01	1.118E+03	0.2032
27	4.000E+01	1.159E+03	0.2014	293.15	28	4.200E+01	1.183E+03	0.2003
29	4.400E+01	1.205E+03	0.1995	293.15	30	4.500E+01	1.215E+03	0.1991
31	4.600E+01	1.225E+03	0.1987	293.15	32	4.700E+01	1.258E+03	0.1974
33	4.800E+01	1.378E+03	0.1930	293.15	34	5.000E+01	1.738E+03	0.1823
35	5.200E+01	2.480E+03	0.1670	293.15	36	5.400E+01	4.705E+03	0.1425
37	5.700E+01	1.136E+04	0.1144	293.15	38	5.850E+01	1.420E+04	0.1082
39	6.000E+01	1.615E+04	0.1047	293.15	40	6.100E+01	1.741E+04	0.1028
41	6.200E+01	1.873E+04	0.1009	293.15	42	6.300E+01	2.015E+04	0.0991
43	6.450E+01	2.243E+04	0.0965	293.15	44	6.600E+01	2.480E+04	0.0941
45	6.800E+01	2.785E+04	0.0914	293.15	46	7.100E+01	3.173E+04	0.0885
47	7.400E+01	3.454E+04	0.0866	293.15	48	7.700E+01	3.642E+04	0.0855
49	8.000E+01	3.764E+04	0.0848	293.15	50	8.300E+01	3.841E+04	0.0844
51	8.600E+01	3.889E+04	0.0841	293.15	52	8.800E+01	3.909E+04	0.0840
53	8.900E+01	3.917E+04	0.0839	293.15	54	9.000E+01	3.923E+04	0.0839
55	9.100E+01	3.928E+04	0.0839	293.15	56	9.200E+01	3.932E+04	0.0839
57	9.400E+01	3.935E+04	0.0838	293.15	58	9.600E+01	3.933E+04	0.0839

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59 9.900E+01 3.920E+04 0.0839 293.15	60 1.020E+02 3.895E+04 0.0841 293.15
61 1.050E+02 3.852E+04 0.0843 293.15	62 1.090E+02 3.756E+04 0.0848 293.15
63 1.140E+02 3.525E+04 0.0862 293.15	64 1.170E+02 3.276E+04 0.0878 293.15
65 1.190E+02 3.063E+04 0.0893 293.15	66 1.210E+02 2.825E+04 0.0911 293.15
67 1.220E+02 2.703E+04 0.0921 293.15	68 1.230E+02 2.582E+04 0.0932 293.15
69 1.245E+02 2.407E+04 0.0948 293.15	70 1.260E+02 2.244E+04 0.0965 293.15
71 1.280E+02 2.052E+04 0.0987 293.15	72 1.305E+02 1.850E+04 0.1012 293.15
73 1.325E+02 1.717E+04 0.1031 293.15	74 1.350E+02 1.580E+04 0.1053 293.15
75 1.400E+02 1.382E+04 0.1089 293.15	76 1.450E+02 1.253E+04 0.1116 293.15
77 1.480E+02 1.198E+04 0.1128 293.15	78 1.500E+02 1.168E+04 0.1136 293.15
79 1.514E+02 1.150E+04 0.1140 293.15	80 1.524E+02 1.138E+04 0.1143 293.15
81 1.530E+02 1.131E+04 0.1145 293.15	82 1.540E+02 1.121E+04 0.1147 293.15
83 1.600E+02 1.073E+04 0.1160 293.15	84 1.650E+02 1.048E+04 0.1167 293.15
85 1.700E+02 1.030E+04 0.1172 293.15	86 1.750E+02 1.019E+04 0.1175 293.15
87 1.780E+02 1.014E+04 0.1176 293.15	88 1.800E+02 1.012E+04 0.1177 293.15
89 1.810E+02 1.011E+04 0.1177 293.15	90 1.820E+02 1.010E+04 0.1178 293.15
91 1.830E+02 1.009E+04 0.1178 293.15	92 1.840E+02 1.008E+04 0.1178 293.15
93 1.850E+02 1.007E+04 0.1178 293.15	94 1.870E+02 1.006E+04 0.1179 293.15
95 1.900E+02 1.004E+04 0.1179 293.15	96 1.950E+02 1.002E+04 0.1180 293.15
97 2.020E+02 1.001E+04 0.1180 293.15	98 2.100E+02 1.000E+04 0.1180 293.15
99 2.200E+02 1.000E+04 0.1180 293.15	100 2.350E+02 1.000E+04 0.1180 293.15
101 2.400E+02 1.000E+04 0.1181 293.15	102 2.600E+02 1.000E+04 0.1181 293.15
103 2.800E+02 1.000E+04 0.1181 293.15	104 3.000E+02 1.000E+04 0.1181 293.15
105 3.200E+02 1.000E+04 0.1181 293.15	106 3.400E+02 1.000E+04 0.1181 293.15
107 3.600E+02 1.000E+04 0.1181 293.15	108 3.800E+02 1.000E+04 0.1181 293.15
109 4.000E+02 1.000E+04 0.1181 293.15	110 4.200E+02 1.000E+04 0.1181 293.15
111 4.400E+02 1.000E+04 0.1181 293.15	112 4.550E+02 1.000E+04 0.1181 293.15
113 4.650E+02 1.000E+04 0.1181 293.15	114 4.730E+02 1.000E+04 0.1181 293.15
115 4.780E+02 1.000E+04 0.1181 293.15	116 4.820E+02 1.000E+04 0.1181 293.15
117 4.850E+02 1.000E+04 0.1181 293.15	118 4.870E+02 1.000E+04 0.1181 293.15
119 4.880E+02 1.000E+04 0.1181 293.15	120 4.890E+02 1.000E+04 0.1181 293.15

Initial Water Storage = 60.2868 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.20703
Head (cm) = 1.03392E+03

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LiqWater Flow (cm)=-4.41125E-02
IsoVapor Flow (cm)=-1.03791E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

60.2868+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 60.2425 vs. 60.2425

Mass Balance = -8.1838E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.25698
Head (cm) = 4.15063E+02
LiqWater Flow (cm)= 4.31085E-04
IsoVapor Flow (cm)=-7.51728E-06
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

64.2622+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 64.2622 vs. 64.2622

Mass Balance = -2.3724E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 7.9501E+00 [cm]
 Potential Evaporation = 9.9853E+01 [cm]
 Actual Evaporation = 3.8780E+01 [cm]
 Evaporation during Growth = 2.4765E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 9.4947E-05 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.4262E+01 [cm]
 Mass Balance Error = -7.1568E-03 [cm]
 Total Successful Time Steps = 12869
 Total Attempted Time Steps = 14670
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3724
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.1918E+01	0.050	1.3785E+01	0.200	1.2365E+01
0.450	1.1888E+01	0.800	1.1780E+01	1.250	1.1677E+01
1.850	1.1540E+01	2.600	1.1368E+01	3.500	1.1162E+01
4.750	1.0879E+01	6.500	1.0496E+01	8.500	1.0081E+01
10.750	9.6424E+00	13.250	9.1947E+00	16.000	8.7412E+00
18.750	8.3279E+00	21.500	7.9424E+00	24.250	7.5835E+00
26.500	7.3030E+00	28.250	7.0908E+00	29.500	6.9416E+00
30.500	6.8232E+00	31.500	6.7055E+00	32.750	6.5592E+00
34.250	6.3847E+00	36.000	6.1819E+00	38.500	5.8930E+00
41.000	5.6047E+00	43.000	5.3742E+00	44.500	5.2013E+00
45.500	5.0860E+00	46.500	4.9706E+00	47.500	4.8539E+00
49.000	4.6717E+00	51.000	4.4060E+00	53.000	4.1098E+00
55.500	3.6795E+00	57.750	3.2353E+00	59.250	2.9350E+00
60.500	2.6857E+00	61.500	2.4884E+00	62.500	2.2931E+00
63.750	2.0534E+00	65.250	1.7719E+00	67.000	1.4549E+00
69.500	1.0315E+00	72.500	6.0070E-01	75.500	2.7561E-01
78.500	4.6502E-02	81.500	3.1701E-03	84.500	9.0944E-04
87.000	4.6109E-04	88.500	3.1465E-04	89.500	2.3908E-04
90.500	1.7775E-04	91.500	1.2627E-04	93.000	5.9337E-05
95.000	-1.6275E-05	97.500	-1.0749E-04	100.500	-2.3402E-04

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103.500	-4.0546E-04	107.000	-7.0687E-04	111.500	-1.4362E-03
115.500	-2.8987E-03	118.000	-4.6470E-03	120.000	-7.0635E-03
121.500	-8.0108E-03	122.500	-8.6728E-03	123.750	-9.5135E-03
125.250	-1.0496E-02	127.000	-1.1552E-02	129.250	-1.2649E-02
131.500	-1.3369E-02	133.750	-1.3666E-02	137.500	-1.3299E-02
142.500	-1.1830E-02	146.500	-1.0294E-02	149.000	-9.2647E-03
150.700	-8.5662E-03	151.900	-8.0806E-03	152.700	-7.7625E-03
153.500	-7.4463E-03	157.000	-6.0589E-03	162.500	-4.3387E-03
167.500	-3.0800E-03	172.500	-2.1117E-03	176.500	-1.5384E-03
179.000	-1.2436E-03	180.500	-1.0895E-03	181.500	-9.9382E-04
182.500	-9.0482E-04	183.500	-8.2219E-04	184.500	-7.4557E-04
186.000	-6.3913E-04	188.500	-4.8772E-04	192.500	-2.9871E-04
198.500	-1.1615E-04	206.000	1.1396E-06	215.000	6.1973E-05
227.500	8.8337E-05	237.500	9.2437E-05	250.000	9.4594E-05
270.000	9.4918E-05	290.000	9.4945E-05	310.000	9.4947E-05
330.000	9.4947E-05	350.000	9.4947E-05	370.000	9.4947E-05
390.000	9.4947E-05	410.000	9.4947E-05	430.000	9.4947E-05
447.500	9.4947E-05	460.000	9.4947E-05	469.000	9.4947E-05
475.500	9.4947E-05	480.000	9.4947E-05	483.500	9.4947E-05
486.000	9.4947E-05	487.500	9.4947E-05	488.500	9.4947E-05
489.000	9.4947E-05				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.5294E-02	0.300	4.4440E-02
0.600	6.4920E-02	1.000	8.6478E-02	1.500	1.1836E-01
2.200	1.5062E-01	3.000	1.8167E-01	4.000	2.5061E-01
5.500	3.4192E-01	7.500	3.7169E-01	9.500	3.9439E-01
12.000	4.0471E-01	14.500	4.1190E-01	17.500	3.7776E-01
20.000	3.5357E-01	23.000	3.2920E-01	25.500	2.5551E-01
27.500	1.9135E-01	29.000	1.3317E-01	30.000	1.0482E-01
31.000	1.0322E-01	32.000	1.2715E-01	33.500	1.4949E-01
35.000	1.7116E-01	37.000	2.3905E-01	40.000	2.3220E-01
42.000	1.8268E-01	44.000	1.3500E-01	45.000	8.9399E-02
46.000	8.8834E-02	47.000	8.8305E-02	48.000	1.3169E-01
50.000	1.7356E-01	52.000	1.7128E-01	54.000	2.1069E-01
57.000	1.8340E-01	58.500	1.1919E-01	60.000	9.5334E-02
61.000	7.3522E-02	62.000	7.0532E-02	63.000	8.4022E-02
64.500	9.2176E-02	66.000	9.5537E-02	68.000	1.0859E-01
71.000	6.8572E-02	74.000	2.3286E-02	77.000	8.4160E-03
80.000	3.9260E-03	83.000	2.2156E-03	86.000	1.1916E-03

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88.000	5.6388E-04	89.000	3.3984E-04	90.000	3.1169E-04
91.000	2.9039E-04	92.000	4.1275E-04	94.000	5.2285E-04
96.000	6.7007E-04	99.000	9.4890E-04	102.000	1.2553E-03
105.000	2.0706E-03	109.000	4.4034E-03	114.000	7.5044E-03
117.000	7.1213E-03	119.000	7.6866E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Alluvium) Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_A.inp

Results File: c:\a\gj_a1957.res

Date of Run: 07 Dec 2021

Time of Run: 08:47:06.58

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	4.151E+02	0.2570	293.15	2	1.000E-01	5.159E+02	0.2444
3	3.000E-01	4.993E+02	0.2463	293.15	4	6.000E-01	4.880E+02	0.2476
5	1.000E+00	4.907E+02	0.2473	293.15	6	1.500E+00	4.906E+02	0.2473
7	2.200E+00	4.910E+02	0.2472	293.15	8	3.000E+00	4.921E+02	0.2471
9	4.000E+00	4.942E+02	0.2468	293.15	10	5.500E+00	4.991E+02	0.2463
11	7.500E+00	5.090E+02	0.2452	293.15	12	9.500E+00	5.227E+02	0.2436
13	1.200E+01	5.454E+02	0.2412	293.15	14	1.450E+01	5.743E+02	0.2383
15	1.750E+01	6.163E+02	0.2344	293.15	16	2.000E+01	6.547E+02	0.2311
17	2.300E+01	7.000E+02	0.2274	293.15	18	2.550E+01	7.312E+02	0.2251
19	2.750E+01	7.494E+02	0.2237	293.15	20	2.900E+01	7.586E+02	0.2231
21	3.000E+01	7.627E+02	0.2228	293.15	22	3.100E+01	7.653E+02	0.2226
23	3.200E+01	7.665E+02	0.2225	293.15	24	3.350E+01	7.662E+02	0.2226
25	3.500E+01	7.638E+02	0.2227	293.15	26	3.700E+01	7.586E+02	0.2231
27	4.000E+01	7.486E+02	0.2238	293.15	28	4.200E+01	7.419E+02	0.2243
29	4.400E+01	7.356E+02	0.2247	293.15	30	4.500E+01	7.327E+02	0.2249
31	4.600E+01	7.300E+02	0.2251	293.15	32	4.700E+01	7.240E+02	0.2256
33	4.800E+01	7.098E+02	0.2267	293.15	34	5.000E+01	6.892E+02	0.2283
35	5.200E+01	6.779E+02	0.2292	293.15	36	5.400E+01	6.748E+02	0.2294
37	5.700E+01	6.844E+02	0.2286	293.15	38	5.850E+01	6.956E+02	0.2277
39	6.000E+01	7.116E+02	0.2265	293.15	40	6.100E+01	7.251E+02	0.2255
41	6.200E+01	7.413E+02	0.2243	293.15	42	6.300E+01	7.603E+02	0.2230
43	6.450E+01	7.954E+02	0.2206	293.15	44	6.600E+01	8.401E+02	0.2177
45	6.800E+01	9.200E+02	0.2130	293.15	46	7.100E+01	1.113E+03	0.2033
47	7.400E+01	1.506E+03	0.1889	293.15	48	7.700E+01	2.690E+03	0.1637
49	8.000E+01	1.692E+04	0.1035	293.15	50	8.300E+01	3.339E+04	0.0874
51	8.600E+01	3.733E+04	0.0850	293.15	52	8.800E+01	3.832E+04	0.0844
53	8.900E+01	3.862E+04	0.0842	293.15	54	9.000E+01	3.884E+04	0.0841
55	9.100E+01	3.899E+04	0.0840	293.15	56	9.200E+01	3.910E+04	0.0840
57	9.400E+01	3.921E+04	0.0839	293.15	58	9.600E+01	3.923E+04	0.0839

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59 9.900E+01 3.912E+04 0.0840 293.15	60 1.020E+02 3.886E+04 0.0841 293.15
61 1.050E+02 3.841E+04 0.0844 293.15	62 1.090E+02 3.741E+04 0.0849 293.15
63 1.140E+02 3.511E+04 0.0863 293.15	64 1.170E+02 3.274E+04 0.0878 293.15
65 1.190E+02 3.075E+04 0.0892 293.15	66 1.210E+02 2.852E+04 0.0909 293.15
67 1.220E+02 2.738E+04 0.0918 293.15	68 1.230E+02 2.624E+04 0.0928 293.15
69 1.245E+02 2.458E+04 0.0943 293.15	70 1.260E+02 2.302E+04 0.0959 293.15
71 1.280E+02 2.114E+04 0.0979 293.15	72 1.305E+02 1.913E+04 0.1004 293.15
73 1.325E+02 1.777E+04 0.1023 293.15	74 1.350E+02 1.635E+04 0.1044 293.15
75 1.400E+02 1.426E+04 0.1080 293.15	76 1.450E+02 1.288E+04 0.1108 293.15
77 1.480E+02 1.227E+04 0.1122 293.15	78 1.500E+02 1.195E+04 0.1129 293.15
79 1.514E+02 1.174E+04 0.1134 293.15	80 1.524E+02 1.161E+04 0.1137 293.15
81 1.530E+02 1.154E+04 0.1139 293.15	82 1.540E+02 1.142E+04 0.1142 293.15
83 1.600E+02 1.089E+04 0.1156 293.15	84 1.650E+02 1.059E+04 0.1164 293.15
85 1.700E+02 1.039E+04 0.1169 293.15	86 1.750E+02 1.025E+04 0.1173 293.15
87 1.780E+02 1.019E+04 0.1175 293.15	88 1.800E+02 1.016E+04 0.1176 293.15
89 1.810E+02 1.015E+04 0.1176 293.15	90 1.820E+02 1.013E+04 0.1177 293.15
91 1.830E+02 1.012E+04 0.1177 293.15	92 1.840E+02 1.011E+04 0.1177 293.15
93 1.850E+02 1.010E+04 0.1178 293.15	94 1.870E+02 1.008E+04 0.1178 293.15
95 1.900E+02 1.006E+04 0.1179 293.15	96 1.950E+02 1.003E+04 0.1179 293.15
97 2.020E+02 1.002E+04 0.1180 293.15	98 2.100E+02 1.001E+04 0.1180 293.15
99 2.200E+02 1.000E+04 0.1180 293.15	100 2.350E+02 1.000E+04 0.1180 293.15
101 2.400E+02 1.000E+04 0.1180 293.15	102 2.600E+02 1.000E+04 0.1181 293.15
103 2.800E+02 1.000E+04 0.1181 293.15	104 3.000E+02 1.000E+04 0.1181 293.15
105 3.200E+02 1.000E+04 0.1181 293.15	106 3.400E+02 1.000E+04 0.1181 293.15
107 3.600E+02 1.000E+04 0.1181 293.15	108 3.800E+02 1.000E+04 0.1181 293.15
109 4.000E+02 1.000E+04 0.1181 293.15	110 4.200E+02 1.000E+04 0.1181 293.15
111 4.400E+02 1.000E+04 0.1181 293.15	112 4.550E+02 1.000E+04 0.1181 293.15
113 4.650E+02 1.000E+04 0.1181 293.15	114 4.730E+02 1.000E+04 0.1181 293.15
115 4.780E+02 1.000E+04 0.1181 293.15	116 4.820E+02 1.000E+04 0.1181 293.15
117 4.850E+02 1.000E+04 0.1181 293.15	118 4.870E+02 1.000E+04 0.1181 293.15
119 4.880E+02 1.000E+04 0.1181 293.15	120 4.890E+02 1.000E+04 0.1181 293.15

Initial Water Storage = 64.2622 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.24676
Head (cm) = 4.94967E+02

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LiqWater Flow (cm)=-4.37770E-02
IsoVapor Flow (cm)=-1.08847E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

64.2622+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 64.2179 vs. 64.2179

Mass Balance = -1.7041E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.25276
Head (cm) = 4.46178E+02
LiqWater Flow (cm)=-5.77680E-02
IsoVapor Flow (cm)=-1.42818E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

65.5413+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 65.4828 vs. 65.4828

Mass Balance = -3.7784E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 9.3419E+00 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 4.0142E+01 [cm]
 Evaporation during Growth = 2.6009E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 9.4947E-05 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.5483E+01 [cm]
 Mass Balance Error = -6.4348E-03 [cm]
 Total Successful Time Steps = 12697
 Total Attempted Time Steps = 14399
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3604
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	1.0556E+01	0.050	1.2135E+01	0.200	1.0878E+01
0.450	1.0533E+01	0.800	1.0439E+01	1.250	1.0350E+01
1.850	1.0231E+01	2.600	1.0080E+01	3.500	9.8988E+00
4.750	9.6492E+00	6.500	9.3084E+00	8.500	8.9365E+00
10.750	8.5403E+00	13.250	8.1311E+00	16.000	7.7123E+00
18.750	7.3261E+00	21.500	6.9635E+00	24.250	6.6249E+00
26.500	6.3617E+00	28.250	6.1644E+00	29.500	6.0271E+00
30.500	5.9189E+00	31.500	5.8124E+00	32.750	5.6812E+00
34.250	5.5268E+00	36.000	5.3501E+00	38.500	5.1030E+00
41.000	4.8628E+00	43.000	4.6737E+00	44.500	4.5337E+00
45.500	4.4410E+00	46.500	4.3488E+00	47.500	4.2571E+00
49.000	4.1195E+00	51.000	3.9364E+00	53.000	3.7535E+00
55.500	3.5253E+00	57.750	3.3202E+00	59.250	3.1835E+00
60.500	3.0696E+00	61.500	2.9785E+00	62.500	2.8873E+00
63.750	2.7734E+00	65.250	2.6366E+00	67.000	2.4774E+00
69.500	2.2503E+00	72.500	1.9753E+00	75.500	1.6899E+00
78.500	1.3702E+00	81.500	9.1886E-01	84.500	5.0961E-01
87.000	2.6301E-01	88.500	1.5431E-01	89.500	9.7960E-02
90.500	5.8216E-02	91.500	3.3714E-02	93.000	1.5371E-02
95.000	5.9463E-03	97.500	2.0022E-03	100.500	4.6867E-04

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103.500	-1.6120E-04	107.000	-6.3670E-04	111.500	-1.3878E-03
115.500	-2.7593E-03	118.000	-4.3770E-03	120.000	-6.5999E-03
121.500	-7.4201E-03	122.500	-7.9939E-03	123.750	-8.7281E-03
125.250	-9.6038E-03	127.000	-1.0577E-02	129.250	-1.1655E-02
131.500	-1.2446E-02	133.750	-1.2886E-02	137.500	-1.2837E-02
142.500	-1.1745E-02	146.500	-1.0430E-02	149.000	-9.5047E-03
150.700	-8.8625E-03	151.900	-8.4102E-03	152.700	-8.1115E-03
153.500	-7.8128E-03	157.000	-6.4863E-03	162.500	-4.7860E-03
167.500	-3.5022E-03	172.500	-2.4839E-03	176.500	-1.8618E-03
179.000	-1.5353E-03	180.500	-1.3623E-03	181.500	-1.2540E-03
182.500	-1.1526E-03	183.500	-1.0577E-03	184.500	-9.6906E-04
186.000	-8.4497E-04	188.500	-6.6569E-04	192.500	-4.3634E-04
198.500	-2.0528E-04	206.000	-4.7510E-05	215.000	4.0617E-05
227.500	8.2778E-05	237.500	9.0029E-05	250.000	9.4167E-05
270.000	9.4874E-05	290.000	9.4941E-05	310.000	9.4947E-05
330.000	9.4947E-05	350.000	9.4947E-05	370.000	9.4947E-05
390.000	9.4947E-05	410.000	9.4947E-05	430.000	9.4947E-05
447.500	9.4947E-05	460.000	9.4947E-05	469.000	9.4947E-05
475.500	9.4947E-05	480.000	9.4947E-05	483.500	9.4947E-05
486.000	9.4947E-05	487.500	9.4947E-05	488.500	9.4947E-05
489.000	9.4947E-05				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.6005E-02	0.300	4.5523E-02
0.600	6.6346E-02	1.000	8.8205E-02	1.500	1.2053E-01
2.200	1.5317E-01	3.000	1.8451E-01	4.000	2.5424E-01
5.500	3.4641E-01	7.500	3.7617E-01	9.500	3.9897E-01
12.000	4.0964E-01	14.500	4.1700E-01	17.500	3.8252E-01
20.000	3.5802E-01	23.000	3.3328E-01	25.500	2.5865E-01
27.500	1.9371E-01	29.000	1.3483E-01	30.000	1.0614E-01
31.000	1.0452E-01	32.000	1.2878E-01	33.500	1.5143E-01
35.000	1.7341E-01	37.000	2.4227E-01	40.000	2.3541E-01
42.000	1.8527E-01	44.000	1.3697E-01	45.000	9.0715E-02
46.000	9.0159E-02	47.000	8.9685E-02	48.000	1.3404E-01
50.000	1.7750E-01	52.000	1.7622E-01	54.000	2.1857E-01
57.000	1.9432E-01	58.500	1.2869E-01	60.000	1.0648E-01
61.000	8.4741E-02	62.000	8.4260E-02	63.000	1.0466E-01
64.500	1.2418E-01	66.000	1.4256E-01	68.000	1.9855E-01
71.000	2.2836E-01	74.000	2.1694E-01	77.000	2.0122E-01
80.000	1.8003E-01	83.000	1.5151E-01	86.000	8.9343E-02

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88.000	3.4731E-02	89.000	1.6883E-02	90.000	1.1505E-02
91.000	7.5252E-03	92.000	7.3045E-03	94.000	4.4454E-03
96.000	2.7637E-03	99.000	1.7457E-03	102.000	1.5444E-03
105.000	2.2344E-03	109.000	4.5317E-03	114.000	7.5006E-03
117.000	7.0064E-03	119.000	7.4950E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Alluvium) Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\GJ_A1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                    57.729
 1 22.530 135.832  4.520 14.838  0.000  0.000  60.905  11425 -0.00446
 2 22.530 135.832  5.430 17.149  0.000  0.000  60.861  11436 -0.00473
 3 22.530 135.832  5.366 17.320  0.000  0.000  60.710  11456 -0.00464
 4 22.530 135.832  5.308 17.331  0.000  0.000  60.605  11423 -0.00466
 5 22.530 135.832  5.273 17.340  0.000  0.000  60.526  11429 -0.00469
 6 22.530 135.832  5.256 17.340  0.000  0.000  60.465  11430 -0.00461
 7 22.530 135.832  5.246 17.340  0.000  0.000  60.413  11449 -0.00465
 8 22.530 135.832  5.244 17.334  0.000  0.000  60.370  11422 -0.00468
 9 22.530 135.832  5.238 17.340  0.000  0.000  60.326  11423 -0.00470
10 22.530 135.832  5.234 17.340  0.000  0.000  60.287  11430 -0.00465
11 50.698 113.700  7.950 38.780  0.000  0.000  64.262  12869 -0.00716
12 50.698 113.759  9.342 40.142  0.000  0.000  65.483  12697 -0.00643
-----
SUM= 326.6951585.780 69.407 249.593  0.000  0.001          -0.06005
```

Sensitivity Analysis #1: Soil Sample Grand Junction (Shale) Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_S.inp

Results File: c:\a\GJ_S1955.res

Date of Run: 07 Dec 2021

Time of Run: 08:57:03.76

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.048E+05	0.0660	293.15	2	1.000E-01	8.424E+04	0.0699
3	3.000E-01	3.229E+04	0.0896	293.15	4	6.000E-01	1.790E+03	0.1889
5	1.000E+00	1.220E+03	0.2078	293.15	6	1.500E+00	9.780E+02	0.2193
7	2.200E+00	8.521E+02	0.2267	293.15	8	3.000E+00	8.186E+02	0.2289
9	4.000E+00	8.646E+02	0.2259	293.15	10	5.500E+00	1.082E+03	0.2140
11	7.500E+00	1.478E+03	0.1981	293.15	12	9.500E+00	2.430E+03	0.1748
13	1.200E+01	1.549E+04	0.1085	293.15	14	1.450E+01	2.772E+04	0.0933
15	1.750E+01	3.295E+04	0.0892	293.15	16	2.000E+01	3.539E+04	0.0875
17	2.300E+01	3.724E+04	0.0864	293.15	18	2.550E+01	3.821E+04	0.0858
19	2.750E+01	3.874E+04	0.0855	293.15	20	2.900E+01	3.903E+04	0.0853
21	3.000E+01	3.919E+04	0.0852	293.15	22	3.100E+01	3.932E+04	0.0852
23	3.200E+01	3.943E+04	0.0851	293.15	24	3.350E+01	3.955E+04	0.0850
25	3.500E+01	3.965E+04	0.0850	293.15	26	3.700E+01	3.975E+04	0.0849
27	4.000E+01	3.984E+04	0.0849	293.15	28	4.200E+01	3.988E+04	0.0849
29	4.400E+01	3.990E+04	0.0849	293.15	30	4.500E+01	3.991E+04	0.0848
31	4.600E+01	3.992E+04	0.0848	293.15	32	4.700E+01	3.993E+04	0.0848
33	4.800E+01	3.994E+04	0.0848	293.15	34	5.000E+01	3.995E+04	0.0848
35	5.200E+01	3.995E+04	0.0848	293.15	36	5.400E+01	3.996E+04	0.0848
37	5.700E+01	3.996E+04	0.0848	293.15	38	5.850E+01	3.996E+04	0.0848
39	6.000E+01	3.996E+04	0.0848	293.15	40	6.100E+01	3.996E+04	0.0848
41	6.200E+01	3.996E+04	0.0848	293.15	42	6.300E+01	3.996E+04	0.0848
43	6.450E+01	3.996E+04	0.0848	293.15	44	6.600E+01	3.996E+04	0.0848
45	6.800E+01	3.996E+04	0.0848	293.15	46	7.100E+01	3.996E+04	0.0848
47	7.400E+01	3.995E+04	0.0848	293.15	48	7.700E+01	3.995E+04	0.0848
49	8.000E+01	3.994E+04	0.0848	293.15	50	8.300E+01	3.992E+04	0.0848
51	8.600E+01	3.990E+04	0.0849	293.15	52	8.800E+01	3.988E+04	0.0849
53	8.900E+01	3.987E+04	0.0849	293.15	54	9.000E+01	3.985E+04	0.0849
55	9.100E+01	3.984E+04	0.0849	293.15	56	9.200E+01	3.982E+04	0.0849
57	9.400E+01	3.977E+04	0.0849	293.15	58	9.600E+01	3.970E+04	0.0850

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59 9.900E+01 3.955E+04 0.0850 293.15	60 1.020E+02 3.932E+04 0.0852 293.15
61 1.050E+02 3.896E+04 0.0854 293.15	62 1.090E+02 3.815E+04 0.0858 293.15
63 1.140E+02 3.608E+04 0.0871 293.15	64 1.170E+02 3.360E+04 0.0887 293.15
65 1.190E+02 3.125E+04 0.0904 293.15	66 1.210E+02 2.842E+04 0.0927 293.15
67 1.220E+02 2.693E+04 0.0940 293.15	68 1.230E+02 2.541E+04 0.0954 293.15
69 1.245E+02 2.316E+04 0.0977 293.15	70 1.260E+02 2.104E+04 0.1002 293.15
71 1.280E+02 1.846E+04 0.1036 293.15	72 1.305E+02 1.573E+04 0.1081 293.15
73 1.325E+02 1.397E+04 0.1114 293.15	74 1.350E+02 1.232E+04 0.1151 293.15
75 1.400E+02 1.070E+04 0.1194 293.15	76 1.450E+02 1.019E+04 0.1209 293.15
77 1.480E+02 1.008E+04 0.1213 293.15	78 1.500E+02 1.004E+04 0.1214 293.15
79 1.514E+02 1.003E+04 0.1214 293.15	80 1.524E+02 1.002E+04 0.1215 293.15
81 1.530E+02 1.001E+04 0.1215 293.15	82 1.540E+02 1.001E+04 0.1215 293.15
83 1.600E+02 1.000E+04 0.1215 293.15	84 1.650E+02 1.000E+04 0.1215 293.15
85 1.700E+02 1.000E+04 0.1215 293.15	86 1.750E+02 1.000E+04 0.1215 293.15
87 1.780E+02 1.000E+04 0.1215 293.15	88 1.800E+02 1.000E+04 0.1215 293.15
89 1.810E+02 1.000E+04 0.1215 293.15	90 1.820E+02 1.000E+04 0.1215 293.15
91 1.830E+02 1.000E+04 0.1215 293.15	92 1.840E+02 1.000E+04 0.1215 293.15
93 1.850E+02 1.000E+04 0.1215 293.15	94 1.870E+02 1.000E+04 0.1215 293.15
95 1.900E+02 1.000E+04 0.1215 293.15	96 1.950E+02 1.000E+04 0.1215 293.15
97 2.020E+02 1.000E+04 0.1215 293.15	98 2.100E+02 1.000E+04 0.1215 293.15
99 2.200E+02 1.000E+04 0.1215 293.15	100 2.350E+02 1.000E+04 0.1215 293.15
101 2.400E+02 1.000E+04 0.1215 293.15	102 2.600E+02 1.000E+04 0.1215 293.15
103 2.800E+02 1.000E+04 0.1215 293.15	104 3.000E+02 1.000E+04 0.1215 293.15
105 3.200E+02 1.000E+04 0.1215 293.15	106 3.400E+02 1.000E+04 0.1215 293.15
107 3.600E+02 1.000E+04 0.1215 293.15	108 3.800E+02 1.000E+04 0.1215 293.15
109 4.000E+02 1.000E+04 0.1215 293.15	110 4.200E+02 1.000E+04 0.1215 293.15
111 4.400E+02 1.000E+04 0.1215 293.15	112 4.550E+02 1.000E+04 0.1215 293.15
113 4.650E+02 1.000E+04 0.1215 293.15	114 4.730E+02 1.000E+04 0.1215 293.15
115 4.780E+02 1.000E+04 0.1215 293.15	116 4.820E+02 1.000E+04 0.1215 293.15
117 4.850E+02 1.000E+04 0.1215 293.15	118 4.870E+02 1.000E+04 0.1215 293.15
119 4.880E+02 1.000E+04 0.1215 293.15	120 4.890E+02 1.000E+04 0.1215 293.15

Initial Water Storage = 56.1014 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.01109
Head (cm) = 1.00000E+08

December 2023

LiqWater Flow (cm)=-1.99901E-05
IsoVapor Flow (cm)=-3.00013E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.1014+ 0.0000+ 0.0000 - 0.0328- 0.0000- 0.0000 = 56.0686 vs. 56.0686

Mass Balance = -2.7831E-06 cm; Time step attempts = 26 and successes = 25

Evaporation: Potential = 0.0684 cm, Actual = 0.0328 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.06605
Head (cm) = 1.04604E+05
LiqWater Flow (cm)=-9.62797E-05
IsoVapor Flow (cm)=-3.94713E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.1110+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 56.0713 vs. 56.0713

Mass Balance = -6.4622E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

December 2023

Potential Transpiration = 1.6719E+01 [cm]
 Actual Transpiration = 1.9644E+00 [cm]
 Potential Evaporation = 1.1911E+02 [cm]
 Actual Evaporation = 4.7161E+00 [cm]
 Evaporation during Growth = 2.7026E+00 [cm]
 Total Runoff = 1.5961E+01 [cm]
 Total Infiltration = 6.5685E+00 [cm]
 Total Basal Liquid Flux (drainage) = 2.4792E-06 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6071E+01 [cm]
 Mass Balance Error = -8.1926E-02 [cm]
 Total Successful Time Steps = 20405
 Total Attempted Time Steps = 23736
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 17145
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	1.8524E+00	0.050	2.7326E+00	0.200	2.1469E+00
0.450	1.8709E+00	0.800	1.7317E+00	1.250	1.6046E+00
1.850	1.4400E+00	2.600	1.2493E+00	3.500	1.0430E+00
4.750	7.9846E-01	6.500	5.3729E-01	8.500	3.3536E-01
10.750	1.6839E-01	13.250	3.4206E-02	16.000	4.2325E-03
18.750	1.3034E-03	21.500	5.7506E-04	24.250	3.0023E-04
26.500	1.8691E-04	28.250	1.3229E-04	29.500	1.0435E-04
30.500	8.6380E-05	31.500	7.1768E-05	32.750	5.6892E-05
34.250	4.3550E-05	36.000	3.1896E-05	38.500	2.0429E-05
41.000	1.3639E-05	43.000	9.8075E-06	44.500	7.7593E-06
45.500	6.6073E-06	46.500	1.8240E-06	47.500	4.9640E-07
49.000	3.8927E-07	51.000	2.8716E-07	53.000	2.1399E-07
55.500	1.4823E-07	57.750	1.1120E-07	59.250	9.1520E-08
60.500	7.8224E-08	61.500	6.8860E-08	62.500	6.0494E-08
63.750	5.0977E-08	65.250	4.0616E-08	67.000	2.8959E-08
69.500	1.1413E-08	72.500	-1.5763E-08	75.500	-5.5662E-08
78.500	-1.1745E-07	81.500	-2.1480E-07	84.500	-3.6877E-07
87.000	-5.7164E-07	88.500	-7.3761E-07	89.500	-8.6708E-07
90.500	-1.0184E-06	91.500	-1.1952E-06	93.000	-1.5056E-06
95.000	-2.0689E-06	97.500	-3.0345E-06	100.500	-4.8860E-06

December 2023

103.500	-7.9019E-06	107.000	-1.3837E-05	111.500	-2.9895E-05
115.500	-6.7326E-05	118.000	-1.1937E-04	120.000	-2.0598E-04
121.500	-2.4782E-04	122.500	-2.8120E-04	123.750	-3.2990E-04
125.250	-3.9783E-04	127.000	-4.9078E-04	129.250	-6.2076E-04
131.500	-7.3223E-04	133.750	-7.7595E-04	137.500	-5.8521E-04
142.500	-2.5730E-04	146.500	-1.0857E-04	149.000	-5.6274E-05
150.700	-3.4481E-05	151.900	-2.4048E-05	152.700	-1.8926E-05
153.500	-1.4723E-05	157.000	-1.9291E-06	162.500	1.6866E-06
167.500	2.3387E-06	172.500	2.4566E-06	176.500	2.4739E-06
179.000	2.4773E-06	180.500	2.4781E-06	181.500	2.4785E-06
182.500	2.4788E-06	183.500	2.4789E-06	184.500	2.4790E-06
186.000	2.4791E-06	188.500	2.4791E-06	192.500	2.4792E-06
198.500	2.4792E-06	206.000	2.4792E-06	215.000	2.4792E-06
227.500	2.4792E-06	237.500	2.4792E-06	250.000	2.4792E-06
270.000	2.4792E-06	290.000	2.4792E-06	310.000	2.4792E-06
330.000	2.4792E-06	350.000	2.4792E-06	370.000	2.4792E-06
390.000	2.4792E-06	410.000	2.4792E-06	430.000	2.4792E-06
447.500	2.4792E-06	460.000	2.4792E-06	469.000	2.4792E-06
475.500	2.4792E-06	480.000	2.4792E-06	483.500	2.4792E-06
486.000	2.4792E-06	487.500	2.4792E-06	488.500	2.4792E-06
489.000	2.4792E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.1015E-02	0.300	6.9114E-02
0.600	9.7240E-02	1.000	1.2447E-01	1.500	1.6184E-01
2.200	1.8824E-01	3.000	2.0354E-01	4.000	2.4170E-01
5.500	2.5380E-01	7.500	1.8854E-01	9.500	1.5532E-01
12.000	1.1198E-01	14.500	5.2430E-02	17.500	2.0909E-02
20.000	1.0716E-02	23.000	5.3592E-03	25.500	2.5863E-03
27.500	1.3485E-03	29.000	7.2006E-04	30.000	4.7591E-04
31.000	3.9426E-04	32.000	4.0924E-04	33.500	3.7375E-04
35.000	3.3340E-04	37.000	3.3650E-04	40.000	2.0704E-04
42.000	1.2154E-04	44.000	6.8261E-05	45.000	3.9660E-05
46.000	3.4794E-05	47.000	3.0645E-05	48.000	4.0751E-05
50.000	4.3929E-05	52.000	3.6824E-05	54.000	4.0053E-05
57.000	3.1438E-05	58.500	2.0066E-05	60.000	1.6260E-05
61.000	1.2862E-05	62.000	1.2787E-05	63.000	1.5969E-05
64.500	1.9294E-05	66.000	2.2866E-05	68.000	3.3770E-05
71.000	4.3657E-05	74.000	4.8541E-05	77.000	5.5971E-05
80.000	6.7322E-05	83.000	8.4826E-05	86.000	9.3360E-05

December 2023

88.000	6.9336E-05	89.000	5.1820E-05	90.000	5.8318E-05
91.000	6.5868E-05	92.000	1.1197E-04	94.000	1.9300E-04
96.000	3.1538E-04	99.000	5.7169E-04	102.000	8.7868E-04
105.000	1.5951E-03	109.000	3.7102E-03	114.000	6.9839E-03
117.000	7.1365E-03	119.000	8.1930E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Shale) Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_S.inp

Results File: c:\a\GJ_S1956.res

Date of Run: 07 Dec 2021

Time of Run: 08:57:03.76

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.)	(K)	(cm)	(cm)	(vol.)	(K)
1	0.000E+00	1.046E+05	0.0661	293.15	2	1.000E-01	8.409E+04	0.0699
3	3.000E-01	3.211E+04	0.0898	293.15	4	6.000E-01	1.789E+03	0.1889
5	1.000E+00	1.219E+03	0.2078	293.15	6	1.500E+00	9.775E+02	0.2193
7	2.200E+00	8.515E+02	0.2267	293.15	8	3.000E+00	8.179E+02	0.2289
9	4.000E+00	8.637E+02	0.2259	293.15	10	5.500E+00	1.081E+03	0.2140
11	7.500E+00	1.477E+03	0.1982	293.15	12	9.500E+00	2.428E+03	0.1749
13	1.200E+01	1.548E+04	0.1085	293.15	14	1.450E+01	2.771E+04	0.0933
15	1.750E+01	3.294E+04	0.0892	293.15	16	2.000E+01	3.539E+04	0.0875
17	2.300E+01	3.724E+04	0.0864	293.15	18	2.550E+01	3.822E+04	0.0858
19	2.750E+01	3.875E+04	0.0855	293.15	20	2.900E+01	3.904E+04	0.0853
21	3.000E+01	3.919E+04	0.0852	293.15	22	3.100E+01	3.932E+04	0.0852
23	3.200E+01	3.943E+04	0.0851	293.15	24	3.350E+01	3.956E+04	0.0850
25	3.500E+01	3.966E+04	0.0850	293.15	26	3.700E+01	3.975E+04	0.0849
27	4.000E+01	3.984E+04	0.0849	293.15	28	4.200E+01	3.989E+04	0.0849
29	4.400E+01	3.991E+04	0.0848	293.15	30	4.500E+01	3.992E+04	0.0848
31	4.600E+01	3.993E+04	0.0848	293.15	32	4.700E+01	3.994E+04	0.0848
33	4.800E+01	3.995E+04	0.0848	293.15	34	5.000E+01	3.996E+04	0.0848
35	5.200E+01	3.997E+04	0.0848	293.15	36	5.400E+01	3.997E+04	0.0848
37	5.700E+01	3.998E+04	0.0848	293.15	38	5.850E+01	3.998E+04	0.0848
39	6.000E+01	3.998E+04	0.0848	293.15	40	6.100E+01	3.998E+04	0.0848
41	6.200E+01	3.998E+04	0.0848	293.15	42	6.300E+01	3.998E+04	0.0848
43	6.450E+01	3.998E+04	0.0848	293.15	44	6.600E+01	3.998E+04	0.0848
45	6.800E+01	3.998E+04	0.0848	293.15	46	7.100E+01	3.998E+04	0.0848
47	7.400E+01	3.997E+04	0.0848	293.15	48	7.700E+01	3.997E+04	0.0848
49	8.000E+01	3.996E+04	0.0848	293.15	50	8.300E+01	3.995E+04	0.0848
51	8.600E+01	3.993E+04	0.0848	293.15	52	8.800E+01	3.991E+04	0.0848
53	8.900E+01	3.990E+04	0.0849	293.15	54	9.000E+01	3.988E+04	0.0849
55	9.100E+01	3.987E+04	0.0849	293.15	56	9.200E+01	3.985E+04	0.0849
57	9.400E+01	3.980E+04	0.0849	293.15	58	9.600E+01	3.974E+04	0.0849

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59 9.900E+01 3.960E+04 0.0850 293.15	60 1.020E+02 3.938E+04 0.0851 293.15
61 1.050E+02 3.904E+04 0.0853 293.15	62 1.090E+02 3.826E+04 0.0858 293.15
63 1.140E+02 3.630E+04 0.0870 293.15	64 1.170E+02 3.393E+04 0.0885 293.15
65 1.190E+02 3.170E+04 0.0901 293.15	66 1.210E+02 2.901E+04 0.0922 293.15
67 1.220E+02 2.758E+04 0.0934 293.15	68 1.230E+02 2.613E+04 0.0947 293.15
69 1.245E+02 2.397E+04 0.0969 293.15	70 1.260E+02 2.191E+04 0.0991 293.15
71 1.280E+02 1.938E+04 0.1024 293.15	72 1.305E+02 1.662E+04 0.1065 293.15
73 1.325E+02 1.478E+04 0.1098 293.15	74 1.350E+02 1.298E+04 0.1136 293.15
75 1.400E+02 1.100E+04 0.1185 293.15	76 1.450E+02 1.030E+04 0.1206 293.15
77 1.480E+02 1.013E+04 0.1211 293.15	78 1.500E+02 1.007E+04 0.1213 293.15
79 1.514E+02 1.005E+04 0.1214 293.15	80 1.524E+02 1.003E+04 0.1214 293.15
81 1.530E+02 1.003E+04 0.1214 293.15	82 1.540E+02 1.002E+04 0.1215 293.15
83 1.600E+02 1.000E+04 0.1215 293.15	84 1.650E+02 1.000E+04 0.1215 293.15
85 1.700E+02 1.000E+04 0.1215 293.15	86 1.750E+02 1.000E+04 0.1215 293.15
87 1.780E+02 1.000E+04 0.1215 293.15	88 1.800E+02 1.000E+04 0.1215 293.15
89 1.810E+02 1.000E+04 0.1215 293.15	90 1.820E+02 1.000E+04 0.1215 293.15
91 1.830E+02 1.000E+04 0.1215 293.15	92 1.840E+02 1.000E+04 0.1215 293.15
93 1.850E+02 1.000E+04 0.1215 293.15	94 1.870E+02 1.000E+04 0.1215 293.15
95 1.900E+02 1.000E+04 0.1215 293.15	96 1.950E+02 1.000E+04 0.1215 293.15
97 2.020E+02 1.000E+04 0.1215 293.15	98 2.100E+02 1.000E+04 0.1215 293.15
99 2.200E+02 1.000E+04 0.1215 293.15	100 2.350E+02 1.000E+04 0.1215 293.15
101 2.400E+02 1.000E+04 0.1215 293.15	102 2.600E+02 1.000E+04 0.1215 293.15
103 2.800E+02 1.000E+04 0.1215 293.15	104 3.000E+02 1.000E+04 0.1215 293.15
105 3.200E+02 1.000E+04 0.1215 293.15	106 3.400E+02 1.000E+04 0.1215 293.15
107 3.600E+02 1.000E+04 0.1215 293.15	108 3.800E+02 1.000E+04 0.1215 293.15
109 4.000E+02 1.000E+04 0.1215 293.15	110 4.200E+02 1.000E+04 0.1215 293.15
111 4.400E+02 1.000E+04 0.1215 293.15	112 4.550E+02 1.000E+04 0.1215 293.15
113 4.650E+02 1.000E+04 0.1215 293.15	114 4.730E+02 1.000E+04 0.1215 293.15
115 4.780E+02 1.000E+04 0.1215 293.15	116 4.820E+02 1.000E+04 0.1215 293.15
117 4.850E+02 1.000E+04 0.1215 293.15	118 4.870E+02 1.000E+04 0.1215 293.15
119 4.880E+02 1.000E+04 0.1215 293.15	120 4.890E+02 1.000E+04 0.1215 293.15

Initial Water Storage = 56.0713 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.05357
Head (cm) = 2.34165E+05

December 2023

LiqWater Flow (cm)=-2.01100E-05
IsoVapor Flow (cm)=-4.36557E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.0713+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.0270 vs. 56.0270

Mass Balance = -5.5924E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.25979
Head (cm) = 4.70681E+02
LiqWater Flow (cm)=-2.72162E-04
IsoVapor Flow (cm)=-5.90883E-08
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.5642+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 56.5642 vs. 56.5642

Mass Balance = -3.3800E-09 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 2.5779E+00 [cm]
 Potential Evaporation = 9.9853E+01 [cm]
 Actual Evaporation = 9.6184E+00 [cm]
 Evaporation during Growth = 5.9147E+00 [cm]
 Total Runoff = 3.8159E+01 [cm]
 Total Infiltration = 1.2540E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.4860E-06 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6564E+01 [cm]
 Mass Balance Error = -1.4943E-01 [cm]
 Total Successful Time Steps = 31374
 Total Attempted Time Steps = 37633
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 24754
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	2.9213E+00	0.050	5.1581E+00	0.200	3.8404E+00
0.450	3.1840E+00	0.800	2.7998E+00	1.250	2.6204E+00
1.850	2.4361E+00	2.600	2.2214E+00	3.500	1.9841E+00
4.750	1.6905E+00	6.500	1.3406E+00	8.500	9.9349E-01
10.750	6.3375E-01	13.250	1.9993E-01	16.000	1.8323E-02
18.750	2.8601E-03	21.500	9.6429E-04	24.250	4.3030E-04
26.500	2.4542E-04	28.250	1.6512E-04	29.500	1.2658E-04
30.500	1.0274E-04	31.500	8.3991E-05	32.750	6.5457E-05
34.250	4.9405E-05	36.000	3.5775E-05	38.500	2.2714E-05
41.000	1.5134E-05	43.000	1.0896E-05	44.500	8.6437E-06
45.500	7.3795E-06	46.500	2.0439E-06	47.500	5.5849E-07
49.000	4.4139E-07	51.000	3.2978E-07	53.000	2.4966E-07
55.500	1.7737E-07	57.750	1.3618E-07	59.250	1.1411E-07
60.500	9.9062E-08	61.500	8.8396E-08	62.500	7.8811E-08
63.750	6.7855E-08	65.250	5.5889E-08	67.000	4.2465E-08
69.500	2.2535E-08	72.500	-7.3701E-09	75.500	-4.9981E-08
78.500	-1.1460E-07	81.500	-2.1509E-07	84.500	-3.7284E-07
87.000	-5.7984E-07	88.500	-7.4895E-07	89.500	-8.8079E-07
90.500	-1.0348E-06	91.500	-1.2148E-06	93.000	-1.5306E-06
95.000	-2.1034E-06	97.500	-3.0848E-06	100.500	-4.9634E-06

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103.500	-8.0115E-06	107.000	-1.3964E-05	111.500	-2.9778E-05
115.500	-6.5186E-05	118.000	-1.1198E-04	120.000	-1.8522E-04
121.500	-2.2161E-04	122.500	-2.5057E-04	123.750	-2.9272E-04
125.250	-3.5137E-04	127.000	-4.3221E-04	129.250	-5.4920E-04
131.500	-6.6032E-04	133.750	-7.2949E-04	137.500	-6.2736E-04
142.500	-3.2548E-04	146.500	-1.5374E-04	149.000	-8.5752E-05
150.700	-5.5504E-05	151.900	-4.0375E-05	152.700	-3.2700E-05
153.500	-2.6255E-05	157.000	-5.6989E-06	162.500	8.4563E-07
167.500	2.1630E-06	172.500	2.4284E-06	176.500	2.4712E-06
179.000	2.4803E-06	180.500	2.4828E-06	181.500	2.4839E-06
182.500	2.4846E-06	183.500	2.4851E-06	184.500	2.4854E-06
186.000	2.4857E-06	188.500	2.4859E-06	192.500	2.4859E-06
198.500	2.4860E-06	206.000	2.4860E-06	215.000	2.4860E-06
227.500	2.4860E-06	237.500	2.4860E-06	250.000	2.4860E-06
270.000	2.4860E-06	290.000	2.4860E-06	310.000	2.4860E-06
330.000	2.4860E-06	350.000	2.4860E-06	370.000	2.4860E-06
390.000	2.4860E-06	410.000	2.4860E-06	430.000	2.4860E-06
447.500	2.4860E-06	460.000	2.4860E-06	469.000	2.4860E-06
475.500	2.4860E-06	480.000	2.4860E-06	483.500	2.4860E-06
486.000	2.4860E-06	487.500	2.4860E-06	488.500	2.4860E-06
489.000	2.4860E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.0362E-02	0.300	6.7828E-02
0.600	9.4951E-02	1.000	1.2136E-01	1.500	1.5949E-01
2.200	1.9308E-01	3.000	2.1948E-01	4.000	2.8103E-01
5.500	3.4615E-01	7.500	3.3303E-01	9.500	3.0301E-01
12.000	2.3329E-01	14.500	1.0692E-01	17.500	2.8500E-02
20.000	1.2152E-02	23.000	5.4192E-03	25.500	2.4749E-03
27.500	1.2560E-03	29.000	6.6150E-04	30.000	4.3409E-04
31.000	3.5751E-04	32.000	3.6923E-04	33.500	3.3500E-04
35.000	2.9687E-04	37.000	2.9668E-04	40.000	1.7887E-04
42.000	1.0292E-04	44.000	5.6260E-05	45.000	3.2139E-05
46.000	2.7655E-05	47.000	2.3815E-05	48.000	3.0867E-05
50.000	3.1358E-05	52.000	2.4525E-05	54.000	2.4731E-05
57.000	1.7380E-05	58.500	1.0549E-05	60.000	8.1835E-06
61.000	6.3163E-06	62.000	6.1514E-06	63.000	7.5563E-06
64.500	8.9782E-06	66.000	1.0560E-05	68.000	1.5648E-05
71.000	2.0851E-05	74.000	2.4501E-05	77.000	3.0382E-05
80.000	3.9634E-05	83.000	5.4115E-05	86.000	6.3987E-05

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88.000	4.9524E-05	89.000	3.7698E-05	90.000	4.3137E-05
91.000	4.9458E-05	92.000	8.5216E-05	94.000	1.5025E-04
96.000	2.4995E-04	99.000	4.6198E-04	102.000	7.1941E-04
105.000	1.3169E-03	109.000	3.0797E-03	114.000	5.7882E-03
117.000	5.8520E-03	119.000	6.6147E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Shale) Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_S.inp

Results File: c:\a\GJ_S1957.res

Date of Run: 07 Dec 2021

Time of Run: 08:57:03.76

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	4.707E+02	0.2598	293.15	2	1.000E-01	4.706E+02	0.2598
3	3.000E-01	4.711E+02	0.2597	293.15	4	6.000E-01	4.731E+02	0.2595
5	1.000E+00	4.783E+02	0.2589	293.15	6	1.500E+00	4.899E+02	0.2575
7	2.200E+00	5.190E+02	0.2542	293.15	8	3.000E+00	5.807E+02	0.2479
9	4.000E+00	7.278E+02	0.2353	293.15	10	5.500E+00	1.054E+03	0.2154
11	7.500E+00	1.310E+03	0.2042	293.15	12	9.500E+00	1.587E+03	0.1947
13	1.200E+01	2.646E+03	0.1711	293.15	14	1.450E+01	1.136E+04	0.1176
15	1.750E+01	2.468E+04	0.0961	293.15	16	2.000E+01	3.083E+04	0.0907
17	2.300E+01	3.504E+04	0.0878	293.15	18	2.550E+01	3.707E+04	0.0865
19	2.750E+01	3.808E+04	0.0859	293.15	20	2.900E+01	3.860E+04	0.0856
21	3.000E+01	3.886E+04	0.0854	293.15	22	3.100E+01	3.907E+04	0.0853
23	3.200E+01	3.924E+04	0.0852	293.15	24	3.350E+01	3.943E+04	0.0851
25	3.500E+01	3.957E+04	0.0850	293.15	26	3.700E+01	3.970E+04	0.0850
27	4.000E+01	3.982E+04	0.0849	293.15	28	4.200E+01	3.987E+04	0.0849
29	4.400E+01	3.990E+04	0.0849	293.15	30	4.500E+01	3.992E+04	0.0848
31	4.600E+01	3.993E+04	0.0848	293.15	32	4.700E+01	3.994E+04	0.0848
33	4.800E+01	3.995E+04	0.0848	293.15	34	5.000E+01	3.996E+04	0.0848
35	5.200E+01	3.997E+04	0.0848	293.15	36	5.400E+01	3.998E+04	0.0848
37	5.700E+01	3.998E+04	0.0848	293.15	38	5.850E+01	3.998E+04	0.0848
39	6.000E+01	3.999E+04	0.0848	293.15	40	6.100E+01	3.999E+04	0.0848
41	6.200E+01	3.999E+04	0.0848	293.15	42	6.300E+01	3.999E+04	0.0848
43	6.450E+01	3.999E+04	0.0848	293.15	44	6.600E+01	3.999E+04	0.0848
45	6.800E+01	3.999E+04	0.0848	293.15	46	7.100E+01	3.998E+04	0.0848
47	7.400E+01	3.998E+04	0.0848	293.15	48	7.700E+01	3.998E+04	0.0848
49	8.000E+01	3.997E+04	0.0848	293.15	50	8.300E+01	3.995E+04	0.0848
51	8.600E+01	3.993E+04	0.0848	293.15	52	8.800E+01	3.991E+04	0.0848
53	8.900E+01	3.990E+04	0.0849	293.15	54	9.000E+01	3.988E+04	0.0849
55	9.100E+01	3.987E+04	0.0849	293.15	56	9.200E+01	3.984E+04	0.0849
57	9.400E+01	3.979E+04	0.0849	293.15	58	9.600E+01	3.972E+04	0.0850

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59 9.900E+01 3.957E+04 0.0850 293.15	60 1.020E+02 3.934E+04 0.0852 293.15
61 1.050E+02 3.897E+04 0.0854 293.15	62 1.090E+02 3.816E+04 0.0858 293.15
63 1.140E+02 3.618E+04 0.0870 293.15	64 1.170E+02 3.390E+04 0.0885 293.15
65 1.190E+02 3.180E+04 0.0900 293.15	66 1.210E+02 2.930E+04 0.0919 293.15
67 1.220E+02 2.797E+04 0.0931 293.15	68 1.230E+02 2.662E+04 0.0943 293.15
69 1.245E+02 2.459E+04 0.0962 293.15	70 1.260E+02 2.263E+04 0.0983 293.15
71 1.280E+02 2.018E+04 0.1013 293.15	72 1.305E+02 1.743E+04 0.1052 293.15
73 1.325E+02 1.555E+04 0.1084 293.15	74 1.350E+02 1.364E+04 0.1121 293.15
75 1.400E+02 1.135E+04 0.1176 293.15	76 1.450E+02 1.044E+04 0.1202 293.15
77 1.480E+02 1.021E+04 0.1209 293.15	78 1.500E+02 1.012E+04 0.1211 293.15
79 1.514E+02 1.008E+04 0.1213 293.15	80 1.524E+02 1.006E+04 0.1213 293.15
81 1.530E+02 1.005E+04 0.1214 293.15	82 1.540E+02 1.003E+04 0.1214 293.15
83 1.600E+02 1.001E+04 0.1215 293.15	84 1.650E+02 1.000E+04 0.1215 293.15
85 1.700E+02 1.000E+04 0.1215 293.15	86 1.750E+02 1.000E+04 0.1215 293.15
87 1.780E+02 1.000E+04 0.1215 293.15	88 1.800E+02 1.000E+04 0.1215 293.15
89 1.810E+02 1.000E+04 0.1215 293.15	90 1.820E+02 1.000E+04 0.1215 293.15
91 1.830E+02 1.000E+04 0.1215 293.15	92 1.840E+02 1.000E+04 0.1215 293.15
93 1.850E+02 1.000E+04 0.1215 293.15	94 1.870E+02 1.000E+04 0.1215 293.15
95 1.900E+02 1.000E+04 0.1215 293.15	96 1.950E+02 1.000E+04 0.1215 293.15
97 2.020E+02 1.000E+04 0.1215 293.15	98 2.100E+02 1.000E+04 0.1215 293.15
99 2.200E+02 1.000E+04 0.1215 293.15	100 2.350E+02 1.000E+04 0.1215 293.15
101 2.400E+02 1.000E+04 0.1215 293.15	102 2.600E+02 1.000E+04 0.1215 293.15
103 2.800E+02 1.000E+04 0.1215 293.15	104 3.000E+02 1.000E+04 0.1215 293.15
105 3.200E+02 1.000E+04 0.1215 293.15	106 3.400E+02 1.000E+04 0.1215 293.15
107 3.600E+02 1.000E+04 0.1215 293.15	108 3.800E+02 1.000E+04 0.1215 293.15
109 4.000E+02 1.000E+04 0.1215 293.15	110 4.200E+02 1.000E+04 0.1215 293.15
111 4.400E+02 1.000E+04 0.1215 293.15	112 4.550E+02 1.000E+04 0.1215 293.15
113 4.650E+02 1.000E+04 0.1215 293.15	114 4.730E+02 1.000E+04 0.1215 293.15
115 4.780E+02 1.000E+04 0.1215 293.15	116 4.820E+02 1.000E+04 0.1215 293.15
117 4.850E+02 1.000E+04 0.1215 293.15	118 4.870E+02 1.000E+04 0.1215 293.15
119 4.880E+02 1.000E+04 0.1215 293.15	120 4.890E+02 1.000E+04 0.1215 293.15

Initial Water Storage = 56.5642 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.20549
Head (cm) = 1.27596E+03

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LiqWater Flow (cm)=-4.10868E-02
IsoVapor Flow (cm)=-4.96813E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.5642+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.5199 vs. 56.5199

Mass Balance = -2.4151E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.17156
Head (cm) = 2.61753E+03
LiqWater Flow (cm)=-3.72266E-02
IsoVapor Flow (cm)=-1.71216E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.6235+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 56.5650 vs. 56.5650

Mass Balance = -1.1013E-05 cm; Time step attempts = 26 and successes = 25

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 2.7915E+00 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 9.8798E+00 [cm]
 Evaporation during Growth = 5.9343E+00 [cm]
 Total Runoff = 3.8176E+01 [cm]
 Total Infiltration = 1.2522E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.4860E-06 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6565E+01 [cm]
 Mass Balance Error = -1.4991E-01 [cm]
 Total Successful Time Steps = 31301
 Total Attempted Time Steps = 37562
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 24613
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.6425E+00	0.050	4.9733E+00	0.200	3.6520E+00
0.450	3.0099E+00	0.800	2.6696E+00	1.250	2.5182E+00
1.850	2.3625E+00	2.600	2.1709E+00	3.500	1.9510E+00
4.750	1.6681E+00	6.500	1.3178E+00	8.500	9.7701E-01
10.750	6.5313E-01	13.250	3.6264E-01	16.000	9.6185E-02
18.750	1.0833E-02	21.500	2.4976E-03	24.250	9.6705E-04
26.500	5.1717E-04	28.250	3.3378E-04	29.500	2.4854E-04
30.500	1.9696E-04	31.500	1.5704E-04	32.750	1.1837E-04
34.250	8.5781E-05	36.000	5.9103E-05	38.500	3.4881E-05
41.000	2.1918E-05	43.000	1.5087E-05	44.500	1.1647E-05
45.500	9.7688E-06	46.500	2.6624E-06	47.500	7.1714E-07
49.000	5.5531E-07	51.000	4.0680E-07	53.000	3.0342E-07
55.500	2.1242E-07	57.750	1.6170E-07	59.250	1.3476E-07
60.500	1.1652E-07	61.500	1.0364E-07	62.500	9.2115E-08
63.750	7.8998E-08	65.250	6.4775E-08	67.000	4.8962E-08
69.500	2.5811E-08	72.500	-8.2030E-09	75.500	-5.5867E-08
78.500	-1.2734E-07	81.500	-2.3766E-07	84.500	-4.0985E-07
87.000	-6.3450E-07	88.500	-8.1715E-07	89.500	-9.5914E-07
90.500	-1.1245E-06	91.500	-1.3171E-06	93.000	-1.6538E-06
95.000	-2.2594E-06	97.500	-3.2868E-06	100.500	-5.2201E-06

December 2023

103.500	-8.2939E-06	107.000	-1.4168E-05	111.500	-2.9344E-05
115.500	-6.2394E-05	118.000	-1.0557E-04	120.000	-1.7240E-04
121.500	-2.0352E-04	122.500	-2.2808E-04	123.750	-2.6368E-04
125.250	-3.1343E-04	127.000	-3.8272E-04	129.250	-4.8612E-04
131.500	-5.9128E-04	133.750	-6.7292E-04	137.500	-6.4265E-04
142.500	-3.8644E-04	146.500	-2.0256E-04	149.000	-1.2054E-04
150.700	-8.1640E-05	151.900	-6.1345E-05	152.700	-5.0729E-05
153.500	-4.1622E-05	157.000	-1.1322E-05	162.500	-5.6581E-07
167.500	1.8254E-06	172.500	2.3566E-06	176.500	2.4503E-06
179.000	2.4714E-06	180.500	2.4775E-06	181.500	2.4803E-06
182.500	2.4822E-06	183.500	2.4834E-06	184.500	2.4843E-06
186.000	2.4851E-06	188.500	2.4857E-06	192.500	2.4859E-06
198.500	2.4860E-06	206.000	2.4860E-06	215.000	2.4860E-06
227.500	2.4860E-06	237.500	2.4860E-06	250.000	2.4860E-06
270.000	2.4860E-06	290.000	2.4860E-06	310.000	2.4860E-06
330.000	2.4860E-06	350.000	2.4860E-06	370.000	2.4860E-06
390.000	2.4860E-06	410.000	2.4860E-06	430.000	2.4860E-06
447.500	2.4860E-06	460.000	2.4860E-06	469.000	2.4860E-06
475.500	2.4860E-06	480.000	2.4860E-06	483.500	2.4860E-06
486.000	2.4860E-06	487.500	2.4860E-06	488.500	2.4860E-06
489.000	2.4860E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.0453E-02	0.300	6.7943E-02
0.600	9.5107E-02	1.000	1.2155E-01	1.500	1.5974E-01
2.200	1.9340E-01	3.000	2.1997E-01	4.000	2.8200E-01
5.500	3.4834E-01	7.500	3.3792E-01	9.500	3.1772E-01
12.000	2.6643E-01	14.500	1.9835E-01	17.500	6.8370E-02
20.000	2.6301E-02	23.000	1.0979E-02	25.500	4.7534E-03
27.500	2.2980E-03	29.000	1.1631E-03	30.000	7.4222E-04
31.000	5.9408E-04	32.000	5.9603E-04	33.500	5.1816E-04
35.000	4.4020E-04	37.000	4.1713E-04	40.000	2.3555E-04
42.000	1.3006E-04	44.000	6.8453E-05	45.000	3.8362E-05
46.000	3.2384E-05	47.000	2.7336E-05	48.000	3.4697E-05
50.000	3.3725E-05	52.000	2.5066E-05	54.000	2.3831E-05
57.000	1.5197E-05	58.500	8.7630E-06	60.000	6.4746E-06
61.000	4.8503E-06	62.000	4.5996E-06	63.000	5.5236E-06
64.500	6.3998E-06	66.000	7.4238E-06	68.000	1.0994E-05
71.000	1.5121E-05	74.000	1.8836E-05	77.000	2.5045E-05
80.000	3.4981E-05	83.000	5.0659E-05	86.000	6.2737E-05

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88.000	4.9735E-05	89.000	3.8238E-05	90.000	4.4136E-05
91.000	5.0982E-05	92.000	8.8396E-05	94.000	1.5736E-04
96.000	2.6333E-04	99.000	4.8835E-04	102.000	7.5837E-04
105.000	1.3772E-03	109.000	3.1698E-03	114.000	5.8086E-03
117.000	5.7682E-03	119.000	6.4492E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Shale) Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\gj_s1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                    59.422
 1 22.530 135.832  3.688  4.518 15.975  0.000 57.879  23123 -0.10813
 2 22.530 135.832  2.824  4.711 15.971  0.000 56.991  20950 -0.08761
 3 22.530 135.832  2.337  4.715 15.963  0.000 56.588  20454 -0.08210
 4 22.530 135.832  2.125  4.721 15.961  0.000 56.393  20421 -0.08222
 5 22.530 135.832  2.039  4.716 15.962  0.000 56.288  20442 -0.08198
 6 22.530 135.832  2.000  4.717 15.961  0.000 56.222  20427 -0.08212
 7 22.530 135.832  1.982  4.719 15.959  0.000 56.173  20447 -0.08212
 8 22.530 135.832  1.967  4.722 15.962  0.000 56.134  20408 -0.08185
 9 22.530 135.832  1.967  4.715 15.963  0.000 56.101  20409 -0.08217
10 22.530 135.832  1.964  4.716 15.961  0.000 56.071  20405 -0.08193
11 50.698 113.700  2.578  9.618 38.159  0.000 56.564  31374 -0.14943
12 50.698 113.759  2.792  9.880 38.176  0.000 56.565  31301 -0.14991
-----
SUM= 326.6951585.780 28.262 66.468 235.973  0.000                -1.15157
```

Sensitivity Analysis #2: Grass Vegetation Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10g.inp

Results File: c:\a\60_10g1955.res

Date of Run: 19 Oct 2023

Time of Run: 14:21:05.28

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.524E+03	0.0715	293.15	2	1.000E-01	2.084E+03	0.0756
3	3.000E-01	1.922E+03	0.0774	293.15	4	6.000E-01	1.974E+03	0.0768
5	1.000E+00	2.018E+03	0.0763	293.15	6	1.500E+00	2.011E+03	0.0764
7	2.200E+00	1.999E+03	0.0765	293.15	8	3.000E+00	1.996E+03	0.0766
9	4.000E+00	1.989E+03	0.0766	293.15	10	5.500E+00	1.978E+03	0.0767
11	7.500E+00	1.962E+03	0.0769	293.15	12	9.500E+00	1.946E+03	0.0771
13	1.200E+01	1.925E+03	0.0774	293.15	14	1.450E+01	1.904E+03	0.0776
15	1.750E+01	1.881E+03	0.0779	293.15	16	2.000E+01	1.864E+03	0.0781
17	2.200E+01	1.852E+03	0.0782	293.15	18	2.350E+01	1.844E+03	0.0783
19	2.500E+01	1.837E+03	0.0784	293.15	20	2.540E+01	1.836E+03	0.0784
21	2.600E+01	1.834E+03	0.1961	293.15	22	2.700E+01	1.832E+03	0.1962
23	2.850E+01	1.830E+03	0.1962	293.15	24	2.950E+01	1.829E+03	0.1963
25	3.050E+01	1.829E+03	0.1963	293.15	26	3.100E+01	1.829E+03	0.1962
27	3.200E+01	1.838E+03	0.1960	293.15	28	3.350E+01	1.857E+03	0.1954
29	3.500E+01	1.883E+03	0.1946	293.15	30	3.700E+01	1.929E+03	0.1933
31	4.000E+01	2.018E+03	0.1908	293.15	32	4.200E+01	2.089E+03	0.1889
33	4.400E+01	2.169E+03	0.1868	293.15	34	4.500E+01	2.211E+03	0.1858
35	4.600E+01	2.254E+03	0.1848	293.15	36	4.700E+01	2.299E+03	0.1837
37	4.800E+01	2.344E+03	0.1827	293.15	38	5.000E+01	2.434E+03	0.1807
39	5.200E+01	2.523E+03	0.1788	293.15	40	5.400E+01	2.607E+03	0.1771
41	5.700E+01	2.723E+03	0.1749	293.15	42	5.850E+01	2.776E+03	0.1739
43	6.000E+01	2.827E+03	0.1730	293.15	44	6.100E+01	2.861E+03	0.1724
45	6.200E+01	2.893E+03	0.1719	293.15	46	6.300E+01	2.926E+03	0.1713
47	6.450E+01	2.975E+03	0.1705	293.15	48	6.600E+01	3.024E+03	0.1697
49	6.800E+01	3.094E+03	0.1686	293.15	50	7.100E+01	3.207E+03	0.1668
51	7.400E+01	3.337E+03	0.1649	293.15	52	7.700E+01	3.485E+03	0.1628
53	8.000E+01	3.654E+03	0.1606	293.15	54	8.300E+01	3.843E+03	0.1582
55	8.600E+01	4.051E+03	0.1558	293.15	56	8.900E+01	4.273E+03	0.1534
57	9.200E+01	4.501E+03	0.1511	293.15	58	9.500E+01	4.724E+03	0.1490

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59 9.700E+01 4.861E+03 0.1478 293.15	60 9.780E+01 4.913E+03 0.1473 293.15
61 9.800E+01 4.941E+03 0.1864 293.15	62 9.900E+01 5.271E+03 0.1835 293.15
63 1.010E+02 5.973E+03 0.1781 293.15	64 1.030E+02 6.692E+03 0.1733 293.15
65 1.050E+02 7.385E+03 0.1692 293.15	66 1.090E+02 8.530E+03 0.1634 293.15
67 1.140E+02 9.735E+03 0.1583 293.15	68 1.170E+02 1.046E+04 0.1556 293.15
69 1.190E+02 1.096E+04 0.1538 293.15	70 1.210E+02 1.147E+04 0.1521 293.15
71 1.220E+02 1.172E+04 0.1513 293.15	72 1.230E+02 1.198E+04 0.1505 293.15
73 1.245E+02 1.238E+04 0.1493 293.15	74 1.260E+02 1.277E+04 0.1482 293.15
75 1.280E+02 1.327E+04 0.1468 293.15	76 1.305E+02 1.383E+04 0.1453 293.15
77 1.325E+02 1.421E+04 0.1444 293.15	78 1.350E+02 1.456E+04 0.1436 293.15
79 1.400E+02 1.472E+04 0.1432 293.15	80 1.450E+02 1.432E+04 0.1441 293.15
81 1.500E+02 1.376E+04 0.1456 293.15	82 1.550E+02 1.322E+04 0.1470 293.15
83 1.600E+02 1.277E+04 0.1482 293.15	84 1.650E+02 1.239E+04 0.1493 293.15
85 1.700E+02 1.206E+04 0.1503 293.15	86 1.750E+02 1.177E+04 0.1512 293.15
87 1.800E+02 1.151E+04 0.1520 293.15	88 1.850E+02 1.129E+04 0.1527 293.15
89 1.900E+02 1.109E+04 0.1534 293.15	90 1.950E+02 1.092E+04 0.1539 293.15
91 2.000E+02 1.077E+04 0.1545 293.15	92 2.050E+02 1.064E+04 0.1549 293.15
93 2.100E+02 1.052E+04 0.1553 293.15	94 2.130E+02 1.046E+04 0.1555 293.15
95 2.150E+02 1.042E+04 0.1557 293.15	96 2.170E+02 1.039E+04 0.1558 293.15
97 2.185E+02 1.036E+04 0.1559 293.15	98 2.197E+02 1.034E+04 0.1560 293.15
99 2.200E+02 1.034E+04 0.1188 293.15	100 2.210E+02 1.034E+04 0.1188 293.15
101 2.230E+02 1.033E+04 0.1188 293.15	102 2.250E+02 1.032E+04 0.1188 293.15
103 2.280E+02 1.031E+04 0.1189 293.15	104 2.310E+02 1.030E+04 0.1189 293.15
105 2.340E+02 1.029E+04 0.1190 293.15	106 2.370E+02 1.028E+04 0.1190 293.15
107 2.400E+02 1.027E+04 0.1190 293.15	108 2.430E+02 1.026E+04 0.1190 293.15
109 2.460E+02 1.025E+04 0.1191 293.15	110 2.480E+02 1.025E+04 0.1191 293.15
111 2.495E+02 1.025E+04 0.1191 293.15	112 2.502E+02 1.024E+04 0.1191 293.15
113 2.510E+02 1.024E+04 0.0526 293.15	114 2.520E+02 1.023E+04 0.0526 293.15
115 2.540E+02 1.021E+04 0.0526 293.15	116 2.570E+02 1.018E+04 0.0527 293.15
117 2.600E+02 1.015E+04 0.0527 293.15	118 2.650E+02 1.012E+04 0.0528 293.15
119 2.730E+02 1.008E+04 0.0529 293.15	120 2.800E+02 1.005E+04 0.0529 293.15
121 2.900E+02 1.003E+04 0.0530 293.15	122 3.150E+02 1.000E+04 0.0530 293.15
123 3.250E+02 1.000E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 51.0268 cm

NOTE: There are no temperature data when plants are modelled.

December 2023

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.06807
Head (cm) = 2.99240E+03
LiqWater Flow (cm)=-6.81929E-02
IsoVapor Flow (cm)=-3.43470E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

51.0268+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 50.9584 vs. 50.9584

Mass Balance = -1.4655E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07152
Head (cm) = 2.52441E+03
LiqWater Flow (cm)=-3.96542E-02
IsoVapor Flow (cm)=-2.14311E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

51.0304+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 50.9907 vs. 50.9907

Mass Balance = -7.2023E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.3583E+02 [cm]
 Potential Transpiration = 8.3595E+00 [cm]
 Actual Transpiration = 2.8469E+00 [cm]
 Potential Evaporation = 1.2747E+02 [cm]
 Actual Evaporation = 1.9725E+01 [cm]
 Evaporation during Growth = 1.1890E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5217E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.0991E+01 [cm]
 Mass Balance Error = -5.9732E-03 [cm]
 Total Successful Time Steps = 12012
 Total Attempted Time Steps = 13676
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6406
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.8051E+00	0.050	3.2024E+00	0.200	2.9400E+00
0.450	2.8543E+00	0.800	2.8305E+00	1.250	2.8088E+00
1.850	2.7846E+00	2.600	2.7567E+00	3.500	2.7244E+00
4.750	2.6799E+00	6.500	2.6176E+00	8.500	2.5472E+00
10.750	2.4700E+00	13.250	2.3877E+00	16.000	2.3015E+00
18.750	2.2203E+00	21.000	2.1570E+00	22.750	2.1096E+00
24.250	2.0700E+00	25.200	2.0456E+00	25.700	2.0328E+00
26.500	2.0126E+00	27.750	1.9817E+00	29.000	1.9515E+00
30.000	1.9278E+00	30.750	1.9107E+00	31.500	1.8947E+00

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32.750	1.8653E+00	34.250	1.8304E+00	36.000	1.7903E+00
38.500	1.7337E+00	41.000	1.6784E+00	43.000	1.6347E+00
44.500	1.6023E+00	45.500	1.5808E+00	46.500	1.5595E+00
47.500	1.5382E+00	49.000	1.5066E+00	51.000	1.4648E+00
53.000	1.4235E+00	55.500	1.3723E+00	57.750	1.3269E+00
59.250	1.2968E+00	60.500	1.2719E+00	61.500	1.2520E+00
62.500	1.2322E+00	63.750	1.2076E+00	65.250	1.1781E+00
67.000	1.1440E+00	69.500	1.0954E+00	72.500	1.0376E+00
75.500	9.8023E-01	78.500	9.2320E-01	81.500	8.6650E-01
84.500	8.1010E-01	87.500	7.5401E-01	90.500	6.9822E-01
93.500	6.4275E-01	96.000	5.9680E-01	97.400	5.7118E-01
97.900	5.6149E-01	98.500	5.4837E-01	100.000	5.1875E-01
102.000	4.8010E-01	104.000	4.4241E-01	107.000	3.8745E-01
111.500	3.1045E-01	115.500	2.4916E-01	118.000	2.1375E-01
120.000	1.8702E-01	121.500	1.6814E-01	122.500	1.5594E-01
123.750	1.4119E-01	125.250	1.2431E-01	127.000	1.0555E-01
129.250	8.2897E-02	131.500	6.1780E-02	133.750	4.1733E-02
137.500	9.9223E-03	142.500	-3.1544E-02	147.500	-3.0925E-02
152.500	-3.0046E-02	157.500	-2.8951E-02	162.500	-2.7672E-02
167.500	-2.6242E-02	172.500	-2.4697E-02	177.500	-2.3073E-02
182.500	-2.1405E-02	187.500	-1.9721E-02	192.500	-1.8048E-02
197.500	-1.6409E-02	202.500	-1.4821E-02	207.500	-1.3296E-02
211.500	-1.2135E-02	214.000	-1.1432E-02	216.000	-1.0881E-02
217.750	-1.0410E-02	219.100	-1.0053E-02	219.850	-9.9847E-03
220.500	-9.8922E-03	222.000	-9.5322E-03	224.000	-9.0547E-03
226.500	-8.4609E-03	229.500	-7.7540E-03	232.500	-7.0524E-03
235.500	-6.3562E-03	238.500	-5.6650E-03	241.500	-4.9787E-03
244.500	-4.2972E-03	247.000	-3.7330E-03	248.750	-3.3398E-03
249.850	-3.0934E-03	250.600	-2.8507E-03	251.500	-2.4664E-03
253.000	-2.3304E-03	255.500	-2.1147E-03	258.500	-1.8754E-03
262.500	-1.5809E-03	269.000	-1.1669E-03	276.500	-7.9755E-04
285.000	-4.7032E-04	302.500	-1.5568E-05	320.000	1.3680E-04
337.500	2.2275E-04	362.500	2.4981E-04	387.500	2.5329E-04
410.000	2.5297E-04	430.000	2.5255E-04	447.500	2.5234E-04
462.500	2.5225E-04	475.000	2.5221E-04	484.000	2.5220E-04
491.500	2.5219E-04	497.500	2.5218E-04	502.500	2.5218E-04
507.000	2.5218E-04	510.500	2.5218E-04	513.500	2.5218E-04
516.000	2.5217E-04	517.500	2.5217E-04	518.500	2.5217E-04
519.000	2.5217E-04				

Total plant water uptake (cm) at different depths:

DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE

December 2023

0.000	0.0000E+00	0.100	2.9567E-03	0.300	5.2996E-03
0.600	8.0927E-03	1.000	1.1379E-02	1.500	1.6526E-02
2.200	2.2466E-02	3.000	2.8660E-02	4.000	4.1669E-02
5.500	6.0222E-02	7.500	6.9164E-02	9.500	7.6449E-02
12.000	8.1775E-02	14.500	8.5873E-02	17.500	8.0966E-02
20.000	6.3132E-02	22.000	4.7331E-02	23.500	3.9507E-02
25.000	2.4385E-02	25.400	1.2747E-02	26.000	2.0172E-02
27.000	3.0940E-02	28.500	3.0148E-02	29.500	2.3734E-02
30.500	1.7533E-02	31.000	1.7430E-02	32.000	2.8946E-02
33.500	3.4480E-02	35.000	3.9866E-02	37.000	5.6228E-02
40.000	5.5162E-02	42.000	4.3589E-02	44.000	3.2310E-02
45.000	2.1417E-02	46.000	2.1296E-02	47.000	2.1178E-02
48.000	3.1593E-02	50.000	4.1680E-02	52.000	4.1258E-02
54.000	5.1074E-02	57.000	4.5357E-02	58.500	3.0050E-02
60.000	2.4895E-02	61.000	1.9842E-02	62.000	1.9770E-02
63.000	2.4628E-02	64.500	2.9408E-02	66.000	3.4150E-02
68.000	4.8507E-02	71.000	5.7759E-02	74.000	5.7364E-02
77.000	5.7011E-02	80.000	5.6690E-02	83.000	5.6389E-02
86.000	5.6096E-02	89.000	5.5803E-02	92.000	5.5499E-02
95.000	4.5980E-02	97.000	2.5642E-02	97.800	9.1420E-03
98.000	1.1911E-02	99.000	2.9474E-02	101.000	3.8424E-02
103.000	3.7457E-02	105.000	5.4588E-02	109.000	7.6373E-02
114.000	6.0727E-02	117.000	3.5111E-02	119.000	2.6574E-02
121.000	1.8822E-02	122.000	1.2191E-02	123.000	1.4807E-02
124.500	1.7029E-02	126.000	1.9068E-02	128.000	2.3293E-02
130.500	2.2027E-02	132.500	2.1238E-02	135.000	3.4248E-02
140.000	4.4946E-02	145.000	0.0000E+00	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

December 2023

509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Grass Vegetation Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10g.inp

Results File: c:\a\60_10g1956.res

Date of Run: 19 Oct 2023

Time of Run: 14:21:05.28

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.524E+03	0.0715	293.15	2	1.000E-01	2.084E+03	0.0756
3	3.000E-01	1.922E+03	0.0774	293.15	4	6.000E-01	1.974E+03	0.0768
5	1.000E+00	2.018E+03	0.0763	293.15	6	1.500E+00	2.011E+03	0.0764
7	2.200E+00	1.999E+03	0.0765	293.15	8	3.000E+00	1.996E+03	0.0766
9	4.000E+00	1.989E+03	0.0766	293.15	10	5.500E+00	1.978E+03	0.0767
11	7.500E+00	1.962E+03	0.0769	293.15	12	9.500E+00	1.946E+03	0.0771
13	1.200E+01	1.925E+03	0.0774	293.15	14	1.450E+01	1.904E+03	0.0776
15	1.750E+01	1.881E+03	0.0779	293.15	16	2.000E+01	1.864E+03	0.0781
17	2.200E+01	1.852E+03	0.0782	293.15	18	2.350E+01	1.844E+03	0.0783
19	2.500E+01	1.837E+03	0.0784	293.15	20	2.540E+01	1.836E+03	0.0784
21	2.600E+01	1.834E+03	0.1961	293.15	22	2.700E+01	1.832E+03	0.1962
23	2.850E+01	1.830E+03	0.1962	293.15	24	2.950E+01	1.829E+03	0.1963
25	3.050E+01	1.829E+03	0.1963	293.15	26	3.100E+01	1.829E+03	0.1962
27	3.200E+01	1.838E+03	0.1960	293.15	28	3.350E+01	1.857E+03	0.1954
29	3.500E+01	1.883E+03	0.1946	293.15	30	3.700E+01	1.929E+03	0.1933
31	4.000E+01	2.018E+03	0.1908	293.15	32	4.200E+01	2.089E+03	0.1889
33	4.400E+01	2.169E+03	0.1868	293.15	34	4.500E+01	2.211E+03	0.1858
35	4.600E+01	2.254E+03	0.1848	293.15	36	4.700E+01	2.299E+03	0.1837
37	4.800E+01	2.344E+03	0.1827	293.15	38	5.000E+01	2.434E+03	0.1807
39	5.200E+01	2.523E+03	0.1788	293.15	40	5.400E+01	2.607E+03	0.1771
41	5.700E+01	2.723E+03	0.1749	293.15	42	5.850E+01	2.776E+03	0.1739
43	6.000E+01	2.827E+03	0.1730	293.15	44	6.100E+01	2.861E+03	0.1724
45	6.200E+01	2.893E+03	0.1719	293.15	46	6.300E+01	2.926E+03	0.1713
47	6.450E+01	2.975E+03	0.1705	293.15	48	6.600E+01	3.024E+03	0.1697
49	6.800E+01	3.094E+03	0.1686	293.15	50	7.100E+01	3.207E+03	0.1668
51	7.400E+01	3.337E+03	0.1649	293.15	52	7.700E+01	3.485E+03	0.1628
53	8.000E+01	3.654E+03	0.1606	293.15	54	8.300E+01	3.843E+03	0.1582
55	8.600E+01	4.051E+03	0.1558	293.15	56	8.900E+01	4.273E+03	0.1534
57	9.200E+01	4.502E+03	0.1511	293.15	58	9.500E+01	4.724E+03	0.1490

December 2023

59	9.700E+01	4.862E+03	0.1478	293.15	60	9.780E+01	4.913E+03	0.1473	293.15
61	9.800E+01	4.941E+03	0.1864	293.15	62	9.900E+01	5.272E+03	0.1835	293.15
63	1.010E+02	5.974E+03	0.1781	293.15	64	1.030E+02	6.693E+03	0.1733	293.15
65	1.050E+02	7.387E+03	0.1692	293.15	66	1.090E+02	8.533E+03	0.1634	293.15
67	1.140E+02	9.740E+03	0.1583	293.15	68	1.170E+02	1.047E+04	0.1555	293.15
69	1.190E+02	1.096E+04	0.1538	293.15	70	1.210E+02	1.148E+04	0.1521	293.15
71	1.220E+02	1.173E+04	0.1513	293.15	72	1.230E+02	1.200E+04	0.1505	293.15
73	1.245E+02	1.239E+04	0.1493	293.15	74	1.260E+02	1.278E+04	0.1482	293.15
75	1.280E+02	1.329E+04	0.1468	293.15	76	1.305E+02	1.386E+04	0.1453	293.15
77	1.325E+02	1.425E+04	0.1443	293.15	78	1.350E+02	1.460E+04	0.1435	293.15
79	1.400E+02	1.478E+04	0.1430	293.15	80	1.450E+02	1.440E+04	0.1439	293.15
81	1.500E+02	1.384E+04	0.1453	293.15	82	1.550E+02	1.332E+04	0.1467	293.15
83	1.600E+02	1.287E+04	0.1479	293.15	84	1.650E+02	1.250E+04	0.1490	293.15
85	1.700E+02	1.217E+04	0.1499	293.15	86	1.750E+02	1.188E+04	0.1508	293.15
87	1.800E+02	1.163E+04	0.1516	293.15	88	1.850E+02	1.140E+04	0.1523	293.15
89	1.900E+02	1.120E+04	0.1530	293.15	90	1.950E+02	1.102E+04	0.1536	293.15
91	2.000E+02	1.087E+04	0.1541	293.15	92	2.050E+02	1.073E+04	0.1546	293.15
93	2.100E+02	1.061E+04	0.1550	293.15	94	2.130E+02	1.054E+04	0.1553	293.15
95	2.150E+02	1.050E+04	0.1554	293.15	96	2.170E+02	1.047E+04	0.1555	293.15
97	2.185E+02	1.044E+04	0.1556	293.15	98	2.197E+02	1.042E+04	0.1557	293.15
99	2.200E+02	1.041E+04	0.1185	293.15	100	2.210E+02	1.041E+04	0.1186	293.15
101	2.230E+02	1.040E+04	0.1186	293.15	102	2.250E+02	1.039E+04	0.1186	293.15
103	2.280E+02	1.038E+04	0.1187	293.15	104	2.310E+02	1.037E+04	0.1187	293.15
105	2.340E+02	1.036E+04	0.1187	293.15	106	2.370E+02	1.035E+04	0.1188	293.15
107	2.400E+02	1.034E+04	0.1188	293.15	108	2.430E+02	1.033E+04	0.1188	293.15
109	2.460E+02	1.032E+04	0.1188	293.15	110	2.480E+02	1.032E+04	0.1189	293.15
111	2.495E+02	1.031E+04	0.1189	293.15	112	2.502E+02	1.031E+04	0.1189	293.15
113	2.510E+02	1.031E+04	0.0525	293.15	114	2.520E+02	1.029E+04	0.0525	293.15
115	2.540E+02	1.027E+04	0.0525	293.15	116	2.570E+02	1.024E+04	0.0526	293.15
117	2.600E+02	1.021E+04	0.0526	293.15	118	2.650E+02	1.016E+04	0.0527	293.15
119	2.730E+02	1.011E+04	0.0528	293.15	120	2.800E+02	1.008E+04	0.0529	293.15
121	2.900E+02	1.004E+04	0.0529	293.15	122	3.150E+02	1.001E+04	0.0530	293.15
123	3.250E+02	1.000E+04	0.0530	293.15	124	3.500E+02	1.000E+04	0.0530	293.15
125	3.750E+02	1.000E+04	0.0530	293.15	126	4.000E+02	1.000E+04	0.0530	293.15
127	4.200E+02	1.000E+04	0.0530	293.15	128	4.400E+02	1.000E+04	0.0530	293.15
129	4.550E+02	1.000E+04	0.0530	293.15	130	4.700E+02	1.000E+04	0.0530	293.15
131	4.800E+02	1.000E+04	0.0530	293.15	132	4.880E+02	1.000E+04	0.0530	293.15
133	4.950E+02	1.000E+04	0.0530	293.15	134	5.000E+02	1.000E+04	0.0530	293.15
135	5.050E+02	1.000E+04	0.0530	293.15	136	5.090E+02	1.000E+04	0.0530	293.15
137	5.120E+02	1.000E+04	0.0530	293.15	138	5.150E+02	1.000E+04	0.0530	293.15
139	5.170E+02	1.000E+04	0.0530	293.15	140	5.180E+02	1.000E+04	0.0530	293.15
141	5.190E+02	1.000E+04	0.0530	293.15					

Initial Water Storage = 50.9907 cm

NOTE: There are no temperature data when plants are modelled.

December 2023

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07021
Head (cm) = 2.69064E+03
LiqWater Flow (cm)=-4.42126E-02
IsoVapor Flow (cm)=-2.17250E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

50.9907+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 50.9464 vs. 50.9464

Mass Balance = -8.0263E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07676
Head (cm) = 1.97726E+03
LiqWater Flow (cm)=-1.37870E-04
IsoVapor Flow (cm)=-2.92452E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.2561+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 56.2561 vs. 56.2561

Mass Balance = -2.1542E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.1370E+02 [cm]
 Potential Transpiration = 6.9239E+00 [cm]
 Actual Transpiration = 3.9889E+00 [cm]
 Potential Evaporation = 1.0678E+02 [cm]
 Actual Evaporation = 4.1451E+01 [cm]
 Evaporation during Growth = 2.7498E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6256E+01 [cm]
 Mass Balance Error = -7.0283E-03 [cm]
 Total Successful Time Steps = 13102
 Total Attempted Time Steps = 14986
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3776
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	9.2474E+00	0.050	9.4591E+00	0.200	9.2747E+00
0.450	9.2441E+00	0.800	9.2220E+00	1.250	9.1945E+00
1.850	9.1589E+00	2.600	9.1145E+00	3.500	9.0608E+00
4.750	8.9861E+00	6.500	8.8824E+00	8.500	8.7667E+00
10.750	8.6407E+00	13.250	8.5070E+00	16.000	8.3670E+00
18.750	8.2349E+00	21.000	8.1318E+00	22.750	8.0544E+00
24.250	7.9897E+00	25.200	7.9497E+00	25.700	7.9288E+00
26.500	7.8868E+00	27.750	7.8221E+00	29.000	7.7587E+00
30.000	7.7085E+00	30.750	7.6714E+00	31.500	7.6348E+00

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32.750	7.5739E+00	34.250	7.5025E+00	36.000	7.4210E+00
38.500	7.3073E+00	41.000	7.1965E+00	43.000	7.1082E+00
44.500	7.0415E+00	45.500	6.9967E+00	46.500	6.9513E+00
47.500	6.9054E+00	49.000	6.8354E+00	51.000	6.7387E+00
53.000	6.6382E+00	55.500	6.5074E+00	57.750	6.3828E+00
59.250	6.2975E+00	60.500	6.2246E+00	61.500	6.1654E+00
62.500	6.1053E+00	63.750	6.0290E+00	65.250	5.9356E+00
67.000	5.8242E+00	69.500	5.6610E+00	72.500	5.4574E+00
75.500	5.2462E+00	78.500	5.0272E+00	81.500	4.8002E+00
84.500	4.5653E+00	87.500	4.3225E+00	90.500	4.0722E+00
93.500	3.8149E+00	96.000	3.5954E+00	97.400	3.4709E+00
97.900	3.4260E+00	98.500	3.3712E+00	100.000	3.2325E+00
102.000	3.0398E+00	104.000	2.8413E+00	107.000	2.5380E+00
111.500	2.0815E+00	115.500	1.6908E+00	118.000	1.4563E+00
120.000	1.2750E+00	121.500	1.1446E+00	122.500	1.0598E+00
123.750	9.5655E-01	125.250	8.3805E-01	127.000	7.0684E-01
129.250	5.5157E-01	131.500	4.1542E-01	133.750	2.9668E-01
137.500	1.3862E-01	142.500	2.0266E-02	147.500	-1.1557E-02
152.500	-2.2649E-02	157.500	-2.5845E-02	162.500	-2.6118E-02
167.500	-2.5304E-02	172.500	-2.4065E-02	177.500	-2.2648E-02
182.500	-2.1152E-02	187.500	-1.9622E-02	192.500	-1.8088E-02
197.500	-1.6568E-02	202.500	-1.5077E-02	207.500	-1.3626E-02
211.500	-1.2505E-02	214.000	-1.1819E-02	216.000	-1.1279E-02
217.750	-1.0814E-02	219.100	-1.0460E-02	219.850	-1.0399E-02
220.500	-1.0311E-02	222.000	-9.9518E-03	224.000	-9.4746E-03
226.500	-8.8803E-03	229.500	-8.1714E-03	232.500	-7.4665E-03
235.500	-6.7657E-03	238.500	-6.0689E-03	241.500	-5.3759E-03
244.500	-4.6869E-03	247.000	-4.1157E-03	248.750	-3.7174E-03
249.850	-3.4676E-03	250.600	-3.2117E-03	251.500	-2.7794E-03
253.000	-2.6434E-03	255.500	-2.4263E-03	258.500	-2.1826E-03
262.500	-1.8794E-03	269.000	-1.4446E-03	276.500	-1.0434E-03
285.000	-6.7582E-04	302.500	-1.3640E-04	320.000	6.7918E-05
337.500	1.9326E-04	362.500	2.4223E-04	387.500	2.5233E-04
410.000	2.5342E-04	430.000	2.5327E-04	447.500	2.5309E-04
462.500	2.5298E-04	475.000	2.5293E-04	484.000	2.5290E-04
491.500	2.5289E-04	497.500	2.5288E-04	502.500	2.5288E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE

December 2023

0.000	0.0000E+00	0.100	6.1102E-03	0.300	1.0547E-02
0.600	1.5308E-02	1.000	2.0381E-02	1.500	2.8039E-02
2.200	3.6069E-02	3.000	4.4091E-02	4.000	6.1825E-02
5.500	8.6291E-02	7.500	9.6435E-02	9.500	1.0493E-01
12.000	1.1103E-01	14.500	1.1600E-01	17.500	1.0912E-01
20.000	8.5059E-02	22.000	6.3796E-02	23.500	5.3291E-02
25.000	3.2931E-02	25.400	1.7223E-02	26.000	2.7268E-02
27.000	4.1847E-02	28.500	4.0802E-02	29.500	3.2132E-02
30.500	2.3743E-02	31.000	2.3609E-02	32.000	3.9248E-02
33.500	4.6886E-02	35.000	5.4432E-02	37.000	7.7209E-02
40.000	7.6374E-02	42.000	6.0689E-02	44.000	4.5246E-02
45.000	3.0082E-02	46.000	3.0005E-02	47.000	2.9934E-02
48.000	4.4800E-02	50.000	5.9488E-02	52.000	5.9271E-02
54.000	7.3850E-02	57.000	6.6200E-02	58.500	4.4058E-02
60.000	3.6656E-02	61.000	2.9293E-02	62.000	2.9261E-02
63.000	3.6534E-02	64.500	4.3765E-02	66.000	5.0967E-02
68.000	7.2622E-02	71.000	8.6738E-02	74.000	8.6298E-02
77.000	8.5823E-02	80.000	8.5336E-02	83.000	8.4837E-02
86.000	8.4326E-02	89.000	8.3808E-02	92.000	8.3286E-02
95.000	6.8971E-02	97.000	3.8462E-02	97.800	1.3714E-02
98.000	1.7045E-02	99.000	4.2101E-02	101.000	5.4686E-02
103.000	5.3120E-02	105.000	7.7140E-02	109.000	1.0710E-01
114.000	8.3869E-02	117.000	4.7655E-02	119.000	3.5447E-02
121.000	2.4526E-02	122.000	1.5659E-02	123.000	1.8711E-02
124.500	2.0922E-02	126.000	2.2675E-02	128.000	2.6360E-02
130.500	2.3284E-02	132.500	2.1222E-02	135.000	3.2076E-02
140.000	3.8909E-02	145.000	0.0000E+00	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

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509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Grass Vegetation Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10g.inp
Results File: c:\a\60_10g1957.res
Date of Run: 19 Oct 2023
Time of Run: 14:21:05.28
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions					
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA	TEMP
	(cm)	(cm)	(vol.)	(K)		(cm)	(cm)	(vol.)	(K)
1	0.000E+00	1.977E+03	0.0768	293.15	2	1.000E-01	1.556E+03	0.0822	293.15
3	3.000E-01	1.294E+03	0.0866	293.15	4	6.000E-01	1.227E+03	0.0880	293.15
5	1.000E+00	1.247E+03	0.0876	293.15	6	1.500E+00	1.303E+03	0.0865	293.15
7	2.200E+00	1.317E+03	0.0862	293.15	8	3.000E+00	1.308E+03	0.0864	293.15
9	4.000E+00	1.302E+03	0.0865	293.15	10	5.500E+00	1.303E+03	0.0865	293.15
11	7.500E+00	1.304E+03	0.0865	293.15	12	9.500E+00	1.305E+03	0.0864	293.15
13	1.200E+01	1.307E+03	0.0864	293.15	14	1.450E+01	1.311E+03	0.0863	293.15
15	1.750E+01	1.317E+03	0.0862	293.15	16	2.000E+01	1.323E+03	0.0861	293.15
17	2.200E+01	1.329E+03	0.0860	293.15	18	2.350E+01	1.333E+03	0.0859	293.15
19	2.500E+01	1.338E+03	0.0858	293.15	20	2.540E+01	1.340E+03	0.0858	293.15
21	2.600E+01	1.341E+03	0.2144	293.15	22	2.700E+01	1.341E+03	0.2144	293.15
23	2.850E+01	1.343E+03	0.2144	293.15	24	2.950E+01	1.343E+03	0.2143	293.15
25	3.050E+01	1.344E+03	0.2143	293.15	26	3.100E+01	1.347E+03	0.2141	293.15
27	3.200E+01	1.369E+03	0.2132	293.15	28	3.350E+01	1.404E+03	0.2117	293.15
29	3.500E+01	1.442E+03	0.2100	293.15	30	3.700E+01	1.498E+03	0.2078	293.15
31	4.000E+01	1.583E+03	0.2045	293.15	32	4.200E+01	1.636E+03	0.2026	293.15
33	4.400E+01	1.679E+03	0.2011	293.15	34	4.500E+01	1.696E+03	0.2005	293.15
35	4.600E+01	1.710E+03	0.2001	293.15	36	4.700E+01	1.721E+03	0.1997	293.15
37	4.800E+01	1.728E+03	0.1995	293.15	38	5.000E+01	1.734E+03	0.1993	293.15
39	5.200E+01	1.728E+03	0.1995	293.15	40	5.400E+01	1.715E+03	0.1999	293.15
41	5.700E+01	1.687E+03	0.2009	293.15	42	5.850E+01	1.671E+03	0.2014	293.15
43	6.000E+01	1.655E+03	0.2020	293.15	44	6.100E+01	1.644E+03	0.2023	293.15
45	6.200E+01	1.634E+03	0.2027	293.15	46	6.300E+01	1.623E+03	0.2031	293.15
47	6.450E+01	1.608E+03	0.2036	293.15	48	6.600E+01	1.594E+03	0.2042	293.15
49	6.800E+01	1.576E+03	0.2048	293.15	50	7.100E+01	1.552E+03	0.2057	293.15
51	7.400E+01	1.531E+03	0.2065	293.15	52	7.700E+01	1.513E+03	0.2072	293.15
53	8.000E+01	1.498E+03	0.2078	293.15	54	8.300E+01	1.486E+03	0.2083	293.15
55	8.600E+01	1.476E+03	0.2087	293.15	56	8.900E+01	1.469E+03	0.2089	293.15

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57	9.200E+01	1.465E+03	0.2091	293.15	58	9.500E+01	1.462E+03	0.2092	293.15
59	9.700E+01	1.462E+03	0.2092	293.15	60	9.780E+01	1.462E+03	0.2092	293.15
61	9.800E+01	1.463E+03	0.2482	293.15	62	9.900E+01	1.472E+03	0.2478	293.15
63	1.010E+02	1.495E+03	0.2470	293.15	64	1.030E+02	1.525E+03	0.2459	293.15
65	1.050E+02	1.563E+03	0.2445	293.15	66	1.090E+02	1.666E+03	0.2409	293.15
67	1.140E+02	1.865E+03	0.2347	293.15	68	1.170E+02	2.034E+03	0.2300	293.15
69	1.190E+02	2.177E+03	0.2264	293.15	70	1.210E+02	2.352E+03	0.2224	293.15
71	1.220E+02	2.454E+03	0.2202	293.15	72	1.230E+02	2.568E+03	0.2178	293.15
73	1.245E+02	2.765E+03	0.2141	293.15	74	1.260E+02	3.000E+03	0.2100	293.15
75	1.280E+02	3.393E+03	0.2039	293.15	76	1.305E+02	4.060E+03	0.1954	293.15
77	1.325E+02	4.788E+03	0.1878	293.15	78	1.350E+02	6.035E+03	0.1777	293.15
79	1.400E+02	9.381E+03	0.1597	293.15	80	1.450E+02	1.197E+04	0.1506	293.15
81	1.500E+02	1.297E+04	0.1476	293.15	82	1.550E+02	1.308E+04	0.1473	293.15
83	1.600E+02	1.286E+04	0.1479	293.15	84	1.650E+02	1.256E+04	0.1488	293.15
85	1.700E+02	1.226E+04	0.1497	293.15	86	1.750E+02	1.198E+04	0.1505	293.15
87	1.800E+02	1.173E+04	0.1513	293.15	88	1.850E+02	1.150E+04	0.1520	293.15
89	1.900E+02	1.130E+04	0.1527	293.15	90	1.950E+02	1.112E+04	0.1533	293.15
91	2.000E+02	1.096E+04	0.1538	293.15	92	2.050E+02	1.082E+04	0.1543	293.15
93	2.100E+02	1.069E+04	0.1547	293.15	94	2.130E+02	1.062E+04	0.1550	293.15
95	2.150E+02	1.058E+04	0.1551	293.15	96	2.170E+02	1.054E+04	0.1553	293.15
97	2.185E+02	1.051E+04	0.1554	293.15	98	2.197E+02	1.049E+04	0.1554	293.15
99	2.200E+02	1.049E+04	0.1183	293.15	100	2.210E+02	1.048E+04	0.1183	293.15
101	2.230E+02	1.047E+04	0.1183	293.15	102	2.250E+02	1.047E+04	0.1184	293.15
103	2.280E+02	1.045E+04	0.1184	293.15	104	2.310E+02	1.044E+04	0.1185	293.15
105	2.340E+02	1.043E+04	0.1185	293.15	106	2.370E+02	1.042E+04	0.1185	293.15
107	2.400E+02	1.041E+04	0.1186	293.15	108	2.430E+02	1.040E+04	0.1186	293.15
109	2.460E+02	1.039E+04	0.1186	293.15	110	2.480E+02	1.039E+04	0.1186	293.15
111	2.495E+02	1.038E+04	0.1186	293.15	112	2.502E+02	1.038E+04	0.1186	293.15
113	2.510E+02	1.038E+04	0.0524	293.15	114	2.520E+02	1.036E+04	0.0524	293.15
115	2.540E+02	1.033E+04	0.0524	293.15	116	2.570E+02	1.029E+04	0.0525	293.15
117	2.600E+02	1.026E+04	0.0526	293.15	118	2.650E+02	1.021E+04	0.0526	293.15
119	2.730E+02	1.015E+04	0.0527	293.15	120	2.800E+02	1.011E+04	0.0528	293.15
121	2.900E+02	1.006E+04	0.0529	293.15	122	3.150E+02	1.002E+04	0.0530	293.15
123	3.250E+02	1.001E+04	0.0530	293.15	124	3.500E+02	1.000E+04	0.0530	293.15
125	3.750E+02	1.000E+04	0.0530	293.15	126	4.000E+02	1.000E+04	0.0530	293.15
127	4.200E+02	1.000E+04	0.0530	293.15	128	4.400E+02	1.000E+04	0.0530	293.15
129	4.550E+02	1.000E+04	0.0530	293.15	130	4.700E+02	1.000E+04	0.0530	293.15
131	4.800E+02	1.000E+04	0.0530	293.15	132	4.880E+02	1.000E+04	0.0530	293.15
133	4.950E+02	1.000E+04	0.0530	293.15	134	5.000E+02	1.000E+04	0.0530	293.15
135	5.050E+02	1.000E+04	0.0530	293.15	136	5.090E+02	1.000E+04	0.0530	293.15
137	5.120E+02	1.000E+04	0.0530	293.15	138	5.150E+02	1.000E+04	0.0530	293.15
139	5.170E+02	1.000E+04	0.0530	293.15	140	5.180E+02	1.000E+04	0.0530	293.15
141	5.190E+02	1.000E+04	0.0530	293.15					

Initial Water Storage = 56.2561 cm

December 2023

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07478
Head (cm) = 2.16472E+03
LiqWater Flow (cm)=-4.41701E-02
IsoVapor Flow (cm)=-3.02753E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.2561+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.2118 vs. 56.2118

Mass Balance = -1.3429E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07498
Head (cm) = 2.14456E+03
LiqWater Flow (cm)=-5.84265E-02
IsoVapor Flow (cm)=-3.90763E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

58.5201+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 58.4616 vs. 58.4616

Mass Balance = -5.6232E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

December 2023

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]
Potential Transpiration = 6.9239E+00 [cm]
Actual Transpiration = 4.6777E+00 [cm]
Potential Evaporation = 1.0684E+02 [cm]
Actual Evaporation = 4.3821E+01 [cm]
Evaporation during Growth = 2.9656E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 5.0698E+01 [cm]
Actual Rainfall = 5.0698E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 5.8462E+01 [cm]
Mass Balance Error = -6.2371E-03 [cm]
Total Successful Time Steps = 12893
Total Attempted Time Steps = 14552
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 3604
Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	6.8772E+00	0.050	7.0492E+00	0.200	6.8950E+00
0.450	6.8742E+00	0.800	6.8559E+00	1.250	6.8331E+00
1.850	6.8028E+00	2.600	6.7646E+00	3.500	6.7186E+00
4.750	6.6544E+00	6.500	6.5653E+00	8.500	6.4659E+00
10.750	6.3577E+00	13.250	6.2430E+00	16.000	6.1227E+00
18.750	6.0089E+00	21.000	5.9197E+00	22.750	5.8525E+00
24.250	5.7961E+00	25.200	5.7611E+00	25.700	5.7428E+00
26.500	5.7129E+00	27.750	5.6669E+00	29.000	5.6218E+00

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30.000	5.5862E+00	30.750	5.5600E+00	31.500	5.5343E+00
32.750	5.4899E+00	34.250	5.4359E+00	36.000	5.3724E+00
38.500	5.2808E+00	41.000	5.1885E+00	43.000	5.1145E+00
44.500	5.0592E+00	45.500	5.0223E+00	46.500	4.9855E+00
47.500	4.9488E+00	49.000	4.8939E+00	51.000	4.8210E+00
53.000	4.7486E+00	55.500	4.6585E+00	57.750	4.5777E+00
59.250	4.5240E+00	60.500	4.4792E+00	61.500	4.4434E+00
62.500	4.4076E+00	63.750	4.3629E+00	65.250	4.3092E+00
67.000	4.2464E+00	69.500	4.1567E+00	72.500	4.0489E+00
75.500	3.9407E+00	78.500	3.8323E+00	81.500	3.7237E+00
84.500	3.6149E+00	87.500	3.5059E+00	90.500	3.3967E+00
93.500	3.2871E+00	96.000	3.1956E+00	97.400	3.1443E+00
97.900	3.1259E+00	98.500	3.1035E+00	100.000	3.0476E+00
102.000	2.9722E+00	104.000	2.8961E+00	107.000	2.7807E+00
111.500	2.6032E+00	115.500	2.4386E+00	118.000	2.3323E+00
120.000	2.2451E+00	121.500	2.1777E+00	122.500	2.1319E+00
123.750	2.0738E+00	125.250	2.0019E+00	127.000	1.9152E+00
129.250	1.7982E+00	131.500	1.6727E+00	133.750	1.5393E+00
137.500	1.2991E+00	142.500	9.4780E-01	147.500	7.0465E-01
152.500	4.9316E-01	157.500	3.2092E-01	162.500	1.8863E-01
167.500	9.5194E-02	172.500	3.6719E-02	177.500	5.2032E-03
182.500	-9.2772E-03	187.500	-1.4803E-02	192.500	-1.6216E-02
197.500	-1.5903E-02	202.500	-1.4917E-02	207.500	-1.3691E-02
211.500	-1.2658E-02	214.000	-1.2008E-02	216.000	-1.1489E-02
217.750	-1.1038E-02	219.100	-1.0692E-02	219.850	-1.0641E-02
220.500	-1.0559E-02	222.000	-1.0206E-02	224.000	-9.7356E-03
226.500	-9.1495E-03	229.500	-8.4488E-03	232.500	-7.7510E-03
235.500	-7.0560E-03	238.500	-6.3640E-03	241.500	-5.6750E-03
244.500	-4.9890E-03	247.000	-4.4199E-03	248.750	-4.0228E-03
249.850	-3.7737E-03	250.600	-3.5081E-03	251.500	-3.0334E-03
253.000	-2.8999E-03	255.500	-2.6854E-03	258.500	-2.4425E-03
262.500	-2.1373E-03	269.000	-1.6926E-03	276.500	-1.2708E-03
285.000	-8.7394E-04	302.500	-2.6610E-04	320.000	-1.1767E-05
337.500	1.5430E-04	362.500	2.2964E-04	387.500	2.4911E-04
410.000	2.5266E-04	430.000	2.5315E-04	447.500	2.5309E-04
462.500	2.5300E-04	475.000	2.5295E-04	484.000	2.5292E-04
491.500	2.5290E-04	497.500	2.5289E-04	502.500	2.5288E-04
507.000	2.5288E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

December 2023

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER
UPTAKE

0.000	0.0000E+00	0.100	6.5327E-03	0.300	1.1251E-02
0.600	1.6279E-02	1.000	2.1601E-02	1.500	2.9623E-02
2.200	3.7983E-02	3.000	4.6310E-02	4.000	6.4785E-02
5.500	9.0210E-02	7.500	1.0061E-01	9.500	1.0934E-01
12.000	1.1560E-01	14.500	1.2074E-01	17.500	1.1357E-01
20.000	8.8563E-02	22.000	6.6452E-02	23.500	5.5535E-02
25.000	3.4338E-02	25.400	1.7961E-02	26.000	2.8442E-02
27.000	4.3656E-02	28.500	4.2578E-02	29.500	3.3536E-02
30.500	2.4785E-02	31.000	2.4652E-02	32.000	4.1048E-02
33.500	4.9145E-02	35.000	5.7167E-02	37.000	8.1300E-02
40.000	8.0746E-02	42.000	6.4324E-02	44.000	4.8070E-02
45.000	3.1997E-02	46.000	3.1952E-02	47.000	3.1912E-02
48.000	4.7814E-02	50.000	6.3632E-02	52.000	6.3542E-02
54.000	7.9353E-02	57.000	7.1369E-02	58.500	4.7576E-02
60.000	3.9651E-02	61.000	3.1725E-02	62.000	3.1731E-02
63.000	3.9672E-02	64.500	4.7617E-02	66.000	5.5564E-02
68.000	7.9408E-02	71.000	9.5354E-02	74.000	9.5393E-02
77.000	9.5372E-02	80.000	9.5270E-02	83.000	9.5161E-02
86.000	9.5041E-02	89.000	9.4914E-02	92.000	9.4780E-02
95.000	7.8867E-02	97.000	4.4121E-02	97.800	1.5751E-02
98.000	1.9312E-02	99.000	4.8100E-02	101.000	6.3613E-02
103.000	6.3022E-02	105.000	9.3566E-02	109.000	1.3712E-01
114.000	1.1770E-01	117.000	7.1795E-02	119.000	5.6420E-02
121.000	4.1508E-02	122.000	2.7391E-02	123.000	3.3878E-02
124.500	3.9982E-02	126.000	4.5829E-02	128.000	5.7454E-02
130.500	5.5505E-02	132.500	5.3855E-02	135.000	8.6121E-02
140.000	1.0422E-01	145.000	0.0000E+00	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00

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470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00
509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Grass Vegetation Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\60_10g1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                46.984
 1 22.530 135.832  2.157 17.018  0.000  0.000  50.344  11901 -0.00544
 2 22.530 135.832  2.606 19.369  0.000  0.000  50.905  11999 -0.00592
 3 22.530 135.832  2.744 19.607  0.000  0.000  51.089  12042 -0.00601
 4 22.530 135.832  2.804 19.675  0.000  0.000  51.146  12003 -0.00605
 5 22.530 135.832  2.828 19.709  0.000  0.000  51.145  12031 -0.00596
 6 22.530 135.832  2.839 19.718  0.000  0.000  51.124  12040 -0.00597
 7 22.530 135.832  2.844 19.722  0.000  0.000  51.094  12011 -0.00612
 8 22.530 135.832  2.848 19.717  0.000  0.000  51.064  12024 -0.00615
 9 22.530 135.832  2.847 19.726  0.000  0.000  51.027  12015 -0.00609
10 22.530 135.832  2.847 19.725  0.000  0.000  50.991  12012 -0.00597
11 50.698 113.700  3.989 41.451  0.000  0.000  56.256  13102 -0.00703
12 50.698 113.759  4.678 43.821  0.000  0.000  58.462  12893 -0.00624
-----
SUM= 326.6951585.780 36.031 279.256  0.000  0.003          -0.07295
```


Sensitivity Analysis #2: Reclaimed Vegetation Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10r.inp

Results File: c:\a\60_10r1955.res

Date of Run: 19 Oct 2023

Time of Run: 14:26:03.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.613E+03	0.0708	293.15	2	1.000E-01	2.138E+03	0.0750
3	3.000E-01	1.971E+03	0.0768	293.15	4	6.000E-01	2.029E+03	0.0762
5	1.000E+00	2.073E+03	0.0757	293.15	6	1.500E+00	2.065E+03	0.0758
7	2.200E+00	2.053E+03	0.0759	293.15	8	3.000E+00	2.049E+03	0.0760
9	4.000E+00	2.042E+03	0.0760	293.15	10	5.500E+00	2.031E+03	0.0762
11	7.500E+00	2.014E+03	0.0764	293.15	12	9.500E+00	1.996E+03	0.0765
13	1.200E+01	1.974E+03	0.0768	293.15	14	1.450E+01	1.952E+03	0.0770
15	1.750E+01	1.928E+03	0.0773	293.15	16	2.000E+01	1.910E+03	0.0775
17	2.200E+01	1.898E+03	0.0777	293.15	18	2.350E+01	1.890E+03	0.0778
19	2.500E+01	1.883E+03	0.0778	293.15	20	2.540E+01	1.882E+03	0.0779
21	2.600E+01	1.880E+03	0.1947	293.15	22	2.700E+01	1.878E+03	0.1948
23	2.850E+01	1.876E+03	0.1948	293.15	24	2.950E+01	1.875E+03	0.1948
25	3.050E+01	1.875E+03	0.1949	293.15	26	3.100E+01	1.876E+03	0.1948
27	3.200E+01	1.886E+03	0.1945	293.15	28	3.350E+01	1.909E+03	0.1938
29	3.500E+01	1.940E+03	0.1930	293.15	30	3.700E+01	1.992E+03	0.1915
31	4.000E+01	2.095E+03	0.1887	293.15	32	4.200E+01	2.178E+03	0.1866
33	4.400E+01	2.270E+03	0.1844	293.15	34	4.500E+01	2.320E+03	0.1832
35	4.600E+01	2.370E+03	0.1821	293.15	36	4.700E+01	2.422E+03	0.1810
37	4.800E+01	2.475E+03	0.1798	293.15	38	5.000E+01	2.582E+03	0.1776
39	5.200E+01	2.687E+03	0.1756	293.15	40	5.400E+01	2.787E+03	0.1737
41	5.700E+01	2.925E+03	0.1713	293.15	42	5.850E+01	2.990E+03	0.1702
43	6.000E+01	3.052E+03	0.1692	293.15	44	6.100E+01	3.093E+03	0.1686
45	6.200E+01	3.134E+03	0.1679	293.15	46	6.300E+01	3.175E+03	0.1673
47	6.450E+01	3.238E+03	0.1663	293.15	48	6.600E+01	3.302E+03	0.1654
49	6.800E+01	3.393E+03	0.1641	293.15	50	7.100E+01	3.545E+03	0.1620
51	7.400E+01	3.720E+03	0.1598	293.15	52	7.700E+01	3.920E+03	0.1573
53	8.000E+01	4.147E+03	0.1548	293.15	54	8.300E+01	4.397E+03	0.1522
55	8.600E+01	4.666E+03	0.1496	293.15	56	8.900E+01	4.939E+03	0.1471
57	9.200E+01	5.200E+03	0.1449	293.15	58	9.500E+01	5.426E+03	0.1431

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59 9.700E+01 5.545E+03 0.1422 293.15	60 9.780E+01 5.584E+03 0.1419 293.15
61 9.800E+01 5.605E+03 0.1809 293.15	62 9.900E+01 5.813E+03 0.1793 293.15
63 1.010E+02 6.120E+03 0.1771 293.15	64 1.030E+02 6.283E+03 0.1760 293.15
65 1.050E+02 6.329E+03 0.1756 293.15	66 1.090E+02 6.195E+03 0.1766 293.15
67 1.140E+02 5.920E+03 0.1785 293.15	68 1.170E+02 5.766E+03 0.1796 293.15
69 1.190E+02 5.674E+03 0.1803 293.15	70 1.210E+02 5.591E+03 0.1810 293.15
71 1.220E+02 5.553E+03 0.1813 293.15	72 1.230E+02 5.518E+03 0.1815 293.15
73 1.245E+02 5.469E+03 0.1819 293.15	74 1.260E+02 5.427E+03 0.1823 293.15
75 1.280E+02 5.379E+03 0.1827 293.15	76 1.305E+02 5.334E+03 0.1830 293.15
77 1.325E+02 5.309E+03 0.1832 293.15	78 1.350E+02 5.292E+03 0.1834 293.15
79 1.400E+02 5.307E+03 0.1832 293.15	80 1.450E+02 5.385E+03 0.1826 293.15
81 1.500E+02 5.523E+03 0.1815 293.15	82 1.550E+02 5.716E+03 0.1800 293.15
83 1.600E+02 5.954E+03 0.1782 293.15	84 1.650E+02 6.226E+03 0.1763 293.15
85 1.700E+02 6.517E+03 0.1744 293.15	86 1.750E+02 6.817E+03 0.1725 293.15
87 1.800E+02 7.117E+03 0.1707 293.15	88 1.850E+02 7.413E+03 0.1691 293.15
89 1.900E+02 7.702E+03 0.1675 293.15	90 1.950E+02 7.984E+03 0.1661 293.15
91 2.000E+02 8.257E+03 0.1647 293.15	92 2.050E+02 8.518E+03 0.1635 293.15
93 2.100E+02 8.765E+03 0.1624 293.15	94 2.130E+02 8.906E+03 0.1617 293.15
95 2.150E+02 8.996E+03 0.1613 293.15	96 2.170E+02 9.085E+03 0.1610 293.15
97 2.185E+02 9.149E+03 0.1607 293.15	98 2.197E+02 9.199E+03 0.1605 293.15
99 2.200E+02 9.205E+03 0.1228 293.15	100 2.210E+02 9.213E+03 0.1228 293.15
101 2.230E+02 9.229E+03 0.1227 293.15	102 2.250E+02 9.244E+03 0.1227 293.15
103 2.280E+02 9.266E+03 0.1226 293.15	104 2.310E+02 9.285E+03 0.1225 293.15
105 2.340E+02 9.302E+03 0.1225 293.15	106 2.370E+02 9.317E+03 0.1224 293.15
107 2.400E+02 9.331E+03 0.1223 293.15	108 2.430E+02 9.342E+03 0.1223 293.15
109 2.460E+02 9.352E+03 0.1223 293.15	110 2.480E+02 9.357E+03 0.1222 293.15
111 2.495E+02 9.360E+03 0.1222 293.15	112 2.502E+02 9.362E+03 0.1222 293.15
113 2.510E+02 9.368E+03 0.0542 293.15	114 2.520E+02 9.394E+03 0.0541 293.15
115 2.540E+02 9.443E+03 0.0540 293.15	116 2.570E+02 9.512E+03 0.0539 293.15
117 2.600E+02 9.574E+03 0.0538 293.15	118 2.650E+02 9.663E+03 0.0536 293.15
119 2.730E+02 9.773E+03 0.0534 293.15	120 2.800E+02 9.844E+03 0.0533 293.15
121 2.900E+02 9.913E+03 0.0531 293.15	122 3.150E+02 9.975E+03 0.0530 293.15
123 3.250E+02 9.987E+03 0.0530 293.15	124 3.500E+02 9.997E+03 0.0530 293.15
125 3.750E+02 9.999E+03 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 53.4800 cm

NOTE: There are no temperature data when plants are modelled.

December 2023

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.06724
Head (cm) = 3.12077E+03
LiqWater Flow (cm)=-6.81822E-02
IsoVapor Flow (cm)=-3.91562E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

53.4800+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 53.4116 vs. 53.4116

Mass Balance = -1.6230E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07082
Head (cm) = 2.61132E+03
LiqWater Flow (cm)=-3.96513E-02
IsoVapor Flow (cm)=-2.36681E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

53.7387+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 53.6990 vs. 53.6990

Mass Balance = -7.3301E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.3583E+02 [cm]
 Potential Transpiration = 1.1360E+01 [cm]
 Actual Transpiration = 3.7128E+00 [cm]
 Potential Evaporation = 1.2447E+02 [cm]
 Actual Evaporation = 1.8604E+01 [cm]
 Evaporation during Growth = 1.0961E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5217E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.3699E+01 [cm]
 Mass Balance Error = -6.1486E-03 [cm]
 Total Successful Time Steps = 12050
 Total Attempted Time Steps = 13709
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6478
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	3.9259E+00	0.050	4.3213E+00	0.200	4.0694E+00
0.450	3.9826E+00	0.800	3.9556E+00	1.250	3.9308E+00
1.850	3.9030E+00	2.600	3.8703E+00	3.500	3.8312E+00
4.750	3.7750E+00	6.500	3.6913E+00	8.500	3.5896E+00
10.750	3.4705E+00	13.250	3.3343E+00	16.000	3.1823E+00
18.750	3.0298E+00	21.000	2.9057E+00	22.750	2.8099E+00
24.250	2.7284E+00	25.200	2.6773E+00	25.700	2.6504E+00
26.500	2.6077E+00	27.750	2.5417E+00	29.000	2.4767E+00
30.000	2.4251E+00	30.750	2.3874E+00	31.500	2.3507E+00

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32.750	2.2868E+00	34.250	2.2108E+00	36.000	2.1232E+00
38.500	2.0004E+00	41.000	1.8811E+00	43.000	1.7879E+00
44.500	1.7195E+00	45.500	1.6746E+00	46.500	1.6302E+00
47.500	1.5865E+00	49.000	1.5217E+00	51.000	1.4379E+00
53.000	1.3565E+00	55.500	1.2578E+00	57.750	1.1730E+00
59.250	1.1179E+00	60.500	1.0730E+00	61.500	1.0376E+00
62.500	1.0029E+00	63.750	9.6009E-01	65.250	9.1001E-01
67.000	8.5302E-01	69.500	7.7428E-01	72.500	6.8451E-01
75.500	5.9943E-01	78.500	5.1905E-01	81.500	4.4340E-01
84.500	3.7257E-01	87.500	3.0667E-01	90.500	2.4583E-01
93.500	1.9016E-01	96.000	1.4821E-01	97.400	1.2641E-01
97.900	1.1889E-01	98.500	1.0920E-01	100.000	8.5674E-02
102.000	5.6743E-02	104.000	3.0381E-02	107.000	-5.1681E-03
111.500	-4.6219E-02	115.500	-6.8791E-02	118.000	-7.7606E-02
120.000	-8.1809E-02	121.500	-8.2807E-02	122.500	-8.2749E-02
123.750	-8.1767E-02	125.250	-7.8945E-02	127.000	-7.3718E-02
129.250	-6.3658E-02	131.500	-4.9388E-02	133.750	-3.1732E-02
137.500	4.7506E-03	142.500	7.1950E-02	147.500	1.5650E-01
152.500	1.4902E-01	157.500	1.4107E-01	162.500	1.3268E-01
167.500	1.2393E-01	172.500	1.1494E-01	177.500	1.0582E-01
182.500	9.6721E-02	187.500	8.7753E-02	192.500	7.9033E-02
197.500	7.0667E-02	202.500	6.2759E-02	207.500	5.5399E-02
211.500	5.0008E-02	214.000	4.6838E-02	216.000	4.4412E-02
217.750	4.2385E-02	219.100	4.0878E-02	219.850	4.0432E-02
220.500	3.9971E-02	222.000	3.8494E-02	224.000	3.6546E-02
226.500	3.4137E-02	229.500	3.1290E-02	232.500	2.8486E-02
235.500	2.5723E-02	238.500	2.2998E-02	241.500	2.0310E-02
244.500	1.7655E-02	247.000	1.5468E-02	248.750	1.3949E-02
249.850	1.2999E-02	250.600	1.2176E-02	251.500	1.1062E-02
253.000	1.0417E-02	255.500	9.4073E-03	258.500	8.3113E-03
262.500	7.0004E-03	269.000	5.2405E-03	276.500	3.7808E-03
285.000	2.5834E-03	302.500	1.0977E-03	320.000	6.3860E-04
337.500	3.8431E-04	362.500	2.8644E-04	387.500	2.6082E-04
410.000	2.5472E-04	430.000	2.5296E-04	447.500	2.5246E-04
462.500	2.5228E-04	475.000	2.5222E-04	484.000	2.5220E-04
491.500	2.5219E-04	497.500	2.5218E-04	502.500	2.5218E-04
507.000	2.5218E-04	510.500	2.5218E-04	513.500	2.5218E-04
516.000	2.5217E-04	517.500	2.5217E-04	518.500	2.5217E-04
519.000	2.5217E-04				

Total plant water uptake (cm) at different depths:

DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE

December 2023

0.000	0.0000E+00	0.100	3.1959E-03	0.300	5.7595E-03
0.600	8.8859E-03	1.000	1.2706E-02	1.500	1.8827E-02
2.200	2.6348E-02	3.000	3.4874E-02	4.000	5.3000E-02
5.500	8.1313E-02	7.500	1.0028E-01	9.500	1.1816E-01
12.000	1.3568E-01	14.500	1.5156E-01	17.500	1.5220E-01
20.000	1.2397E-01	22.000	9.5702E-02	23.500	8.1398E-02
25.000	5.1057E-02	25.400	2.6792E-02	26.000	4.2638E-02
27.000	6.5976E-02	28.500	6.5010E-02	29.500	5.1495E-02
30.500	3.8238E-02	31.000	3.8089E-02	32.000	6.3357E-02
33.500	7.5515E-02	35.000	8.7206E-02	37.000	1.2254E-01
40.000	1.1895E-01	42.000	9.3067E-02	44.000	6.8135E-02
45.000	4.4847E-02	46.000	4.4259E-02	47.000	4.3660E-02
48.000	6.4577E-02	50.000	8.3645E-02	52.000	8.1171E-02
54.000	9.8387E-02	57.000	8.4488E-02	58.500	5.4996E-02
60.000	4.4740E-02	61.000	3.5219E-02	62.000	3.4651E-02
63.000	4.2612E-02	64.500	4.9887E-02	66.000	5.6767E-02
68.000	7.8399E-02	71.000	8.9296E-02	74.000	8.4542E-02
77.000	7.9767E-02	80.000	7.4930E-02	83.000	6.9999E-02
86.000	6.4952E-02	89.000	5.9779E-02	92.000	5.4476E-02
95.000	4.0873E-02	97.000	2.1169E-02	97.800	7.3124E-03
98.000	9.4549E-03	99.000	2.2719E-02	101.000	2.7740E-02
103.000	2.5082E-02	105.000	3.3520E-02	109.000	3.7627E-02
114.000	1.9092E-02	117.000	6.4863E-03	119.000	2.2603E-03
121.000	-5.1803E-04	122.000	-1.0877E-03	123.000	-2.2915E-03
124.500	-4.4365E-03	126.000	-7.1567E-03	128.000	-1.2622E-02
130.500	-1.6931E-02	132.500	-2.0395E-02	135.000	-4.1213E-02
140.000	-7.3981E-02	145.000	-9.1887E-02	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

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509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Reclaimed Vegetation Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10r.inp

Results File: c:\a\60_10r1956.res

Date of Run: 19 Oct 2023

Time of Run: 14:26:03.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions					
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA	TEMP
	(cm)	(cm)	(vol.)	(K)		(cm)	(cm)	(vol.)	(K)
1	0.000E+00	2.611E+03	0.0708	293.15	2	1.000E-01	2.137E+03	0.0751	293.15
3	3.000E-01	1.970E+03	0.0768	293.15	4	6.000E-01	2.028E+03	0.0762	293.15
5	1.000E+00	2.072E+03	0.0757	293.15	6	1.500E+00	2.064E+03	0.0758	293.15
7	2.200E+00	2.052E+03	0.0759	293.15	8	3.000E+00	2.048E+03	0.0760	293.15
9	4.000E+00	2.041E+03	0.0761	293.15	10	5.500E+00	2.030E+03	0.0762	293.15
11	7.500E+00	2.013E+03	0.0764	293.15	12	9.500E+00	1.995E+03	0.0766	293.15
13	1.200E+01	1.973E+03	0.0768	293.15	14	1.450E+01	1.951E+03	0.0771	293.15
15	1.750E+01	1.927E+03	0.0773	293.15	16	2.000E+01	1.910E+03	0.0775	293.15
17	2.200E+01	1.897E+03	0.0777	293.15	18	2.350E+01	1.889E+03	0.0778	293.15
19	2.500E+01	1.882E+03	0.0779	293.15	20	2.540E+01	1.881E+03	0.0779	293.15
21	2.600E+01	1.879E+03	0.1947	293.15	22	2.700E+01	1.877E+03	0.1948	293.15
23	2.850E+01	1.875E+03	0.1948	293.15	24	2.950E+01	1.875E+03	0.1949	293.15
25	3.050E+01	1.874E+03	0.1949	293.15	26	3.100E+01	1.875E+03	0.1949	293.15
27	3.200E+01	1.886E+03	0.1945	293.15	28	3.350E+01	1.908E+03	0.1939	293.15
29	3.500E+01	1.939E+03	0.1930	293.15	30	3.700E+01	1.991E+03	0.1915	293.15
31	4.000E+01	2.094E+03	0.1888	293.15	32	4.200E+01	2.176E+03	0.1867	293.15
33	4.400E+01	2.268E+03	0.1844	293.15	34	4.500E+01	2.317E+03	0.1833	293.15
35	4.600E+01	2.368E+03	0.1822	293.15	36	4.700E+01	2.420E+03	0.1810	293.15
37	4.800E+01	2.472E+03	0.1799	293.15	38	5.000E+01	2.579E+03	0.1777	293.15
39	5.200E+01	2.683E+03	0.1757	293.15	40	5.400E+01	2.783E+03	0.1738	293.15
41	5.700E+01	2.919E+03	0.1714	293.15	42	5.850E+01	2.984E+03	0.1703	293.15
43	6.000E+01	3.046E+03	0.1693	293.15	44	6.100E+01	3.086E+03	0.1687	293.15
45	6.200E+01	3.127E+03	0.1680	293.15	46	6.300E+01	3.168E+03	0.1674	293.15
47	6.450E+01	3.229E+03	0.1665	293.15	48	6.600E+01	3.293E+03	0.1655	293.15
49	6.800E+01	3.383E+03	0.1642	293.15	50	7.100E+01	3.533E+03	0.1622	293.15
51	7.400E+01	3.705E+03	0.1599	293.15	52	7.700E+01	3.901E+03	0.1576	293.15
53	8.000E+01	4.124E+03	0.1550	293.15	54	8.300E+01	4.369E+03	0.1524	293.15
55	8.600E+01	4.631E+03	0.1499	293.15	56	8.900E+01	4.897E+03	0.1475	293.15

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57 9.200E+01 5.150E+03 0.1453 293.15	58 9.500E+01 5.368E+03 0.1436 293.15
59 9.700E+01 5.483E+03 0.1427 293.15	60 9.780E+01 5.521E+03 0.1424 293.15
61 9.800E+01 5.540E+03 0.1814 293.15	62 9.900E+01 5.741E+03 0.1798 293.15
63 1.010E+02 6.034E+03 0.1777 293.15	64 1.030E+02 6.187E+03 0.1766 293.15
65 1.050E+02 6.225E+03 0.1763 293.15	66 1.090E+02 6.083E+03 0.1773 293.15
67 1.140E+02 5.801E+03 0.1794 293.15	68 1.170E+02 5.643E+03 0.1806 293.15
69 1.190E+02 5.549E+03 0.1813 293.15	70 1.210E+02 5.464E+03 0.1820 293.15
71 1.220E+02 5.425E+03 0.1823 293.15	72 1.230E+02 5.388E+03 0.1826 293.15
73 1.245E+02 5.338E+03 0.1830 293.15	74 1.260E+02 5.294E+03 0.1834 293.15
75 1.280E+02 5.244E+03 0.1838 293.15	76 1.305E+02 5.196E+03 0.1842 293.15
77 1.325E+02 5.168E+03 0.1844 293.15	78 1.350E+02 5.148E+03 0.1846 293.15
79 1.400E+02 5.153E+03 0.1846 293.15	80 1.450E+02 5.217E+03 0.1840 293.15
81 1.500E+02 5.339E+03 0.1830 293.15	82 1.550E+02 5.512E+03 0.1816 293.15
83 1.600E+02 5.728E+03 0.1799 293.15	84 1.650E+02 5.977E+03 0.1781 293.15
85 1.700E+02 6.247E+03 0.1762 293.15	86 1.750E+02 6.527E+03 0.1743 293.15
87 1.800E+02 6.812E+03 0.1726 293.15	88 1.850E+02 7.096E+03 0.1709 293.15
89 1.900E+02 7.379E+03 0.1693 293.15	90 1.950E+02 7.659E+03 0.1677 293.15
91 2.000E+02 7.936E+03 0.1663 293.15	92 2.050E+02 8.206E+03 0.1650 293.15
93 2.100E+02 8.469E+03 0.1637 293.15	94 2.130E+02 8.621E+03 0.1630 293.15
95 2.150E+02 8.720E+03 0.1626 293.15	96 2.170E+02 8.817E+03 0.1621 293.15
97 2.185E+02 8.889E+03 0.1618 293.15	98 2.197E+02 8.945E+03 0.1616 293.15
99 2.200E+02 8.951E+03 0.1238 293.15	100 2.210E+02 8.961E+03 0.1238 293.15
101 2.230E+02 8.979E+03 0.1237 293.15	102 2.250E+02 8.996E+03 0.1236 293.15
103 2.280E+02 9.020E+03 0.1235 293.15	104 2.310E+02 9.042E+03 0.1235 293.15
105 2.340E+02 9.062E+03 0.1234 293.15	106 2.370E+02 9.080E+03 0.1233 293.15
107 2.400E+02 9.096E+03 0.1232 293.15	108 2.430E+02 9.110E+03 0.1232 293.15
109 2.460E+02 9.122E+03 0.1231 293.15	110 2.480E+02 9.129E+03 0.1231 293.15
111 2.495E+02 9.134E+03 0.1231 293.15	112 2.502E+02 9.135E+03 0.1231 293.15
113 2.510E+02 9.143E+03 0.0546 293.15	114 2.520E+02 9.174E+03 0.0546 293.15
115 2.540E+02 9.233E+03 0.0545 293.15	116 2.570E+02 9.317E+03 0.0543 293.15
117 2.600E+02 9.395E+03 0.0541 293.15	118 2.650E+02 9.510E+03 0.0539 293.15
119 2.730E+02 9.659E+03 0.0536 293.15	120 2.800E+02 9.759E+03 0.0534 293.15
121 2.900E+02 9.860E+03 0.0532 293.15	122 3.150E+02 9.959E+03 0.0531 293.15
123 3.250E+02 9.978E+03 0.0530 293.15	124 3.500E+02 9.994E+03 0.0530 293.15
125 3.750E+02 9.998E+03 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 53.6990 cm

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NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.06947
Head (cm) = 2.79043E+03
LiqWater Flow (cm)=-4.42082E-02
IsoVapor Flow (cm)=-2.41493E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE
53.6990+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 53.6547 vs. 53.6547

Mass Balance = -8.2003E-07 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm
Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07610
Head (cm) = 2.03701E+03
LiqWater Flow (cm)=-1.41968E-04
IsoVapor Flow (cm)=-3.17808E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE
59.0505+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 59.0505 vs. 59.0505

Mass Balance = -2.4823E-06 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm
Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]
Potential Transpiration = 9.4093E+00 [cm]
Actual Transpiration = 5.7218E+00 [cm]
Potential Evaporation = 1.0429E+02 [cm]
Actual Evaporation = 3.9632E+01 [cm]
Evaporation during Growth = 2.5792E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 5.0698E+01 [cm]
Actual Rainfall = 5.0698E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 5.9051E+01 [cm]
Mass Balance Error = -7.3149E-03 [cm]
Total Successful Time Steps = 13131
Total Attempted Time Steps = 14978
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 3858
Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.1066E+01	0.050	1.1298E+01	0.200	1.1092E+01
0.450	1.1063E+01	0.800	1.1038E+01	1.250	1.1006E+01
1.850	1.0965E+01	2.600	1.0911E+01	3.500	1.0845E+01
4.750	1.0749E+01	6.500	1.0609E+01	8.500	1.0444E+01
10.750	1.0252E+01	13.250	1.0036E+01	16.000	9.7964E+00
18.750	9.5566E+00	21.000	9.3616E+00	22.750	9.2111E+00
24.250	9.0831E+00	25.200	9.0027E+00	25.700	8.9605E+00
26.500	8.8844E+00	27.750	8.7666E+00	29.000	8.6502E+00

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30.000	8.5579E+00	30.750	8.4894E+00	31.500	8.4215E+00
32.750	8.3081E+00	34.250	8.1735E+00	36.000	8.0183E+00
38.500	7.8002E+00	41.000	7.5867E+00	43.000	7.4176E+00
44.500	7.2913E+00	45.500	7.2072E+00	46.500	7.1230E+00
47.500	7.0386E+00	49.000	6.9116E+00	51.000	6.7409E+00
53.000	6.5684E+00	55.500	6.3508E+00	57.750	6.1523E+00
59.250	6.0193E+00	60.500	5.9080E+00	61.500	5.8188E+00
62.500	5.7294E+00	63.750	5.6175E+00	65.250	5.4829E+00
67.000	5.3257E+00	69.500	5.1007E+00	72.500	4.8301E+00
75.500	4.5590E+00	78.500	4.2871E+00	81.500	4.0145E+00
84.500	3.7412E+00	87.500	3.4677E+00	90.500	3.1946E+00
93.500	2.9230E+00	96.000	2.6991E+00	97.400	2.5751E+00
97.900	2.5308E+00	98.500	2.4771E+00	100.000	2.3434E+00
102.000	2.1662E+00	104.000	1.9925E+00	107.000	1.7401E+00
111.500	1.3946E+00	115.500	1.1302E+00	118.000	9.8185E-01
120.000	8.7224E-01	121.500	7.9692E-01	122.500	7.4903E-01
123.750	6.9207E-01	125.250	6.2897E-01	127.000	5.6150E-01
129.250	4.8532E-01	131.500	4.2233E-01	133.750	3.6977E-01
137.500	3.0342E-01	142.500	2.6775E-01	147.500	2.7592E-01
152.500	2.2624E-01	157.500	1.9030E-01	162.500	1.6362E-01
167.500	1.4344E-01	172.500	1.2784E-01	177.500	1.1534E-01
182.500	1.0481E-01	187.500	9.5453E-02	192.500	8.6796E-02
197.500	7.8604E-02	202.500	7.0801E-02	207.500	6.3399E-02
211.500	5.7833E-02	214.000	5.4502E-02	216.000	5.1920E-02
217.750	4.9734E-02	219.100	4.8091E-02	219.850	4.7597E-02
220.500	4.7087E-02	222.000	4.5459E-02	224.000	4.3305E-02
226.500	4.0631E-02	229.500	3.7459E-02	232.500	3.4322E-02
235.500	3.1218E-02	238.500	2.8148E-02	241.500	2.5110E-02
244.500	2.2102E-02	247.000	1.9619E-02	248.750	1.7893E-02
249.850	1.6813E-02	250.600	1.5871E-02	251.500	1.4587E-02
253.000	1.3816E-02	255.500	1.2596E-02	258.500	1.1249E-02
262.500	9.6096E-03	269.000	7.3484E-03	276.500	5.3950E-03
285.000	3.7388E-03	302.500	1.5887E-03	320.000	8.8045E-04
337.500	4.7559E-04	362.500	3.1234E-04	387.500	2.6821E-04
410.000	2.5747E-04	430.000	2.5432E-04	447.500	2.5341E-04
462.500	2.5308E-04	475.000	2.5297E-04	484.000	2.5292E-04
491.500	2.5290E-04	497.500	2.5289E-04	502.500	2.5288E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

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DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER
UPTAKE

0.000	0.0000E+00	0.100	6.8409E-03	0.300	1.1952E-02
0.600	1.7633E-02	1.000	2.3949E-02	1.500	3.3731E-02
2.200	4.4762E-02	3.000	5.6598E-02	4.000	8.2615E-02
5.500	1.2207E-01	7.500	1.4637E-01	9.500	1.6991E-01
12.000	1.9344E-01	14.500	2.1556E-01	17.500	2.1664E-01
20.000	1.7683E-01	22.000	1.3680E-01	23.500	1.1658E-01
25.000	7.3294E-02	25.400	3.8491E-02	26.000	6.1302E-02
27.000	9.4930E-02	28.500	9.3627E-02	29.500	7.4200E-02
30.500	5.5121E-02	31.000	5.4932E-02	32.000	9.1650E-02
33.500	1.0989E-01	35.000	1.2777E-01	37.000	1.8108E-01
40.000	1.7790E-01	42.000	1.4025E-01	44.000	1.0349E-01
45.000	6.8390E-02	46.000	6.7766E-02	47.000	6.7121E-02
48.000	9.9682E-02	50.000	1.3013E-01	52.000	1.2722E-01
54.000	1.5524E-01	57.000	1.3443E-01	58.500	8.7801E-02
60.000	7.1609E-02	61.000	5.6439E-02	62.000	5.5578E-02
63.000	6.8381E-02	64.500	8.0053E-02	66.000	9.1006E-02
68.000	1.2537E-01	71.000	1.4197E-01	74.000	1.3334E-01
77.000	1.2463E-01	80.000	1.1587E-01	83.000	1.0709E-01
86.000	9.8311E-02	89.000	8.9545E-02	92.000	8.0806E-02
95.000	6.0085E-02	97.000	3.0951E-02	97.800	1.0669E-02
98.000	1.3178E-02	99.000	3.1268E-02	101.000	3.7259E-02
103.000	3.2900E-02	105.000	4.2948E-02	109.000	4.5959E-02
114.000	2.1887E-02	117.000	7.1464E-03	119.000	2.4249E-03
121.000	-5.4130E-04	122.000	-1.1219E-03	123.000	-2.3337E-03
124.500	-4.4349E-03	126.000	-7.0273E-03	128.000	-1.2118E-02
130.500	-1.5845E-02	132.500	-1.8742E-02	135.000	-3.7127E-02
140.000	-6.4678E-02	145.000	-7.8868E-02	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00

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470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00
509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Reclaimed Vegetation Wet Year 2

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10r.inp

Results File: c:\a\60_10r1957.res

Date of Run: 19 Oct 2023

Time of Run: 14:26:03.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions					
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA	TEMP
	(cm)	(cm)	(vol.)	(K)		(cm)	(cm)	(vol.)	(K)
1	0.000E+00	2.037E+03	0.0761	293.15	2	1.000E-01	1.587E+03	0.0818	293.15
3	3.000E-01	1.315E+03	0.0862	293.15	4	6.000E-01	1.249E+03	0.0875	293.15
5	1.000E+00	1.271E+03	0.0871	293.15	6	1.500E+00	1.330E+03	0.0860	293.15
7	2.200E+00	1.341E+03	0.0858	293.15	8	3.000E+00	1.334E+03	0.0859	293.15
9	4.000E+00	1.327E+03	0.0860	293.15	10	5.500E+00	1.329E+03	0.0860	293.15
11	7.500E+00	1.329E+03	0.0860	293.15	12	9.500E+00	1.331E+03	0.0860	293.15
13	1.200E+01	1.333E+03	0.0859	293.15	14	1.450E+01	1.338E+03	0.0858	293.15
15	1.750E+01	1.344E+03	0.0857	293.15	16	2.000E+01	1.351E+03	0.0856	293.15
17	2.200E+01	1.357E+03	0.0855	293.15	18	2.350E+01	1.362E+03	0.0854	293.15
19	2.500E+01	1.367E+03	0.0853	293.15	20	2.540E+01	1.369E+03	0.0853	293.15
21	2.600E+01	1.370E+03	0.2131	293.15	22	2.700E+01	1.370E+03	0.2131	293.15
23	2.850E+01	1.372E+03	0.2131	293.15	24	2.950E+01	1.373E+03	0.2130	293.15
25	3.050E+01	1.374E+03	0.2130	293.15	26	3.100E+01	1.377E+03	0.2128	293.15
27	3.200E+01	1.400E+03	0.2118	293.15	28	3.350E+01	1.437E+03	0.2103	293.15
29	3.500E+01	1.478E+03	0.2086	293.15	30	3.700E+01	1.537E+03	0.2063	293.15
31	4.000E+01	1.627E+03	0.2030	293.15	32	4.200E+01	1.681E+03	0.2011	293.15
33	4.400E+01	1.725E+03	0.1996	293.15	34	4.500E+01	1.742E+03	0.1990	293.15
35	4.600E+01	1.755E+03	0.1986	293.15	36	4.700E+01	1.765E+03	0.1983	293.15
37	4.800E+01	1.771E+03	0.1981	293.15	38	5.000E+01	1.773E+03	0.1980	293.15
39	5.200E+01	1.765E+03	0.1983	293.15	40	5.400E+01	1.749E+03	0.1988	293.15
41	5.700E+01	1.716E+03	0.1999	293.15	42	5.850E+01	1.699E+03	0.2005	293.15
43	6.000E+01	1.682E+03	0.2010	293.15	44	6.100E+01	1.670E+03	0.2014	293.15
45	6.200E+01	1.659E+03	0.2018	293.15	46	6.300E+01	1.647E+03	0.2022	293.15
47	6.450E+01	1.631E+03	0.2028	293.15	48	6.600E+01	1.616E+03	0.2034	293.15
49	6.800E+01	1.596E+03	0.2041	293.15	50	7.100E+01	1.570E+03	0.2050	293.15
51	7.400E+01	1.548E+03	0.2059	293.15	52	7.700E+01	1.528E+03	0.2066	293.15
53	8.000E+01	1.511E+03	0.2073	293.15	54	8.300E+01	1.497E+03	0.2078	293.15
55	8.600E+01	1.486E+03	0.2083	293.15	56	8.900E+01	1.477E+03	0.2087	293.15

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57 9.200E+01 1.470E+03 0.2089 293.15	58 9.500E+01 1.465E+03 0.2091 293.15
59 9.700E+01 1.463E+03 0.2092 293.15	60 9.780E+01 1.463E+03 0.2092 293.15
61 9.800E+01 1.463E+03 0.2482 293.15	62 9.900E+01 1.466E+03 0.2481 293.15
63 1.010E+02 1.477E+03 0.2476 293.15	64 1.030E+02 1.494E+03 0.2470 293.15
65 1.050E+02 1.516E+03 0.2462 293.15	66 1.090E+02 1.578E+03 0.2439 293.15
67 1.140E+02 1.695E+03 0.2400 293.15	68 1.170E+02 1.787E+03 0.2371 293.15
69 1.190E+02 1.859E+03 0.2349 293.15	70 1.210E+02 1.942E+03 0.2326 293.15
71 1.220E+02 1.987E+03 0.2313 293.15	72 1.230E+02 2.035E+03 0.2300 293.15
73 1.245E+02 2.113E+03 0.2280 293.15	74 1.260E+02 2.198E+03 0.2259 293.15
75 1.280E+02 2.323E+03 0.2230 293.15	76 1.305E+02 2.499E+03 0.2192 293.15
77 1.325E+02 2.656E+03 0.2161 293.15	78 1.350E+02 2.871E+03 0.2122 293.15
79 1.400E+02 3.347E+03 0.2046 293.15	80 1.450E+02 3.833E+03 0.1981 293.15
81 1.500E+02 4.283E+03 0.1929 293.15	82 1.550E+02 4.689E+03 0.1888 293.15
83 1.600E+02 5.072E+03 0.1852 293.15	84 1.650E+02 5.446E+03 0.1821 293.15
85 1.700E+02 5.808E+03 0.1793 293.15	86 1.750E+02 6.154E+03 0.1768 293.15
87 1.800E+02 6.478E+03 0.1747 293.15	88 1.850E+02 6.784E+03 0.1727 293.15
89 1.900E+02 7.075E+03 0.1710 293.15	90 1.950E+02 7.357E+03 0.1694 293.15
91 2.000E+02 7.635E+03 0.1679 293.15	92 2.050E+02 7.908E+03 0.1664 293.15
93 2.100E+02 8.176E+03 0.1651 293.15	94 2.130E+02 8.335E+03 0.1643 293.15
95 2.150E+02 8.438E+03 0.1639 293.15	96 2.170E+02 8.540E+03 0.1634 293.15
97 2.185E+02 8.616E+03 0.1630 293.15	98 2.197E+02 8.676E+03 0.1628 293.15
99 2.200E+02 8.683E+03 0.1249 293.15	100 2.210E+02 8.693E+03 0.1249 293.15
101 2.230E+02 8.712E+03 0.1248 293.15	102 2.250E+02 8.730E+03 0.1247 293.15
103 2.280E+02 8.757E+03 0.1246 293.15	104 2.310E+02 8.781E+03 0.1245 293.15
105 2.340E+02 8.803E+03 0.1244 293.15	106 2.370E+02 8.823E+03 0.1243 293.15
107 2.400E+02 8.841E+03 0.1243 293.15	108 2.430E+02 8.857E+03 0.1242 293.15
109 2.460E+02 8.871E+03 0.1241 293.15	110 2.480E+02 8.879E+03 0.1241 293.15
111 2.495E+02 8.884E+03 0.1241 293.15	112 2.502E+02 8.887E+03 0.1241 293.15
113 2.510E+02 8.896E+03 0.0552 293.15	114 2.520E+02 8.930E+03 0.0551 293.15
115 2.540E+02 8.997E+03 0.0550 293.15	116 2.570E+02 9.093E+03 0.0547 293.15
117 2.600E+02 9.185E+03 0.0546 293.15	118 2.650E+02 9.324E+03 0.0543 293.15
119 2.730E+02 9.512E+03 0.0539 293.15	120 2.800E+02 9.644E+03 0.0536 293.15
121 2.900E+02 9.784E+03 0.0534 293.15	122 3.150E+02 9.933E+03 0.0531 293.15
123 3.250E+02 9.963E+03 0.0531 293.15	124 3.500E+02 9.990E+03 0.0530 293.15
125 3.750E+02 9.997E+03 0.0530 293.15	126 4.000E+02 9.999E+03 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 59.0505 cm

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NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07407
Head (cm) = 2.23630E+03
LiqWater Flow (cm)=-4.41649E-02
IsoVapor Flow (cm)=-3.30778E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE
59.0505+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 59.0062 vs. 59.0062

Mass Balance = -1.4798E-06 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm
Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07476
Head (cm) = 2.16662E+03
LiqWater Flow (cm)=-5.84250E-02
IsoVapor Flow (cm)=-4.02515E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE
61.6108+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 61.5523 vs. 61.5523

Mass Balance = -7.4414E-06 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm
Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]
Potential Transpiration = 9.4093E+00 [cm]
Actual Transpiration = 6.1113E+00 [cm]
Potential Evaporation = 1.0435E+02 [cm]
Actual Evaporation = 4.2091E+01 [cm]
Evaporation during Growth = 2.7964E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 5.0698E+01 [cm]
Actual Rainfall = 5.0698E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 6.1552E+01 [cm]
Mass Balance Error = -6.3204E-03 [cm]
Total Successful Time Steps = 12899
Total Attempted Time Steps = 14593
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 3630
Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	8.6071E+00	0.050	8.7682E+00	0.200	8.6288E+00
0.450	8.6035E+00	0.800	8.5820E+00	1.250	8.5547E+00
1.850	8.5176E+00	2.600	8.4696E+00	3.500	8.4096E+00
4.750	8.3227E+00	6.500	8.1949E+00	8.500	8.0419E+00
10.750	7.8643E+00	13.250	7.6619E+00	16.000	7.4359E+00
18.750	7.2080E+00	21.000	7.0215E+00	22.750	6.8767E+00
24.250	6.7530E+00	25.200	6.6751E+00	25.700	6.6342E+00
26.500	6.5676E+00	27.750	6.4643E+00	29.000	6.3622E+00

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30.000	6.2813E+00	30.750	6.2212E+00	31.500	6.1617E+00
32.750	6.0605E+00	34.250	5.9380E+00	36.000	5.7943E+00
38.500	5.5885E+00	41.000	5.3836E+00	43.000	5.2210E+00
44.500	5.1004E+00	45.500	5.0206E+00	46.500	4.9414E+00
47.500	4.8628E+00	49.000	4.7460E+00	51.000	4.5932E+00
53.000	4.4436E+00	55.500	4.2606E+00	57.750	4.1014E+00
59.250	3.9973E+00	60.500	3.9120E+00	61.500	3.8447E+00
62.500	3.7782E+00	63.750	3.6962E+00	65.250	3.5998E+00
67.000	3.4896E+00	69.500	3.3368E+00	72.500	3.1617E+00
75.500	2.9952E+00	78.500	2.8375E+00	81.500	2.6888E+00
84.500	2.5491E+00	87.500	2.4185E+00	90.500	2.2970E+00
93.500	2.1848E+00	96.000	2.0989E+00	97.400	2.0538E+00
97.900	2.0380E+00	98.500	2.0192E+00	100.000	1.9732E+00
102.000	1.9150E+00	104.000	1.8599E+00	107.000	1.7820E+00
111.500	1.6786E+00	115.500	1.6004E+00	118.000	1.5562E+00
120.000	1.5230E+00	121.500	1.4997E+00	122.500	1.4847E+00
123.750	1.4664E+00	125.250	1.4455E+00	127.000	1.4222E+00
129.250	1.3937E+00	131.500	1.3671E+00	133.750	1.3418E+00
137.500	1.3023E+00	142.500	1.2580E+00	147.500	1.2254E+00
152.500	1.0759E+00	157.500	9.2976E-01	162.500	7.8952E-01
167.500	6.5697E-01	172.500	5.3422E-01	177.500	4.2389E-01
182.500	3.2850E-01	187.500	2.4987E-01	192.500	1.8838E-01
197.500	1.4279E-01	202.500	1.1046E-01	207.500	8.8063E-02
211.500	7.5588E-02	214.000	6.9281E-02	216.000	6.4885E-02
217.750	6.1523E-02	219.100	5.9180E-02	219.850	5.8429E-02
220.500	5.7706E-02	222.000	5.5556E-02	224.000	5.2768E-02
226.500	4.9372E-02	229.500	4.5438E-02	232.500	4.1623E-02
235.500	3.7911E-02	238.500	3.4288E-02	241.500	3.0739E-02
244.500	2.7255E-02	247.000	2.4396E-02	248.750	2.2413E-02
249.850	2.1174E-02	250.600	2.0101E-02	251.500	1.8660E-02
253.000	1.7740E-02	255.500	1.6284E-02	258.500	1.4670E-02
262.500	1.2689E-02	269.000	9.9067E-03	276.500	7.4148E-03
285.000	5.2329E-03	302.500	2.2709E-03	320.000	1.2282E-03
337.500	6.1352E-04	362.500	3.5274E-04	387.500	2.7937E-04
410.000	2.6098E-04	430.000	2.5549E-04	447.500	2.5386E-04
462.500	2.5327E-04	475.000	2.5306E-04	484.000	2.5298E-04
491.500	2.5293E-04	497.500	2.5291E-04	502.500	2.5290E-04
507.000	2.5289E-04	510.500	2.5288E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5287E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

December 2023

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER
UPTAKE

0.000	0.0000E+00	0.100	7.3834E-03	0.300	1.2854E-02
0.600	1.8884E-02	1.000	2.5550E-02	1.500	3.5856E-02
2.200	4.7410E-02	3.000	5.9768E-02	4.000	8.7018E-02
5.500	1.2823E-01	7.500	1.5346E-01	9.500	1.7792E-01
12.000	2.0240E-01	14.500	2.2550E-01	17.500	2.2669E-01
20.000	1.8514E-01	22.000	1.4333E-01	23.500	1.2223E-01
25.000	7.6907E-02	25.400	4.0398E-02	26.000	6.4353E-02
27.000	9.9676E-02	28.500	9.8342E-02	29.500	7.7955E-02
30.500	5.7923E-02	31.000	5.7744E-02	32.000	9.6537E-02
33.500	1.1608E-01	35.000	1.3533E-01	37.000	1.9246E-01
40.000	1.9006E-01	42.000	1.5032E-01	44.000	1.1125E-01
45.000	7.3625E-02	46.000	7.3056E-02	47.000	7.2461E-02
48.000	1.0776E-01	50.000	1.4107E-01	52.000	1.3829E-01
54.000	1.6922E-01	57.000	1.4710E-01	58.500	9.6264E-02
60.000	7.8680E-02	61.000	6.2105E-02	62.000	6.1250E-02
63.000	7.5474E-02	64.500	8.8569E-02	66.000	1.0096E-01
68.000	1.3962E-01	71.000	1.5901E-01	74.000	1.5016E-01
77.000	1.4104E-01	80.000	1.3177E-01	83.000	1.2238E-01
86.000	1.1290E-01	89.000	1.0333E-01	92.000	9.3686E-02
95.000	6.9989E-02	97.000	3.6162E-02	97.800	1.2481E-02
98.000	1.5180E-02	99.000	3.6307E-02	101.000	4.3979E-02
103.000	3.9497E-02	105.000	5.2463E-02	109.000	5.8254E-02
114.000	2.9110E-02	117.000	9.7748E-03	119.000	3.3757E-03
121.000	-7.6596E-04	122.000	-1.5996E-03	123.000	-3.3513E-03
124.500	-6.4315E-03	126.000	-1.0279E-02	128.000	-1.7895E-02
130.500	-2.3600E-02	132.500	-2.8035E-02	135.000	-5.5656E-02
140.000	-9.6412E-02	145.000	-1.1594E-01	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00

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470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00
509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Shrub Vegetation Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10s.inp

Results File: c:\a\60_10s1955.res

Date of Run: 19 Oct 2023

Time of Run: 14:07:33.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.465E+03	0.0720	293.15	2	1.000E-01	2.047E+03	0.0760 293.15
3	3.000E-01	1.888E+03	0.0778	293.15	4	6.000E-01	1.937E+03	0.0772 293.15
5	1.000E+00	1.980E+03	0.0767	293.15	6	1.500E+00	1.974E+03	0.0768 293.15
7	2.200E+00	1.962E+03	0.0769	293.15	8	3.000E+00	1.959E+03	0.0770 293.15
9	4.000E+00	1.953E+03	0.0770	293.15	10	5.500E+00	1.942E+03	0.0772 293.15
11	7.500E+00	1.927E+03	0.0773	293.15	12	9.500E+00	1.911E+03	0.0775 293.15
13	1.200E+01	1.891E+03	0.0777	293.15	14	1.450E+01	1.871E+03	0.0780 293.15
15	1.750E+01	1.849E+03	0.0783	293.15	16	2.000E+01	1.832E+03	0.0785 293.15
17	2.200E+01	1.820E+03	0.0786	293.15	18	2.350E+01	1.813E+03	0.0787 293.15
19	2.500E+01	1.806E+03	0.0788	293.15	20	2.540E+01	1.804E+03	0.0788 293.15
21	2.600E+01	1.802E+03	0.1971	293.15	22	2.700E+01	1.800E+03	0.1971 293.15
23	2.850E+01	1.798E+03	0.1972	293.15	24	2.950E+01	1.797E+03	0.1972 293.15
25	3.050E+01	1.797E+03	0.1973	293.15	26	3.100E+01	1.797E+03	0.1973 293.15
27	3.200E+01	1.804E+03	0.1970	293.15	28	3.350E+01	1.821E+03	0.1965 293.15
29	3.500E+01	1.844E+03	0.1958	293.15	30	3.700E+01	1.884E+03	0.1946 293.15
31	4.000E+01	1.964E+03	0.1923	293.15	32	4.200E+01	2.027E+03	0.1905 293.15
33	4.400E+01	2.097E+03	0.1887	293.15	34	4.500E+01	2.134E+03	0.1877 293.15
35	4.600E+01	2.172E+03	0.1868	293.15	36	4.700E+01	2.211E+03	0.1858 293.15
37	4.800E+01	2.250E+03	0.1849	293.15	38	5.000E+01	2.328E+03	0.1831 293.15
39	5.200E+01	2.404E+03	0.1814	293.15	40	5.400E+01	2.475E+03	0.1798 293.15
41	5.700E+01	2.571E+03	0.1779	293.15	42	5.850E+01	2.614E+03	0.1770 293.15
43	6.000E+01	2.655E+03	0.1762	293.15	44	6.100E+01	2.681E+03	0.1757 293.15
45	6.200E+01	2.706E+03	0.1752	293.15	46	6.300E+01	2.730E+03	0.1748 293.15
47	6.450E+01	2.766E+03	0.1741	293.15	48	6.600E+01	2.802E+03	0.1735 293.15
49	6.800E+01	2.851E+03	0.1726	293.15	50	7.100E+01	2.928E+03	0.1713 293.15
51	7.400E+01	3.013E+03	0.1699	293.15	52	7.700E+01	3.107E+03	0.1683 293.15
53	8.000E+01	3.212E+03	0.1667	293.15	54	8.300E+01	3.326E+03	0.1650 293.15
55	8.600E+01	3.448E+03	0.1633	293.15	56	8.900E+01	3.575E+03	0.1616 293.15
57	9.200E+01	3.702E+03	0.1600	293.15	58	9.500E+01	3.825E+03	0.1585 293.15

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59 9.700E+01 3.901E+03 0.1576 293.15	60 9.780E+01 3.930E+03 0.1572 293.15
61 9.800E+01 3.946E+03 0.1967 293.15	62 9.900E+01 4.142E+03 0.1945 293.15
63 1.010E+02 4.555E+03 0.1901 293.15	64 1.030E+02 4.979E+03 0.1861 293.15
65 1.050E+02 5.394E+03 0.1825 293.15	66 1.090E+02 6.108E+03 0.1772 293.15
67 1.140E+02 6.812E+03 0.1726 293.15	68 1.170E+02 7.205E+03 0.1702 293.15
69 1.190E+02 7.469E+03 0.1688 293.15	70 1.210E+02 7.738E+03 0.1673 293.15
71 1.220E+02 7.876E+03 0.1666 293.15	72 1.230E+02 8.018E+03 0.1659 293.15
73 1.245E+02 8.237E+03 0.1648 293.15	74 1.260E+02 8.464E+03 0.1637 293.15
75 1.280E+02 8.780E+03 0.1623 293.15	76 1.305E+02 9.198E+03 0.1605 293.15
77 1.325E+02 9.549E+03 0.1590 293.15	78 1.350E+02 1.000E+04 0.1572 293.15
79 1.400E+02 1.092E+04 0.1539 293.15	80 1.450E+02 1.174E+04 0.1512 293.15
81 1.500E+02 1.231E+04 0.1495 293.15	82 1.550E+02 1.252E+04 0.1489 293.15
83 1.600E+02 1.245E+04 0.1491 293.15	84 1.650E+02 1.224E+04 0.1497 293.15
85 1.700E+02 1.201E+04 0.1504 293.15	86 1.750E+02 1.179E+04 0.1511 293.15
87 1.800E+02 1.158E+04 0.1518 293.15	88 1.850E+02 1.139E+04 0.1524 293.15
89 1.900E+02 1.122E+04 0.1529 293.15	90 1.950E+02 1.106E+04 0.1535 293.15
91 2.000E+02 1.091E+04 0.1540 293.15	92 2.050E+02 1.077E+04 0.1545 293.15
93 2.100E+02 1.065E+04 0.1549 293.15	94 2.130E+02 1.058E+04 0.1551 293.15
95 2.150E+02 1.054E+04 0.1553 293.15	96 2.170E+02 1.050E+04 0.1554 293.15
97 2.185E+02 1.047E+04 0.1555 293.15	98 2.197E+02 1.045E+04 0.1556 293.15
99 2.200E+02 1.045E+04 0.1184 293.15	100 2.210E+02 1.044E+04 0.1184 293.15
101 2.230E+02 1.043E+04 0.1185 293.15	102 2.250E+02 1.042E+04 0.1185 293.15
103 2.280E+02 1.041E+04 0.1185 293.15	104 2.310E+02 1.040E+04 0.1186 293.15
105 2.340E+02 1.039E+04 0.1186 293.15	106 2.370E+02 1.038E+04 0.1187 293.15
107 2.400E+02 1.037E+04 0.1187 293.15	108 2.430E+02 1.036E+04 0.1187 293.15
109 2.460E+02 1.035E+04 0.1187 293.15	110 2.480E+02 1.035E+04 0.1188 293.15
111 2.495E+02 1.034E+04 0.1188 293.15	112 2.502E+02 1.034E+04 0.1188 293.15
113 2.510E+02 1.034E+04 0.0524 293.15	114 2.520E+02 1.032E+04 0.0525 293.15
115 2.540E+02 1.029E+04 0.0525 293.15	116 2.570E+02 1.026E+04 0.0526 293.15
117 2.600E+02 1.022E+04 0.0526 293.15	118 2.650E+02 1.018E+04 0.0527 293.15
119 2.730E+02 1.012E+04 0.0528 293.15	120 2.800E+02 1.008E+04 0.0529 293.15
121 2.900E+02 1.005E+04 0.0529 293.15	122 3.150E+02 1.001E+04 0.0530 293.15
123 3.250E+02 1.000E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 51.9876 cm

NOTE: There are no temperature data when plants are modelled.

December 2023

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.06865
Head (cm) = 2.90641E+03
LiqWater Flow (cm)=-6.82002E-02
IsoVapor Flow (cm)=-3.13665E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

51.9876+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 51.9192 vs. 51.9192

Mass Balance = -1.3875E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07202
Head (cm) = 2.46449E+03
LiqWater Flow (cm)=-3.96564E-02
IsoVapor Flow (cm)=-1.99693E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

52.0287+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 51.9890 vs. 51.9890

Mass Balance = -7.1195E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.3583E+02 [cm]
 Potential Transpiration = 5.9064E+00 [cm]
 Actual Transpiration = 2.4423E+00 [cm]
 Potential Evaporation = 1.2993E+02 [cm]
 Actual Evaporation = 2.0092E+01 [cm]
 Evaporation during Growth = 1.2131E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5217E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.1989E+01 [cm]
 Mass Balance Error = -6.1649E-03 [cm]
 Total Successful Time Steps = 11993
 Total Attempted Time Steps = 13650
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6400
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.4378E+00	0.050	2.8633E+00	0.200	2.5679E+00
0.450	2.4850E+00	0.800	2.4622E+00	1.250	2.4413E+00
1.850	2.4184E+00	2.600	2.3925E+00	3.500	2.3629E+00
4.750	2.3223E+00	6.500	2.2653E+00	8.500	2.2000E+00
10.750	2.1273E+00	13.250	2.0481E+00	16.000	1.9637E+00
18.750	1.8829E+00	21.000	1.8194E+00	22.750	1.7717E+00
24.250	1.7319E+00	25.200	1.7073E+00	25.700	1.6945E+00
26.500	1.6742E+00	27.750	1.6432E+00	29.000	1.6132E+00
30.000	1.5896E+00	30.750	1.5728E+00	31.500	1.5571E+00

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32.750	1.5283E+00	34.250	1.4944E+00	36.000	1.4557E+00
38.500	1.4021E+00	41.000	1.3507E+00	43.000	1.3108E+00
44.500	1.2818E+00	45.500	1.2627E+00	46.500	1.2438E+00
47.500	1.2253E+00	49.000	1.1979E+00	51.000	1.1623E+00
53.000	1.1277E+00	55.500	1.0857E+00	57.750	1.0493E+00
59.250	1.0255E+00	60.500	1.0060E+00	61.500	9.9061E-01
62.500	9.7539E-01	63.750	9.5659E-01	65.250	9.3441E-01
67.000	9.0895E-01	69.500	8.7332E-01	72.500	8.3180E-01
75.500	7.9140E-01	78.500	7.5201E-01	81.500	7.1354E-01
84.500	6.7590E-01	87.500	6.3903E-01	90.500	6.0285E-01
93.500	5.6733E-01	96.000	5.3823E-01	97.400	5.2211E-01
97.900	5.1609E-01	98.500	5.0803E-01	100.000	4.8955E-01
102.000	4.6533E-01	104.000	4.4154E-01	107.000	4.0654E-01
111.500	3.5622E-01	115.500	3.1414E-01	118.000	2.8887E-01
120.000	2.6921E-01	121.500	2.5489E-01	122.500	2.4548E-01
123.750	2.3390E-01	125.250	2.2030E-01	127.000	2.0480E-01
129.250	1.8547E-01	131.500	1.6686E-01	133.750	1.4880E-01
137.500	1.1985E-01	142.500	8.3832E-02	147.500	5.0027E-02
152.500	1.7884E-02	157.500	-1.3403E-02	162.500	-1.4731E-02
167.500	-1.5717E-02	172.500	-1.6361E-02	177.500	-1.6670E-02
182.500	-1.6666E-02	187.500	-1.6378E-02	192.500	-1.5846E-02
197.500	-1.5111E-02	202.500	-1.4214E-02	207.500	-1.3193E-02
211.500	-1.2301E-02	214.000	-1.1723E-02	216.000	-1.1250E-02
217.750	-1.0830E-02	219.100	-1.0502E-02	219.850	-1.0454E-02
220.500	-1.0376E-02	222.000	-1.0035E-02	224.000	-9.5803E-03
226.500	-9.0105E-03	229.500	-8.3252E-03	232.500	-7.6391E-03
235.500	-6.9526E-03	238.500	-6.2663E-03	241.500	-5.5807E-03
244.500	-4.8962E-03	247.000	-4.3271E-03	248.750	-3.9296E-03
249.850	-3.6801E-03	250.600	-3.4180E-03	251.500	-2.9594E-03
253.000	-2.8238E-03	255.500	-2.6048E-03	258.500	-2.3555E-03
262.500	-2.0411E-03	269.000	-1.5827E-03	276.500	-1.1518E-03
285.000	-7.5303E-04	302.500	-1.6347E-04	320.000	5.6655E-05
337.500	1.9000E-04	362.500	2.4066E-04	387.500	2.5107E-04
410.000	2.5238E-04	430.000	2.5239E-04	447.500	2.5229E-04
462.500	2.5223E-04	475.000	2.5220E-04	484.000	2.5219E-04
491.500	2.5219E-04	497.500	2.5218E-04	502.500	2.5218E-04
507.000	2.5218E-04	510.500	2.5218E-04	513.500	2.5217E-04
516.000	2.5217E-04	517.500	2.5217E-04	518.500	2.5217E-04
519.000	2.5217E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

December 2023

0.000	0.0000E+00	0.100	2.9848E-03	0.300	5.2826E-03
0.600	7.9197E-03	1.000	1.0911E-02	1.500	1.5515E-02
2.200	2.0689E-02	3.000	2.6128E-02	4.000	3.7865E-02
5.500	5.4994E-02	7.500	6.4070E-02	9.500	7.2037E-02
12.000	7.8676E-02	14.500	8.4111E-02	17.500	8.0573E-02
20.000	6.3329E-02	22.000	4.7617E-02	23.500	3.9755E-02
25.000	2.4506E-02	25.400	1.2803E-02	26.000	2.0240E-02
27.000	3.0975E-02	28.500	3.0041E-02	29.500	2.3555E-02
30.500	1.7321E-02	31.000	1.7175E-02	32.000	2.8358E-02
33.500	3.3478E-02	35.000	3.8338E-02	37.000	5.3327E-02
40.000	5.1135E-02	42.000	3.9753E-02	44.000	2.8972E-02
45.000	1.9039E-02	46.000	1.8767E-02	47.000	1.8500E-02
48.000	2.7357E-02	50.000	3.5460E-02	52.000	3.4487E-02
54.000	4.1953E-02	57.000	3.6305E-02	58.500	2.3750E-02
60.000	1.9431E-02	61.000	1.5360E-02	62.000	1.5181E-02
63.000	1.8759E-02	64.500	2.2137E-02	66.000	2.5411E-02
68.000	3.5554E-02	71.000	4.1429E-02	74.000	4.0310E-02
77.000	3.9296E-02	80.000	3.8375E-02	83.000	3.7535E-02
86.000	3.6766E-02	89.000	3.6058E-02	92.000	3.5403E-02
95.000	2.8994E-02	97.000	1.6057E-02	97.800	5.7096E-03
98.000	7.3945E-03	99.000	1.8325E-02	101.000	2.3992E-02
103.000	2.3532E-02	105.000	3.4580E-02	109.000	4.9563E-02
114.000	4.1261E-02	117.000	2.4696E-02	119.000	1.9167E-02
121.000	1.3931E-02	122.000	9.1401E-03	123.000	1.1242E-02
124.500	1.3164E-02	126.000	1.4985E-02	128.000	1.8643E-02
130.500	1.7899E-02	132.500	1.7339E-02	135.000	2.7812E-02
140.000	3.4610E-02	145.000	3.2724E-02	150.000	3.1478E-02
155.000	3.0961E-02	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

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509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Shrub Vegetation Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10s.inp

Results File: c:\a\60_10s1956.res

Date of Run: 19 Oct 2023

Time of Run: 14:07:33.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.464E+03	0.0720	293.15	2	1.000E-01	2.047E+03	0.0760
3	3.000E-01	1.888E+03	0.0778	293.15	4	6.000E-01	1.937E+03	0.0772
5	1.000E+00	1.979E+03	0.0767	293.15	6	1.500E+00	1.974E+03	0.0768
7	2.200E+00	1.962E+03	0.0769	293.15	8	3.000E+00	1.959E+03	0.0770
9	4.000E+00	1.952E+03	0.0770	293.15	10	5.500E+00	1.942E+03	0.0772
11	7.500E+00	1.927E+03	0.0773	293.15	12	9.500E+00	1.911E+03	0.0775
13	1.200E+01	1.891E+03	0.0778	293.15	14	1.450E+01	1.871E+03	0.0780
15	1.750E+01	1.849E+03	0.0783	293.15	16	2.000E+01	1.832E+03	0.0785
17	2.200E+01	1.820E+03	0.0786	293.15	18	2.350E+01	1.812E+03	0.0787
19	2.500E+01	1.805E+03	0.0788	293.15	20	2.540E+01	1.804E+03	0.0788
21	2.600E+01	1.802E+03	0.1971	293.15	22	2.700E+01	1.800E+03	0.1972
23	2.850E+01	1.798E+03	0.1972	293.15	24	2.950E+01	1.797E+03	0.1973
25	3.050E+01	1.796E+03	0.1973	293.15	26	3.100E+01	1.797E+03	0.1973
27	3.200E+01	1.804E+03	0.1970	293.15	28	3.350E+01	1.821E+03	0.1965
29	3.500E+01	1.844E+03	0.1958	293.15	30	3.700E+01	1.884E+03	0.1946
31	4.000E+01	1.964E+03	0.1923	293.15	32	4.200E+01	2.027E+03	0.1905
33	4.400E+01	2.097E+03	0.1887	293.15	34	4.500E+01	2.134E+03	0.1877
35	4.600E+01	2.172E+03	0.1868	293.15	36	4.700E+01	2.210E+03	0.1858
37	4.800E+01	2.249E+03	0.1849	293.15	38	5.000E+01	2.327E+03	0.1831
39	5.200E+01	2.403E+03	0.1814	293.15	40	5.400E+01	2.475E+03	0.1798
41	5.700E+01	2.570E+03	0.1779	293.15	42	5.850E+01	2.614E+03	0.1770
43	6.000E+01	2.654E+03	0.1762	293.15	44	6.100E+01	2.680E+03	0.1757
45	6.200E+01	2.705E+03	0.1753	293.15	46	6.300E+01	2.729E+03	0.1748
47	6.450E+01	2.765E+03	0.1741	293.15	48	6.600E+01	2.801E+03	0.1735
49	6.800E+01	2.850E+03	0.1726	293.15	50	7.100E+01	2.927E+03	0.1713
51	7.400E+01	3.011E+03	0.1699	293.15	52	7.700E+01	3.106E+03	0.1684
53	8.000E+01	3.210E+03	0.1668	293.15	54	8.300E+01	3.324E+03	0.1651
55	8.600E+01	3.446E+03	0.1634	293.15	56	8.900E+01	3.572E+03	0.1617
57	9.200E+01	3.699E+03	0.1600	293.15	58	9.500E+01	3.821E+03	0.1585

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59 9.700E+01 3.897E+03 0.1576 293.15	60 9.780E+01 3.925E+03 0.1573 293.15
61 9.800E+01 3.942E+03 0.1968 293.15	62 9.900E+01 4.137E+03 0.1945 293.15
63 1.010E+02 4.548E+03 0.1902 293.15	64 1.030E+02 4.970E+03 0.1862 293.15
65 1.050E+02 5.383E+03 0.1826 293.15	66 1.090E+02 6.093E+03 0.1773 293.15
67 1.140E+02 6.789E+03 0.1727 293.15	68 1.170E+02 7.178E+03 0.1704 293.15
69 1.190E+02 7.437E+03 0.1689 293.15	70 1.210E+02 7.702E+03 0.1675 293.15
71 1.220E+02 7.838E+03 0.1668 293.15	72 1.230E+02 7.977E+03 0.1661 293.15
73 1.245E+02 8.192E+03 0.1650 293.15	74 1.260E+02 8.414E+03 0.1640 293.15
75 1.280E+02 8.724E+03 0.1625 293.15	76 1.305E+02 9.133E+03 0.1607 293.15
77 1.325E+02 9.476E+03 0.1593 293.15	78 1.350E+02 9.918E+03 0.1576 293.15
79 1.400E+02 1.082E+04 0.1543 293.15	80 1.450E+02 1.162E+04 0.1516 293.15
81 1.500E+02 1.218E+04 0.1499 293.15	82 1.550E+02 1.241E+04 0.1492 293.15
83 1.600E+02 1.236E+04 0.1494 293.15	84 1.650E+02 1.218E+04 0.1499 293.15
85 1.700E+02 1.197E+04 0.1506 293.15	86 1.750E+02 1.177E+04 0.1512 293.15
87 1.800E+02 1.158E+04 0.1517 293.15	88 1.850E+02 1.141E+04 0.1523 293.15
89 1.900E+02 1.125E+04 0.1528 293.15	90 1.950E+02 1.110E+04 0.1533 293.15
91 2.000E+02 1.096E+04 0.1538 293.15	92 2.050E+02 1.083E+04 0.1542 293.15
93 2.100E+02 1.072E+04 0.1546 293.15	94 2.130E+02 1.065E+04 0.1549 293.15
95 2.150E+02 1.061E+04 0.1550 293.15	96 2.170E+02 1.057E+04 0.1552 293.15
97 2.185E+02 1.054E+04 0.1553 293.15	98 2.197E+02 1.052E+04 0.1553 293.15
99 2.200E+02 1.052E+04 0.1182 293.15	100 2.210E+02 1.051E+04 0.1182 293.15
101 2.230E+02 1.050E+04 0.1182 293.15	102 2.250E+02 1.049E+04 0.1183 293.15
103 2.280E+02 1.048E+04 0.1183 293.15	104 2.310E+02 1.047E+04 0.1184 293.15
105 2.340E+02 1.046E+04 0.1184 293.15	106 2.370E+02 1.045E+04 0.1184 293.15
107 2.400E+02 1.044E+04 0.1185 293.15	108 2.430E+02 1.043E+04 0.1185 293.15
109 2.460E+02 1.042E+04 0.1185 293.15	110 2.480E+02 1.042E+04 0.1185 293.15
111 2.495E+02 1.041E+04 0.1185 293.15	112 2.502E+02 1.041E+04 0.1186 293.15
113 2.510E+02 1.041E+04 0.0523 293.15	114 2.520E+02 1.039E+04 0.0524 293.15
115 2.540E+02 1.036E+04 0.0524 293.15	116 2.570E+02 1.032E+04 0.0525 293.15
117 2.600E+02 1.028E+04 0.0525 293.15	118 2.650E+02 1.023E+04 0.0526 293.15
119 2.730E+02 1.016E+04 0.0527 293.15	120 2.800E+02 1.011E+04 0.0528 293.15
121 2.900E+02 1.007E+04 0.0529 293.15	122 3.150E+02 1.002E+04 0.0530 293.15
123 3.250E+02 1.001E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 51.9890 cm

NOTE: There are no temperature data when plants are modelled.

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DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07074
Head (cm) = 2.62145E+03
LiqWater Flow (cm)=-4.42159E-02
IsoVapor Flow (cm)=-2.01352E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

51.9890+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 51.9447 vs. 51.9447

Mass Balance = -7.9230E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07834
Head (cm) = 1.84232E+03
LiqWater Flow (cm)=-1.31917E-04
IsoVapor Flow (cm)=-2.39153E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.3203+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 57.3203 vs. 57.3203

Mass Balance = -1.0028E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.1370E+02 [cm]
 Potential Transpiration = 4.8921E+00 [cm]
 Actual Transpiration = 3.0570E+00 [cm]
 Potential Evaporation = 1.0881E+02 [cm]
 Actual Evaporation = 4.2317E+01 [cm]
 Evaporation during Growth = 2.8254E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.7320E+01 [cm]
 Mass Balance Error = -7.0062E-03 [cm]
 Total Successful Time Steps = 13050
 Total Attempted Time Steps = 14869
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3748
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	8.3815E+00	0.050	8.5495E+00	0.200	8.4020E+00
0.450	8.3800E+00	0.800	8.3611E+00	1.250	8.3377E+00
1.850	8.3074E+00	2.600	8.2698E+00	3.500	8.2241E+00
4.750	8.1601E+00	6.500	8.0699E+00	8.500	7.9673E+00
10.750	7.8534E+00	13.250	7.7299E+00	16.000	7.5981E+00
18.750	7.4719E+00	21.000	7.3725E+00	22.750	7.2976E+00
24.250	7.2350E+00	25.200	7.1963E+00	25.700	7.1760E+00
26.500	7.1342E+00	27.750	7.0697E+00	29.000	7.0065E+00
30.000	6.9567E+00	30.750	6.9199E+00	31.500	6.8837E+00

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32.750	6.8236E+00	34.250	6.7533E+00	36.000	6.6736E+00
38.500	6.5634E+00	41.000	6.4577E+00	43.000	6.3745E+00
44.500	6.3125E+00	45.500	6.2712E+00	46.500	6.2298E+00
47.500	6.1881E+00	49.000	6.1251E+00	51.000	6.0392E+00
53.000	5.9509E+00	55.500	5.8373E+00	57.750	5.7304E+00
59.250	5.6577E+00	60.500	5.5959E+00	61.500	5.5458E+00
62.500	5.4950E+00	63.750	5.4309E+00	65.250	5.3525E+00
67.000	5.2596E+00	69.500	5.1239E+00	72.500	4.9560E+00
75.500	4.7828E+00	78.500	4.6042E+00	81.500	4.4203E+00
84.500	4.2308E+00	87.500	4.0360E+00	90.500	3.8361E+00
93.500	3.6315E+00	96.000	3.4575E+00	97.400	3.3590E+00
97.900	3.3235E+00	98.500	3.2809E+00	100.000	3.1724E+00
102.000	3.0208E+00	104.000	2.8634E+00	107.000	2.6209E+00
111.500	2.2486E+00	115.500	1.9223E+00	118.000	1.7232E+00
120.000	1.5673E+00	121.500	1.4535E+00	122.500	1.3787E+00
123.750	1.2868E+00	125.250	1.1796E+00	127.000	1.0583E+00
129.250	9.0979E-01	131.500	7.7167E-01	133.750	6.4292E-01
137.500	4.5015E-01	142.500	2.5978E-01	147.500	1.3422E-01
152.500	5.5759E-02	157.500	5.2702E-03	162.500	-6.2237E-03
167.500	-1.1300E-02	172.500	-1.3577E-02	177.500	-1.4581E-02
182.500	-1.4930E-02	187.500	-1.4882E-02	192.500	-1.4557E-02
197.500	-1.4018E-02	202.500	-1.3309E-02	207.500	-1.2462E-02
211.500	-1.1696E-02	214.000	-1.1190E-02	216.000	-1.0772E-02
217.750	-1.0396E-02	219.100	-1.0101E-02	219.850	-1.0068E-02
220.500	-1.0002E-02	222.000	-9.6935E-03	224.000	-9.2800E-03
226.500	-8.7612E-03	229.500	-8.1355E-03	232.500	-7.5075E-03
235.500	-6.8776E-03	238.500	-6.2466E-03	241.500	-5.6149E-03
244.500	-4.9831E-03	247.000	-4.4570E-03	248.750	-4.0891E-03
249.850	-3.8581E-03	250.600	-3.6013E-03	251.500	-3.1178E-03
253.000	-2.9940E-03	255.500	-2.7920E-03	258.500	-2.5587E-03
262.500	-2.2600E-03	269.000	-1.8137E-03	276.500	-1.3775E-03
285.000	-9.5892E-04	302.500	-3.0498E-04	320.000	-3.0343E-05
337.500	1.4839E-04	362.500	2.2809E-04	387.500	2.4846E-04
410.000	2.5228E-04	430.000	2.5294E-04	447.500	2.5297E-04
462.500	2.5294E-04	475.000	2.5291E-04	484.000	2.5289E-04
491.500	2.5288E-04	497.500	2.5288E-04	502.500	2.5287E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE

December 2023

0.000	0.0000E+00	0.100	4.9189E-03	0.300	8.4503E-03
0.600	1.2222E-02	1.000	1.6244E-02	1.500	2.2359E-02
2.200	2.8873E-02	3.000	3.5543E-02	4.000	5.0378E-02
5.500	7.1592E-02	7.500	8.1994E-02	9.500	9.1299E-02
12.000	9.9090E-02	14.500	1.0567E-01	17.500	1.0117E-01
20.000	7.9563E-02	22.000	5.9869E-02	23.500	5.0029E-02
25.000	3.0874E-02	25.400	1.6136E-02	26.000	2.5520E-02
27.000	3.9074E-02	28.500	3.7916E-02	29.500	2.9739E-02
30.500	2.1873E-02	31.000	2.1692E-02	32.000	3.5843E-02
33.500	4.2394E-02	35.000	4.8687E-02	37.000	6.7989E-02
40.000	6.5550E-02	42.000	5.1141E-02	44.000	3.7404E-02
45.000	2.4625E-02	46.000	2.4320E-02	47.000	2.4020E-02
48.000	3.5590E-02	50.000	4.6309E-02	52.000	4.5211E-02
54.000	5.5200E-02	57.000	4.8013E-02	58.500	3.1485E-02
60.000	2.5817E-02	61.000	2.0436E-02	62.000	2.0223E-02
63.000	2.5018E-02	64.500	2.9565E-02	66.000	3.3978E-02
68.000	4.7598E-02	71.000	5.5512E-02	74.000	5.3986E-02
77.000	5.2566E-02	80.000	5.1244E-02	83.000	5.0022E-02
86.000	4.8893E-02	89.000	4.7849E-02	92.000	4.6885E-02
95.000	3.8329E-02	97.000	2.1206E-02	97.800	7.5378E-03
98.000	9.3188E-03	99.000	2.3010E-02	101.000	2.9903E-02
103.000	2.9108E-02	105.000	4.2438E-02	109.000	5.9819E-02
114.000	4.8588E-02	117.000	2.8556E-02	119.000	2.1853E-02
121.000	1.5634E-02	122.000	1.0169E-02	123.000	1.2393E-02
124.500	1.4299E-02	126.000	1.6019E-02	128.000	1.9477E-02
130.500	1.8128E-02	132.500	1.7106E-02	135.000	2.6540E-02
140.000	3.1166E-02	145.000	2.8318E-02	150.000	2.6677E-02
155.000	2.5970E-02	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

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509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Shrub Vegetation Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10s.inp

Results File: c:\a\60_10s1957.res

Date of Run: 19 Oct 2023

Time of Run: 14:07:33.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.842E+03	0.0783	293.15	2	1.000E-01	1.482E+03	0.0834 293.15
3	3.000E-01	1.244E+03	0.0876	293.15	4	6.000E-01	1.177E+03	0.0890 293.15
5	1.000E+00	1.192E+03	0.0887	293.15	6	1.500E+00	1.244E+03	0.0876 293.15
7	2.200E+00	1.259E+03	0.0873	293.15	8	3.000E+00	1.252E+03	0.0875 293.15
9	4.000E+00	1.245E+03	0.0876	293.15	10	5.500E+00	1.246E+03	0.0876 293.15
11	7.500E+00	1.246E+03	0.0876	293.15	12	9.500E+00	1.247E+03	0.0875 293.15
13	1.200E+01	1.249E+03	0.0875	293.15	14	1.450E+01	1.252E+03	0.0875 293.15
15	1.750E+01	1.256E+03	0.0874	293.15	16	2.000E+01	1.261E+03	0.0873 293.15
17	2.200E+01	1.266E+03	0.0872	293.15	18	2.350E+01	1.269E+03	0.0871 293.15
19	2.500E+01	1.273E+03	0.0870	293.15	20	2.540E+01	1.275E+03	0.0870 293.15
21	2.600E+01	1.275E+03	0.2175	293.15	22	2.700E+01	1.276E+03	0.2175 293.15
23	2.850E+01	1.277E+03	0.2174	293.15	24	2.950E+01	1.277E+03	0.2174 293.15
25	3.050E+01	1.278E+03	0.2174	293.15	26	3.100E+01	1.280E+03	0.2172 293.15
27	3.200E+01	1.299E+03	0.2164	293.15	28	3.350E+01	1.329E+03	0.2150 293.15
29	3.500E+01	1.362E+03	0.2135	293.15	30	3.700E+01	1.410E+03	0.2114 293.15
31	4.000E+01	1.484E+03	0.2083	293.15	32	4.200E+01	1.530E+03	0.2065 293.15
33	4.400E+01	1.570E+03	0.2050	293.15	34	4.500E+01	1.587E+03	0.2044 293.15
35	4.600E+01	1.601E+03	0.2039	293.15	36	4.700E+01	1.612E+03	0.2035 293.15
37	4.800E+01	1.621E+03	0.2032	293.15	38	5.000E+01	1.630E+03	0.2029 293.15
39	5.200E+01	1.629E+03	0.2029	293.15	40	5.400E+01	1.620E+03	0.2032 293.15
41	5.700E+01	1.597E+03	0.2040	293.15	42	5.850E+01	1.584E+03	0.2045 293.15
43	6.000E+01	1.570E+03	0.2050	293.15	44	6.100E+01	1.560E+03	0.2054 293.15
45	6.200E+01	1.551E+03	0.2058	293.15	46	6.300E+01	1.541E+03	0.2061 293.15
47	6.450E+01	1.527E+03	0.2067	293.15	48	6.600E+01	1.514E+03	0.2072 293.15
49	6.800E+01	1.497E+03	0.2078	293.15	50	7.100E+01	1.473E+03	0.2088 293.15
51	7.400E+01	1.453E+03	0.2096	293.15	52	7.700E+01	1.435E+03	0.2104 293.15
53	8.000E+01	1.420E+03	0.2110	293.15	54	8.300E+01	1.407E+03	0.2115 293.15
55	8.600E+01	1.396E+03	0.2120	293.15	56	8.900E+01	1.388E+03	0.2123 293.15
57	9.200E+01	1.382E+03	0.2126	293.15	58	9.500E+01	1.378E+03	0.2128 293.15
59	9.700E+01	1.377E+03	0.2128	293.15	60	9.780E+01	1.376E+03	0.2129 293.15
61	9.800E+01	1.377E+03	0.2516	293.15	62	9.900E+01	1.381E+03	0.2515 293.15
63	1.010E+02	1.393E+03	0.2509	293.15	64	1.030E+02	1.412E+03	0.2502 293.15

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65 1.050E+02 1.436E+03 0.2492 293.15	66 1.090E+02 1.504E+03 0.2466 293.15
67 1.140E+02 1.633E+03 0.2420 293.15	68 1.170E+02 1.740E+03 0.2385 293.15
69 1.190E+02 1.827E+03 0.2358 293.15	70 1.210E+02 1.931E+03 0.2329 293.15
71 1.220E+02 1.989E+03 0.2313 293.15	72 1.230E+02 2.053E+03 0.2296 293.15
73 1.245E+02 2.159E+03 0.2269 293.15	74 1.260E+02 2.282E+03 0.2240 293.15
75 1.280E+02 2.474E+03 0.2198 293.15	76 1.305E+02 2.773E+03 0.2139 293.15
77 1.325E+02 3.072E+03 0.2088 293.15	78 1.350E+02 3.545E+03 0.2018 293.15
79 1.400E+02 4.972E+03 0.1861 293.15	80 1.450E+02 7.028E+03 0.1713 293.15
81 1.500E+02 9.171E+03 0.1606 293.15	82 1.550E+02 1.076E+04 0.1545 293.15
83 1.600E+02 1.158E+04 0.1518 293.15	84 1.650E+02 1.183E+04 0.1510 293.15
85 1.700E+02 1.181E+04 0.1510 293.15	86 1.750E+02 1.170E+04 0.1514 293.15
87 1.800E+02 1.156E+04 0.1518 293.15	88 1.850E+02 1.142E+04 0.1523 293.15
89 1.900E+02 1.127E+04 0.1528 293.15	90 1.950E+02 1.114E+04 0.1532 293.15
91 2.000E+02 1.101E+04 0.1536 293.15	92 2.050E+02 1.088E+04 0.1541 293.15
93 2.100E+02 1.077E+04 0.1544 293.15	94 2.130E+02 1.071E+04 0.1547 293.15
95 2.150E+02 1.067E+04 0.1548 293.15	96 2.170E+02 1.063E+04 0.1549 293.15
97 2.185E+02 1.061E+04 0.1550 293.15	98 2.197E+02 1.058E+04 0.1551 293.15
99 2.200E+02 1.058E+04 0.1180 293.15	100 2.210E+02 1.058E+04 0.1180 293.15
101 2.230E+02 1.057E+04 0.1180 293.15	102 2.250E+02 1.056E+04 0.1181 293.15
103 2.280E+02 1.055E+04 0.1181 293.15	104 2.310E+02 1.053E+04 0.1181 293.15
105 2.340E+02 1.052E+04 0.1182 293.15	106 2.370E+02 1.051E+04 0.1182 293.15
107 2.400E+02 1.050E+04 0.1182 293.15	108 2.430E+02 1.049E+04 0.1183 293.15
109 2.460E+02 1.049E+04 0.1183 293.15	110 2.480E+02 1.048E+04 0.1183 293.15
111 2.495E+02 1.048E+04 0.1183 293.15	112 2.502E+02 1.047E+04 0.1183 293.15
113 2.510E+02 1.047E+04 0.0522 293.15	114 2.520E+02 1.045E+04 0.0523 293.15
115 2.540E+02 1.042E+04 0.0523 293.15	116 2.570E+02 1.038E+04 0.0524 293.15
117 2.600E+02 1.034E+04 0.0524 293.15	118 2.650E+02 1.028E+04 0.0525 293.15
119 2.730E+02 1.020E+04 0.0527 293.15	120 2.800E+02 1.015E+04 0.0527 293.15
121 2.900E+02 1.009E+04 0.0528 293.15	122 3.150E+02 1.003E+04 0.0529 293.15
123 3.250E+02 1.002E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 57.3203 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

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Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07644
Head (cm) = 2.00551E+03
LiqWater Flow (cm)=-4.41806E-02
IsoVapor Flow (cm)=-2.44236E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.3203+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 57.2760 vs. 57.2760

Mass Balance = -1.0979E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07753
Head (cm) = 1.91000E+03
LiqWater Flow (cm)=-5.84386E-02
IsoVapor Flow (cm)=-2.78776E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

59.8395+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 59.7810 vs. 59.7810

Mass Balance = -2.3991E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

December 2023

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.1376E+02 [cm]
 Potential Transpiration = 4.8921E+00 [cm]
 Actual Transpiration = 3.4430E+00 [cm]
 Potential Evaporation = 1.0887E+02 [cm]
 Actual Evaporation = 4.4800E+01 [cm]
 Evaporation during Growth = 3.0575E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.9781E+01 [cm]
 Mass Balance Error = -5.9007E-03 [cm]
 Total Successful Time Steps = 12799
 Total Attempted Time Steps = 14412
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3559
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	5.8981E+00	0.050	5.9836E+00	0.200	5.9091E+00
0.450	5.8972E+00	0.800	5.8824E+00	1.250	5.8641E+00
1.850	5.8396E+00	2.600	5.8088E+00	3.500	5.7714E+00
4.750	5.7188E+00	6.500	5.6443E+00	8.500	5.5591E+00
10.750	5.4642E+00	13.250	5.3608E+00	16.000	5.2501E+00
18.750	5.1434E+00	21.000	5.0590E+00	22.750	4.9952E+00
24.250	4.9416E+00	25.200	4.9084E+00	25.700	4.8910E+00
26.500	4.8620E+00	27.750	4.8174E+00	29.000	4.7739E+00
30.000	4.7397E+00	30.750	4.7146E+00	31.500	4.6899E+00
32.750	4.6477E+00	34.250	4.5967E+00	36.000	4.5372E+00
38.500	4.4524E+00	41.000	4.3686E+00	43.000	4.3024E+00
44.500	4.2536E+00	45.500	4.2214E+00	46.500	4.1895E+00
47.500	4.1580E+00	49.000	4.1113E+00	51.000	4.0506E+00
53.000	3.9915E+00	55.500	3.9194E+00	57.750	3.8569E+00
59.250	3.8159E+00	60.500	3.7822E+00	61.500	3.7556E+00
62.500	3.7291E+00	63.750	3.6964E+00	65.250	3.6576E+00
67.000	3.6129E+00	69.500	3.5500E+00	72.500	3.4759E+00
75.500	3.4031E+00	78.500	3.3315E+00	81.500	3.2608E+00
84.500	3.1911E+00	87.500	3.1220E+00	90.500	3.0537E+00
93.500	2.9859E+00	96.000	2.9297E+00	97.400	2.8984E+00
97.900	2.8872E+00	98.500	2.8738E+00	100.000	2.8400E+00

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102.000	2.7944E+00	104.000	2.7480E+00	107.000	2.6772E+00
111.500	2.5667E+00	115.500	2.4620E+00	118.000	2.3936E+00
120.000	2.3369E+00	121.500	2.2928E+00	122.500	2.2628E+00
123.750	2.2245E+00	125.250	2.1769E+00	127.000	2.1194E+00
129.250	2.0417E+00	131.500	1.9583E+00	133.750	1.8699E+00
137.500	1.7107E+00	142.500	1.4623E+00	147.500	1.1856E+00
152.500	9.0384E-01	157.500	6.3987E-01	162.500	4.4639E-01
167.500	2.8795E-01	172.500	1.6775E-01	177.500	8.5169E-02
182.500	3.5100E-02	187.500	8.5676E-03	192.500	-3.8580E-03
197.500	-9.0207E-03	202.500	-1.0785E-02	207.500	-1.1028E-02
211.500	-1.0679E-02	214.000	-1.0347E-02	216.000	-1.0036E-02
217.750	-9.7353E-03	219.100	-9.4887E-03	219.850	-9.4736E-03
220.500	-9.4232E-03	222.000	-9.1564E-03	224.000	-8.7964E-03
226.500	-8.3417E-03	229.500	-7.7888E-03	232.500	-7.2303E-03
235.500	-6.6672E-03	238.500	-6.1006E-03	241.500	-5.5315E-03
244.500	-4.9608E-03	247.000	-4.4845E-03	248.750	-4.1510E-03
249.850	-3.9415E-03	250.600	-3.6944E-03	251.500	-3.1965E-03
253.000	-3.0858E-03	255.500	-2.9032E-03	258.500	-2.6894E-03
262.500	-2.4120E-03	269.000	-1.9885E-03	276.500	-1.5606E-03
285.000	-1.1371E-03	302.500	-4.4512E-04	320.000	-1.2375E-04
337.500	9.7678E-05	362.500	2.0969E-04	387.500	2.4303E-04
410.000	2.5070E-04	430.000	2.5253E-04	447.500	2.5287E-04
462.500	2.5292E-04	475.000	2.5291E-04	484.000	2.5290E-04
491.500	2.5289E-04	497.500	2.5288E-04	502.500	2.5288E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	5.2035E-03	0.300	8.9241E-03
0.600	1.2877E-02	1.000	1.7074E-02	1.500	2.3449E-02
2.200	3.0210E-02	3.000	3.7117E-02	4.000	5.2518E-02
5.500	7.4502E-02	7.500	8.5200E-02	9.500	9.4783E-02
12.000	1.0281E-01	14.500	1.0962E-01	17.500	1.0496E-01
20.000	8.2572E-02	22.000	6.2157E-02	23.500	5.1961E-02
25.000	3.2083E-02	25.400	1.6771E-02	26.000	2.6527E-02
27.000	4.0623E-02	28.500	3.9429E-02	29.500	3.0931E-02
30.500	2.2753E-02	31.000	2.2571E-02	32.000	3.7348E-02
33.500	4.4259E-02	35.000	5.0913E-02	37.000	7.1257E-02
40.000	6.8930E-02	42.000	5.3890E-02	44.000	3.9490E-02
45.000	2.6024E-02	46.000	2.5725E-02	47.000	2.5432E-02
48.000	3.7714E-02	50.000	4.9161E-02	52.000	4.8079E-02
54.000	5.8805E-02	57.000	5.1281E-02	58.500	3.3669E-02

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60.000	2.7643E-02	61.000	2.1901E-02	62.000	2.1693E-02
63.000	2.6863E-02	64.500	3.1793E-02	66.000	3.6593E-02
68.000	5.1367E-02	71.000	6.0123E-02	74.000	5.8721E-02
77.000	5.7425E-02	80.000	5.6219E-02	83.000	5.5091E-02
86.000	5.4038E-02	89.000	5.3072E-02	92.000	5.2188E-02
95.000	4.2816E-02	97.000	2.3743E-02	97.800	8.4478E-03
98.000	1.0308E-02	99.000	2.5612E-02	101.000	3.3724E-02
103.000	3.3293E-02	105.000	4.9279E-02	109.000	7.1875E-02
114.000	6.1557E-02	117.000	3.7571E-02	119.000	2.9565E-02
121.000	2.1796E-02	122.000	1.4402E-02	123.000	1.7841E-02
124.500	2.1112E-02	126.000	2.4277E-02	128.000	3.0591E-02
130.500	2.9785E-02	132.500	2.9116E-02	135.000	4.7075E-02
140.000	5.8589E-02	145.000	5.3965E-02	150.000	4.8869E-02
155.000	4.3443E-02	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00
509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Shrub Vegetation Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\60_10s1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                46.984
 1 22.530 135.832  1.896 17.074  0.000  0.000  50.549  11924 -0.00548
 2 22.530 135.832  2.227 19.541  0.000  0.000  51.317  11965 -0.00603
 3 22.530 135.832  2.332 19.876  0.000  0.000  51.645  12028 -0.00606
 4 22.530 135.832  2.381 19.995  0.000  0.000  51.805  12006 -0.00594
 5 22.530 135.832  2.406 20.047  0.000  0.000  51.887  12013 -0.00604
 6 22.530 135.832  2.420 20.068  0.000  0.000  51.935  12028 -0.00613
 7 22.530 135.832  2.429 20.079  0.000  0.000  51.962  12031 -0.00617
 8 22.530 135.832  2.436 20.079  0.000  0.000  51.982  12024 -0.00589
 9 22.530 135.832  2.440 20.090  0.000  0.000  51.988  12011 -0.00607
10 22.530 135.832  2.442 20.092  0.000  0.000  51.989  11993 -0.00616
11 50.698 113.700  3.057 42.317  0.000  0.000  57.320  13050 -0.00701
12 50.698 113.759  3.443 44.800  0.000  0.000  59.781  12799 -0.00590
-----
SUM= 326.6951585.780 29.909 284.059  0.000  0.003                -0.07287
```

Sensitivity Analysis #2: No Vegetation Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10NV.inp
Results File: c:\a\60_10nv1955.res
Date of Run: 19 Oct 2023
Time of Run: 14:14:23.04
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.253E+03	0.0739	293.15	2	1.000E-01	1.911E+03	0.0775 293.15
3	3.000E-01	1.769E+03	0.0793	293.15	4	6.000E-01	1.800E+03	0.0789 293.15
5	1.000E+00	1.846E+03	0.0783	293.15	6	1.500E+00	1.839E+03	0.0784 293.15
7	2.200E+00	1.830E+03	0.0785	293.15	8	3.000E+00	1.827E+03	0.0785 293.15
9	4.000E+00	1.822E+03	0.0786	293.15	10	5.500E+00	1.813E+03	0.0787 293.15
11	7.500E+00	1.800E+03	0.0789	293.15	12	9.500E+00	1.786E+03	0.0790 293.15
13	1.200E+01	1.769E+03	0.0793	293.15	14	1.450E+01	1.752E+03	0.0795 293.15
15	1.750E+01	1.732E+03	0.0797	293.15	16	2.000E+01	1.716E+03	0.0799 293.15
17	2.200E+01	1.705E+03	0.0801	293.15	18	2.350E+01	1.698E+03	0.0802 293.15
19	2.500E+01	1.691E+03	0.0803	293.15	20	2.540E+01	1.689E+03	0.0803 293.15
21	2.600E+01	1.687E+03	0.2008	293.15	22	2.700E+01	1.686E+03	0.2009 293.15
23	2.850E+01	1.683E+03	0.2010	293.15	24	2.950E+01	1.682E+03	0.2010 293.15
25	3.050E+01	1.681E+03	0.2011	293.15	26	3.100E+01	1.681E+03	0.2011 293.15
27	3.200E+01	1.684E+03	0.2010	293.15	28	3.350E+01	1.693E+03	0.2007 293.15
29	3.500E+01	1.707E+03	0.2002	293.15	30	3.700E+01	1.733E+03	0.1993 293.15
31	4.000E+01	1.785E+03	0.1976	293.15	32	4.200E+01	1.825E+03	0.1964 293.15
33	4.400E+01	1.870E+03	0.1950	293.15	34	4.500E+01	1.894E+03	0.1943 293.15
35	4.600E+01	1.917E+03	0.1936	293.15	36	4.700E+01	1.942E+03	0.1929 293.15
37	4.800E+01	1.966E+03	0.1922	293.15	38	5.000E+01	2.013E+03	0.1909 293.15
39	5.200E+01	2.058E+03	0.1897	293.15	40	5.400E+01	2.100E+03	0.1886 293.15
41	5.700E+01	2.153E+03	0.1872	293.15	42	5.850E+01	2.175E+03	0.1867 293.15
43	6.000E+01	2.195E+03	0.1862	293.15	44	6.100E+01	2.207E+03	0.1859 293.15
45	6.200E+01	2.218E+03	0.1856	293.15	46	6.300E+01	2.228E+03	0.1854 293.15
47	6.450E+01	2.242E+03	0.1851	293.15	48	6.600E+01	2.254E+03	0.1848 293.15
49	6.800E+01	2.269E+03	0.1844	293.15	50	7.100E+01	2.290E+03	0.1839 293.15
51	7.400E+01	2.310E+03	0.1835	293.15	52	7.700E+01	2.332E+03	0.1830 293.15
53	8.000E+01	2.356E+03	0.1824	293.15	54	8.300E+01	2.381E+03	0.1819 293.15
55	8.600E+01	2.408E+03	0.1813	293.15	56	8.900E+01	2.436E+03	0.1807 293.15
57	9.200E+01	2.464E+03	0.1801	293.15	58	9.500E+01	2.493E+03	0.1795 293.15
59	9.700E+01	2.511E+03	0.1791	293.15	60	9.780E+01	2.518E+03	0.1789 293.15
61	9.800E+01	2.523E+03	0.2188	293.15	62	9.900E+01	2.580E+03	0.2176 293.15
63	1.010E+02	2.699E+03	0.2153	293.15	64	1.030E+02	2.821E+03	0.2131 293.15

December 2023

65 1.050E+02 2.942E+03 0.2110 293.15	66 1.090E+02 3.166E+03 0.2073 293.15
67 1.140E+02 3.392E+03 0.2040 293.15	68 1.170E+02 3.501E+03 0.2024 293.15
69 1.190E+02 3.565E+03 0.2016 293.15	70 1.210E+02 3.623E+03 0.2008 293.15
71 1.220E+02 3.651E+03 0.2004 293.15	72 1.230E+02 3.678E+03 0.2001 293.15
73 1.245E+02 3.716E+03 0.1996 293.15	74 1.260E+02 3.754E+03 0.1991 293.15
75 1.280E+02 3.803E+03 0.1985 293.15	76 1.305E+02 3.865E+03 0.1977 293.15
77 1.325E+02 3.916E+03 0.1971 293.15	78 1.350E+02 3.981E+03 0.1963 293.15
79 1.400E+02 4.121E+03 0.1947 293.15	80 1.450E+02 4.279E+03 0.1930 293.15
81 1.500E+02 4.458E+03 0.1911 293.15	82 1.550E+02 4.658E+03 0.1891 293.15
83 1.600E+02 4.882E+03 0.1870 293.15	84 1.650E+02 5.130E+03 0.1848 293.15
85 1.700E+02 5.401E+03 0.1825 293.15	86 1.750E+02 5.696E+03 0.1802 293.15
87 1.800E+02 6.011E+03 0.1778 293.15	88 1.850E+02 6.345E+03 0.1755 293.15
89 1.900E+02 6.695E+03 0.1733 293.15	90 1.950E+02 7.057E+03 0.1711 293.15
91 2.000E+02 7.426E+03 0.1690 293.15	92 2.050E+02 7.798E+03 0.1670 293.15
93 2.100E+02 8.168E+03 0.1652 293.15	94 2.130E+02 8.386E+03 0.1641 293.15
95 2.150E+02 8.530E+03 0.1634 293.15	96 2.170E+02 8.672E+03 0.1628 293.15
97 2.185E+02 8.776E+03 0.1623 293.15	98 2.197E+02 8.859E+03 0.1619 293.15
99 2.200E+02 8.869E+03 0.1241 293.15	100 2.210E+02 8.883E+03 0.1241 293.15
101 2.230E+02 8.911E+03 0.1240 293.15	102 2.250E+02 8.937E+03 0.1239 293.15
103 2.280E+02 8.973E+03 0.1237 293.15	104 2.310E+02 9.007E+03 0.1236 293.15
105 2.340E+02 9.037E+03 0.1235 293.15	106 2.370E+02 9.064E+03 0.1234 293.15
107 2.400E+02 9.087E+03 0.1233 293.15	108 2.430E+02 9.108E+03 0.1232 293.15
109 2.460E+02 9.125E+03 0.1231 293.15	110 2.480E+02 9.134E+03 0.1231 293.15
111 2.495E+02 9.141E+03 0.1231 293.15	112 2.502E+02 9.143E+03 0.1231 293.15
113 2.510E+02 9.153E+03 0.0546 293.15	114 2.520E+02 9.192E+03 0.0545 293.15
115 2.540E+02 9.265E+03 0.0544 293.15	116 2.570E+02 9.367E+03 0.0542 293.15
117 2.600E+02 9.459E+03 0.0540 293.15	118 2.650E+02 9.590E+03 0.0537 293.15
119 2.730E+02 9.745E+03 0.0535 293.15	120 2.800E+02 9.839E+03 0.0533 293.15
121 2.900E+02 9.922E+03 0.0531 293.15	122 3.150E+02 9.981E+03 0.0530 293.15
123 3.250E+02 9.991E+03 0.0530 293.15	124 3.500E+02 9.998E+03 0.0530 293.15
125 3.750E+02 9.999E+03 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 56.4772 cm

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000

December 2023

Water (cm³/cm³) = 0.07084
Head (cm) = 2.60843E+03
LiqWater Flow (cm)=-6.82238E-02
IsoVapor Flow (cm)=-2.22559E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.4772+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 56.4088 vs. 56.4088

Mass Balance = -1.2388E-06 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07394
Head (cm) = 2.24998E+03
LiqWater Flow (cm)=-3.96633E-02
IsoVapor Flow (cm)=-1.51275E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.8140+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 56.7743 vs. 56.7743

Mass Balance = -6.9421E-07 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 0
Potential Evapotranspiration = 1.3583E+02 [cm]
Potential Transpiration = 0.0000E+00 [cm]
Actual Transpiration = 0.0000E+00 [cm]
Potential Evaporation = 1.3583E+02 [cm]
Actual Evaporation = 2.2238E+01 [cm]
Evaporation during Growth = 0.0000E+00 [cm]

December 2023

Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5217E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6774E+01 [cm]
 Mass Balance Error = -5.9150E-03 [cm]
 Total Successful Time Steps = 11950
 Total Attempted Time Steps = 13587
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6236
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.9147E-01	0.050	7.2516E-01	0.200	4.1838E-01
0.450	3.3605E-01	0.800	3.2428E-01	1.250	3.1664E-01
1.850	3.1091E-01	2.600	3.0682E-01	3.500	3.0401E-01
4.750	3.0185E-01	6.500	3.0022E-01	8.500	2.9921E-01
10.750	2.9857E-01	13.250	2.9814E-01	16.000	2.9782E-01
18.750	2.9760E-01	21.000	2.9745E-01	22.750	2.9735E-01
24.250	2.9727E-01	25.200	2.9722E-01	25.700	2.9717E-01
26.500	2.9710E-01	27.750	2.9702E-01	29.000	2.9694E-01
30.000	2.9688E-01	30.750	2.9735E-01	31.500	2.9870E-01
32.750	2.9824E-01	34.250	2.9781E-01	36.000	2.9742E-01
38.500	2.9699E-01	41.000	2.9661E-01	43.000	2.9633E-01
44.500	2.9612E-01	45.500	2.9598E-01	46.500	2.9585E-01
47.500	2.9571E-01	49.000	2.9550E-01	51.000	2.9522E-01
53.000	2.9493E-01	55.500	2.9455E-01	57.750	2.9420E-01
59.250	2.9396E-01	60.500	2.9376E-01	61.500	2.9360E-01
62.500	2.9343E-01	63.750	2.9322E-01	65.250	2.9296E-01
67.000	2.9266E-01	69.500	2.9220E-01	72.500	2.9163E-01
75.500	2.9103E-01	78.500	2.9039E-01	81.500	2.8971E-01
84.500	2.8899E-01	87.500	2.8824E-01	90.500	2.8744E-01
93.500	2.8659E-01	96.000	2.8586E-01	97.400	2.8544E-01
97.900	2.8524E-01	98.500	2.8497E-01	100.000	2.8446E-01
102.000	2.8369E-01	104.000	2.8282E-01	107.000	2.8138E-01
111.500	2.7879E-01	115.500	2.7604E-01	118.000	2.7416E-01
120.000	2.7257E-01	121.500	2.7131E-01	122.500	2.7044E-01
123.750	2.6933E-01	125.250	2.6795E-01	127.000	2.6627E-01
129.250	2.6401E-01	131.500	2.6160E-01	133.750	2.5907E-01
137.500	2.5460E-01	142.500	2.4793E-01	147.500	2.4049E-01
152.500	2.3227E-01	157.500	2.2322E-01	162.500	2.1336E-01

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167.500	2.0269E-01	172.500	1.9126E-01	177.500	1.7916E-01
182.500	1.6651E-01	187.500	1.5344E-01	192.500	1.4015E-01
197.500	1.2685E-01	202.500	1.1376E-01	207.500	1.0114E-01
211.500	9.1601E-02	214.000	8.5895E-02	216.000	8.1483E-02
217.750	7.7763E-02	219.100	7.4978E-02	219.850	7.4060E-02
220.500	7.3159E-02	222.000	7.0420E-02	224.000	6.6799E-02
226.500	6.2313E-02	229.500	5.7003E-02	232.500	5.1765E-02
235.500	4.6596E-02	238.500	4.1496E-02	241.500	3.6462E-02
244.500	3.1491E-02	247.000	2.7400E-02	248.750	2.4558E-02
249.850	2.2782E-02	250.600	2.1305E-02	251.500	1.9478E-02
253.000	1.8205E-02	255.500	1.6215E-02	258.500	1.4060E-02
262.500	1.1501E-02	269.000	8.1329E-03	276.500	5.4727E-03
285.000	3.4248E-03	302.500	1.1760E-03	320.000	6.2003E-04
337.500	3.5625E-04	362.500	2.7602E-04	387.500	2.5807E-04
410.000	2.5398E-04	430.000	2.5277E-04	447.500	2.5240E-04
462.500	2.5227E-04	475.000	2.5222E-04	484.000	2.5220E-04
491.500	2.5219E-04	497.500	2.5218E-04	502.500	2.5218E-04
507.000	2.5218E-04	510.500	2.5218E-04	513.500	2.5218E-04
516.000	2.5217E-04	517.500	2.5217E-04	518.500	2.5217E-04
519.000	2.5217E-04				

Sensitivity Analysis #2: No Vegetation Wet Year 1

UNSAT-H Version 3.01

INITIAL CONDITIONS

Input File: c:\a\60_10NV.inp

Results File: c:\a\60_10nv1956.res

Date of Run: 19 Oct 2023

Time of Run: 14:14:23.04

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions					Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA	TEMP
	(cm)	(cm)	(vol.)	(K)		(cm)	(cm)	(vol.)	(K)
1	0.000E+00	2.250E+03	0.0739	293.15	2	1.000E-01	1.909E+03	0.0775	293.15
3	3.000E-01	1.767E+03	0.0793	293.15	4	6.000E-01	1.798E+03	0.0789	293.15
5	1.000E+00	1.844E+03	0.0783	293.15	6	1.500E+00	1.838E+03	0.0784	293.15
7	2.200E+00	1.829E+03	0.0785	293.15	8	3.000E+00	1.825E+03	0.0785	293.15
9	4.000E+00	1.820E+03	0.0786	293.15	10	5.500E+00	1.811E+03	0.0787	293.15
11	7.500E+00	1.798E+03	0.0789	293.15	12	9.500E+00	1.785E+03	0.0791	293.15
13	1.200E+01	1.767E+03	0.0793	293.15	14	1.450E+01	1.750E+03	0.0795	293.15
15	1.750E+01	1.730E+03	0.0798	293.15	16	2.000E+01	1.715E+03	0.0800	293.15
17	2.200E+01	1.704E+03	0.0801	293.15	18	2.350E+01	1.696E+03	0.0802	293.15
19	2.500E+01	1.689E+03	0.0803	293.15	20	2.540E+01	1.688E+03	0.0803	293.15
21	2.600E+01	1.686E+03	0.2009	293.15	22	2.700E+01	1.684E+03	0.2010	293.15
23	2.850E+01	1.682E+03	0.2010	293.15	24	2.950E+01	1.680E+03	0.2011	293.15
25	3.050E+01	1.679E+03	0.2011	293.15	26	3.100E+01	1.679E+03	0.2011	293.15

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27 3.200E+01 1.682E+03 0.2010 293.15	28 3.350E+01 1.691E+03 0.2007 293.15
29 3.500E+01 1.705E+03 0.2002 293.15	30 3.700E+01 1.731E+03 0.1994 293.15
31 4.000E+01 1.782E+03 0.1977 293.15	32 4.200E+01 1.823E+03 0.1964 293.15
33 4.400E+01 1.867E+03 0.1951 293.15	34 4.500E+01 1.890E+03 0.1944 293.15
35 4.600E+01 1.914E+03 0.1937 293.15	36 4.700E+01 1.938E+03 0.1930 293.15
37 4.800E+01 1.962E+03 0.1923 293.15	38 5.000E+01 2.009E+03 0.1910 293.15
39 5.200E+01 2.054E+03 0.1898 293.15	40 5.400E+01 2.095E+03 0.1887 293.15
41 5.700E+01 2.147E+03 0.1874 293.15	42 5.850E+01 2.170E+03 0.1868 293.15
43 6.000E+01 2.189E+03 0.1863 293.15	44 6.100E+01 2.201E+03 0.1861 293.15
45 6.200E+01 2.212E+03 0.1858 293.15	46 6.300E+01 2.222E+03 0.1856 293.15
47 6.450E+01 2.235E+03 0.1852 293.15	48 6.600E+01 2.247E+03 0.1849 293.15
49 6.800E+01 2.262E+03 0.1846 293.15	50 7.100E+01 2.282E+03 0.1841 293.15
51 7.400E+01 2.302E+03 0.1837 293.15	52 7.700E+01 2.323E+03 0.1832 293.15
53 8.000E+01 2.346E+03 0.1827 293.15	54 8.300E+01 2.370E+03 0.1821 293.15
55 8.600E+01 2.396E+03 0.1815 293.15	56 8.900E+01 2.424E+03 0.1809 293.15
57 9.200E+01 2.451E+03 0.1803 293.15	58 9.500E+01 2.479E+03 0.1798 293.15
59 9.700E+01 2.496E+03 0.1794 293.15	60 9.780E+01 2.503E+03 0.1792 293.15
61 9.800E+01 2.508E+03 0.2191 293.15	62 9.900E+01 2.564E+03 0.2179 293.15
63 1.010E+02 2.680E+03 0.2157 293.15	64 1.030E+02 2.798E+03 0.2135 293.15
65 1.050E+02 2.914E+03 0.2114 293.15	66 1.090E+02 3.130E+03 0.2079 293.15
67 1.140E+02 3.344E+03 0.2046 293.15	68 1.170E+02 3.447E+03 0.2032 293.15
69 1.190E+02 3.507E+03 0.2023 293.15	70 1.210E+02 3.561E+03 0.2016 293.15
71 1.220E+02 3.586E+03 0.2013 293.15	72 1.230E+02 3.610E+03 0.2010 293.15
73 1.245E+02 3.646E+03 0.2005 293.15	74 1.260E+02 3.680E+03 0.2000 293.15
75 1.280E+02 3.724E+03 0.1995 293.15	76 1.305E+02 3.779E+03 0.1988 293.15
77 1.325E+02 3.824E+03 0.1982 293.15	78 1.350E+02 3.882E+03 0.1975 293.15
79 1.400E+02 4.006E+03 0.1960 293.15	80 1.450E+02 4.145E+03 0.1944 293.15
81 1.500E+02 4.302E+03 0.1927 293.15	82 1.550E+02 4.478E+03 0.1909 293.15
83 1.600E+02 4.674E+03 0.1889 293.15	84 1.650E+02 4.892E+03 0.1869 293.15
85 1.700E+02 5.130E+03 0.1847 293.15	86 1.750E+02 5.390E+03 0.1826 293.15

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87 1.800E+02 5.670E+03 0.1804 293.15	88 1.850E+02 5.969E+03 0.1781 293.15
89 1.900E+02 6.287E+03 0.1759 293.15	90 1.950E+02 6.621E+03 0.1737 293.15
91 2.000E+02 6.970E+03 0.1716 293.15	92 2.050E+02 7.330E+03 0.1695 293.15
93 2.100E+02 7.698E+03 0.1675 293.15	94 2.130E+02 7.920E+03 0.1664 293.15
95 2.150E+02 8.069E+03 0.1656 293.15	96 2.170E+02 8.218E+03 0.1649 293.15
97 2.185E+02 8.329E+03 0.1644 293.15	98 2.197E+02 8.418E+03 0.1640 293.15
99 2.200E+02 8.428E+03 0.1260 293.15	100 2.210E+02 8.443E+03 0.1259 293.15
101 2.230E+02 8.473E+03 0.1258 293.15	102 2.250E+02 8.501E+03 0.1257 293.15
103 2.280E+02 8.541E+03 0.1255 293.15	104 2.310E+02 8.578E+03 0.1254 293.15
105 2.340E+02 8.611E+03 0.1252 293.15	106 2.370E+02 8.642E+03 0.1251 293.15
107 2.400E+02 8.670E+03 0.1250 293.15	108 2.430E+02 8.694E+03 0.1249 293.15
109 2.460E+02 8.715E+03 0.1248 293.15	110 2.480E+02 8.727E+03 0.1247 293.15
111 2.495E+02 8.735E+03 0.1247 293.15	112 2.502E+02 8.739E+03 0.1247 293.15
113 2.510E+02 8.751E+03 0.0555 293.15	114 2.520E+02 8.796E+03 0.0554 293.15
115 2.540E+02 8.885E+03 0.0552 293.15	116 2.570E+02 9.011E+03 0.0549 293.15
117 2.600E+02 9.131E+03 0.0547 293.15	118 2.650E+02 9.310E+03 0.0543 293.15
119 2.730E+02 9.541E+03 0.0538 293.15	120 2.800E+02 9.694E+03 0.0535 293.15
121 2.900E+02 9.841E+03 0.0533 293.15	122 3.150E+02 9.961E+03 0.0531 293.15
123 3.250E+02 9.981E+03 0.0530 293.15	124 3.500E+02 9.996E+03 0.0530 293.15
125 3.750E+02 9.999E+03 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 56.7743 cm

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.07278

Head (cm) = 2.37719E+03

LiqWater Flow (cm)=-4.42266E-02

IsoVapor Flow (cm)=-1.49941E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.7743+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.7300 vs. 56.7300

Mass Balance = -7.7209E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.08311

Head (cm) = 1.49821E+03

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LiqWater Flow (cm)=-1.03766E-04

IsoVapor Flow (cm)=-1.29928E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

62.1864+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 62.1864 vs. 62.1864

Mass Balance = -1.7753E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01

SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 0

Potential Evapotranspiration = 1.1370E+02 [cm]

Potential Transpiration = 0.0000E+00 [cm]

Actual Transpiration = 0.0000E+00 [cm]

Potential Evaporation = 1.1370E+02 [cm]

Actual Evaporation = 4.5293E+01 [cm]

Evaporation during Growth = 0.0000E+00 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.2186E+01 [cm]
 Mass Balance Error = -6.5437E-03 [cm]
 Total Successful Time Steps = 12980
 Total Attempted Time Steps = 14711
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3661
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	5.4059E+00	0.050	5.4830E+00	0.200	5.4196E+00
0.450	5.4137E+00	0.800	5.4073E+00	1.250	5.3998E+00
1.850	5.3910E+00	2.600	5.3810E+00	3.500	5.3694E+00
4.750	5.3534E+00	6.500	5.3315E+00	8.500	5.3069E+00
10.750	5.2797E+00	13.250	5.2501E+00	16.000	5.2182E+00
18.750	5.1871E+00	21.000	5.1623E+00	22.750	5.1433E+00
24.250	5.1273E+00	25.200	5.1172E+00	25.700	5.1120E+00
26.500	5.0910E+00	27.750	5.0584E+00	29.000	5.0258E+00
30.000	4.9998E+00	30.750	4.9805E+00	31.500	4.9616E+00
32.750	4.9298E+00	34.250	4.8930E+00	36.000	4.8513E+00
38.500	4.7938E+00	41.000	4.7387E+00	43.000	4.6954E+00
44.500	4.6632E+00	45.500	4.6417E+00	46.500	4.6201E+00

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47.500	4.5984E+00	49.000	4.5655E+00	51.000	4.5206E+00
53.000	4.4741E+00	55.500	4.4137E+00	57.750	4.3559E+00
59.250	4.3161E+00	60.500	4.2820E+00	61.500	4.2542E+00
62.500	4.2259E+00	63.750	4.1898E+00	65.250	4.1454E+00
67.000	4.0924E+00	69.500	4.0143E+00	72.500	3.9164E+00
75.500	3.8147E+00	78.500	3.7092E+00	81.500	3.6001E+00
84.500	3.4874E+00	87.500	3.3714E+00	90.500	3.2522E+00
93.500	3.1300E+00	96.000	3.0259E+00	97.400	2.9669E+00
97.900	2.9456E+00	98.500	2.9210E+00	100.000	2.8578E+00
102.000	2.7687E+00	104.000	2.6753E+00	107.000	2.5296E+00
111.500	2.2990E+00	115.500	2.0888E+00	118.000	1.9576E+00
120.000	1.8536E+00	121.500	1.7765E+00	122.500	1.7255E+00
123.750	1.6623E+00	125.250	1.5876E+00	127.000	1.5021E+00
129.250	1.3949E+00	131.500	1.2920E+00	133.750	1.1926E+00
137.500	1.0353E+00	142.500	8.5043E-01	147.500	6.9281E-01
152.500	5.6314E-01	157.500	4.5979E-01	162.500	3.7910E-01
167.500	3.1654E-01	172.500	2.6798E-01	177.500	2.3021E-01
182.500	2.0074E-01	187.500	1.7748E-01	192.500	1.5862E-01
197.500	1.4268E-01	202.500	1.2860E-01	207.500	1.1570E-01
211.500	1.0603E-01	214.000	1.0020E-01	216.000	9.5641E-02
217.750	9.1753E-02	219.100	8.8811E-02	219.850	8.7811E-02
220.500	8.6835E-02	222.000	8.3897E-02	224.000	8.0000E-02
226.500	7.5155E-02	229.500	6.9387E-02	232.500	6.3666E-02
235.500	5.7993E-02	238.500	5.2370E-02	241.500	4.6796E-02
244.500	4.1273E-02	247.000	3.6713E-02	248.750	3.3540E-02
249.850	3.1556E-02	250.600	2.9900E-02	251.500	2.7833E-02
253.000	2.6295E-02	255.500	2.3841E-02	258.500	2.1103E-02
262.500	1.7751E-02	269.000	1.3111E-02	276.500	9.1618E-03
285.000	5.9278E-03	302.500	2.0645E-03	320.000	1.0042E-03
337.500	4.7246E-04	362.500	3.0180E-04	387.500	2.6415E-04

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410.000	2.5613E-04	430.000	2.5392E-04	447.500	2.5327E-04
462.500	2.5303E-04	475.000	2.5295E-04	484.000	2.5291E-04
491.500	2.5289E-04	497.500	2.5288E-04	502.500	2.5288E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Sensitivity Analysis #2: No Vegetation Wet Year 2

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INITIAL CONDITIONS

Input File: c:\a\60_10NV.inp

Results File: c:\a\60_10nv1957.res

Date of Run: 19 Oct 2023

Time of Run: 14:14:23.04

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
-----				-----				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.)	(K)	(cm)	(cm)	(vol.)	(K)
-----				-----				
1	0.000E+00	1.498E+03	0.0831	293.15	2	1.000E-01	1.274E+03	0.0870
3	3.000E-01	1.098E+03	0.0907	293.15	4	6.000E-01	1.032E+03	0.0923
5	1.000E+00	1.035E+03	0.0922	293.15	6	1.500E+00	1.072E+03	0.0913
7	2.200E+00	1.092E+03	0.0909	293.15	8	3.000E+00	1.088E+03	0.0909
9	4.000E+00	1.082E+03	0.0911	293.15	10	5.500E+00	1.081E+03	0.0911
11	7.500E+00	1.081E+03	0.0911	293.15	12	9.500E+00	1.081E+03	0.0911
13	1.200E+01	1.081E+03	0.0911	293.15	14	1.450E+01	1.082E+03	0.0911
15	1.750E+01	1.084E+03	0.0911	293.15	16	2.000E+01	1.086E+03	0.0910
17	2.200E+01	1.088E+03	0.0910	293.15	18	2.350E+01	1.090E+03	0.0909
19	2.500E+01	1.092E+03	0.0909	293.15	20	2.540E+01	1.093E+03	0.0908
21	2.600E+01	1.093E+03	0.2271	293.15	22	2.700E+01	1.093E+03	0.2271
23	2.850E+01	1.093E+03	0.2271	293.15	24	2.950E+01	1.093E+03	0.2271
25	3.050E+01	1.093E+03	0.2271	293.15	26	3.100E+01	1.095E+03	0.2270
27	3.200E+01	1.107E+03	0.2263	293.15	28	3.350E+01	1.126E+03	0.2252
29	3.500E+01	1.148E+03	0.2240	293.15	30	3.700E+01	1.179E+03	0.2223
31	4.000E+01	1.230E+03	0.2197	293.15	32	4.200E+01	1.263E+03	0.2181
33	4.400E+01	1.295E+03	0.2166	293.15	34	4.500E+01	1.309E+03	0.2159
35	4.600E+01	1.323E+03	0.2153	293.15	36	4.700E+01	1.335E+03	0.2147
37	4.800E+01	1.345E+03	0.2142	293.15	38	5.000E+01	1.362E+03	0.2135
39	5.200E+01	1.372E+03	0.2131	293.15	40	5.400E+01	1.376E+03	0.2129
41	5.700E+01	1.371E+03	0.2131	293.15	42	5.850E+01	1.366E+03	0.2133
43	6.000E+01	1.359E+03	0.2136	293.15	44	6.100E+01	1.354E+03	0.2139
45	6.200E+01	1.348E+03	0.2141	293.15	46	6.300E+01	1.342E+03	0.2144
47	6.450E+01	1.333E+03	0.2148	293.15	48	6.600E+01	1.323E+03	0.2153
49	6.800E+01	1.310E+03	0.2158	293.15	50	7.100E+01	1.291E+03	0.2167
51	7.400E+01	1.274E+03	0.2176	293.15	52	7.700E+01	1.258E+03	0.2183
53	8.000E+01	1.244E+03	0.2190	293.15	54	8.300E+01	1.231E+03	0.2197
55	8.600E+01	1.220E+03	0.2202	293.15	56	8.900E+01	1.211E+03	0.2207
57	9.200E+01	1.203E+03	0.2211	293.15	58	9.500E+01	1.197E+03	0.2214
59	9.700E+01	1.194E+03	0.2216	293.15	60	9.780E+01	1.193E+03	0.2216

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61 9.800E+01 1.192E+03 0.2599 293.15	62 9.900E+01 1.189E+03 0.2600 293.15
63 1.010E+02 1.186E+03 0.2602 293.15	64 1.030E+02 1.186E+03 0.2602 293.15
65 1.050E+02 1.190E+03 0.2600 293.15	66 1.090E+02 1.208E+03 0.2591 293.15
67 1.140E+02 1.249E+03 0.2572 293.15	68 1.170E+02 1.284E+03 0.2556 293.15
69 1.190E+02 1.312E+03 0.2544 293.15	70 1.210E+02 1.344E+03 0.2530 293.15
71 1.220E+02 1.361E+03 0.2523 293.15	72 1.230E+02 1.380E+03 0.2515 293.15
73 1.245E+02 1.410E+03 0.2503 293.15	74 1.260E+02 1.443E+03 0.2489 293.15
75 1.280E+02 1.492E+03 0.2471 293.15	76 1.305E+02 1.561E+03 0.2445 293.15
77 1.325E+02 1.623E+03 0.2424 293.15	78 1.350E+02 1.711E+03 0.2394 293.15
79 1.400E+02 1.926E+03 0.2330 293.15	80 1.450E+02 2.197E+03 0.2260 293.15
81 1.500E+02 2.528E+03 0.2186 293.15	82 1.550E+02 2.908E+03 0.2115 293.15
83 1.600E+02 3.316E+03 0.2051 293.15	84 1.650E+02 3.731E+03 0.1994 293.15
85 1.700E+02 4.143E+03 0.1945 293.15	86 1.750E+02 4.553E+03 0.1901 293.15
87 1.800E+02 4.961E+03 0.1862 293.15	88 1.850E+02 5.364E+03 0.1828 293.15
89 1.900E+02 5.758E+03 0.1797 293.15	90 1.950E+02 6.141E+03 0.1769 293.15
91 2.000E+02 6.516E+03 0.1744 293.15	92 2.050E+02 6.886E+03 0.1721 293.15
93 2.100E+02 7.255E+03 0.1699 293.15	94 2.130E+02 7.478E+03 0.1687 293.15
95 2.150E+02 7.627E+03 0.1679 293.15	96 2.170E+02 7.776E+03 0.1671 293.15
97 2.185E+02 7.888E+03 0.1666 293.15	98 2.197E+02 7.977E+03 0.1661 293.15
99 2.200E+02 7.988E+03 0.1280 293.15	100 2.210E+02 8.003E+03 0.1279 293.15
101 2.230E+02 8.033E+03 0.1278 293.15	102 2.250E+02 8.061E+03 0.1276 293.15
103 2.280E+02 8.102E+03 0.1274 293.15	104 2.310E+02 8.139E+03 0.1273 293.15
105 2.340E+02 8.175E+03 0.1271 293.15	106 2.370E+02 8.207E+03 0.1270 293.15
107 2.400E+02 8.236E+03 0.1268 293.15	108 2.430E+02 8.263E+03 0.1267 293.15
109 2.460E+02 8.286E+03 0.1266 293.15	110 2.480E+02 8.300E+03 0.1265 293.15
111 2.495E+02 8.310E+03 0.1265 293.15	112 2.502E+02 8.314E+03 0.1265 293.15
113 2.510E+02 8.328E+03 0.0566 293.15	114 2.520E+02 8.376E+03 0.0565 293.15
115 2.540E+02 8.471E+03 0.0562 293.15	116 2.570E+02 8.611E+03 0.0559 293.15
117 2.600E+02 8.747E+03 0.0555 293.15	118 2.650E+02 8.962E+03 0.0550 293.15
119 2.730E+02 9.263E+03 0.0544 293.15	120 2.800E+02 9.479E+03 0.0540 293.15
121 2.900E+02 9.708E+03 0.0535 293.15	122 3.150E+02 9.923E+03 0.0531 293.15
123 3.250E+02 9.962E+03 0.0531 293.15	124 3.500E+02 9.991E+03 0.0530 293.15
125 3.750E+02 9.998E+03 0.0530 293.15	126 4.000E+02 9.999E+03 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 62.1864 cm

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

December 2023

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.08144
Head (cm) = 1.60926E+03
LiqWater Flow (cm)=-4.42031E-02
IsoVapor Flow (cm)=-1.29165E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

62.1864+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 62.1421 vs. 62.1421

Mass Balance = -8.2411E-07 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.08335
Head (cm) = 1.48318E+03
LiqWater Flow (cm)=-5.84444E-02
IsoVapor Flow (cm)=-1.30577E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

65.0144+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 64.9559 vs. 64.9559

Mass Balance = -1.2017E-06 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 0
Potential Evapotranspiration = 1.1376E+02 [cm]
Potential Transpiration = 0.0000E+00 [cm]
Actual Transpiration = 0.0000E+00 [cm]
Potential Evaporation = 1.1376E+02 [cm]

December 2023

Actual Evaporation = 4.7934E+01 [cm]
 Evaporation during Growth = 0.0000E+00 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.4956E+01 [cm]
 Mass Balance Error = -5.5630E-03 [cm]
 Total Successful Time Steps = 12828
 Total Attempted Time Steps = 14419
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3457
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.7641E+00	0.050	2.8298E+00	0.200	2.7776E+00
0.450	2.7749E+00	0.800	2.7733E+00	1.250	2.7720E+00
1.850	2.7708E+00	2.600	2.7698E+00	3.500	2.7690E+00
4.750	2.7682E+00	6.500	2.7671E+00	8.500	2.7658E+00
10.750	2.7643E+00	13.250	2.7623E+00	16.000	2.7597E+00
18.750	2.7567E+00	21.000	2.7538E+00	22.750	2.7514E+00
24.250	2.7492E+00	25.200	2.7477E+00	25.700	2.7469E+00
26.500	2.7437E+00	27.750	2.7387E+00	29.000	2.7335E+00
30.000	2.7293E+00	30.750	2.7263E+00	31.500	2.7236E+00
32.750	2.7176E+00	34.250	2.7098E+00	36.000	2.6998E+00
38.500	2.6843E+00	41.000	2.6673E+00	43.000	2.6531E+00
44.500	2.6423E+00	45.500	2.6350E+00	46.500	2.6277E+00
47.500	2.6205E+00	49.000	2.6096E+00	51.000	2.5955E+00
53.000	2.5818E+00	55.500	2.5653E+00	57.750	2.5513E+00
59.250	2.5423E+00	60.500	2.5350E+00	61.500	2.5292E+00
62.500	2.5236E+00	63.750	2.5166E+00	65.250	2.5084E+00
67.000	2.4991E+00	69.500	2.4859E+00	72.500	2.4704E+00
75.500	2.4551E+00	78.500	2.4399E+00	81.500	2.4246E+00
84.500	2.4093E+00	87.500	2.3939E+00	90.500	2.3783E+00
93.500	2.3625E+00	96.000	2.3492E+00	97.400	2.3417E+00
97.900	2.3390E+00	98.500	2.3359E+00	100.000	2.3281E+00
102.000	2.3170E+00	104.000	2.3052E+00	107.000	2.2863E+00
111.500	2.2541E+00	115.500	2.2206E+00	118.000	2.1976E+00
120.000	2.1780E+00	121.500	2.1623E+00	122.500	2.1515E+00
123.750	2.1376E+00	125.250	2.1201E+00	127.000	2.0987E+00
129.250	2.0693E+00	131.500	2.0376E+00	133.750	2.0038E+00

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137.500	1.9429E+00	142.500	1.8485E+00	147.500	1.7401E+00
152.500	1.6181E+00	157.500	1.4846E+00	162.500	1.3434E+00
167.500	1.1985E+00	172.500	1.0534E+00	177.500	9.1103E-01
182.500	7.7373E-01	187.500	6.4419E-01	192.500	5.2525E-01
197.500	4.1966E-01	202.500	3.2960E-01	207.500	2.5635E-01
211.500	2.1131E-01	214.000	1.8810E-01	216.000	1.7210E-01
217.750	1.6026E-01	219.100	1.5236E-01	219.850	1.4936E-01
220.500	1.4674E-01	222.000	1.3994E-01	224.000	1.3130E-01
226.500	1.2100E-01	229.500	1.0947E-01	232.500	9.8665E-02
235.500	8.8492E-02	238.500	7.8868E-02	241.500	6.9711E-02
244.500	6.0945E-02	247.000	5.3905E-02	248.750	4.9079E-02
249.850	4.6086E-02	250.600	4.3712E-02	251.500	4.1013E-02
253.000	3.8605E-02	255.500	3.4900E-02	258.500	3.0938E-02
262.500	2.6223E-02	269.000	1.9834E-02	276.500	1.4290E-02
285.000	9.5677E-03	302.500	3.5101E-03	320.000	1.6640E-03
337.500	6.8942E-04	362.500	3.5265E-04	387.500	2.7543E-04
410.000	2.5914E-04	430.000	2.5480E-04	447.500	2.5360E-04
462.500	2.5317E-04	475.000	2.5301E-04	484.000	2.5295E-04
491.500	2.5292E-04	497.500	2.5290E-04	502.500	2.5289E-04
507.000	2.5288E-04	510.500	2.5288E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5287E-04

Sensitivity Analysis #2: No Vegetation Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\60_10nv1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                46.984
 1 22.530 135.832 0.000 18.030 0.000 0.000 51.489 11847 -0.00545
 2 22.530 135.832 0.000 21.020 0.000 0.000 53.004 11978 -0.00589
 3 22.530 135.832 0.000 21.652 0.000 0.000 53.888 12051 -0.00604
 4 22.530 135.832 0.000 21.907 0.000 0.000 54.516 12006 -0.00593
 5 22.530 135.832 0.000 22.040 0.000 0.000 55.011 11993 -0.00589
 6 22.530 135.832 0.000 22.110 0.000 0.000 55.437 11999 -0.00595
 7 22.530 135.832 0.000 22.158 0.000 0.000 55.814 12027 -0.00589
 8 22.530 135.832 0.000 22.191 0.000 0.000 56.159 11971 -0.00585
 9 22.530 135.832 0.000 22.218 0.000 0.000 56.477 11990 -0.00592
10 22.530 135.832 0.000 22.238 0.000 0.000 56.774 11950 -0.00591
11 50.698 113.700 0.000 45.293 0.000 0.000 62.186 12980 -0.00654
12 50.698 113.759 0.000 47.934 0.000 0.000 64.956 12828 -0.00556
-----
SUM= 326.6951585.780 0.000 308.791 0.000 0.003 -0.07083
```


APPENDIX C

DRAINAGE ROCK DESIGN CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Drainage Rock Analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 18, 2023

Checked by: Mike Beardsley



Date: December 18, 2023

Approved by: Greg Church



Date: December 18, 2023

C.1 EROSION CONTROL FOR SURFACE DRAINAGE

The surface areas utilized in the drainage calculations can be seen in Appendix F, Figure F-2. The area and flow length of these drainage areas were approximated based on the Final Remedial Action Plan (FRAP 2008, Addendum C, Final Design Drawings). The “rational method” was used to estimate runoff volumes, as described in Section F, Equation F-1. The time of concentration (t_c) is a characteristic of the geometry and slopes of the drainage areas and is computed using the Kirpich equation, as presented in NUREG/CR-4620 (refer to Section F, Equation F-2). As specified in the UMTRA Technical Approach Document (TAD) (DOE 1989), t_c is limited to a minimum of 2.5 minutes (DOE 1989). Using the tabular values in Appendix F, Table F-1 (DOE 1989), the percentage of rainfall intensity for a t_c of less than 1 hour can be determined.

The contributory surface area was calculated based on the assumed configuration shown in Appendix F, Figure F-2, where L is the critical slope length (USEPA 2011, Dwyer et al. 2007). The contributory area, slope, and slope lengths for the north, south, east, and west drainage trenches were derived from the FRAP (2008, Addendum C, Final Design Drawings). The rainfall 1-hour intensity corresponding to the computed time of concentration (t_c) was then computed using Appendix F, Equation F-3 (DOE 1989, p. 66). A value of 1.0 was used for the runoff concentration factor to calculate the runoff in Appendix F, Equation F-1.

C.1.1 Riprap Sizing for Side Slopes

The erosional stability of the side slopes is analyzed using the Abt and Johnson (1991) method, as discussed in NUREG-1623 (NRC 2002). This method is recommended for slopes greater than 10%. The D_{50} rock sizes using the Abt and Johnson method are calculated as:

$$D_{50} = 5.23 * S^{0.43} q^{0.56} \quad \text{Equation C-1}$$

where:

q = unit discharge (cfs/ft)

S = Slope (ft/ft).

C.1.2 Riprap Sizing for Bottom of Side Slopes

The perimeter apron will: (1) serve as an impact basin and provide for energy dissipation of runoff, (2) provide erosion protection, and (3) transition flow from side slopes to natural ground. The median rock size required in the perimeter apron was calculated using the equations derived by Abt et al. (1998), as outlined in NUREG 1623 (NRC 2002) as follows:

$$D_{50} = 10.46 * S^{0.43} (C_f * q_d)^{0.56} \quad \text{Equation C-2}$$

where:

D_{50} = median stone diameter (in.),

S = embankment side slope in decimal form,

C_f = flow concentration factor = 3 (Abt et al, 1991),

q_d = design unit discharge (cfs/ft).

Table C-1 provides a summary of the computed results for the side slopes. Table C-2 provides a summary of the computed results for the bottom of each respective drainage channel.

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Table C-1. Riprap – Drainage Trench Side Slopes Adjacent to Cover

Section	Area (acres)	C	L (ft)	S (ft/ft)	t _c (min.)	t _c , total (in.) ¹	PMP (in./hr)	I (in./hr)	Q (cfs)	q _d (cfs/ft)	D50 (in.)	Use D50 (in.)	Rock Layer Thickness (in.)
North Draining Cover Surface	57.47	1	566	0.02	4.6	4.6	8.2	44.8	2,574.4	0.59			
North Trench Slope	13.29	1	130	0.2	5.2	5.2	8.2	42.7	3,141.5	0.72	2.2	3	6 ²
North Trench Bottom	2.04	1											
South Draining Cover Surface	132.73	1	1307	0.02	8.8	8.8	8.2	33.4	4,437.6	1.01			
South Trench Slope	33.88	1	328	0.2	10.1	10.1	8.2	31.1	5,490.7	1.25	3	3	6 ²
South Trench Bottom	1.03	1											
West Trench Slope	10.59	1	249	0.2	1.0	2.5 ¹	8.2	54.2	573.4	0.31	1.4	2	4 ²
West Trench Bottom	0.42	1											
East Trench Slope	11.85	1	271	0.2	1.1	2.5 ¹	8.2	54.2	641.2	0.34	1.4	2	4 ²
East Trench Bottom	0.44	1											

¹ As specified in UMTRA TAD (DOE 1989), t_c is limited to a minimum of 2.5 minutes.

² Rock thickness doubled instead of the minimum 1.5 times the D₅₀ for conservatism.

December 2023

Table C-2. Riprap – Drainage Trench Bottom Below Side Slopes Adjacent to Cover

Section	Area (acres)	C	L (ft)	S (ft/ft)	t _c (min.)	t _c , adj(in.) ¹	PMP (in./hr)	I (in./hr)	Q (cfs)	q _d (cfs/ft)	C _f	D50 (in.)	Use D50 (in.)	Rock Layer Thickness (in.)
North Draining Cover Surface	57.47	1	566	0.02	4.6	4.6	8.2	44.8	2,574.4	0.59				
North Trench Slope	13.29	1	130	0.2	5.2	5.2	8.2	42.7	3,141.5	0.72				
North Trench Bottom	2.04	1									3	8.0	8	24
South Draining Cover Surface	132.73	1	1307	0.02	8.8	8.8	8.2	33.4	4,437.6	1.01				
South Trench Slope	33.88	1	328	0.2	10.1	10.1	8.2	31.1	5,490.7	1.25				
South Trench Bottom	1.03	1									3	11.0	12	36
West Trench Slope	10.59	1	249	0.2	1.0	2.5 ¹	8.2	54.2	573.4	0.31				
West Trench Bottom	0.42	1									3	5.0	6	18
East Trench Slope	11.85	1	271	0.2	1.1	2.5 ¹	8.2	54.2	641.2	0.34				
East Trench Bottom	0.44	1									3	5.3	6	18

¹ As specified in UMTRA TAD (DOE 1989), t_c is limited to a minimum of 2.5 minutes.

C.2 BEDDING FOR RIPRAP

The need for bedding material beneath the riprap was evaluated and summarized in this section. The interstitial flow velocity at the soil/rock interface was calculated utilizing the Leps (1973) procedure as recommended in NUREG 1623:

$$V_v = Wm^{0.5}i^{0.54}$$

Where: V_v = average velocity of water ($\frac{\text{in}}{\text{sec}}$)

W = empirical constant for specific rip rap size

m = hydraulic mean radius

i = hydraulic gradient

Values for $Wm^{0.5}$ are found in Table 4.2 in DOE (1989) as shown below:

Table C-3. Empirical Correlations for Flow in Rock

Rock size (in.)	$Wm^{0.5}$ (in./sec)
2	16
6	28
8	32
24	58
48	84

The D_{50} calculated rock size for each slope was conservatively used to determine the $Wm^{0.5}$ value. Table C-4 provides a summary of the calculations performed.

Table C-4. Interstitial Velocity

Slope	D50 (in.)	Slope (ft/ft)	$Wm^{0.5}$ (in./sec)	V (ft/sec)	Comment
North Slope	3	0.2	19	0.66	Bedding material may be warranted ¹
North Ditch	8	0.02	32	0.32	No bedding material required
West Slope	2	0.2	16	0.56	Bedding material may be warranted ¹
West Ditch	6	0.02	28	0.28	No bedding material required
East Slope	2	0.2	16	0.56	Bedding material may be warranted ¹
East Ditch	6	0.02	28	0.28	No bedding material required
South Slope	3	0.2	19	0.66	Bedding material may be warranted ¹
South Ditch	12	0.02	38.5	0.39	No bedding material required

¹ Bedding shall be included on the side slopes.

NUREG 1623 recommends that when the computed interstitial velocity is less than 0.5 ft per second, a filter is not needed. When velocities are between 0.5 and 1.0 ft per second, the need for a filter layer will be dependent upon the type of soil material placed at the interface. A filter should be provided when velocities are 1.0 ft per second or greater. Alluvium is intended to be the soil placed at the interface and thus a bedding material may be installed beneath the riprap on the north, south, west, and east slopes of the impoundment. Because there will be no specified soil texture requirements for the upper layer of soil on the side slopes, bedding material will be included as specified in Specification 32 11 22, Section 2.2 and as depicted on the contract drawings. No bedding material is required within the perimeter ditches.

C.3 REFERENCES

1. Abt, S. R., T. L. Johnson, C. I. Thornton, and S. C. Trabant, 1998, “Riprap Sizing at the Toe of Embankment Slopes,” *J. of Hydr. Engr.*, ASCE.
2. Abt, S. R., and T. L. Johnson, 1991, “Riprap design for overtopping flow,” *J. Hydr. Engng.*, ASCE 117(8): 959–972.
3. Dwyer, S. F., R. Rager, and J. Hopkins, 2007, *Cover System Design Guidance and Requirements Document*, Los Alamos National Laboratory report LA-UR-06-4715.
4. EPA, 2011, *Closing Small Tribal Landfills and Open Dumps: How to Design Environmentally Safe Covers Including Additional Design Guidance for Arid Regions*, EPA-909-R-11-007.
5. Final Remedial Action Plan (FRAP), 2008, *Final Remedial Action Plan and Site Design Stabilization of Moab Title I Uranium Mill Tailings at the Crescent Junction, Utah Disposal Site*, July, Office of Environmental Management – Grand Junction, U.S. Department of Energy.
6. Leps, T. M., “Flow Through Rockfill,” *Embankment Dam Engineering*, John Wiley and Sons, pp. 87–107, 1973.
7. U.S. Department of Energy (DOE), 1989, *Technical Approach Document Revision II*, UMTRA–DOE/AL 050425.0002, Albuquerque Operations Office, Albuquerque, NM.
8. U.S. Nuclear Regulatory Commission (NRC), 1986, NUREG/CR-4620, *Methodologies for evaluating long-term stabilization designs of uranium mill tailings impoundments*, Nelson, J. D., S. R. Abt, R. L. Volpe, D. Van Zye, N. E. Hinkle, and W. P. Staub.
9. U.S. Nuclear Regulatory Commission (NRC), 2002, NUREG 1623, *Design of Erosion Protection for Long-Term Stabilization*, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Washington, D.C.

APPENDIX D

SETTLEMENT CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Differential settlement analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 18, 2023

Checked by: Mike Beardsley



Date: December 18, 2023

Approved by: Greg Church



Date: December 18, 2023

DIFFERENTIAL SETTLEMENT RESULTS

The differential settlement results are based on the difference in tailings depth on the north side of the impoundment compared with those beneath the crest or center of the impoundment (Final Remedial Action Plan 2008, Addendum C, Drawings E-02-C-102 and E-02-C-103). The center of the impoundment has a tailings depth of approximately 48 feet, while the far northern perimeter of the impoundment has a tailings depth of approximately 26 feet.

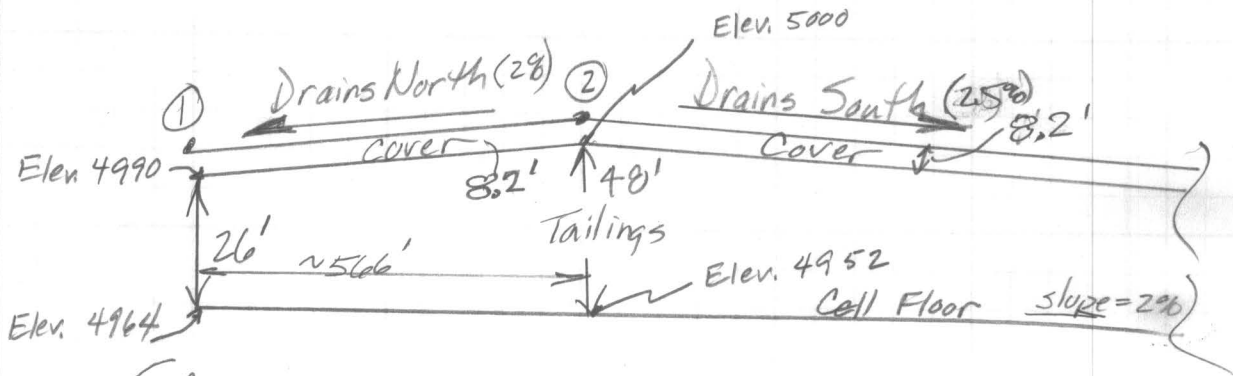
The primary settlement in the center of the impoundment was calculated to be 9.2 inches. The settlement along the northern perimeter was calculated to be 8.3 inches. The differential settlement of 0.96-inch will not create ponding issues along the northern slope of the impoundment with a slope length of 566 feet with a slope of 2%.

Secondary settlement was computed at the same two locations. The secondary settlement, given a performance period of 1,000 years in the center of the impoundment, was calculated to be 12.7 inches. The secondary settlement, calculated for the same 1,000-year period along the northern perimeter, was 6.9 inches for the same 1,000-year period.

The differential settlement, due to the secondary consolidation of 5.8 inches, will not create ponding along the slope length of 566 feet with a slope of 2%. The total differential settlement of the combined primary and secondary consolidation of approximately 6.8 inches will not create ponding along the slope length of 566 feet with a slope of 2%.

Details of the calculations performed are provided on the subsequent calculation sheets.

Reference: FRAP (2008), Addendum D, Dwg E-02-C-102 & E-02-C-103



{ Assumption: Worst-case differential settlement occurs in northern portion of cell due to largest tailings thickness difference. }

C_c values $\Rightarrow$ Reference: FRAP (2008), p.4-7, Table 4-4

	C_c	e_o
Sand Tailings	0.15	0.88
	0.07	0.638
Transition Tailings	0.20	0.808
	0.17	0.703
Slimes	0.38	1.157
	0.34	1.052
Avg. 0.22		0.87

Reference: Greg Church, NorthWind Portage project manager stated that tailings are mixed @ Mamb site prior to shipment to Crescent Junction site.

Therefore, use average values of C_c and e_o for tailings mixed.

Material wgt. per FRAP (2008), Jacobs calc, Addendum D

$\Rightarrow$ cover material/soil $\Rightarrow \gamma_a = 124 \text{ pcf}$
 tailings $\Rightarrow \gamma_T = 115 \text{ pcf}$

Primary Consolidation

$$S_R = \left(\frac{C_c}{1+e_0} \right) H \log_{10} \left(\frac{P_0 + P_v}{P_0} \right)$$

$$P_v = 8.2 (124) = 1018 \text{ psf} \quad \text{cover } \{ 98.5'' = 8.2'$$

$$P_{01} = 24/2 (115) = 1495 \text{ psf} \quad \text{shallow}$$

$$P_{02} = 48/2 (115) = 2760 \text{ psf} \quad \text{deep}$$

$$S_1 = \left(\frac{0.22}{1+0.87} \right) (26) \log_{10} \left(\frac{1495 + 1018}{1495} \right) = 0.69 \text{ ft} = 8.3 \text{ in}$$

$$S_2 = \left(\frac{0.22}{1+0.87} \right) (48) \log_{10} \left(\frac{2760 + 1018}{2760} \right) = 0.79 \text{ ft} = 9.2 \text{ in}$$

$\Delta S \approx 0.96$, this will not create ponding in surface

Secondary Consolidation

$$S_s = C_{\alpha} \cdot H \log \left(\frac{t_2}{t_1} \right) = 0.05 C_c H \log \left(\frac{t_2}{t_1} \right)$$

C_{α} = coefficient of secondary compression
 α = secondary compression index

$$C_{\alpha} = \frac{\alpha}{1+e_0}, \text{ where } e_0 = \text{initial void ratio} \quad \left\{ \begin{array}{l} \text{Ref: Civil} \\ \text{Engr. Ref.} \\ \text{Manual, Lindeberg,} \end{array} \right.$$

$$\frac{C_{\alpha}}{C_c} = 0.05 \quad \left\{ \begin{array}{l} \text{Ref: Holtz \& Kovacs, Intro.} \\ \text{to Geotech. Engr., 1981} \end{array} \right. \quad \left\{ \begin{array}{l} \text{5th ed., 1989} \end{array} \right.$$

$$S_s = 0.05 C_c H \log \left(\frac{t_2}{t_1} \right)$$

$t_2 = 1000 \text{ yrs}$ $\{$ design performance period
 $t_1 = 10 \text{ yrs}$ $\{$ time from tailings placement to final cover placement

$$S_{s1} = 0.05 (0.22) (26) \log \left(\frac{1000}{10} \right) = 0.57 \text{ ft} = 6.9 \text{ in}$$

$$S_{s2} = 0.05 (0.22) (48) \log \left(\frac{1000}{10} \right) = 1.06 \text{ ft} = 12.7 \text{ in}$$

$$\Delta S_s = 5.8 \text{ in}$$

Total $S = 5.8 + 0.96 \approx 6.8 \text{ in}$ $\left\{ \begin{array}{l} \text{this will not} \\ \text{create surface} \\ \text{ponding over} \\ \text{cover slope length} \\ \text{of } 566 \text{ ft } @ 2\% \end{array} \right.$

APPENDIX E

LIQUEFACTION DESIGN CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Liquefaction analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 1, 2023

Checked by: Mike Beardsley

Date: December 14, 2023

Approved by: Greg Church



Date: December 15, 2023

E.1 LIQUEFACTION

The tailings are being placed in the repository in an unsaturated condition. This analysis assumes a beyond-worst-case condition that downward migration of porewater or inclusion of meteoric water may create zones in the tailings with saturated conditions. Given the inclusion of a well-designed evapotranspiration (ET) cover, this scenario is highly unlikely; however, it is analyzed for conservatism.

The potential liquefaction of saturated zones of the tailings was checked with standard procedures outlined in Day (1999), based on the paper by Seed and Idriss (1971). This involves comparison of the seismic stress ratio (SSR) due to the design seismic event with the SSR that would cause liquefaction of the tailings at a specific depth of analysis. The analysis was performed assuming the entire tailings thickness is saturated. This situation is extremely unlikely, but was used to conservatively analyze the liquefaction potential.

These SSRs were calculated at the top and bottom of the tailings. The SSR due to the design seismic event was calculated from the peak estimated acceleration at the ground surface of 0.22 g. The SSR required for liquefaction was based on a conservatively estimated relative density of the tailings of 50 percent, based on the tailings compaction at 90 percent of Standard Proctor density (using a correlation in Holtz and Kovacs 1981). For this tailings relative density, fines content values ranging from 17 to 46 percent (representing the minimum and mean measured values), and the two depths of analysis, the SSR required to cause liquefaction was higher than the SSR from the design earthquake. This indicates that if the tailings were to become saturated, the tailings would not liquefy under peak seismic ground acceleration conditions.

Tailings liquefaction is not likely because of the placement of unsaturated tailings in the cell (as described above), the density that the tailings will achieve with placement in lifts and rolling with construction equipment, and the fines content of the tailings. In the event of zones of tailings becoming saturated, the calculated SSR required to cause liquefaction of the tailings is higher than the SSR for all of the cases considered, indicating that liquefaction would not occur. Note references below include that cited above and in the following liquefaction calculations.

E.2 REFERENCES

1. Carter, M., and S. P. Bentley, 1991, *Correlations of Soil Properties*, Pentech Press.
2. Day, R. W., 1999, *Geotechnical and Foundation Engineering, Design and Construction*, McGraw-Hill.
3. Final Remedial Action Plan (FRAP), 2008, *Final Remedial Action Plan and Site Design Stabilization of Moab Title I Uranium Mill Tailings at the Crescent Junction, Utah Disposal Site*, July, Office of Environmental Management – Grand Junction, U.S. Department of Energy.
4. Holtz, R. D., and W. D. Kovacs, 1981. *An Introduction to Geotechnical Engineering*, Prentice-Hall, Inc.
5. Lambe, T. W., and R. V. Whitman, 1969, *Soil Mechanics*, John Wiley and Sons.
6. National Research Council, 1985, *Liquefaction of Soils During Earthquakes*, National Academy Press.
7. Seed, H. B., and I. M. Idriss, 1971, “Simplified Procedure for Evaluating Soil Liquefaction Potential,” *Journal of the Soil Mechanics and Foundations Division*, Vol. 97, Issue 9.

Liquefaction Analysis ~ method per Day (1999)

1. Seismic Shear Ratio (due to peak acceleration)

$$SSR_a = 0.65 r_d \left(\frac{A_{max}}{g} \right) \left(\frac{\sigma_{vo}}{\sigma'_{vo}} \right)$$

where: A_{max} = peak acceleration @ ground surface
for Crescent Junction $A_{max} = 0.22g$

σ_{vo} = total vertical stress @ depth of analysis

σ'_{vo} = effective vertical stress @ depth of analysis

r_d = depth reduction factor = $1 - 0.012 \times z$

z = depth (meters) below ground surface @
depth of analysis

Assumptions: tailings thickness = 48 ft (thickest)
cover = 8.2 ft
saturated thickness = 48 ft (beyond worst case)
cover wgt. = 124 pcf (wet)
tailings wgt. = 124 pcf (saturated)

Calculate r_d :

@ top of tailings: $z = 8.2 \text{ ft} = 2.5 \text{ m}$

$$r_d = 1 - 0.012(2.5) = 0.970$$

@ bottom of tailings: $z = (48 + 8.2) = 56.2 \text{ ft} = 17.1 \text{ m}$

$$r_d = 1 - 0.012(17.1) = 0.795$$

Calculate SSR_a

@ top of tailings: $\sigma_{vo} = 8.2(124) = 1017 \text{ pcf}$

$$\sigma'_{vo} = 8.2(124) = 1017 \text{ pcf}$$

$$\sigma_{vo} / \sigma'_{vo} = 1.0$$

@ bottom of tailings: $\sigma_{vo} = 8.2(124) + 48(124) = 6969 \text{ pcf}$

$$\sigma'_{vo} = 6969 - 48(62.4) = 3974 \text{ pcf}$$

$$\sigma_{vo} / \sigma'_{vo} = 1.75$$

@ top of tailings:

$$SSR_a = 0.65 (0.97) (0.22) (1.0) = 0.139$$

@ bottom of tailings:

$$SSR_a = 0.65 (0.795) (0.22) (1.75) = 0.199$$

2. Stress Ratio causing Liquefaction, SSR_e

SSR_e is determined from Fig. 11.8 [Day (1999)] using calculated values of corrected blow count $(N_1)_{60}$ and fines content of tailings.

The fines content of tailings per FRAP (2008), Section 4.2.2, Table 4-7, pg 4-7.

min fines = 17%, avg. fines = 46%

$(N_1)_{60}$ represents the resistance to liquefaction in terms of a corrected SPT blow count. The corrections are made for 60% rod energy ratio and for overburden pressure per National Research Council (1985) and Carter & Bentley (1991).

For tailings compacted to 90% relative compaction, the equivalent relative density is 50% (Holtz & Kovacs 1981). A relative density of 50% is equivalent to a SPT blow count of 20 blows/ft (Lambe & Whitman, 1969 and Carter & Bentley, 1991). This is equivalent to a $(N_1)_{60}$ value of 15 (Carter & Bentley, 1991).

Using Fig. 11.8 [Day (1999)], the SSR_e value for 17% fines is 0.23; the SSR_e value for 46% fines is 0.27.

3. Stress Ratio Values

Location in Profile	% fines	SSR_a	SSR_e	Conclusion
top of tailings	17	0.139	0.23	No Liquefaction
	46	0.139	0.27	No Liquefaction
bottom of tailings	17	0.199	0.23	No Liquefaction
	46	0.199	0.27	No Liquefaction

No Liquefaction

GEOTECHNICAL AND FOUNDATION ENGINEERING

Design and Construction

Robert W. Day

McGraw-Hill

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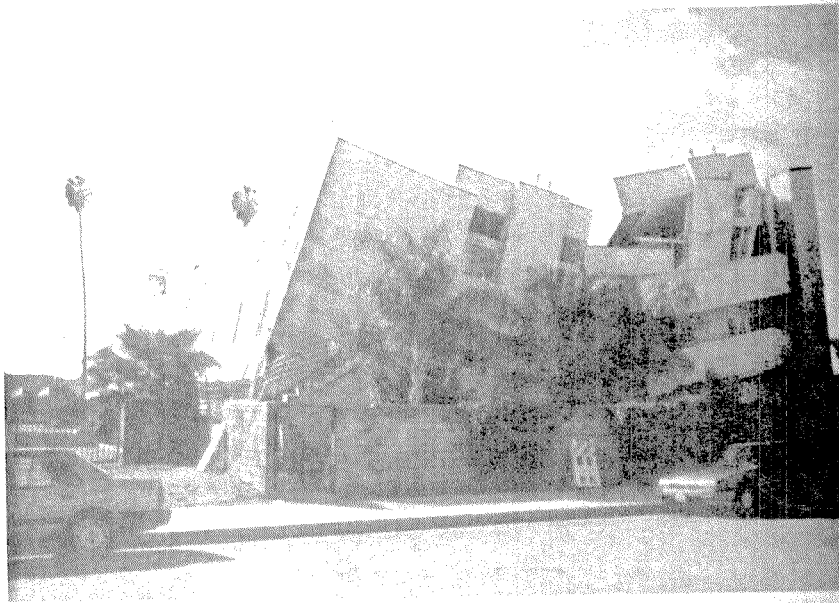


FIGURE 11.1 Building collapse caused by the 1994 Northridge, California, earthquake.

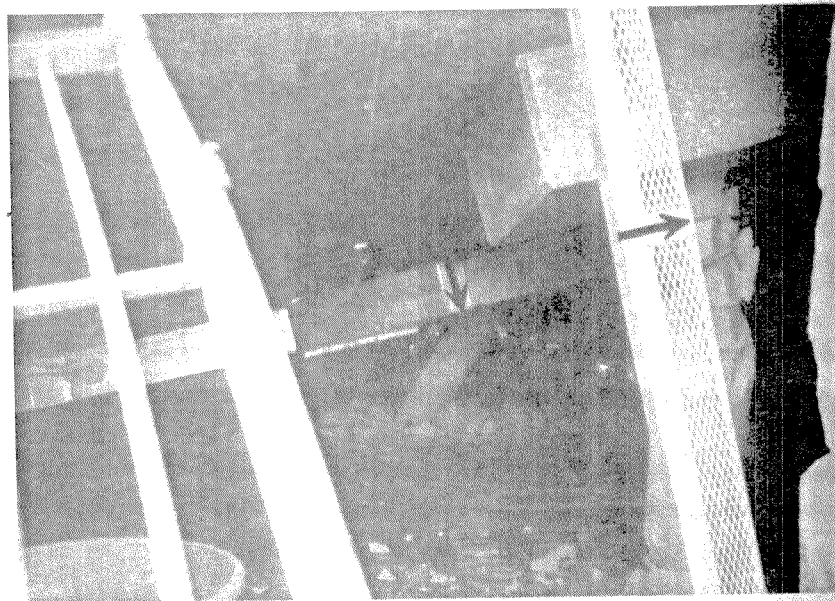


FIGURE 11.2 View inside the collapsed first floor parking garage (arrows point to columns).

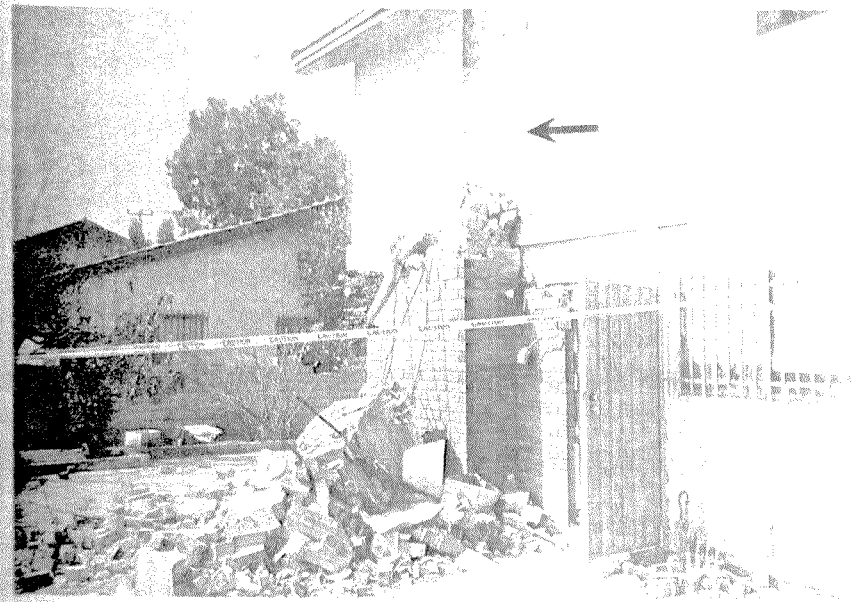


FIGURE 11.3 Collapse of brick chimney, 1994 Northridge, California, earthquake.

two primary types of damage have developed: (1) longitudinal cracks at the top of the dam and (2) crest settlement. In the case of the Sheffield Dam, a complete failure did occur, probably due to liquefaction of the very loose and saturated lower portion of the embankment (Sherard et al., 1963).

11.2 EARTHQUAKES

A structure can be damaged by many different earthquake effects. Examples previously provided include a lack of shear resistance (Figs. 11.1 and 11.2) and poor construction practices (Fig. 11.3). The purpose of the following sections is to provide a brief summary of the common earthquake effects that need to be considered by the geotechnical engineer.

11.2.1 Fault and Ground Rupture Zone

Surface fault rupture caused by the earthquake is important because it has caused severe damage to buildings, bridges, dams, tunnels, canals, and underground utilities (Lawson et al., 1908; Ambraseys, 1960; Duke, 1960; California Department of Water Resources, 1967; Bonilla, 1970; Steinbrugge, 1970). Fault displacement is defined as the relative movement of the two sides of a fault, measured in a specific direction (Bonilla, 1970). Figure 11.4 shows the displacement of rock strata caused by the Carmel Valley Fault, located at Torrey Pines, California.

Examples of very large surface fault rupture are the 11 m (35 ft) of vertical displacement in the Assam earthquake of 1897 (Oldham, 1899) and the 9 m (29 ft) of horizontal

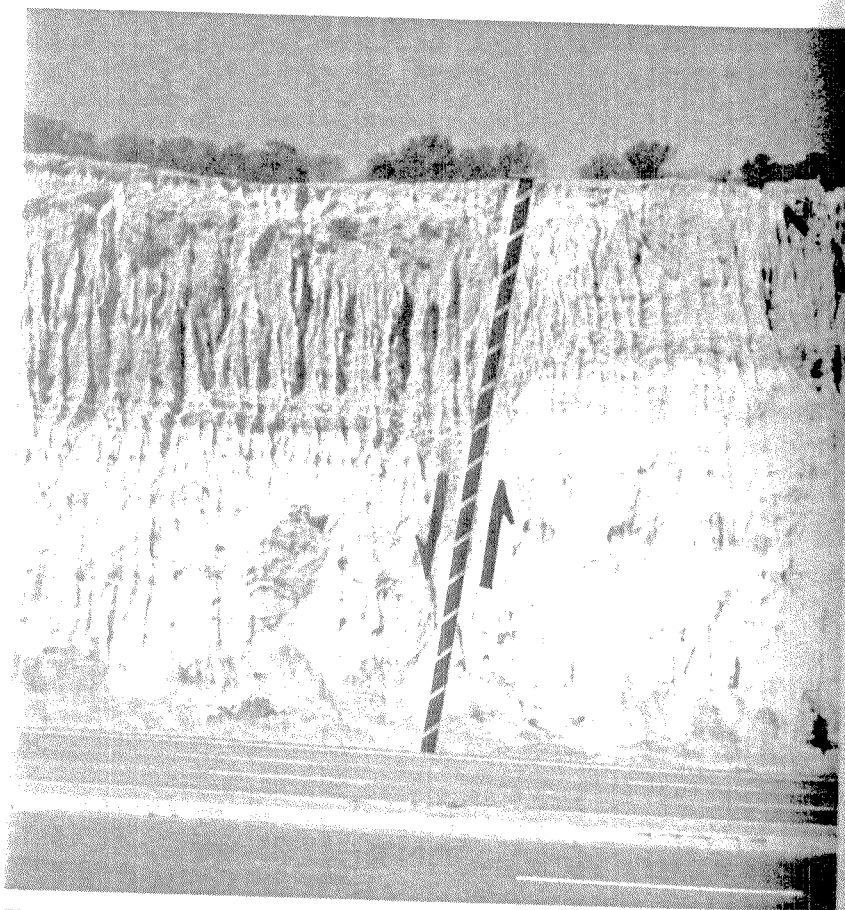


FIGURE 11.4 Carmel Valley Fault, located at Torrey Pines, California.

movement during the Gobi-Altai earthquake of 1957 (Florensov and Solonenko, 1965). The length of the fault rupture can be quite significant. For example, the estimated length of surface faulting in the 1964 Alaskan earthquake varied from 600 to 720 km (Savage and Hastie, 1966; Housner, 1970).

A recent (geologically speaking) earthquake caused the fault rupture shown in Fig. 11.5. The fault is located at the base of the Black Mountains, in California. The vertical fault displacement caused by the earthquake is the vertical distance between the two arrows in Fig. 11.5. The fault displacement occurred in an alluvial fan being deposited at the base of the Black Mountains. Most structures would be unable to accommodate the huge vertical displacement shown in Fig. 11.5.

In addition to fault rupture, there can also be ground rupture away from the main trace of the fault. These ground cracks could be caused by many different factors, such as movement of subsidiary faults, auxiliary movement that branches off from the main fault trace, or ground rupture caused by the differential or lateral movement of underlying soil deposits. For example, Fig. 11.6 shows ground rupture during the 1994 Northridge

California, earthquake. The direction of the ground shear movement shown in Fig. 11.6 is toward the northwest. The ground movement sheared both the concrete patio and adjacent pool and knocked the house off its foundation.

Since most structures will be unable to resist the shear movement associated with surface faulting and ground rupture, one design approach is to simply restrict construction in the active fault shear zone. The best individual to determine the location and width of the active fault shear zone is the engineering geologist. Seismic study maps, such as the *State of California Special Studies Zones Maps* (1982), which were developed as part of the Alquist-Priolo Special Studies Zones Act, delineate the approximate location of active fault zones that require special geologic studies. These maps also indicate the approximate locations of historic fault offsets, which are indicated by year of earthquake-associated event, as well as the locations of ongoing fault displacement due to fault creep. There are many other geologic references, such as the cross section shown in Fig. 4.2, that can be used to identify active shear fault zones. Trenches, such as shown in Figs. 4.20 and 4.21, can be excavated across the fault zone to more accurately identify the width of the active fault shear zone. Critical structures, such as essential transportation routes (see Sec. 2.2) that must cross the active shear fault zones, will need special designs to resist the earthquake forces induced by ground rupture.

11.2.2 Liquefaction

The typical subsurface condition that is susceptible to liquefaction is a loose or very loose sand that has been newly deposited or placed, with a groundwater table near ground surface. During an earthquake, the ground shaking causes the loose sand to contract, resulting in an increase in pore water pressure. Because the seismic shaking occurs so quickly, the



FIGURE 11.5 Fault rupture at the base of the Black Mountains (arrows indicate the amount of vertical displacement caused by the earthquake).

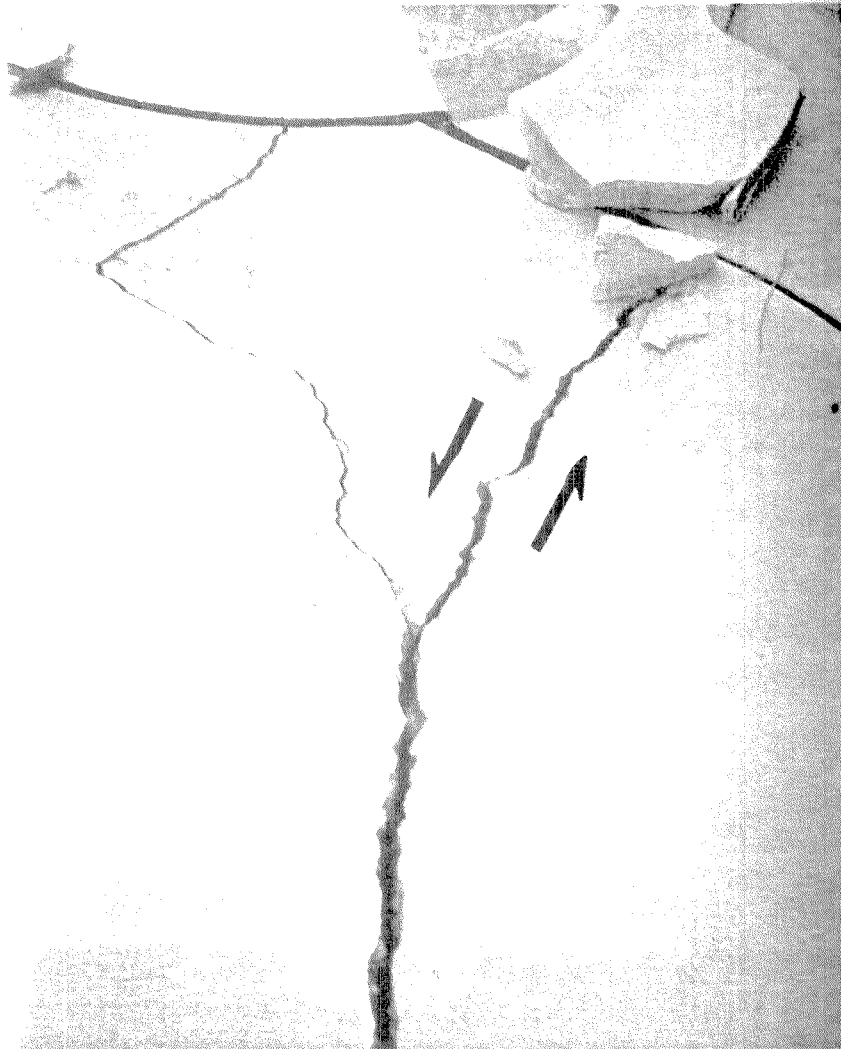


FIGURE 11.6 Ground rupture, 1994 Northridge, California, earthquake.

cohesionless soil is subjected to an undrained loading (total stress analysis). The increase in pore water pressure causes an upward flow of water to the ground surface, where it emerges in the form of mud spouts or sand boils. The development of high pore water pressures due to the ground shaking (i.e., the effective stress becomes zero) and the upward flow of water may turn the sand into a liquefied condition, which has been termed *liquefaction*. Structures on top of the loose sand deposit that has liquefied during an earthquake will sink or fall over, and buried tanks will float to the surface when the loose sand liquefies (Seed, 1970).

Liquefaction can also cause lateral movement of slopes and create flow slides (Ishihara, 1993). Seed (1970) states:

If liquefaction occurs in or under a sloping soil mass, the entire mass will flow or translate laterally to the unsupported side in a phenomenon termed a flow slide. Such slides also develop in loose, saturated, cohesionless materials during earthquakes and are reported at Chile (1960), Alaska (1964), and Niigata (1964).

An example of lateral movement of liquefied sand is shown in Fig. 11.7 (from Kerwin and Stone, 1997). This damage occurred to a marine facility at Redondo Beach King Harbor during the 1994 Northridge, California, earthquake. The 5.5 m (18 ft) of horizontal displacement was caused by the liquefaction of an offshore sloping fill mass that was constructed as a part of the marine facility.

There can also be liquefaction of seams of loose saturated sands within a slope. This can cause the entire slope to move laterally along the liquefied layer at the base. These types of gross slope failures caused by liquefied seams of soil caused extensive damage during the 1964 Alaskan earthquake (Shannon and Wilson, Inc., 1964; Hansen, 1965). It has been observed that slope movement of this type typically results in little damage to structures located on the main slide mass, but buildings located in the graben area are subjected to large differential settlements and are often completely destroyed (Seed, 1970).

Main Factors for Liquefaction of Cohesionless Soil. There are many factors that govern the liquefaction process. The most important factors are as follows:

1. *Earthquake intensity and duration.* In order to have liquefaction of soil, there must be ground shaking. The character of the ground motion, such as acceleration and frequency content, determines the shear strains that cause the contraction of the soil particles and the development of excess pore water pressures leading to liquefaction. The most common

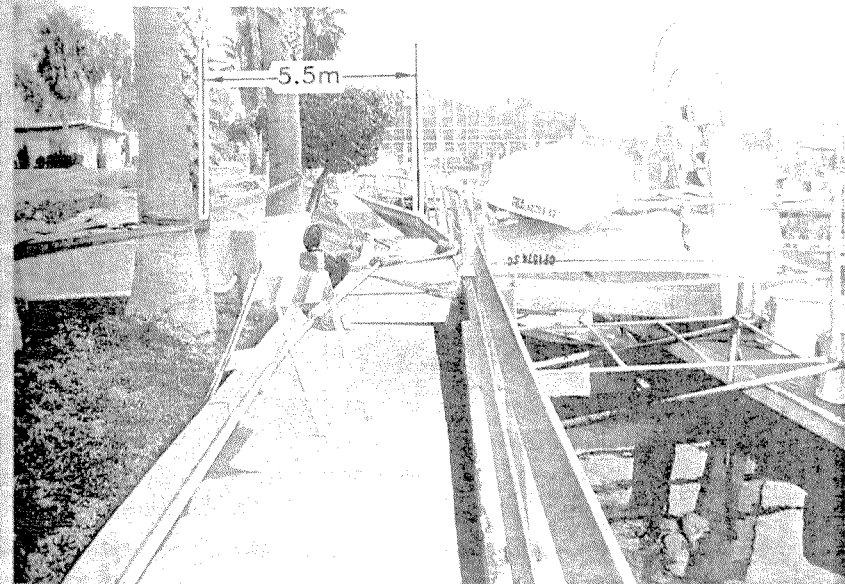


FIGURE 11.7 Damage to marine facility, 1994 Northridge, California, earthquake. (From Kerwin and Stone, 1997; reprinted with permission from the American Society of Civil Engineers.)

cause of liquefaction is the seismic energy released during an earthquake. The potential for liquefaction increases as the earthquake intensity and duration increase. Sites located near the epicenter of major earthquakes will be subjected to the largest intensity and duration of ground shaking (i.e., higher number of applications of cyclic shear strain). Besides earthquakes, other conditions can cause liquefaction, such as subsurface blasting.

2. Groundwater table. The condition most conducive to liquefaction is a near-surface groundwater table. Unsaturated soil located above the groundwater table will not liquefy.

3. Soil type. The soil types susceptible to liquefaction are nonplastic (cohesionless) soils. Seed et al. (1983) state that, on the basis of both laboratory testing and field performance, the great majority of clayey soils will not liquefy during earthquakes.

An approximate listing of cohesionless soils from least to most resistant to liquefaction are clean sands, nonplastic silty sands, nonplastic silt, and gravels. There could be numerous exceptions to this sequence. For example, Ishihara (1985, 1993) describes the case of tailings derived from the mining industry that were essentially composed of ground-up rocks and were classified as rock flour. Ishihara (1985, 1993) states that the rock flour in a water-saturated state did not possess significant cohesion and behaved as if it were a clean sand. These tailings were shown to exhibit as low a resistance to liquefaction as clean sand.

4. Soil relative density D_r . Cohesionless soils in a very loose relative density state are susceptible to liquefaction, while the same soil in a very dense relative density state will not liquefy. Very loose nonplastic soils will contract during the seismic shaking which will cause the development of excess pore water pressures. Very dense soils will dilate during seismic shaking and are not susceptible to liquefaction.

5. Particle size gradation. Poorly graded nonplastic soils tend to form more unstable particle arrangements and are more susceptible to liquefaction than well-graded soils.

6. Placement conditions. Hydraulic fills (fill placed under water) tend to be more susceptible to liquefaction because of the loose and segregated soil structure created by the soil particles falling through water.

7. Drainage conditions. If the excess pore water pressure can quickly dissipate, the soil may not liquefy. Thus gravel drains or gravel layers can reduce the liquefaction potential of adjacent soil.

8. Confining pressures. The greater the confining pressure, the less susceptible the soil is to liquefaction. Conditions that can create a higher confining pressure are a deeper groundwater table, soil that is located at a deeper depth below ground surface, and a surcharge pressure applied at ground surface. Case studies have shown that the possible zone of liquefaction usually extends from the ground surface to a maximum depth of about 15 m (50 ft). Deeper soils generally do not liquefy because of the higher confining pressures.

9. Aging. Newly deposited soils tend to be more susceptible to liquefaction than old deposits of soil. Older soil deposits may already have been subjected to seismic shaking or the soil particles may have deformed or been compressed into more stable arrangements.

Liquefaction Analysis. The most common type of analysis to determine the liquefaction potential is to use the standard penetration test (SPT) or the cone penetration test (CPT) (Seed et al., 1985; Stark and Olson, 1995). The analysis is based on the simplified method proposed by Seed and Idriss (1971). The method of analysis is as follows:

1. Seismic shear stress ratio (SSR) caused by the earthquake. The first step in the liquefaction analysis is to determine the seismic shear stress ratio (SSR). The seismic shear stress ratio induced by the earthquake at any point in the ground is estimated as follows (Seed and Idriss, 1971):

$$SSR = 0.65 r_d \left(\frac{a_{\max}}{g} \right) \left(\frac{\sigma_{v0}}{\sigma'_{v0}} \right) \quad (11.1)$$

where SSR = seismic shear stress ratio (dimensionless parameter)

$a_{\max}$ = peak acceleration measured or estimated at the ground surface of the site (m/s^2)

g = acceleration of gravity (9.81 m/s^2)*

σ_{v0} = total vertical stress at a particular depth where the liquefaction analysis is being performed (kPa) (in order to calculate the total vertical stress, the total unit weight γ , of the soil layers must be known)

σ'_{v0} = vertical effective stress at that same depth in the soil deposit where σ_{v0} was calculated (kPa) (in order to calculate the vertical effective stress, the location of the groundwater table must be known).

The term r_d = depth reduction factor, which can be estimated in the upper 10 m of soil as (Kayen et al., 1992):

$$r_d = 1 - (0.012)(z) \quad (11.2)$$

where z = depth in meters below the ground surface where the liquefaction analysis is being performed (i.e., the same depth used to calculate σ_{v0} and σ'_{v0})

2. Seismic shear stress ratio that will cause liquefaction of the soil. The second step is to determine the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil. Figure 11.8 presents a chart that can be used to determine the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil. In order to use this chart, the results of the standard penetration test (SPT) must be expressed in terms of the SPT $(N_1)_{60}$ value. In liquefaction analysis, the SPT N_{60} value [Eq. (4.3)] is corrected for the overburden pressure. When a correction is applied to the SPT N_{60} value to account for the effect of overburden pressure, these values are referred to as SPT $(N_1)_{60}$ values. The procedure consists of multiplying the N_{60} value by a correction C_N in order to calculate the SPT $(N_1)_{60}$ value, or:

$$(N_1)_{60} = C_N N_{60} = (100/\sigma'_{v0})^{0.5} N_{60} \quad (11.3)$$

where $(N_1)_{60}$ = standard penetration N -value corrected for both field testing procedures and overburden pressure

C_N = correction factor to account for the overburden pressure [as indicated in Eq. (11.3), C_N is approximately equal to $(100/\sigma'_{v0})^{0.5}$, where σ'_{v0} is the vertical effective stress in kPa]

N_{60} = standard penetration N -value corrected for testing procedures [note that N_{60} is calculated by using Eq. (4.3)]

Once the corrected SPT $(N_1)_{60}$ has been calculated, Fig. 11.8 can be used to determine the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil. Note that Fig. 11.8 is for a projected earthquake of 7.5 magnitude. The figure also has different curves that are to be used according to the percent fines in the soil. For a given $(N_1)_{60}$ value,

*Usually the engineering geologist will determine the peak acceleration at the ground surface at the site from fault, seismicity, and attenuation studies. Typically the engineering geologist provides a peak ground acceleration in the form of $a_{\max}/g = \text{a constant}$. For example, the engineering geologist may determine that the peak ground surface acceleration at a site is $a_{\max}/g = 0.1$, in which case the value of 0.1 (dimensionless) is substituted into Eq. (11.1) in place of $a_{\max}/g$.

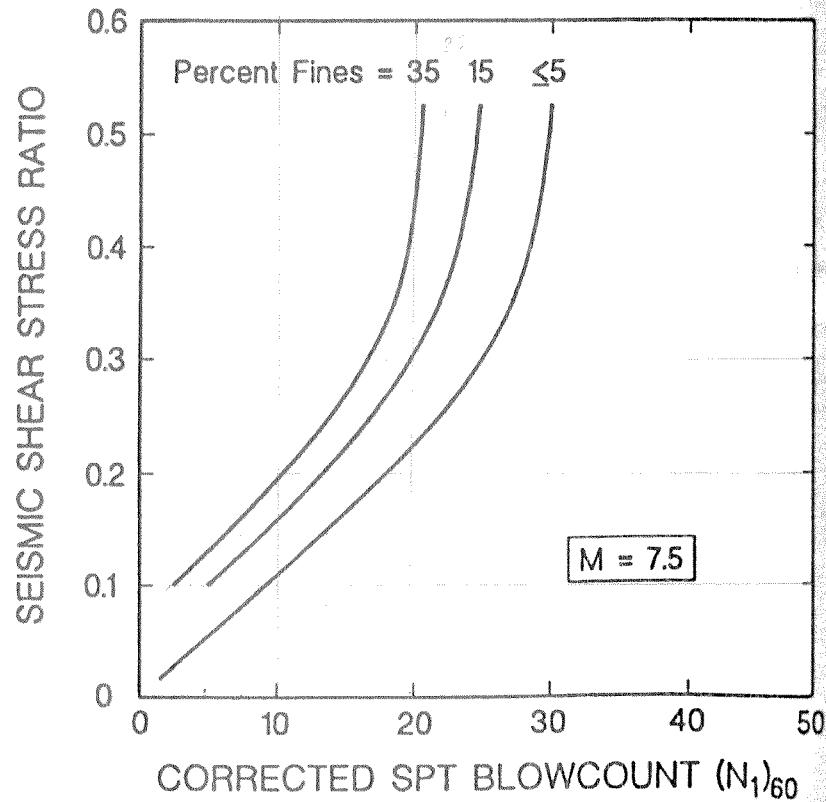


FIGURE 11.8 Relationship between seismic shear stress ratio (SSR) triggering liquefaction and $(N_1)_{60}$ values for clean and silty sands for $M = 7.5$ earthquakes. (After Seed and DeAlba, 1986; reproduced from Stark and Olson, 1995; reprinted with permission of the American Society of Civil Engineers.)

soils with more fines have a higher seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil.

Figure 11.9 presents a chart for clean sands (5 percent or less fines) and different magnitude earthquakes. The magnitude 7.5 curve in Fig. 11.9 is similar to the magnitude 7.5 curve for 5 percent or less fines in Fig. 11.8.

3. Compare seismic shear stress ratios. The final step in the liquefaction analysis is to compare the seismic shear stress ratio (SSR) values. If the SSR value from Eq. (11.1) is greater than the SSR value obtained from either Fig. 11.8 or Fig. 11.9, then liquefaction could occur during the earthquake, and vice versa.

Example. It is planned to construct a building on a cohesionless soil deposit (fines less than 5 percent). There is a nearby major active fault and the engineering geologist has determined that the peak ground acceleration (a_{max}) = 0.4g. Assume the site conditions are the same as stated in Prob. 18 (Chap. 6), i.e., a level ground surface with the groundwater table located 1.5 m below ground surface and the standard penetration test performed at a depth

of 3 m. If the earthquake magnitude (M) = 7.5, will the saturated clean sand located at a depth of 3 m below ground surface liquefy during the anticipated earthquake?

Solution. From Prob. 18 (Chap. 6), $\sigma'_{v0} = 43$ kPa and $N_{60} = 5$. Using the total unit weights from Prob. 18 (Chap. 6), $\sigma_{v0} = 58$ kPa. Since $z = 3$ m, $r_d = 0.96$. Using the following values:

$$r_d = 0.96$$

$$a_{max}/g = 0.4$$

$$(\sigma_{v0}/\sigma'_{v0}) = (58/43) = 1.35$$

and inserting the above values into Eq. (11.1), we find the seismic shear stress ratio (SSR) caused by the earthquake is 0.34.

The next step is to determine the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil. From Prob. 18 (Chap. 6), the N -value corrected for field testing procedures (N_{60}) = 5. Using Eq. (11.3) with $\sigma'_{v0} = 43$ kPa and $N_{60} = 5$, we find

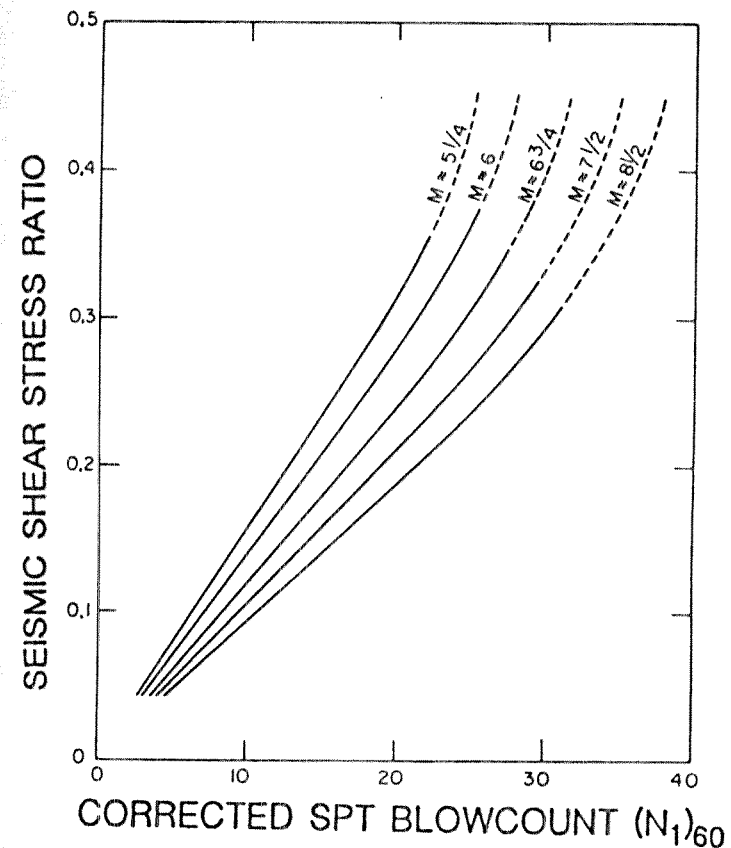


FIGURE 11.9 Relationship between seismic shear stress ratio (SSR) triggering liquefaction and $(N_1)_{60}$ values for clean sand for different magnitude earthquakes. (After Seed et al., 1983; reprinted with permission of the American Society of Civil Engineers.)

$(N_1)_{60} = 8$. Entering Fig. 11.8 with $(N_1)_{60} = 8$ and intersecting the curve labeled $\leq 5\%$ fines, the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil at a depth of 3 m = 0.08.

The final step is to compare the SSR caused by the earthquake (SSR = 0.34) with the SSR that will cause liquefaction of the *in situ* soil (SSR = 0.08). From a comparison of the SSR values, it is probable that during the earthquake the *in situ* sand located at a depth of 3 m below ground surface will liquefy.

In the above liquefaction analysis, there are many different equations and corrections that are applied to the seismic shear stress ratio (SSR). For example, there are four different corrections (E_m , C_b , C_r , and σ'_{v0}) that are applied to the SPT N -value in order to calculate the $(N_1)_{60}$ value. All of these different equations and various corrections may provide the engineer with a sense of high accuracy, when in fact, the entire analysis is only a gross approximation. The analysis should be treated as such and engineering experience and judgment are essential in the final determination of whether or not a site has liquefaction potential.

11.2.3 Slope Movement and Settlement

Besides liquefaction of loose saturated sands, other soil conditions can result in slope movement or settlement during an earthquake. For example, Grantz et al. (1964) describe an interesting case of ground vibrations from the 1964 Alaskan earthquake that caused 0.8 m (2.6 ft) of alluvium settlement. Other loose soils, such as cohesionless sand and gravel, will also be susceptible to settlement due to the ground vibrations from earthquakes.

Slopes having a low factor of safety can experience large horizontal movement during an earthquake. Types of slopes most susceptible to movement during earthquakes include those slopes composed of soil that loses shear strength with strain (such as sensitive soil) and ancient landslides that can become reactivated by seismic forces (Day and Poland, 1996).

11.2.4 Translation and Rotation

An unusual effect caused by earthquakes is translation and rotation of objects. For example, Fig. 11.10 shows a photograph of a brick mailbox that rotated and translated (moved laterally) during the Northridge earthquake. The initial position in Fig. 11.10 refers to the pre-earthquake position of the mailbox.

Earthquakes have caused the rotation of other movable objects, such as grave markers (Athanasopoulos, 1995; Yegian et al., 1994). According to Athanasopoulos (1995), such objects will rotate in such a manner as to be aligned with the strong component of the earthquake. Besides rotation, translation (lateral movement) can also occur during an earthquake. The objects will tend to move in the same direction as the propagation of energy waves, i.e., in a direction away from the epicenter of the earthquake.

11.3 ESTIMATING EARTHQUAKE GROUND MOVEMENT

Often the geotechnical engineer will be required to estimate the amount of foundation displacement caused by earthquake-induced soil movement. For example, the *Uniform*

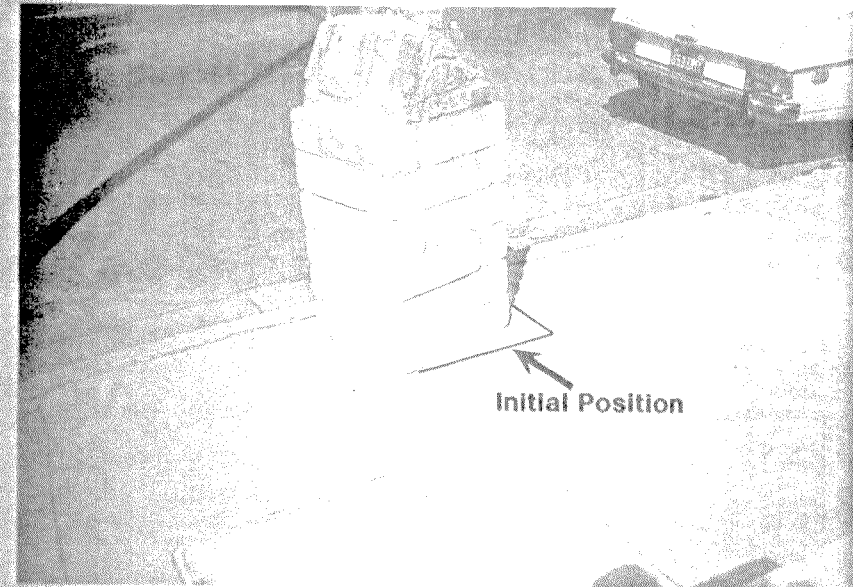


FIGURE 11.10 Rotation of brick mailbox, 1994 Northridge, California, earthquake.

Building Code (1997), which is the building code required for construction in California, states (code provision submitted by the author, adopted in May 1994):

The potential for soil liquefaction and soil strength loss during earthquakes shall be evaluated during the geotechnical investigation. The geotechnical report shall assess potential consequences of any liquefaction and soil strength loss, including estimation of differential settlement, lateral movement or reduction in foundation soil-bearing capacity, and discuss mitigating measures. Such measures shall be given consideration in the design of the building and may include, but are not limited to, ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacement or any combination of these measures.

The intent of this building code requirement is to obtain an approximate estimate of the foundation displacement caused by the earthquake induced soil movement. In terms of accuracy of the calculations used to determine the earthquake induced soil movement, Tokimatsu and Seed (1984) conclude:

It should be recognized that, even under static loading conditions, the error associated with the estimation of settlement is on the order of ± 25 to 50%. It is therefore reasonable to expect less accuracy in predicting settlements for the more complicated conditions associated with earthquake loading.... In the application of the methods, it is essential to check that the final results are reasonable in light of available experience.

Pseudostatic Approach. A vast majority of foundation and earthwork designs are based on the pseudostatic approach (Coduto, 1994). This method ignores the cyclic nature of earthquakes and treats them as if they apply an additional static force upon the slope, retaining wall, or foundation element. For example, as will be discussed in Sec. 15.3, a common

APPENDIX F

SURFACE ADMIXTURE DESIGN CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Surface admixture layer design

Quality Level: NQA-1 Quality Level 2

Prepared by:

Stephen F Dwyer



Date

December 18, 2023

Checked by:

Mike Beardsley



Date

December 18, 2023

Approved by:

Greg Church



Date

December 18, 2023

F.1 DESIGN OF COVER SURFACE LAYER (ROCK/SOIL ADMIXTURE)

Rock/soil admixtures provide a proven means to minimize erosion while allowing for vegetation establishment without a significant reduction in evaporation (Waugh et al. 1994, Dwyer 2003, Dwyer et al. 2007). Erosion (Ligotke 1994) and water balance studies (Waugh 1994) suggest that moderate amounts of gravel mixed into the cover topsoil will control both water and wind erosion. As wind and water pass over the cover surface, some winnowing of fines from the admixture is expected, creating a vegetated erosion-resistant surface referred to as a “desert pavement.”

F.1.1 Design Rainfall Event

The design event for evaluation of long-term erosional stability is the Probable Maximum Precipitation (PMP) event based on NRC guidelines in NUREG-1623. This worst-case storm event was used to design the surface admixture. The PMP 1-hour precipitation value of 8.2 inches was utilized in the design and analysis. The 1-hour time of concentration is generally considered conservative for any contributory area less than 50 acres (20 hectares) (Lindeburg 1989). This PMP value was obtained from Section 6.2.1, p. 6-3, Table 6-1, of the Final Remedial Action Plan (FRAP 2008) for a drainage area of less than 1 square mile (mi²).

The cover design life, per 40 Code of Federal Regulations (CFR) 192(a), shall be effective for up to 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. To appreciate the size of the PMP design event and for comparison purposes, the 1,000-return period (1-hour precipitation frequency) is 2.7 inches, as determined using data supplied by the National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) Hydrometeorological Design Studies Center (NOAA Atlas 14, Volume 1 for Thompson Springs, UT). The precipitation value for the PMP value is three times larger than the 1,000-return period value for the Crescent Junction site.

F.1.2 Runoff Prediction

The “rational method” was used to estimate runoff volumes. This method is commonly used in civil engineering applications and is a method recommended by the U.S. Department of Energy (DOE) for design of cover systems for sites regulated by the Uranium Mill Tailings Radiation Control Act of 1978 (i.e., UMTRA sites) (DOE 1989) and NUREG-1623. The rational method assumes that rainfall occurs uniformly over the watershed at a constant intensity for a duration equal to the time of concentration.

Using the rational method, the peak rate of runoff (Q), in cubic feet per second (cfs), is given by the following expression (the runoff units are in acre-inches/hour but are commonly rounded to cfs):

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$$Q = C I A$$

Equation F-1

where:

C = Runoff coefficient (dimensionless) = 0.3 (Lindeburg 1989)

I = Rainfall intensity (in./hr)

A = Surface area that contributes to runoff (acres) = $L^2/4$, (USEPA 2012, Dwyer et al. 2007)

The time of concentration (t_c) was calculated based on the following Kirpich equation, as presented in NUREG 1623:

$$t_c = 0.0078 \frac{L^{0.77}}{S^{0.385}}$$

Equation F-2

where:

L = slope length (ft)

S = slope (ft/ft).

Using the tabular values in Table F-1 (DOE 1989), the percentage of rainfall intensity for a t_c of less than 1 hour can be determined.

Table F-1. Incremental Rainfall Duration Percentage (DOE 1989, Table 4.1)

Rainfall Duration (RD) (min.)	Percentage of 1-hour PMP (%)*
2.5	27.5
5	45
15	74
30	89
45	95
60	100

* Percent of 1-hour PMP = $RD / (0.089 \cdot RD + 0.0686)$.

The contributory surface area was calculated based on the assumed configuration shown in Figure F-1, where L is the critical slope length (USEPA 2012, Dwyer et al. 2007). Slopes and slope lengths were estimated from the approved drawings (FRAP 2008, Addendum D). The rainfall one-hour intensity corresponding to the computed time of concentration (t_c) is then computed as follows (DOE 1989, p. 66):

$$I = PMP_{(t_c)} \times \frac{60}{t_c}$$

Equation F-3

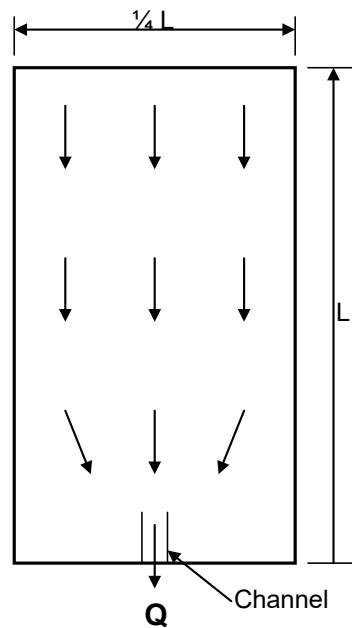


Figure F-1. Contributory Area for Gully Formation

Figure F-2 is a plan view of the cover system with final slopes and slope lengths. The longest and steepest slope from the center toward the south is 1,310 feet long at a slope of 2.5% (1300 feet top ridge to inside edge of transition rock along southern cap perimeter). The slope toward the north is 2% with a slope length of 548 feet.

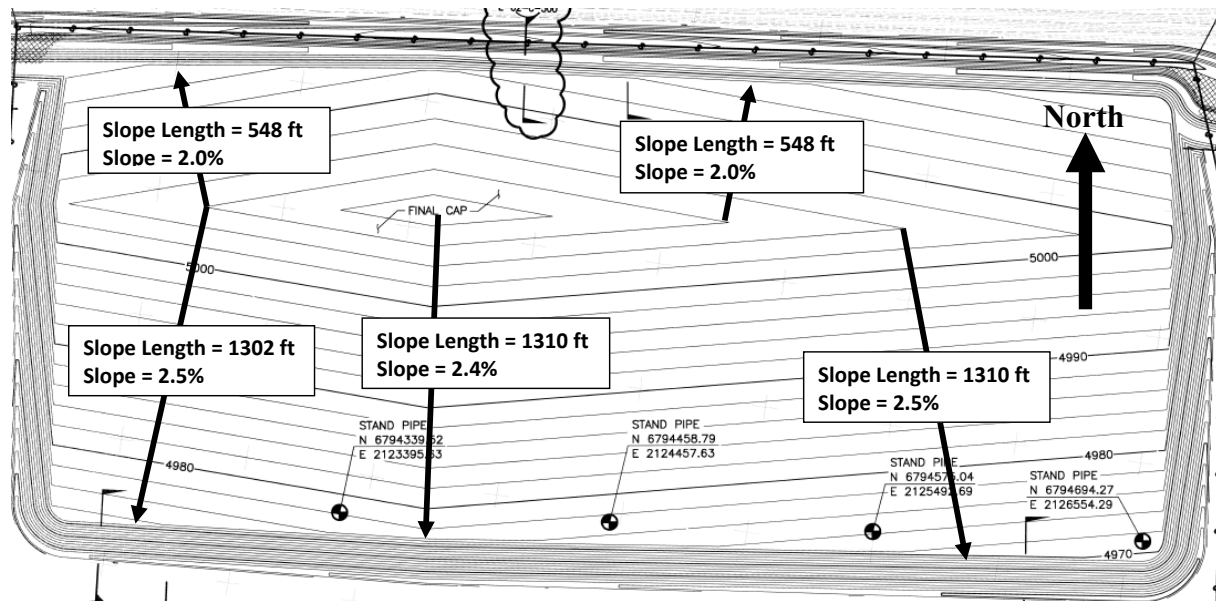


Figure F-2. Plan View of Planned Cover System Final Grades

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Table F-2 summarizes the computations for the southern slope length intervals for the 2.5% slope, while Table F-3 summarizes the northern slope length intervals for the 2% slope length.

Table F-2. Calculation of Rainfall Intensity for South Slope of 2.5%

C	L (ft)	S (%)	i (in./hr)	t _c (min)	Extrapolation ¹ (%)	I (in./hr)
1	1,300	2.5	8.2	8.1	57.5%	35.0
1	1,200	2.5	8.2	7.6	55.7%	36.2
1	1,100	2.5	8.2	7.1	53.8%	37.4
1	1,000	2.5	8.2	6.6	51.8%	38.7
1	900	2.5	8.2	6.1	49.5%	40.1
1	800	2.5	8.2	5.5	47.0%	41.7
1	700	2.5	8.2	5.0	44.2%	43.5
1	600	2.5	8.2	4.4	41.1%	45.5
1	525	2.5	8.2	4.0	38.5%	47.2
1	500	2.5	8.2	3.9	37.5%	47.8
1	400	2.5	8.2	3.3	33.4%	50.4
1	350	2.5	8.2	2.9	31.0%	51.9
1	300	2.5	8.2	2.6	28.4%	53.6
1	200	2.5	8.2	2.5 ²	27.5%	54.2
1	100	2.5	8.2	2.5 ²	27.5%	54.2

¹ Extrapolation is the percentage of the 1-hour PMP = $RD/(0.089*RD + 0.0686)$ (refer to Table F-1).

² t_c minimum is recommended to be 2.5 minutes (DOE 1989).

Table F-3. Calculation of Rainfall Intensity for North Slope of 2.0%

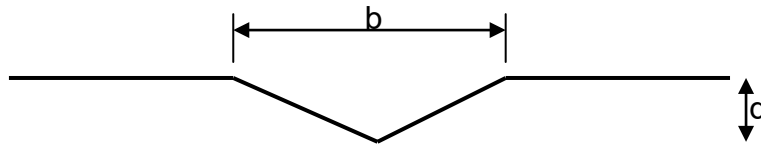
C	L (ft)	S (%)	i (in./hr)	t _c (min)	Extrapolation ¹ (%)	I (in./hr)
1	548	2.0	8.2	4.5	41.5%	45.2
1	500	2.0	8.2	4.2	39.7%	46.4
1	400	2.0	8.2	3.5	35.4%	49.1
1	300	2.0	8.2	2.8	30.3%	52.4
1	200	2.0	8.2	2.5 ²	27.5%	54.2
1	100	2.0	8.2	2.5 ²	27.5%	54.2

¹ Extrapolation is the percentage of the 1-hour PMP = $RD/(0.089*RD + 0.0686)$ (refer to Table F-1).

² t_c minimum is recommended to be 2.5 minutes (DOE 1989).

F.1.3 Channel Geometry

The channel geometry shown in Figure F-3 is that assumed for gully formation.

**Figure F-3. Channel Geometry**

The geometry of the channel that forms is based on regression equations developed from analysis of many channels (Simon, Li & Assoc. 1982). The channel width is given by the following equation:

$$b = 37 (Q_m^{0.38} / M^{0.39}) \quad \text{Equation F-4}$$

where:

b = width of flow (ft)

Q_m = mean annual flow (cfs)

M = fines content, percentage of silts and clays in soils.

One of the sensitive parameters for the admixture design is the fines content (M) of the surface soils. Based on the FRAP (2008, Attachment 5, Vol. 1 & 2), the fines content (silt and clay) can vary. The upper alluvium layer of the borrow has the lowest fines content, while the clay-rich shale underlying layer has the highest fines content. This upper borrow source soil is intended to be used as the soil within the admixture layer. The upper alluvium borrow source soils obtained from boreholes generally have an average fines content of approximately 64.8% (FRAP 2008, Attachment 5, Vol. 1, Appendix E, Table 1). The highest average fines content for the alluvium soil from fluvial/eolian samples was 72.5% (FRAP 2008, Attachment 5, Vol. 1, Appendix E, Table 1 – fluvial/eolian soils). The higher fines content allows for conservatism in the design; consequently, the higher value of 72.5% fines content was used in the admixture analysis. These fines content values were reduced by 60% to account for the volume percentage of rock proposed to be added to the soil. The mean annual flow (Q_m) is assumed to be between 10% and 20% of the peak rate of runoff (Q) (Dwyer et al. 2007). In this case, 10% was used partly because of conservatism already included in the calculations including the use of the storm intensity value associated with the PMP (8.2 in./hr) compared to the 1,000-year return period intensity value (2.7 in./hr). Additional conservatism includes that the larger rock size developed between the Dwyer (et al. 2007) method and NUREG-1623 method will govern the results. The admixture design is validated using methods described in NUREG-1623 and calculations summarized in Appendix J.

For the given discharge point of geometry, the hydraulic depth (d_h), defined as the flow cross-sectional area divided by the width of water surface, is half of the gully depth (d).

For flows at the critical slope:

$$b = 0.5 F^{0.6} F_r^{-0.4} Q^{0.4} \quad \text{Equation F-5}$$

where:

F = width to depth ratio = b/d_h

F_r = Froude Number ≈ 1.0

Q = peak rate of runoff.

F.1.4 Incipient Particle Size

The incipient particle size is the particle that is on the brink of movement at the assumed conditions. Any increase in the erosional forces acting on the particle (e.g., due to an increase in velocity or slope) will cause its movement. For construction purposes, the incipient particle size is assumed to be the D_{50} (50% of the rock passing the given sieve size). The rock is typically sorted in one-dimensional sieves; thus, the rock passing a 2-inch sieve can be 2 inches wide by 3 inches long and/or 3 inches deep. Converting the incipient particle size to the rock specified D_{50} value is therefore conservative given that the D_{50} rock will likely have a larger mass than the inferred incipient particle size. This incipient particle size (D_c) was calculated using the Shield's Equation:

$$D_c = \tau / F_s (\gamma_s - \gamma) \quad \text{Equation F-6}$$

where:

τ = total average shear stress (pcf)

F_s = Shield's dimensionless shear stress = 0.047

γ_s = specific weight of soil (pcf)

γ = water density = 62.4 pcf.

The total average shear stress is given by:

$$\tau = \gamma \, dh \, S \quad \text{Equation F-7}$$

where:

S = slope (ft/ft)

dh = hydraulic depth (ft).

F.1.5 Depth of Scour and Armoring Required

The incipient particle size defines the maximum size particle that will be eroded for a given set of conditions. Material larger than the incipient particle size will not be displaced or eroded and can form an armoring that will protect the surface from erosion by similar or lesser storm events.

The depth of scour (Y_s) to establish an armor layer is given by Pemberton and Lara (1984):

$$Y_s = Y_a [(1/P_c) - 1] \quad \text{Equation F-8}$$

where:

Y_s = scour depth

Y_a = armor layer thickness

P_c = decimal fraction of material coarser than the incipient particle size.

F.2 RESULTS

An Excel spreadsheet was used to simultaneously solve the multiple equations listed in Section F.1. Section F.2.1 presents calculated results for the rock/soil admixture for the 2.5% slope, with a total slope length of 1,300 feet. Section F.2.2 presents calculated results for the

rock/soil admixture for the 2% slope, with a total slope length of 548 feet. Tables F-4 through F-5 summarize the analyses performed.

F.2.1 Admixture Design for South Slope

Table F-4 (South Slope) summarizes the admixture calculations following the method outlined in Section F.1 while utilizing the intensity values (I) in Tables F-2 and F-3. The critical particle sizes (D_c) and admixture depth are computed based on the slope length location along each respective slope. For south slope lengths of 1,300 feet, a 2.0-inch-diameter D_{50} rock is required with a corresponding admixture depth of 10 inches. All mixtures are 60% rock to 40% soil by volume for the full admixture depth of 10 inches.

Appendix J summarizes the calculations performed to verify compliance with the long-term stability of a rocky soil slope per NUREG-1623. The slope lengths utilized in the calculations correspond to those from Table F-4. The slope is 2.5%; consequently, any calculation that computed a stable slope of greater than or equal to 2.5% (with the particle size determined in Table F-4) was acceptable.

F.2.2 Admixture Design for North Slope

Table F-5 provides a summary of the admixture calculations for the north slope following the method discussed in Section F.1 while utilizing the intensity values (I) in Table F-3. For all north slope lengths, 2.0-inch-diameter D_{50} rock is required with a corresponding admixture depth of 10 inches. The critical particle sizes (D_c) and admixture depth are computed based on the slope length along the 2% slope. For all slope lengths, the long-term stability of a rocky soil slope (per NUREG-1623) determined the critical rock size (D_c). All mixtures are 60% rock to 40% soil by volume for the full admixture depth of 10 inches.

Appendix J summarizes the calculations to verify compliance with the long-term stability of a rocky soil slope (per NUREG-1623) for the 2% slope. The slope lengths utilized in the calculations correspond to those from Table F-5. The slope is 2.0%; consequently, any calculation that computed a stable slope of greater than or equal to 2.0% (with the particle size determined in Table F-5) was acceptable.

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Table F-4. South Slope: Admixture Design Summary

I (in./hr)	S (%)	Slope Length (ft)	Rock Size D _c (in.)	use Rock Size D _c (in.)	% Gravel	Admix Depth (in.)	Comment
35.0	2.5	1,300	2.0	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
36.2	2.5	1,200	1.9	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
37.4	2.5	1,100	1.8	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
38.7	2.5	1,000	1.7	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
40.1	2.5	900	1.6	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
41.7	2.5	800	1.4	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
43.5	2.5	700	1.3	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
45.5	2.5	600	1.2	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
47.2	2.5	525	1.1	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
47.8	2.5	500	1.0	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
50.4	2.5	400	0.9	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.

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I (in./hr)	S (%)	Slope Length (ft)	Rock Size D _c (in.)	use Rock Size D _c (in.)	% Gravel	Admix Depth (in.)	Comment
51.9	2.5	350	0.8	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
53.6	2.5	300	0.7	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
54.2	2.5	200	0.5	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
54.2	2.5	100	0.3	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.

Table F-5. North Slope: Admixture Design Summary

I (in./hr)	S (%)	Slope Length (ft)	Rock Size D _c (in.)	use Rock Size D _c (in.)	% gravel	Admix Depth (in.)	Comment
45.2	2.0	548	0.9	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
46.4	2.0	500	0.8	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
49.1	2.0	400	0.7	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
52.4	2.0	300	0.6	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
54.2	2.0	200	0.4	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.

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I (in./hr)	S (%)	Slope Length (ft)	Rock Size D _c (in.)	use Rock Size D _c (in.)	% gravel	Admix Depth (in.)	Comment
54.2	2.0	100	0.2	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.

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APPENDIX G

CRACKING CALCULATIONS & SLOPE REDUCTION

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Cover cracking analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 18, 2023

Checked by: Mike Beardsley



Date: December 18, 2023

Approved by: Greg Church



Date: December 18, 2023

Cover Cracking

Cover cracking was evaluated by comparison of allowable strain for the cover materials with maximum calculated strain due to differential settlement in the cover. The area of the cell with the highest anticipated differential settlement (and associated largest horizontal strain) is in the northern portion of the cell due to the largest differential in tailings thickness (26 ft at northern perimeter versus 48 ft at center crest).

The allowable strain for the cover materials was calculated using the equation in Caldwell and Reith (1993) based on soil plasticity index:

$$\epsilon_f = 0.05 + 0.003 * PI$$

where ϵ_f = soil tensile strain at failure (in percent)

PI = plasticity index of the cover soil.

The PI values from the borehole data (FRAP 2008, Addendum E, Table 1. Summary of Geotechnical Index Properties for Natural Soil materials at the Crescent Junction Site) cover material include alluvium (average PI is 7.3) and the weathered Mancos shale (average PI is 9.9). The worst-case strain would include the lowest soil tensile strain at failure, thus the soil with the lowest PI.

For the ET cover, with a weathered Mancos shale radon barrier with a PI of 7.3, the maximum allowable strain is:

$$\epsilon_f = 0.05 + 0.003 * 7.3 = 0.072\%$$

The differential settlement of tailings from the northern perimeter to the crest is 6.8 inches (adding primary and secondary settlement). This amount of differential settlement over the slope distance (566 ft) is equivalent to a horizontal tensile strain of approximately 5E-05 %. Refer to Appendix D for differential settlement calculations. This calculated strain is lower than the allowable tensile strain for the soil, indicating acceptable cover performance.

Even if one assumed that the embankment would have no settlement and the center or deepest tailings settled the full amount of 21.9 inches (primary 9.2 inches and secondary 12.7 inches), the calculated strain would only be 5E-04% - still considerably less than the allowable strain.

Slope Reduction

Given a total differential consolidation of 6.8 inches or 0.57 ft (Appendix D – Settlement Calculations), and a slope length of 566 ft, the subsequent reduction in slope is calculated to be 0.1%. The design slope of the cover system is 2%. Since the potential slope reduction is significantly less than the cover slope, surface ponding should not occur due to consolidation.

References

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Allowable cover strain $E_f = 0.05 + 0.003 * PI$

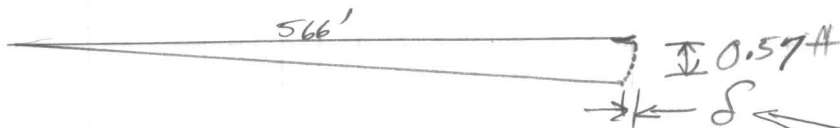
where: PI = plasticity index cover soil

$$E_f = 0.05 + 0.003 (7.3) = 0.072\%$$

↑ Worst case (alluvium PI)

Total Δ Consolidation = 6.8 inches [Appendix D - Settlement Calcs]

Slope Distance = 566 ft



Horizontal Displacement due to Settlement (δ)

$$(\delta + 566)^2 = 566^2 + 0.57^2$$

$$\delta = \sqrt{566^2 + 0.57^2} - 566 = 0.0003 \text{ ft}$$

$$\text{Tensile Strain } (E) = \frac{\delta}{566} = \frac{0.0003}{566} = 5.01 \times 10^{-7} = 5.01 \times 10^{-5}\%$$

$\left(\frac{E}{(0.00005\%)} \ll \frac{E_f}{(0.072\%)} \right)$, therefore cracking not a problem

Slope Reduction due to Differential Settlement

$$= \frac{0.57}{566} = 0.001 \Rightarrow 0.1\%$$

Since the shallowest design slope of the cover is 2%, a slope reduction of 0.1% will not create ponding.

APPENDIX H

RADON FLUX CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Radon Flux Analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 1, 2023

Checked by: Steven D. Rima, CHP



Date: December 1, 2023

Checked by: Greg Church



Date: December 15, 2023

H.1 RADON ATTENUATION

Federal regulations limiting radon releases to the atmosphere are contained in 40 CFR 192.02. These regulations require that release of radon-222 (Rn-222) to the atmosphere not exceed: (1) an average release rate of 20 picocuries per square meter per second (pCi/m²s); *or* (2) increase the annual average concentration of Rn-222 in the air at or above any location outside of the disposal site by more than 1/2 picocurie per liter (pCi/L).

The evapotranspiration (ET) cover soil functions as an effective barrier to gas diffusion; air-filled voids in the soil must be discontinuous. Gas diffuses slowly through wet soils that contain only occasional, unconnected air bubbles. The ET cover system was evaluated for its ability to limit radon flux (NRC 1989, 2003). The radon flux through the ET cover soil was calculated using the Uranium Mill Tailings Cover Calculator (<http://www.wise-uranium.org/etc.html>) that is a clone of the Radon Attenuation Effectiveness and Cover Optimization with Moisture Effect (RAECOM) code, as described in Rogers and Associates (1984a, 1984b). It performs one-dimensional, steady-state radon diffusion calculations for a multi-layer system.

H.1.1 Input Data for Radon Flux Modeling

Input data for calculations utilized the previous borrow site investigation data summarized in Addendum D of the Final Remedial Action Plan (FRAP 2008). The radon calculation analyses performed showed that a cover 8.2 ft thick is adequate to limit radon flux (Section H.2).

H.1.1.1 Cover Thickness and Layer Data

An ET cover profile 8.2 ft (2.5 meters) thick is proposed as the final cover system. This final cover system profile (Figure H-1) that meets the flux criterion is presented in this report.

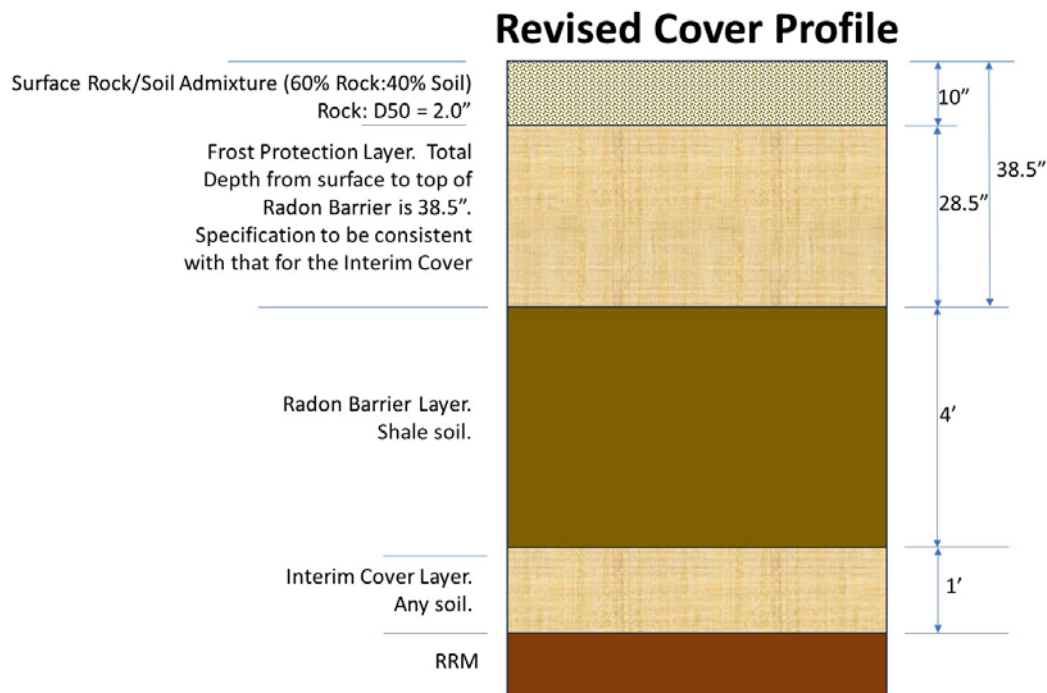


Figure H-1. ET Cover Profile

A 1-foot (31-centimeter)-thick interim cover is placed and compacted directly on top of the tailings. A 4-foot (122-centimeter)-thick compacted layer of conditioned shale is directly on top of the interim cover. A frost protection layer 38.5 in (98 cm) thick is above the radon barrier layer. The top of the frost protection layer - a rock/soil admixture designed to mitigate erosion - is a 10-in (25-centimeter)-thick layer of rock and soil mixed at a ratio of 60% rock to 40% soil by volume. The tailings were assumed to be 16 feet (5 m) thick (NRC 1989, Section C 1.1.1).

According to NUREG Guide 3.64: Section C 1.1.1, Layer Thicknesses (NRC 1989):

The thickness of the tailings source, x_t , will be determined from the applicant's estimates of total tailings production and areal extent of the pile. Because a tailings thickness greater than about 100-200 cm is effectively equivalent to an infinitely thick radon source, a value of $x_t = 500$ cm represents an equivalent infinitely thick tailings source of radon that may be used in the absence of more specific smaller values.

Thus, 16 feet (500 centimeters) is the maximum thickness to be used for tailings in the radon model. Tables H-1 to H-4 provide a layer-by-layer description of the input parameters.

H.1.1.2 Ra-226 Activity Concentration

Activity concentrations of radium-226 (Ra-226) in each respective layer are required input parameters. The Ra-226 activity concentration for the tailings was broken into two layers based on early conservative measurements: (1) the top 7 ft had an activity less than or equal to 707 pCi/g (mean of all samples collected from tailings pile, FRAP 2008, Addendum D, Calculation C-05, Table B-3), and (2) the tailings below 7 ft are assumed to have an activity of 1349 pCi/g (the mean of the samples collected in the slimes – FRAP 2008, Addendum D, Calculation C-05, Table B-3).

The tailings are actually mixed at the Moab site prior to shipment to Crescent Junction (CJ) for placement in the impoundment. The actual Ra-226 measurements made to date of material shipped to CJ has an average concentration of 455.5 pCi/g (Attachment H-1, Table H-5). The Ra-226 activity of material placed in the upper 7 ft of the impoundment to date is 441.1 pCi/g (Attachment H-1, Table H-6). A set of sensitivity analyses was included in this report (Sections H.2.1 to H.2.2) evaluating the radon concentration given the actual Ra-226 levels of the material actually placed to date. The tailings concentration of 455.5 pCi/g was conservatively used for the full 5 m depth even though the concentration in the upper 7 ft is only 441.1 pCi/g.

A value of 2.3 pCi/g was assumed for the shale soil (weathered Mancos shale ranged from 1.6 to 3.0 pCi/g with a mean value of 2.3 pCi/g; Reference: FRAP 2008, Addendum D, Calculation C-05, Appendix B, Table B-1), while 1.9 pCi/g was assumed for the alluvium soil (alluvial material ranged from 1.4 to 2.3 pCi/g with a mean value of 1.9 pCi/g; Reference: FRAP 2008, Addendum D, Calculation C-05, Appendix B, Table B-1). The admixture layer was adjusted for rock content mixed with alluvium soil and thus had a value of 0.76 pCi/g or 40% (admixture design includes 40% soil to 60% rock by volume) of the alluvium value.

H.1.1.3 Rn-222 Emanation Fraction

The Rn-222 emanation factor is a fraction of the total amount of Rn-222 produced by radium decay that escapes from the soil particles and gets into the pores of the soil. It depends on the soil material and the moisture content. The Rn-222 emanation factor varies over a range of 0.1 to 0.4 or more. A default value of 0.35 was used (NRC 1989, 2003).

H.1.1.4 Porosity

Porosity is the ratio of the pore volume (air- and water-filled) to the total volume of the soil. The porosity values for each layer are included in Tables H-1 and H-3. The tailings porosity was assumed to be 0.44 (FRAP 2008, Addendum D, Calculation C-05, Table B-2). The mean specific gravity of the tailings was 2.8 with a dry bulk density of 1.57 g/cm³; thus, the porosity is computed as $1 - (1.57/2.8)$.

The porosity of the moderately compacted interim cover soil was assumed to be 0.38 (FRAP 2008, Addendum D, Calculation C-05, Table B-2). Refer to Attachment H-1, Table H-19 for a summary of soil values from FRAP 2008, Attachment 5, Appendix K. This 0.38 porosity for the alluvium soil was based on a targeted remolded soil sample at 85% of the maximum dry density (MDD) per ASTM D1557, which equates to about 90% of the MDD per ASTM D698. The average porosity value for alluvium remolded to a target density of 92% of the MDD per ASTM D1557 is 0.33.

The porosity of the weathered shale soil layer was assumed to be 0.31 (FRAP 2008, Addendum D, Calculation C-05, Table B-2). The average porosity of the shale soil was 0.31 for soil compacted to a target remolded density of 92% of the MDD per ASTM D1557. The actual average remolded density was 91.4%. The porosity value for the shale soil remolded to a target density of 85% of the MDD per ASTM D1557 (approximately 90% of MDD per ASTM D698) is 0.36.

The porosity of the top admixture layer was adjusted for the addition of rock. The adjusted porosity is 0.15 (assuming the volume of rock content is 60%). Assuming the porosity is equal

to the saturated moisture content, the volumetric moisture content was lowered based on the following equation (ASTM D4718 and Bouwer and Rice 1984):

$$\theta_b = (1 - V_r)\theta_s$$

where: θ_b = bulk volumetric moisture content

θ_s = saturated volumetric moisture content

V_r = volume of rock.

H.1.1.5 Moisture Content

Moisture content (dry wt_%) is the percentage of water weight to dry soil weight. The long-term moisture content for the tailings was assumed to be 15% (FRAP 2008, Section 5.2.1, p. 5-3; FRAP 2008, Addendum D, Calculation C-05, Table B-5).

The long-term moisture content of the alluvium cover material is 9% (FRAP 2008, Section 5.2.1, p. 5-4; FRAP 2008, Addendum D, Calculation C-05, Table B-4). The admixture soil layer moisture content assuming alluvium soil is utilized was adjusted for the rock content (60%) to 3.6% per the equation described in Section H.1.1.4.

The mean long-term moisture content of the compacted clay derived from the on-site weathered remolded Mancos shale is 12.1%. This value is based on the mean of 12 samples of measured 15-bar moisture content analyses of remolded Mancos shale (FRAP 2008, Section 5.2.1, p. 5-4; FRAP 2008, Addendum D, Calculation C-05, Table B-4). This value was computed to be 12.4% (Attachment H-1, Table H-19), but a more conservative value of 12% in the radon calculations was used. This value is based on soil samples remolded to 92% of the MDD per ASTM D1557.

A sample of the shale material currently placed in the radon barrier was measured to have a grain size distribution of 32.9% clay and 62.5% silt with a dry bulk density of 1.61 g/cm³ (Attachment H-1, Table H-20). Utilizing the Rawls and Brankensiek (1982) empirical equation as recommended in NUREG-1620 (Page 5-6):

$$c = 0.026 + .0005x + 0.0158y$$

Where: c = volumetric moisture content @ 15-bar soil water-retention value

x = percent clay in soil

y = percent organic matter in soil (conservatively assumed to be zero)

Thus, $c = 19.05\%$; converted to a gravimetric moisture content of about 12%. Sensitivity analyses were performed lowering the long-term moisture content of the shale radon barrier layer to 11.8% from 12.1%. To put this soil sample moisture content into perspective, the grain size distribution of the shale soil classifies as a sandy clay loam per the USDA soil classification. The mean volumetric water content at -15 bar tension for the soil classification is 20.8% (Rawls et al. 1982, Table 2). This is greater than the 19.05% for the soil sample described above. Thus, the 19.05% volumetric moisture content converted to about 12% gravimetric moisture content is a reasonable value for the radon barrier soil.

H.1.1.6 Rn-222 Effective Diffusion Coefficient

The Rn-222 Effective Diffusion Coefficient (m^2/s) is defined from Fick's equation as the ratio of the diffusive flux density of radon activity across the pore area to the gradient of the radon activity concentration in the pore or interstitial space. This value was calculated in the model based on the assigned input parameters identified above.

H.2 RADON CALCULATIONS

The following subsections provide a summary of the input parameters and subsequent output for the myriad of calculations performed. A set of sensitivity analyses was performed evaluating the tailings Ra-226 activity concentration.

H.2.1 Sensitivity Analysis #1

The first radon calculation performed on the profile shown in Figure H-1 includes measured cover soil parameters as defined in FRAP (2008) and the assumed worst-case tailings concentrations as described in Section H.1.1.2. The input parameters used in sensitivity analysis #1 are summarized in Table H-1.

Table H-1. Sensitivity Analysis #1: Radon Flux Input Parameters

Layer (bottom to top)	Thickness	Ra-226 Activity Conc. (pCi/g)	Ra-226 Emanat	Porosity	Moisture (dry wt_%)	Rn-222 Diff. Coeff – calculated (m^2/s)
Tailings, below 7 ft	2.866 m (9 ft)	1349	0.35	0.44	15	1.121E-06
Tailings, upper 7 ft	2.134 m (7 ft)	707	0.35	0.44	15	1.121E-06
Interim Cover	0.305 m (1 ft)	1.9	0.35	0.38	9	1.620E-06
Shale Soil Layer	1.219 m (4 ft)	2.3	0.35	0.31	12	2.087E-07
Frost Protection Layer	0.724 m (28.5 in)	1.9	0.35	0.38	9	1.620E-06
Top Layer (Admixture) of Cover	0.254 m (10 in)	0.76	0.35	0.15	3.6	1.809E-07

The computed radon flux for the given profiles was $0.7 \text{ pCi}/\text{m}^2\text{s}$ (Table H-2). This value is less than the maximum allowable radon flux of $20 \text{ pCi}/\text{m}^2\text{s}$ per 40 CFR 192.02.

Table H-2. Sensitivity Analysis #1: Radon Flux Output Parameters

Layer	Thickness (m)	Exit Flux (pCi/m ² s)
Tailings – bottom layer	2.866	271.8
Tailings – top 7 ft layer	2.134	221.1
Interim Cover	0.305	76.3
Shale Soil Layer	1.219	3.0
Frost Protection Layer	0.724	0.6
Top Layer (Admixture) of Cover	0.254	0.7

H.2.2 Sensitivity Analysis #2

The sensitivity analysis #2 radon calculation performed includes the input parameters for the cover soils consistent with sensitivity analysis #1 while evaluating the actual measured tailings concentrations. This included measured cover soil parameters as described in sections H.1.1.4 and H.1.1.5 and the measured tailings concentrations described in Section H.1.1.2. The input parameters used in sensitivity analysis #2 are summarized in Table H-3.

Table H-3. Sensitivity Analysis #2: Radon Flux Input Parameters

Layer (bottom to top)	Thickness	Ra-226 Activity Conc. (pCi/g)	Ra-226 Emanat	Porosity	Moisture (dry wt_%)	Rn-222 Diff. Coeff – calculated (m ² /s)
Tailings, below 7 ft	2.866 m (9 ft)	455.5	0.35	0.44	15	1.121E-06
Tailings, upper 7 ft	2.134 m (7 ft)	455.5	0.35	0.44	15	1.121E-06
Interim Cover	0.305 m (1 ft)	1.9	0.35	0.38	9	1.620E-06
Shale Soil Layer	1.219 m (4 ft)	2.3	0.35	0.31	12	2.087E-07
Frost Protection Layer	0.724 m (28.5 in)	1.9	0.35	0.38	9	1.620E-06
Top Layer (Admixture) of Cover	0.254 m (10 in)	0.76	0.35	0.15	3.6	1.809E-07

The computed radon flux from sensitivity analysis #2 for the given profile was 0.6 pCi/m²s (Table H-4). This value is less than the maximum allowable radon flux of 20 pCi/m²s per 40 CFR 192.02.

Table H-4. Sensitivity Analysis #2: Radon Flux Output Parameters

Layer	Thickness (m)	Exit Flux (pCi/m ² s)
Tailings – bottom layer	2.866	7.3
Tailings – top 7 ft layer	2.134	135.9
Interim Cover	0.305	46.6
Shale Soil Layer	1.219	2.1
Frost Protection Layer	0.724	0.4
Top Layer (Admixture) of Cover	0.254	0.6

H.3 REFERENCES

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Attachment H-1

	2012		2013		2014		2015		2016		2017		2018		2019		2020		2021	
	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples
January	376	64	0	0	398	27	233	16	259	30	693	18	505	18	287	20	431	15	443	16
February	330	64	0	0	291	30	135	30	210	32	635	14	207	16	312	28	443	12	490	17
March	373	68	379	24	283	34	384	34	581	22	691	18	207	18	421	32	460	17	376	19
April	405	68	354	36	221	34	660	34	680	18	282	16	594	10	437	32	493	17	566	17
May	371	21	493	34	360	32	543	36	767	12	389	16	658	18	442	30	576	15	516	16
June	465	18	516	32	616	34	369	24	733	20	497	18	673	18	368	34	441	17	498	18
July	488	15	623	38	558	36	603	36	408	16	477	12	566	16	494	34	387	18	498	17
August	510	18	565	34	535	24	627	34	600	18	516	20	515	18	495	38	435	17	505	18
September	612	39	597	32	584	40	585	34	684	16	589	16	537	20	385	38	560	16	631	17
October	610	56	456	36	556	36	388	34	731	24	545	16	627	18	429	18	519	17	792	15
November	517	42	465	10	397	22	194	34	756	32	570	16	474	16	450	15	439	17	723	15
December	0		377	24	0		303	26	699	18	547	16	377	8	425	12	380	17	711	13
	460	473	402	300	400	349	419	372	592	258	536	196	495	194	412	331	464	195	562	198
Total activity all of samples based on average data													4,555	pCi/g Ra-226						
Total Number of samples													2,866	Average wt. of samples 450 to 550 grams						
Average Activity All Samples													455.5	pCi/g Ra-226						

[illegible]

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Table H-7. Summary of Soil Presented in FRAP (2008), Attachment 5, Appendix K

Soil Data Summary -- FRAP 2008, Attach 5, Appendix K								target remold density 112 pcf					target remold density 104 pcf					85% D155: 92% D155:	
Test Pit	depth	class	Ks (cm/sec Remold	SG	Pinhole Test	MDD (ASTM D1557)	Opt MC (D1557)	Remoldec	Remold di 15 bar mo	Grav Mois calculated	Remoldec	Remold di 15 bar mo	Grav Mois calculated	Remoldec	Remold di 15 bar mo	Grav Mois calculated	dry bulk density (pcf		
151	4.5	sheet wash	8.7E-07 85% ASTM 1557			118.5	13										CU triaxial shear test		
152	7.5	sheet wash		2.64	clear	121	13.5	91.3%	111	18.0	10.1	0.33	84.2%	102	16.3	10.0	0.38	102.3	
152	15	fluvial/eolian		6.1E-06	2.63	clear	128	10.5	91.4%	117	16.0	8.5	0.29	83.0%	106	14.7	8.6	0.35	
152	23	shale		1.7E-06			121	12	91.3%	111	24.5	13.9		84.5%	102	22.1	13.5		
153	3.5	sheet wash	1.4E-04 85% ASTM 1557	2.68		120.5	12.5	91.2%	110	18.9	10.7	0.34	84.6%	102	17.2	10.5	0.39		
153	8.5	fluvial/eolian		2.65	clear	118	11	91.5%	108	11.7	6.7	0.35	84.4%	100	10.4	6.5	0.40	100.6	
154	4	sheet wash				123	12												
154	12	fluvial/eolian		1.9E-06	2.65	barely visible	122.5	12											
154	20	shale	8.0E-07 92% ASTM D1557	2.73	clear	120.5	13	91.6%	110	21.6	12.2	0.35	84.6%	102	19.9	12.2	0.40	110.6	
155					clear				111	16.7	9.4			102	14.2	8.7			
156	5	sheet wash		2.82		120	11.5												
156	12	eolian	3.0E-06	2.64	clear	124.5	11												
156	22	shale	5.9E-09 92% ASTM D1557	2.56		127.5	11	91.5%	117	20.9	11.2	0.27	84.6%	108	16.3	9.4	0.33	117.1	
			Alluvium	SG, avg	2.67			91.4%		shale avg	12.4	0.31	84.3%			10.6	0.36		
										alluv avg	9.0	0.33				8.9	0.38		

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Table H-8. Soil Sample Measurements for Radon Barrier Material

	Proctor Data		Target Remold Parameters ¹			Actual Remold Data			Volume Change Post Saturation ²			Volume Change Post Drying Curve ³		
	Opt. Moist. Cont.	Max. Dry Density	Moist. Cont.	Dry Bulk Density	% of Max. Density	Moist. Cont.	Dry Bulk Density	% of Max. Density	Dry Bulk Density	% Volume Change	% of Max. Density	Dry Bulk Density	% Volume Change	% of Max. Density
Sample Number	(%, g/g)	(g/cm ³)	(%, g/g)	(g/cm ³)	(%)	(%, g/g)	(g/cm ³)	(%)	(g/cm ³)	(%)	(%)	(g/cm ³)	(%)	(%)
6. Radon Barrier #2 (90.1%)	16.5	1.79	16.5	1.61	90%	16.3	1.61	90.1%	1.60	+1.08%	89.2%	1.60	+0.65%	89.5%
¹ Target Remold Parameters: 90% of maximum dry density at optimum moisture content based on standard proctor compaction test results.														
² Volume Change Post Saturation: Volume change measurements were obtained after saturated hydraulic conductivity testing.														
³ Volume Change Post Drying Curve: Volume change measurements were obtained throughout hanging column and pressure plate testing. The 'Volume Change Post Drying Curve' values represent the final sample dimensions after the last pressure plate point.														
Notes:														
"+" indicates sample swelling, "-" indicates sample settling, and "---" indicates no volume change occurred.														
 Daniel B. Stephens & Associates, Inc.														
Percent Gravel, Sand, Silt and Clay*														
	% Gravel		% Sand		% Silt		% Clay		% fines					
Sample Number	(>4.75mm)		(<4.75mm, >0.075mm)		(<0.075mm, >0.002mm)		(<0.002mm)							
6. Radon Barrier #2	0.7		3.9		62.5		32.9				95.4			

APPENDIX I

STABILITY CALCULATIONS

There is no change to the slope or slope materials from the original design.

The water balance condition of the slope should improve with the substitution of an evapotranspiration cover for the existing rock cover and thus the stability conditions should improve. That is, the ET Cover will not allow for net percolation of meteoric water and thus underlying cover soil layers including the RRM should dry over time and thus respective strength parameters will improve. This contrasts the existing rock cover that allows for infiltration while restricting the removal of this infiltrated water thus allowing continued recharge of water into the underlying cover soil layers and RRM. Consequently, the original stability calculations submitted and approved with the Final Remedial Action Plan (2008) will not be changed or amended.

JACOBS**Calculation Cover Sheet****(Ref. FOWI 116 Design Calculations)**Calculation No:
C-10

Page: 1 of 13

Rev. No.: 2

Revision Date:
4/17/08Previous Revision
Date: 2/15/08Current Revision
Date: 4/17/08Issuing Department:
*Federal Operations Design Engineering*Supersedes:
Revision 1 (dated 2/15/08)Client:
Project Title: Moab UMTRA Project
Project Number:
System:Engineering Discipline:

GeotechnicalCalculation Title:
Slope Stability of Crescent Junction Disposal Cell**Purpose:**

Uranium containment dike must be stable at the end of construction and for long term once the cover material is placed above it. For this purpose, slope stability runs were made to calculate factor of safety for various static and seismic conditions for both End of Construction and Long Term cases.

NQA-1 QUALITY LEVEL: 2Prepared by: *Almae Harris*Date: *4-17-2008*Checked by: *KH Chappell*Date: *4-17-2008*Engineering Managers Approval: *William D. Barto*Date: *5/5/2008*

Revision History:

Pages Affected By Revision	Revised/Added/Deleted	Description of Revision
Rev. 2	Revision Page 4 of 13 Design Input	Changes to the tailings geometry obtained from the 90% drawings resulted in the following changes: Top of Dike: El. 4967' (instead of 4964') Cover thickness: 9 ft (instead of 10 ft) Cover top elevation: El. 4978 – 4982' at analysis location (instead of El. 4972')
	Addition Page 6 of 13 Calculation Section	Summary of results and analysis.
	Addition / Revision Pages 7 and 8 of 13 Drawings	Inserted new contour plan of tailings pile. Inserted new detail of tailings embankment geometry.
	Revision Pages 10 and 11 of 13 Slope Stability Analyses	New FS results – End of Construction (static). New FS results – End of Construction (seismic)
	Revision Page 12 and 13 of 13 Slope Stability Analyses	New results – Long Term (static) New results – Long Term (seismic)

Description of Calculation:

The calculations presented here are for determining and verifying stability of the disposal cell at the Crescent Junction disposal site in order to assess long term stability of the tailings.

A disposal cell section at southwest corner of the cell was analysed for End of Construction (short term) and Long Term cases. Stability of the cell dike was also assessed for the design seismic event for both short term and long term cases.

The subsurface conditions were determined from borings taken near the section. Geotechnical design parameters were developed/obtained from project reports and previous analyses.

The analyses were performed with an established commercial program SLIDE, V 5.0 by Rocscience. The SLIDE program analyzes the slope with various methods to determine factor of safety including Bishop Simplified, Janbu Simplified, Janbu Corrected, Spencer, Morgenstern-Price and Corps of Engineer Methods. Bishop and Janbu methods employ limit equilibrium analysis method while Spencer and Morgenstern-Price methods use both force equilibrium and moment equilibrium to calculate safety factors. In this analysis, Spencer results were reviewed for the lowest factor of safety.

Assumptions:

The plan location and cross section selected for analyses are shown in Figure 1 and 2. The location is within first phase of construction near southwest section of the disposal cell and represents critical height and geometry.

No groundwater table was assumed. All borings were dry, and the review of historical data indicated that water table at depth exceeding 100 feet below ground surface. It is assumed that the tailings will be deposited by compacting it to 90 percent of the maximum density as determined by ASTM D1557 at slightly above (2%) optimum moisture content. From the review of test results and previous analyses, it is determined that excess pore pressure will not be a factor in the stability analysis.

Design Inputs:

For SLIDE computer program, the design inputs were:

Material Properties

The material properties were obtained from borings, laboratory test results and from previous analyses performed by others.

MATERIAL	Unit Weight			Shear Strength			
				Total		Effective	
	Dry (pcf)	Moisture Content (%)	Moist (pcf)	Friction Angle (Degree)	Cohesion (psf)	Friction Angle (Degree)	Cohesion (psf)
UMTRA Cover	111	11.7	124	26	0	26	0
Tailings	98	17.4	115	0	615	32	0
Dike Fill	111	11.7	124	19	0	26	0
In-situ Overburden Material - ML	92	6.7	98	26	0	26	0
Weathered Mancos Shale	104	7.3	112	25	0	25	0

Note:

Physical properties of in-situ overburden soils and weathered Mancos Shale were determined from the earlier design phase calculations – 'Geotechnical Properties of Native Soils', Attachment 5, Vol. 1, Appendix E. Physical properties of UMTRA cover, tailings and dike fill, and strength properties of all materials were obtained from Attachment 5, Vol. 1, Appendix C.

Slope Geometry

The slope cross section was selected from 90° plans and shown in Figure 2.

Ground surface elevation at this section varied from 4954' to 4944' dipping towards the south.

Top of dike was estimated at Elevation 4967'.

Cover material will be 9-foot thick with top Elevation at 4978' – 4982' at the analysis location.

For site characterization and to determine geotechnical design parameters for the in-situ materials, Borings CRJ01 – 0205 and CRJ01 – 0212 were used.

Water surface was not used.

Dike exterior slope was configured at 5 horizontal to 1 vertical.

Analysis Conditions

End of Construction (short term) using shear strength derived from total stresses.

Long Term case was analysed using effective stresses.

Earthquake Effects

Seismic conditions were analyzed using guidance provided in the Technical Approach Document (TAD), 1989. TAD requires the use of pseudo-static approach where Peak Horizontal Acceleration (PHA) value of 0.22 g (previously determined) is taken as half of PHA or 0.11 g for End of Construction case, and 2/3rd of PHA or 0.15 g for Long Term case.

Required Minimum Factor of Safety

Guidelines provided in TAD for minimum acceptable safety factors are as under:

End of Construction – Static 1.3

End of Construction – Seismic 1.0

Long Term - Static 1.5

Long Term - Seismic 1.0

Software:

Title	Developer	Versions	Revision Level
SLIDE	Rocscience, Inc	5.0	

Calculation Section:

See attached

As seen in the attached stability runs, the following factor of safety were obtained for the containment dike:

End of Construction – Static	2.15
End of Construction – Seismic	1.31
Long Term - Static	2.78
Long Term - Seismic	1.51

Conclusions/Recommendations:

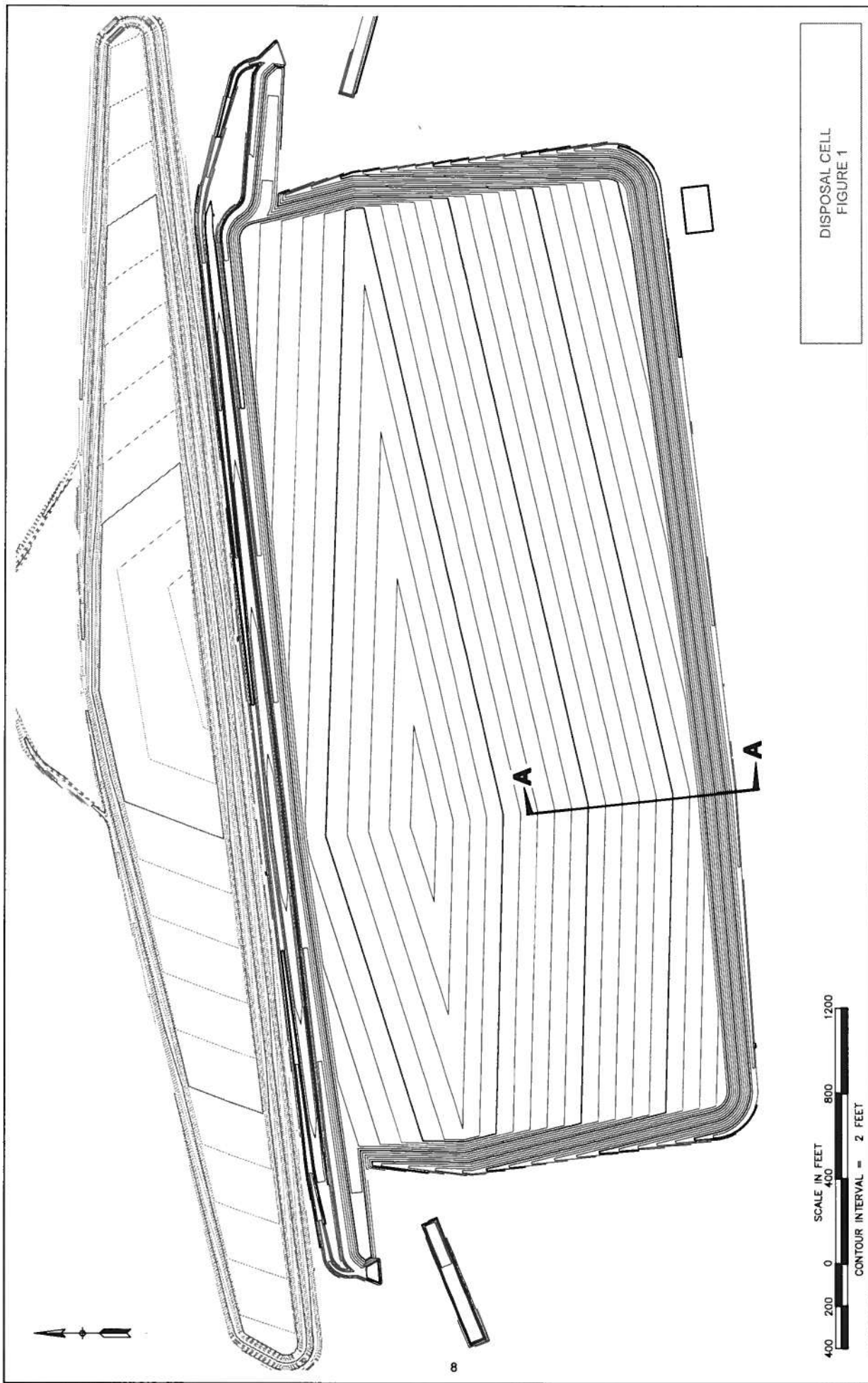
Based on the stability analyses, the disposal cell with its containment dike and cover material meets the factor of safety standards established for this structure. The stability results obtained by these analyses verify the results obtained and presented in the Revised Remedial Action Plan.

Reference:

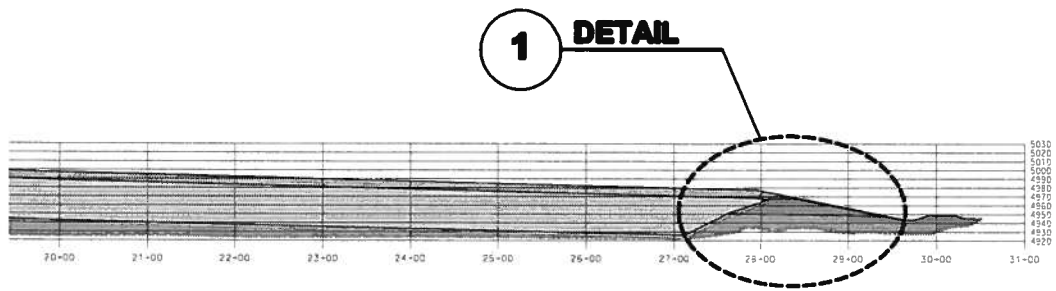
DOE (U.S. Department of Energy), Revised Remedial Action Plan and Site Design for Stabilization of Moab Title I Uranium Mill Tailings at the Crescent Junction, Utah, Disposal Site, Attachment 1 and Attachment 5, June 2007

U.S. Department of Energy, Technical Approach Document, 1989, DOE/UMTRA

SLIDE Computer program, prepared by Rocscience Inc. 31 Balsam Avenue, Toronto, Ontario



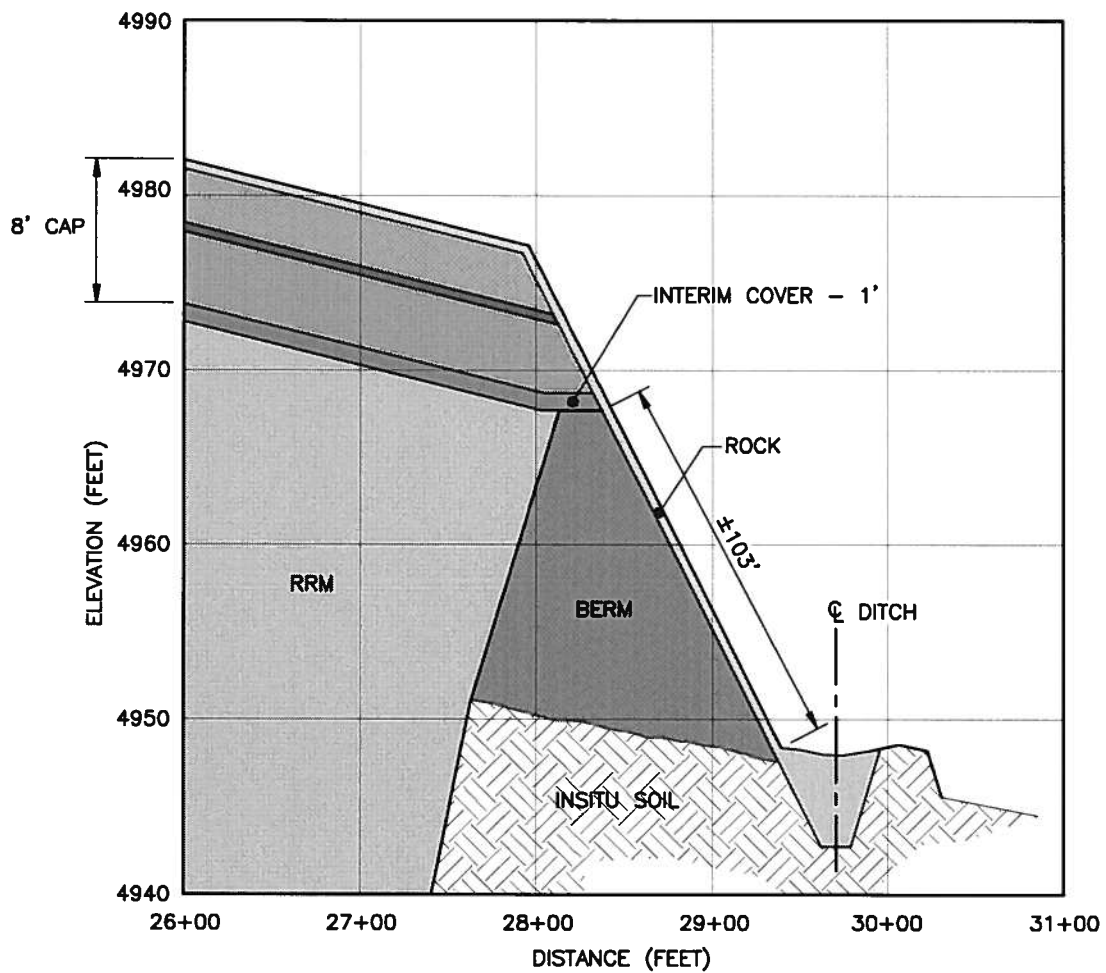
DISPOSAL CELL
FIGURE 1



CAP CROSS-SECTION A-A - NORTH-SOUTH

SCALE: HORIZONTAL 1"=200'

VERTICAL 1"=200'



1 DETAIL
SCALE: HORIZONTAL 1"=100'
VERTICAL 1"=10'

DISPOSAL CELL DIKE
FIGURE 2

Crescent Junction Disposal Cell

Material Properties

Material: UMTRA Cover
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

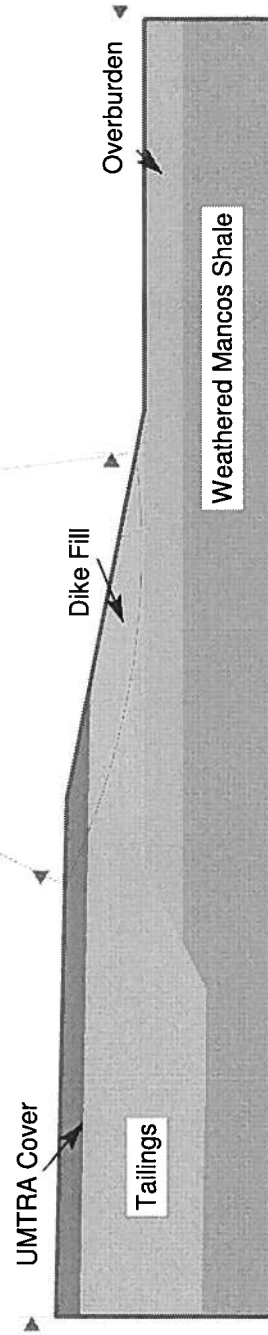
Material: Tailings
Unit Weight: 115 lb/ft³, Cohesion: 615 psf, Friction Angle: 0 degrees

Material: Dike Fill
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 19 degrees

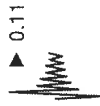
Material: Overburden
Unit Weight: 98 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

Material: Weathered Mancos shale
Unit Weight: 112 lb/ft³, Cohesion: 0 psf, Friction Angle: 25 degrees

2.149



End of Construction - Static

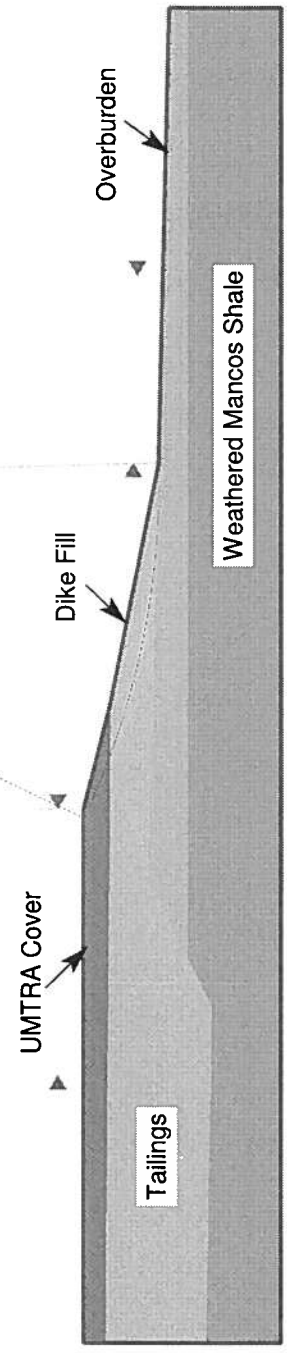


Crescent Junction Disposal Cell

Material Properties

- UMTRA Cover
Unit Weight: 124 lb/ft3, Cohesion: 0 psf, Friction Angle: 26 degrees
- Tailings
Unit Weight: 115 lb/ft3, Cohesion: 615 psf, Friction Angle: 0 degrees
- Dike Fill
Unit Weight: 124 lb/ft3, Cohesion: 0 psf, Friction Angle: 19 degrees
- Overburden
Unit Weight: 98 lb/ft3, Cohesion: 0 psf, Friction Angle: 26 degrees
- Weathered Mancos shale
Unit Weight: 112 lb/ft3, Cohesion: 0 psf, Friction Angle: 25 degrees

1.175



End of Construction - Seismic

Crescent Junction Disposal Cell

Material Properties

Material: UMTRA Cover
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

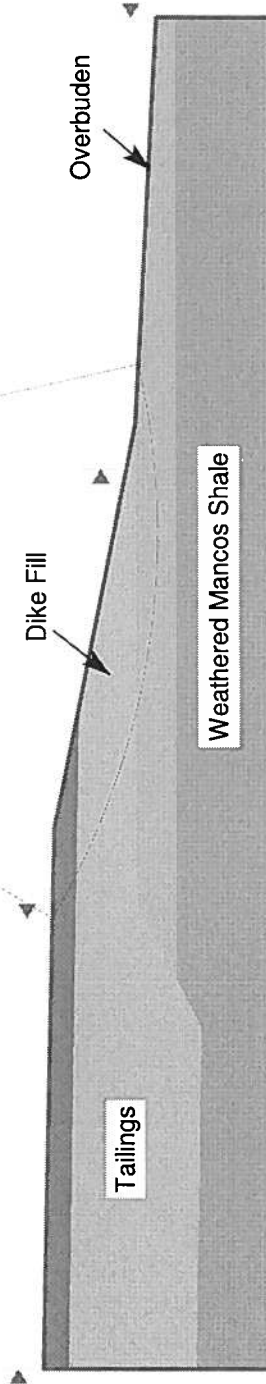
Material: Tailings
Unit Weight: 115 lb/ft³, Cohesion: 0 psf, Friction Angle: 32 degrees

Material: Dike Fill
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

Material: Overburden
Unit Weight: 98 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

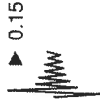
Material: Weathered Mancos shale
Unit Weight: 112 lb/ft³, Cohesion: 0 psf, Friction Angle: 25 degrees

2.782



Long Term - Static

G:\TPW\GEOTECH\Moab-Oak Ridge\90% Design - St. Louis\Crescent Junction\Disposal Cell Slope Stability\Long Term - Static_rv.sli

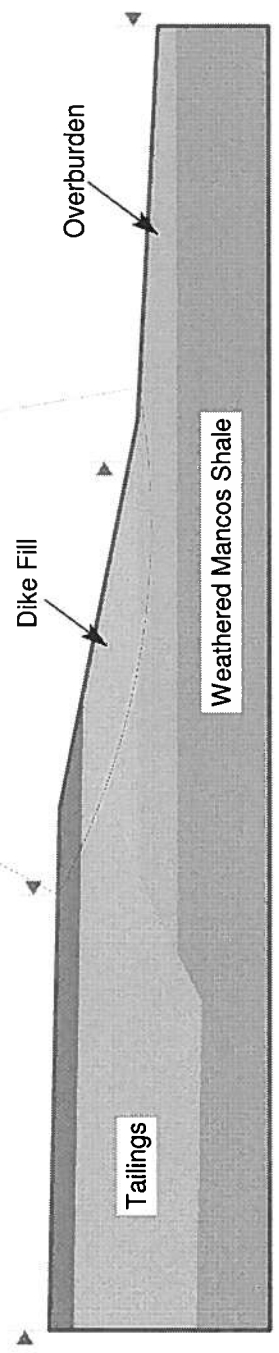


Crescent Junction Disposal Cell

Material Properties

- Material: UMTRA Cover
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees
- Material: Tailings
Unit Weight: 115 lb/ft³, Cohesion: 0 psf, Friction Angle: 32 degrees
- Material: Dike Fill
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees
- Material: Overburden
Unit Weight: 98 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees
- Material: Weathered Mancos shale
Unit Weight: 112 lb/ft³, Cohesion: 0 psf, Friction Angle: 25 degrees

1.510



Long Term - Seismic

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JACOBS**Calculation Cover Sheet****(Ref. FOWI 116 Design Calculations)**Calculation No:
C-11

Page: 1 of 14

Rev. No.: 1

Revision Date:
4/15/08Previous Revision
Date:
1/15/08Current Revision
Date:
4/15/08Issuing Department:
*Federal Operations Design Engineering*Supersedes:
Revision 0 (dated 1/15/08)Client: U.S. Department of Energy
Project Title: Moab – UMTRA Project
Project Number: 35DJ2600
System:Engineering Discipline:
Geotechnical

Calculation Title: Settlement Analysis of Uranium Mine Tailings at Crescent Junction, UT

Purpose:

Determine the magnitude of settlement for the uranium mill tailings pile to be constructed at the Crescent Junction Disposal site.

The present condition and characteristics of the uranium mill tailings at the Moab repository site are considerably different than what is anticipated to be placed at the Crescent Junction disposal site. Material properties of the existing mine tailings are available for the Moab site. During the course of this project, the mine tailings at Moab will be mixed and dried out to optimum moisture content before being transported to Crescent Junction. There, the tailings will be placed and compacted to 90% of the maximum density per ASTM D698. The settlement analysis is based on the consolidation characteristics of the remolded tailing materials as reported by others. Both primary and secondary settlements are estimated due to loads imposed on each incremental tailing layer by the cover material and the tailing material above. The settlement of the tailings was also assessed by estimating the compression of the tailing by its own weight.

NQA-1 QUALITY LEVEL: 2

Prepared by:

*A. Paul Hanson*Date: *4-15-2008*

Checked by:

*W. Chepkoi*Date: *4-15-2008*

Engineering Managers Approval:

*William D. Bate*Date: *05/05/2008*

APPENDIX J

SURFACE ADMIXTURE COMPLIANCE WITH NUREG 1623

Calculation Cover Sheet

Client: North Wind Portage, Inc.
Project Title: Crescent Junction UMTRA Impoundment ET Cover Design
PO: 800152P122

Calculation Purpose: Surface admixture compliance with NUREG1623
Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer 
Date: December 1, 2023

Checked by: Mike Beardsley 
Date: December 14, 2023

Approved by: Greg Church 
Date: December 15, 2023

J.1 LONG-TERM STABILITY OF SOIL COVER SURFACE

Horton (1945) is recommended to be used to determine the long-term stability of a soil cover per NUREG 1623. This equation is as follows:

$$S_s^{7/6} = [65 * t^{5/3}] / [I * L * F * n] \quad \text{Equation J-1}$$

where:

S_s = maximum stable slope (%)

$t = 0.4 * D_{75}$ (75% of rock passing the given sieve size by weight) (in.)

I = rainfall intensity (in./hr)

L = slope length (ft)

$F = 3$ (NUREG-1623)

$n = 0.03$.

The acceptance criterion is defined as: if the maximum stable slope (S_s) is greater than or equal to the actual slope, the cover is stable. The D_{75} used in Equation J-1 is determined from the mixture of 60% rock to 40% soil by volume proposed as the surface layer of the cover system.

J.2 D_{75} Determination

The D_{75} value is derived from a mixture of the cap rock intended to be redeployed and the alluvium soil excavated from the site. Specifically, rock data contained in Table J-1 and soil data contained in Table J-2 was used to develop the D_{75} for the surface admixture layer. The rock and soil data used are typical of materials to be utilized in the surface admixture layer. Refer to Attachment J-1 for additional cap rock submittal data.

Table J-1. Cap Rock ($D_{50} = 2$ in) Submitted Nov 10, 2009 (approved site submittal)

Sieve (mm)	Sieve (in)	% Retained by weight	% Passing by weight
100	4	0	100
75	3	21.7	78.3
50	2	29.6	48.7
37.5	1.5	18.9	29.8
25	1	12.9	16.9
19	0.75	4.9	12
12.5	0.5	5.1	6.9
9.5	0.375	1.1	5.8
4.75	#4	1.7	4.1
2.35	#8	1	3.1
1.18	#16	0.7	2.4
0.6	#30	0.5	1.9
0.3	#50	0.4	1.5
0.15	#100	0.4	1.1
0.075	#200	0.4	0.7
pan		0.7	0

Table J-2. Alluvium Soil (DBSA 2020)

Sieve (mm)	Sieve (in)	% Retained by weight	% Passing by weight
100		0.0	100.0
75	3	0.0	100.0
50	2	1.0	99.0
37.5	1.5	0.0	99.0
25	1	0.3	98.7
19	0.75	0.5	98.2
9.5	0.375	1.0	97.2
4.75	#4	0.9	96.3
2	#10	1.0	95.4
0.85	#20	0.4	95.0
0.425	#40	0.5	94.5
0.25	#60	0.7	93.7
0.15	#100	3.3	90.4
0.106	#140	7.4	83.0
0.075	#200	12.3	70.7
pan		70.7	0

A sample of cap rock (Table 1) and sample of soil (Table 2) was weighed separately in the same container to ensure consistent volume. The samples were weighed to produce a weight conversion factor to be applied to the volumetric mix of the surface admixture. The results of this weight conversion factor were determined as follows:

Table J-3. Data Used to Determine Weight Conversion Factor

	Cap Rock (D ₅₀ 2 in)	Soil sample 1 (DBSA 2020)	
	weight (g)	air dried weight (g)	oven dried weight (g)
Container	990	990	
Total weight	20,987	18,913	
Net weight	19,997	17,923	16,988 ¹

¹The soil was oven dried to determine a gravimetric moisture content of 5.22%. The soil weight was adjusted to 16,988g by multiplying 17,983g by (1-0.0522).

The weight of rock (19,997 g) was divided by the weight of the same volume of oven dried soil (16,988 g) to determine a weight conversion factor of 1.18.

Table J-4 summarizes the results of the combined cap rock and soil at the volumetric ratio of 60% rock to 40% soil to determine the D₇₅ value for the mixture both without the weight conversion factor and with it. This comparison reveals the weight conversion factor has very little sensitivity to the determination of D₇₅ as can be seen in Table J-4 and Figure J-1.

Table J-4. Percent Weight Retained for 60%Rock to 40% Soil by Volume

Sieve (mm)	Percent Weight Retained (by weight)			
	Rock (D50=2")	Soil (Alluvium)	60:40 mixture by volume	60:40 mixture by volume ¹
100	100	100.0	100.0	100.0
75	78.3	100.0	87.0	86.1
50	48.7	99.0	68.8	66.9
37.5	29.8	99.0	57.5	54.8
25	16.9	98.7	49.6	46.5
19	12	98.2	46.5	43.2
12.5	6.9	97.6	43.2	39.9
9.5	5.8	97.2	42.4	38.8
4.75	4.1	96.3	41.0	37.4
2.35	3.1	95.5	40.1	36.8
2	2.9	95.4	39.9	36.5
1.18	2.4	95.1	39.5	36.0
0.85	2.1	95.0	39.3	35.9
0.6	1.9	94.6	39.0	35.6
0.425	1.7	94.5	38.8	35.4
0.3	1.5	94.1	38.5	35.1
0.25	1.4	93.7	38.3	34.8
0.15	1.1	90.4	36.8	33.4
0.106	0.9	83.0	33.7	30.7
0.075	0.7	70.7	28.7	26.0

¹ adjusted by weight conversion factor of 1.18

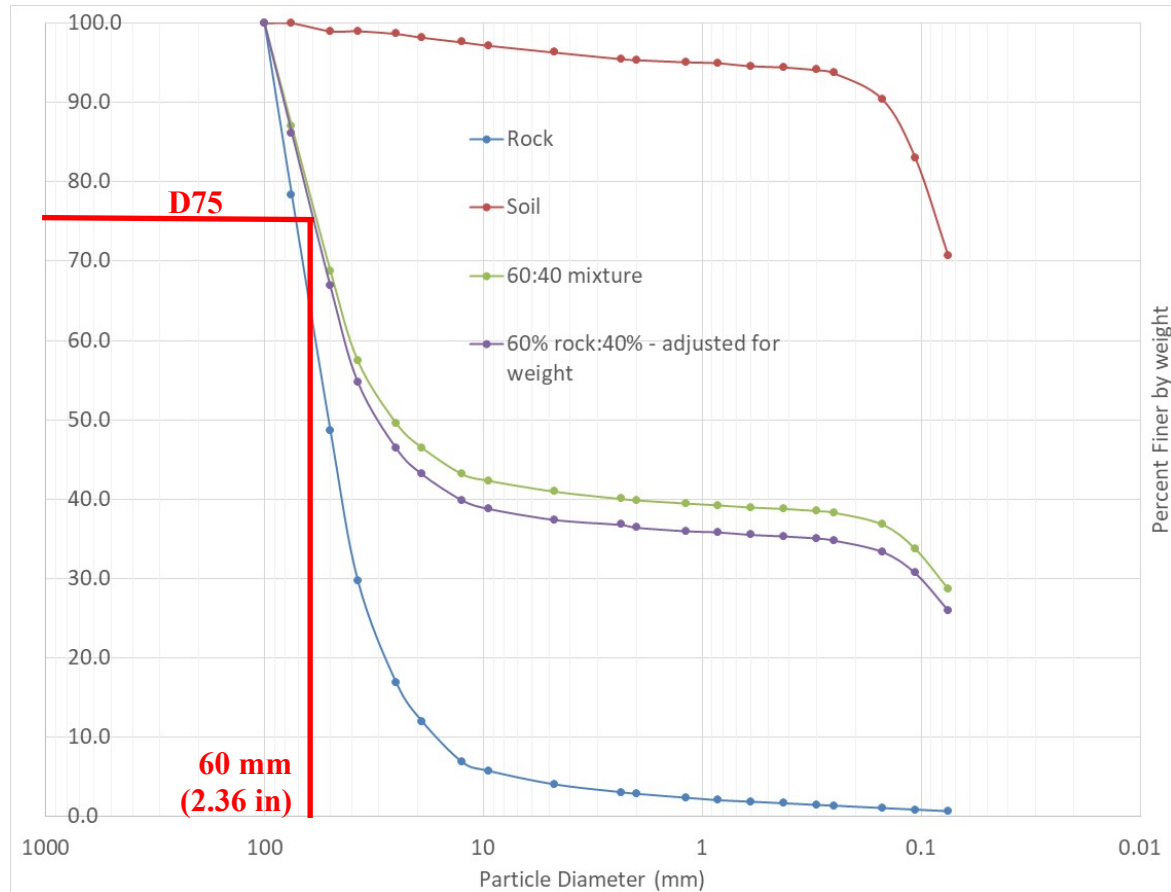


Figure J-1. D75 from Cap Rock (60%) and Alluvium Soil (40%) Combined by Volume

The D₇₅ value (Figure J-1) obtained by mixing existing cap rock (D₅₀ of 2-in) with alluvium soil is determined to be 60mm (2.36 in).

The rainfall intensity values are computed at intervals along both the north and south slopes of the final cover system. These computed values are found in Appendix F (Tables F-2 and F-3).

Utilizing Equation J-1 and rainfall intensity values computed in Appendix F, the following stable slopes (Table J-5) are computed for intervals along the south slope of the final cover system.

Table J-5. South Slope – Long-Term Stability of Final Cover System Surface

D75	t	P	L	F	n	Ss	Criteria
2.36	0.94	34.94	1310	3	0.03	2.6%	greater than 2.5%, therefore OK
2.36	0.94	35.05	1300	3	0.03	2.6%	greater than 2.5%, therefore OK
2.36	0.94	36.15	1200	3	0.03	2.8%	greater than 2.5%, therefore OK
2.36	0.94	37.35	1100	3	0.03	2.9%	greater than 2.5%, therefore OK
2.36	0.94	38.66	1000	3	0.03	3.0%	greater than 2.5%, therefore OK
2.36	0.94	40.10	900	3	0.03	3.2%	greater than 2.5%, therefore OK
2.36	0.94	41.70	800	3	0.03	3.5%	greater than 2.5%, therefore OK
2.36	0.94	43.48	700	3	0.03	3.7%	greater than 2.5%, therefore OK
2.36	0.94	45.48	600	3	0.03	4.1%	greater than 2.5%, therefore OK

December 2023

D75	t	P	L	F	n	Ss	Criteria
2.36	0.94	47.17	525	3	0.03	4.5%	greater than 2.5%, therefore OK
2.36	0.94	47.77	500	3	0.03	4.6%	greater than 2.5%, therefore OK
2.36	0.94	50.43	400	3	0.03	5.3%	greater than 2.5%, therefore OK
2.36	0.94	51.93	350	3	0.03	5.8%	greater than 2.5%, therefore OK
2.36	0.94	53.59	300	3	0.03	6.5%	greater than 2.5%, therefore OK
2.36	0.94	54.16	200	3	0.03	9.1%	greater than 2.5%, therefore OK
2.36	0.94	54.16	100	3	0.03	16.4%	greater than 2.5%, therefore OK

Utilizing Equation J-1 and rainfall intensity values computed in Appendix F, the following stable slopes (Table J-6) are computed for intervals along the north slope of the final cover system.

Table J-6. North Slope – Long-Term Stability of Final Cover System Surface

D75	t	P	L	F	n	Ss	Criteria
2.36	0.94	45.21	548	3	0.03	4.5%	greater than 2%, therefore OK
2.36	0.94	46.38	500	3	0.03	4.7%	greater than 2%, therefore OK
2.36	0.94	49.12	400	3	0.03	5.4%	greater than 2%, therefore OK
2.36	0.94	52.40	300	3	0.03	6.6%	greater than 2%, therefore OK
2.36	0.94	54.16	200	3	0.03	9.1%	greater than 2%, therefore OK
2.36	0.94	54.16	100	3	0.03	16.4%	greater than 2%, therefore OK

J.3 REFERENCES

1. Horton, R. E., "Erosional Development of Streams and Their Drainage Basins: Hydrophysical Approach to Quantitative Morphology," Geol. Soc. America Bull, Vol. 56, pp. 275-370, 1945.
2. U.S. Nuclear Regulatory Commission (NRC), 2002, NUREG-1623, *Design of Erosion Protection for Long-Term Stabilization*, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Washington, D.C.

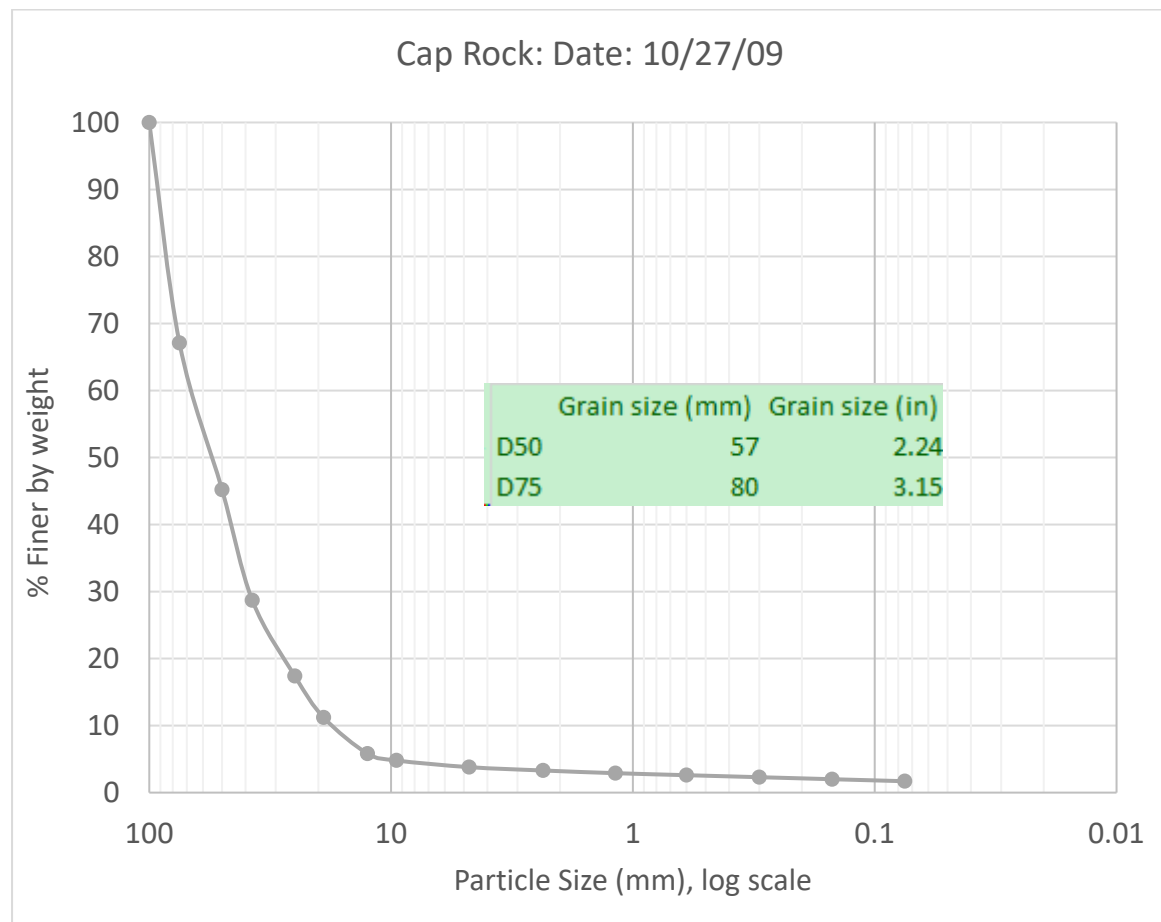
ATTACHMENT J-1

Rock Grain Size Distribution

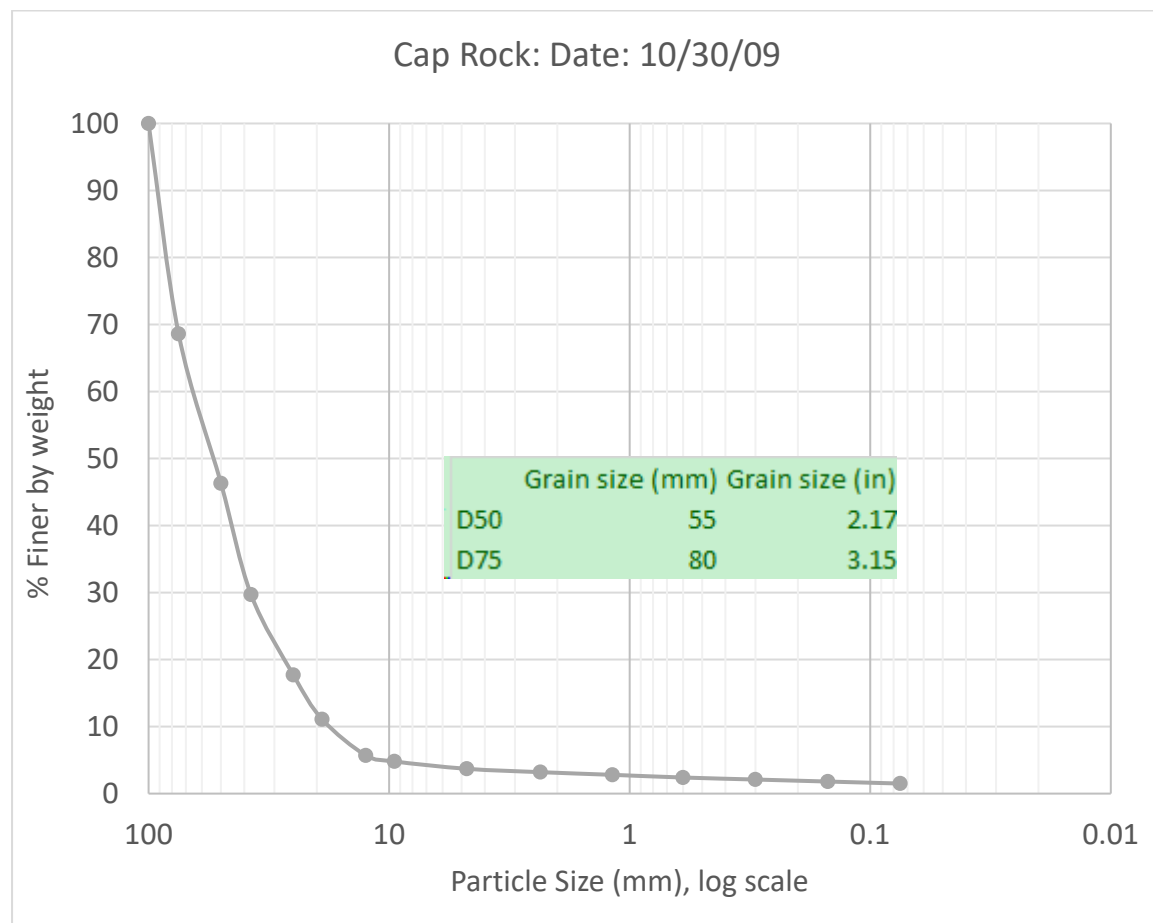
(Reference: Moab UMTRA Project Crescent Junction Disposal Cell Completion Report
Addendum A, PP A-377 to A-404, Report DOE-EM/GJRAC2040-A)

The following summary of grain size distributions for the existing cap rock at the site were submitted by the rock contractor and approved on the date indicated for each sample. The D_{50} and D_{75} for each sample is also provided.

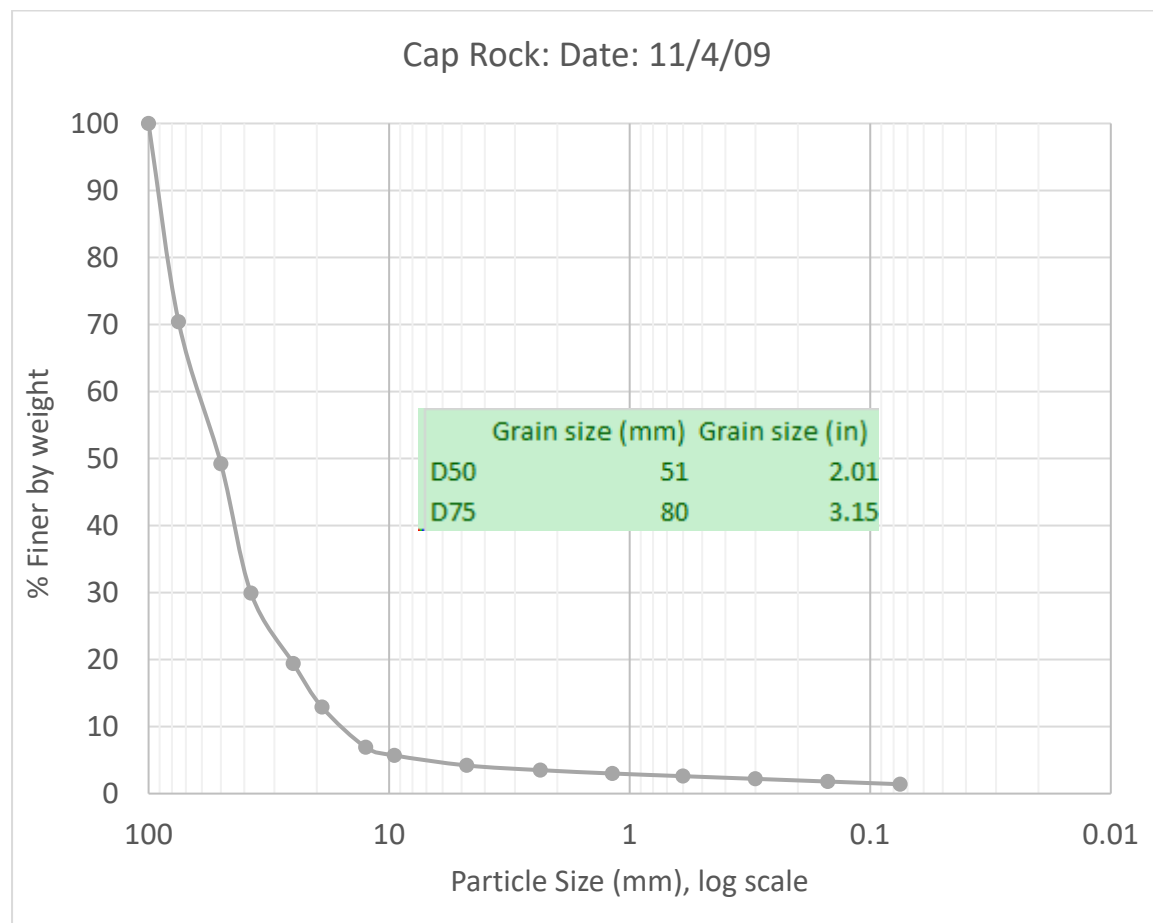
Cap Rock: Date: 10/27/09



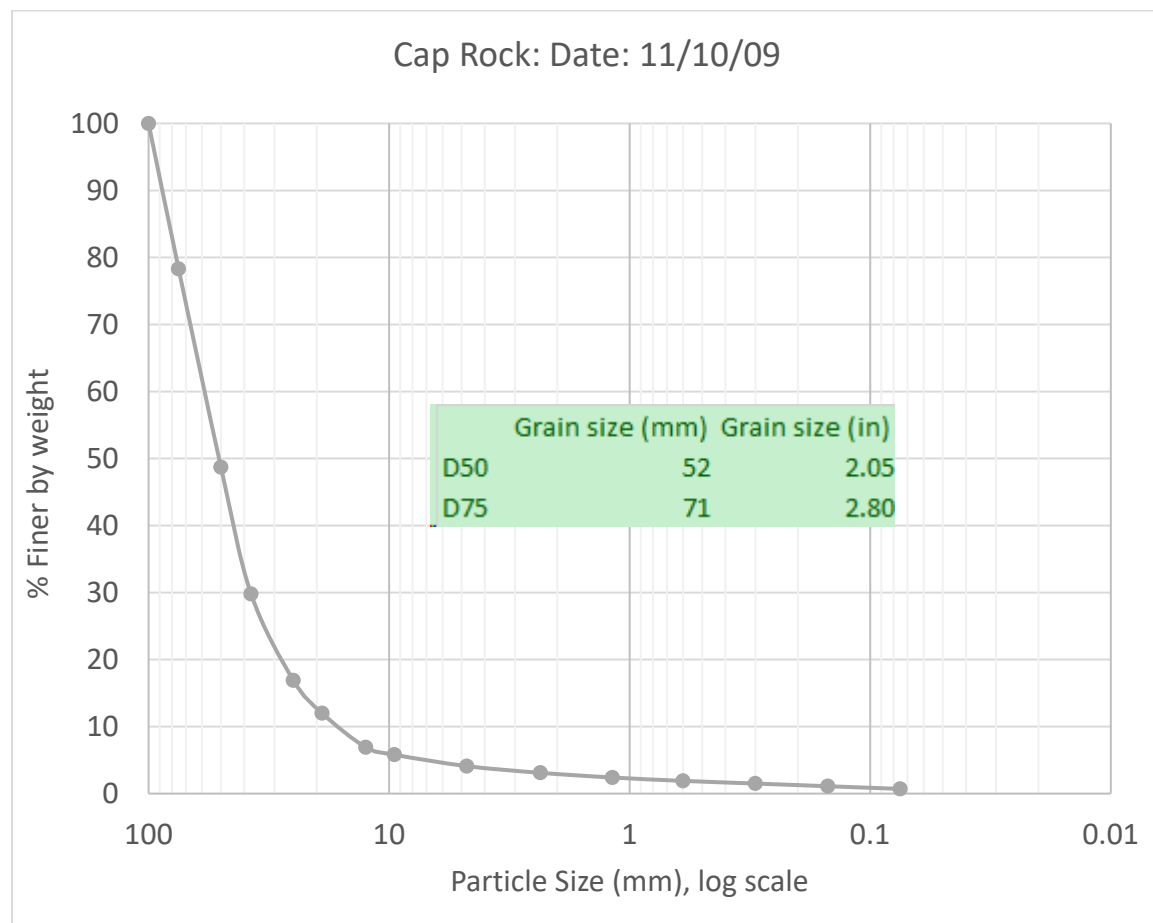
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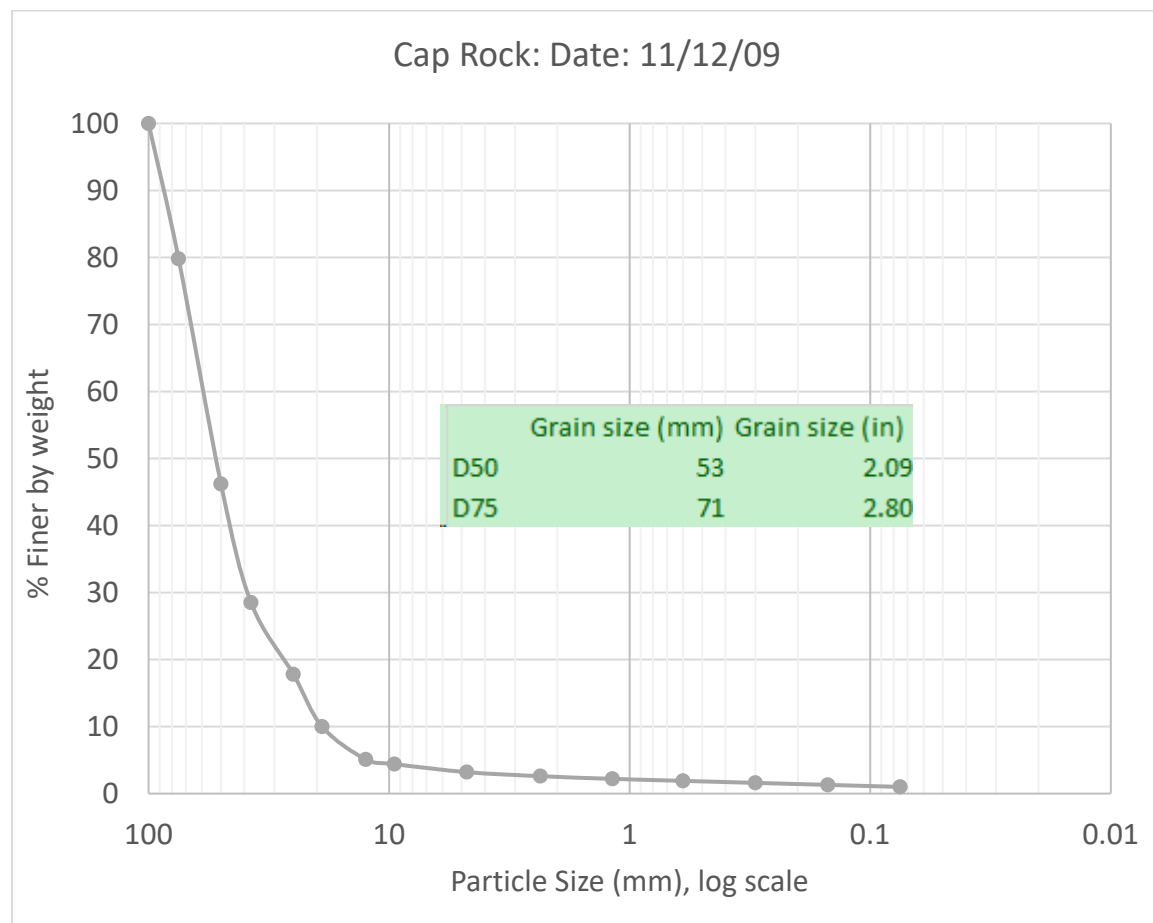
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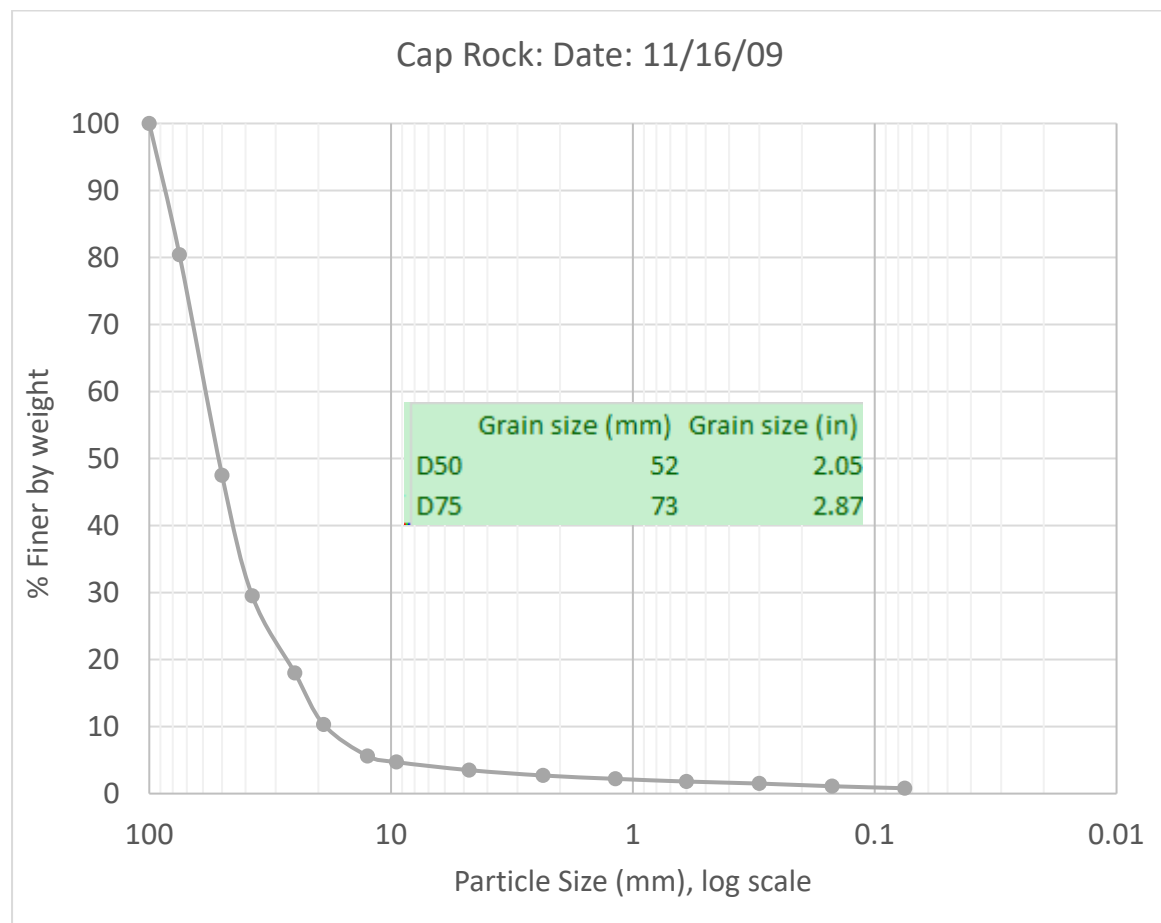
Cap Rock: Date: 11/10/09



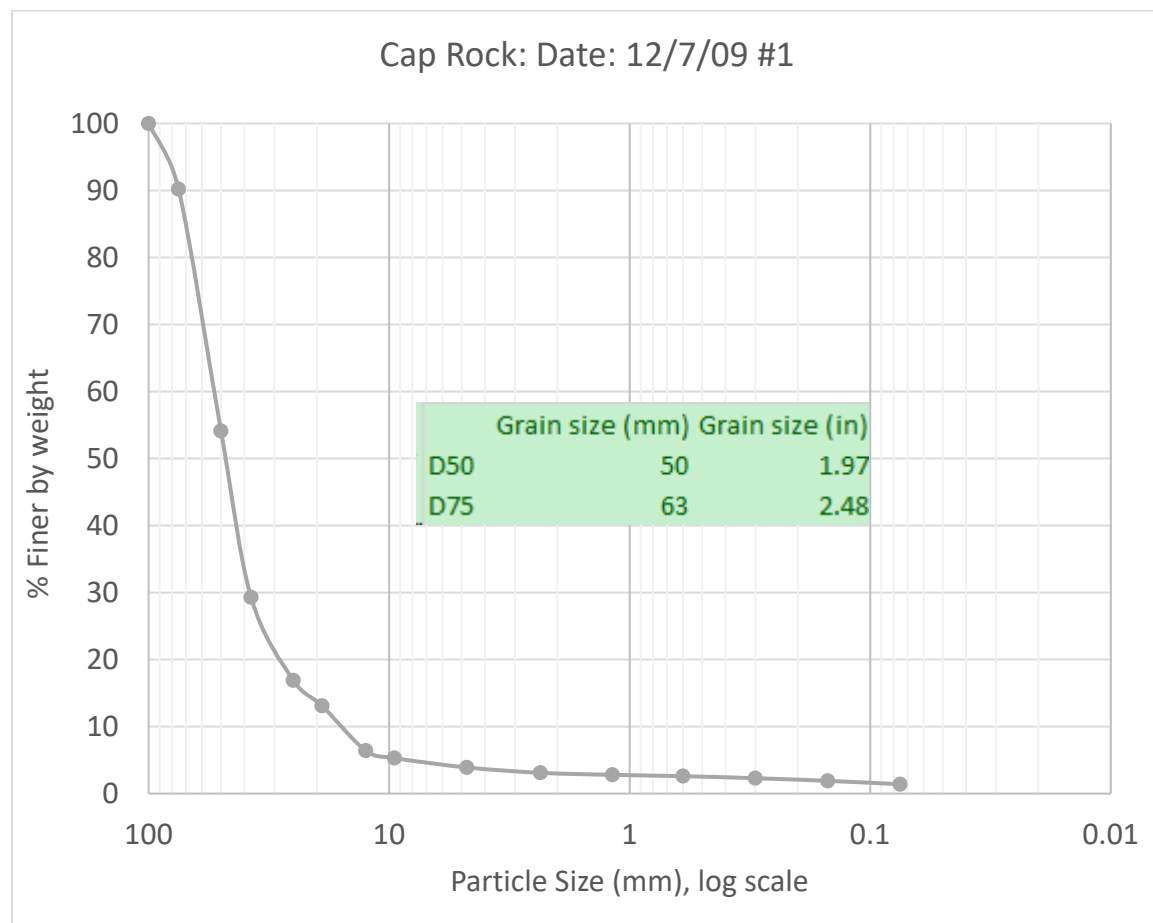
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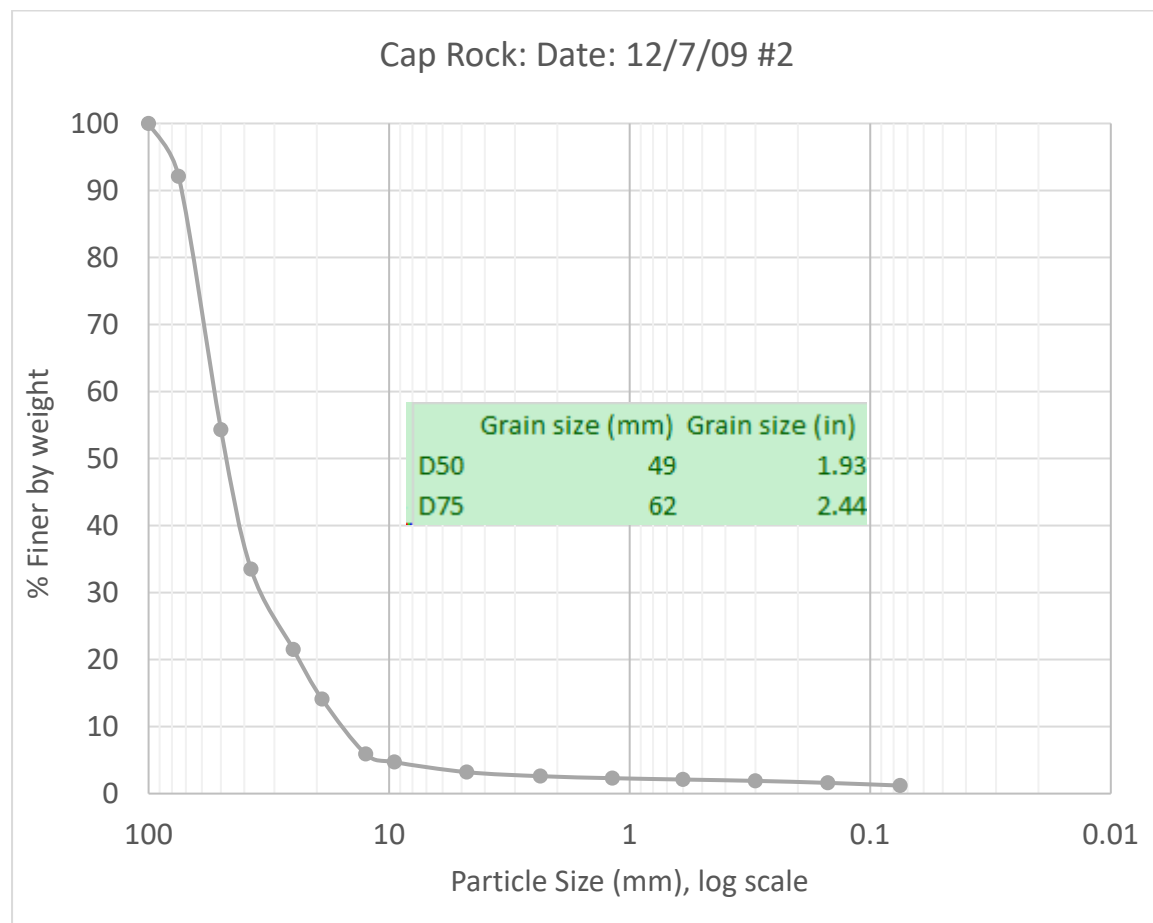
Cap Rock: Date: 11/16/09



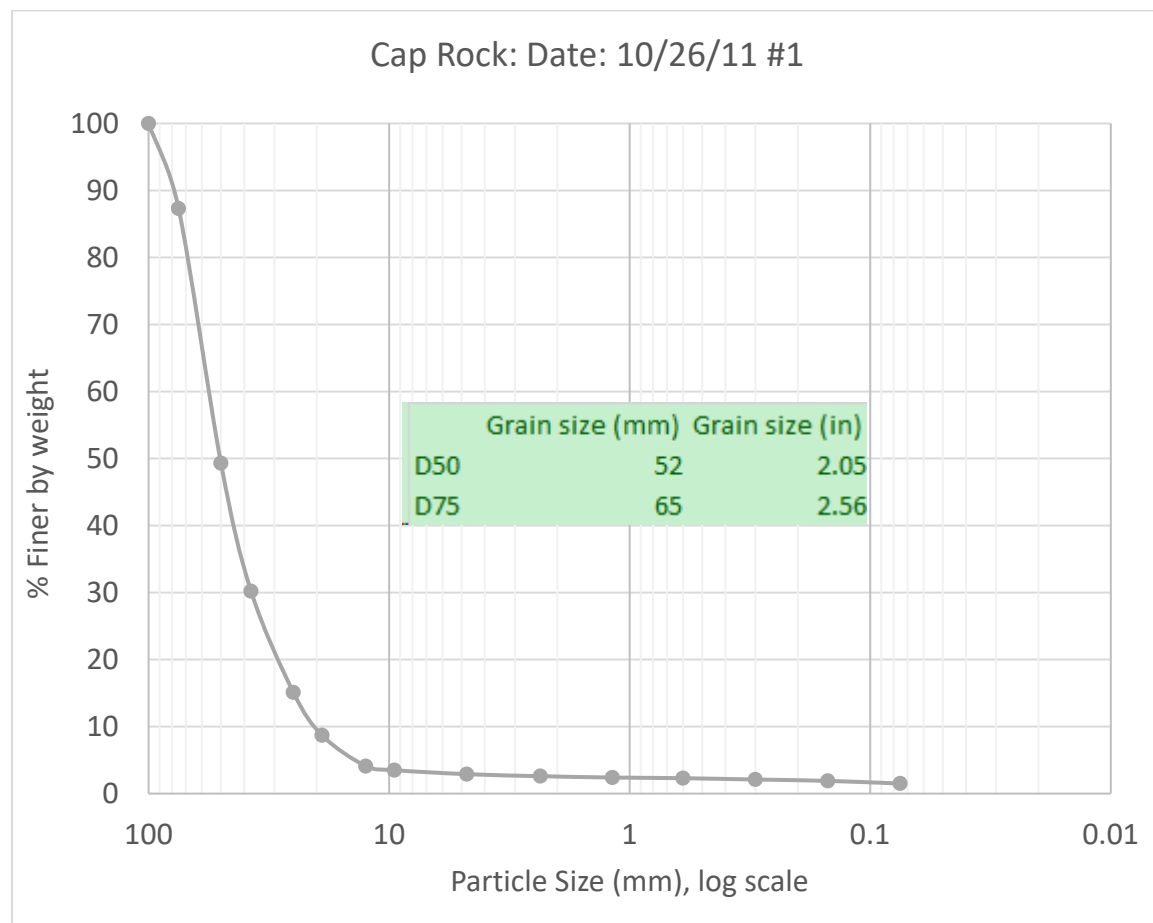
Cap Rock: Date: 12/7/09 #1



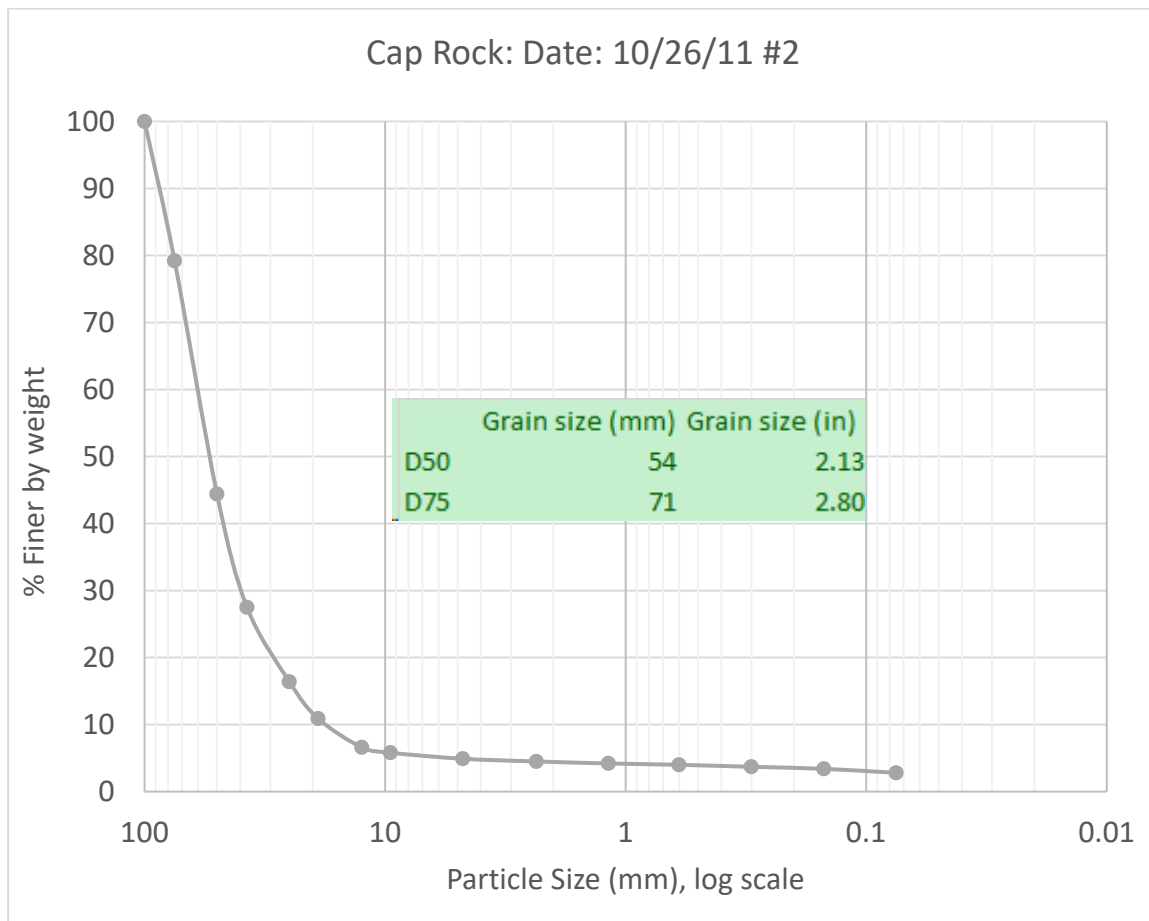
Cap Rock: Date: 12/7/09 #2



Cap Rock: Date: 10/26/11 #1



Cap Rock: Date: 10/26/11 #2



Average of above distributions:

Average	Grain size (mm)	Grain size (in)
D50	52.1	2.1
D75	70.5	2.8

APPENDIX A

RETC OUTPUT

December 2023

RETC Model Runs for Transition Tailings (Sample GATB-09)

```
*****
*
* Analysis of soil hydraulic properties *
*
* Welcome to RETC *
*
* Mualem-based restriction, M=1-1/N *
* Analysis of retention data only *
* MType= 3 Method= 3 *
*
*****
```

Initial values of the coefficients

```
=====
No Name Initial value Index
1 ThetaR .0670 1
2 ThetaS .4500 1
3 Alpha .0200 1
4 n 1.4100 1
5 m .2908 0
6 l .5000 0
7 Ks .0001 0
```

Observed data

```
=====
Obs. No. Pressure head Water content Weighting coefficient
1 700.000 .3810 1.0000
2 700.000 .3760 1.0000
3 700.000 .3470 1.0000
4 800.000 .3160 1.0000
5 900.000 .2970 1.0000
6 1200.000 .2690 1.0000
7 1300.000 .2240 1.0000
8 1400.000 .1850 1.0000
9 1700.000 .1460 1.0000
10 2300.000 .1250 1.0000
11 3100.000 .1100 1.0000
12 4100.000 .0850 1.0000
13 6400.000 .0670 1.0000
14 12100.000 .0430 1.0000
```

```
NIT SSQ ThetaR ThetaS Alpha n
0 .14200 .0670 .4500 .0200 1.4100
1 .07356 .0616 .5373 .0090 1.3797
```

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2	.05662	.0339	.5548	.0082	1.3999
3	.04052	.0046	.5959	.0069	1.4215
4	.03909	.0018	.6000	.0068	1.4238
5	.03517	.0272	.9556	.0038	1.8287
6	.01427	.0368	.8348	.0026	2.0574
7	.01116	.0396	.5041	.0013	2.2562
8	.00345	.0379	.5646	.0017	2.2568
9	.00324	.0396	.5834	.0017	2.3241
10	.00324	.0399	.5764	.0016	2.3389
11	.00324	.0400	.5752	.0016	2.3422
12	.00324	.0401	.5749	.0016	2.3429
13	.00324	.0401	.5748	.0016	2.3431
14	.00324	.0401	.5748	.0016	2.3431

Correlation matrix

```
=====
ThetaR ThetaS Alpha n
1 2 3 4
1 1.0000
2 -.7170 1.0000
3 -.7407 .9957 1.0000
4 .8779 -.9292 -.9526 1.0000
```

RSquared for regression of observed vs fitted values = .98236530

Nonlinear least-squares analysis: final results

```
=====
95% Confidence limits
Variable Value S.E.Coeff. T-Value Lower Upper
ThetaR .04006 .02418 1.66 -.0138 .0939
ThetaS .57481 .23731 2.42 .0461 1.1036
Alpha .00164 .00107 1.53 -.0007 .0040
n 2.34308 .51562 4.54 1.1942 3.4920
```

Observed abd fitted data

```
=====
NO P log-P WC-obs WC-fit WC-dev
1 .7000E+03 2.8451 .3810 .3653 .0157
2 .7000E+03 2.8451 .3760 .3653 .0107
3 .7000E+03 2.8451 .3470 .3653 -.0183
4 .8000E+03 2.9031 .3160 .3312 -.0152
5 .9000E+03 2.9542 .2970 .3014 -.0044
6 .1200E+04 3.0792 .2690 .2337 .0353
7 .1300E+04 3.1139 .2240 .2170 .0070
8 .1400E+04 3.1461 .1850 .2024 -.0174
9 .1700E+04 3.2304 .1460 .1685 -.0225
10 .2300E+04 3.3617 .1250 .1278 -.0028
11 .3100E+04 3.4914 .1100 .0995 .0105
```

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12 .4100E+04 3.6128 .0850 .0812 .0038
13 .6400E+04 3.8062 .0670 .0628 .0042
14 .1210E+05 4.0828 .0430 .0497 -.0067

Sum of squares of observed versus fitted values

=====

Unweighted Weighted

Retention data .00324 .00324

Cond/Diff data .00000 .00000

All data .00324 .00324

Soil hydraulic properties (MType = 3)

=====

WC	P	logP	Cond	logK	Dif	logD
.0414	-.5202E+05	4.716	.1856E-14	-14.731	.5270E-07	-7.278
.0428	-.3104E+05	4.492	.2948E-13	-13.531	.2498E-06	-6.602
.0455	-.1853E+05	4.268	.4681E-12	-12.330	.1184E-05	-5.927
.0510	-.1105E+05	4.044	.7437E-11	-11.129	.5615E-05	-5.251
.0564	-.8170E+04	3.912	.3750E-10	-10.426	.1397E-04	-4.855
.0619	-.6590E+04	3.819	.1182E-09	-9.927	.2668E-04	-4.574
.0673	-.5577E+04	3.746	.2882E-09	-9.540	.4410E-04	-4.356
.0728	-.4865E+04	3.687	.5969E-09	-9.224	.6654E-04	-4.177
.0783	-.4333E+04	3.637	.1105E-08	-8.957	.9428E-04	-4.026
.0837	-.3918E+04	3.593	.1885E-08	-8.725	.1276E-03	-3.894
.0892	-.3585E+04	3.554	.3019E-08	-8.520	.1666E-03	-3.778
.0946	-.3310E+04	3.520	.4602E-08	-8.337	.2118E-03	-3.674
.1001	-.3079E+04	3.488	.6740E-08	-8.171	.2632E-03	-3.580
.1055	-.2881E+04	3.460	.9552E-08	-8.020	.3212E-03	-3.493
.1110	-.2710E+04	3.433	.1317E-07	-7.881	.3859E-03	-3.414
.1165	-.2560E+04	3.408	.1773E-07	-7.751	.4576E-03	-3.339
.1219	-.2427E+04	3.385	.2339E-07	-7.631	.5366E-03	-3.270
.1274	-.2308E+04	3.363	.3032E-07	-7.518	.6232E-03	-3.205
.1328	-.2202E+04	3.343	.3869E-07	-7.412	.7176E-03	-3.144
.1383	-.2105E+04	3.323	.4870E-07	-7.312	.8200E-03	-3.086
.1437	-.2018E+04	3.305	.6057E-07	-7.218	.9308E-03	-3.031
.1492	-.1937E+04	3.287	.7450E-07	-7.128	.1050E-02	-2.979
.1547	-.1864E+04	3.270	.9073E-07	-7.042	.1179E-02	-2.929
.1601	-.1795E+04	3.254	.1095E-06	-6.961	.1317E-02	-2.881
.1656	-.1732E+04	3.239	.1311E-06	-6.882	.1464E-02	-2.834
.1710	-.1673E+04	3.224	.1558E-06	-6.807	.1622E-02	-2.790
.1765	-.1618E+04	3.209	.1839E-06	-6.735	.1789E-02	-2.747
.1819	-.1567E+04	3.195	.2157E-06	-6.666	.1968E-02	-2.706
.1874	-.1519E+04	3.181	.2515E-06	-6.599	.2158E-02	-2.666
.1928	-.1473E+04	3.168	.2917E-06	-6.535	.2360E-02	-2.627
.1983	-.1430E+04	3.155	.3367E-06	-6.473	.2573E-02	-2.590
.2038	-.1390E+04	3.143	.3867E-06	-6.413	.2800E-02	-2.553
.2092	-.1351E+04	3.131	.4423E-06	-6.354	.3039E-02	-2.517
.2147	-.1315E+04	3.119	.5039E-06	-6.298	.3292E-02	-2.483

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.2201 -.1280E+04 3.107 .5718E-06 -6.243 .3559E-02 -2.449
.2256 -.1247E+04 3.096 .6466E-06 -6.189 .3841E-02 -2.416
.2310 -.1215E+04 3.085 .7288E-06 -6.137 .4139E-02 -2.383
.2365 -.1185E+04 3.074 .8188E-06 -6.087 .4453E-02 -2.351
.2420 -.1156E+04 3.063 .9172E-06 -6.038 .4784E-02 -2.320
.2474 -.1128E+04 3.052 .1025E-05 -5.989 .5132E-02 -2.290
.2529 -.1101E+04 3.042 .1142E-05 -5.943 .5499E-02 -2.260
.2583 -.1075E+04 3.031 .1269E-05 -5.897 .5886E-02 -2.230
.2638 -.1050E+04 3.021 .1407E-05 -5.852 .6293E-02 -2.201
.2692 -.1026E+04 3.011 .1556E-05 -5.808 .6721E-02 -2.173
.2747 -.1003E+04 3.001 .1718E-05 -5.765 .7172E-02 -2.144
.2802 -.9808E+03 2.992 .1892E-05 -5.723 .7646E-02 -2.117
.2856 -.9591E+03 2.982 .2080E-05 -5.682 .8145E-02 -2.089
.2911 -.9380E+03 2.972 .2283E-05 -5.641 .8670E-02 -2.062
.2965 -.9176E+03 2.963 .2501E-05 -5.602 .9223E-02 -2.035
.3020 -.8978E+03 2.953 .2736E-05 -5.563 .9805E-02 -2.009
.3074 -.8785E+03 2.944 .2988E-05 -5.525 .1042E-01 -1.982
.3129 -.8597E+03 2.934 .3258E-05 -5.487 .1106E-01 -1.956
.3183 -.8414E+03 2.925 .3547E-05 -5.450 .1174E-01 -1.930
.3238 -.8236E+03 2.916 .3857E-05 -5.414 .1246E-01 -1.905
.3293 -.8061E+03 2.906 .4188E-05 -5.378 .1321E-01 -1.879
.3347 -.7891E+03 2.897 .4542E-05 -5.343 .1401E-01 -1.854
.3402 -.7725E+03 2.888 .4920E-05 -5.308 .1485E-01 -1.828
.3456 -.7562E+03 2.879 .5324E-05 -5.274 .1574E-01 -1.803
.3511 -.7402E+03 2.869 .5754E-05 -5.240 .1668E-01 -1.778
.3565 -.7245E+03 2.860 .6213E-05 -5.207 .1767E-01 -1.753
.3620 -.7092E+03 2.851 .6702E-05 -5.174 .1871E-01 -1.728
.3675 -.6941E+03 2.841 .7222E-05 -5.141 .1982E-01 -1.703
.3729 -.6792E+03 2.832 .7776E-05 -5.109 .2100E-01 -1.678
.3784 -.6646E+03 2.823 .8366E-05 -5.077 .2224E-01 -1.653
.3838 -.6502E+03 2.813 .8992E-05 -5.046 .2357E-01 -1.628
.3893 -.6360E+03 2.803 .9659E-05 -5.015 .2497E-01 -1.603
.3947 -.6220E+03 2.794 .1037E-04 -4.984 .2647E-01 -1.577
.4002 -.6081E+03 2.784 .1112E-04 -4.954 .2806E-01 -1.552
.4057 -.5944E+03 2.774 .1192E-04 -4.924 .2976E-01 -1.526
.4111 -.5809E+03 2.764 .1277E-04 -4.894 .3157E-01 -1.501
.4166 -.5674E+03 2.754 .1367E-04 -4.864 .3351E-01 -1.475
.4220 -.5541E+03 2.744 .1463E-04 -4.835 .3559E-01 -1.449
.4275 -.5409E+03 2.733 .1565E-04 -4.806 .3782E-01 -1.422
.4329 -.5277E+03 2.722 .1673E-04 -4.777 .4022E-01 -1.396
.4384 -.5146E+03 2.712 .1788E-04 -4.748 .4280E-01 -1.369
.4439 -.5016E+03 2.700 .1910E-04 -4.719 .4560E-01 -1.341
.4493 -.4886E+03 2.689 .2040E-04 -4.690 .4863E-01 -1.313
.4548 -.4756E+03 2.677 .2178E-04 -4.662 .5191E-01 -1.285
.4602 -.4626E+03 2.665 .2325E-04 -4.634 .5549E-01 -1.256
.4657 -.4495E+03 2.653 .2482E-04 -4.605 .5941E-01 -1.226

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.4711 -.4364E+03 2.640 .2648E-04 -4.577 .6370E-01 -1.196
.4766 -.4233E+03 2.627 .2826E-04 -4.549 .6844E-01 -1.165
.4820 -.4100E+03 2.613 .3016E-04 -4.521 .7367E-01 -1.133
.4875 -.3966E+03 2.598 .3220E-04 -4.492 .7950E-01 -1.100
.4930 -.3830E+03 2.583 .3437E-04 -4.464 .8602E-01 -1.065
.4984 -.3693E+03 2.567 .3670E-04 -4.435 .9336E-01 -1.030
.5039 -.3553E+03 2.551 .3921E-04 -4.407 .1017E+00 -.993
.5093 -.3409E+03 2.533 .4190E-04 -4.378 .1112E+00 -.954
.5148 -.3263E+03 2.514 .4482E-04 -4.349 .1223E+00 -.913
.5202 -.3111E+03 2.493 .4797E-04 -4.319 .1352E+00 -.869
.5257 -.2955E+03 2.471 .5141E-04 -4.289 .1505E+00 -.822
.5312 -.2791E+03 2.446 .5516E-04 -4.258 .1691E+00 -.772
.5366 -.2620E+03 2.418 .5929E-04 -4.227 .1920E+00 -.717
.5421 -.2437E+03 2.387 .6387E-04 -4.195 .2212E+00 -.655
.5475 -.2240E+03 2.350 .6901E-04 -4.161 .2598E+00 -.585
.5530 -.2024E+03 2.306 .7487E-04 -4.126 .3137E+00 -.504
.5584 -.1779E+03 2.250 .8170E-04 -4.088 .3954E+00 -.403
.5639 -.1487E+03 2.172 .8998E-04 -4.046 .5383E+00 -.269
.5694 -.1100E+03 2.041 .1009E-03 -3.996 .8803E+00 -.055
.5721 -.8155E+02 1.911 .1086E-03 -3.964 .1395E+01 .145
.5734 -.6058E+02 1.782 .1139E-03 -3.944 .2166E+01 .336
.5743 -.4093E+02 1.612 .1184E-03 -3.927 .3796E+01 .579
.5748 -.1531E+02 1.185 .1232E-03 -3.909 .1476E+02 1.169
.5748 -.5731E+01 .758 .1245E-03 -3.905 .5582E+02 1.747
.5748 .0000E+00 .1250E-03 -3.903

End of problem

APPENDIX B

WATER BALANCE MODELING

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Water Balance Analysis of ET Cover

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer 

Date: December 18, 2023

Checked by: Mike Beardsley 

Date: December 18, 2023

Approved by: Greg Church 

Date: December 18, 2023

B.1 UNSATURATED MODELING OF COVER SYSTEM

Modeling was performed to develop an evapotranspiration (ET) cover profile that minimizes flux given the myriad of input parameters (i.e., cover soil, layering, and vegetation data) and historical climate data for the site. Unsaturated flow modeling of an earthen cover profile is a useful tool in developing a minimum cover thickness and evaluating the cover profile that is subjected to a variety of parameters and conditions (Dwyer et al. 2007, USEPA 2011).

B.1.1 Overview of UNSAT-H

The software most applicable for the analyses of water flow within an alternative earthen cover system is based on Richard's equation (Interstate Technology and Regulatory Council [ITRC] 2003). One of the most common software (ITRC 2003) based on the Richard's equation is UNSAT-H (Fayer 2000). It has been recommended for use on alternative earthen covers in the ITRC (2003) design guidance documents. Consequently, UNSAT-H was used on this project.

UNSAT-H is a one-dimensional, finite-difference computer program developed specifically for earthen cover systems at the Pacific Northwest National Laboratory by Fayer and Jones (1990). UNSAT-H can be used to simulate the water balance of earthen covers and soil heat flow (Fayer 2000). UNSAT-H simulates water flow through soils by solving Richard's equation and simulates heat flow by solving Fourier's heat conduction equation.

A schematic illustration showing how UNSAT-H computes the water balance is provided as Figure B-1. UNSAT-H separates precipitation falling on an earthen cover into infiltration and overland flow. The quantity of water that infiltrates depends on the infiltration capacity of the soil profile immediately prior to rainfall (e.g., total available porosity), the climate, and precipitation applied. Thus, the fraction of precipitation shed as overland flow depends on saturated and unsaturated hydraulic conductivities of the final cover. If the rate of precipitation exceeds the soil's infiltration capacity, the extra water is shed as surface runoff. UNSAT-H does not consider absorption and interception of water by the plant canopy, or the effect of slope and slope-length, when computing surface runoff. This allows conservative infiltration and percolation estimates since cover systems are generally sloped to encourage runoff.

Water infiltrating a soil profile during an UNSAT-H simulation moves upward or downward because of gravity and matric potential gradients. Evaporation from the cover surface is computed using Fick's law. Water removal by transpiration of plants is treated as a sink term in Richard's equation. Potential evapotranspiration (PET) is computed from site-specific daily weather data (Hargreaves and Samani 1982, Hargreaves and Samani 1985). Soil water storage is computed by integrating the water content profile. Flux from the lower boundary is via percolation. UNSAT-H, being a one-dimensional program, does not compute lateral drainage.

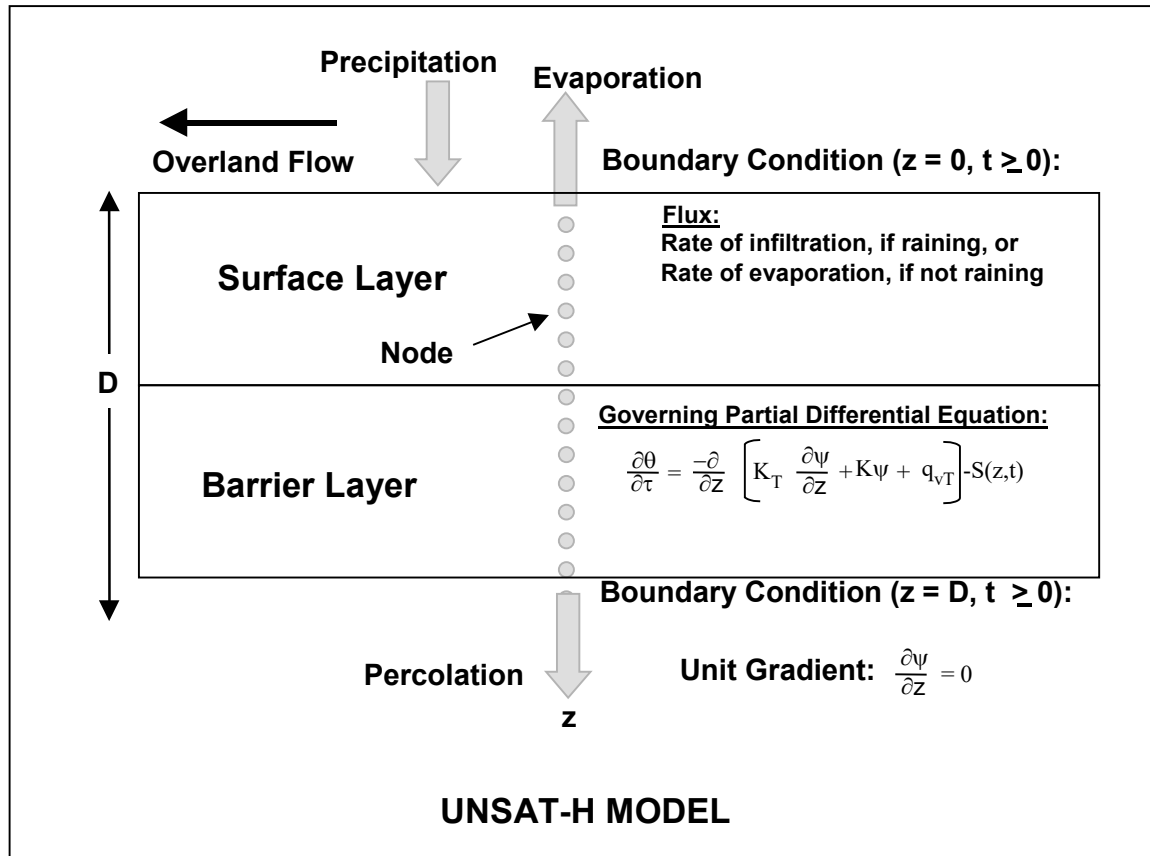


Figure B-1. Schematic Representation of Water Balance Computation by UNSAT-H

B.1.2 UNSAT-H Input Parameters

Input parameters utilized in the computer simulations with UNSAT-H for the ET cover were developed based on values reported in the FRAP (2008), various literature cited, laboratory analyses (DBSA 2020 – FRAP 2023, Attachment 5), and experience. Parameter descriptions are summarized in Sections B.1.3 through B.1.7.

The sensitivity analyses performed evaluated potential input parameters and climate scenarios expected over the performance period of the cover system. The input parameters evaluated include the potential cover soil borrow sources and variability in vegetation. The upper boundary condition or climate was evaluated from typical to beyond extreme wet conditions.

B.1.3 Model Geometry

The model geometry was based on the cover profile (Figure B-6). The nodal spacing was set at a range narrow enough to accurately represent the modeled cover profile. For these computer simulations, the rock/soil admixture layer was 10 inches (25 centimeters) thick (Appendix F). The modeled soil layers are depicted in Figure B-6. The RRM (residual radioactive material) beneath the cover profile was included in the final computer simulations.

B.1.4 Boundary Conditions

Historical weather data from the Crescent Junction, UT, area, including Moab and Thompson Springs, were evaluated to derive typical and extreme climate scenarios. Weather data from Moab are available from 1893 to present and Thompson Springs from 1911 to 1994. The mean precipitation for Thompson Springs, UT, is 8.85 inches (22.5 centimeters) per year. Weather information from 1946 (Thompson Springs, UT, weather station) was utilized as the simulated “typical year,” with an annual precipitation volume of 8.9 inches (22.6 centimeters). This typical climate year had just above the average annual precipitation volume and was distributed throughout the year, as shown in Figure B-2.

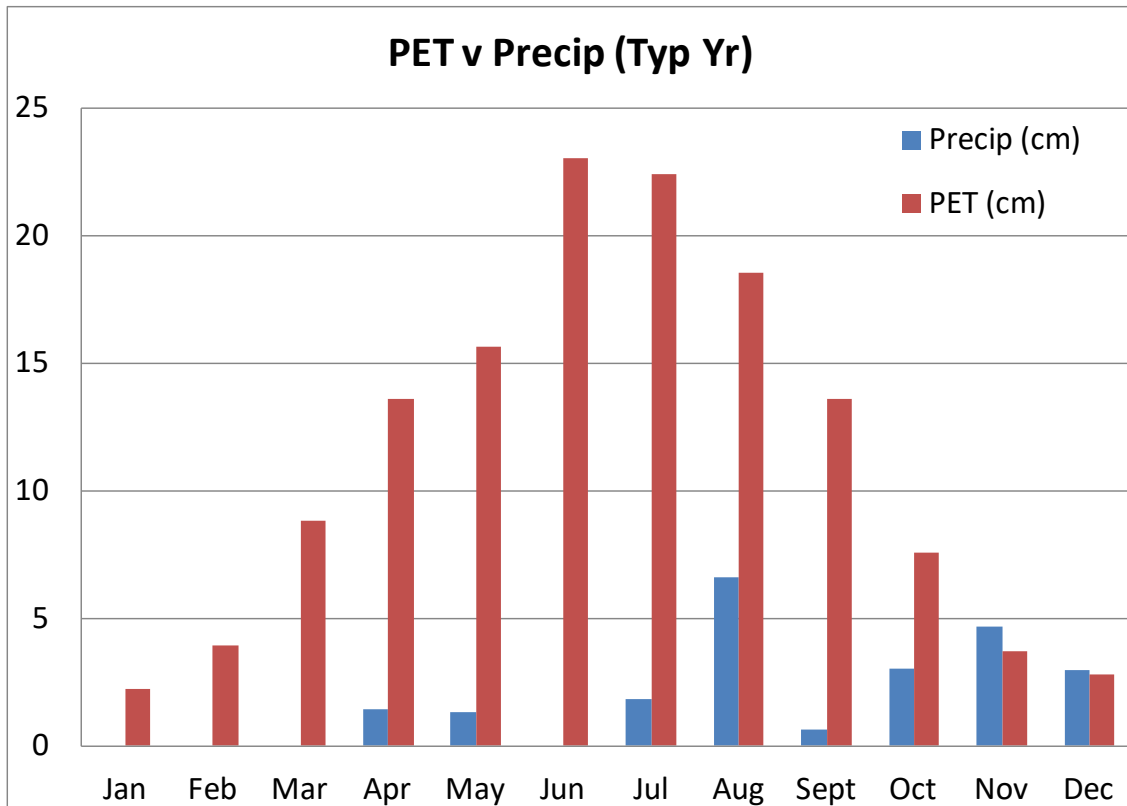


Figure B-2. Typical Climate: Monthly Precip. Vs. PET for Thompson Springs, UT (1946)

For every month of the year, the climate’s demand for water (PET) far exceeds the actual supply of water (precipitation) (Figure B-2). PET is can be referred to as the climate’s ‘demand for water’ whereas precipitation is the ‘supply of water’. The PET is 53.5 inches (135.8 centimeters) for this typical year or approximately six times more than the actual supply of water (i.e., precipitation). Consequently, a “store and release” or ET cover designed to take advantage of the climate’s demand for water far exceeding the supply of water is well suited for the Crescent Junction, UT, site.

Because the design requires long-term effectiveness, extreme climate conditions were also evaluated. The climate can get wetter or drier. If it gets warmer and drier, the admixture surface layer was designed to mitigate erosion without the benefit of vegetation to assist. The water balance

of the cover system will not be stressed with less precipitation. Consequently, the potential for more precipitation was evaluated to determine storage requirements for extreme conditions. The wettest year on record for the area was 1941 (Thompson Springs, UT, weather station) - more than double the average annual precipitation volume (20.0 inches [50.7 centimeters]). The monthly distribution of precipitation and PET are presented in Figure B-3 for this wettest year on record. This wettest year was modeled two consecutive years to add conservatism to the analyses. The wettest year on record is assumed to produce the worst-case scenario for required storage capacity of the cover system, while modeling the wettest year on record two years in a row is assumed to produce a beyond-worst-case scenario. To further add conservatism, the precipitation was allowed to fully infiltrate the cover (no runoff).

For each computer simulation, 10 typical climate years were applied followed by the wettest year on record two years in a row. The 10th year of the 10 consecutive years of typical climate is that presented as the results for the typical climate year. The 10 consecutive typical years were performed to develop appropriate antecedent conditions while eliminating any biases placed in the initial moisture conditions for the modeled soil profile.

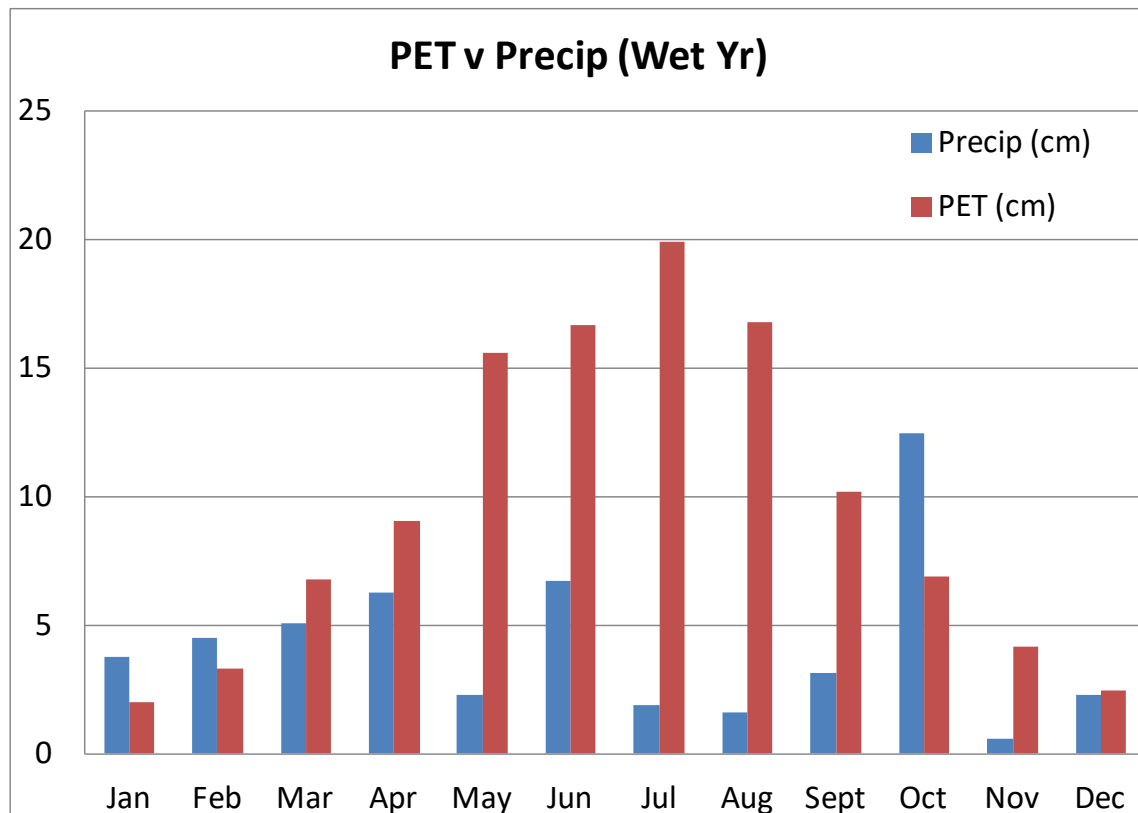


Figure B-3. Wettest Year on Record: Monthly Precip. Vs. PET for Thompson Springs, UT (1941)

Water flow across the surface and lower boundary of the cover profile of interest is determined by boundary condition specifications. For infiltration events, the upper boundary was conservatively adjusted so that the precipitation rate was less than one centimeter per hour that minimized runoff (zero in most cases) while maximizing infiltration. This is conservative because the bigger

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precipitation events at the Crescent Junction site generally comes from high-intensity storms where much of the precipitation will run off rather than infiltrate into the cover profile.

The UNSAT-H program partitions PET into potential evaporation (E_p) and potential transpiration (T_p). PET is estimated or derived from daily weather parameters (Fayer 2000). PET is calculated using a function (Equation B-1) based on the value of the assigned leaf area index (LAI) and an equation developed by Ritchie and Burnett (1971), as follows:

$$T_p = PET [a + b(LAI)^c] \text{ where } d \leq LAI \leq e \quad \text{Equation B-1}$$

where:

a, b, c, d, and e = fitting parameters (a = 0.0, b = 0.52, and c = 0.5, d = 0.1, and e = 2.7 [Fayer 2000]).

The maximum and minimum daily temperatures, daily precipitation values, and site latitude were input parameters used to calculate PET (Samani and Pessarakli 1986). The Samani method used to calculate PET correlates well with the Penman method utilized within UNSAT-H (Samani and Pessarakli 1986). The UNSAT-H program then partitioned the daily PET values into E_p and T_p . T_p was calculated using a function shown in Equation B-1. Two separate files were written for each year modeled; one file represented the daily PET values and the other file consisted of the daily precipitation values.

The lower boundary condition was a unit gradient. With the unit gradient, the calculated drainage flux depends on the hydraulic conductivity of the lower boundary node. The unit gradient corresponded to gravity-induced drainage and was most appropriate because drainage was not impeded. The base of the modeled profile was placed well below transient activity and in relative steady-state conditions to ensure that the unit gradient bottom boundary condition used did not affect the output for the cover system.

B.1.5 Vegetation Data

Vegetation will generally increase ET from the cover because a plant's matric potential or suction can be orders of magnitude higher than that of the soil (Figure B-4).

The input parameters representing vegetation include the LAI, rooting depth and density, root growth rate, suction head values corresponding to the wilting point, head corresponding to the water content below which plant transpiration starts to decrease, and a head value corresponding to the water content above which plants do not transpire because of anaerobic conditions. The onset and termination of the growing season for the site are defined in terms of Julian days. The maximum rooting depth is based on expected vegetation characteristics. The root length density (RLD) is assumed to follow an exponential function, such as that defined in Equation B-2:

$$RLD = a \exp(-bz) + c \quad \text{Equation B-2}$$

where:

a, b, and c = fitting parameters

z = depth below surface

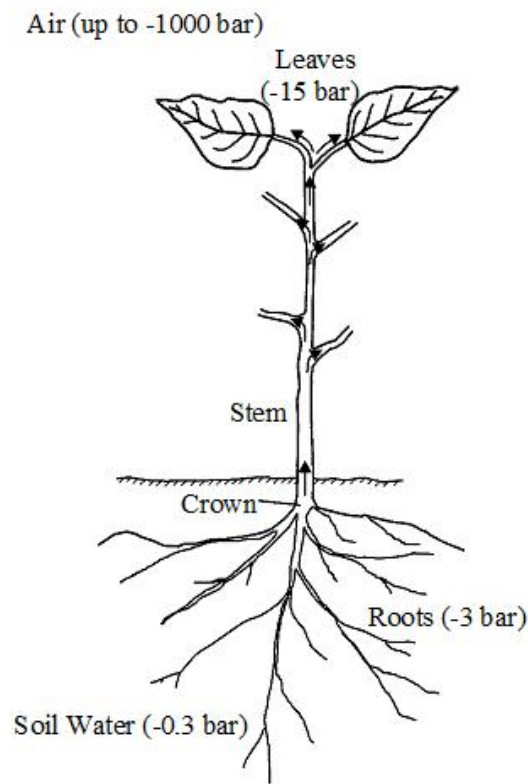


Figure B-4. Typical Soil-Plant-Atmosphere Water Potential Variation (Hillel 1998)

Measured vegetation parameters are not available for the Crescent Junction site. Consequently, parameters from a study performed at the Northeast Church Rock, NM, site were used (Cedar Creek 2014). This is an arid site with similar vegetation and climate. This vegetation analog study represents a natural succession for vegetation in this arid climate (Cedar Creek 2014). The reclaimed community of vegetation represents vegetation in a disturbed area and generally considered from seeding upon construction completion up to about 50 years. The grassland community represents undisturbed vegetation and is assumed to represent vegetation on the cover from about 25 to 100 years after construction. The shrubland community represents vegetation in an undisturbed setting and is assumed to represent vegetation on the cover from about 50 to 1,000 years. The vegetation input parameters utilized in the computer simulations are summarized in Table B-1 for root density parameters.

Table B-1. Rooting Parameters (Cedar Creek 2014)

Parameter	Reclaimed Analog	Grass Analog	Shrub Analog
a	261.3858	0.1868	0.1975
b	5.43E-06	0.0705	0.0341
c	-261.2148	0.0741	0.0443

Other vegetation parameters, including the LAI, percent bare area, and maximum rooting depths for the respective vegetation used in a computer simulation, are summarized in Table B-2. The Crescent Junction vegetation appeared to be less abundant than the Church Rock, NM, site; consequently, the amount of vegetation surface coverage was reduced by 50% compared to the Church Rock site. The percent bare area was thus increased (Table B-2). For example, the percent of vegetation cover on the reclaimed vegetation analog site surface (Cedar Creek 2014) was 47.7% (100% – 52.3%). The vegetation coverage for Crescent Junction was reduced to 23.85% (47.7% divided by 2). Consequently, the revised percent bare area utilized in the computer simulation was 76.15% (100% – 23.85%).

Within the UNSAT H model, the percent area is used to reduce the LAI. For example, for the simulations utilizing reclaimed vegetation, the LAI is $0.91 \times (1 - 0.7615)$ equal to 0.22. The maximum rooting length for grass vegetation was 56 inches (142 centimeters) (Cedar Creek 2014).

Table B-2. Vegetation Parameters (Cedar Creek 2014)

Parameter	Reclaim Analog	Grass Analog	Shrub Analog
LAI	0.91	0.64	0.52
% Bare Area ¹	52.30%	64.90%	75.20%
% Bare Area, used in simulations ²	76.15%	82.45%	87.60%
Max. Root Length	147 cm	142 cm	155 cm

¹ %bare area from natural analog study (Cedar Creek 2014)

² Increased % bare area utilized in computer simulations

In the modeled simulations that included vegetation, the onset and termination of the growing season for the site were Julian days 70 and 300, respectively. This was computed from the typical climate conditions for the Crescent Junction site and the respective growing degree days. The LAI was transitioned from 0 to the full LAI starting with Julian days 70 to 103. The full LAI (Days 104 through 274) was utilized. The LAI was then transitioned down from the full LAI to 0 from Julian days 275 to 300. This was conservative since it is realistic that plants can transpire longer than indicated at this site.

B.1.6 Soil Properties Related to Vegetation

Suction head values corresponding to the wilting point, head values corresponding to the water content below which plant transpiration starts to decrease, and a head value corresponding to the water content above which plants do not transpire because of anaerobic conditions were defined.

Matric potential or suction heads are generally written as positive numbers but are actually negative values. Consequently, the higher the value, the greater the soil suction.

Not all the water stored in the soil can be removed via transpiration. Vegetation is generally assumed to reduce the soil moisture content to the permanent wilting point. The wilting point for these computer simulations was set at 1,312 feet (40,000 centimeters) for reclaimed vegetation and grassland and 2,297 feet (70,000 centimeters) for shrubland vegetation (Fayer and Walters 1995). This was conservatively used, although some shrubs can remove water from the soil to a suction of 3,281 feet (100,000 centimeters) (Hillel 1998). Evaporation from the soil surface can further reduce the soil moisture below the wilting point toward the residual saturation, which is the water content at an infinite matric potential. The suction head corresponding to the water content below which plant transpiration starts to decrease was defined as 33 feet (1,000 centimeters) (Fayer and Walters 1995, Fayer 2000). The head value corresponding to the water content above which plants do not transpire because of anaerobic conditions was defined at 4 inches (30 centimeters) (Fayer and Walters 1995).

B.1.7 Soil Properties

Ten different sets of soil hydraulic properties were evaluated in a set of sensitivity analyses to determine the worst case combination of input parameters for the final cover system profile design (Figure B-6). Refer to Table B-3 for the soil hydraulic properties of each sample. This set of analyses is collectively referred to as sensitivity analysis #1 with output described in Sections B2 and B3. These computer simulations performed attempted to bound the reported soil sample properties.

There are two different types of soil texture to be utilized in the cover profile: alluvium and clay (Mancos shale). There are multiple sets of soil properties for each soil texture reported in the FRAP (2008, Attachment 5, Vol. 1, Appendix K, Table 1). The alluvium soil sample chosen for inclusion in this sensitivity analysis from the FRAP 2008 results had a higher measured hydraulic conductivity and lower fines content represented by Sample TP153 (FRAP 2008, Attachment 5, Vol. 1, Appendix K, Table 1) compared to other similar soil samples reported. The saturated hydraulic conductivity value of 10^{-4} cm/sec for Sample TP153 with a fines content of 67% appears high. Experience with these types of soils at a moderate compaction shows that the hydraulic conductivities tend to be one to two orders of magnitude lower than that measured. Thus, use of this set of data should provide conservative results. The van Genuchten parameters were developed using the RETC software (van Genuchten et al. 1991) from the pressure plate measurements available for these two samples (Appendix A). The moisture retention data for the soil samples presented in the FRAP (2008) were measured only by pressure plates from a low suction to about 15 bars. Additional alluvium soil samples (soil samples 1 to 4) were collected in the field (Figure B-5) from the existing interim cover and available borrow sources and remolded at 90% of the maximum dry density (MDD) per ASTM D698 (DBSA 2020). The additional field obtained samples (DBSA 2020) moisture retention data were measured using a combination of three different types of measurements depending on the soil suction (pressure plates, hanging columns, and relative humidity box) to represent a soil texture at a given density.

Clay soil excavated from the Mancos shale layer is a fine-grained soil and is represented by Sample TP154 (FRAP 2008, Attachment 5, Vol. 1, Appendix K, Table 1). The moisture retention data for the soil samples presented in the FRAP (2008) were measured only by pressure plates from a low

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suction to about -15 bars. Two more clay soil samples (soil samples 5 and 6) were collected in the field (Figure B-5) from the existing radon barrier and remolded at 90% of the MDD per ASTM D698 (DBSA 2020). These additional field obtained samples (DBSA 2020) moisture retention data were measured using a combination of three different types of measurements depending on the soil suction (pressure plates, hanging columns, and relative humidity box) to represent a soil texture at a given density.

Alluvium and shale soil properties measured from the Grand Junction, Colorado, UMTRA site were also evaluated as cover soil input parameters. The values for each soil texture (alluvium and shale) included the saturated hydraulic conductivity, saturated moisture content, residual moisture content, and van Genuchten parameters alpha and 'n' were average parameters for each as reported in DOE (2013), Tables 4 and 5.

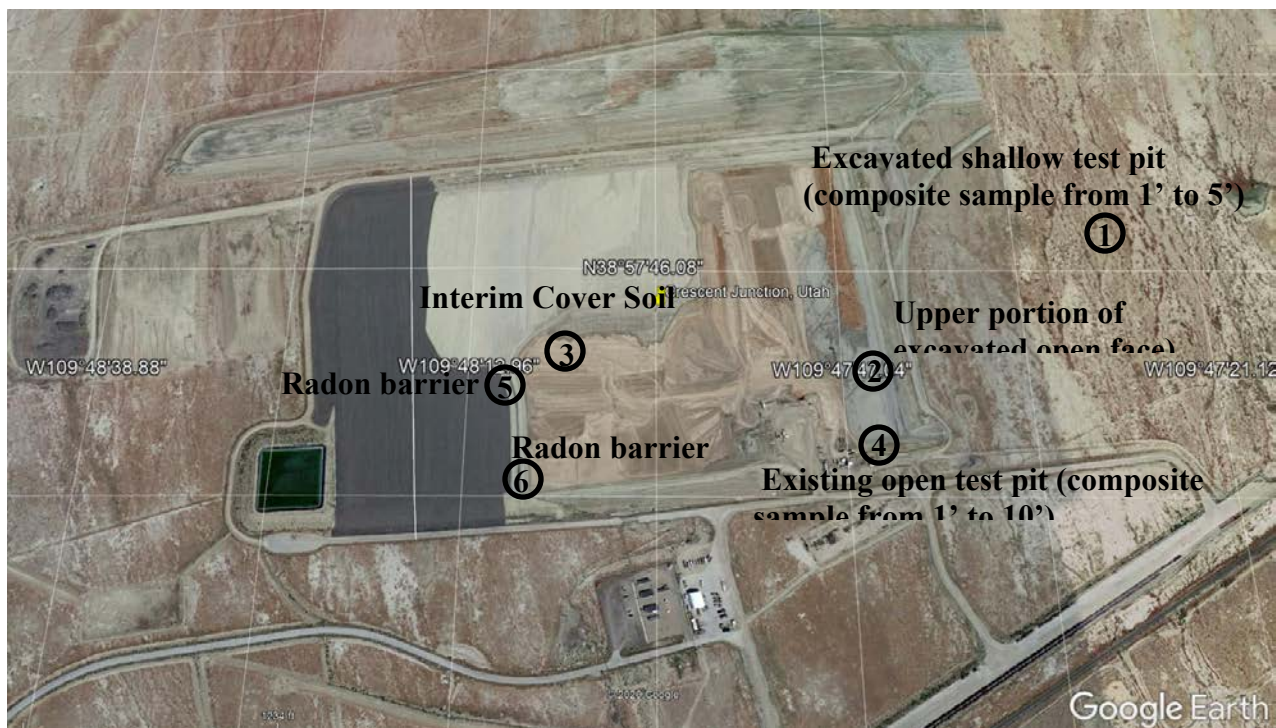


Figure B-5. Soil Sample Locations

Table B-3 provides a summary of the cover soil hydraulic properties included in the sensitivity analyses performed of the cover water balance.

Table B-3. Soil Samples Hydraulic Properties

Soil Sample	Sample Depth (ft)	K _s (cm/sec)	van Genuchten (VG) parameters				Description
			Θ _s (vol.)	Θ _r (vol.)	alpha	n	
1	1 to 5	1.1E-04	0.3799	0.0303	0.0085	1.3505	Composite from excavated shallow test pit (DBSA 2020)

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Soil Sample	Sample Depth (ft)	K _s (cm/sec)	van Genuchten (VG) parameters				Description
			Θ _s (vol.)	Θ _r (vol.)	alpha	n	
2	1 to 15	1.7E-04	0.3915	0.0161	0.0148	1.2785	Composite from open excavated alluvium borrow soil face (DBSA 2020)
3	NA	2.8E-04	0.3725	0.0432	0.0168	1.4153	Existing interim cover soil (DBSA 2020)
4	1 to 10	1.5E-04	0.4094	0.0106	0.0059	1.3171	Composite from existing open test pit (DBSA 2020)
5	NA	3.2E-06	0.4171	0	0.0053	1.2373	Existing radon barrier soil (DBSA 2020) mixed with frost soil layer
6	NA	2.1E-05	0.4203	0	0.0056	1.2439	Existing radon barrier soil (DBSA 2020)
TP153	8.5	1.4E-04	0.3584	0	0.0912	1.1415	Alluvium (Final Remedial Action Plan 2008, Attachment 5, Vol.1, Appendix K, Table 1)
TP154	20	8.0E-07	0.4803	0	0.1748	1.1004	Shale (Final Remedial Action Plan 2008, Attachment 5, Vol.1, Appendix K, Table 1)
Grand Junction–Alluvium	NA	4.6E-05	0.42	0	0.016	1.25	Alluvium average values (DOE 2013, Tables 4 and 5)
Grand Junction–Shale	NA	2.1E-07	0.38	0	0.008	1.26	Shale average values (DOE 2013, Tables 4 and 5)

The top admixture layer has rock mixed into it at a volumetric ratio of 60% rock to 40% soil. The mixture of rock into the soil effectively alters its hydraulic properties. Consequently, the hydraulic properties were adjusted for the admixture layer (ASTM 2015). Equation B-3 was used to adjust the saturated hydraulic conductivity based on the addition of rock (Peck and Watson 1979).

$$K_b = [K_s * 2(1 - V_r)] / (2 + V_r) \quad \text{Equation B-3}$$

where: K_b = saturated hydraulic conductivity, bulk

K_s = saturated hydraulic conductivity, soil

V_r = volume of rock

For all computer simulations, the calculated bulk saturated hydraulic conductivity was then increased in the top foot of the modeled cover system to account for dynamic processes (i.e., freeze/thaw cycles, wet/dry cycles, and biointrusion). This corresponds with findings from an in-situ soil analog site whereby soils in undisturbed settings have a saturated hydraulic conductivity

of one order of magnitude higher in the upper foot than the lower portions of the soil profile (Dwyer 2014).

The moisture retention data for the cover soil were also adjusted to reflect the addition of the rock in the surface admixture layer. The actual volumetric moisture content versus soil suction measurements made in the laboratory was utilized as the basis. Each respective measured volumetric moisture content was lowered per Equation B-4 (ASTM 2015 and Bouwer and Rice 1984).

$$\theta_b = (1 - V_r) * \theta_s \quad \text{Equation B-4}$$

where: θ_b = bulk volumetric moisture content

θ_s = saturated volumetric moisture content

V_r = volume of rock.

The Mualem conductivity function was used to describe the unsaturated hydraulic conductivity of the soils (van Genuchten et al. 1991). The van Genuchten 'm' parameter for this function is assumed to be '1-1/n'; 'n' being one of the established van Genuchten parameters. The initial soil conditions were expressed in terms of suction head values that correspond to the average moisture content between each soil layer's field capacity and permanent wilting point determined from each respective soil layer's moisture characteristic curve.

B.2 COVER PERFORMANCE SIMULATIONS

Multiple sets of sensitivity analyses were performed to evaluate the cover profile's ability to minimize flux due to precipitation. All input files are contained in Attachment 1. The first set of sensitivity analyses was performed to determine the worst-case soils for both alluvium and clay (Mancos shale). Alluvium is intended to be mixed within the top rock/soil admixture layer and can be used as interim cover soil and/or frost protection layer. The shale is intended to be used as the radon barrier soil layer. It can also be used as interim cover soil and frost protection layer. The worst-case soil is that which requires the thickest cover profile to minimize flux or has the deepest point of diminishing returns (PODR) according to Dwyer et al. (2007). The subsequent sensitivity analyses evaluated the alluvium and shale soils deemed to be the worst-case soils within the cover profile as shown in Figure B-6.

The alluvium soil has less fines with more sand than the Mancos shale soil utilized in the radon barrier. The alluvium is less erosive than the shale soils; consequently, it is used in the upper portions of the cover. The fine-grained shale soil with more clay has a lower hydraulic conductivity and thus slows infiltration, and is also better at reducing radon gas flux. Thus, the shale soils are used in the lower portion of the cover system.

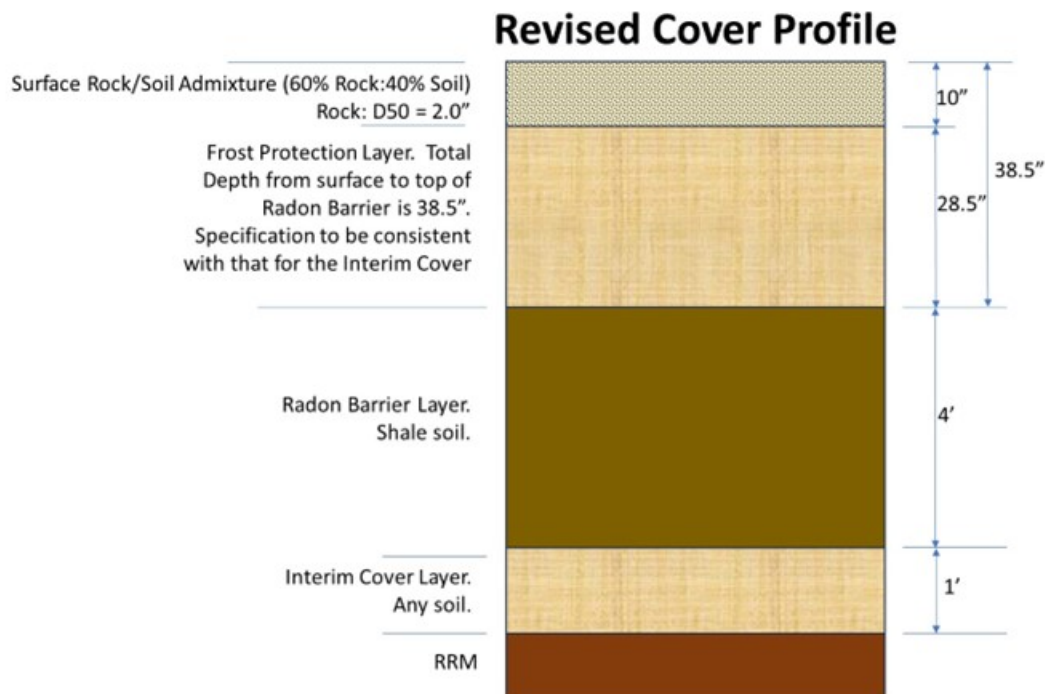


Figure B-6. ET Cover Profile

B.2.1 Sensitivity Analysis #1: Cover Soil Input Properties

The initial set of simulations was performed to evaluate the envelope of cover soil data. Each simulation was performed utilizing consistent climate and vegetation input to allow for evaluation of each respective set of soil hydraulic properties' impact on the output. The climate utilized is described in Section B.1.4. The vegetation parameters utilized in sensitivity analysis #1 was from a grassland analog site described in Sections B.1.5 and B.1.6.

The soil hydraulic properties were varied for each simulation to determine the worst-case set of cover soil data for both alluvium (used in surface admixture and interim cover) and shale (used in the radon barrier). The worst-case for each soil texture was the soil that allowed the deepest PODR. The profiles in each respective simulation included a homogeneous soil profile consisting of the respective soil hydraulic properties for each soil sample (Table B-3).

B.2.2 Sensitivity Analysis #2: Cover Soil Input Properties

The soil deemed to be worst-case (alluvium – sample 4; shale – sample 6) was then included in a second set of simulations (Table B-4) with a profile geometry as shown in Figure B-6. This allowed for evaluation of the cover profile options given the layering and soil texture possibilities. The top foot of the cover profile had its saturated hydraulic conductivity increased by an order of magnitude. This allowed for 100% infiltration of all precipitation (no runoff). It is important to note that erosion calculations assumed worst-case runoff created by the probable maximum precipitation (PMP) event. The measured cover soil hydraulic properties used in these sensitivity analyses are based on remolded densities equal to 85% of the MDD per ASTM D1557. This is assumed to be equivalent to an MDD per ASTM D698 of about 90%.

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The climate utilized is described in Section B.1.4. The vegetation included the envelope of possibilities (reclaimed, grass, and shrub) that represents a natural succession for vegetation in this arid climate, as described in Sections B.1.5 and B.1.6.

The hydraulic properties from Sample GATB-09 were utilized for the tailings material or RRM, referred to as transition tailings (FRAP, Attachment 5, Vol 2, Appendix N). The tailings (sand, transition, and slime) are mixed at the Moab site and then hauled to and placed in the Crescent Junction impoundment. The transition tailings have the best available representative properties of the mixed tailings. The van Genuchten properties shown in Table B-4 for the tailings material are the results of the available moisture content and respective matric potential (FRAP, Attachment 5, Vol. 2, Appendix N) used as input into the retention curve (RETC) model (van Genuchten et al. 1991). The RETC model output results are provided in Appendix A. The soil input parameters for the sensitivity analysis #2 UNSAT-H simulations are summarized in Table B-4.

Table B-4. Sensitivity Analysis #2: Soil Input Properties

Soil Sample	Layer – ordered top to bottom	Layer Thickness (cm)	K _s (cm/hr)	van Genuchten (VG) parameters			
				Θ _s (vol.)	Θ _r (vol.)	alpha	n
4	Surface Admixture	25	1.8783	0.1638	0.0042	0.0059	1.3171
4	Frost Protection Soil	6	5.4	0.4094	0.0106	0.0059	1.3171
4	Frost Protection Soil	67	0.54	0.4094	0.0106	0.0059	1.3171
6	Radon Barrier (Shale)	122	0.0756	0.4203	0	0.0056	1.2439
4	Interim Cover Soil	30	0.54	0.4094	0.0106	0.0059	1.3171
GATB-09	Tailings	268	0.2484	0.5748	0.0401	0.0016	2.3431

B.3 COMPUTER SIMULATIONS OUTPUT SUMMARY

The computer simulations are intended to identify the minimum cover depth that will minimize flux through the cover system. The PODR method was used (Dwyer et al. 2007, EPA 2011) to identify the “point of diminishing returns” given the myriad of input parameters and boundary conditions whereby an additional increment of soil depth no longer helps to minimize the flux.

B.3.1 Sensitivity Analysis #1: Computer Simulations

The simulations attempted to identify the worst-case scenario given the variation in soil texture, vegetation, and climate. All output files are contained in Attachment 2. The first set of computer simulations was performed utilizing the hydraulic properties from the cover borrow materials (Table B-3, Figure B-5). The different soil samples were evaluated separately while applying the same vegetation (grassland) parameters and climate. The profile modeled in this set of sensitivity analyses was simply a monolithic soil profile consisting of the respective soil sample hydraulic properties.

B.3.1.1 Sensitivity Analysis #1: Alluvium Soil

For alluvium soil, it was determined that Soil Sample 4 was the worst-performing soil because it produced the deepest PODR. Figure B-7 shows the combination of results. It is important to note that this set of results is not indicative of the final cover system; rather, the set was performed to compare the various hydraulic properties of the most permeable soils intended for the upper portion of the cover and interim cover layer.

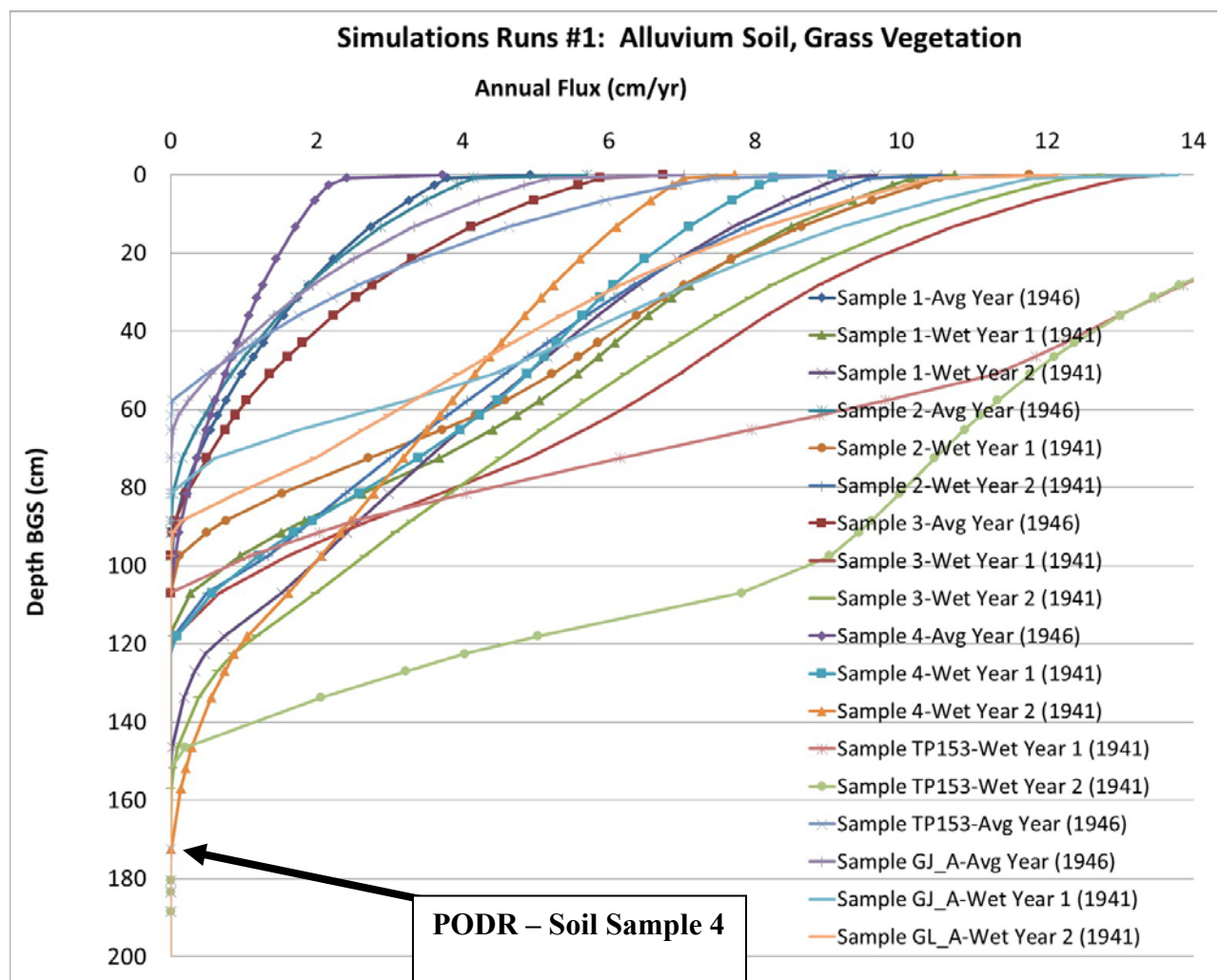


Figure B-7.

Alluvium Soil

It can be seen in the second of two (Figure B-7) that Sample 4 produced the deepest PODR (Figure B-7) at an annual flux of zero (Table B-5).

et Year 2) that Sample 4 produced the deepest PODR in all cases occurs at a net annual flux of zero (Table B-5).

Table B-6 summarizes the annual water balance results for each simulation utilizing alluvium soils in sensitivity analysis #1.

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Table B-5. Alluvium Soil Results

Simulation	Depth of PODR (cm)			Flux @ PODR (cm/yr)		
	Avg	Wet1	Wet2	Avg	Wet1	Wet2
DBSA Alluvium Sample 1	105	113	152	0	0	0
DBSA Alluvium Sample 2	102	105	122	0	0	0
DBSA Alluvium Sample 3	109	121	160	0	0	0
DBSA Alluvium Sample 4	105	122	175	0	0	0
Sample TP153	92	110	150	0	0	0
Grand Junction Alluvium	94	94	102	0	0	0

Table B-6. Sensitivity Analysis #1 – Annual Water Balance Results for Alluvium Soil

Soil Sample	Vegetation	Year	Precip (cm)	PET (cm)	Transp (cm)	Evap (cm)	Runoff (cm)	Depth of PODR (cm)
1	Grass	Typ	22.53	135.832	3.852	18.739	0	105
		Wet Yr 1	50.698	113.7	6.48	40.472	0	113
		Wet Yr 2	50.698	113.759	7.827	41.466	0	152
2	Grass	Typ	22.53	135.832	4.156	18.428	0	102
		Wet Yr 1	50.698	113.7	7.027	40.086	0	105
		Wet Yr 2	50.698	113.759	8.569	41.054	0	122
3	Grass	Typ	22.53	135.832	6.03	16.53	0	109
		Wet Yr 1	50.698	113.7	9.497	37.476	0	121
		Wet Yr 2	50.698	113.759	10.987	38.295	0	160
4	Grass	Typ	22.53	135.832	2.278	20.386	0	105
		Wet Yr 1	50.698	113.7	4.401	42.457	0	122
		Wet Yr 2	50.698	113.759	5.356	43.698	0	175
TP153	Grass	Typ	22.53	135.832	7.573	14.983	0	92
		Wet Yr 1	50.698	113.7	9.632	31.513	0	110
		Wet Yr 2	50.698	113.759	10.723	31.948	0	150
Grand Junction Alluvium	Grass	Typ	22.53	135.832	5.234	17.34	0	94
		Wet Yr. 1	50.698	113.7	7.95	38.78	0	94
		Wet Yr. 2	50.698	113.759	9.342	40.142	0	102

B.3.1.2 Sensitivity Analysis #1: Shale Soil

For shale soil, it was determined that Soil Sample 6 was the worst-performing soil because it produced the deepest PODR. Figure B-8 shows the combination of results. It is important to note that this set of results is not indicative of the final cover system; rather, it was performed simply to compare the various hydraulic properties of the most permeable soils intended for the upper portion of the cover and interim cover layer.

It can be seen in the second of two consecutive wet years (Wet Year 2) that Sample 6 produced the deepest PODR (Figure B-8) of 99 cm (Table B-7). The PODR in all cases occurs at a net annual flux of zero (Table B-8).

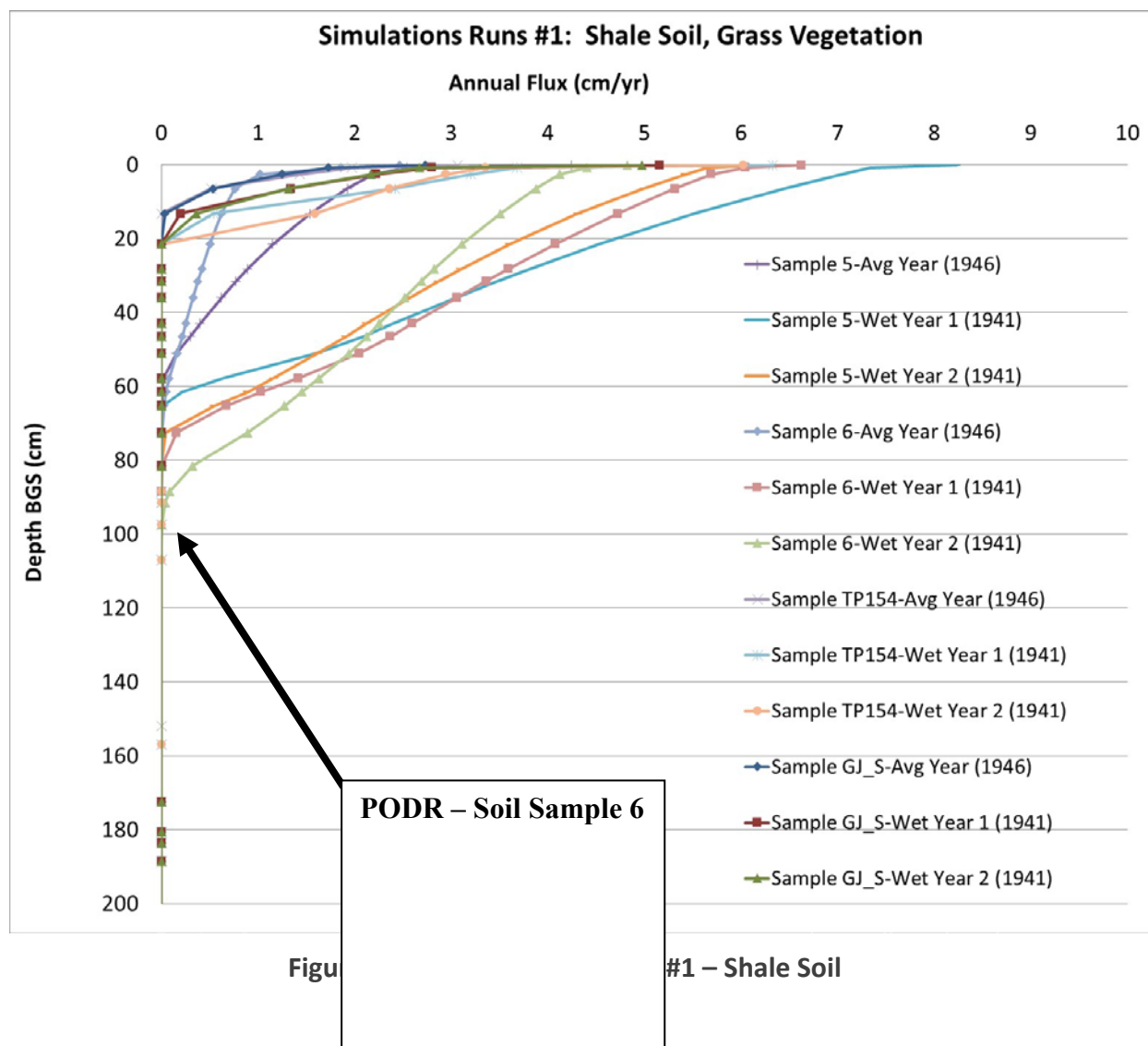


Table B-7. Shale Soil Results

Simulation	Depth of PODR (cm)			Flux @ PODR (cm/yr)		
	Avg	Wet1	Wet2	Avg	Wet1	Wet2
DBSA Shale Sample 5	89	89	90	0	0	0
DBSA Shale Sample 6	89	90	99	0	0	0
Sample TP154	80	80	80	0	0	0
Grand Junction Shale	71	71	71	0	0	0

Table B-8 summarizes the annual water balance results for each simulation utilizing shale soils in the sensitivity analysis #1.

Table B-8. Sensitivity Analysis #1 – Annual Water Balance Results for Shale Soil

Soil Sample	Vegetation	Year	Precip (cm)	PET (cm)	Transp (cm)	Evap (cm)	Runoff (cm)	Depth of PODR (cm)
5	Grass	Typ	22.53	135.832	2.26	20.323	0	89
		Wet Yr 1	50.698	113.7	4.229	43.352	0	89
		Wet Yr 2	50.698	113.759	4.999	45.073	0	90
6	Grass	Typ	22.53	135.832	0.876	21.741	0	89
		Wet Yr 1	50.698	113.7	2.536	44.878	0	90
		Wet Yr 2	50.698	113.759	3.433	46.532	0	99
TP154	Grass	Typ	22.53	135.832	2.259	5.583	14.975	80
		Wet Yr 1	50.698	113.7	2.686	11.226	35.847	80
		Wet Yr 2	50.698	113.759	2.82	11.842	35.791	80
Grand Junction Shale	Grass	Typ	22.53	135.832	1.964	4.716	15.961	71
		Wet Yr. 1	50.698	113.7	2.578	9.618	38.159	71
		Wet Yr. 2	50.698	113.759	2.792	9.88	38.176	71

B.3.2 Sensitivity Analysis #2: Computer Simulations

The second set of simulations consisted of the cover profile as shown in Figure B-6, utilizing the worst-performing alluvium soil from samples 1 to 4, TP153, and Grand Junction Alluvium (Sample 4) and shale soil from samples 5, 6, TP154, and Grand Junction Shale (Sample 6), respectively. Again, for each computer simulation, 10 typical climate years were applied followed by the wettest year on record 2 years in a row. The 10th year of the 10 consecutive years of typical climate is that presented with the results for the typical climate year. The 10 consecutive typical years were performed to develop appropriate antecedent conditions while eliminating any biases placed in the initial moisture conditions for the modeled soil profile.

The profile (Figure B-6) was modeled with soil summarized in Table B-4. Input parameters for reclaimed, grass, and shrub vegetation were each evaluated.

The PODR results was about 155 cm (5.1 ft) for typical climate conditions, 190 cm (6.2 ft) for the wettest year on record, and 205 cm (6.7 ft) for the second consecutive wet year (Figure B-9). The PODR results for the cover system without any vegetation was about 210 cm (6.9 ft) for typical climate conditions, 215 cm (7.1 ft) for the wettest year on record, and 230 cm (7.5 ft) for the second consecutive wet year. For all assumed conditions, the net annual flux rate is easily minimized within the 250 cm (8.2 ft) cover depth.

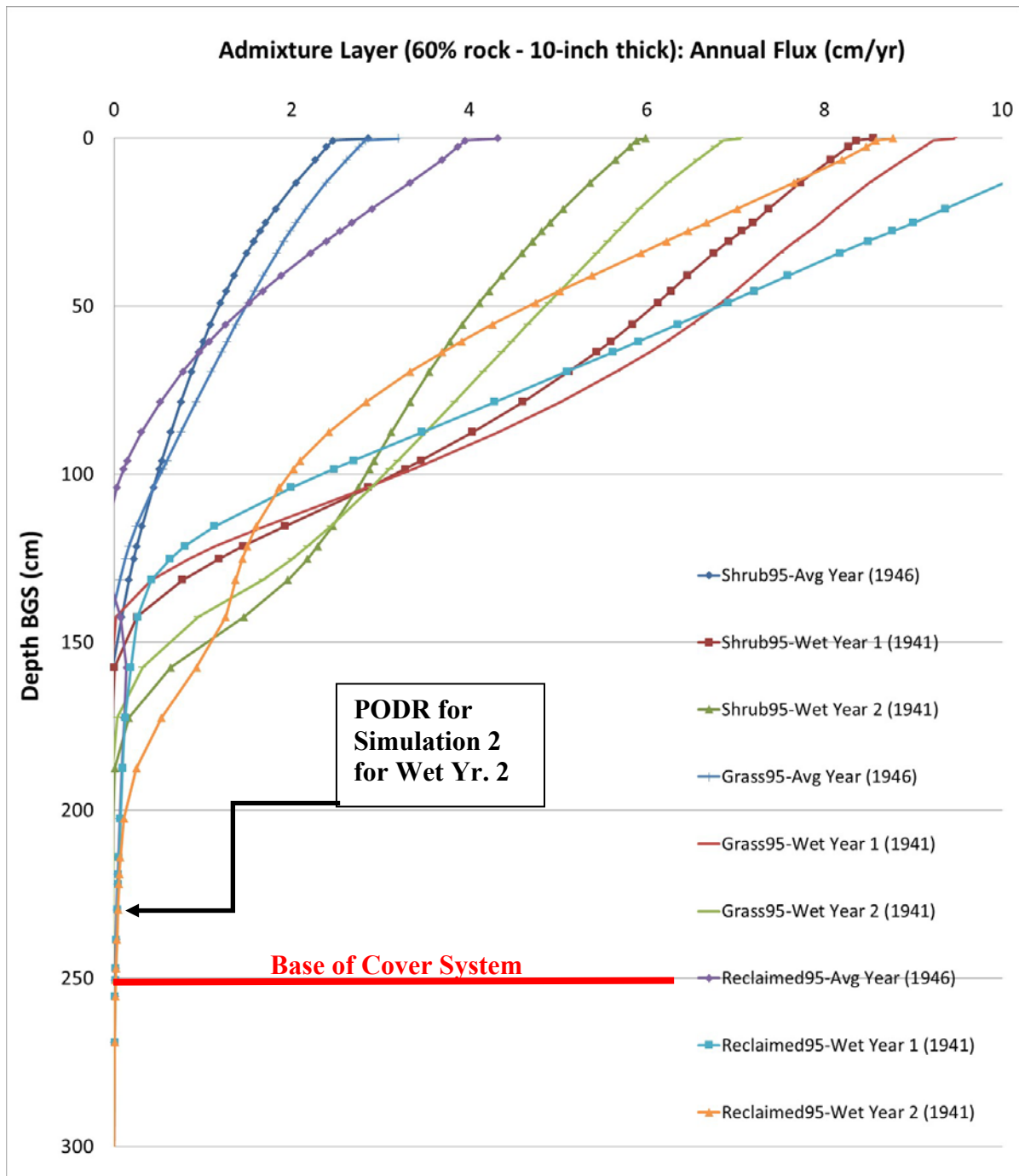


Figure B-9. Sensitivity Analysis #2

Table B-9 provides a summary of the annual water balance variables for the sensitivity analysis #2.

Table B-9. Sensitivity Analyses #2 Results

Vegetation	Year	Precip (cm)	PET (cm)	Transp (cm)	Evap (cm)	Runoff (cm)	Depth of PODR (cm)
Reclaimed	Typ	22.53	135.832	3.713	18.604	0	106
	Wet Yr 1	50.698	113.7	5.722	39.632	0	190
	Wet Yr 2	50.698	113.759	6.111	42.091	0	205
Grass	Typ	22.53	135.832	2.847	19.725	0	140
	Wet Yr 1	50.698	113.7	3.989	41.451	0	145
	Wet Yr 2	50.698	113.759	4.678	43.821	0	180
Shrub	Typ	22.53	135.832	2.442	20.092	0	155
	Wet Yr 1	50.698	113.7	3.057	42.317	0	160
	Wet Yr 2	50.698	113.759	3.443	44.8	0	190

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ATTACHMENT 1. UNSAT H INPUT FILES

Sensitivity Analysis #1: Soil Sample 1

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!               Version 3.01                     !
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Time Processed: 14:02:53.92

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

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IFLIST = 1    NFLIST = 24
NPRINT = 0    STOPHR = 2.400E+01
ISMETH = 1    INMAX = 5    ISWDIF = 1    DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
  KOPT = 4    KEST = 3    WTF = 5.000E-01
ITOPBC = 0    IEVOPT = 1    NFHOUR = 2    LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0    ICLOUD = 0    ISHOPT = 0
IRAIN = 0     HPR = 1.000E+00

```

Hysteresis options:

```

IHYS = 0    AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

```

Heat flow options:

```

IHEAT = 0    ICONVH = 0    DMAXHE = 0.000E+00
UPPERH = 0    TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0    QHLEAK = 0.000E+00 TGRAD = 0.000E+00

```

Vapor flow options:

```

IVAPOR = 1    TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

```

Grid options:

```

MATN = 5     NPT = 120

```

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

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Material No. 1

THETA = f(H), Layer 1: Soil 1

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 1: Soil 1 plus 1 order

RKMOD = 2.0000 SK = 3.9600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 1

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 2: Soil 1

RKMOD = 2.0000 SK = 0.39600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Radon Barrier Soil 5

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 3: Soil 1

RKMOD = 2.0000 SK = 0.39600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil 1

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 4: Soil 1

RKMOD = 2.0000 SK = 0.39600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 1

THET = 0.37990 THTR = 3.03000E-02 ALPHA = 8.50000E-03

N = 1.3505 M = 0.25953

K = f(H), Layer 5: Soil 1

RKMOD = 2.0000 SK = 0.39600 A = 8.50000E-03

N = 1.3505 M = 0.25953 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.799E-01 K = 3.960E+00 C = -1.740E-08

HDRY = 1.000E+08 THETA = 3.322E-02 K = 2.353E-18 C = -1.023E-11

Initial Conditions:

NDAY = 0

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NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
2	0.10	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
3	0.30	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
4	0.60	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
5	1.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
6	1.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
7	2.20	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
8	3.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
9	4.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
10	5.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
11	7.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
12	9.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
13	12.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
14	14.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
15	17.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
16	20.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
17	23.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
18	25.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
19	27.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
20	29.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
21	30.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
22	31.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
23	32.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
24	33.50	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
25	35.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
26	37.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
27	40.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
28	42.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
29	44.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
30	45.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
31	46.00	1	1.0000E+04	7.5006E-07	-2.5742E-06	0.1039	293.1
32	47.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
33	48.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
34	50.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
35	52.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
36	54.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
37	57.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
38	58.50	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
39	60.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
40	61.00	2	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
41	62.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
42	63.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
43	64.50	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
44	66.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
45	68.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
46	71.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
47	74.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1

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48	77.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
49	80.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
50	83.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
51	86.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
52	88.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
53	89.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
54	90.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
55	91.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
56	92.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
57	94.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
58	96.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
59	99.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
60	102.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
61	105.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
62	109.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
63	114.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
64	117.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
65	119.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
66	121.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
67	122.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
68	123.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
69	124.50	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
70	126.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
71	128.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
72	130.50	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
73	132.50	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
74	135.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
75	140.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
76	145.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
77	148.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
78	150.00	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
79	151.40	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
80	152.40	3	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
81	153.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
82	154.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
83	160.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
84	165.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
85	170.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
86	175.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
87	178.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
88	180.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
89	181.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
90	182.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
91	183.00	4	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
92	184.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
93	185.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
94	187.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
95	190.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
96	195.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1

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97	202.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
98	210.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
99	220.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
100	235.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
101	240.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
102	260.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
103	280.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
104	300.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
105	320.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
106	340.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
107	360.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
108	380.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
109	400.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
110	420.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
111	440.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
112	455.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
113	465.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
114	473.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
115	478.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
116	482.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
117	485.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
118	487.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
119	488.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1
120	489.00	5	1.0000E+04	7.5006E-08	-2.5742E-06	0.1039	293.1

Total Initial Storage (cm) = 5.082211E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300,
BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
70	0.000
103	0.640
274	0.640
300	0.000

DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI
1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000

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37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272
85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000

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331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote) = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX ROOT DEPTH (cm/cm)	ROOT DENSITY (1/cm)	NORMALIZED DENSITY

0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135
0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071

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0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065
0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

For Material No. 2

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

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For Material No. 3

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

For Material No. 4

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

For Material No. 5

THETAW (wilting point moisture content) = 0.0756
THETAD (lower limit of optimum moisture content) = 0.1931
THETAN (upper limit of optimum moisture content) = 0.3668

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0150	0.0440
0.0699	0.0911	0.1061	0.1139	0.1139	0.1061	0.0911	0.0699
0.0440	0.0150	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1	c:\a\PET1946.pen
2	c:\a\PET1947.pen
3	c:\a\PET1948.pen
4	c:\a\PET1949.pen
5	c:\a\PET1950.pen
6	c:\a\PET1951.pen
7	c:\a\PET1952.pen
8	c:\a\PET1953.pen
9	c:\a\PET1954.pen
10	c:\a\PET1955.pen
11	c:\a\PET1956.pen
12	c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1	c:\a\precip1946.dat
2	c:\a\precip1947.dat
3	c:\a\precip1948.dat
4	c:\a\precip1949.dat
5	c:\a\precip1950.dat

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6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000

b = 0.520

c = 0.500

d = 0.000 (below this LAI, PT is zero)

e = 2.700 (above this LAI, PT=f(e))

DAY	PET	PTRANS	PEVAPO	DAY	PET	PTRANS	PEVAPO
1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003

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55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686
85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776

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153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577
157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698
229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419

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251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137
301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309
319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339
337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263

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349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

Totals: PET = 135.8321
PTRANS = 16.7189
PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time (hr)	Amount (cm)	Application Type	Efficiency	Changes In Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			

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12.000	1.0000			
13.000	0.0000			
22.000	0.0320			
23.000	0.0000			
224	12.000 1.0000	1	1.000	4
	13.000 0.0000			
	22.000 0.5240			
	23.000 0.0000			
227	0.000 1.0000	1	1.000	4
	1.000 0.0000			
	12.000 0.5240			
	13.000 0.0000			
233	0.000 0.7620	1	1.000	2
	1.000 0.0000			
235	0.000 0.2540	1	1.000	2
	1.000 0.0000			
238	0.000 0.5080	1	1.000	2
	1.000 0.0000			
256	0.000 0.3302	1	1.000	2
	1.000 0.0000			
258	0.000 0.3302	1	1.000	2
	1.000 0.0000			
275	0.000 0.7620	1	1.000	2
	1.000 0.0000			
278	0.000 0.1524	1	1.000	2
	1.000 0.0000			
279	0.000 0.2794	1	1.000	2
	1.000 0.0000			
290	0.000 0.5080	1	1.000	2
	1.000 0.0000			
300	0.000 0.3048	1	1.000	2
	1.000 0.0000			
302	0.000 1.0000	1	1.000	4
	1.000 0.0000			
	12.000 0.0414			
	13.000 0.0000			
305	0.000 0.0762	1	1.000	2
	1.000 0.0000			
312	0.000 1.0000	1	1.000	4
	1.000 0.0000			
	12.000 0.7780			
	13.000 0.0000			
313	0.000 1.0000	1	1.000	4
	1.000 0.0000			
	12.000 0.2700			
	13.000 0.0000			
317	0.000 0.3048	1	1.000	2
	1.000 0.0000			
328	0.000 1.0000	1	1.000	4

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1.000	0.0000			
12.000	0.2700			
13.000	0.0000			
341	0.000	1.0000	1	1.000
	1.000	0.0000		4
	12.000	0.4732		
	13.000	0.0000		
360	0.000	1.0000	1	1.000
	1.000	0.0000		4
	12.000	0.0160		
	13.000	0.0000		
362	0.000	0.4572	1	1.000
	1.000	0.0000		2

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 2

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\2_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:14:11.13

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K = f(H), Layer 1: Soil 2 plus 1 order

RKMOD = 2.0000 SK = 6.1200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K = f(H), Layer 2: Soil 2

RKMOD = 2.0000 SK = 0.61200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K = f(H), Layer 3: Soil 2

RKMOD = 2.0000 SK = 0.61200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K =f(H), Layer 4: Soil 2

RKMOD = 2.0000 SK = 0.61200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 2

THET = 0.39150 THTR = 1.61000E-02 ALPHA = 1.48000E-02

N = 1.2785 M = 0.21783

K =f(H), Layer 5: Soil 2

RKMOD = 2.0000 SK = 0.61200 A = 1.48000E-02

N = 1.2785 M = 0.21783 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.915E-01 K = 6.120E+00 C =-1.793E-08

HDRY = 1.000E+08 THETA = 2.328E-02 K = 6.706E-18 C =-1.999E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1	0.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
2	0.10	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
3	0.30	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
4	0.60	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
5	1.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
6	1.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
7	2.20	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
8	3.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1

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9	4.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
10	5.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
11	7.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
12	9.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
13	12.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
14	14.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
15	17.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
16	20.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
17	23.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
18	25.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
19	27.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
20	29.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
21	30.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
22	31.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
23	32.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
24	33.50	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
25	35.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
26	37.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
27	40.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
28	42.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
29	44.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
30	45.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
31	46.00	1	1.0000E+04	4.0782E-07	-2.5943E-06	0.1094	293.1
32	47.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
33	48.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
34	50.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
35	52.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
36	54.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
37	57.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
38	58.50	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
39	60.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
40	61.00	2	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
41	62.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
42	63.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
43	64.50	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
44	66.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1

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45	68.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
46	71.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
47	74.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
48	77.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
49	80.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
50	83.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
51	86.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
52	88.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
53	89.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
54	90.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
55	91.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
56	92.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
57	94.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
58	96.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
59	99.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
60	102.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
61	105.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
62	109.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
63	114.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
64	117.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
65	119.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
66	121.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
67	122.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
68	123.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
69	124.50	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
70	126.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
71	128.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
72	130.50	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
73	132.50	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
74	135.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
75	140.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
76	145.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
77	148.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
78	150.00	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
79	151.40	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
80	152.40	3	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1

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81	153.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
82	154.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
83	160.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
84	165.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
85	170.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
86	175.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
87	178.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
88	180.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
89	181.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
90	182.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
91	183.00	4	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
92	184.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
93	185.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
94	187.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
95	190.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
96	195.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
97	202.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
98	210.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
99	220.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
100	235.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
101	240.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
102	260.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
103	280.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
104	300.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
105	320.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
106	340.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
107	360.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
108	380.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
109	400.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
110	420.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
111	440.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
112	455.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
113	465.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
114	473.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
115	478.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
116	482.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1

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117	485.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
118	487.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
119	488.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1
120	489.00	5	1.0000E+04	4.0782E-08	-2.5943E-06	0.1094	293.1

Total Initial Storage (cm) = 5.350274E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

For Material No. 2

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

For Material No. 3

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

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For Material No. 4

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

For Material No. 5

THETAW (wilting point moisture content) = 0.0795

THETAD (lower limit of optimum moisture content) = 0.1921

THETAN (upper limit of optimum moisture content) = 0.3675

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type	Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 3

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\3_.inp

Date Processed: 08 Jun 2021

Time Processed: 12:23:22.76

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRIY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

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MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 3

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

N = 1.4153 M = 0.29344

K = f(H), Layer 1: Soil 3 plus 1 order

RKMOD = 2.0000 SK = 10.080 A = 1.68000E-02

N = 1.4153 M = 0.29344 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 3

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

N = 1.4153 M = 0.29344

K = f(H), Layer 2: Soil 3

RKMOD = 2.0000 SK = 1.0080 A = 1.68000E-02

N = 1.4153 M = 0.29344 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Radon Barrier Soil 5

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

N = 1.4153 M = 0.29344

K = f(H), Layer 3: Soil 3

RKMOD = 2.0000 SK = 1.0080 A = 1.68000E-02

N = 1.4153 M = 0.29344 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil 3

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

N = 1.4153 M = 0.29344

K = f(H), Layer 4: Soil 3

RKMOD = 2.0000 SK = 1.0080 A = 1.68000E-02

N = 1.4153 M = 0.29344 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 3

THET = 0.37250 THTR = 4.32000E-02 ALPHA = 1.68000E-02

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N = 1.4153 M = 0.29344

K =f(H), Layer 5: Soil 3

RKMOD = 2.0000 SK = 1.0080 A = 1.68000E-02

N = 1.4153 M = 0.29344 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.725E-01 K = 1.008E+01 C = -1.706E-08

HDRY = 1.000E+08 THETA = 4.406E-02 K = 1.058E-19 C = -3.553E-12

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
2	0.10	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
3	0.30	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
4	0.60	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
5	1.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
6	1.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
7	2.20	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
8	3.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
9	4.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
10	5.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
11	7.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
12	9.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
13	12.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
14	14.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
15	17.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
16	20.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
17	23.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
18	25.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
19	27.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
20	29.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
21	30.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
22	31.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
23	32.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
24	33.50	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
25	35.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
26	37.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1

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27	40.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
28	42.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
29	44.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
30	45.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
31	46.00	1	1.0000E+04	1.5031E-07	-1.6270E-06	0.0824	293.1
32	47.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
33	48.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
34	50.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
35	52.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
36	54.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
37	57.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
38	58.50	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
39	60.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
40	61.00	2	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
41	62.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
42	63.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
43	64.50	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
44	66.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
45	68.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
46	71.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
47	74.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
48	77.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
49	80.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
50	83.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
51	86.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
52	88.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
53	89.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
54	90.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
55	91.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
56	92.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
57	94.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
58	96.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
59	99.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
60	102.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
61	105.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
62	109.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
63	114.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
64	117.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
65	119.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
66	121.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
67	122.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
68	123.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1

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69	124.50	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
70	126.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
71	128.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
72	130.50	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
73	132.50	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
74	135.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
75	140.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
76	145.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
77	148.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
78	150.00	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
79	151.40	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
80	152.40	3	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
81	153.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
82	154.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
83	160.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
84	165.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
85	170.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
86	175.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
87	178.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
88	180.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
89	181.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
90	182.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
91	183.00	4	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
92	184.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
93	185.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
94	187.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
95	190.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
96	195.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
97	202.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
98	210.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
99	220.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
100	235.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
101	240.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
102	260.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
103	280.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
104	300.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
105	320.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
106	340.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
107	360.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
108	380.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
109	400.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
110	420.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1

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111	440.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
112	455.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
113	465.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
114	473.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
115	478.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
116	482.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
117	485.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
118	487.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
119	488.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1
120	489.00	5	1.0000E+04	1.5031E-08	-1.6270E-06	0.0824	293.1

Total Initial Storage (cm) = 4.029799E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
70	0.000
103	0.640
274	0.640
300	0.000

DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI
1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000

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337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote) = 0.074

Root depth, density, and weight/node versus depth

DAY MAX ROOT NORMALIZED

ROOT DEPTH DENSITY DENSITY

(cm/cm) (1/cm)

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135
0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079

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0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065
0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

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NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

For Material No. 2

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

For Material No. 3

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

For Material No. 4

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

For Material No. 5

THETAW (wilting point moisture content) = 0.0652

THETAD (lower limit of optimum moisture content) = 0.1447

THETAN (upper limit of optimum moisture content) = 0.3429

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

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Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen
- 12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

- 1 c:\a\precip1946.dat
- 2 c:\a\precip1947.dat
- 3 c:\a\precip1948.dat
- 4 c:\a\precip1949.dat
- 5 c:\a\precip1950.dat
- 6 c:\a\precip1951.dat
- 7 c:\a\precip1952.dat
- 8 c:\a\precip1953.dat
- 9 c:\a\precip1954.dat
- 10 c:\a\precip1955.dat
- 11 c:\a\precip1956.dat
- 12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000

b = 0.520

c = 0.500

d = 0.000 (below this LAI, PT is zero)

e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

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1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577
157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658

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169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698
229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402

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253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137
301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309
319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339

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337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263
349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

Totals: PET = 135.8321

PTRANS = 16.7189

PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
(hr)	(cm)	Type		Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2

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1.000	0.0000				
131	0.000 0.7620	1	1.000	2	
1.000	0.0000				
185	0.000 0.3810	1	1.000	2	
1.000	0.0000				
194	0.000 0.5080	1	1.000	2	
1.000	0.0000				
200	0.000 0.7620	1	1.000	2	
1.000	0.0000				
209	0.000 0.1524	1	1.000	2	
1.000	0.0000				
223	0.000 1.0000	1	1.000	6	
1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000 1.0000	1	1.000	4	
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000 1.0000	1	1.000	4	
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000 0.7620	1	1.000	2	
1.000	0.0000				
235	0.000 0.2540	1	1.000	2	
1.000	0.0000				
238	0.000 0.5080	1	1.000	2	
1.000	0.0000				
256	0.000 0.3302	1	1.000	2	
1.000	0.0000				
258	0.000 0.3302	1	1.000	2	
1.000	0.0000				
275	0.000 0.7620	1	1.000	2	
1.000	0.0000				
278	0.000 0.1524	1	1.000	2	
1.000	0.0000				
279	0.000 0.2794	1	1.000	2	
1.000	0.0000				
290	0.000 0.5080	1	1.000	2	

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1.000	0.0000			
300	0.000 0.3048	1	1.000	2
1.000	0.0000			
302	0.000 1.0000	1	1.000	4
1.000	0.0000			
12.000	0.0414			
13.000	0.0000			
305	0.000 0.0762	1	1.000	2
1.000	0.0000			
312	0.000 1.0000	1	1.000	4
1.000	0.0000			
12.000	0.7780			
13.000	0.0000			
313	0.000 1.0000	1	1.000	4
1.000	0.0000			
12.000	0.2700			
13.000	0.0000			
317	0.000 0.3048	1	1.000	2
1.000	0.0000			
328	0.000 1.0000	1	1.000	4
1.000	0.0000			
12.000	0.2700			
13.000	0.0000			
341	0.000 1.0000	1	1.000	4
1.000	0.0000			
12.000	0.4732			
13.000	0.0000			
360	0.000 1.0000	1	1.000	4
1.000	0.0000			
12.000	0.0160			
13.000	0.0000			
362	0.000 0.4572	1	1.000	2
1.000	0.0000			

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 4

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\4_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:19:06.96

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Soil 4 plus 1 order

RKMOD = 2.0000 SK = 5.4000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 2: Soil 4

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 3: Soil 4

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K =f(H), Layer 4: Soil 4

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 4

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K =f(H), Layer 5: Soil 4

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.094E-01 K = 5.400E+00 C =-1.875E-08

HDRV = 1.000E+08 THETA = 1.650E-02 K = 2.393E-17 C =-1.871E-11

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP

1	0.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
2	0.10	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
3	0.30	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
4	0.60	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
5	1.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
6	1.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
7	2.20	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
8	3.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1

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9	4.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
10	5.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
11	7.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
12	9.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
13	12.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
14	14.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
15	17.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
16	20.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
17	23.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
18	25.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
19	27.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
20	29.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
21	30.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	31.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	32.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	33.50	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	35.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	37.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
27	40.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
28	42.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
29	44.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
30	45.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
31	46.00	1	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
32	47.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	48.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	50.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	52.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	54.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	57.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	58.50	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	60.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	61.00	2	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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45	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
48	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
50	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
51	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	88.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	90.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	91.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	94.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	96.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	99.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	102.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	105.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
62	109.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
63	114.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
64	117.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
65	119.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
66	121.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
67	122.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
68	123.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
69	124.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
70	126.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
71	128.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
72	130.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
73	132.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
74	135.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
75	140.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
76	145.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
77	148.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
78	150.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
79	151.40	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
80	152.40	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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81	153.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
82	154.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
83	160.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
84	165.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
85	170.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
86	175.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
87	178.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
88	180.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
89	181.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
90	182.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
91	183.00	4	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
92	184.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
93	185.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
94	187.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
95	190.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
96	195.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
97	202.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
98	210.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
99	220.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	235.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	240.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	260.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	280.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	300.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	320.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	340.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	360.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	380.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	400.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
110	420.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
111	440.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	455.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	465.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
114	473.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
115	478.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
116	482.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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117	485.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
118	487.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
119	488.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
120	489.00	5	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

Total Initial Storage (cm) = 5.864738E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

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0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 2

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 3

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

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For Material No. 4

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 5

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157 0.7671 0.1120 0.6551	158 0.7911 0.1155 0.6756
159 0.8382 0.1224 0.7158	160 0.8671 0.1266 0.7405
161 0.8498 0.1241 0.7257	162 0.8019 0.1171 0.6848
163 0.7987 0.1166 0.6821	164 0.8331 0.1216 0.7115
165 0.8448 0.1234 0.7214	166 0.8476 0.1238 0.7238
167 0.8315 0.1214 0.7101	168 0.7796 0.1138 0.6658
169 0.7765 0.1134 0.6631	170 0.8071 0.1178 0.6893
171 0.6348 0.0927 0.5421	172 0.6437 0.0940 0.5497
173 0.6686 0.0976 0.5710	174 0.7005 0.1023 0.5982
175 0.7419 0.1083 0.6336	176 0.7160 0.1045 0.6115
177 0.7348 0.1073 0.6275	178 0.7275 0.1062 0.6213
179 0.7271 0.1062 0.6209	180 0.7359 0.1075 0.6284
181 0.7635 0.1115 0.6520	182 0.7608 0.1111 0.6497
183 0.7506 0.1096 0.6410	184 0.7427 0.1084 0.6343
185 0.6581 0.0961 0.5620	186 0.6694 0.0977 0.5717
187 0.7095 0.1036 0.6059	188 0.7180 0.1048 0.6132
189 0.7125 0.1040 0.6085	190 0.7904 0.1154 0.6750
191 0.7524 0.1099 0.6425	192 0.7512 0.1097 0.6415
193 0.7125 0.1040 0.6085	194 0.6653 0.0971 0.5682
195 0.7235 0.1056 0.6179	196 0.7713 0.1126 0.6587
197 0.8165 0.1192 0.6973	198 0.7191 0.1050 0.6141
199 0.7959 0.1162 0.6797	200 0.7298 0.1066 0.6232
201 0.7164 0.1046 0.6118	202 0.6947 0.1014 0.5933
203 0.6953 0.1015 0.5938	204 0.7389 0.1079 0.6310
205 0.7455 0.1089 0.6366	206 0.7191 0.1050 0.6141
207 0.7042 0.1028 0.6014	208 0.6759 0.0987 0.5772
209 0.7596 0.1109 0.6487	210 0.6731 0.0983 0.5748
211 0.6379 0.0931 0.5448	212 0.6763 0.0988 0.5775
213 0.8013 0.1170 0.6843	214 0.7565 0.1105 0.6460
215 0.7107 0.1038 0.6069	216 0.7511 0.1097 0.6414
217 0.7599 0.1110 0.6489	218 0.5801 0.0847 0.4954
219 0.6442 0.0941 0.5501	220 0.6917 0.1010 0.5907
221 0.7298 0.1066 0.6232	222 0.7155 0.1045 0.6110
223 0.6367 0.0930 0.5437	224 0.4384 0.0640 0.3744
225 0.4302 0.0628 0.3674	226 0.4221 0.0616 0.3605
227 0.4229 0.0618 0.3611	228 0.5501 0.0803 0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
(hr)	(cm)	Type		Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2
	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			
360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 5

December 2023

! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\5_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:23:55.34

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K = f(H), Layer 1: Soil 5 plus 2 order

RKMOD = 2.0000 SK = 1.1500 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K = f(H), Layer 2: Soil 5

RKMOD = 2.0000 SK = 1.15000E-02 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K = f(H), Layer 3: Soil 5

RKMOD = 2.0000 SK = 1.15000E-02 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K =f(H), Layer 4: Soil 5

RKMOD = 2.0000 SK = 1.15000E-02 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 5

THET = 0.41710 THTR = 0.0000 ALPHA = 5.30000E-03

N = 1.2373 M = 0.19179

K =f(H), Layer 5: Soil 5

RKMOD = 2.0000 SK = 1.15000E-02 A = 5.30000E-03

N = 1.2373 M = 0.19179 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.171E-01 K = 1.150E+00 C =-1.910E-08

HDRY = 1.000E+08 THETA = 1.828E-02 K = 6.052E-17 C =-4.337E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1 0.00 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
2 0.10 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
3 0.30 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
4 0.60 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
5 1.00 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
6 1.50 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
7 2.20 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1
8 3.00 1 1.0000E+04 1.4150E-06 -3.8245E-06 0.1624 293.1

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9	4.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
10	5.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
11	7.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
12	9.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
13	12.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
14	14.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
15	17.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
16	20.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
17	23.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
18	25.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
19	27.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
20	29.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
21	30.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
22	31.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
23	32.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
24	33.50	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
25	35.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
26	37.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
27	40.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
28	42.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
29	44.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
30	45.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
31	46.00	1	1.0000E+04	1.4150E-06	-3.8245E-06	0.1624	293.1
32	47.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
33	48.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
34	50.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
35	52.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
36	54.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
37	57.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
38	58.50	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
39	60.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
40	61.00	2	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
41	62.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
42	63.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
43	64.50	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
44	66.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1

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45	68.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
46	71.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
47	74.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
48	77.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
49	80.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
50	83.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
51	86.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
52	88.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
53	89.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
54	90.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
55	91.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
56	92.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
57	94.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
58	96.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
59	99.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
60	102.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
61	105.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
62	109.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
63	114.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
64	117.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
65	119.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
66	121.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
67	122.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
68	123.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
69	124.50	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
70	126.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
71	128.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
72	130.50	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
73	132.50	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
74	135.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
75	140.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
76	145.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
77	148.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
78	150.00	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
79	151.40	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
80	152.40	3	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1

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81	153.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
82	154.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
83	160.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
84	165.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
85	170.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
86	175.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
87	178.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
88	180.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
89	181.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
90	182.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
91	183.00	4	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
92	184.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
93	185.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
94	187.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
95	190.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
96	195.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
97	202.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
98	210.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
99	220.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
100	235.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
101	240.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
102	260.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
103	280.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
104	300.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
105	320.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
106	340.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
107	360.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
108	380.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
109	400.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
110	420.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
111	440.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
112	455.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
113	465.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
114	473.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
115	478.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
116	482.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1

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117	485.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
118	487.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
119	488.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1
120	489.00	5	1.0000E+04	1.4150E-08	-3.8245E-06	0.1624	293.1

Total Initial Storage (cm) = 7.939255E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

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70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

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1	0.000	2	0.000	3	0.000	4	0.000
5	0.000	6	0.000	7	0.000	8	0.000
9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000
17	0.000	18	0.000	19	0.000	20	0.000
21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000
29	0.000	30	0.000	31	0.000	32	0.000
33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000
41	0.000	42	0.000	43	0.000	44	0.000
45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000
53	0.000	54	0.000	55	0.000	56	0.000
57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000
65	0.000	66	0.000	67	0.000	68	0.000
69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116
77	0.136	78	0.155	79	0.175	80	0.194
81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

For Material No. 2

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

For Material No. 3

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

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For Material No. 4

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

For Material No. 5

THETAW (wilting point moisture content) = 0.1170

THETAD (lower limit of optimum moisture content) = 0.2744

THETAN (upper limit of optimum moisture content) = 0.4093

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1 c:\a\PET1946.pen
2 c:\a\PET1947.pen
3 c:\a\PET1948.pen
4 c:\a\PET1949.pen
5 c:\a\PET1950.pen
6 c:\a\PET1951.pen
7 c:\a\PET1952.pen
8 c:\a\PET1953.pen
9 c:\a\PET1954.pen
10 c:\a\PET1955.pen
11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157 0.7671 0.1120 0.6551	158 0.7911 0.1155 0.6756
159 0.8382 0.1224 0.7158	160 0.8671 0.1266 0.7405
161 0.8498 0.1241 0.7257	162 0.8019 0.1171 0.6848
163 0.7987 0.1166 0.6821	164 0.8331 0.1216 0.7115
165 0.8448 0.1234 0.7214	166 0.8476 0.1238 0.7238
167 0.8315 0.1214 0.7101	168 0.7796 0.1138 0.6658
169 0.7765 0.1134 0.6631	170 0.8071 0.1178 0.6893
171 0.6348 0.0927 0.5421	172 0.6437 0.0940 0.5497
173 0.6686 0.0976 0.5710	174 0.7005 0.1023 0.5982
175 0.7419 0.1083 0.6336	176 0.7160 0.1045 0.6115
177 0.7348 0.1073 0.6275	178 0.7275 0.1062 0.6213
179 0.7271 0.1062 0.6209	180 0.7359 0.1075 0.6284
181 0.7635 0.1115 0.6520	182 0.7608 0.1111 0.6497
183 0.7506 0.1096 0.6410	184 0.7427 0.1084 0.6343
185 0.6581 0.0961 0.5620	186 0.6694 0.0977 0.5717
187 0.7095 0.1036 0.6059	188 0.7180 0.1048 0.6132
189 0.7125 0.1040 0.6085	190 0.7904 0.1154 0.6750
191 0.7524 0.1099 0.6425	192 0.7512 0.1097 0.6415
193 0.7125 0.1040 0.6085	194 0.6653 0.0971 0.5682
195 0.7235 0.1056 0.6179	196 0.7713 0.1126 0.6587
197 0.8165 0.1192 0.6973	198 0.7191 0.1050 0.6141
199 0.7959 0.1162 0.6797	200 0.7298 0.1066 0.6232
201 0.7164 0.1046 0.6118	202 0.6947 0.1014 0.5933
203 0.6953 0.1015 0.5938	204 0.7389 0.1079 0.6310
205 0.7455 0.1089 0.6366	206 0.7191 0.1050 0.6141
207 0.7042 0.1028 0.6014	208 0.6759 0.0987 0.5772
209 0.7596 0.1109 0.6487	210 0.6731 0.0983 0.5748
211 0.6379 0.0931 0.5448	212 0.6763 0.0988 0.5775
213 0.8013 0.1170 0.6843	214 0.7565 0.1105 0.6460
215 0.7107 0.1038 0.6069	216 0.7511 0.1097 0.6414
217 0.7599 0.1110 0.6489	218 0.5801 0.0847 0.4954
219 0.6442 0.0941 0.5501	220 0.6917 0.1010 0.5907
221 0.7298 0.1066 0.6232	222 0.7155 0.1045 0.6110
223 0.6367 0.0930 0.5437	224 0.4384 0.0640 0.3744
225 0.4302 0.0628 0.3674	226 0.4221 0.0616 0.3605
227 0.4229 0.0618 0.3611	228 0.5501 0.0803 0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time (hr)	Amount (cm)	Application Type	Efficiency	Changes In Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2
	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			
360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample 6

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\6_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:32:45.40

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K = f(H), Layer 1: Soil 6 plus 2 order

RKMOD = 2.0000 SK = 7.5600 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K = f(H), Layer 2: Soil 6

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K = f(H), Layer 3: Soil 6

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K =f(H), Layer 4: Soil 6

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil 6

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K =f(H), Layer 5: Soil 6

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.203E-01 K = 7.560E+00 C =-1.925E-08

HDRY = 1.000E+08 THETA = 1.666E-02 K = 2.898E-16 C =-4.062E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1	0.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
2	0.10	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
3	0.30	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
4	0.60	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
5	1.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
6	1.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
7	2.20	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
8	3.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1

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9	4.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
10	5.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
11	7.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
12	9.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
13	12.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
14	14.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
15	17.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
16	20.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
17	23.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
18	25.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
19	27.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
20	29.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
21	30.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
22	31.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
23	32.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
24	33.50	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
25	35.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
26	37.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
27	40.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
28	42.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
29	44.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
30	45.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
31	46.00	1	1.0000E+04	7.8939E-06	-3.8100E-06	0.1573	293.1
32	47.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
33	48.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
34	50.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
35	52.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
36	54.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
37	57.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
38	58.50	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
39	60.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
40	61.00	2	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
41	62.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
42	63.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
43	64.50	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
44	66.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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45	68.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
46	71.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
47	74.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
48	77.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
49	80.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
50	83.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
51	86.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
52	88.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
53	89.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
54	90.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
55	91.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
56	92.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
57	94.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
58	96.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
59	99.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
60	102.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
61	105.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	109.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	114.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	117.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	119.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	121.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	122.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	123.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	124.50	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	126.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	128.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	130.50	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	132.50	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	135.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	140.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	145.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	148.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	150.00	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	151.40	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
80	152.40	3	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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81	153.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	154.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	178.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	181.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	182.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	183.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	184.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	185.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	187.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	190.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	195.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
97	202.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	210.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
100	235.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
101	240.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
102	260.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
103	280.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
104	300.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
105	320.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
106	340.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
107	360.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
108	380.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
109	400.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
110	420.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
111	440.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
112	455.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
113	465.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
114	473.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
115	478.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
116	482.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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117	485.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
118	487.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
119	488.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
120	489.00	5	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

Total Initial Storage (cm) = 7.690062E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

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70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

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1	0.000	2	0.000	3	0.000	4	0.000
5	0.000	6	0.000	7	0.000	8	0.000
9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000
17	0.000	18	0.000	19	0.000	20	0.000
21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000
29	0.000	30	0.000	31	0.000	32	0.000
33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000
41	0.000	42	0.000	43	0.000	44	0.000
45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000
53	0.000	54	0.000	55	0.000	56	0.000
57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000
65	0.000	66	0.000	67	0.000	68	0.000
69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116
77	0.136	78	0.155	79	0.175	80	0.194
81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

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0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 2

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 3

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

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For Material No. 4

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 5

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1 c:\a\PET1946.pen
2 c:\a\PET1947.pen
3 c:\a\PET1948.pen
4 c:\a\PET1949.pen
5 c:\a\PET1950.pen
6 c:\a\PET1951.pen
7 c:\a\PET1952.pen
8 c:\a\PET1953.pen
9 c:\a\PET1954.pen
10 c:\a\PET1955.pen
11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type	Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2
	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			
360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample TP153

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! Program DATAINH !
! Version 3.01 !

Input Filename: C:\A\TP153_.inp

Date Processed: 08 Jun 2021

Time Processed: 14:57:32.13

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K = f(H), Layer 1: Soil TP153 plus 1 order

RKMOD = 2.0000 SK = 5.0400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K = f(H), Layer 2: Soil TP153

RKMOD = 2.0000 SK = 0.50400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K = f(H), Layer 3: Soil TP153

RKMOD = 2.0000 SK = 0.50400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K =f(H), Layer 4: Soil TP153

RKMOD = 2.0000 SK = 0.50400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil TP153

THET = 0.35840 THTR = 0.0000 ALPHA = 9.12000E-02

N = 1.1415 M = 0.12396

K =f(H), Layer 5: Soil TP153

RKMOD = 2.0000 SK = 0.50400 A = 9.12000E-02

N = 1.1415 M = 0.12396 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.584E-01 K = 5.040E+00 C =-1.641E-08

HDRV = 1.000E+08 THETA = 3.711E-02 K = 3.213E-18 C =-5.252E-11

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP

1	0.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
2	0.10	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
3	0.30	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
4	0.60	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
5	1.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
6	1.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
7	2.20	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
8	3.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1

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9	4.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
10	5.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
11	7.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
12	9.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
13	12.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
14	14.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
15	17.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
16	20.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
17	23.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
18	25.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
19	27.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
20	29.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
21	30.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
22	31.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
23	32.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
24	33.50	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
25	35.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
26	37.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
27	40.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
28	42.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
29	44.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
30	45.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
31	46.00	1	1.0000E+04	8.3500E-09	-1.9323E-06	0.1366	293.1
32	47.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
33	48.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
34	50.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
35	52.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
36	54.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
37	57.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
38	58.50	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
39	60.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
40	61.00	2	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
41	62.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
42	63.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
43	64.50	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
44	66.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1

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45	68.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
46	71.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
47	74.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
48	77.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
49	80.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
50	83.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
51	86.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
52	88.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
53	89.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
54	90.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
55	91.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
56	92.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
57	94.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
58	96.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
59	99.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
60	102.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
61	105.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
62	109.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
63	114.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
64	117.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
65	119.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
66	121.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
67	122.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
68	123.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
69	124.50	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
70	126.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
71	128.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
72	130.50	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
73	132.50	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
74	135.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
75	140.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
76	145.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
77	148.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
78	150.00	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
79	151.40	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
80	152.40	3	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1

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81	153.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
82	154.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
83	160.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
84	165.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
85	170.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
86	175.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
87	178.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
88	180.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
89	181.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
90	182.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
91	183.00	4	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
92	184.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
93	185.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
94	187.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
95	190.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
96	195.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
97	202.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
98	210.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
99	220.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
100	235.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
101	240.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
102	260.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
103	280.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
104	300.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
105	320.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
106	340.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
107	360.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
108	380.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
109	400.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
110	420.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
111	440.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
112	455.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
113	465.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
114	473.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
115	478.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
116	482.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1

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117	485.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
118	487.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
119	488.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1
120	489.00	5	1.0000E+04	8.3500E-10	-1.9323E-06	0.1366	293.1

Total Initial Storage (cm) = 6.680780E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

For Material No. 2

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

For Material No. 3

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

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For Material No. 4

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

For Material No. 5

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.1891

THETAN (upper limit of optimum moisture content) = 0.3004

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157 0.7671 0.1120 0.6551	158 0.7911 0.1155 0.6756
159 0.8382 0.1224 0.7158	160 0.8671 0.1266 0.7405
161 0.8498 0.1241 0.7257	162 0.8019 0.1171 0.6848
163 0.7987 0.1166 0.6821	164 0.8331 0.1216 0.7115
165 0.8448 0.1234 0.7214	166 0.8476 0.1238 0.7238
167 0.8315 0.1214 0.7101	168 0.7796 0.1138 0.6658
169 0.7765 0.1134 0.6631	170 0.8071 0.1178 0.6893
171 0.6348 0.0927 0.5421	172 0.6437 0.0940 0.5497
173 0.6686 0.0976 0.5710	174 0.7005 0.1023 0.5982
175 0.7419 0.1083 0.6336	176 0.7160 0.1045 0.6115
177 0.7348 0.1073 0.6275	178 0.7275 0.1062 0.6213
179 0.7271 0.1062 0.6209	180 0.7359 0.1075 0.6284
181 0.7635 0.1115 0.6520	182 0.7608 0.1111 0.6497
183 0.7506 0.1096 0.6410	184 0.7427 0.1084 0.6343
185 0.6581 0.0961 0.5620	186 0.6694 0.0977 0.5717
187 0.7095 0.1036 0.6059	188 0.7180 0.1048 0.6132
189 0.7125 0.1040 0.6085	190 0.7904 0.1154 0.6750
191 0.7524 0.1099 0.6425	192 0.7512 0.1097 0.6415
193 0.7125 0.1040 0.6085	194 0.6653 0.0971 0.5682
195 0.7235 0.1056 0.6179	196 0.7713 0.1126 0.6587
197 0.8165 0.1192 0.6973	198 0.7191 0.1050 0.6141
199 0.7959 0.1162 0.6797	200 0.7298 0.1066 0.6232
201 0.7164 0.1046 0.6118	202 0.6947 0.1014 0.5933
203 0.6953 0.1015 0.5938	204 0.7389 0.1079 0.6310
205 0.7455 0.1089 0.6366	206 0.7191 0.1050 0.6141
207 0.7042 0.1028 0.6014	208 0.6759 0.0987 0.5772
209 0.7596 0.1109 0.6487	210 0.6731 0.0983 0.5748
211 0.6379 0.0931 0.5448	212 0.6763 0.0988 0.5775
213 0.8013 0.1170 0.6843	214 0.7565 0.1105 0.6460
215 0.7107 0.1038 0.6069	216 0.7511 0.1097 0.6414
217 0.7599 0.1110 0.6489	218 0.5801 0.0847 0.4954
219 0.6442 0.0941 0.5501	220 0.6917 0.1010 0.5907
221 0.7298 0.1066 0.6232	222 0.7155 0.1045 0.6110
223 0.6367 0.0930 0.5437	224 0.4384 0.0640 0.3744
225 0.4302 0.0628 0.3674	226 0.4221 0.0616 0.3605
227 0.4229 0.0618 0.3611	228 0.5501 0.0803 0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type	Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample TP154

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! Program DATAINH !
! Version 3.01 !

Input Filename: C:\A\TP154_.inp

Date Processed: 08 Jun 2021

Time Processed: 15:03:31.91

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00

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UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

N = 1.1004 M = 9.12395E-02

K = f(H), Layer 1: Soil TP154 plus 2 order

RKMOD = 2.0000 SK = 0.29000 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

N = 1.1004 M = 9.12395E-02

K = f(H), Layer 2: Soil TP154

RKMOD = 2.0000 SK = 2.90000E-03 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

December 2023

N = 1.1004 M = 9.12395E-02

K =f(H), Layer 3: Soil TP154

RKMOD = 2.0000 SK = 2.90000E-03 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

N = 1.1004 M = 9.12395E-02

K =f(H), Layer 4: Soil TP154

RKMOD = 2.0000 SK = 2.90000E-03 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil TP154

THET = 0.48030 THTR = 0.0000 ALPHA = 0.17480

N = 1.1004 M = 9.12395E-02

K =f(H), Layer 5: Soil TP154

RKMOD = 2.0000 SK = 2.90000E-03 A = 0.17480

N = 1.1004 M = 9.12395E-02 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.803E-01 K = 2.900E-01 C =-2.200E-08

HDRY = 1.000E+08 THETA = 9.002E-02 K = 1.202E-19 C =-9.038E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1 0.00 1 1.0000E+04 1.2125E-10 -2.2781E-06 0.2270 293.1

2 0.10 1 1.0000E+04 1.2125E-10 -2.2781E-06 0.2270 293.1

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3	0.30	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
4	0.60	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
5	1.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
6	1.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
7	2.20	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
8	3.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
9	4.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
10	5.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
11	7.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
12	9.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
13	12.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
14	14.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
15	17.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
16	20.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
17	23.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
18	25.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
19	27.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
20	29.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
21	30.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
22	31.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
23	32.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
24	33.50	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
25	35.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
26	37.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
27	40.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
28	42.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
29	44.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
30	45.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
31	46.00	1	1.0000E+04	1.2125E-10	-2.2781E-06	0.2270	293.1
32	47.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
33	48.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
34	50.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
35	52.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
36	54.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1

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37	57.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
38	58.50	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
39	60.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
40	61.00	2	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
41	62.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
42	63.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
43	64.50	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
44	66.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
45	68.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
46	71.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
47	74.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
48	77.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
49	80.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
50	83.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
51	86.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
52	88.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
53	89.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
54	90.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
55	91.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
56	92.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
57	94.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
58	96.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
59	99.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
60	102.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
61	105.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
62	109.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
63	114.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
64	117.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
65	119.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
66	121.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
67	122.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
68	123.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
69	124.50	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
70	126.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1

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71	128.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
72	130.50	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
73	132.50	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
74	135.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
75	140.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
76	145.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
77	148.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
78	150.00	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
79	151.40	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
80	152.40	3	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
81	153.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
82	154.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
83	160.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
84	165.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
85	170.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
86	175.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
87	178.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
88	180.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
89	181.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
90	182.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
91	183.00	4	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
92	184.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
93	185.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
94	187.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
95	190.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
96	195.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
97	202.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
98	210.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
99	220.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
100	235.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
101	240.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
102	260.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
103	280.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
104	300.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1

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105	320.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
106	340.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
107	360.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
108	380.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
109	400.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
110	420.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
111	440.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
112	455.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
113	465.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
114	473.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
115	478.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
116	482.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
117	485.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
118	487.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
119	488.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1
120	489.00	5	1.0000E+04	1.2125E-12	-2.2781E-06	0.2270	293.1

Total Initial Storage (cm) = 1.109859E+02

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

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1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272
85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640

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205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

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DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	
---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135
0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072

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0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065
0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065

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0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

For Material No. 2

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

For Material No. 3

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

For Material No. 4

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

For Material No. 5

THETAW (wilting point moisture content) = 0.1975
THETAD (lower limit of optimum moisture content) = 0.2859
THETAN (upper limit of optimum moisture content) = 0.4012

ET parameters:

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NFHOURL = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1 c:\a\PET1946.pen
2 c:\a\PET1947.pen
3 c:\a\PET1948.pen
4 c:\a\PET1949.pen
5 c:\a\PET1950.pen
6 c:\a\PET1951.pen
7 c:\a\PET1952.pen
8 c:\a\PET1953.pen
9 c:\a\PET1954.pen
10 c:\a\PET1955.pen
11 c:\a\PET1956.pen
12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat

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- 8 c:\a\precip1953.dat
- 9 c:\a\precip1954.dat
- 10 c:\a\precip1955.dat
- 11 c:\a\precip1956.dat
- 12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the relationship developed by Ritchie (1972)

The user-specified coefficients are:

- a = 0.000
- b = 0.520
- c = 0.500
- d = 0.000 (below this LAI, PT is zero)
- e = 2.700 (above this LAI, $PT=f(e)$)

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664

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29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686
85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461

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97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577
157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115

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165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698
229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091

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233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309
319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339
337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263
349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

December 2023

Totals: PET = 135.8321

PTRANS = 16.7189

PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time (hr)	Amount (cm)	Application Type	Efficiency Rate/Head	Changes In
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2

December 2023

	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			
	12.000	1.0000			
	13.000	0.0000			
	22.000	0.0320			
	23.000	0.0000			
224	12.000	1.0000	1	1.000	4
	13.000	0.0000			
	22.000	0.5240			
	23.000	0.0000			
227	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.5240			
	13.000	0.0000			
233	0.000	0.7620	1	1.000	2
	1.000	0.0000			
235	0.000	0.2540	1	1.000	2
	1.000	0.0000			
238	0.000	0.5080	1	1.000	2
	1.000	0.0000			
256	0.000	0.3302	1	1.000	2
	1.000	0.0000			
258	0.000	0.3302	1	1.000	2
	1.000	0.0000			
275	0.000	0.7620	1	1.000	2
	1.000	0.0000			
278	0.000	0.1524	1	1.000	2
	1.000	0.0000			
279	0.000	0.2794	1	1.000	2
	1.000	0.0000			
290	0.000	0.5080	1	1.000	2

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	1.000	0.0000			
300	0.000	0.3048	1	1.000	2
	1.000	0.0000			
302	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0414			
	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2
	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			
360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

December 2023

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample Grand Junction - Alluvium

December 2023

! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\GJ_A.inp

Date Processed: 07 Dec 2021

Time Processed: 08:46:52.46

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02
N = 1.2500 M = 0.20000

K = f(H), Layer 1: Soil Grand Junction average alluvium parameters plu

RKMOD = 2.0000 SK = 1.6540 A = 1.60000E-02
N = 1.2500 M = 0.20000 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02
N = 1.2500 M = 0.20000

K = f(H), Layer 2: Soil Grand Junction average alluvium parameters

RKMOD = 2.0000 SK = 0.16540 A = 1.60000E-02
N = 1.2500 M = 0.20000 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02
N = 1.2500 M = 0.20000

K = f(H), Layer 3: Soil Grand Junction average alluvium parameters

RKMOD = 2.0000 SK = 0.16540 A = 1.60000E-02
N = 1.2500 M = 0.20000 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02

N = 1.2500 M = 0.20000

K =f(H), Layer 4: Soil Grand Junction average alluvium parameters

RKMOD = 2.0000 SK = 0.16540 A = 1.60000E-02

N = 1.2500 M = 0.20000 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil Grand Junction average alluvium parameters

THET = 0.42000 THTR = 0.0000 ALPHA = 1.60000E-02

N = 1.2500 M = 0.20000

K =f(H), Layer 5: Soil Grand Junction average alluvium parameters

RKMOD = 2.0000 SK = 0.16540 A = 1.60000E-02

N = 1.2500 M = 0.20000 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 4.200E-01 K = 1.654E+00 C =-1.924E-08

HDRY = 1.000E+08 THETA = 1.181E-02 K = 3.426E-18 C =-2.952E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1	0.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
2	0.10	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
3	0.30	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
4	0.60	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
5	1.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
6	1.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
7	2.20	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
8	3.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1

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9	4.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
10	5.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
11	7.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
12	9.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
13	12.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
14	14.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
15	17.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
16	20.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
17	23.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
18	25.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
19	27.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
20	29.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
21	30.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
22	31.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
23	32.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
24	33.50	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
25	35.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
26	37.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
27	40.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
28	42.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
29	44.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
30	45.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
31	46.00	1	1.0000E+04	1.0809E-07	-2.9461E-06	0.1181	293.1
32	47.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
33	48.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
34	50.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
35	52.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
36	54.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
37	57.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
38	58.50	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
39	60.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
40	61.00	2	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
41	62.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
42	63.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
43	64.50	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
44	66.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1

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45	68.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
46	71.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
47	74.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
48	77.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
49	80.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
50	83.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
51	86.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
52	88.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
53	89.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
54	90.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
55	91.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
56	92.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
57	94.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
58	96.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
59	99.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
60	102.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
61	105.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
62	109.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
63	114.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
64	117.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
65	119.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
66	121.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
67	122.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
68	123.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
69	124.50	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
70	126.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
71	128.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
72	130.50	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
73	132.50	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
74	135.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
75	140.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
76	145.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
77	148.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
78	150.00	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
79	151.40	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
80	152.40	3	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1

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81	153.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
82	154.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
83	160.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
84	165.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
85	170.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
86	175.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
87	178.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
88	180.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
89	181.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
90	182.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
91	183.00	4	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
92	184.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
93	185.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
94	187.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
95	190.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
96	195.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
97	202.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
98	210.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
99	220.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
100	235.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
101	240.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
102	260.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
103	280.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
104	300.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
105	320.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
106	340.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
107	360.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
108	380.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
109	400.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
110	420.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
111	440.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
112	455.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
113	465.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
114	473.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
115	478.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
116	482.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1

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117	485.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
118	487.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
119	488.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1
120	489.00	5	1.0000E+04	1.0809E-08	-2.9461E-06	0.1181	293.1

Total Initial Storage (cm) = 5.772909E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
----	----
70	0.000
103	0.640
274	0.640
300	0.000

DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI
---	----	---	----	---	----	---	----	---	----	---	----
1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

For Material No. 2

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

For Material No. 3

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

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For Material No. 4

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

For Material No. 5

THETAW (wilting point moisture content) = 0.0835

THETAD (lower limit of optimum moisture content) = 0.2087

THETAN (upper limit of optimum moisture content) = 0.3927

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type		Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #1: Soil Sample Grand Junction - Shale

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\GJ_S.inp

Date Processed: 07 Dec 2021

Time Processed: 08:56:49.37

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 120

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03
N = 1.2600 M = 0.20635

K = f(H), Layer 1: Soil Grand Junction average shale parameters plus 1

RKMOD = 2.0000 SK = 7.38000E-03 A = 8.00000E-03
N = 1.2600 M = 0.20635 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03
N = 1.2600 M = 0.20635

K = f(H), Layer 2: Soil Grand Junction average shale parameters

RKMOD = 2.0000 SK = 7.38000E-04 A = 8.00000E-03
N = 1.2600 M = 0.20635 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03
N = 1.2600 M = 0.20635

K = f(H), Layer 3: Soil Grand Junction average shale parameters

RKMOD = 2.0000 SK = 7.38000E-04 A = 8.00000E-03
N = 1.2600 M = 0.20635 EPIT = 0.50000

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Material No. 4

THETA = f(H), Layer 4: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03

N = 1.2600 M = 0.20635

K =f(H), Layer 4: Soil Grand Junction average shale parameters

RKMOD = 2.0000 SK = 7.38000E-04 A = 8.00000E-03

N = 1.2600 M = 0.20635 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Soil Grand Junction average shale parameters

THET = 0.38000 THTR = 0.0000 ALPHA = 8.00000E-03

N = 1.2600 M = 0.20635

K =f(H), Layer 5: Soil Grand Junction average shale parameters

RKMOD = 2.0000 SK = 7.38000E-04 A = 8.00000E-03

N = 1.2600 M = 0.20635 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 3.800E-01 K = 7.380E-03 C =-1.740E-08

HDRY = 1.000E+08 THETA = 1.109E-02 K = 7.146E-20 C =-2.884E-11

Initial Conditions:

NDAY = 0

NODE Z MAT HEAD CONDUCTIVITY CAPACITY THETA TEMP

1 0.00 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
2 0.10 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
3 0.30 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
4 0.60 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
5 1.00 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
6 1.50 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
7 2.20 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1
8 3.00 1 1.0000E+04 2.8301E-09 -3.1467E-06 0.1215 293.1

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9	4.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
10	5.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
11	7.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
12	9.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
13	12.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
14	14.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
15	17.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
16	20.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
17	23.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
18	25.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
19	27.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
20	29.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
21	30.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
22	31.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
23	32.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
24	33.50	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
25	35.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
26	37.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
27	40.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
28	42.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
29	44.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
30	45.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
31	46.00	1	1.0000E+04	2.8301E-09	-3.1467E-06	0.1215	293.1
32	47.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
33	48.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
34	50.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
35	52.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
36	54.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
37	57.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
38	58.50	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
39	60.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
40	61.00	2	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
41	62.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
42	63.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
43	64.50	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
44	66.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1

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45	68.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
46	71.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
47	74.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
48	77.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
49	80.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
50	83.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
51	86.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
52	88.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
53	89.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
54	90.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
55	91.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
56	92.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
57	94.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
58	96.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
59	99.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
60	102.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
61	105.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
62	109.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
63	114.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
64	117.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
65	119.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
66	121.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
67	122.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
68	123.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
69	124.50	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
70	126.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
71	128.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
72	130.50	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
73	132.50	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
74	135.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
75	140.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
76	145.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
77	148.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
78	150.00	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
79	151.40	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
80	152.40	3	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1

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81	153.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
82	154.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
83	160.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
84	165.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
85	170.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
86	175.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
87	178.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
88	180.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
89	181.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
90	182.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
91	183.00	4	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
92	184.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
93	185.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
94	187.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
95	190.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
96	195.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
97	202.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
98	210.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
99	220.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
100	235.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
101	240.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
102	260.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
103	280.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
104	300.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
105	320.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
106	340.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
107	360.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
108	380.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
109	400.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
110	420.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
111	440.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
112	455.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
113	465.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
114	473.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
115	478.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
116	482.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1

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117	485.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
118	487.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
119	488.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1
120	489.00	5	1.0000E+04	2.8301E-10	-3.1467E-06	0.1215	293.1

Total Initial Storage (cm) = 5.942198E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.649

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs - 4

NDLAI VLAI

70	0.000
103	0.640
274	0.640
300	0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272

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85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000

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301 0.000 302 0.000 303 0.000 304 0.000 305 0.000 306 0.000
307 0.000 308 0.000 309 0.000 310 0.000 311 0.000 312 0.000
313 0.000 314 0.000 315 0.000 316 0.000 317 0.000 318 0.000
319 0.000 320 0.000 321 0.000 322 0.000 323 0.000 324 0.000
325 0.000 326 0.000 327 0.000 328 0.000 329 0.000 330 0.000
331 0.000 332 0.000 333 0.000 334 0.000 335 0.000 336 0.000
337 0.000 338 0.000 339 0.000 340 0.000 341 0.000 342 0.000
343 0.000 344 0.000 345 0.000 346 0.000 347 0.000 348 0.000
349 0.000 350 0.000 351 0.000 352 0.000 353 0.000 354 0.000
355 0.000 356 0.000 357 0.000 358 0.000 359 0.000 360 0.000
361 0.000 362 0.000 363 0.000 364 0.000 365 0.000

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	

---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.260	0.0227
0	0.30	0.257	0.0225
0	0.60	0.253	0.0221
0	1.00	0.248	0.0217
0	1.50	0.242	0.0212
0	2.20	0.234	0.0204
0	3.00	0.225	0.0197
0	4.00	0.215	0.0188
0	5.50	0.201	0.0175
0	7.50	0.184	0.0161
0	9.50	0.170	0.0148
0	12.00	0.154	0.0135

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0	14.50	0.141	0.0123
0	17.50	0.128	0.0112
0	20.00	0.120	0.0105
0	23.00	0.111	0.0097
0	25.50	0.105	0.0092
0	27.50	0.101	0.0088
0	29.00	0.098	0.0086
0	30.00	0.097	0.0084
0	31.00	0.095	0.0083
0	32.00	0.094	0.0082
0	33.50	0.092	0.0080
0	35.00	0.090	0.0079
0	37.00	0.088	0.0077
0	40.00	0.085	0.0074
0	42.00	0.084	0.0073
0	44.00	0.082	0.0072
0	45.00	0.082	0.0072
0	46.00	0.081	0.0071
0	47.00	0.081	0.0071
0	48.00	0.080	0.0070
0	50.00	0.080	0.0070
0	52.00	0.079	0.0069
0	54.00	0.078	0.0068
0	57.00	0.077	0.0068
0	58.50	0.077	0.0067
0	60.00	0.077	0.0067
0	61.00	0.077	0.0067
0	62.00	0.076	0.0067
0	63.00	0.076	0.0067
0	64.50	0.076	0.0066
0	66.00	0.076	0.0066
0	68.00	0.076	0.0066
0	71.00	0.075	0.0066
0	74.00	0.075	0.0066
0	77.00	0.075	0.0065
0	80.00	0.075	0.0065

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0	83.00	0.075	0.0065
0	86.00	0.075	0.0065
0	88.00	0.074	0.0065
0	89.00	0.074	0.0065
0	90.00	0.074	0.0065
0	91.00	0.074	0.0065
0	92.00	0.074	0.0065
0	94.00	0.074	0.0065
0	96.00	0.074	0.0065
0	99.00	0.074	0.0065
0	102.00	0.074	0.0065
0	105.00	0.074	0.0065
0	109.00	0.074	0.0065
0	114.00	0.074	0.0065
0	117.00	0.074	0.0065
0	119.00	0.074	0.0065

MXROOT (deepest node that roots penetrate) = 65

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

For Material No. 2

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

For Material No. 3

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

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For Material No. 4

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

For Material No. 5

THETAW (wilting point moisture content) = 0.0848

THETAD (lower limit of optimum moisture content) = 0.2181

THETAN (upper limit of optimum moisture content) = 0.3682

ET parameters:

NF HOUR = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1 c:\a\PET1946.pen
2 c:\a\PET1947.pen
3 c:\a\PET1948.pen
4 c:\a\PET1949.pen
5 c:\a\PET1950.pen
6 c:\a\PET1951.pen
7 c:\a\PET1952.pen
8 c:\a\PET1953.pen
9 c:\a\PET1954.pen
10 c:\a\PET1955.pen
11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0065	0.2488	72	0.2725	0.0098	0.2627
73	0.2837	0.0125	0.2712	74	0.2939	0.0149	0.2790
75	0.2345	0.0133	0.2212	76	0.2442	0.0152	0.2290
77	0.2617	0.0176	0.2441	78	0.2728	0.0196	0.2532
79	0.3043	0.0232	0.2811	80	0.3028	0.0243	0.2785
81	0.3149	0.0265	0.2884	82	0.3135	0.0276	0.2859
83	0.3066	0.0281	0.2785	84	0.2968	0.0282	0.2686

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85	0.3497	0.0344	0.3153	86	0.3786	0.0385	0.3401
87	0.3860	0.0405	0.3455	88	0.4112	0.0443	0.3669
89	0.3988	0.0442	0.3546	90	0.4044	0.0460	0.3584
91	0.3917	0.0456	0.3461	92	0.2526	0.0301	0.2225
93	0.3088	0.0376	0.2712	94	0.3152	0.0392	0.2760
95	0.3355	0.0426	0.2929	96	0.2827	0.0366	0.2461
97	0.3122	0.0412	0.2710	98	0.3170	0.0426	0.2744
99	0.3499	0.0479	0.3020	100	0.3550	0.0494	0.3056
101	0.4501	0.0637	0.3864	102	0.4749	0.0683	0.4066
103	0.4304	0.0628	0.3676	104	0.4507	0.0658	0.3849
105	0.4870	0.0711	0.4159	106	0.5513	0.0805	0.4708
107	0.5363	0.0783	0.4580	108	0.5484	0.0801	0.4683
109	0.5297	0.0773	0.4524	110	0.4348	0.0635	0.3713
111	0.4778	0.0698	0.4080	112	0.5265	0.0769	0.4496
113	0.5414	0.0791	0.4623	114	0.5652	0.0825	0.4827
115	0.5894	0.0861	0.5033	116	0.5743	0.0839	0.4904
117	0.6020	0.0879	0.5141	118	0.5581	0.0815	0.4766
119	0.5856	0.0855	0.5001	120	0.4824	0.0704	0.4120
121	0.4808	0.0702	0.4106	122	0.4843	0.0707	0.4136
123	0.5146	0.0751	0.4395	124	0.4946	0.0722	0.4224
125	0.4720	0.0689	0.4031	126	0.5010	0.0732	0.4278
127	0.5573	0.0814	0.4759	128	0.5157	0.0753	0.4404
129	0.5619	0.0820	0.4799	130	0.4645	0.0678	0.3967
131	0.2429	0.0355	0.2074	132	0.4160	0.0607	0.3553
133	0.5162	0.0754	0.4408	134	0.4225	0.0617	0.3608
135	0.5080	0.0742	0.4338	136	0.5150	0.0752	0.4398
137	0.5485	0.0801	0.4684	138	0.5598	0.0817	0.4781
139	0.5673	0.0828	0.4845	140	0.5792	0.0846	0.4946
141	0.5725	0.0836	0.4889	142	0.5969	0.0872	0.5097
143	0.4947	0.0722	0.4225	144	0.4957	0.0724	0.4233
145	0.5142	0.0751	0.4391	146	0.4890	0.0714	0.4176
147	0.4812	0.0703	0.4109	148	0.4990	0.0729	0.4261
149	0.4959	0.0724	0.4235	150	0.5189	0.0758	0.4431
151	0.5334	0.0779	0.4555	152	0.7934	0.1158	0.6776
153	0.7705	0.1125	0.6580	154	0.7370	0.1076	0.6294
155	0.7268	0.1061	0.6207	156	0.7702	0.1125	0.6577

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157	0.7671	0.1120	0.6551	158	0.7911	0.1155	0.6756
159	0.8382	0.1224	0.7158	160	0.8671	0.1266	0.7405
161	0.8498	0.1241	0.7257	162	0.8019	0.1171	0.6848
163	0.7987	0.1166	0.6821	164	0.8331	0.1216	0.7115
165	0.8448	0.1234	0.7214	166	0.8476	0.1238	0.7238
167	0.8315	0.1214	0.7101	168	0.7796	0.1138	0.6658
169	0.7765	0.1134	0.6631	170	0.8071	0.1178	0.6893
171	0.6348	0.0927	0.5421	172	0.6437	0.0940	0.5497
173	0.6686	0.0976	0.5710	174	0.7005	0.1023	0.5982
175	0.7419	0.1083	0.6336	176	0.7160	0.1045	0.6115
177	0.7348	0.1073	0.6275	178	0.7275	0.1062	0.6213
179	0.7271	0.1062	0.6209	180	0.7359	0.1075	0.6284
181	0.7635	0.1115	0.6520	182	0.7608	0.1111	0.6497
183	0.7506	0.1096	0.6410	184	0.7427	0.1084	0.6343
185	0.6581	0.0961	0.5620	186	0.6694	0.0977	0.5717
187	0.7095	0.1036	0.6059	188	0.7180	0.1048	0.6132
189	0.7125	0.1040	0.6085	190	0.7904	0.1154	0.6750
191	0.7524	0.1099	0.6425	192	0.7512	0.1097	0.6415
193	0.7125	0.1040	0.6085	194	0.6653	0.0971	0.5682
195	0.7235	0.1056	0.6179	196	0.7713	0.1126	0.6587
197	0.8165	0.1192	0.6973	198	0.7191	0.1050	0.6141
199	0.7959	0.1162	0.6797	200	0.7298	0.1066	0.6232
201	0.7164	0.1046	0.6118	202	0.6947	0.1014	0.5933
203	0.6953	0.1015	0.5938	204	0.7389	0.1079	0.6310
205	0.7455	0.1089	0.6366	206	0.7191	0.1050	0.6141
207	0.7042	0.1028	0.6014	208	0.6759	0.0987	0.5772
209	0.7596	0.1109	0.6487	210	0.6731	0.0983	0.5748
211	0.6379	0.0931	0.5448	212	0.6763	0.0988	0.5775
213	0.8013	0.1170	0.6843	214	0.7565	0.1105	0.6460
215	0.7107	0.1038	0.6069	216	0.7511	0.1097	0.6414
217	0.7599	0.1110	0.6489	218	0.5801	0.0847	0.4954
219	0.6442	0.0941	0.5501	220	0.6917	0.1010	0.5907
221	0.7298	0.1066	0.6232	222	0.7155	0.1045	0.6110
223	0.6367	0.0930	0.5437	224	0.4384	0.0640	0.3744
225	0.4302	0.0628	0.3674	226	0.4221	0.0616	0.3605
227	0.4229	0.0618	0.3611	228	0.5501	0.0803	0.4698

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229	0.6081	0.0888	0.5193	230	0.5980	0.0873	0.5107
231	0.6020	0.0879	0.5141	232	0.5961	0.0870	0.5091
233	0.6102	0.0891	0.5211	234	0.5637	0.0823	0.4814
235	0.5239	0.0765	0.4474	236	0.5544	0.0810	0.4734
237	0.5700	0.0832	0.4868	238	0.5633	0.0823	0.4810
239	0.5712	0.0834	0.4878	240	0.5492	0.0802	0.4690
241	0.5400	0.0788	0.4612	242	0.5294	0.0773	0.4521
243	0.5318	0.0777	0.4541	244	0.5299	0.0774	0.4525
245	0.5275	0.0770	0.4505	246	0.5379	0.0785	0.4594
247	0.5395	0.0788	0.4607	248	0.5107	0.0746	0.4361
249	0.5125	0.0748	0.4377	250	0.5174	0.0755	0.4419
251	0.5117	0.0747	0.4370	252	0.5155	0.0753	0.4402
253	0.5342	0.0780	0.4562	254	0.5186	0.0757	0.4429
255	0.5027	0.0734	0.4293	256	0.4922	0.0719	0.4203
257	0.4885	0.0713	0.4172	258	0.4676	0.0683	0.3993
259	0.4343	0.0634	0.3709	260	0.3901	0.0570	0.3331
261	0.3208	0.0468	0.2740	262	0.3577	0.0522	0.3055
263	0.3796	0.0554	0.3242	264	0.4253	0.0621	0.3632
265	0.4088	0.0597	0.3491	266	0.3640	0.0531	0.3109
267	0.4042	0.0590	0.3452	268	0.4303	0.0628	0.3675
269	0.4179	0.0610	0.3569	270	0.4201	0.0613	0.3588
271	0.4120	0.0602	0.3518	272	0.4037	0.0589	0.3448
273	0.3331	0.0486	0.2845	274	0.3252	0.0475	0.2777
275	0.3210	0.0460	0.2750	276	0.2905	0.0408	0.2497
277	0.2323	0.0319	0.2004	278	0.1890	0.0254	0.1636
279	0.2158	0.0283	0.1875	280	0.2130	0.0273	0.1857
281	0.2225	0.0278	0.1947	282	0.2347	0.0285	0.2062
283	0.2394	0.0283	0.2111	284	0.1835	0.0210	0.1625
285	0.2376	0.0264	0.2112	286	0.2734	0.0293	0.2441
287	0.2954	0.0305	0.2649	288	0.2914	0.0289	0.2625
289	0.2940	0.0279	0.2661	290	0.2831	0.0256	0.2575
291	0.2881	0.0248	0.2633	292	0.2871	0.0233	0.2638
293	0.2768	0.0210	0.2558	294	0.2613	0.0183	0.2430
295	0.2742	0.0176	0.2566	296	0.2520	0.0144	0.2376
297	0.2422	0.0120	0.2302	298	0.2326	0.0094	0.2232
299	0.2349	0.0067	0.2282	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 16.7189

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PEVAPO = 119.1132

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type	Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #2: Grass Vegetation

```

-----
!               Program DATAINH               !
!               Version 3.01                     !
-----

```

Input Filename: c:\a\60_10g.inp

Date Processed: 19 Oct 2023

Time Processed: 14:20:51.88

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

```

IPLANT = 1    NGRAV = 1
IFDEND = 366  IDTBEG = 1    IDTEND = 366
  IYS = 1946   NYEARS = 12   ISTEAD = 0
IFLIST = 1    NFLIST = 24
NPRINT = 0    STOPHR = 2.400E+01
ISMETH = 1    INMAX = 5     ISWDIF = 1    DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
  KOPT = 4    KEST = 3      WTF = 5.000E-01
ITOPBC = 0    IEVOPT = 1    NFHOUR = 2    LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0    ICLOUD = 0    ISHOPT = 0
IRAIN = 0     HPR = 1.000E+00

```

Hysteresis options:

```

IHYS = 0    AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

```

Heat flow options:

```

IHEAT = 0    ICONVH = 0    DMAXHE = 0.000E+00
UPPERH = 0    TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0    QHLEAK = 0.000E+00 TGRAD = 0.000E+00

```

Vapor flow options:

```

IVAPOR = 1    TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

```

Grid options:

```

MATN = 5      NPT = 141

```

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

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Material No. 1

THETA = f(H), Layer 1: Admixture (Sample 4)

THET = 0.16380 THTR = 4.20000E-03 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Admixture (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 1.8783 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 2: Alluvium (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 5.4000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 3: Alluvium (Sample 4)

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Shale (Sample 6)

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K = f(H), Layer 4: Shale (Sample 6)

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Tailings

THET = 0.57480 THTR = 4.01000E-02 ALPHA = 1.60000E-03

N = 2.3431 M = 0.57321

K = f(H), Layer 5: Tailings

RKMOD = 2.0000 SK = 0.24840 A = 1.60000E-03

N = 2.3431 M = 0.57321 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 1.638E-01 K = 1.878E+00 C = -7.502E-09

HDRY = 1.000E+08 THETA = 6.561E-03 K = 8.325E-18 C = -7.487E-12

Initial Conditions:

NDAY = 0

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NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
2	0.10	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
3	0.30	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
4	0.60	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
5	1.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
6	1.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
7	2.20	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
8	3.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
9	4.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
10	5.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
11	7.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
12	9.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
13	12.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
14	14.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
15	17.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
16	20.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
17	22.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
18	23.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
19	25.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
20	25.40	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
21	26.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	27.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	28.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	29.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	30.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	31.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
27	32.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
28	33.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
29	35.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
30	37.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
31	40.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
32	42.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	44.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	45.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	46.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	47.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	48.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	50.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	52.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	54.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	57.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	58.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	60.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	61.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
45	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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48	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
50	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
51	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	95.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	97.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	97.80	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	98.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	99.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	101.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	103.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	105.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	109.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	114.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	117.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	119.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	121.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	122.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	123.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	124.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	126.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	128.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	130.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	132.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	135.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	140.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
80	145.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
81	150.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	155.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	185.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	190.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	195.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	200.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	205.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	210.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	213.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	215.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	217.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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97	218.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	219.70	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	221.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	223.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	225.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	228.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	231.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	234.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	237.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	240.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	243.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	246.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
110	248.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
111	249.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	250.20	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	251.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
114	252.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
115	254.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
116	257.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
117	260.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
118	265.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
119	273.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
120	280.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
121	290.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
122	315.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
123	325.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
124	350.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
125	375.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
126	400.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
127	420.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
128	440.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
129	455.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
130	470.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
131	480.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
132	488.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
133	495.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
134	500.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
135	505.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
136	509.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
137	512.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
138	515.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
139	517.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
140	518.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
141	519.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

Total Initial Storage (cm) = 4.698430E+01

Plant parameters:

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LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300,
BARE=0.825

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
70	0.000
103	0.640
274	0.640
300	0.000

DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI
1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000
61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272
85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640

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205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.187

B1 (coefficient defining degree of curvature) = 0.071

B2 (coefficient determining the value of asymptote) = 0.074

Root depth, density, and weight/node versus depth

DAY	MAX ROOT DEPTH (cm/cm)	ROOT DENSITY (1/cm)	NORMALIZED DENSITY

0	0.00	0.000	0.0000
0	0.10	0.260	0.0200
0	0.30	0.257	0.0198
0	0.60	0.253	0.0195
0	1.00	0.248	0.0191
0	1.50	0.242	0.0186
0	2.20	0.234	0.0180
0	3.00	0.225	0.0173
0	4.00	0.215	0.0165
0	5.50	0.201	0.0154

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0	7.50	0.184	0.0142
0	9.50	0.170	0.0131
0	12.00	0.154	0.0119
0	14.50	0.141	0.0109
0	17.50	0.128	0.0099
0	20.00	0.120	0.0092
0	22.00	0.114	0.0087
0	23.50	0.110	0.0084
0	25.00	0.106	0.0082
0	25.40	0.105	0.0081
0	26.00	0.104	0.0080
0	27.00	0.102	0.0078
0	28.50	0.099	0.0076
0	29.50	0.097	0.0075
0	30.50	0.096	0.0074
0	31.00	0.095	0.0073
0	32.00	0.094	0.0072
0	33.50	0.092	0.0071
0	35.00	0.090	0.0069
0	37.00	0.088	0.0068
0	40.00	0.085	0.0066
0	42.00	0.084	0.0064
0	44.00	0.082	0.0063
0	45.00	0.082	0.0063
0	46.00	0.081	0.0063
0	47.00	0.081	0.0062
0	48.00	0.080	0.0062
0	50.00	0.080	0.0061
0	52.00	0.079	0.0061
0	54.00	0.078	0.0060
0	57.00	0.077	0.0060
0	58.50	0.077	0.0059
0	60.00	0.077	0.0059
0	61.00	0.077	0.0059
0	62.00	0.076	0.0059
0	63.00	0.076	0.0059
0	64.50	0.076	0.0059
0	66.00	0.076	0.0058
0	68.00	0.076	0.0058
0	71.00	0.075	0.0058
0	74.00	0.075	0.0058
0	77.00	0.075	0.0058
0	80.00	0.075	0.0058
0	83.00	0.075	0.0057
0	86.00	0.075	0.0057
0	89.00	0.074	0.0057
0	92.00	0.074	0.0057
0	95.00	0.074	0.0057
0	97.00	0.074	0.0057

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0	97.80	0.074	0.0057
0	98.00	0.074	0.0057
0	99.00	0.074	0.0057
0	101.00	0.074	0.0057
0	103.00	0.074	0.0057
0	105.00	0.074	0.0057
0	109.00	0.074	0.0057
0	114.00	0.074	0.0057
0	117.00	0.074	0.0057
0	119.00	0.074	0.0057
0	121.00	0.074	0.0057
0	122.00	0.074	0.0057
0	123.00	0.074	0.0057
0	124.50	0.074	0.0057
0	126.00	0.074	0.0057
0	128.00	0.074	0.0057
0	130.50	0.074	0.0057
0	132.50	0.074	0.0057
0	135.00	0.074	0.0057
0	140.00	0.074	0.0057

MXROOT (deepest node that roots penetrate) = 79

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0324
THETAD (lower limit of optimum moisture content) = 0.0931
THETAN (upper limit of optimum moisture content) = 0.1601

For Material No. 2

THETAW (wilting point moisture content) = 0.0811
THETAD (lower limit of optimum moisture content) = 0.2328
THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 3

THETAW (wilting point moisture content) = 0.0811
THETAD (lower limit of optimum moisture content) = 0.2328
THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 4

THETAW (wilting point moisture content) = 0.1123
THETAD (lower limit of optimum moisture content) = 0.2702
THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 5

THETAW (wilting point moisture content) = 0.0421
THETAD (lower limit of optimum moisture content) = 0.2814
THETAN (upper limit of optimum moisture content) = 0.5746

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ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0150	0.0440
0.0699	0.0911	0.1061	0.1139	0.1139	0.1061	0.0911	0.0699
0.0440	0.0150	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

1	c:\a\PET1946.pen
2	c:\a\PET1947.pen
3	c:\a\PET1948.pen
4	c:\a\PET1949.pen
5	c:\a\PET1950.pen
6	c:\a\PET1951.pen
7	c:\a\PET1952.pen
8	c:\a\PET1953.pen
9	c:\a\PET1954.pen
10	c:\a\PET1955.pen
11	c:\a\PET1956.pen
12	c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1	c:\a\precip1946.dat
2	c:\a\precip1947.dat
3	c:\a\precip1948.dat
4	c:\a\precip1949.dat
5	c:\a\precip1950.dat
6	c:\a\precip1951.dat
7	c:\a\precip1952.dat
8	c:\a\precip1953.dat
9	c:\a\precip1954.dat
10	c:\a\precip1955.dat
11	c:\a\precip1956.dat
12	c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

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a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY	PET	PTRANS	PEVAPO	DAY	PET	PTRANS	PEVAPO
---	-----	-----	---	-----	-----	-----	---
1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0032	0.2521	72	0.2725	0.0049	0.2676
73	0.2837	0.0062	0.2775	74	0.2939	0.0075	0.2864
75	0.2345	0.0067	0.2278	76	0.2442	0.0076	0.2366
77	0.2617	0.0088	0.2529	78	0.2728	0.0098	0.2630
79	0.3043	0.0116	0.2927	80	0.3028	0.0122	0.2906
81	0.3149	0.0133	0.3016	82	0.3135	0.0138	0.2997

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83	0.3066	0.0140	0.2926	84	0.2968	0.0141	0.2827
85	0.3497	0.0172	0.3325	86	0.3786	0.0192	0.3594
87	0.3860	0.0202	0.3658	88	0.4112	0.0222	0.3890
89	0.3988	0.0221	0.3767	90	0.4044	0.0230	0.3814
91	0.3917	0.0228	0.3689	92	0.2526	0.0151	0.2375
93	0.3088	0.0188	0.2900	94	0.3152	0.0196	0.2956
95	0.3355	0.0213	0.3142	96	0.2827	0.0183	0.2644
97	0.3122	0.0206	0.2916	98	0.3170	0.0213	0.2957
99	0.3499	0.0239	0.3260	100	0.3550	0.0247	0.3303
101	0.4501	0.0318	0.4183	102	0.4749	0.0341	0.4408
103	0.4304	0.0314	0.3990	104	0.4507	0.0329	0.4178
105	0.4870	0.0356	0.4514	106	0.5513	0.0402	0.5111
107	0.5363	0.0392	0.4971	108	0.5484	0.0400	0.5084
109	0.5297	0.0387	0.4910	110	0.4348	0.0317	0.4031
111	0.4778	0.0349	0.4429	112	0.5265	0.0384	0.4881
113	0.5414	0.0395	0.5019	114	0.5652	0.0413	0.5239
115	0.5894	0.0430	0.5464	116	0.5743	0.0419	0.5324
117	0.6020	0.0440	0.5580	118	0.5581	0.0407	0.5174
119	0.5856	0.0428	0.5428	120	0.4824	0.0352	0.4472
121	0.4808	0.0351	0.4457	122	0.4843	0.0354	0.4489
123	0.5146	0.0376	0.4770	124	0.4946	0.0361	0.4585
125	0.4720	0.0345	0.4375	126	0.5010	0.0366	0.4644
127	0.5573	0.0407	0.5166	128	0.5157	0.0377	0.4780
129	0.5619	0.0410	0.5209	130	0.4645	0.0339	0.4306
131	0.2429	0.0177	0.2252	132	0.4160	0.0304	0.3856
133	0.5162	0.0377	0.4785	134	0.4225	0.0308	0.3917
135	0.5080	0.0371	0.4709	136	0.5150	0.0376	0.4774
137	0.5485	0.0400	0.5085	138	0.5598	0.0409	0.5189
139	0.5673	0.0414	0.5259	140	0.5792	0.0423	0.5369
141	0.5725	0.0418	0.5307	142	0.5969	0.0436	0.5533
143	0.4947	0.0361	0.4586	144	0.4957	0.0362	0.4595
145	0.5142	0.0375	0.4767	146	0.4890	0.0357	0.4533
147	0.4812	0.0351	0.4461	148	0.4990	0.0364	0.4626
149	0.4959	0.0362	0.4597	150	0.5189	0.0379	0.4810
151	0.5334	0.0389	0.4945	152	0.7934	0.0579	0.7355
153	0.7705	0.0563	0.7142	154	0.7370	0.0538	0.6832
155	0.7268	0.0531	0.6737	156	0.7702	0.0562	0.7140
157	0.7671	0.0560	0.7111	158	0.7911	0.0578	0.7333
159	0.8382	0.0612	0.7770	160	0.8671	0.0633	0.8038
161	0.8498	0.0620	0.7878	162	0.8019	0.0585	0.7434
163	0.7987	0.0583	0.7404	164	0.8331	0.0608	0.7723
165	0.8448	0.0617	0.7831	166	0.8476	0.0619	0.7857
167	0.8315	0.0607	0.7708	168	0.7796	0.0569	0.7227
169	0.7765	0.0567	0.7198	170	0.8071	0.0589	0.7482
171	0.6348	0.0463	0.5885	172	0.6437	0.0470	0.5967
173	0.6686	0.0488	0.6198	174	0.7005	0.0511	0.6494
175	0.7419	0.0542	0.6877	176	0.7160	0.0523	0.6637
177	0.7348	0.0536	0.6812	178	0.7275	0.0531	0.6744
179	0.7271	0.0531	0.6740	180	0.7359	0.0537	0.6822

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181	0.7635	0.0557	0.7078	182	0.7608	0.0555	0.7053
183	0.7506	0.0548	0.6958	184	0.7427	0.0542	0.6885
185	0.6581	0.0480	0.6101	186	0.6694	0.0489	0.6205
187	0.7095	0.0518	0.6577	188	0.7180	0.0524	0.6656
189	0.7125	0.0520	0.6605	190	0.7904	0.0577	0.7327
191	0.7524	0.0549	0.6975	192	0.7512	0.0548	0.6964
193	0.7125	0.0520	0.6605	194	0.6653	0.0486	0.6167
195	0.7235	0.0528	0.6707	196	0.7713	0.0563	0.7150
197	0.8165	0.0596	0.7569	198	0.7191	0.0525	0.6666
199	0.7959	0.0581	0.7378	200	0.7298	0.0533	0.6765
201	0.7164	0.0523	0.6641	202	0.6947	0.0507	0.6440
203	0.6953	0.0508	0.6445	204	0.7389	0.0539	0.6850
205	0.7455	0.0544	0.6911	206	0.7191	0.0525	0.6666
207	0.7042	0.0514	0.6528	208	0.6759	0.0493	0.6266
209	0.7596	0.0555	0.7041	210	0.6731	0.0491	0.6240
211	0.6379	0.0466	0.5913	212	0.6763	0.0494	0.6269
213	0.8013	0.0585	0.7428	214	0.7565	0.0552	0.7013
215	0.7107	0.0519	0.6588	216	0.7511	0.0548	0.6963
217	0.7599	0.0555	0.7044	218	0.5801	0.0424	0.5377
219	0.6442	0.0470	0.5972	220	0.6917	0.0505	0.6412
221	0.7298	0.0533	0.6765	222	0.7155	0.0522	0.6633
223	0.6367	0.0465	0.5902	224	0.4384	0.0320	0.4064
225	0.4302	0.0314	0.3988	226	0.4221	0.0308	0.3913
227	0.4229	0.0309	0.3920	228	0.5501	0.0402	0.5099
229	0.6081	0.0444	0.5637	230	0.5980	0.0437	0.5543
231	0.6020	0.0440	0.5580	232	0.5961	0.0435	0.5526
233	0.6102	0.0445	0.5657	234	0.5637	0.0412	0.5225
235	0.5239	0.0382	0.4857	236	0.5544	0.0405	0.5139
237	0.5700	0.0416	0.5284	238	0.5633	0.0411	0.5222
239	0.5712	0.0417	0.5295	240	0.5492	0.0401	0.5091
241	0.5400	0.0394	0.5006	242	0.5294	0.0387	0.4907
243	0.5318	0.0388	0.4930	244	0.5299	0.0387	0.4912
245	0.5275	0.0385	0.4890	246	0.5379	0.0393	0.4986
247	0.5395	0.0394	0.5001	248	0.5107	0.0373	0.4734
249	0.5125	0.0374	0.4751	250	0.5174	0.0378	0.4796
251	0.5117	0.0374	0.4743	252	0.5155	0.0376	0.4779
253	0.5342	0.0390	0.4952	254	0.5186	0.0379	0.4807
255	0.5027	0.0367	0.4660	256	0.4922	0.0359	0.4563
257	0.4885	0.0357	0.4528	258	0.4676	0.0341	0.4335
259	0.4343	0.0317	0.4026	260	0.3901	0.0285	0.3616
261	0.3208	0.0234	0.2974	262	0.3577	0.0261	0.3316
263	0.3796	0.0277	0.3519	264	0.4253	0.0311	0.3942
265	0.4088	0.0298	0.3790	266	0.3640	0.0266	0.3374
267	0.4042	0.0295	0.3747	268	0.4303	0.0314	0.3989
269	0.4179	0.0305	0.3874	270	0.4201	0.0307	0.3894
271	0.4120	0.0301	0.3819	272	0.4037	0.0295	0.3742
273	0.3331	0.0243	0.3088	274	0.3252	0.0237	0.3015
275	0.3210	0.0230	0.2980	276	0.2905	0.0204	0.2701
277	0.2323	0.0160	0.2163	278	0.1890	0.0127	0.1763

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279	0.2158	0.0142	0.2016	280	0.2130	0.0136	0.1994
281	0.2225	0.0139	0.2086	282	0.2347	0.0143	0.2204
283	0.2394	0.0141	0.2253	284	0.1835	0.0105	0.1730
285	0.2376	0.0132	0.2244	286	0.2734	0.0146	0.2588
287	0.2954	0.0152	0.2802	288	0.2914	0.0145	0.2769
289	0.2940	0.0140	0.2800	290	0.2831	0.0128	0.2703
291	0.2881	0.0124	0.2757	292	0.2871	0.0116	0.2755
293	0.2768	0.0105	0.2663	294	0.2613	0.0092	0.2521
295	0.2742	0.0088	0.2654	296	0.2520	0.0072	0.2448
297	0.2422	0.0060	0.2362	298	0.2326	0.0047	0.2279
299	0.2349	0.0034	0.2315	300	0.2137	0.0000	0.2137
301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309
319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339
337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263
349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

Totals: PET = 135.8321
PTRANS = 8.3595
PEVAPO = 127.4726

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Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time (hr)	Amount (cm)	Application Type	Efficiency	Changes In Rate/Head
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			
	12.000	1.0000			
	13.000	0.0000			
	22.000	0.0320			
	23.000	0.0000			
224	12.000	1.0000	1	1.000	4
	13.000	0.0000			
	22.000	0.5240			
	23.000	0.0000			
227	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.5240			
	13.000	0.0000			
233	0.000	0.7620	1	1.000	2
	1.000	0.0000			

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235	0.000	0.2540	1	1.000	2
	1.000	0.0000			
238	0.000	0.5080	1	1.000	2
	1.000	0.0000			
256	0.000	0.3302	1	1.000	2
	1.000	0.0000			
258	0.000	0.3302	1	1.000	2
	1.000	0.0000			
275	0.000	0.7620	1	1.000	2
	1.000	0.0000			
278	0.000	0.1524	1	1.000	2
	1.000	0.0000			
279	0.000	0.2794	1	1.000	2
	1.000	0.0000			
290	0.000	0.5080	1	1.000	2
	1.000	0.0000			
300	0.000	0.3048	1	1.000	2
	1.000	0.0000			
302	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0414			
	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2
	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			
360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

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Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #2: Reclaimed Vegetation

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\60_10r.inp

Date Processed: 19 Oct 2023

Time Processed: 14:25:52.36

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 141

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Admixture (Sample 4)

THET = 0.16380 THTR = 4.20000E-03 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Admixture (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 1.8783 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 2: Alluvium (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 5.4000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 3: Alluvium (Sample 4)

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Shale (Sample 6)

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K =f(H), Layer 4: Shale (Sample 6)

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Tailings

THET = 0.57480 THTR = 4.01000E-02 ALPHA = 1.60000E-03

N = 2.3431 M = 0.57321

K =f(H), Layer 5: Tailings

RKMOD = 2.0000 SK = 0.24840 A = 1.60000E-03

N = 2.3431 M = 0.57321 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 1.638E-01 K = 1.878E+00 C =-7.502E-09

Hdry = 1.000E+08 THETA = 6.561E-03 K = 8.325E-18 C =-7.487E-12

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP

1	0.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
2	0.10	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
3	0.30	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
4	0.60	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
5	1.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
6	1.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
7	2.20	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
8	3.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1

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9	4.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
10	5.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
11	7.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
12	9.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
13	12.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
14	14.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
15	17.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
16	20.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
17	22.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
18	23.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
19	25.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
20	25.40	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
21	26.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	27.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	28.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	29.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	30.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	31.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
27	32.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
28	33.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
29	35.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
30	37.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
31	40.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
32	42.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	44.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	45.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	46.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	47.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	48.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	50.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	52.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	54.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	57.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	58.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	60.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	61.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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45	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
48	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
50	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
51	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	95.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	97.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	97.80	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	98.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	99.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	101.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	103.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	105.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	109.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	114.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	117.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	119.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	121.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	122.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	123.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	124.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	126.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	128.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	130.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	132.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	135.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	140.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
80	145.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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81	150.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	155.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	185.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	190.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	195.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	200.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	205.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	210.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	213.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	215.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	217.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
97	218.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	219.70	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	221.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	223.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	225.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	228.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	231.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	234.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	237.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	240.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	243.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	246.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
110	248.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
111	249.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	250.20	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	251.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
114	252.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
115	254.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
116	257.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

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117	260.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
118	265.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
119	273.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
120	280.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
121	290.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
122	315.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
123	325.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
124	350.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
125	375.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
126	400.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
127	420.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
128	440.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
129	455.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
130	470.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
131	480.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
132	488.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
133	495.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
134	500.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
135	505.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
136	509.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
137	512.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
138	515.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
139	517.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
140	518.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
141	519.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

Total Initial Storage (cm) = 4.698430E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300, BARE=0.761

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI VLAI

December 2023

70 0.000
103 0.640
274 0.640
300 0.000

DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI DAY LAI

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1 0.000 2 0.000 3 0.000 4 0.000 5 0.000 6 0.000
7 0.000 8 0.000 9 0.000 10 0.000 11 0.000 12 0.000
13 0.000 14 0.000 15 0.000 16 0.000 17 0.000 18 0.000
19 0.000 20 0.000 21 0.000 22 0.000 23 0.000 24 0.000
25 0.000 26 0.000 27 0.000 28 0.000 29 0.000 30 0.000
31 0.000 32 0.000 33 0.000 34 0.000 35 0.000 36 0.000
37 0.000 38 0.000 39 0.000 40 0.000 41 0.000 42 0.000
43 0.000 44 0.000 45 0.000 46 0.000 47 0.000 48 0.000
49 0.000 50 0.000 51 0.000 52 0.000 53 0.000 54 0.000
55 0.000 56 0.000 57 0.000 58 0.000 59 0.000 60 0.000
61 0.000 62 0.000 63 0.000 64 0.000 65 0.000 66 0.000
67 0.000 68 0.000 69 0.000 70 0.000 71 0.019 72 0.039
73 0.058 74 0.078 75 0.097 76 0.116 77 0.136 78 0.155
79 0.175 80 0.194 81 0.213 82 0.233 83 0.252 84 0.272
85 0.291 86 0.310 87 0.330 88 0.349 89 0.368 90 0.388
91 0.407 92 0.427 93 0.446 94 0.465 95 0.485 96 0.504
97 0.524 98 0.543 99 0.562 100 0.582 101 0.601 102 0.621
103 0.640 104 0.640 105 0.640 106 0.640 107 0.640 108 0.640
109 0.640 110 0.640 111 0.640 112 0.640 113 0.640 114 0.640
115 0.640 116 0.640 117 0.640 118 0.640 119 0.640 120 0.640
121 0.640 122 0.640 123 0.640 124 0.640 125 0.640 126 0.640
127 0.640 128 0.640 129 0.640 130 0.640 131 0.640 132 0.640
133 0.640 134 0.640 135 0.640 136 0.640 137 0.640 138 0.640
139 0.640 140 0.640 141 0.640 142 0.640 143 0.640 144 0.640
145 0.640 146 0.640 147 0.640 148 0.640 149 0.640 150 0.640
151 0.640 152 0.640 153 0.640 154 0.640 155 0.640 156 0.640
157 0.640 158 0.640 159 0.640 160 0.640 161 0.640 162 0.640
163 0.640 164 0.640 165 0.640 166 0.640 167 0.640 168 0.640
169 0.640 170 0.640 171 0.640 172 0.640 173 0.640 174 0.640

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175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640
241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 261.386

B1 (coefficient defining degree of curvature) = 0.000

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B2 (coefficient determining the value of asymptote = -261.215

Root depth, density, and weight/node versus depth

DAY	MAX	ROOT	NORMALIZED
	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	
---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.171	0.0173
0	0.30	0.171	0.0173
0	0.60	0.170	0.0173
0	1.00	0.170	0.0172
0	1.50	0.169	0.0171
0	2.20	0.168	0.0170
0	3.00	0.167	0.0169
0	4.00	0.165	0.0168
0	5.50	0.163	0.0165
0	7.50	0.160	0.0163
0	9.50	0.158	0.0160
0	12.00	0.154	0.0156
0	14.50	0.150	0.0153
0	17.50	0.146	0.0148
0	20.00	0.143	0.0145
0	22.00	0.140	0.0142
0	23.50	0.138	0.0140
0	25.00	0.136	0.0137
0	25.40	0.135	0.0137
0	26.00	0.134	0.0136
0	27.00	0.133	0.0135
0	28.50	0.131	0.0132
0	29.50	0.129	0.0131
0	30.50	0.128	0.0129
0	31.00	0.127	0.0129
0	32.00	0.126	0.0127
0	33.50	0.123	0.0125

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0	35.00	0.121	0.0123
0	37.00	0.119	0.0120
0	40.00	0.114	0.0116
0	42.00	0.111	0.0113
0	44.00	0.109	0.0110
0	45.00	0.107	0.0109
0	46.00	0.106	0.0107
0	47.00	0.104	0.0106
0	48.00	0.103	0.0104
0	50.00	0.100	0.0101
0	52.00	0.097	0.0099
0	54.00	0.094	0.0096
0	57.00	0.090	0.0091
0	58.50	0.088	0.0089
0	60.00	0.086	0.0087
0	61.00	0.084	0.0086
0	62.00	0.083	0.0084
0	63.00	0.082	0.0083
0	64.50	0.079	0.0081
0	66.00	0.077	0.0078
0	68.00	0.075	0.0076
0	71.00	0.070	0.0071
0	74.00	0.066	0.0067
0	77.00	0.062	0.0063
0	80.00	0.057	0.0058
0	83.00	0.053	0.0054
0	86.00	0.049	0.0050
0	89.00	0.045	0.0045
0	92.00	0.040	0.0041
0	95.00	0.036	0.0037
0	97.00	0.033	0.0034
0	97.80	0.032	0.0033
0	98.00	0.032	0.0032
0	99.00	0.031	0.0031
0	101.00	0.028	0.0028
0	103.00	0.025	0.0025

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0	105.00	0.022	0.0022
0	109.00	0.016	0.0017
0	114.00	0.009	0.0009
0	117.00	0.005	0.0005
0	119.00	0.002	0.0002
0	121.00	-0.001	-0.0001
0	122.00	-0.002	-0.0002
0	123.00	-0.003	-0.0004
0	124.50	-0.006	-0.0006
0	126.00	-0.008	-0.0008
0	128.00	-0.011	-0.0011
0	130.50	-0.014	-0.0014
0	132.50	-0.017	-0.0017
0	135.00	-0.021	-0.0021
0	140.00	-0.028	-0.0028
0	145.00	-0.035	-0.0035

MXROOT (deepest node that roots penetrate) = 80

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

For Material No. 1

THETAW (wilting point moisture content) = 0.0324

THETAD (lower limit of optimum moisture content) = 0.0931

THETAN (upper limit of optimum moisture content) = 0.1601

For Material No. 2

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 3

THETAW (wilting point moisture content) = 0.0811

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

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For Material No. 4

THETAW (wilting point moisture content) = 0.1123

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 5

THETAW (wilting point moisture content) = 0.0421

THETAD (lower limit of optimum moisture content) = 0.2814

THETAN (upper limit of optimum moisture content) = 0.5746

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440
0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen

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12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat
2 c:\a\precip1947.dat
3 c:\a\precip1948.dat
4 c:\a\precip1949.dat
5 c:\a\precip1950.dat
6 c:\a\precip1951.dat
7 c:\a\precip1952.dat
8 c:\a\precip1953.dat
9 c:\a\precip1954.dat
10 c:\a\precip1955.dat
11 c:\a\precip1956.dat
12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the
relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000
b = 0.520
c = 0.500
d = 0.000 (below this LAI, PT is zero)
e = 2.700 (above this LAI, PT=f(e))

DAY PET PTRANS PEVAPO DAY PET PTRANS PEVAPO

1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524

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13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734
19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0044	0.2509	72	0.2725	0.0067	0.2658
73	0.2837	0.0085	0.2752	74	0.2939	0.0102	0.2837
75	0.2345	0.0091	0.2254	76	0.2442	0.0103	0.2339
77	0.2617	0.0120	0.2497	78	0.2728	0.0133	0.2595
79	0.3043	0.0158	0.2885	80	0.3028	0.0165	0.2863
81	0.3149	0.0180	0.2969	82	0.3135	0.0188	0.2947
83	0.3066	0.0191	0.2875	84	0.2968	0.0192	0.2776

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85	0.3497	0.0234	0.3263	86	0.3786	0.0262	0.3524
87	0.3860	0.0275	0.3585	88	0.4112	0.0301	0.3811
89	0.3988	0.0300	0.3688	90	0.4044	0.0312	0.3732
91	0.3917	0.0310	0.3607	92	0.2526	0.0205	0.2321
93	0.3088	0.0256	0.2832	94	0.3152	0.0267	0.2885
95	0.3355	0.0290	0.3065	96	0.2827	0.0249	0.2578
97	0.3122	0.0280	0.2842	98	0.3170	0.0290	0.2880
99	0.3499	0.0325	0.3174	100	0.3550	0.0336	0.3214
101	0.4501	0.0433	0.4068	102	0.4749	0.0464	0.4285
103	0.4304	0.0427	0.3877	104	0.4507	0.0447	0.4060
105	0.4870	0.0483	0.4387	106	0.5513	0.0547	0.4966
107	0.5363	0.0532	0.4831	108	0.5484	0.0544	0.4940
109	0.5297	0.0526	0.4771	110	0.4348	0.0431	0.3917
111	0.4778	0.0474	0.4304	112	0.5265	0.0522	0.4743
113	0.5414	0.0537	0.4877	114	0.5652	0.0561	0.5091
115	0.5894	0.0585	0.5309	116	0.5743	0.0570	0.5173
117	0.6020	0.0597	0.5423	118	0.5581	0.0554	0.5027
119	0.5856	0.0581	0.5275	120	0.4824	0.0479	0.4345
121	0.4808	0.0477	0.4331	122	0.4843	0.0481	0.4362
123	0.5146	0.0511	0.4635	124	0.4946	0.0491	0.4455
125	0.4720	0.0468	0.4252	126	0.5010	0.0497	0.4513
127	0.5573	0.0553	0.5020	128	0.5157	0.0512	0.4645
129	0.5619	0.0557	0.5062	130	0.4645	0.0461	0.4184
131	0.2429	0.0241	0.2188	132	0.4160	0.0413	0.3747
133	0.5162	0.0512	0.4650	134	0.4225	0.0419	0.3806
135	0.5080	0.0504	0.4576	136	0.5150	0.0511	0.4639
137	0.5485	0.0544	0.4941	138	0.5598	0.0555	0.5043
139	0.5673	0.0563	0.5110	140	0.5792	0.0575	0.5217
141	0.5725	0.0568	0.5157	142	0.5969	0.0592	0.5377
143	0.4947	0.0491	0.4456	144	0.4957	0.0492	0.4465
145	0.5142	0.0510	0.4632	146	0.4890	0.0485	0.4405
147	0.4812	0.0477	0.4335	148	0.4990	0.0495	0.4495
149	0.4959	0.0492	0.4467	150	0.5189	0.0515	0.4674
151	0.5334	0.0529	0.4805	152	0.7934	0.0787	0.7147
153	0.7705	0.0764	0.6941	154	0.7370	0.0731	0.6639
155	0.7268	0.0721	0.6547	156	0.7702	0.0764	0.6938

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157 0.7671 0.0761 0.6910	158 0.7911 0.0785 0.7126
159 0.8382 0.0832 0.7550	160 0.8671 0.0860 0.7811
161 0.8498 0.0843 0.7655	162 0.8019 0.0796 0.7223
163 0.7987 0.0792 0.7195	164 0.8331 0.0827 0.7504
165 0.8448 0.0838 0.7610	166 0.8476 0.0841 0.7635
167 0.8315 0.0825 0.7490	168 0.7796 0.0773 0.7023
169 0.7765 0.0770 0.6995	170 0.8071 0.0801 0.7270
171 0.6348 0.0630 0.5718	172 0.6437 0.0639 0.5798
173 0.6686 0.0663 0.6023	174 0.7005 0.0695 0.6310
175 0.7419 0.0736 0.6683	176 0.7160 0.0710 0.6450
177 0.7348 0.0729 0.6619	178 0.7275 0.0722 0.6553
179 0.7271 0.0721 0.6550	180 0.7359 0.0730 0.6629
181 0.7635 0.0758 0.6877	182 0.7608 0.0755 0.6853
183 0.7506 0.0745 0.6761	184 0.7427 0.0737 0.6690
185 0.6581 0.0653 0.5928	186 0.6694 0.0664 0.6030
187 0.7095 0.0704 0.6391	188 0.7180 0.0712 0.6468
189 0.7125 0.0707 0.6418	190 0.7904 0.0784 0.7120
191 0.7524 0.0747 0.6777	192 0.7512 0.0745 0.6767
193 0.7125 0.0707 0.6418	194 0.6653 0.0660 0.5993
195 0.7235 0.0718 0.6517	196 0.7713 0.0765 0.6948
197 0.8165 0.0810 0.7355	198 0.7191 0.0713 0.6478
199 0.7959 0.0790 0.7169	200 0.7298 0.0724 0.6574
201 0.7164 0.0711 0.6453	202 0.6947 0.0689 0.6258
203 0.6953 0.0690 0.6263	204 0.7389 0.0733 0.6656
205 0.7455 0.0740 0.6715	206 0.7191 0.0713 0.6478
207 0.7042 0.0699 0.6343	208 0.6759 0.0671 0.6088
209 0.7596 0.0754 0.6842	210 0.6731 0.0668 0.6063
211 0.6379 0.0633 0.5746	212 0.6763 0.0671 0.6092
213 0.8013 0.0795 0.7218	214 0.7565 0.0751 0.6814
215 0.7107 0.0705 0.6402	216 0.7511 0.0745 0.6766
217 0.7599 0.0754 0.6845	218 0.5801 0.0576 0.5225
219 0.6442 0.0639 0.5803	220 0.6917 0.0686 0.6231
221 0.7298 0.0724 0.6574	222 0.7155 0.0710 0.6445
223 0.6367 0.0632 0.5735	224 0.4384 0.0435 0.3949
225 0.4302 0.0427 0.3875	226 0.4221 0.0419 0.3802
227 0.4229 0.0420 0.3809	228 0.5501 0.0546 0.4955

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229	0.6081	0.0603	0.5478	230	0.5980	0.0593	0.5387
231	0.6020	0.0597	0.5423	232	0.5961	0.0591	0.5370
233	0.6102	0.0605	0.5497	234	0.5637	0.0559	0.5078
235	0.5239	0.0520	0.4719	236	0.5544	0.0550	0.4994
237	0.5700	0.0566	0.5134	238	0.5633	0.0559	0.5074
239	0.5712	0.0567	0.5145	240	0.5492	0.0545	0.4947
241	0.5400	0.0536	0.4864	242	0.5294	0.0525	0.4769
243	0.5318	0.0528	0.4790	244	0.5299	0.0526	0.4773
245	0.5275	0.0523	0.4752	246	0.5379	0.0534	0.4845
247	0.5395	0.0535	0.4860	248	0.5107	0.0507	0.4600
249	0.5125	0.0508	0.4617	250	0.5174	0.0513	0.4661
251	0.5117	0.0508	0.4609	252	0.5155	0.0511	0.4644
253	0.5342	0.0530	0.4812	254	0.5186	0.0515	0.4671
255	0.5027	0.0499	0.4528	256	0.4922	0.0488	0.4434
257	0.4885	0.0485	0.4400	258	0.4676	0.0464	0.4212
259	0.4343	0.0431	0.3912	260	0.3901	0.0387	0.3514
261	0.3208	0.0318	0.2890	262	0.3577	0.0355	0.3222
263	0.3796	0.0377	0.3419	264	0.4253	0.0422	0.3831
265	0.4088	0.0406	0.3682	266	0.3640	0.0361	0.3279
267	0.4042	0.0401	0.3641	268	0.4303	0.0427	0.3876
269	0.4179	0.0415	0.3764	270	0.4201	0.0417	0.3784
271	0.4120	0.0409	0.3711	272	0.4037	0.0401	0.3636
273	0.3331	0.0330	0.3001	274	0.3252	0.0323	0.2929
275	0.3210	0.0312	0.2898	276	0.2905	0.0277	0.2628
277	0.2323	0.0217	0.2106	278	0.1890	0.0172	0.1718
279	0.2158	0.0192	0.1966	280	0.2130	0.0185	0.1945
281	0.2225	0.0189	0.2036	282	0.2347	0.0194	0.2153
283	0.2394	0.0192	0.2202	284	0.1835	0.0143	0.1692
285	0.2376	0.0179	0.2197	286	0.2734	0.0199	0.2535
287	0.2954	0.0207	0.2747	288	0.2914	0.0196	0.2718
289	0.2940	0.0190	0.2750	290	0.2831	0.0174	0.2657
291	0.2881	0.0168	0.2713	292	0.2871	0.0158	0.2713
293	0.2768	0.0142	0.2626	294	0.2613	0.0125	0.2488
295	0.2742	0.0119	0.2623	296	0.2520	0.0098	0.2422
297	0.2422	0.0082	0.2340	298	0.2326	0.0064	0.2262
299	0.2349	0.0046	0.2303	300	0.2137	0.0000	0.2137

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301 0.2333 0.0000 0.2333	302 0.1667 0.0000 0.1667
303 0.1442 0.0000 0.1442	304 0.1406 0.0000 0.1406
305 0.1187 0.0000 0.1187	306 0.1227 0.0000 0.1227
307 0.1350 0.0000 0.1350	308 0.1468 0.0000 0.1468
309 0.1409 0.0000 0.1409	310 0.1407 0.0000 0.1407
311 0.1331 0.0000 0.1331	312 0.1205 0.0000 0.1205
313 0.0964 0.0000 0.0964	314 0.1106 0.0000 0.1106
315 0.1029 0.0000 0.1029	316 0.1055 0.0000 0.1055
317 0.1416 0.0000 0.1416	318 0.1309 0.0000 0.1309
319 0.1175 0.0000 0.1175	320 0.1210 0.0000 0.1210
321 0.1214 0.0000 0.1214	322 0.1234 0.0000 0.1234
323 0.1249 0.0000 0.1249	324 0.1292 0.0000 0.1292
325 0.1399 0.0000 0.1399	326 0.1313 0.0000 0.1313
327 0.1352 0.0000 0.1352	328 0.1424 0.0000 0.1424
329 0.1385 0.0000 0.1385	330 0.0864 0.0000 0.0864
331 0.1010 0.0000 0.1010	332 0.1071 0.0000 0.1071
333 0.1211 0.0000 0.1211	334 0.1314 0.0000 0.1314
335 0.1222 0.0000 0.1222	336 0.1339 0.0000 0.1339
337 0.1124 0.0000 0.1124	338 0.0889 0.0000 0.0889
339 0.0802 0.0000 0.0802	340 0.0898 0.0000 0.0898
341 0.0910 0.0000 0.0910	342 0.0996 0.0000 0.0996
343 0.0818 0.0000 0.0818	344 0.0815 0.0000 0.0815
345 0.0802 0.0000 0.0802	346 0.0921 0.0000 0.0921
347 0.1033 0.0000 0.1033	348 0.1263 0.0000 0.1263
349 0.1231 0.0000 0.1231	350 0.1171 0.0000 0.1171
351 0.0770 0.0000 0.0770	352 0.0718 0.0000 0.0718
353 0.0748 0.0000 0.0748	354 0.0959 0.0000 0.0959
355 0.0853 0.0000 0.0853	356 0.0756 0.0000 0.0756
357 0.0851 0.0000 0.0851	358 0.1032 0.0000 0.1032
359 0.0997 0.0000 0.0997	360 0.0989 0.0000 0.0989
361 0.0943 0.0000 0.0943	362 0.0740 0.0000 0.0740
363 0.0441 0.0000 0.0441	364 0.0542 0.0000 0.0542
365 0.0397 0.0000 0.0397	

Totals: PET = 135.8321

PTRANS = 11.3603

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PEVAPO = 124.4718

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type	Rate/Head	
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6

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1.000	0.0000				
12.000	1.0000				
13.000	0.0000				
22.000	0.0320				
23.000	0.0000				
224	12.000	1.0000	1	1.000	4
13.000	0.0000				
22.000	0.5240				
23.000	0.0000				
227	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.5240				
13.000	0.0000				
233	0.000	0.7620	1	1.000	2
1.000	0.0000				
235	0.000	0.2540	1	1.000	2
1.000	0.0000				
238	0.000	0.5080	1	1.000	2
1.000	0.0000				
256	0.000	0.3302	1	1.000	2
1.000	0.0000				
258	0.000	0.3302	1	1.000	2
1.000	0.0000				
275	0.000	0.7620	1	1.000	2
1.000	0.0000				
278	0.000	0.1524	1	1.000	2
1.000	0.0000				
279	0.000	0.2794	1	1.000	2
1.000	0.0000				
290	0.000	0.5080	1	1.000	2
1.000	0.0000				
300	0.000	0.3048	1	1.000	2
1.000	0.0000				
302	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0414				

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13.000	0.0000				
305	0.000	0.0762	1	1.000	2
1.000	0.0000				
312	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.7780				
13.000	0.0000				
313	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
317	0.000	0.3048	1	1.000	2
1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATAINH terminated normally.

Sensitivity Analysis #2: Shrub Vegetation

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! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\60_10s.inp

Date Processed: 19 Oct 2023

Time Processed: 14:07:20.66

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 1 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00
UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00
LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 141

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Admixture (Sample 4)

THET = 0.16380 THTR = 4.20000E-03 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Admixture (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 1.8783 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

$$N = 1.3171 \quad M = 0.24076$$

K = f(H), Layer 2: Alluvium (Sample 4) plus 1 order

$$RKMOD = 2.0000 \quad SK = 5.4000 \quad A = 5.90000E-03$$

$$N = 1.3171 \quad M = 0.24076 \quad EPIT = 0.50000$$

Material No. 3

THETA = f(H), Layer 3: Alluvium (Sample 4)

$$THET = 0.40940 \quad THTR = 1.06000E-02 \quad ALPHA = 5.90000E-03$$

$$N = 1.3171 \quad M = 0.24076$$

K = f(H), Layer 3: Alluvium (Sample 4)

$$RKMOD = 2.0000 \quad SK = 0.54000 \quad A = 5.90000E-03$$

$$N = 1.3171 \quad M = 0.24076 \quad EPIT = 0.50000$$

Material No. 4

THETA = f(H), Layer 4: Shale (Sample 6)

$$THET = 0.42030 \quad THTR = 0.0000 \quad ALPHA = 5.60000E-03$$

$$N = 1.2439 \quad M = 0.19608$$

K = f(H), Layer 4: Shale (Sample 6)

$$RKMOD = 2.0000 \quad SK = 7.56000E-02 \quad A = 5.60000E-03$$

$$N = 1.2439 \quad M = 0.19608 \quad EPIT = 0.50000$$

Material No. 5

THETA = f(H), Layer 5: Tailings

$$THET = 0.57480 \quad THTR = 4.01000E-02 \quad ALPHA = 1.60000E-03$$

$$N = 2.3431 \quad M = 0.57321$$

K = f(H), Layer 5: Tailings

$$RKMOD = 2.0000 \quad SK = 0.24840 \quad A = 1.60000E-03$$

$$N = 2.3431 \quad M = 0.57321 \quad EPIT = 0.50000$$

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 1.638E-01 K = 1.878E+00 C = -7.502E-09

HDRY = 1.000E+08 THETA = 6.561E-03 K = 8.325E-18 C = -7.487E-12

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP
1	0.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
2	0.10	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
3	0.30	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
4	0.60	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
5	1.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
6	1.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
7	2.20	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
8	3.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
9	4.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
10	5.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
11	7.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
12	9.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
13	12.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
14	14.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
15	17.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
16	20.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
17	22.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
18	23.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
19	25.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
20	25.40	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1

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21	26.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	27.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	28.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	29.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	30.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	31.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
27	32.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
28	33.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
29	35.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
30	37.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
31	40.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
32	42.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	44.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	45.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	46.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	47.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	48.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	50.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	52.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	54.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	57.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	58.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	60.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	61.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
45	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
48	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
50	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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51	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	95.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	97.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	97.80	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	98.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	99.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	101.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	103.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	105.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	109.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	114.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	117.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	119.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	121.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	122.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	123.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	124.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	126.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	128.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	130.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	132.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	135.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	140.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
80	145.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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81	150.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	155.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	185.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	190.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	195.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	200.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	205.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	210.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	213.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	215.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	217.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
97	218.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	219.70	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	221.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	223.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	225.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	228.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	231.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	234.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	237.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	240.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	243.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	246.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
110	248.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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111	249.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	250.20	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	251.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
114	252.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
115	254.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
116	257.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
117	260.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
118	265.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
119	273.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
120	280.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
121	290.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
122	315.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
123	325.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
124	350.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
125	375.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
126	400.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
127	420.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
128	440.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
129	455.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
130	470.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
131	480.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
132	488.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
133	495.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
134	500.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
135	505.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
136	509.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
137	512.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
138	515.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
139	517.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
140	518.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

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141 519.00 5 1.0000E+04 2.8787E-08 -1.7296E-06 0.0530 293.1

Total Initial Storage (cm) = 4.698430E+01

Plant parameters:

LEAF= 1, NFROOT= 1, NUPTAK= 1, NFPET= 1, NSOW= 70, NHRVST=300,
BARE=0.876

Number of Growth Day (NDLAI) - Leaf Area Index (VLAI) pairs 4

NDLAI	VLAI
70	0.000
103	0.640
274	0.640
300	0.000

DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI	DAY	LAI
1	0.000	2	0.000	3	0.000	4	0.000	5	0.000	6	0.000
7	0.000	8	0.000	9	0.000	10	0.000	11	0.000	12	0.000
13	0.000	14	0.000	15	0.000	16	0.000	17	0.000	18	0.000
19	0.000	20	0.000	21	0.000	22	0.000	23	0.000	24	0.000
25	0.000	26	0.000	27	0.000	28	0.000	29	0.000	30	0.000
31	0.000	32	0.000	33	0.000	34	0.000	35	0.000	36	0.000
37	0.000	38	0.000	39	0.000	40	0.000	41	0.000	42	0.000
43	0.000	44	0.000	45	0.000	46	0.000	47	0.000	48	0.000
49	0.000	50	0.000	51	0.000	52	0.000	53	0.000	54	0.000
55	0.000	56	0.000	57	0.000	58	0.000	59	0.000	60	0.000

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61	0.000	62	0.000	63	0.000	64	0.000	65	0.000	66	0.000
67	0.000	68	0.000	69	0.000	70	0.000	71	0.019	72	0.039
73	0.058	74	0.078	75	0.097	76	0.116	77	0.136	78	0.155
79	0.175	80	0.194	81	0.213	82	0.233	83	0.252	84	0.272
85	0.291	86	0.310	87	0.330	88	0.349	89	0.368	90	0.388
91	0.407	92	0.427	93	0.446	94	0.465	95	0.485	96	0.504
97	0.524	98	0.543	99	0.562	100	0.582	101	0.601	102	0.621
103	0.640	104	0.640	105	0.640	106	0.640	107	0.640	108	0.640
109	0.640	110	0.640	111	0.640	112	0.640	113	0.640	114	0.640
115	0.640	116	0.640	117	0.640	118	0.640	119	0.640	120	0.640
121	0.640	122	0.640	123	0.640	124	0.640	125	0.640	126	0.640
127	0.640	128	0.640	129	0.640	130	0.640	131	0.640	132	0.640
133	0.640	134	0.640	135	0.640	136	0.640	137	0.640	138	0.640
139	0.640	140	0.640	141	0.640	142	0.640	143	0.640	144	0.640
145	0.640	146	0.640	147	0.640	148	0.640	149	0.640	150	0.640
151	0.640	152	0.640	153	0.640	154	0.640	155	0.640	156	0.640
157	0.640	158	0.640	159	0.640	160	0.640	161	0.640	162	0.640
163	0.640	164	0.640	165	0.640	166	0.640	167	0.640	168	0.640
169	0.640	170	0.640	171	0.640	172	0.640	173	0.640	174	0.640
175	0.640	176	0.640	177	0.640	178	0.640	179	0.640	180	0.640
181	0.640	182	0.640	183	0.640	184	0.640	185	0.640	186	0.640
187	0.640	188	0.640	189	0.640	190	0.640	191	0.640	192	0.640
193	0.640	194	0.640	195	0.640	196	0.640	197	0.640	198	0.640
199	0.640	200	0.640	201	0.640	202	0.640	203	0.640	204	0.640
205	0.640	206	0.640	207	0.640	208	0.640	209	0.640	210	0.640
211	0.640	212	0.640	213	0.640	214	0.640	215	0.640	216	0.640
217	0.640	218	0.640	219	0.640	220	0.640	221	0.640	222	0.640
223	0.640	224	0.640	225	0.640	226	0.640	227	0.640	228	0.640
229	0.640	230	0.640	231	0.640	232	0.640	233	0.640	234	0.640
235	0.640	236	0.640	237	0.640	238	0.640	239	0.640	240	0.640

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241	0.640	242	0.640	243	0.640	244	0.640	245	0.640	246	0.640
247	0.640	248	0.640	249	0.640	250	0.640	251	0.640	252	0.640
253	0.640	254	0.640	255	0.640	256	0.640	257	0.640	258	0.640
259	0.640	260	0.640	261	0.640	262	0.640	263	0.640	264	0.640
265	0.640	266	0.640	267	0.640	268	0.640	269	0.640	270	0.640
271	0.640	272	0.640	273	0.640	274	0.640	275	0.615	276	0.591
277	0.566	278	0.542	279	0.517	280	0.492	281	0.468	282	0.443
283	0.418	284	0.394	285	0.369	286	0.345	287	0.320	288	0.295
289	0.271	290	0.246	291	0.222	292	0.197	293	0.172	294	0.148
295	0.123	296	0.098	297	0.074	298	0.049	299	0.025	300	0.000
301	0.000	302	0.000	303	0.000	304	0.000	305	0.000	306	0.000
307	0.000	308	0.000	309	0.000	310	0.000	311	0.000	312	0.000
313	0.000	314	0.000	315	0.000	316	0.000	317	0.000	318	0.000
319	0.000	320	0.000	321	0.000	322	0.000	323	0.000	324	0.000
325	0.000	326	0.000	327	0.000	328	0.000	329	0.000	330	0.000
331	0.000	332	0.000	333	0.000	334	0.000	335	0.000	336	0.000
337	0.000	338	0.000	339	0.000	340	0.000	341	0.000	342	0.000
343	0.000	344	0.000	345	0.000	346	0.000	347	0.000	348	0.000
349	0.000	350	0.000	351	0.000	352	0.000	353	0.000	354	0.000
355	0.000	356	0.000	357	0.000	358	0.000	359	0.000	360	0.000
361	0.000	362	0.000	363	0.000	364	0.000	365	0.000		

NFROOT = 1: Negative exponential representation of root growth

AA (intersection of curve at z=0 with abscissa) = 0.198

B1 (coefficient defining degree of curvature) = 0.034

B2 (coefficient determining the value of asymptote = 0.044

Root depth, density, and weight/node versus depth

DAY MAX ROOT NORMALIZED

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	ROOT DEPTH	DENSITY	DENSITY
	(cm/cm)	(1/cm)	
---	-----	-----	-----
0	0.00	0.000	0.0000
0	0.10	0.241	0.0191
0	0.30	0.240	0.0190
0	0.60	0.238	0.0189
0	1.00	0.235	0.0187
0	1.50	0.232	0.0184
0	2.20	0.228	0.0180
0	3.00	0.223	0.0177
0	4.00	0.217	0.0172
0	5.50	0.208	0.0165
0	7.50	0.197	0.0156
0	9.50	0.187	0.0148
0	12.00	0.175	0.0139
0	14.50	0.165	0.0131
0	17.50	0.153	0.0121
0	20.00	0.144	0.0114
0	22.00	0.138	0.0109
0	23.50	0.133	0.0105
0	25.00	0.129	0.0102
0	25.40	0.127	0.0101
0	26.00	0.126	0.0100
0	27.00	0.123	0.0098
0	28.50	0.119	0.0094
0	29.50	0.117	0.0092
0	30.50	0.114	0.0091
0	31.00	0.113	0.0090
0	32.00	0.111	0.0088

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0	33.50	0.107	0.0085
0	35.00	0.104	0.0083
0	37.00	0.100	0.0079
0	40.00	0.095	0.0075
0	42.00	0.091	0.0073
0	44.00	0.088	0.0070
0	45.00	0.087	0.0069
0	46.00	0.085	0.0068
0	47.00	0.084	0.0067
0	48.00	0.083	0.0066
0	50.00	0.080	0.0064
0	52.00	0.078	0.0062
0	54.00	0.076	0.0060
0	57.00	0.073	0.0058
0	58.50	0.071	0.0056
0	60.00	0.070	0.0055
0	61.00	0.069	0.0055
0	62.00	0.068	0.0054
0	63.00	0.067	0.0053
0	64.50	0.066	0.0053
0	66.00	0.065	0.0052
0	68.00	0.064	0.0051
0	71.00	0.062	0.0049
0	74.00	0.060	0.0048
0	77.00	0.059	0.0046
0	80.00	0.057	0.0045
0	83.00	0.056	0.0044
0	86.00	0.055	0.0043
0	89.00	0.054	0.0043
0	92.00	0.053	0.0042

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0	95.00	0.052	0.0041
0	97.00	0.052	0.0041
0	97.80	0.051	0.0041
0	98.00	0.051	0.0041
0	99.00	0.051	0.0040
0	101.00	0.051	0.0040
0	103.00	0.050	0.0040
0	105.00	0.050	0.0040
0	109.00	0.049	0.0039
0	114.00	0.048	0.0038
0	117.00	0.048	0.0038
0	119.00	0.048	0.0038
0	121.00	0.047	0.0038
0	122.00	0.047	0.0038
0	123.00	0.047	0.0038
0	124.50	0.047	0.0037
0	126.00	0.047	0.0037
0	128.00	0.047	0.0037
0	130.50	0.047	0.0037
0	132.50	0.046	0.0037
0	135.00	0.046	0.0037
0	140.00	0.046	0.0036
0	145.00	0.046	0.0036
0	150.00	0.045	0.0036
0	155.00	0.045	0.0036

MXROOT (deepest node that roots penetrate) = 82

NUPTAK = 1: Feddes et al. 1975 moisture dependent sink term

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For Material No. 1

THETAW (wilting point moisture content) = 0.0278

THETAD (lower limit of optimum moisture content) = 0.0931

THETAN (upper limit of optimum moisture content) = 0.1601

For Material No. 2

THETAW (wilting point moisture content) = 0.0696

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 3

THETAW (wilting point moisture content) = 0.0696

THETAD (lower limit of optimum moisture content) = 0.2328

THETAN (upper limit of optimum moisture content) = 0.4002

For Material No. 4

THETAW (wilting point moisture content) = 0.0980

THETAD (lower limit of optimum moisture content) = 0.2702

THETAN (upper limit of optimum moisture content) = 0.4119

For Material No. 5

THETAW (wilting point moisture content) = 0.0410

THETAD (lower limit of optimum moisture content) = 0.2814

THETAN (upper limit of optimum moisture content) = 0.5746

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100 0.0100 0.0100 0.0100 0.0100 0.0100 0.0150 0.0440

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0.0699 0.0911 0.1061 0.1139 0.1139 0.1061 0.0911 0.0699
0.0440 0.0150 0.0100 0.0100 0.0100 0.0100 0.0100 0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen
- 11 c:\a\PET1956.pen
- 12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

- 1 c:\a\precip1946.dat
- 2 c:\a\precip1947.dat
- 3 c:\a\precip1948.dat
- 4 c:\a\precip1949.dat
- 5 c:\a\precip1950.dat
- 6 c:\a\precip1951.dat

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- 7 c:\a\precip1952.dat
- 8 c:\a\precip1953.dat
- 9 c:\a\precip1954.dat
- 10 c:\a\precip1955.dat
- 11 c:\a\precip1956.dat
- 12 c:\a\precip1957.dat

PET partitioning:

NFPET = 1:

PET is partitioned into PT and PE according to the relationship developed by Ritchie (1972)

The user-specified coefficients are:

a = 0.000

b = 0.520

c = 0.500

d = 0.000 (below this LAI, PT is zero)

e = 2.700 (above this LAI, PT=f(e))

DAY	PET	PTRANS	PEVAPO	DAY	PET	PTRANS	PEVAPO

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1	0.0684	0.0000	0.0684	2	0.0552	0.0000	0.0552
3	0.0553	0.0000	0.0553	4	0.0604	0.0000	0.0604
5	0.0700	0.0000	0.0700	6	0.0733	0.0000	0.0733
7	0.0565	0.0000	0.0565	8	0.0432	0.0000	0.0432
9	0.0835	0.0000	0.0835	10	0.0618	0.0000	0.0618
11	0.0518	0.0000	0.0518	12	0.0524	0.0000	0.0524
13	0.0524	0.0000	0.0524	14	0.0723	0.0000	0.0723
15	0.0740	0.0000	0.0740	16	0.0688	0.0000	0.0688
17	0.0663	0.0000	0.0663	18	0.0734	0.0000	0.0734

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19	0.0898	0.0000	0.0898	20	0.0938	0.0000	0.0938
21	0.0747	0.0000	0.0747	22	0.0538	0.0000	0.0538
23	0.0888	0.0000	0.0888	24	0.0872	0.0000	0.0872
25	0.1086	0.0000	0.1086	26	0.1064	0.0000	0.1064
27	0.0594	0.0000	0.0594	28	0.0664	0.0000	0.0664
29	0.0973	0.0000	0.0973	30	0.0739	0.0000	0.0739
31	0.0677	0.0000	0.0677	32	0.0793	0.0000	0.0793
33	0.0946	0.0000	0.0946	34	0.1396	0.0000	0.1396
35	0.1099	0.0000	0.1099	36	0.0899	0.0000	0.0899
37	0.0794	0.0000	0.0794	38	0.1228	0.0000	0.1228
39	0.1044	0.0000	0.1044	40	0.0973	0.0000	0.0973
41	0.1177	0.0000	0.1177	42	0.1095	0.0000	0.1095
43	0.0911	0.0000	0.0911	44	0.1068	0.0000	0.1068
45	0.1070	0.0000	0.1070	46	0.1233	0.0000	0.1233
47	0.1427	0.0000	0.1427	48	0.1701	0.0000	0.1701
49	0.1766	0.0000	0.1766	50	0.1642	0.0000	0.1642
51	0.1528	0.0000	0.1528	52	0.1695	0.0000	0.1695
53	0.1839	0.0000	0.1839	54	0.2003	0.0000	0.2003
55	0.2210	0.0000	0.2210	56	0.2158	0.0000	0.2158
57	0.1782	0.0000	0.1782	58	0.1848	0.0000	0.1848
59	0.1829	0.0000	0.1829	60	0.2100	0.0000	0.2100
61	0.2231	0.0000	0.2231	62	0.2431	0.0000	0.2431
63	0.2512	0.0000	0.2512	64	0.2594	0.0000	0.2594
65	0.2255	0.0000	0.2255	66	0.1544	0.0000	0.1544
67	0.1954	0.0000	0.1954	68	0.2448	0.0000	0.2448
69	0.2931	0.0000	0.2931	70	0.2153	0.0000	0.2153
71	0.2553	0.0023	0.2530	72	0.2725	0.0035	0.2690
73	0.2837	0.0044	0.2793	74	0.2939	0.0053	0.2886
75	0.2345	0.0047	0.2298	76	0.2442	0.0054	0.2388
77	0.2617	0.0062	0.2555	78	0.2728	0.0069	0.2659

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79	0.3043	0.0082	0.2961	80	0.3028	0.0086	0.2942
81	0.3149	0.0094	0.3055	82	0.3135	0.0098	0.3037
83	0.3066	0.0099	0.2967	84	0.2968	0.0100	0.2868
85	0.3497	0.0122	0.3375	86	0.3786	0.0136	0.3650
87	0.3860	0.0143	0.3717	88	0.4112	0.0157	0.3955
89	0.3988	0.0156	0.3832	90	0.4044	0.0162	0.3882
91	0.3917	0.0161	0.3756	92	0.2526	0.0106	0.2420
93	0.3088	0.0133	0.2955	94	0.3152	0.0139	0.3013
95	0.3355	0.0151	0.3204	96	0.2827	0.0129	0.2698
97	0.3122	0.0146	0.2976	98	0.3170	0.0151	0.3019
99	0.3499	0.0169	0.3330	100	0.3550	0.0175	0.3375
101	0.4501	0.0225	0.4276	102	0.4749	0.0241	0.4508
103	0.4304	0.0222	0.4082	104	0.4507	0.0232	0.4275
105	0.4870	0.0251	0.4619	106	0.5513	0.0284	0.5229
107	0.5363	0.0277	0.5086	108	0.5484	0.0283	0.5201
109	0.5297	0.0273	0.5024	110	0.4348	0.0224	0.4124
111	0.4778	0.0246	0.4532	112	0.5265	0.0272	0.4993
113	0.5414	0.0279	0.5135	114	0.5652	0.0292	0.5360
115	0.5894	0.0304	0.5590	116	0.5743	0.0296	0.5447
117	0.6020	0.0311	0.5709	118	0.5581	0.0288	0.5293
119	0.5856	0.0302	0.5554	120	0.4824	0.0249	0.4575
121	0.4808	0.0248	0.4560	122	0.4843	0.0250	0.4593
123	0.5146	0.0265	0.4881	124	0.4946	0.0255	0.4691
125	0.4720	0.0243	0.4477	126	0.5010	0.0258	0.4752
127	0.5573	0.0287	0.5286	128	0.5157	0.0266	0.4891
129	0.5619	0.0290	0.5329	130	0.4645	0.0240	0.4405
131	0.2429	0.0125	0.2304	132	0.4160	0.0215	0.3945
133	0.5162	0.0266	0.4896	134	0.4225	0.0218	0.4007
135	0.5080	0.0262	0.4818	136	0.5150	0.0266	0.4884
137	0.5485	0.0283	0.5202	138	0.5598	0.0289	0.5309

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139	0.5673	0.0293	0.5380	140	0.5792	0.0299	0.5493
141	0.5725	0.0295	0.5430	142	0.5969	0.0308	0.5661
143	0.4947	0.0255	0.4692	144	0.4957	0.0256	0.4701
145	0.5142	0.0265	0.4877	146	0.4890	0.0252	0.4638
147	0.4812	0.0248	0.4564	148	0.4990	0.0257	0.4733
149	0.4959	0.0256	0.4703	150	0.5189	0.0268	0.4921
151	0.5334	0.0275	0.5059	152	0.7934	0.0409	0.7525
153	0.7705	0.0397	0.7308	154	0.7370	0.0380	0.6990
155	0.7268	0.0375	0.6893	156	0.7702	0.0397	0.7305
157	0.7671	0.0396	0.7275	158	0.7911	0.0408	0.7503
159	0.8382	0.0432	0.7950	160	0.8671	0.0447	0.8224
161	0.8498	0.0438	0.8060	162	0.8019	0.0414	0.7605
163	0.7987	0.0412	0.7575	164	0.8331	0.0430	0.7901
165	0.8448	0.0436	0.8012	166	0.8476	0.0437	0.8039
167	0.8315	0.0429	0.7886	168	0.7796	0.0402	0.7394
169	0.7765	0.0401	0.7364	170	0.8071	0.0416	0.7655
171	0.6348	0.0327	0.6021	172	0.6437	0.0332	0.6105
173	0.6686	0.0345	0.6341	174	0.7005	0.0361	0.6644
175	0.7419	0.0383	0.7036	176	0.7160	0.0369	0.6791
177	0.7348	0.0379	0.6969	178	0.7275	0.0375	0.6900
179	0.7271	0.0375	0.6896	180	0.7359	0.0380	0.6979
181	0.7635	0.0394	0.7241	182	0.7608	0.0392	0.7216
183	0.7506	0.0387	0.7119	184	0.7427	0.0383	0.7044
185	0.6581	0.0339	0.6242	186	0.6694	0.0345	0.6349
187	0.7095	0.0366	0.6729	188	0.7180	0.0370	0.6810
189	0.7125	0.0368	0.6757	190	0.7904	0.0408	0.7496
191	0.7524	0.0388	0.7136	192	0.7512	0.0387	0.7125
193	0.7125	0.0368	0.6757	194	0.6653	0.0343	0.6310
195	0.7235	0.0373	0.6862	196	0.7713	0.0398	0.7315
197	0.8165	0.0421	0.7744	198	0.7191	0.0371	0.6820

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199	0.7959	0.0411	0.7548	200	0.7298	0.0376	0.6922
201	0.7164	0.0370	0.6794	202	0.6947	0.0358	0.6589
203	0.6953	0.0359	0.6594	204	0.7389	0.0381	0.7008
205	0.7455	0.0385	0.7070	206	0.7191	0.0371	0.6820
207	0.7042	0.0363	0.6679	208	0.6759	0.0349	0.6410
209	0.7596	0.0392	0.7204	210	0.6731	0.0347	0.6384
211	0.6379	0.0329	0.6050	212	0.6763	0.0349	0.6414
213	0.8013	0.0413	0.7600	214	0.7565	0.0390	0.7175
215	0.7107	0.0367	0.6740	216	0.7511	0.0387	0.7124
217	0.7599	0.0392	0.7207	218	0.5801	0.0299	0.5502
219	0.6442	0.0332	0.6110	220	0.6917	0.0357	0.6560
221	0.7298	0.0376	0.6922	222	0.7155	0.0369	0.6786
223	0.6367	0.0328	0.6039	224	0.4384	0.0226	0.4158
225	0.4302	0.0222	0.4080	226	0.4221	0.0218	0.4003
227	0.4229	0.0218	0.4011	228	0.5501	0.0284	0.5217
229	0.6081	0.0314	0.5767	230	0.5980	0.0308	0.5672
231	0.6020	0.0311	0.5709	232	0.5961	0.0307	0.5654
233	0.6102	0.0315	0.5787	234	0.5637	0.0291	0.5346
235	0.5239	0.0270	0.4969	236	0.5544	0.0286	0.5258
237	0.5700	0.0294	0.5406	238	0.5633	0.0291	0.5342
239	0.5712	0.0295	0.5417	240	0.5492	0.0283	0.5209
241	0.5400	0.0279	0.5121	242	0.5294	0.0273	0.5021
243	0.5318	0.0274	0.5044	244	0.5299	0.0273	0.5026
245	0.5275	0.0272	0.5003	246	0.5379	0.0277	0.5102
247	0.5395	0.0278	0.5117	248	0.5107	0.0263	0.4844
249	0.5125	0.0264	0.4861	250	0.5174	0.0267	0.4907
251	0.5117	0.0264	0.4853	252	0.5155	0.0266	0.4889
253	0.5342	0.0276	0.5066	254	0.5186	0.0268	0.4918
255	0.5027	0.0259	0.4768	256	0.4922	0.0254	0.4668
257	0.4885	0.0252	0.4633	258	0.4676	0.0241	0.4435

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259	0.4343	0.0224	0.4119	260	0.3901	0.0201	0.3700
261	0.3208	0.0165	0.3043	262	0.3577	0.0185	0.3392
263	0.3796	0.0196	0.3600	264	0.4253	0.0219	0.4034
265	0.4088	0.0211	0.3877	266	0.3640	0.0188	0.3452
267	0.4042	0.0209	0.3833	268	0.4303	0.0222	0.4081
269	0.4179	0.0216	0.3963	270	0.4201	0.0217	0.3984
271	0.4120	0.0213	0.3907	272	0.4037	0.0208	0.3829
273	0.3331	0.0172	0.3159	274	0.3252	0.0168	0.3084
275	0.3210	0.0162	0.3048	276	0.2905	0.0144	0.2761
277	0.2323	0.0113	0.2210	278	0.1890	0.0090	0.1800
279	0.2158	0.0100	0.2058	280	0.2130	0.0096	0.2034
281	0.2225	0.0098	0.2127	282	0.2347	0.0101	0.2246
283	0.2394	0.0100	0.2294	284	0.1835	0.0074	0.1761
285	0.2376	0.0093	0.2283	286	0.2734	0.0103	0.2631
287	0.2954	0.0108	0.2846	288	0.2914	0.0102	0.2812
289	0.2940	0.0099	0.2841	290	0.2831	0.0091	0.2740
291	0.2881	0.0087	0.2794	292	0.2871	0.0082	0.2789
293	0.2768	0.0074	0.2694	294	0.2613	0.0065	0.2548
295	0.2742	0.0062	0.2680	296	0.2520	0.0051	0.2469
297	0.2422	0.0042	0.2380	298	0.2326	0.0033	0.2293
299	0.2349	0.0024	0.2325	300	0.2137	0.0000	0.2137
301	0.2333	0.0000	0.2333	302	0.1667	0.0000	0.1667
303	0.1442	0.0000	0.1442	304	0.1406	0.0000	0.1406
305	0.1187	0.0000	0.1187	306	0.1227	0.0000	0.1227
307	0.1350	0.0000	0.1350	308	0.1468	0.0000	0.1468
309	0.1409	0.0000	0.1409	310	0.1407	0.0000	0.1407
311	0.1331	0.0000	0.1331	312	0.1205	0.0000	0.1205
313	0.0964	0.0000	0.0964	314	0.1106	0.0000	0.1106
315	0.1029	0.0000	0.1029	316	0.1055	0.0000	0.1055
317	0.1416	0.0000	0.1416	318	0.1309	0.0000	0.1309

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319	0.1175	0.0000	0.1175	320	0.1210	0.0000	0.1210
321	0.1214	0.0000	0.1214	322	0.1234	0.0000	0.1234
323	0.1249	0.0000	0.1249	324	0.1292	0.0000	0.1292
325	0.1399	0.0000	0.1399	326	0.1313	0.0000	0.1313
327	0.1352	0.0000	0.1352	328	0.1424	0.0000	0.1424
329	0.1385	0.0000	0.1385	330	0.0864	0.0000	0.0864
331	0.1010	0.0000	0.1010	332	0.1071	0.0000	0.1071
333	0.1211	0.0000	0.1211	334	0.1314	0.0000	0.1314
335	0.1222	0.0000	0.1222	336	0.1339	0.0000	0.1339
337	0.1124	0.0000	0.1124	338	0.0889	0.0000	0.0889
339	0.0802	0.0000	0.0802	340	0.0898	0.0000	0.0898
341	0.0910	0.0000	0.0910	342	0.0996	0.0000	0.0996
343	0.0818	0.0000	0.0818	344	0.0815	0.0000	0.0815
345	0.0802	0.0000	0.0802	346	0.0921	0.0000	0.0921
347	0.1033	0.0000	0.1033	348	0.1263	0.0000	0.1263
349	0.1231	0.0000	0.1231	350	0.1171	0.0000	0.1171
351	0.0770	0.0000	0.0770	352	0.0718	0.0000	0.0718
353	0.0748	0.0000	0.0748	354	0.0959	0.0000	0.0959
355	0.0853	0.0000	0.0853	356	0.0756	0.0000	0.0756
357	0.0851	0.0000	0.0851	358	0.1032	0.0000	0.1032
359	0.0997	0.0000	0.0997	360	0.0989	0.0000	0.0989
361	0.0943	0.0000	0.0943	362	0.0740	0.0000	0.0740
363	0.0441	0.0000	0.0441	364	0.0542	0.0000	0.0542
365	0.0397	0.0000	0.0397				

Totals: PET = 135.8321

PTRANS = 5.9064

PEVAPO = 129.9257

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time (hr)	Amount (cm)	Application Type	Efficiency Rate/Head	Changes In
92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2
	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			

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209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			
	12.000	1.0000			
	13.000	0.0000			
	22.000	0.0320			
	23.000	0.0000			
224	12.000	1.0000	1	1.000	4
	13.000	0.0000			
	22.000	0.5240			
	23.000	0.0000			
227	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.5240			
	13.000	0.0000			
233	0.000	0.7620	1	1.000	2
	1.000	0.0000			
235	0.000	0.2540	1	1.000	2
	1.000	0.0000			
238	0.000	0.5080	1	1.000	2
	1.000	0.0000			
256	0.000	0.3302	1	1.000	2
	1.000	0.0000			
258	0.000	0.3302	1	1.000	2
	1.000	0.0000			
275	0.000	0.7620	1	1.000	2
	1.000	0.0000			
278	0.000	0.1524	1	1.000	2
	1.000	0.0000			

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279	0.000	0.2794	1	1.000	2
	1.000	0.0000			
290	0.000	0.5080	1	1.000	2
	1.000	0.0000			
300	0.000	0.3048	1	1.000	2
	1.000	0.0000			
302	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0414			
	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2
	1.000	0.0000			
328	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
341	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.4732			
	13.000	0.0000			

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360	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0160			
	13.000	0.0000			
362	0.000	0.4572	1	1.000	2
	1.000	0.0000			

Total Water Applied (cm) = 2.252980E+01

Program DATANH terminated normally.

Sensitivity Analysis #2: No Vegetation

! Program DATAINH !
! Version 3.01 !

Input Filename: c:\a\60_10NV.inp

Date Processed: 19 Oct 2023

Time Processed: 14:13:52.57

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

General options:

IPLANT = 0 NGRAV = 1
IFDEND = 366 IDTBEG = 1 IDTEND = 366
IYS = 1946 NYEARS = 12 ISTEAD = 0
IFLIST = 1 NFLIST = 24
NPRINT = 0 STOPHR = 2.400E+01
ISMETH = 1 INMAX = 5 ISWDIF = 1 DMAXBA = 0.100E-04
DELMAX = 1.000E+00 DELMIN = 1.000E-10 OUTTIM = 1.000E+00
RFACT = 2.000E+00 RAINIF = 1.000E-05 DHTOL = 0.000E+00
DHMAX = 0.000E+00 DHFACT = 0.000E+00
KOPT = 4 KEST = 3 WTF = 5.000E-01
ITOPBC = 0 IEVOPT = 1 NFHOUR = 2 LOWER = 1
HIRRI = 0.000E+00 HDRY = 1.000E+08 HTOP = 0.000E+00 RHA = 2.000E-01
IETOPT = 0 ICLOUD = 0 ISHOPT = 0
IRAIN = 0 HPR = 1.000E+00

Hysteresis options:

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IHYS = 0 AIRTOL = 0.000E+00 HYSTOL = 0.000E+00 HYSMXH = 0.000E+00

Heat flow options:

IHEAT = 0 ICONVH = 0 DMAXHE = 0.000E+00

UPPERH = 0 TSMEAN = 0.000E+00 TSAMP = 0.000E+00 QHCTOP = 0.000E+00

LOWERH = 0 QHLEAK = 0.000E+00 TGRAD = 0.000E+00

Vapor flow options:

IVAPOR = 1 TORT = 6.600E-01 TSOIL = 2.931E+02 VAPDIF = 2.400E-01

Grid options:

MATN = 5 NPT = 141

Soil hydraulic properties:

KOPT = 4: van Genuchten hydraulic functions

Material No. 1

THETA = f(H), Layer 1: Admixture (Sample 4)

THET = 0.16380 THTR = 4.20000E-03 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K = f(H), Layer 1: Admixture (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 1.8783 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 2

THETA = f(H), Layer 2: Alluvium (Sample 4)

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THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K =f(H), Layer 2: Alluvium (Sample 4) plus 1 order

RKMOD = 2.0000 SK = 5.4000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 3

THETA = f(H), Layer 3: Alluvium (Sample 4)

THET = 0.40940 THTR = 1.06000E-02 ALPHA = 5.90000E-03

N = 1.3171 M = 0.24076

K =f(H), Layer 3: Alluvium (Sample 4)

RKMOD = 2.0000 SK = 0.54000 A = 5.90000E-03

N = 1.3171 M = 0.24076 EPIT = 0.50000

Material No. 4

THETA = f(H), Layer 4: Shale (Sample 6)

THET = 0.42030 THTR = 0.0000 ALPHA = 5.60000E-03

N = 1.2439 M = 0.19608

K =f(H), Layer 4: Shale (Sample 6)

RKMOD = 2.0000 SK = 7.56000E-02 A = 5.60000E-03

N = 1.2439 M = 0.19608 EPIT = 0.50000

Material No. 5

THETA = f(H), Layer 5: Tailings

THET = 0.57480 THTR = 4.01000E-02 ALPHA = 1.60000E-03

N = 2.3431 M = 0.57321

K =f(H), Layer 5: Tailings

RKMOD = 2.0000 SK = 0.24840 A = 1.60000E-03

N = 2.3431 M = 0.57321 EPIT = 0.50000

Surface node bounding values:

HIRRI = 0.000E+00 THETA = 1.638E-01 K = 1.878E+00 C = -7.502E-09

HDRY = 1.000E+08 THETA = 6.561E-03 K = 8.325E-18 C = -7.487E-12

Initial Conditions:

NDAY = 0

NODE	Z	MAT	HEAD	CONDUCTIVITY	CAPACITY	THETA	TEMP

1	0.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
2	0.10	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
3	0.30	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
4	0.60	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
5	1.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
6	1.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
7	2.20	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
8	3.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
9	4.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
10	5.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
11	7.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
12	9.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
13	12.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
14	14.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
15	17.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
16	20.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
17	22.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
18	23.50	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
19	25.00	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1

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20	25.40	1	1.0000E+04	1.2264E-06	-1.3810E-06	0.0480	293.1
21	26.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
22	27.00	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
23	28.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
24	29.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
25	30.50	2	1.0000E+04	3.5258E-06	-3.4507E-06	0.1199	293.1
26	31.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
27	32.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
28	33.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
29	35.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
30	37.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
31	40.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
32	42.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
33	44.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
34	45.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
35	46.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
36	47.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
37	48.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
38	50.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
39	52.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
40	54.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
41	57.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
42	58.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
43	60.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
44	61.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
45	62.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
46	63.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
47	64.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
48	66.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
49	68.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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50	71.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
51	74.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
52	77.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
53	80.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
54	83.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
55	86.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
56	89.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
57	92.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
58	95.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
59	97.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
60	97.80	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
61	98.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
62	99.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
63	101.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
64	103.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
65	105.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
66	109.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
67	114.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
68	117.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
69	119.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
70	121.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
71	122.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
72	123.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
73	124.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
74	126.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
75	128.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
76	130.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
77	132.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
78	135.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
79	140.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1

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80	145.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
81	150.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
82	155.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
83	160.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
84	165.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
85	170.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
86	175.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
87	180.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
88	185.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
89	190.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
90	195.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
91	200.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
92	205.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
93	210.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
94	213.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
95	215.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
96	217.00	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
97	218.50	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
98	219.70	4	1.0000E+04	7.8939E-08	-3.8100E-06	0.1573	293.1
99	220.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
100	221.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
101	223.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
102	225.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
103	228.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
104	231.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
105	234.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
106	237.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
107	240.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
108	243.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
109	246.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1

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110	248.00	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
111	249.50	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
112	250.20	3	1.0000E+04	3.5258E-07	-3.4507E-06	0.1199	293.1
113	251.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
114	252.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
115	254.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
116	257.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
117	260.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
118	265.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
119	273.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
120	280.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
121	290.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
122	315.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
123	325.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
124	350.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
125	375.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
126	400.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
127	420.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
128	440.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
129	455.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
130	470.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
131	480.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
132	488.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
133	495.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
134	500.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
135	505.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
136	509.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
137	512.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
138	515.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
139	517.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

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140	518.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1
141	519.00	5	1.0000E+04	2.8787E-08	-1.7296E-06	0.0530	293.1

Total Initial Storage (cm) = 4.698430E+01

ET parameters:

NFHOURL = 2: User subroutine for hourly PET provided

0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0150	0.0440
0.0699	0.0911	0.1061	0.1139	0.1139	0.1061	0.0911	0.0699
0.0440	0.0150	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100

Lower Boundary Option:

LOWER = 1: unit gradient

Multiyear Option

Sim Year PET input file name

- 1 c:\a\PET1946.pen
- 2 c:\a\PET1947.pen
- 3 c:\a\PET1948.pen
- 4 c:\a\PET1949.pen
- 5 c:\a\PET1950.pen
- 6 c:\a\PET1951.pen
- 7 c:\a\PET1952.pen
- 8 c:\a\PET1953.pen
- 9 c:\a\PET1954.pen
- 10 c:\a\PET1955.pen

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11 c:\a\PET1956.pen

12 c:\a\PET1957.pen

Multiyear Option

Sim Year Precipitation input file name

1 c:\a\precip1946.dat

2 c:\a\precip1947.dat

3 c:\a\precip1948.dat

4 c:\a\precip1949.dat

5 c:\a\precip1950.dat

6 c:\a\precip1951.dat

7 c:\a\precip1952.dat

8 c:\a\precip1953.dat

9 c:\a\precip1954.dat

10 c:\a\precip1955.dat

11 c:\a\precip1956.dat

12 c:\a\precip1957.dat

Potential Evaporation Values (no plants):

DAY PEVAPO DAY PEVAPO DAY PEVAPO DAY PEVAPO DAY PEVAPO

```

-----
1 0.0684  2 0.0552  3 0.0553  4 0.0604  5 0.0700
6 0.0733  7 0.0565  8 0.0432  9 0.0835 10 0.0618
11 0.0518 12 0.0524 13 0.0524 14 0.0723 15 0.0740
16 0.0688 17 0.0663 18 0.0734 19 0.0898 20 0.0938
21 0.0747 22 0.0538 23 0.0888 24 0.0872 25 0.1086
26 0.1064 27 0.0594 28 0.0664 29 0.0973 30 0.0739
31 0.0677 32 0.0793 33 0.0946 34 0.1396 35 0.1099
36 0.0899 37 0.0794 38 0.1228 39 0.1044 40 0.0973

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41	0.1177	42	0.1095	43	0.0911	44	0.1068	45	0.1070
46	0.1233	47	0.1427	48	0.1701	49	0.1766	50	0.1642
51	0.1528	52	0.1695	53	0.1839	54	0.2003	55	0.2210
56	0.2158	57	0.1782	58	0.1848	59	0.1829	60	0.2100
61	0.2231	62	0.2431	63	0.2512	64	0.2594	65	0.2255
66	0.1544	67	0.1954	68	0.2448	69	0.2931	70	0.2153
71	0.2553	72	0.2725	73	0.2837	74	0.2939	75	0.2345
76	0.2442	77	0.2617	78	0.2728	79	0.3043	80	0.3028
81	0.3149	82	0.3135	83	0.3066	84	0.2968	85	0.3497
86	0.3786	87	0.3860	88	0.4112	89	0.3988	90	0.4044
91	0.3917	92	0.2526	93	0.3088	94	0.3152	95	0.3355
96	0.2827	97	0.3122	98	0.3170	99	0.3499	100	0.3550
101	0.4501	102	0.4749	103	0.4304	104	0.4507	105	0.4870
106	0.5513	107	0.5363	108	0.5484	109	0.5297	110	0.4348
111	0.4778	112	0.5265	113	0.5414	114	0.5652	115	0.5894
116	0.5743	117	0.6020	118	0.5581	119	0.5856	120	0.4824
121	0.4808	122	0.4843	123	0.5146	124	0.4946	125	0.4720
126	0.5010	127	0.5573	128	0.5157	129	0.5619	130	0.4645
131	0.2429	132	0.4160	133	0.5162	134	0.4225	135	0.5080
136	0.5150	137	0.5485	138	0.5598	139	0.5673	140	0.5792
141	0.5725	142	0.5969	143	0.4947	144	0.4957	145	0.5142
146	0.4890	147	0.4812	148	0.4990	149	0.4959	150	0.5189
151	0.5334	152	0.7934	153	0.7705	154	0.7370	155	0.7268
156	0.7702	157	0.7671	158	0.7911	159	0.8382	160	0.8671
161	0.8498	162	0.8019	163	0.7987	164	0.8331	165	0.8448
166	0.8476	167	0.8315	168	0.7796	169	0.7765	170	0.8071
171	0.6348	172	0.6437	173	0.6686	174	0.7005	175	0.7419
176	0.7160	177	0.7348	178	0.7275	179	0.7271	180	0.7359
181	0.7635	182	0.7608	183	0.7506	184	0.7427	185	0.6581
186	0.6694	187	0.7095	188	0.7180	189	0.7125	190	0.7904

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191	0.7524	192	0.7512	193	0.7125	194	0.6653	195	0.7235
196	0.7713	197	0.8165	198	0.7191	199	0.7959	200	0.7298
201	0.7164	202	0.6947	203	0.6953	204	0.7389	205	0.7455
206	0.7191	207	0.7042	208	0.6759	209	0.7596	210	0.6731
211	0.6379	212	0.6763	213	0.8013	214	0.7565	215	0.7107
216	0.7511	217	0.7599	218	0.5801	219	0.6442	220	0.6917
221	0.7298	222	0.7155	223	0.6367	224	0.4384	225	0.4302
226	0.4221	227	0.4229	228	0.5501	229	0.6081	230	0.5980
231	0.6020	232	0.5961	233	0.6102	234	0.5637	235	0.5239
236	0.5544	237	0.5700	238	0.5633	239	0.5712	240	0.5492
241	0.5400	242	0.5294	243	0.5318	244	0.5299	245	0.5275
246	0.5379	247	0.5395	248	0.5107	249	0.5125	250	0.5174
251	0.5117	252	0.5155	253	0.5342	254	0.5186	255	0.5027
256	0.4922	257	0.4885	258	0.4676	259	0.4343	260	0.3901
261	0.3208	262	0.3577	263	0.3796	264	0.4253	265	0.4088
266	0.3640	267	0.4042	268	0.4303	269	0.4179	270	0.4201
271	0.4120	272	0.4037	273	0.3331	274	0.3252	275	0.3210
276	0.2905	277	0.2323	278	0.1890	279	0.2158	280	0.2130
281	0.2225	282	0.2347	283	0.2394	284	0.1835	285	0.2376
286	0.2734	287	0.2954	288	0.2914	289	0.2940	290	0.2831
291	0.2881	292	0.2871	293	0.2768	294	0.2613	295	0.2742
296	0.2520	297	0.2422	298	0.2326	299	0.2349	300	0.2137
301	0.2333	302	0.1667	303	0.1442	304	0.1406	305	0.1187
306	0.1227	307	0.1350	308	0.1468	309	0.1409	310	0.1407
311	0.1331	312	0.1205	313	0.0964	314	0.1106	315	0.1029
316	0.1055	317	0.1416	318	0.1309	319	0.1175	320	0.1210
321	0.1214	322	0.1234	323	0.1249	324	0.1292	325	0.1399
326	0.1313	327	0.1352	328	0.1424	329	0.1385	330	0.0864
331	0.1010	332	0.1071	333	0.1211	334	0.1314	335	0.1222
336	0.1339	337	0.1124	338	0.0889	339	0.0802	340	0.0898

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341	0.0910	342	0.0996	343	0.0818	344	0.0815	345	0.0802
346	0.0921	347	0.1033	348	0.1263	349	0.1231	350	0.1171
351	0.0770	352	0.0718	353	0.0748	354	0.0959	355	0.0853
356	0.0756	357	0.0851	358	0.1032	359	0.0997	360	0.0989
361	0.0943	362	0.0740	363	0.0441	364	0.0542	365	0.0397

Totals: PEVAPO = 135.8321

Precipitation/irrigation parameters:

IRAIN = 0: precipitation data provided

NWATER (number of days of rain/irrigation) = 33

Rainfall/Irrigation Details

Day	Time	Amount	Application	Efficiency	Changes In
	(hr)	(cm)	Type		Rate/Head

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92	0.000	0.9144	1	1.000	2
	1.000	0.0000			
96	0.000	0.1524	1	1.000	2
	1.000	0.0000			
98	0.000	0.1270	1	1.000	2
	1.000	0.0000			
118	0.000	0.1270	1	1.000	2
	1.000	0.0000			
119	0.000	0.1270	1	1.000	2
	1.000	0.0000			
130	0.000	0.5588	1	1.000	2

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	1.000	0.0000			
131	0.000	0.7620	1	1.000	2
	1.000	0.0000			
185	0.000	0.3810	1	1.000	2
	1.000	0.0000			
194	0.000	0.5080	1	1.000	2
	1.000	0.0000			
200	0.000	0.7620	1	1.000	2
	1.000	0.0000			
209	0.000	0.1524	1	1.000	2
	1.000	0.0000			
223	0.000	1.0000	1	1.000	6
	1.000	0.0000			
	12.000	1.0000			
	13.000	0.0000			
	22.000	0.0320			
	23.000	0.0000			
224	12.000	1.0000	1	1.000	4
	13.000	0.0000			
	22.000	0.5240			
	23.000	0.0000			
227	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.5240			
	13.000	0.0000			
233	0.000	0.7620	1	1.000	2
	1.000	0.0000			
235	0.000	0.2540	1	1.000	2
	1.000	0.0000			
238	0.000	0.5080	1	1.000	2

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	1.000	0.0000			
256	0.000	0.3302	1	1.000	2
	1.000	0.0000			
258	0.000	0.3302	1	1.000	2
	1.000	0.0000			
275	0.000	0.7620	1	1.000	2
	1.000	0.0000			
278	0.000	0.1524	1	1.000	2
	1.000	0.0000			
279	0.000	0.2794	1	1.000	2
	1.000	0.0000			
290	0.000	0.5080	1	1.000	2
	1.000	0.0000			
300	0.000	0.3048	1	1.000	2
	1.000	0.0000			
302	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.0414			
	13.000	0.0000			
305	0.000	0.0762	1	1.000	2
	1.000	0.0000			
312	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.7780			
	13.000	0.0000			
313	0.000	1.0000	1	1.000	4
	1.000	0.0000			
	12.000	0.2700			
	13.000	0.0000			
317	0.000	0.3048	1	1.000	2

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1.000	0.0000				
328	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.2700				
13.000	0.0000				
341	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.4732				
13.000	0.0000				
360	0.000	1.0000	1	1.000	4
1.000	0.0000				
12.000	0.0160				
13.000	0.0000				
362	0.000	0.4572	1	1.000	2
1.000	0.0000				

Total Water Applied (cm) = 2.252980E+01

Program DATANH terminated normally.

ATTACHMENT 2. UNSAT H OUTPUT FILES

Sensitivity Analysis #1: Soil Sample 1 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\1_.inp

Results File: c:\a\1_1955.res

Date of Run: 08 Jun 2021

Time of Run: 14:03:04.38

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.387E+03	0.1515	293.15	2	1.000E-01	1.984E+03	0.1594 293.15
3	3.000E-01	1.980E+03	0.1595	293.15	4	6.000E-01	2.031E+03	0.1584 293.15
5	1.000E+00	2.021E+03	0.1586	293.15	6	1.500E+00	2.015E+03	0.1588 293.15
7	2.200E+00	2.009E+03	0.1589	293.15	8	3.000E+00	2.002E+03	0.1590 293.15
9	4.000E+00	1.993E+03	0.1593	293.15	10	5.500E+00	1.977E+03	0.1596 293.15
11	7.500E+00	1.957E+03	0.1601	293.15	12	9.500E+00	1.938E+03	0.1605 293.15
13	1.200E+01	1.919E+03	0.1609	293.15	14	1.450E+01	1.906E+03	0.1612 293.15
15	1.750E+01	1.901E+03	0.1613	293.15	16	2.000E+01	1.904E+03	0.1613 293.15
17	2.300E+01	1.915E+03	0.1610	293.15	18	2.550E+01	1.930E+03	0.1607 293.15
19	2.750E+01	1.945E+03	0.1603	293.15	20	2.900E+01	1.957E+03	0.1600 293.15
21	3.000E+01	1.966E+03	0.1598	293.15	22	3.100E+01	1.975E+03	0.1596 293.15
23	3.200E+01	1.985E+03	0.1594	293.15	24	3.350E+01	2.000E+03	0.1591 293.15
25	3.500E+01	2.016E+03	0.1587	293.15	26	3.700E+01	2.038E+03	0.1583 293.15
27	4.000E+01	2.070E+03	0.1576	293.15	28	4.200E+01	2.091E+03	0.1571 293.15
29	4.400E+01	2.111E+03	0.1567	293.15	30	4.500E+01	2.120E+03	0.1565 293.15
31	4.600E+01	2.129E+03	0.1563	293.15	32	4.700E+01	2.158E+03	0.1558 293.15
33	4.800E+01	2.253E+03	0.1539	293.15	34	5.000E+01	2.449E+03	0.1504 293.15
35	5.200E+01	2.641E+03	0.1473	293.15	36	5.400E+01	2.824E+03	0.1447 293.15
37	5.700E+01	3.098E+03	0.1410	293.15	38	5.850E+01	3.259E+03	0.1391 293.15
39	6.000E+01	3.447E+03	0.1370	293.15	40	6.100E+01	3.594E+03	0.1355 293.15
41	6.200E+01	3.763E+03	0.1338	293.15	42	6.300E+01	3.960E+03	0.1320 293.15
43	6.450E+01	4.320E+03	0.1290	293.15	44	6.600E+01	4.787E+03	0.1255 293.15
45	6.800E+01	5.656E+03	0.1201	293.15	46	7.100E+01	7.952E+03	0.1101 293.15
47	7.400E+01	1.218E+04	0.0990	293.15	48	7.700E+01	1.687E+04	0.0916 293.15
49	8.000E+01	1.981E+04	0.0883	293.15	50	8.300E+01	2.173E+04	0.0864 293.15
51	8.600E+01	2.347E+04	0.0849	293.15	52	8.800E+01	2.467E+04	0.0840 293.15
53	8.900E+01	2.529E+04	0.0835	293.15	54	9.000E+01	2.592E+04	0.0831 293.15
55	9.100E+01	2.655E+04	0.0826	293.15	56	9.200E+01	2.719E+04	0.0822 293.15
57	9.400E+01	2.846E+04	0.0814	293.15	58	9.600E+01	2.966E+04	0.0806 293.15

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59 9.900E+01 3.121E+04 0.0797 293.15	60 1.020E+02 3.230E+04 0.0791 293.15
61 1.050E+02 3.281E+04 0.0789 293.15	62 1.090E+02 3.245E+04 0.0791 293.15
63 1.140E+02 3.028E+04 0.0803 293.15	64 1.170E+02 2.822E+04 0.0815 293.15
65 1.190E+02 2.670E+04 0.0825 293.15	66 1.210E+02 2.518E+04 0.0836 293.15
67 1.220E+02 2.445E+04 0.0841 293.15	68 1.230E+02 2.374E+04 0.0847 293.15
69 1.245E+02 2.274E+04 0.0855 293.15	70 1.260E+02 2.181E+04 0.0863 293.15
71 1.280E+02 2.070E+04 0.0874 293.15	72 1.305E+02 1.950E+04 0.0886 293.15
73 1.325E+02 1.867E+04 0.0895 293.15	74 1.350E+02 1.778E+04 0.0905 293.15
75 1.400E+02 1.634E+04 0.0923 293.15	76 1.450E+02 1.525E+04 0.0938 293.15
77 1.480E+02 1.471E+04 0.0946 293.15	78 1.500E+02 1.439E+04 0.0951 293.15
79 1.514E+02 1.419E+04 0.0954 293.15	80 1.524E+02 1.404E+04 0.0957 293.15
81 1.530E+02 1.396E+04 0.0958 293.15	82 1.540E+02 1.383E+04 0.0960 293.15
83 1.600E+02 1.314E+04 0.0972 293.15	84 1.650E+02 1.267E+04 0.0981 293.15
85 1.700E+02 1.228E+04 0.0988 293.15	86 1.750E+02 1.195E+04 0.0995 293.15
87 1.780E+02 1.177E+04 0.0998 293.15	88 1.800E+02 1.166E+04 0.1001 293.15
89 1.810E+02 1.161E+04 0.1002 293.15	90 1.820E+02 1.156E+04 0.1003 293.15
91 1.830E+02 1.152E+04 0.1004 293.15	92 1.840E+02 1.147E+04 0.1005 293.15
93 1.850E+02 1.142E+04 0.1006 293.15	94 1.870E+02 1.134E+04 0.1008 293.15
95 1.900E+02 1.122E+04 0.1010 293.15	96 1.950E+02 1.104E+04 0.1014 293.15
97 2.020E+02 1.083E+04 0.1019 293.15	98 2.100E+02 1.064E+04 0.1023 293.15
99 2.200E+02 1.046E+04 0.1028 293.15	100 2.350E+02 1.028E+04 0.1032 293.15
101 2.400E+02 1.023E+04 0.1033 293.15	102 2.600E+02 1.011E+04 0.1036 293.15
103 2.800E+02 1.005E+04 0.1038 293.15	104 3.000E+02 1.002E+04 0.1039 293.15
105 3.200E+02 1.001E+04 0.1039 293.15	106 3.400E+02 1.000E+04 0.1039 293.15
107 3.600E+02 1.000E+04 0.1039 293.15	108 3.800E+02 1.000E+04 0.1039 293.15
109 4.000E+02 1.000E+04 0.1039 293.15	110 4.200E+02 1.000E+04 0.1039 293.15
111 4.400E+02 1.000E+04 0.1039 293.15	112 4.550E+02 1.000E+04 0.1039 293.15
113 4.650E+02 1.000E+04 0.1039 293.15	114 4.730E+02 1.000E+04 0.1039 293.15
115 4.780E+02 1.000E+04 0.1039 293.15	116 4.820E+02 1.000E+04 0.1039 293.15
117 4.850E+02 1.000E+04 0.1039 293.15	118 4.870E+02 1.000E+04 0.1039 293.15
119 4.880E+02 1.000E+04 0.1039 293.15	120 4.890E+02 1.000E+04 0.1039 293.15

Initial Water Storage = 52.5367 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.14578
Head (cm) = 2.74479E+03

December 2023

LiqWater Flow (cm)=-6.80734E-02
IsoVapor Flow (cm)=-4.16804E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

52.5367+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 52.4683 vs. 52.4683

Mass Balance = -1.3772E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.15148
Head (cm) = 2.38730E+03
LiqWater Flow (cm)=-3.95908E-02
IsoVapor Flow (cm)=-3.19382E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

52.5188+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 52.4790 vs. 52.4790

Mass Balance = -7.2562E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

December 2023

Potential Transpiration = 1.6719E+01 [cm]
 Actual Transpiration = 3.8522E+00 [cm]
 Potential Evaporation = 1.1911E+02 [cm]
 Actual Evaporation = 1.8739E+01 [cm]
 Evaporation during Growth = 1.0575E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 6.5705E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.2479E+01 [cm]
 Mass Balance Error = -4.6945E-03 [cm]
 Total Successful Time Steps = 11355
 Total Attempted Time Steps = 12580
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6514
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	3.7905E+00	0.050	4.9197E+00	0.200	4.3694E+00
0.450	3.9301E+00	0.800	3.7862E+00	1.250	3.7373E+00
1.850	3.6800E+00	2.600	3.6107E+00	3.500	3.5288E+00
4.750	3.4166E+00	6.500	3.2632E+00	8.500	3.0960E+00
10.750	2.9187E+00	13.250	2.7369E+00	16.000	2.5526E+00
18.750	2.3844E+00	21.500	2.2275E+00	24.250	2.0821E+00
26.500	1.9699E+00	28.250	1.8862E+00	29.500	1.8281E+00
30.500	1.7825E+00	31.500	1.7378E+00	32.750	1.6827E+00
34.250	1.6182E+00	36.000	1.5446E+00	38.500	1.4423E+00
41.000	1.3436E+00	43.000	1.2663E+00	44.500	1.2094E+00
45.500	1.1718E+00	46.500	1.1343E+00	47.500	1.0969E+00
49.000	1.0423E+00	51.000	9.7205E-01	53.000	9.0459E-01
55.500	8.2393E-01	57.750	7.5531E-01	59.250	7.1092E-01
60.500	6.7487E-01	61.500	6.4652E-01	62.500	6.1861E-01
63.750	5.8428E-01	65.250	5.4389E-01	67.000	4.9775E-01
69.500	4.3372E-01	72.500	3.6025E-01	75.500	2.9097E-01
78.500	2.2684E-01	81.500	1.6912E-01	84.500	1.1939E-01
87.000	8.5795E-02	88.500	6.9123E-02	89.500	5.9336E-02
90.500	5.0734E-02	91.500	4.3257E-02	93.000	3.3804E-02
95.000	2.4358E-02	97.500	1.5845E-02	100.500	8.8558E-03

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103.500	3.6388E-03	107.000	-1.6314E-03	111.500	-9.0001E-03
115.500	-1.8483E-02	118.000	-2.7101E-02	120.000	-3.6353E-02
121.500	-3.7582E-02	122.500	-3.8243E-02	123.750	-3.8914E-02
125.250	-3.9525E-02	127.000	-3.9993E-02	129.250	-4.0275E-02
131.500	-4.0268E-02	133.750	-4.0022E-02	137.500	-3.9214E-02
142.500	-3.7645E-02	146.500	-3.6134E-02	149.000	-3.5111E-02
150.700	-3.4393E-02	151.900	-3.3877E-02	152.700	-3.3529E-02
153.500	-3.3179E-02	157.000	-3.1613E-02	162.500	-2.9167E-02
167.500	-2.6957E-02	172.500	-2.4795E-02	176.500	-2.3125E-02
179.000	-2.2104E-02	180.500	-2.1503E-02	181.500	-2.1105E-02
182.500	-2.0711E-02	183.500	-2.0320E-02	184.500	-1.9934E-02
186.000	-1.9359E-02	188.500	-1.8423E-02	192.500	-1.6972E-02
198.500	-1.4925E-02	206.000	-1.2597E-02	215.000	-1.0118E-02
227.500	-7.2062E-03	237.500	-5.4673E-03	250.000	-3.5080E-03
270.000	-1.5656E-03	290.000	-4.5168E-04	310.000	1.3961E-04
330.000	4.3073E-04	350.000	5.6406E-04	370.000	6.2108E-04
390.000	6.4392E-04	410.000	6.5252E-04	430.000	6.5558E-04
447.500	6.5651E-04	460.000	6.5680E-04	469.000	6.5692E-04
475.500	6.5697E-04	480.000	6.5700E-04	483.500	6.5702E-04
486.000	6.5704E-04	487.500	6.5705E-04	488.500	6.5705E-04
489.000	6.5705E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.0313E-02	0.300	1.7869E-02
0.600	2.6118E-02	1.000	3.5101E-02	1.500	4.8695E-02
2.200	6.3086E-02	3.000	7.7400E-02	4.000	1.0851E-01
5.500	1.5040E-01	7.500	1.6522E-01	9.500	1.7600E-01
12.000	1.8102E-01	14.500	1.8376E-01	17.500	1.6790E-01
20.000	1.5668E-01	23.000	1.4519E-01	25.500	1.1213E-01
27.500	8.3628E-02	29.000	5.8019E-02	30.000	4.5568E-02
31.000	4.4768E-02	32.000	5.5018E-02	33.500	6.4461E-02
35.000	7.3568E-02	37.000	1.0231E-01	40.000	9.8698E-02
42.000	7.7309E-02	44.000	5.6897E-02	45.000	3.7607E-02
46.000	3.7309E-02	47.000	3.6928E-02	48.000	5.4345E-02
50.000	6.9654E-02	52.000	6.6813E-02	54.000	8.0037E-02
57.000	6.7880E-02	58.500	4.3996E-02	60.000	3.5720E-02
61.000	2.8114E-02	62.000	2.7682E-02	63.000	3.4095E-02
64.500	4.0055E-02	66.000	4.5757E-02	68.000	6.3480E-02
71.000	7.2392E-02	74.000	6.7817E-02	77.000	6.2231E-02
80.000	5.5462E-02	83.000	4.7427E-02	86.000	3.1970E-02

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88.000	1.6113E-02	89.000	9.7564E-03	90.000	8.8171E-03
91.000	7.9391E-03	92.000	1.0700E-02	94.000	1.1538E-02
96.000	1.1804E-02	99.000	1.1042E-02	102.000	9.3097E-03
105.000	1.0049E-02	109.000	1.3514E-02	114.000	1.5400E-02
117.000	1.2131E-02	119.000	1.1647E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 1 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\1_in.p
Results File: c:\a\1_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:03:04.38
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.387E+03	0.1515	293.15	2	1.000E-01	1.984E+03	0.1594 293.15
3	3.000E-01	1.980E+03	0.1595	293.15	4	6.000E-01	2.031E+03	0.1584 293.15
5	1.000E+00	2.020E+03	0.1586	293.15	6	1.500E+00	2.015E+03	0.1588 293.15
7	2.200E+00	2.009E+03	0.1589	293.15	8	3.000E+00	2.002E+03	0.1590 293.15
9	4.000E+00	1.992E+03	0.1593	293.15	10	5.500E+00	1.977E+03	0.1596 293.15
11	7.500E+00	1.957E+03	0.1601	293.15	12	9.500E+00	1.938E+03	0.1605 293.15
13	1.200E+01	1.919E+03	0.1609	293.15	14	1.450E+01	1.906E+03	0.1612 293.15
15	1.750E+01	1.901E+03	0.1613	293.15	16	2.000E+01	1.904E+03	0.1613 293.15
17	2.300E+01	1.915E+03	0.1610	293.15	18	2.550E+01	1.930E+03	0.1607 293.15
19	2.750E+01	1.944E+03	0.1603	293.15	20	2.900E+01	1.957E+03	0.1601 293.15
21	3.000E+01	1.966E+03	0.1599	293.15	22	3.100E+01	1.975E+03	0.1596 293.15
23	3.200E+01	1.985E+03	0.1594	293.15	24	3.350E+01	2.000E+03	0.1591 293.15
25	3.500E+01	2.016E+03	0.1587	293.15	26	3.700E+01	2.037E+03	0.1583 293.15
27	4.000E+01	2.070E+03	0.1576	293.15	28	4.200E+01	2.091E+03	0.1571 293.15
29	4.400E+01	2.111E+03	0.1567	293.15	30	4.500E+01	2.120E+03	0.1565 293.15
31	4.600E+01	2.129E+03	0.1564	293.15	32	4.700E+01	2.158E+03	0.1558 293.15
33	4.800E+01	2.253E+03	0.1539	293.15	34	5.000E+01	2.449E+03	0.1504 293.15
35	5.200E+01	2.641E+03	0.1473	293.15	36	5.400E+01	2.824E+03	0.1447 293.15
37	5.700E+01	3.098E+03	0.1411	293.15	38	5.850E+01	3.259E+03	0.1391 293.15
39	6.000E+01	3.447E+03	0.1370	293.15	40	6.100E+01	3.594E+03	0.1355 293.15
41	6.200E+01	3.763E+03	0.1338	293.15	42	6.300E+01	3.959E+03	0.1320 293.15
43	6.450E+01	4.320E+03	0.1290	293.15	44	6.600E+01	4.786E+03	0.1255 293.15
45	6.800E+01	5.656E+03	0.1201	293.15	46	7.100E+01	7.953E+03	0.1101 293.15
47	7.400E+01	1.218E+04	0.0990	293.15	48	7.700E+01	1.688E+04	0.0916 293.15
49	8.000E+01	1.983E+04	0.0882	293.15	50	8.300E+01	2.175E+04	0.0864 293.15
51	8.600E+01	2.350E+04	0.0849	293.15	52	8.800E+01	2.471E+04	0.0839 293.15
53	8.900E+01	2.533E+04	0.0835	293.15	54	9.000E+01	2.597E+04	0.0830 293.15
55	9.100E+01	2.661E+04	0.0826	293.15	56	9.200E+01	2.725E+04	0.0821 293.15
57	9.400E+01	2.853E+04	0.0813	293.15	58	9.600E+01	2.974E+04	0.0806 293.15
59	9.900E+01	3.132E+04	0.0797	293.15	60	1.020E+02	3.245E+04	0.0791 293.15
61	1.050E+02	3.300E+04	0.0788	293.15	62	1.090E+02	3.272E+04	0.0789 293.15
63	1.140E+02	3.067E+04	0.0800	293.15	64	1.170E+02	2.868E+04	0.0812 293.15

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65	1.190E+02	2.720E+04	0.0822	293.15	66	1.210E+02	2.570E+04	0.0832	293.15
67	1.220E+02	2.497E+04	0.0837	293.15	68	1.230E+02	2.427E+04	0.0843	293.15
69	1.245E+02	2.326E+04	0.0851	293.15	70	1.260E+02	2.233E+04	0.0859	293.15
71	1.280E+02	2.121E+04	0.0869	293.15	72	1.305E+02	1.999E+04	0.0881	293.15
73	1.325E+02	1.915E+04	0.0890	293.15	74	1.350E+02	1.824E+04	0.0900	293.15
75	1.400E+02	1.677E+04	0.0917	293.15	76	1.450E+02	1.564E+04	0.0933	293.15
77	1.480E+02	1.508E+04	0.0941	293.15	78	1.500E+02	1.475E+04	0.0946	293.15
79	1.514E+02	1.453E+04	0.0949	293.15	80	1.524E+02	1.438E+04	0.0951	293.15
81	1.530E+02	1.430E+04	0.0953	293.15	82	1.540E+02	1.416E+04	0.0955	293.15
83	1.600E+02	1.343E+04	0.0967	293.15	84	1.650E+02	1.294E+04	0.0976	293.15
85	1.700E+02	1.252E+04	0.0984	293.15	86	1.750E+02	1.217E+04	0.0990	293.15
87	1.780E+02	1.199E+04	0.0994	293.15	88	1.800E+02	1.187E+04	0.0996	293.15
89	1.810E+02	1.182E+04	0.0997	293.15	90	1.820E+02	1.177E+04	0.0999	293.15
91	1.830E+02	1.171E+04	0.1000	293.15	92	1.840E+02	1.166E+04	0.1001	293.15
93	1.850E+02	1.162E+04	0.1002	293.15	94	1.870E+02	1.152E+04	0.1004	293.15
95	1.900E+02	1.139E+04	0.1006	293.15	96	1.950E+02	1.120E+04	0.1011	293.15
97	2.020E+02	1.098E+04	0.1016	293.15	98	2.100E+02	1.077E+04	0.1020	293.15
99	2.200E+02	1.056E+04	0.1025	293.15	100	2.350E+02	1.035E+04	0.1030	293.15
101	2.400E+02	1.030E+04	0.1032	293.15	102	2.600E+02	1.015E+04	0.1035	293.15
103	2.800E+02	1.007E+04	0.1037	293.15	104	3.000E+02	1.003E+04	0.1038	293.15
105	3.200E+02	1.001E+04	0.1039	293.15	106	3.400E+02	1.001E+04	0.1039	293.15
107	3.600E+02	1.000E+04	0.1039	293.15	108	3.800E+02	1.000E+04	0.1039	293.15
109	4.000E+02	1.000E+04	0.1039	293.15	110	4.200E+02	1.000E+04	0.1039	293.15
111	4.400E+02	1.000E+04	0.1039	293.15	112	4.550E+02	1.000E+04	0.1039	293.15
113	4.650E+02	1.000E+04	0.1039	293.15	114	4.730E+02	1.000E+04	0.1039	293.15
115	4.780E+02	1.000E+04	0.1039	293.15	116	4.820E+02	1.000E+04	0.1039	293.15
117	4.850E+02	1.000E+04	0.1039	293.15	118	4.870E+02	1.000E+04	0.1039	293.15
119	4.880E+02	1.000E+04	0.1039	293.15	120	4.890E+02	1.000E+04	0.1039	293.15

Initial Water Storage = 52.4790 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.14905
Head (cm) = 2.53173E+03
LiqWater Flow (cm)=-4.41494E-02
IsoVapor Flow (cm)=-2.90319E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

52.4790+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 52.4347 vs. 52.4347

Mass Balance = -8.0154E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.16014

Head (cm) = 1.95316E+03

LiqWater Flow (cm)=-1.92912E-06

IsoVapor Flow (cm)=-6.29370E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.2302+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 56.2302 vs. 56.2302

Mass Balance = -8.7350E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1370E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 6.4798E+00 [cm]

Potential Evaporation = 9.9853E+01 [cm]

Actual Evaporation = 4.0472E+01 [cm]

Evaporation during Growth = 2.6287E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 6.5885E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6230E+01 [cm]
 Mass Balance Error = -5.6584E-03 [cm]
 Total Successful Time Steps = 12348
 Total Attempted Time Steps = 13686
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3594
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.0226E+01	0.050	1.0728E+01	0.200	1.0247E+01
0.450	1.0189E+01	0.800	1.0138E+01	1.250	1.0074E+01
1.850	9.9880E+00	2.600	9.8805E+00	3.500	9.7520E+00
4.750	9.5752E+00	6.500	9.3336E+00	8.500	9.0694E+00
10.750	8.7871E+00	13.250	8.4945E+00	16.000	8.1948E+00
18.750	7.9193E+00	21.500	7.6615E+00	24.250	7.4219E+00
26.500	7.2367E+00	28.250	7.0986E+00	29.500	7.0029E+00
30.500	6.9278E+00	31.500	6.8541E+00	32.750	6.7636E+00
34.250	6.6576E+00	36.000	6.5368E+00	38.500	6.3689E+00
41.000	6.2066E+00	43.000	6.0790E+00	44.500	5.9846E+00
45.500	5.9219E+00	46.500	5.8596E+00	47.500	5.7971E+00
49.000	5.7010E+00	51.000	5.5651E+00	53.000	5.4213E+00
55.500	5.2327E+00	57.750	5.0529E+00	59.250	4.9299E+00
60.500	4.8249E+00	61.500	4.7395E+00	62.500	4.6526E+00
63.750	4.5421E+00	65.250	4.4057E+00	67.000	4.2417E+00
69.500	3.9967E+00	72.500	3.6784E+00	75.500	3.3346E+00
78.500	2.9784E+00	81.500	2.6239E+00	84.500	2.2776E+00
87.000	1.9982E+00	88.500	1.8350E+00	89.500	1.7281E+00
90.500	1.6228E+00	91.500	1.5194E+00	93.000	1.3679E+00
95.000	1.1744E+00	97.500	9.4610E-01	100.500	6.9892E-01
103.500	4.8310E-01	107.000	2.7267E-01	111.500	7.2305E-02
115.500	-1.2413E-03	118.000	-1.9442E-02	120.000	-3.0278E-02
121.500	-3.2493E-02	122.500	-3.3673E-02	123.750	-3.4873E-02
125.250	-3.5960E-02	127.000	-3.6877E-02	129.250	-3.7599E-02
131.500	-3.7917E-02	133.750	-3.7941E-02	137.500	-3.7503E-02
142.500	-3.6306E-02	146.500	-3.5048E-02	149.000	-3.4171E-02
150.700	-3.3547E-02	151.900	-3.3096E-02	152.700	-3.2791E-02
153.500	-3.2482E-02	157.000	-3.1094E-02	162.500	-2.8897E-02
167.500	-2.6889E-02	172.500	-2.4908E-02	176.500	-2.3365E-02
179.000	-2.2418E-02	180.500	-2.1857E-02	181.500	-2.1486E-02
182.500	-2.1118E-02	183.500	-2.0753E-02	184.500	-2.0390E-02

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186.000	-1.9851E-02	188.500	-1.8969E-02	192.500	-1.7597E-02
198.500	-1.5645E-02	206.000	-1.3399E-02	215.000	-1.0974E-02
227.500	-8.0696E-03	237.500	-6.2786E-03	250.000	-4.2358E-03
270.000	-2.1041E-03	290.000	-8.0761E-04	310.000	-7.3137E-05
330.000	3.1488E-04	350.000	5.0645E-04	370.000	5.9506E-04
390.000	6.3358E-04	410.000	6.4937E-04	430.000	6.5550E-04
447.500	6.5752E-04	460.000	6.5820E-04	469.000	6.5849E-04
475.500	6.5863E-04	480.000	6.5871E-04	483.500	6.5877E-04
486.000	6.5881E-04	487.500	6.5883E-04	488.500	6.5885E-04
489.000	6.5885E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7200E-02	0.300	2.9308E-02
0.600	4.1841E-02	1.000	5.4777E-02	1.500	7.4116E-02
2.200	9.3630E-02	3.000	1.1265E-01	4.000	1.5549E-01
5.500	2.1305E-01	7.500	2.3346E-01	9.500	2.4981E-01
12.000	2.5947E-01	14.500	2.6649E-01	17.500	2.4616E-01
20.000	2.3170E-01	23.000	2.1715E-01	25.500	1.6931E-01
27.500	1.2718E-01	29.000	8.8691E-02	30.000	6.9894E-02
31.000	6.8902E-02	32.000	8.4968E-02	33.500	1.0004E-01
35.000	1.1470E-01	37.000	1.6046E-01	40.000	1.5617E-01
42.000	1.2302E-01	44.000	9.1010E-02	45.000	6.0297E-02
46.000	5.9947E-02	47.000	5.9679E-02	48.000	8.9368E-02
50.000	1.1865E-01	52.000	1.1802E-01	54.000	1.4647E-01
57.000	1.2993E-01	58.500	8.5773E-02	60.000	7.0658E-02
61.000	5.6051E-02	62.000	5.5547E-02	63.000	6.8777E-02
64.500	8.1282E-02	66.000	9.3289E-02	68.000	1.3016E-01
71.000	1.5016E-01	74.000	1.4355E-01	77.000	1.3631E-01
80.000	1.2835E-01	83.000	1.1943E-01	86.000	9.0977E-02
88.000	5.0716E-02	89.000	3.2424E-02	90.000	3.0970E-02
91.000	2.9449E-02	92.000	4.1789E-02	94.000	4.9027E-02
96.000	5.2349E-02	99.000	4.6116E-02	102.000	3.0682E-02
105.000	2.2064E-02	109.000	1.7026E-02	114.000	1.4022E-02
117.000	1.0265E-02	119.000	9.5857E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00-

Sensitivity Analysis #1: Soil Sample 1 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\1_in.p
Results File: c:\a\1_1957.res
Date of Run: 08 Jun 2021
Time of Run: 14:03:04.38
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.953E+03	0.1601	293.15	2	1.000E-01	1.487E+03	0.1728 293.15
3	3.000E-01	1.320E+03	0.1787	293.15	4	6.000E-01	1.357E+03	0.1773 293.15
5	1.000E+00	1.406E+03	0.1755	293.15	6	1.500E+00	1.406E+03	0.1755 293.15
7	2.200E+00	1.398E+03	0.1758	293.15	8	3.000E+00	1.400E+03	0.1758 293.15
9	4.000E+00	1.402E+03	0.1757	293.15	10	5.500E+00	1.406E+03	0.1755 293.15
11	7.500E+00	1.415E+03	0.1752	293.15	12	9.500E+00	1.428E+03	0.1748 293.15
13	1.200E+01	1.448E+03	0.1741	293.15	14	1.450E+01	1.474E+03	0.1732 293.15
15	1.750E+01	1.513E+03	0.1720	293.15	16	2.000E+01	1.551E+03	0.1708 293.15
17	2.300E+01	1.605E+03	0.1692	293.15	18	2.550E+01	1.654E+03	0.1677 293.15
19	2.750E+01	1.697E+03	0.1665	293.15	20	2.900E+01	1.730E+03	0.1656 293.15
21	3.000E+01	1.753E+03	0.1650	293.15	22	3.100E+01	1.775E+03	0.1645 293.15
23	3.200E+01	1.798E+03	0.1639	293.15	24	3.350E+01	1.831E+03	0.1630 293.15
25	3.500E+01	1.864E+03	0.1622	293.15	26	3.700E+01	1.905E+03	0.1613 293.15
27	4.000E+01	1.958E+03	0.1600	293.15	28	4.200E+01	1.985E+03	0.1594 293.15
29	4.400E+01	2.004E+03	0.1590	293.15	30	4.500E+01	2.011E+03	0.1589 293.15
31	4.600E+01	2.015E+03	0.1588	293.15	32	4.700E+01	2.024E+03	0.1586 293.15
33	4.800E+01	2.033E+03	0.1584	293.15	34	5.000E+01	2.004E+03	0.1590 293.15
35	5.200E+01	1.951E+03	0.1602	293.15	36	5.400E+01	1.895E+03	0.1615 293.15
37	5.700E+01	1.825E+03	0.1632	293.15	38	5.850E+01	1.798E+03	0.1639 293.15
39	6.000E+01	1.775E+03	0.1645	293.15	40	6.100E+01	1.762E+03	0.1648 293.15
41	6.200E+01	1.751E+03	0.1651	293.15	42	6.300E+01	1.742E+03	0.1653 293.15
43	6.450E+01	1.731E+03	0.1656	293.15	44	6.600E+01	1.725E+03	0.1658 293.15
45	6.800E+01	1.721E+03	0.1659	293.15	46	7.100E+01	1.726E+03	0.1657 293.15
47	7.400E+01	1.744E+03	0.1653	293.15	48	7.700E+01	1.776E+03	0.1644 293.15
49	8.000E+01	1.822E+03	0.1633	293.15	50	8.300E+01	1.884E+03	0.1618 293.15
51	8.600E+01	1.966E+03	0.1598	293.15	52	8.800E+01	2.034E+03	0.1583 293.15
53	8.900E+01	2.073E+03	0.1575	293.15	54	9.000E+01	2.115E+03	0.1566 293.15
55	9.100E+01	2.162E+03	0.1557	293.15	56	9.200E+01	2.212E+03	0.1547 293.15
57	9.400E+01	2.329E+03	0.1525	293.15	58	9.600E+01	2.471E+03	0.1500 293.15
59	9.900E+01	2.750E+03	0.1457	293.15	60	1.020E+02	3.149E+03	0.1404 293.15
61	1.050E+02	3.756E+03	0.1339	293.15	62	1.090E+02	5.311E+03	0.1221 293.15
63	1.140E+02	1.307E+04	0.0973	293.15	64	1.170E+02	2.141E+04	0.0867 293.15

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65	1.190E+02	2.417E+04	0.0844	293.15	66	1.210E+02	2.445E+04	0.0841	293.15
67	1.220E+02	2.421E+04	0.0843	293.15	68	1.230E+02	2.383E+04	0.0846	293.15
69	1.245E+02	2.314E+04	0.0852	293.15	70	1.260E+02	2.240E+04	0.0858	293.15
71	1.280E+02	2.144E+04	0.0867	293.15	72	1.305E+02	2.032E+04	0.0877	293.15
73	1.325E+02	1.951E+04	0.0886	293.15	74	1.350E+02	1.862E+04	0.0895	293.15
75	1.400E+02	1.714E+04	0.0913	293.15	76	1.450E+02	1.599E+04	0.0928	293.15
77	1.480E+02	1.542E+04	0.0936	293.15	78	1.500E+02	1.507E+04	0.0941	293.15
79	1.514E+02	1.485E+04	0.0944	293.15	80	1.524E+02	1.470E+04	0.0946	293.15
81	1.530E+02	1.461E+04	0.0948	293.15	82	1.540E+02	1.446E+04	0.0950	293.15
83	1.600E+02	1.371E+04	0.0962	293.15	84	1.650E+02	1.319E+04	0.0971	293.15
85	1.700E+02	1.276E+04	0.0979	293.15	86	1.750E+02	1.239E+04	0.0986	293.15
87	1.780E+02	1.219E+04	0.0990	293.15	88	1.800E+02	1.207E+04	0.0992	293.15
89	1.810E+02	1.202E+04	0.0993	293.15	90	1.820E+02	1.196E+04	0.0995	293.15
91	1.830E+02	1.190E+04	0.0996	293.15	92	1.840E+02	1.185E+04	0.0997	293.15
93	1.850E+02	1.180E+04	0.0998	293.15	94	1.870E+02	1.170E+04	0.1000	293.15
95	1.900E+02	1.156E+04	0.1003	293.15	96	1.950E+02	1.136E+04	0.1007	293.15
97	2.020E+02	1.112E+04	0.1013	293.15	98	2.100E+02	1.089E+04	0.1018	293.15
99	2.200E+02	1.066E+04	0.1023	293.15	100	2.350E+02	1.043E+04	0.1029	293.15
101	2.400E+02	1.036E+04	0.1030	293.15	102	2.600E+02	1.019E+04	0.1034	293.15
103	2.800E+02	1.010E+04	0.1037	293.15	104	3.000E+02	1.005E+04	0.1038	293.15
105	3.200E+02	1.002E+04	0.1039	293.15	106	3.400E+02	1.001E+04	0.1039	293.15
107	3.600E+02	1.000E+04	0.1039	293.15	108	3.800E+02	1.000E+04	0.1039	293.15
109	4.000E+02	1.000E+04	0.1039	293.15	110	4.200E+02	1.000E+04	0.1039	293.15
111	4.400E+02	1.000E+04	0.1039	293.15	112	4.550E+02	1.000E+04	0.1039	293.15
113	4.650E+02	1.000E+04	0.1039	293.15	114	4.730E+02	1.000E+04	0.1039	293.15
115	4.780E+02	1.000E+04	0.1039	293.15	116	4.820E+02	1.000E+04	0.1039	293.15
117	4.850E+02	1.000E+04	0.1039	293.15	118	4.870E+02	1.000E+04	0.1039	293.15
119	4.880E+02	1.000E+04	0.1039	293.15	120	4.890E+02	1.000E+04	0.1039	293.15

Initial Water Storage = 56.2302 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.15527
Head (cm) = 2.18295E+03
LiqWater Flow (cm)=-4.39896E-02
IsoVapor Flow (cm)=-6.62752E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.2302+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.1859 vs. 56.1859

Mass Balance = -1.6879E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.15654

Head (cm) = 2.11984E+03

LiqWater Flow (cm)=-5.81601E-02

IsoVapor Flow (cm)=-7.98961E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.6977+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 57.6392 vs. 57.6392

Mass Balance = -2.6497E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]
Potential Transpiration = 1.3848E+01 [cm]
Actual Transpiration = 7.8274E+00 [cm]
Potential Evaporation = 9.9911E+01 [cm]
Actual Evaporation = 4.1466E+01 [cm]
Evaporation during Growth = 2.7222E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 6.5885E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.7639E+01 [cm]
 Mass Balance Error = -5.0773E-03 [cm]
 Total Successful Time Steps = 12241
 Total Attempted Time Steps = 13535
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3508
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	9.2320E+00	0.050	9.6585E+00	0.200	9.2417E+00
0.450	9.2013E+00	0.800	9.1571E+00	1.250	9.1008E+00
1.850	9.0254E+00	2.600	8.9309E+00	3.500	8.8176E+00
4.750	8.6616E+00	6.500	8.4479E+00	8.500	8.2134E+00
10.750	7.9618E+00	13.250	7.6994E+00	16.000	7.4284E+00
18.750	7.1764E+00	21.500	6.9378E+00	24.250	6.7128E+00
26.500	6.5364E+00	28.250	6.4034E+00	29.500	6.3104E+00
30.500	6.2370E+00	31.500	6.1645E+00	32.750	6.0750E+00
34.250	5.9694E+00	36.000	5.8481E+00	38.500	5.6780E+00
41.000	5.5119E+00	43.000	5.3810E+00	44.500	5.2840E+00
45.500	5.2197E+00	46.500	5.1558E+00	47.500	5.0922E+00
49.000	4.9966E+00	51.000	4.8692E+00	53.000	4.7418E+00
55.500	4.5827E+00	57.750	4.4397E+00	59.250	4.3445E+00
60.500	4.2655E+00	61.500	4.2024E+00	62.500	4.1395E+00
63.750	4.0611E+00	65.250	3.9676E+00	67.000	3.8590E+00
69.500	3.7050E+00	72.500	3.5224E+00	75.500	3.3419E+00
78.500	3.1636E+00	81.500	2.9874E+00	84.500	2.8130E+00
87.000	2.6691E+00	88.500	2.5833E+00	89.500	2.5262E+00
90.500	2.4693E+00	91.500	2.4125E+00	93.000	2.3274E+00
95.000	2.2142E+00	97.500	2.0728E+00	100.500	1.9024E+00
103.500	1.7298E+00	107.000	1.5232E+00	111.500	1.2382E+00
115.500	9.2898E-01	118.000	7.2762E-01	120.000	5.7340E-01
121.500	5.1371E-01	122.500	4.7623E-01	123.750	4.3222E-01
125.250	3.8408E-01	127.000	3.3327E-01	129.250	2.7589E-01
131.500	2.2640E-01	133.750	1.8245E-01	137.500	1.1948E-01
142.500	5.7529E-02	146.500	2.4267E-02	149.000	8.9606E-03
150.700	7.3659E-04	151.900	-4.1011E-03	152.700	-6.9055E-03
153.500	-9.4710E-03	157.000	-1.9068E-02	162.500	-2.4076E-02
167.500	-2.4956E-02	172.500	-2.4222E-02	176.500	-2.3134E-02
179.000	-2.2370E-02	180.500	-2.1895E-02	181.500	-2.1573E-02
182.500	-2.1250E-02	183.500	-2.0924E-02	184.500	-2.0598E-02

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186.000	-2.0108E-02	188.500	-1.9295E-02	192.500	-1.8014E-02
198.500	-1.6167E-02	206.000	-1.4015E-02	215.000	-1.1663E-02
227.500	-8.8012E-03	237.500	-6.9893E-03	250.000	-4.9020E-03
270.000	-2.6301E-03	290.000	-1.1797E-03	310.000	-3.1229E-04
330.000	1.7394E-04	350.000	4.2972E-04	370.000	5.5625E-04
390.000	6.1525E-04	410.000	6.4126E-04	430.000	6.5215E-04
447.500	6.5602E-04	460.000	6.5739E-04	469.000	6.5801E-04
475.500	6.5833E-04	480.000	6.5852E-04	483.500	6.5865E-04
486.000	6.5874E-04	487.500	6.5880E-04	488.500	6.5883E-04
489.000	6.5885E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7607E-02	0.300	2.9956E-02
0.600	4.2723E-02	1.000	5.5884E-02	1.500	7.5555E-02
2.200	9.5370E-02	3.000	1.1466E-01	4.000	1.5818E-01
5.500	2.1664E-01	7.500	2.3732E-01	9.500	2.5394E-01
12.000	2.6383E-01	14.500	2.7112E-01	17.500	2.5066E-01
20.000	2.3609E-01	23.000	2.2144E-01	25.500	1.7279E-01
27.500	1.2989E-01	29.000	9.0621E-02	30.000	7.1439E-02
31.000	7.0448E-02	32.000	8.6903E-02	33.500	1.0237E-01
35.000	1.1742E-01	37.000	1.6437E-01	40.000	1.6014E-01
42.000	1.2623E-01	44.000	9.3447E-02	45.000	6.1933E-02
46.000	6.1595E-02	47.000	6.1385E-02	48.000	9.2230E-02
50.000	1.2324E-01	52.000	1.2335E-01	54.000	1.5412E-01
57.000	1.3822E-01	58.500	9.1871E-02	60.000	7.6203E-02
61.000	6.0727E-02	62.000	6.0472E-02	63.000	7.5252E-02
64.500	8.9655E-02	66.000	1.0380E-01	68.000	1.4669E-01
71.000	1.7300E-01	74.000	1.6975E-01	77.000	1.6637E-01
80.000	1.6288E-01	83.000	1.5929E-01	86.000	1.2964E-01
88.000	7.6503E-02	89.000	5.0564E-02	90.000	5.0121E-02
91.000	4.9670E-02	92.000	7.3819E-02	94.000	9.6552E-02
96.000	1.1828E-01	99.000	1.3740E-01	102.000	1.3265E-01
105.000	1.4894E-01	109.000	1.8089E-01	114.000	1.4811E-01
117.000	8.7656E-02	119.000	6.7504E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00--

Sensitivity Analysis #1: Soil Sample 1 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\1_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                    50.822
 1 22.530 135.832  3.633 16.394  0.000  0.001  53.328  11333 -0.00462
 2 22.530 135.832  3.985 18.711  0.000  0.001  53.166  11341 -0.00488
 3 22.530 135.832  3.939 18.734  0.000  0.001  53.026  11370 -0.00473
 4 22.530 135.832  3.911 18.735  0.000  0.001  52.914  11343 -0.00480
 5 22.530 135.832  3.889 18.740  0.000  0.001  52.819  11349 -0.00474
 6 22.530 135.832  3.876 18.740  0.000  0.001  52.737  11355 -0.00471
 7 22.530 135.832  3.867 18.740  0.000  0.001  52.664  11381 -0.00476
 8 22.530 135.832  3.864 18.734  0.000  0.001  52.600  11351 -0.00465
 9 22.530 135.832  3.857 18.740  0.000  0.001  52.537  11351 -0.00472
10 22.530 135.832  3.852 18.739  0.000  0.001  52.479  11355 -0.00469
11 50.698 113.700  6.480 40.472  0.000  0.001  56.230  12348 -0.00566
12 50.698 113.759  7.827 41.466  0.000  0.001  57.639  12241 -0.00508
-----
SUM= 326.6951585.780 52.981 266.947  0.000  0.008                -0.05803
```

Sensitivity Analysis #1: Soil Sample 2 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\2_.inp
Results File: c:\a\2_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:14:19.88
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.747E+03	0.1673	293.15	2	1.000E-01	1.401E+03	0.1767 293.15
3	3.000E-01	1.430E+03	0.1759	293.15	4	6.000E-01	1.457E+03	0.1750 293.15
5	1.000E+00	1.447E+03	0.1753	293.15	6	1.500E+00	1.443E+03	0.1755 293.15
7	2.200E+00	1.437E+03	0.1756	293.15	8	3.000E+00	1.429E+03	0.1759 293.15
9	4.000E+00	1.419E+03	0.1762	293.15	10	5.500E+00	1.404E+03	0.1766 293.15
11	7.500E+00	1.384E+03	0.1773	293.15	12	9.500E+00	1.368E+03	0.1778 293.15
13	1.200E+01	1.354E+03	0.1782	293.15	14	1.450E+01	1.349E+03	0.1784 293.15
15	1.750E+01	1.353E+03	0.1783	293.15	16	2.000E+01	1.364E+03	0.1779 293.15
17	2.300E+01	1.385E+03	0.1772	293.15	18	2.550E+01	1.409E+03	0.1765 293.15
19	2.750E+01	1.432E+03	0.1758	293.15	20	2.900E+01	1.450E+03	0.1752 293.15
21	3.000E+01	1.463E+03	0.1748	293.15	22	3.100E+01	1.477E+03	0.1744 293.15
23	3.200E+01	1.491E+03	0.1740	293.15	24	3.350E+01	1.512E+03	0.1734 293.15
25	3.500E+01	1.535E+03	0.1728	293.15	26	3.700E+01	1.565E+03	0.1720 293.15
27	4.000E+01	1.609E+03	0.1708	293.15	28	4.200E+01	1.636E+03	0.1701 293.15
29	4.400E+01	1.661E+03	0.1694	293.15	30	4.500E+01	1.672E+03	0.1692 293.15
31	4.600E+01	1.682E+03	0.1689	293.15	32	4.700E+01	1.714E+03	0.1681 293.15
33	4.800E+01	1.813E+03	0.1658	293.15	34	5.000E+01	2.011E+03	0.1616 293.15
35	5.200E+01	2.211E+03	0.1579	293.15	36	5.400E+01	2.439E+03	0.1541 293.15
37	5.700E+01	2.924E+03	0.1473	293.15	38	5.850E+01	3.289E+03	0.1431 293.15
39	6.000E+01	3.800E+03	0.1382	293.15	40	6.100E+01	4.263E+03	0.1343 293.15
41	6.200E+01	4.872E+03	0.1300	293.15	42	6.300E+01	5.693E+03	0.1252 293.15
43	6.450E+01	7.574E+03	0.1169	293.15	44	6.600E+01	1.059E+04	0.1079 293.15
45	6.800E+01	1.550E+04	0.0987	293.15	46	7.100E+01	1.951E+04	0.0936 293.15
47	7.400E+01	2.190E+04	0.0911	293.15	48	7.700E+01	2.423E+04	0.0890 293.15
49	8.000E+01	2.678E+04	0.0870	293.15	50	8.300E+01	2.941E+04	0.0852 293.15
51	8.600E+01	3.186E+04	0.0837	293.15	52	8.800E+01	3.329E+04	0.0829 293.15
53	8.900E+01	3.392E+04	0.0825	293.15	54	9.000E+01	3.450E+04	0.0822 293.15
55	9.100E+01	3.502E+04	0.0819	293.15	56	9.200E+01	3.548E+04	0.0817 293.15
57	9.400E+01	3.623E+04	0.0813	293.15	58	9.600E+01	3.676E+04	0.0811 293.15
59	9.900E+01	3.720E+04	0.0808	293.15	60	1.020E+02	3.725E+04	0.0808 293.15
61	1.050E+02	3.692E+04	0.0810	293.15	62	1.090E+02	3.584E+04	0.0815 293.15
63	1.140E+02	3.313E+04	0.0830	293.15	64	1.170E+02	3.062E+04	0.0844 293.15

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65	1.190E+02	2.871E+04	0.0857	293.15	66	1.210E+02	2.676E+04	0.0871	293.15
67	1.220E+02	2.581E+04	0.0878	293.15	68	1.230E+02	2.489E+04	0.0885	293.15
69	1.245E+02	2.359E+04	0.0896	293.15	70	1.260E+02	2.240E+04	0.0907	293.15
71	1.280E+02	2.098E+04	0.0920	293.15	72	1.305E+02	1.949E+04	0.0936	293.15
73	1.325E+02	1.848E+04	0.0948	293.15	74	1.350E+02	1.741E+04	0.0961	293.15
75	1.400E+02	1.575E+04	0.0983	293.15	76	1.450E+02	1.453E+04	0.1002	293.15
77	1.480E+02	1.395E+04	0.1012	293.15	78	1.500E+02	1.361E+04	0.1017	293.15
79	1.514E+02	1.339E+04	0.1021	293.15	80	1.524E+02	1.324E+04	0.1024	293.15
81	1.530E+02	1.316E+04	0.1026	293.15	82	1.540E+02	1.302E+04	0.1028	293.15
83	1.600E+02	1.233E+04	0.1041	293.15	84	1.650E+02	1.188E+04	0.1050	293.15
85	1.700E+02	1.152E+04	0.1058	293.15	86	1.750E+02	1.123E+04	0.1064	293.15
87	1.780E+02	1.108E+04	0.1068	293.15	88	1.800E+02	1.099E+04	0.1070	293.15
89	1.810E+02	1.095E+04	0.1071	293.15	90	1.820E+02	1.091E+04	0.1072	293.15
91	1.830E+02	1.087E+04	0.1073	293.15	92	1.840E+02	1.083E+04	0.1074	293.15
93	1.850E+02	1.080E+04	0.1074	293.15	94	1.870E+02	1.073E+04	0.1076	293.15
95	1.900E+02	1.064E+04	0.1078	293.15	96	1.950E+02	1.051E+04	0.1081	293.15
97	2.020E+02	1.037E+04	0.1085	293.15	98	2.100E+02	1.025E+04	0.1088	293.15
99	2.200E+02	1.015E+04	0.1090	293.15	100	2.350E+02	1.007E+04	0.1092	293.15
101	2.400E+02	1.005E+04	0.1093	293.15	102	2.600E+02	1.002E+04	0.1094	293.15
103	2.800E+02	1.000E+04	0.1094	293.15	104	3.000E+02	1.000E+04	0.1094	293.15
105	3.200E+02	1.000E+04	0.1094	293.15	106	3.400E+02	1.000E+04	0.1094	293.15
107	3.600E+02	1.000E+04	0.1094	293.15	108	3.800E+02	1.000E+04	0.1094	293.15
109	4.000E+02	1.000E+04	0.1094	293.15	110	4.200E+02	1.000E+04	0.1094	293.15
111	4.400E+02	1.000E+04	0.1094	293.15	112	4.550E+02	1.000E+04	0.1094	293.15
113	4.650E+02	1.000E+04	0.1094	293.15	114	4.730E+02	1.000E+04	0.1094	293.15
115	4.780E+02	1.000E+04	0.1094	293.15	116	4.820E+02	1.000E+04	0.1094	293.15
117	4.850E+02	1.000E+04	0.1094	293.15	118	4.870E+02	1.000E+04	0.1094	293.15
119	4.880E+02	1.000E+04	0.1094	293.15	120	4.890E+02	1.000E+04	0.1094	293.15

Initial Water Storage = 55.3509 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.16063
Head (cm) = 2.06021E+03
LiqWater Flow (cm)=-6.80291E-02
IsoVapor Flow (cm)=-3.59577E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

55.3509+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 55.2825 vs. 55.2825

Mass Balance = -1.8971E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.16732

Head (cm) = 1.74749E+03

LiqWater Flow (cm)=-3.95889E-02

IsoVapor Flow (cm)=-2.67214E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

55.3407+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 55.3010 vs. 55.3010

Mass Balance = -8.2209E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]
Potential Transpiration = 1.6719E+01 [cm]
Actual Transpiration = 4.1564E+00 [cm]
Potential Evaporation = 1.1911E+02 [cm]
Actual Evaporation = 1.8428E+01 [cm]
Evaporation during Growth = 1.0533E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 2.2530E+01 [cm]
Total Basal Liquid Flux (drainage) = 3.5725E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.5301E+01 [cm]
 Mass Balance Error = -5.1560E-03 [cm]
 Total Successful Time Steps = 11576
 Total Attempted Time Steps = 12983
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6475
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	4.1017E+00	0.050	5.6938E+00	0.200	4.9520E+00
0.450	4.3750E+00	0.800	4.1432E+00	1.250	4.0720E+00
1.850	3.9992E+00	2.600	3.9153E+00	3.500	3.8178E+00
4.750	3.6848E+00	6.500	3.5030E+00	8.500	3.3052E+00
10.750	3.0962E+00	13.250	2.8826E+00	16.000	2.6663E+00
18.750	2.4688E+00	21.500	2.2849E+00	24.250	2.1149E+00
26.500	1.9837E+00	28.250	1.8860E+00	29.500	1.8182E+00
30.500	1.7651E+00	31.500	1.7128E+00	32.750	1.6487E+00
34.250	1.5735E+00	36.000	1.4879E+00	38.500	1.3692E+00
41.000	1.2550E+00	43.000	1.1658E+00	44.500	1.1003E+00
45.500	1.0572E+00	46.500	1.0140E+00	47.500	9.7043E-01
49.000	9.0801E-01	51.000	8.2871E-01	53.000	7.5327E-01
55.500	6.6372E-01	57.750	5.8716E-01	59.250	5.3757E-01
60.500	4.9714E-01	61.500	4.6534E-01	62.500	4.3404E-01
63.750	3.9567E-01	65.250	3.5083E-01	67.000	3.0031E-01
69.500	2.3227E-01	72.500	1.5952E-01	75.500	9.9339E-02
78.500	5.6159E-02	81.500	3.0664E-02	84.500	1.7321E-02
87.000	1.1231E-02	88.500	8.7545E-03	89.500	7.4092E-03
90.500	6.2707E-03	91.500	5.2977E-03	93.000	4.0586E-03
95.000	2.7631E-03	97.500	1.4651E-03	100.500	1.8022E-04
103.500	-1.0625E-03	107.000	-2.7523E-03	111.500	-6.0521E-03
115.500	-1.1644E-02	118.000	-1.7548E-02	120.000	-2.4669E-02
121.500	-2.6172E-02	122.500	-2.7044E-02	123.750	-2.7989E-02
125.250	-2.8917E-02	127.000	-2.9713E-02	129.250	-3.0329E-02
131.500	-3.0557E-02	133.750	-3.0450E-02	137.500	-2.9711E-02
142.500	-2.8067E-02	146.500	-2.6435E-02	149.000	-2.5326E-02
150.700	-2.4548E-02	151.900	-2.3992E-02	152.700	-2.3620E-02
153.500	-2.3245E-02	157.000	-2.1569E-02	162.500	-1.9049E-02
167.500	-1.6845E-02	172.500	-1.4771E-02	176.500	-1.3233E-02
179.000	-1.2319E-02	180.500	-1.1789E-02	181.500	-1.1442E-02
182.500	-1.1102E-02	183.500	-1.0768E-02	184.500	-1.0441E-02

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186.000	-9.9593E-03	188.500	-9.1898E-03	192.500	-8.0361E-03
198.500	-6.4969E-03	206.000	-4.8906E-03	215.000	-3.3565E-03
227.500	-1.8094E-03	237.500	-1.0980E-03	250.000	-3.7421E-04
270.000	1.0317E-04	290.000	2.7749E-04	310.000	3.3445E-04
330.000	3.5127E-04	350.000	3.5580E-04	370.000	3.5692E-04
390.000	3.5718E-04	410.000	3.5723E-04	430.000	3.5724E-04
447.500	3.5725E-04	460.000	3.5725E-04	469.000	3.5725E-04
475.500	3.5725E-04	480.000	3.5725E-04	483.500	3.5725E-04
486.000	3.5725E-04	487.500	3.5725E-04	488.500	3.5725E-04
489.000	3.5725E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	9.3802E-03	0.300	1.7119E-02
0.600	2.6362E-02	1.000	3.7093E-02	1.500	5.3491E-02
2.200	7.1598E-02	3.000	8.9642E-02	4.000	1.2730E-01
5.500	1.7771E-01	7.500	1.9540E-01	9.500	2.0768E-01
12.000	2.1275E-01	14.500	2.1577E-01	17.500	1.9713E-01
20.000	1.8375E-01	23.000	1.6999E-01	25.500	1.3115E-01
27.500	9.7681E-02	29.000	6.7711E-02	30.000	5.3163E-02
31.000	5.2218E-02	32.000	6.4152E-02	33.500	7.5090E-02
35.000	8.5583E-02	37.000	1.1874E-01	40.000	1.1413E-01
42.000	8.9147E-02	44.000	6.5440E-02	45.000	4.3203E-02
46.000	4.2820E-02	47.000	4.2281E-02	48.000	6.1816E-02
50.000	7.8303E-02	52.000	7.4454E-02	54.000	8.8856E-02
57.000	7.5701E-02	58.500	4.9203E-02	60.000	3.9985E-02
61.000	3.1430E-02	62.000	3.0844E-02	63.000	3.7774E-02
64.500	4.3781E-02	66.000	4.9031E-02	68.000	6.5512E-02
71.000	6.8464E-02	74.000	5.5660E-02	77.000	4.0968E-02
80.000	2.7522E-02	83.000	1.7901E-02	86.000	9.9191E-03
88.000	4.6177E-03	89.000	2.7289E-03	90.000	2.4324E-03
91.000	2.1808E-03	92.000	2.9510E-03	94.000	3.2771E-03
96.000	3.5296E-03	99.000	3.6901E-03	102.000	3.6330E-03
105.000	4.7274E-03	109.000	8.1289E-03	114.000	1.1755E-02
117.000	1.0352E-02	119.000	1.0648E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00-

Sensitivity Analysis #1: Soil Sample 2

Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\2_.inp
Results File: c:\a\2_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:14:19.88
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.747E+03	0.1673	293.15	2	1.000E-01	1.401E+03	0.1767
3	3.000E-01	1.430E+03	0.1759	293.15	4	6.000E-01	1.457E+03	0.1750
5	1.000E+00	1.447E+03	0.1753	293.15	6	1.500E+00	1.443E+03	0.1755
7	2.200E+00	1.437E+03	0.1756	293.15	8	3.000E+00	1.429E+03	0.1759
9	4.000E+00	1.419E+03	0.1762	293.15	10	5.500E+00	1.404E+03	0.1766
11	7.500E+00	1.384E+03	0.1773	293.15	12	9.500E+00	1.368E+03	0.1778
13	1.200E+01	1.354E+03	0.1782	293.15	14	1.450E+01	1.349E+03	0.1784
15	1.750E+01	1.353E+03	0.1783	293.15	16	2.000E+01	1.364E+03	0.1779
17	2.300E+01	1.385E+03	0.1772	293.15	18	2.550E+01	1.409E+03	0.1765
19	2.750E+01	1.432E+03	0.1758	293.15	20	2.900E+01	1.450E+03	0.1752
21	3.000E+01	1.463E+03	0.1748	293.15	22	3.100E+01	1.477E+03	0.1744
23	3.200E+01	1.491E+03	0.1740	293.15	24	3.350E+01	1.512E+03	0.1734
25	3.500E+01	1.535E+03	0.1728	293.15	26	3.700E+01	1.565E+03	0.1720
27	4.000E+01	1.609E+03	0.1708	293.15	28	4.200E+01	1.636E+03	0.1701
29	4.400E+01	1.661E+03	0.1694	293.15	30	4.500E+01	1.672E+03	0.1691
31	4.600E+01	1.682E+03	0.1689	293.15	32	4.700E+01	1.714E+03	0.1681
33	4.800E+01	1.813E+03	0.1658	293.15	34	5.000E+01	2.011E+03	0.1616
35	5.200E+01	2.211E+03	0.1578	293.15	36	5.400E+01	2.439E+03	0.1541
37	5.700E+01	2.924E+03	0.1473	293.15	38	5.850E+01	3.289E+03	0.1431
39	6.000E+01	3.801E+03	0.1382	293.15	40	6.100E+01	4.263E+03	0.1343
41	6.200E+01	4.872E+03	0.1300	293.15	42	6.300E+01	5.694E+03	0.1252
43	6.450E+01	7.576E+03	0.1169	293.15	44	6.600E+01	1.060E+04	0.1079
45	6.800E+01	1.551E+04	0.0987	293.15	46	7.100E+01	1.952E+04	0.0936
47	7.400E+01	2.191E+04	0.0911	293.15	48	7.700E+01	2.425E+04	0.0890
49	8.000E+01	2.680E+04	0.0870	293.15	50	8.300E+01	2.944E+04	0.0852
51	8.600E+01	3.190E+04	0.0837	293.15	52	8.800E+01	3.332E+04	0.0829
53	8.900E+01	3.396E+04	0.0825	293.15	54	9.000E+01	3.454E+04	0.0822
55	9.100E+01	3.506E+04	0.0819	293.15	56	9.200E+01	3.552E+04	0.0817
57	9.400E+01	3.628E+04	0.0813	293.15	58	9.600E+01	3.682E+04	0.0810
59	9.900E+01	3.728E+04	0.0808	293.15	60	1.020E+02	3.735E+04	0.0808
61	1.050E+02	3.706E+04	0.0809	293.15	62	1.090E+02	3.605E+04	0.0814
63	1.140E+02	3.348E+04	0.0828	293.15	64	1.170E+02	3.107E+04	0.0842

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65	1.190E+02	2.922E+04	0.0853	293.15	66	1.210E+02	2.731E+04	0.0866	293.15
67	1.220E+02	2.638E+04	0.0873	293.15	68	1.230E+02	2.547E+04	0.0880	293.15
69	1.245E+02	2.418E+04	0.0891	293.15	70	1.260E+02	2.299E+04	0.0901	293.15
71	1.280E+02	2.157E+04	0.0914	293.15	72	1.305E+02	2.006E+04	0.0930	293.15
73	1.325E+02	1.903E+04	0.0941	293.15	74	1.350E+02	1.793E+04	0.0954	293.15
75	1.400E+02	1.621E+04	0.0977	293.15	76	1.450E+02	1.494E+04	0.0996	293.15
77	1.480E+02	1.432E+04	0.1005	293.15	78	1.500E+02	1.396E+04	0.1011	293.15
79	1.514E+02	1.373E+04	0.1015	293.15	80	1.524E+02	1.358E+04	0.1018	293.15
81	1.530E+02	1.349E+04	0.1020	293.15	82	1.540E+02	1.334E+04	0.1022	293.15
83	1.600E+02	1.261E+04	0.1036	293.15	84	1.650E+02	1.213E+04	0.1045	293.15
85	1.700E+02	1.174E+04	0.1053	293.15	86	1.750E+02	1.142E+04	0.1060	293.15
87	1.780E+02	1.126E+04	0.1064	293.15	88	1.800E+02	1.116E+04	0.1066	293.15
89	1.810E+02	1.111E+04	0.1067	293.15	90	1.820E+02	1.107E+04	0.1068	293.15
91	1.830E+02	1.103E+04	0.1069	293.15	92	1.840E+02	1.099E+04	0.1070	293.15
93	1.850E+02	1.095E+04	0.1071	293.15	94	1.870E+02	1.087E+04	0.1073	293.15
95	1.900E+02	1.077E+04	0.1075	293.15	96	1.950E+02	1.062E+04	0.1079	293.15
97	2.020E+02	1.046E+04	0.1082	293.15	98	2.100E+02	1.032E+04	0.1086	293.15
99	2.200E+02	1.020E+04	0.1089	293.15	100	2.350E+02	1.010E+04	0.1092	293.15
101	2.400E+02	1.007E+04	0.1092	293.15	102	2.600E+02	1.003E+04	0.1093	293.15
103	2.800E+02	1.001E+04	0.1094	293.15	104	3.000E+02	1.000E+04	0.1094	293.15
105	3.200E+02	1.000E+04	0.1094	293.15	106	3.400E+02	1.000E+04	0.1094	293.15
107	3.600E+02	1.000E+04	0.1094	293.15	108	3.800E+02	1.000E+04	0.1094	293.15
109	4.000E+02	1.000E+04	0.1094	293.15	110	4.200E+02	1.000E+04	0.1094	293.15
111	4.400E+02	1.000E+04	0.1094	293.15	112	4.550E+02	1.000E+04	0.1094	293.15
113	4.650E+02	1.000E+04	0.1094	293.15	114	4.730E+02	1.000E+04	0.1094	293.15
115	4.780E+02	1.000E+04	0.1094	293.15	116	4.820E+02	1.000E+04	0.1094	293.15
117	4.850E+02	1.000E+04	0.1094	293.15	118	4.870E+02	1.000E+04	0.1094	293.15
119	4.880E+02	1.000E+04	0.1094	293.15	120	4.890E+02	1.000E+04	0.1094	293.15

Initial Water Storage = 55.3010 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.16449
Head (cm) = 1.87171E+03
LiqWater Flow (cm)=-4.41349E-02
IsoVapor Flow (cm)=-2.38938E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

55.3010+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 55.2567 vs. 55.2567

Mass Balance = -8.6885E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.20215

Head (cm) = 8.13901E+02

LiqWater Flow (cm)= 3.58622E-04

IsoVapor Flow (cm)=-2.17277E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

58.8922+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 58.8922 vs. 58.8922

Mass Balance = -1.7339E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

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SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]
Potential Transpiration = 1.3848E+01 [cm]
Actual Transpiration = 7.0269E+00 [cm]
Potential Evaporation = 9.9853E+01 [cm]
Actual Evaporation = 4.0086E+01 [cm]
Evaporation during Growth = 2.5915E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 3.5823E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.8892E+01 [cm]
 Mass Balance Error = -6.2318E-03 [cm]
 Total Successful Time Steps = 12647
 Total Attempted Time Steps = 14241
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3582
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.0612E+01	0.050	1.1758E+01	0.200	1.0814E+01
0.450	1.0607E+01	0.800	1.0532E+01	1.250	1.0458E+01
1.850	1.0360E+01	2.600	1.0237E+01	3.500	1.0090E+01
4.750	9.8865E+00	6.500	9.6068E+00	8.500	9.2998E+00
10.750	8.9720E+00	13.250	8.6330E+00	16.000	8.2869E+00
18.750	7.9695E+00	21.500	7.6731E+00	24.250	7.3983E+00
26.500	7.1863E+00	28.250	7.0283E+00	29.500	6.9188E+00
30.500	6.8328E+00	31.500	6.7483E+00	32.750	6.6443E+00
34.250	6.5222E+00	36.000	6.3825E+00	38.500	6.1871E+00
41.000	5.9960E+00	43.000	5.8446E+00	44.500	5.7319E+00
45.500	5.6569E+00	46.500	5.5820E+00	47.500	5.5065E+00
49.000	5.3888E+00	51.000	5.2207E+00	53.000	5.0427E+00
55.500	4.8088E+00	57.750	4.5824E+00	59.250	4.4256E+00
60.500	4.2895E+00	61.500	4.1774E+00	62.500	4.0617E+00
63.750	3.9120E+00	65.250	3.7218E+00	67.000	3.4867E+00
69.500	3.1348E+00	72.500	2.7121E+00	75.500	2.2998E+00
78.500	1.9023E+00	81.500	1.5243E+00	84.500	1.1723E+00
87.000	9.0581E-01	88.500	7.5846E-01	89.500	6.6560E-01
90.500	5.7792E-01	91.500	4.9564E-01	93.000	3.8275E-01
95.000	2.5183E-01	97.500	1.1677E-01	100.500	2.1806E-02
103.500	2.4025E-03	107.000	-1.9058E-03	111.500	-5.7631E-03
115.500	-1.1081E-02	118.000	-1.6351E-02	120.000	-2.2430E-02
121.500	-2.3888E-02	122.500	-2.4766E-02	123.750	-2.5750E-02
125.250	-2.6751E-02	127.000	-2.7669E-02	129.250	-2.8466E-02
131.500	-2.8880E-02	133.750	-2.8964E-02	137.500	-2.8534E-02
142.500	-2.7252E-02	146.500	-2.5877E-02	149.000	-2.4915E-02
150.700	-2.4233E-02	151.900	-2.3741E-02	152.700	-2.3409E-02
153.500	-2.3075E-02	157.000	-2.1569E-02	162.500	-1.9268E-02
167.500	-1.7226E-02	172.500	-1.5279E-02	176.500	-1.3819E-02
179.000	-1.2944E-02	180.500	-1.2434E-02	181.500	-1.2100E-02
182.500	-1.1771E-02	183.500	-1.1448E-02	184.500	-1.1130E-02

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186.000	-1.0661E-02	188.500	-9.9078E-03	192.500	-8.7696E-03
198.500	-7.2302E-03	206.000	-5.5906E-03	215.000	-3.9842E-03
227.500	-2.3057E-03	237.500	-1.4869E-03	250.000	-6.3338E-04
270.000	-1.8518E-05	290.000	2.2827E-04	310.000	3.1727E-04
330.000	3.4636E-04	350.000	3.5505E-04	370.000	3.5743E-04
390.000	3.5804E-04	410.000	3.5819E-04	430.000	3.5822E-04
447.500	3.5822E-04	460.000	3.5823E-04	469.000	3.5823E-04
475.500	3.5823E-04	480.000	3.5823E-04	483.500	3.5823E-04
486.000	3.5823E-04	487.500	3.5823E-04	488.500	3.5823E-04
489.000	3.5823E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7213E-02	0.300	3.0212E-02
0.600	4.4402E-02	1.000	5.9674E-02	1.500	8.2508E-02
2.200	1.0627E-01	3.000	1.2963E-01	4.000	1.8085E-01
5.500	2.5005E-01	7.500	2.7565E-01	9.500	2.9566E-01
12.000	3.0716E-01	14.500	3.1522E-01	17.500	2.9137E-01
20.000	2.7440E-01	23.000	2.5712E-01	25.500	2.0042E-01
27.500	1.5051E-01	29.000	1.0493E-01	30.000	8.2672E-02
31.000	8.1487E-02	32.000	1.0048E-01	33.500	1.1829E-01
35.000	1.3561E-01	37.000	1.8968E-01	40.000	1.8456E-01
42.000	1.4534E-01	44.000	1.0750E-01	45.000	7.1213E-02
46.000	7.0793E-02	47.000	7.0459E-02	48.000	1.0543E-01
50.000	1.3977E-01	52.000	1.3870E-01	54.000	1.7167E-01
57.000	1.5172E-01	58.500	9.9904E-02	60.000	8.1941E-02
61.000	6.4734E-02	62.000	6.3873E-02	63.000	7.8710E-02
64.500	9.2288E-02	66.000	1.0500E-01	68.000	1.4454E-01
71.000	1.6258E-01	74.000	1.5021E-01	77.000	1.3552E-01
80.000	1.1750E-01	83.000	9.5875E-02	86.000	5.9120E-02
88.000	2.6621E-02	89.000	1.4860E-02	90.000	1.2146E-02
91.000	9.6866E-03	92.000	1.1328E-02	94.000	8.9651E-03
96.000	6.7123E-03	99.000	4.6109E-03	102.000	3.5538E-03
105.000	4.1694E-03	109.000	6.8976E-03	114.000	9.8091E-03
117.000	8.5139E-03	119.000	8.6346E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00-----

Sensitivity Analysis #1: Soil Sample 2 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\2_.inp
Results File: c:\a\2_1957.res
Date of Run: 08 Jun 2021
Time of Run: 14:14:19.88
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	8.139E+02	0.2022	293.15	2	1.000E-01	9.814E+02	0.1930 293.15
3	3.000E-01	1.019E+03	0.1912	293.15	4	6.000E-01	9.709E+02	0.1935 293.15
5	1.000E+00	9.685E+02	0.1937	293.15	6	1.500E+00	9.731E+02	0.1934 293.15
7	2.200E+00	9.729E+02	0.1934	293.15	8	3.000E+00	9.739E+02	0.1934 293.15
9	4.000E+00	9.761E+02	0.1933	293.15	10	5.500E+00	9.811E+02	0.1930 293.15
11	7.500E+00	9.909E+02	0.1926	293.15	12	9.500E+00	1.005E+03	0.1919 293.15
13	1.200E+01	1.027E+03	0.1909	293.15	14	1.450E+01	1.056E+03	0.1896 293.15
15	1.750E+01	1.099E+03	0.1877	293.15	16	2.000E+01	1.142E+03	0.1859 293.15
17	2.300E+01	1.201E+03	0.1836	293.15	18	2.550E+01	1.255E+03	0.1816 293.15
19	2.750E+01	1.300E+03	0.1800	293.15	20	2.900E+01	1.334E+03	0.1789 293.15
21	3.000E+01	1.356E+03	0.1782	293.15	22	3.100E+01	1.377E+03	0.1775 293.15
23	3.200E+01	1.398E+03	0.1768	293.15	24	3.350E+01	1.427E+03	0.1759 293.15
25	3.500E+01	1.454E+03	0.1751	293.15	26	3.700E+01	1.483E+03	0.1743 293.15
27	4.000E+01	1.513E+03	0.1734	293.15	28	4.200E+01	1.525E+03	0.1731 293.15
29	4.400E+01	1.529E+03	0.1729	293.15	30	4.500E+01	1.530E+03	0.1729 293.15
31	4.600E+01	1.528E+03	0.1730	293.15	32	4.700E+01	1.522E+03	0.1731 293.15
33	4.800E+01	1.496E+03	0.1739	293.15	34	5.000E+01	1.433E+03	0.1757 293.15
35	5.200E+01	1.378E+03	0.1775	293.15	36	5.400E+01	1.334E+03	0.1789 293.15
37	5.700E+01	1.289E+03	0.1804	293.15	38	5.850E+01	1.274E+03	0.1810 293.15
39	6.000E+01	1.264E+03	0.1813	293.15	40	6.100E+01	1.259E+03	0.1815 293.15
41	6.200E+01	1.256E+03	0.1816	293.15	42	6.300E+01	1.255E+03	0.1816 293.15
43	6.450E+01	1.257E+03	0.1816	293.15	44	6.600E+01	1.262E+03	0.1814 293.15
45	6.800E+01	1.276E+03	0.1809	293.15	46	7.100E+01	1.309E+03	0.1798 293.15
47	7.400E+01	1.360E+03	0.1781	293.15	48	7.700E+01	1.432E+03	0.1758 293.15
49	8.000E+01	1.534E+03	0.1728	293.15	50	8.300E+01	1.675E+03	0.1691 293.15
51	8.600E+01	1.878E+03	0.1644	293.15	52	8.800E+01	2.065E+03	0.1605 293.15
53	8.900E+01	2.181E+03	0.1584	293.15	54	9.000E+01	2.318E+03	0.1560 293.15
55	9.100E+01	2.479E+03	0.1534	293.15	56	9.200E+01	2.674E+03	0.1506 293.15
57	9.400E+01	3.218E+03	0.1439	293.15	58	9.600E+01	4.140E+03	0.1353 293.15
59	9.900E+01	8.491E+03	0.1137	293.15	60	1.020E+02	2.414E+04	0.0891 293.15
61	1.050E+02	3.355E+04	0.0827	293.15	62	1.090E+02	3.505E+04	0.0819 293.15
63	1.140E+02	3.315E+04	0.0829	293.15	64	1.170E+02	3.098E+04	0.0842 293.15

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65	1.190E+02	2.929E+04	0.0853	293.15	66	1.210E+02	2.751E+04	0.0865	293.15
67	1.220E+02	2.663E+04	0.0871	293.15	68	1.230E+02	2.578E+04	0.0878	293.15
69	1.245E+02	2.455E+04	0.0888	293.15	70	1.260E+02	2.341E+04	0.0897	293.15
71	1.280E+02	2.203E+04	0.0910	293.15	72	1.305E+02	2.053E+04	0.0925	293.15
73	1.325E+02	1.951E+04	0.0936	293.15	74	1.350E+02	1.840E+04	0.0949	293.15
75	1.400E+02	1.664E+04	0.0971	293.15	76	1.450E+02	1.531E+04	0.0990	293.15
77	1.480E+02	1.468E+04	0.1000	293.15	78	1.500E+02	1.430E+04	0.1006	293.15
79	1.514E+02	1.406E+04	0.1010	293.15	80	1.524E+02	1.389E+04	0.1013	293.15
81	1.530E+02	1.380E+04	0.1014	293.15	82	1.540E+02	1.365E+04	0.1017	293.15
83	1.600E+02	1.287E+04	0.1031	293.15	84	1.650E+02	1.236E+04	0.1041	293.15
85	1.700E+02	1.195E+04	0.1049	293.15	86	1.750E+02	1.161E+04	0.1056	293.15
87	1.780E+02	1.143E+04	0.1060	293.15	88	1.800E+02	1.133E+04	0.1062	293.15
89	1.810E+02	1.128E+04	0.1063	293.15	90	1.820E+02	1.123E+04	0.1064	293.15
91	1.830E+02	1.118E+04	0.1066	293.15	92	1.840E+02	1.114E+04	0.1067	293.15
93	1.850E+02	1.109E+04	0.1068	293.15	94	1.870E+02	1.101E+04	0.1069	293.15
95	1.900E+02	1.090E+04	0.1072	293.15	96	1.950E+02	1.074E+04	0.1076	293.15
97	2.020E+02	1.056E+04	0.1080	293.15	98	2.100E+02	1.040E+04	0.1084	293.15
99	2.200E+02	1.026E+04	0.1087	293.15	100	2.350E+02	1.013E+04	0.1091	293.15
101	2.400E+02	1.010E+04	0.1091	293.15	102	2.600E+02	1.004E+04	0.1093	293.15
103	2.800E+02	1.001E+04	0.1094	293.15	104	3.000E+02	1.000E+04	0.1094	293.15
105	3.200E+02	1.000E+04	0.1094	293.15	106	3.400E+02	1.000E+04	0.1094	293.15
107	3.600E+02	1.000E+04	0.1094	293.15	108	3.800E+02	1.000E+04	0.1094	293.15
109	4.000E+02	1.000E+04	0.1094	293.15	110	4.200E+02	1.000E+04	0.1094	293.15
111	4.400E+02	1.000E+04	0.1094	293.15	112	4.550E+02	1.000E+04	0.1094	293.15
113	4.650E+02	1.000E+04	0.1094	293.15	114	4.730E+02	1.000E+04	0.1094	293.15
115	4.780E+02	1.000E+04	0.1094	293.15	116	4.820E+02	1.000E+04	0.1094	293.15
117	4.850E+02	1.000E+04	0.1094	293.15	118	4.870E+02	1.000E+04	0.1094	293.15
119	4.880E+02	1.000E+04	0.1094	293.15	120	4.890E+02	1.000E+04	0.1094	293.15

Initial Water Storage = 58.8922 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.19451
Head (cm) = 9.51636E+02
LiqWater Flow (cm)=-4.38849E-02
IsoVapor Flow (cm)=-3.18758E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

58.8922+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 58.8479 vs. 58.8479

Mass Balance = -1.7036E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.17406

Head (cm) = 1.48992E+03

LiqWater Flow (cm)=-5.78867E-02

IsoVapor Flow (cm)=-4.62308E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

60.0312+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 59.9727 vs. 59.9727

Mass Balance = -2.8060E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1376E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 8.5689E+00 [cm]

Potential Evaporation = 9.9911E+01 [cm]

Actual Evaporation = 4.1054E+01 [cm]

Evaporation during Growth = 2.6810E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 3.5823E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.9973E+01 [cm]
 Mass Balance Error = -5.6663E-03 [cm]
 Total Successful Time Steps = 12475
 Total Attempted Time Steps = 13996
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3535
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	9.6441E+00	0.050	1.0551E+01	0.200	9.7772E+00
0.450	9.6335E+00	0.800	9.5763E+00	1.250	9.5116E+00
1.850	9.4256E+00	2.600	9.3174E+00	3.500	9.1868E+00
4.750	9.0056E+00	6.500	8.7556E+00	8.500	8.4796E+00
10.750	8.1828E+00	13.250	7.8729E+00	16.000	7.5533E+00
18.750	7.2561E+00	21.500	6.9748E+00	24.250	6.7098E+00
26.500	6.5025E+00	28.250	6.3464E+00	29.500	6.2374E+00
30.500	6.1514E+00	31.500	6.0666E+00	32.750	5.9619E+00
34.250	5.8385E+00	36.000	5.6969E+00	38.500	5.4987E+00
41.000	5.3057E+00	43.000	5.1536E+00	44.500	5.0410E+00
45.500	4.9664E+00	46.500	4.8923E+00	47.500	4.8185E+00
49.000	4.7076E+00	51.000	4.5596E+00	53.000	4.4115E+00
55.500	4.2265E+00	57.750	4.0603E+00	59.250	3.9498E+00
60.500	3.8580E+00	61.500	3.7848E+00	62.500	3.7118E+00
63.750	3.6211E+00	65.250	3.5130E+00	67.000	3.3879E+00
69.500	3.2110E+00	72.500	3.0020E+00	75.500	2.7962E+00
78.500	2.5934E+00	81.500	2.3933E+00	84.500	2.1958E+00
87.000	2.0325E+00	88.500	1.9348E+00	89.500	1.8696E+00
90.500	1.8043E+00	91.500	1.7387E+00	93.000	1.6397E+00
95.000	1.5050E+00	97.500	1.3295E+00	100.500	1.0824E+00
103.500	7.9625E-01	107.000	4.9980E-01	111.500	2.3042E-01
115.500	9.2180E-02	118.000	3.9630E-02	120.000	1.1249E-02
121.500	2.0368E-03	122.500	-3.1068E-03	123.750	-8.5392E-03
125.250	-1.3584E-02	127.000	-1.8097E-02	129.250	-2.2070E-02
131.500	-2.4404E-02	133.750	-2.5793E-02	137.500	-2.6687E-02
142.500	-2.6155E-02	146.500	-2.5123E-02	149.000	-2.4331E-02
150.700	-2.3750E-02	151.900	-2.3325E-02	152.700	-2.3036E-02
153.500	-2.2742E-02	157.000	-2.1406E-02	162.500	-1.9316E-02
167.500	-1.7432E-02	172.500	-1.5613E-02	176.500	-1.4234E-02
179.000	-1.3402E-02	180.500	-1.2915E-02	181.500	-1.2595E-02
182.500	-1.2280E-02	183.500	-1.1969E-02	184.500	-1.1663E-02

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186.000	-1.1210E-02	188.500	-1.0480E-02	192.500	-9.3685E-03
198.500	-7.8486E-03	206.000	-6.2022E-03	215.000	-4.5550E-03
227.500	-2.7830E-03	237.500	-1.8754E-03	250.000	-9.1060E-04
270.000	-1.6206E-04	290.000	1.6361E-04	310.000	2.9148E-04
330.000	3.3712E-04	350.000	3.5204E-04	370.000	3.5654E-04
390.000	3.5780E-04	410.000	3.5812E-04	430.000	3.5820E-04
447.500	3.5822E-04	460.000	3.5822E-04	469.000	3.5823E-04
475.500	3.5823E-04	480.000	3.5823E-04	483.500	3.5823E-04
486.000	3.5823E-04	487.500	3.5823E-04	488.500	3.5823E-04
489.000	3.5823E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7775E-02	0.300	3.1061E-02
0.600	4.5519E-02	1.000	6.1020E-02	1.500	8.4200E-02
2.200	1.0826E-01	3.000	1.3188E-01	4.000	1.8380E-01
5.500	2.5387E-01	7.500	2.7969E-01	9.500	2.9994E-01
12.000	3.1167E-01	14.500	3.1996E-01	17.500	2.9585E-01
20.000	2.7874E-01	23.000	2.6136E-01	25.500	2.0385E-01
27.500	1.5316E-01	29.000	1.0682E-01	30.000	8.4196E-02
31.000	8.3015E-02	32.000	1.0239E-01	33.500	1.2059E-01
35.000	1.3830E-01	37.000	1.9354E-01	40.000	1.8848E-01
42.000	1.4851E-01	44.000	1.0991E-01	45.000	7.2831E-02
46.000	7.2424E-02	47.000	7.2155E-02	48.000	1.0831E-01
50.000	1.4449E-01	52.000	1.4438E-01	54.000	1.7998E-01
57.000	1.6109E-01	58.500	1.0693E-01	60.000	8.8619E-02
61.000	7.0572E-02	62.000	7.0190E-02	63.000	8.7154E-02
64.500	1.0350E-01	66.000	1.1943E-01	68.000	1.6802E-01
71.000	1.9678E-01	74.000	1.9174E-01	77.000	1.8651E-01
80.000	1.8083E-01	83.000	1.7458E-01	86.000	1.3994E-01
88.000	8.1618E-02	89.000	5.3601E-02	90.000	5.2767E-02
91.000	5.1909E-02	92.000	7.6538E-02	94.000	9.8339E-02
96.000	1.1794E-01	99.000	1.3157E-01	102.000	1.2002E-01
105.000	1.2387E-01	109.000	1.2215E-01	114.000	6.0433E-02
117.000	2.4452E-02	119.000	1.5864E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00-

Sensitivity Analysis #1: Soil Sample 2 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\2_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

Initial storage =					53.503				
1	22.530	135.832	3.915	16.000	0.000	0.000	56.122	11559	-0.00496
2	22.530	135.832	4.344	18.372	0.000	0.000	55.941	11576	-0.00508
3	22.530	135.832	4.262	18.425	0.000	0.000	55.789	11565	-0.00520
4	22.530	135.832	4.219	18.422	0.000	0.000	55.682	11564	-0.00506
5	22.530	135.832	4.193	18.428	0.000	0.000	55.596	11577	-0.00501
6	22.530	135.832	4.178	18.428	0.000	0.000	55.524	11555	-0.00519
7	22.530	135.832	4.170	18.428	0.000	0.000	55.461	11597	-0.00520
8	22.530	135.832	4.168	18.423	0.000	0.000	55.405	11573	-0.00492
9	22.530	135.832	4.161	18.428	0.000	0.000	55.351	11572	-0.00520
10	22.530	135.832	4.156	18.428	0.000	0.000	55.301	11576	-0.00516
11	50.698	113.700	7.027	40.086	0.000	0.000	58.892	12647	-0.00623
12	50.698	113.759	8.569	41.054	0.000	0.000	59.973	12475	-0.00567

SUM= 326.6951585.780 57.362 262.922 0.000 0.004 -0.06288-----									

Sensitivity Analysis #1: Soil Sample 3 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\3_.inp
Results File: c:\a\3_1955.res
Date of Run: 08 Jun 2021
Time of Run: 12:23:48.73
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.056E+03	0.1425	293.15	2	1.000E-01	9.028E+02	0.1490
3	3.000E-01	8.847E+02	0.1499	293.15	4	6.000E-01	9.101E+02	0.1487
5	1.000E+00	9.084E+02	0.1487	293.15	6	1.500E+00	9.047E+02	0.1489
7	2.200E+00	9.026E+02	0.1490	293.15	8	3.000E+00	8.997E+02	0.1491
9	4.000E+00	8.958E+02	0.1493	293.15	10	5.500E+00	8.896E+02	0.1496
11	7.500E+00	8.811E+02	0.1500	293.15	12	9.500E+00	8.728E+02	0.1505
13	1.200E+01	8.632E+02	0.1509	293.15	14	1.450E+01	8.552E+02	0.1514
15	1.750E+01	8.480E+02	0.1517	293.15	16	2.000E+01	8.441E+02	0.1519
17	2.300E+01	8.418E+02	0.1520	293.15	18	2.550E+01	8.416E+02	0.1521
19	2.750E+01	8.423E+02	0.1520	293.15	20	2.900E+01	8.433E+02	0.1520
21	3.000E+01	8.442E+02	0.1519	293.15	22	3.100E+01	8.453E+02	0.1519
23	3.200E+01	8.464E+02	0.1518	293.15	24	3.350E+01	8.484E+02	0.1517
25	3.500E+01	8.506E+02	0.1516	293.15	26	3.700E+01	8.539E+02	0.1514
27	4.000E+01	8.593E+02	0.1511	293.15	28	4.200E+01	8.631E+02	0.1509
29	4.400E+01	8.671E+02	0.1507	293.15	30	4.500E+01	8.690E+02	0.1506
31	4.600E+01	8.710E+02	0.1506	293.15	32	4.700E+01	8.795E+02	0.1501
33	4.800E+01	9.100E+02	0.1487	293.15	34	5.000E+01	9.785E+02	0.1456
35	5.200E+01	1.054E+03	0.1425	293.15	36	5.400E+01	1.131E+03	0.1397
37	5.700E+01	1.244E+03	0.1360	293.15	38	5.850E+01	1.302E+03	0.1343
39	6.000E+01	1.362E+03	0.1326	293.15	40	6.100E+01	1.405E+03	0.1315
41	6.200E+01	1.451E+03	0.1303	293.15	42	6.300E+01	1.502E+03	0.1291
43	6.450E+01	1.590E+03	0.1271	293.15	44	6.600E+01	1.699E+03	0.1249
45	6.800E+01	1.892E+03	0.1213	293.15	46	7.100E+01	2.375E+03	0.1143
47	7.400E+01	3.468E+03	0.1040	293.15	48	7.700E+01	8.273E+03	0.0856
49	8.000E+01	1.614E+04	0.0753	293.15	50	8.300E+01	1.931E+04	0.0730
51	8.600E+01	2.159E+04	0.0717	293.15	52	8.800E+01	2.326E+04	0.0708
53	8.900E+01	2.415E+04	0.0704	293.15	54	9.000E+01	2.506E+04	0.0700
55	9.100E+01	2.599E+04	0.0696	293.15	56	9.200E+01	2.692E+04	0.0692
57	9.400E+01	2.875E+04	0.0685	293.15	58	9.600E+01	3.045E+04	0.0679
59	9.900E+01	3.262E+04	0.0672	293.15	60	1.020E+02	3.420E+04	0.0667
61	1.050E+02	3.512E+04	0.0665	293.15	62	1.090E+02	3.531E+04	0.0664
63	1.140E+02	3.380E+04	0.0668	293.15	64	1.170E+02	3.191E+04	0.0674

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65 1.190E+02 3.031E+04 0.0679 293.15	66 1.210E+02 2.851E+04 0.0686 293.15
67 1.220E+02 2.757E+04 0.0689 293.15	68 1.230E+02 2.663E+04 0.0693 293.15
69 1.245E+02 2.523E+04 0.0699 293.15	70 1.260E+02 2.387E+04 0.0705 293.15
71 1.280E+02 2.219E+04 0.0714 293.15	72 1.305E+02 2.034E+04 0.0724 293.15
73 1.325E+02 1.907E+04 0.0732 293.15	74 1.350E+02 1.771E+04 0.0741 293.15
75 1.400E+02 1.564E+04 0.0758 293.15	76 1.450E+02 1.417E+04 0.0771 293.15
77 1.480E+02 1.350E+04 0.0778 293.15	78 1.500E+02 1.312E+04 0.0782 293.15
79 1.514E+02 1.288E+04 0.0785 293.15	80 1.524E+02 1.273E+04 0.0787 293.15
81 1.530E+02 1.264E+04 0.0788 293.15	82 1.540E+02 1.249E+04 0.0789 293.15
83 1.600E+02 1.179E+04 0.0798 293.15	84 1.650E+02 1.136E+04 0.0804 293.15
85 1.700E+02 1.103E+04 0.0808 293.15	86 1.750E+02 1.078E+04 0.0812 293.15
87 1.780E+02 1.066E+04 0.0814 293.15	88 1.800E+02 1.059E+04 0.0815 293.15
89 1.810E+02 1.055E+04 0.0815 293.15	90 1.820E+02 1.052E+04 0.0816 293.15
91 1.830E+02 1.049E+04 0.0816 293.15	92 1.840E+02 1.046E+04 0.0817 293.15
93 1.850E+02 1.044E+04 0.0817 293.15	94 1.870E+02 1.039E+04 0.0818 293.15
95 1.900E+02 1.032E+04 0.0819 293.15	96 1.950E+02 1.024E+04 0.0820 293.15
97 2.020E+02 1.015E+04 0.0822 293.15	98 2.100E+02 1.009E+04 0.0823 293.15
99 2.200E+02 1.004E+04 0.0823 293.15	100 2.350E+02 1.001E+04 0.0824 293.15
101 2.400E+02 1.001E+04 0.0824 293.15	102 2.600E+02 1.000E+04 0.0824 293.15
103 2.800E+02 1.000E+04 0.0824 293.15	104 3.000E+02 1.000E+04 0.0824 293.15
105 3.200E+02 1.000E+04 0.0824 293.15	106 3.400E+02 1.000E+04 0.0824 293.15
107 3.600E+02 1.000E+04 0.0824 293.15	108 3.800E+02 1.000E+04 0.0824 293.15
109 4.000E+02 1.000E+04 0.0824 293.15	110 4.200E+02 1.000E+04 0.0824 293.15
111 4.400E+02 1.000E+04 0.0824 293.15	112 4.550E+02 1.000E+04 0.0824 293.15
113 4.650E+02 1.000E+04 0.0824 293.15	114 4.730E+02 1.000E+04 0.0824 293.15
115 4.780E+02 1.000E+04 0.0824 293.15	116 4.820E+02 1.000E+04 0.0824 293.15
117 4.850E+02 1.000E+04 0.0824 293.15	118 4.870E+02 1.000E+04 0.0824 293.15
119 4.880E+02 1.000E+04 0.0824 293.15	120 4.890E+02 1.000E+04 0.0824 293.15

Initial Water Storage = 43.9699 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.13774
Head (cm) = 1.18933E+03
LiqWater Flow (cm)=-6.81484E-02
IsoVapor Flow (cm)=-1.60346E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

43.9699+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 43.9015 vs. 43.9015

Mass Balance = -1.2460E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.14245

Head (cm) = 1.05592E+03

LiqWater Flow (cm)=-3.96244E-02

IsoVapor Flow (cm)=-1.25597E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

43.9835+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 43.9438 vs. 43.9438

Mass Balance = -7.0589E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]
Potential Transpiration = 1.6719E+01 [cm]
Actual Transpiration = 6.0304E+00 [cm]
Potential Evaporation = 1.1911E+02 [cm]
Actual Evaporation = 1.6530E+01 [cm]
Evaporation during Growth = 8.5310E+00 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 2.2530E+01 [cm]
Total Basal Liquid Flux (drainage) = 1.3167E-04 [cm]

December 2023

Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 4.3944E+01 [cm]
 Mass Balance Error = -4.3779E-03 [cm]
 Total Successful Time Steps = 11055
 Total Attempted Time Steps = 12115
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6677
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	6.0000E+00	0.050	6.7418E+00	0.200	6.2645E+00
0.450	5.9639E+00	0.800	5.8824E+00	1.250	5.8057E+00
1.850	5.7052E+00	2.600	5.5816E+00	3.500	5.4363E+00
4.750	5.2403E+00	6.500	4.9786E+00	8.500	4.6997E+00
10.750	4.4082E+00	13.250	4.1128E+00	16.000	3.8159E+00
18.750	3.5477E+00	21.500	3.2993E+00	24.250	3.0704E+00
26.500	2.8943E+00	28.250	2.7634E+00	29.500	2.6728E+00
30.500	2.6018E+00	31.500	2.5320E+00	32.750	2.4465E+00
34.250	2.3465E+00	36.000	2.2325E+00	38.500	2.0745E+00
41.000	1.9225E+00	43.000	1.8036E+00	44.500	1.7162E+00
45.500	1.6585E+00	46.500	1.6011E+00	47.500	1.5441E+00
49.000	1.4611E+00	51.000	1.3556E+00	53.000	1.2554E+00
55.500	1.1371E+00	57.750	1.0387E+00	59.250	9.7573E-01
60.500	9.2514E-01	61.500	8.8566E-01	62.500	8.4704E-01
63.750	7.9990E-01	65.250	7.4474E-01	67.000	6.8201E-01
69.500	5.9493E-01	72.500	4.9343E-01	75.500	3.9587E-01
78.500	3.0342E-01	81.500	2.1741E-01	84.500	1.3988E-01
87.000	8.4879E-02	88.500	5.7231E-02	89.500	4.1621E-02
90.500	2.9185E-02	91.500	2.0135E-02	93.000	1.1842E-02
95.000	6.4574E-03	97.500	3.4549E-03	100.500	1.7887E-03
103.500	8.7260E-04	107.000	1.3928E-04	111.500	-7.4414E-04
115.500	-1.9416E-03	118.000	-3.2547E-03	120.000	-5.0455E-03
121.500	-5.6862E-03	122.500	-6.1344E-03	123.750	-6.7117E-03
125.250	-7.4149E-03	127.000	-8.2248E-03	129.250	-9.1936E-03
131.500	-1.0023E-02	133.750	-1.0659E-02	137.500	-1.1233E-02
142.500	-1.1239E-02	146.500	-1.0789E-02	149.000	-1.0359E-02
150.700	-1.0023E-02	151.900	-9.7706E-03	152.700	-9.5970E-03
153.500	-9.4184E-03	157.000	-8.5767E-03	162.500	-7.3077E-03
167.500	-6.1912E-03	172.500	-5.1616E-03	176.500	-4.4265E-03
179.000	-3.9995E-03	180.500	-3.7569E-03	181.500	-3.5994E-03
182.500	-3.4465E-03	183.500	-3.2981E-03	184.500	-3.1542E-03

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186.000	-2.9448E-03	188.500	-2.6180E-03	192.500	-2.1458E-03
198.500	-1.5575E-03	206.000	-1.0061E-03	215.000	-5.4765E-04
227.500	-1.6797E-04	237.500	-4.0565E-05	250.000	7.1559E-05
270.000	1.1842E-04	290.000	1.2907E-04	310.000	1.3121E-04
330.000	1.3160E-04	350.000	1.3166E-04	370.000	1.3167E-04
390.000	1.3167E-04	410.000	1.3167E-04	430.000	1.3167E-04
447.500	1.3167E-04	460.000	1.3167E-04	469.000	1.3167E-04
475.500	1.3167E-04	480.000	1.3167E-04	483.500	1.3167E-04
486.000	1.3167E-04	487.500	1.3167E-04	488.500	1.3167E-04
489.000	1.3167E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE	DEPTH WATER UPTAKE	DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.5331E-02	0.300	4.2251E-02
0.600	5.9029E-02	1.000	7.5537E-02	1.500	9.9910E-02
2.200	1.2312E-01	3.000	1.4488E-01	4.000	1.9567E-01
5.500	2.6128E-01	7.500	2.7849E-01	9.500	2.9121E-01
12.000	2.9511E-01	14.500	2.9671E-01	17.500	2.6809E-01
20.000	2.4839E-01	23.000	2.2881E-01	25.500	1.7603E-01
27.500	1.3086E-01	29.000	9.0581E-02	30.000	7.1043E-02
31.000	6.9700E-02	32.000	8.5548E-02	33.500	1.0003E-01
35.000	1.1390E-01	37.000	1.5801E-01	40.000	1.5206E-01
42.000	1.1890E-01	44.000	8.7391E-02	45.000	5.7733E-02
46.000	5.7250E-02	47.000	5.6578E-02	48.000	8.2870E-02
50.000	1.0517E-01	52.000	9.9742E-02	54.000	1.1786E-01
57.000	9.7679E-02	58.500	6.2473E-02	60.000	5.0074E-02
61.000	3.9101E-02	62.000	3.8246E-02	63.000	4.6868E-02
64.500	5.4858E-02	66.000	6.2685E-02	68.000	8.7409E-02
71.000	1.0097E-01	74.000	9.6214E-02	77.000	9.0201E-02
80.000	8.2473E-02	83.000	7.2308E-02	86.000	4.8704E-02
88.000	2.3377E-02	89.000	1.3481E-02	90.000	1.1395E-02
91.000	9.4670E-03	92.000	1.1702E-02	94.000	1.0717E-02
96.000	9.5234E-03	99.000	7.5493E-03	102.000	5.5562E-03
105.000	5.3698E-03	109.000	6.6010E-03	114.000	7.5131E-03
117.000	6.2976E-03	119.000	6.4875E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 3

Wet Year 1

December 2023

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INITIAL CONDITIONS

Input File: c:\a\3_.inp

Results File: c:\a\3_1956.res

Date of Run: 08 Jun 2021

Time of Run: 12:23:48.73

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.056E+03	0.1425	293.15	2	1.000E-01	9.028E+02	0.1490
3	3.000E-01	8.847E+02	0.1499	293.15	4	6.000E-01	9.100E+02	0.1487
5	1.000E+00	9.083E+02	0.1487	293.15	6	1.500E+00	9.047E+02	0.1489
7	2.200E+00	9.025E+02	0.1490	293.15	8	3.000E+00	8.996E+02	0.1491
9	4.000E+00	8.957E+02	0.1493	293.15	10	5.500E+00	8.896E+02	0.1496
11	7.500E+00	8.811E+02	0.1501	293.15	12	9.500E+00	8.727E+02	0.1505
13	1.200E+01	8.631E+02	0.1509	293.15	14	1.450E+01	8.551E+02	0.1514
15	1.750E+01	8.479E+02	0.1517	293.15	16	2.000E+01	8.441E+02	0.1519
17	2.300E+01	8.418E+02	0.1520	293.15	18	2.550E+01	8.415E+02	0.1521
19	2.750E+01	8.423E+02	0.1520	293.15	20	2.900E+01	8.433E+02	0.1520
21	3.000E+01	8.442E+02	0.1519	293.15	22	3.100E+01	8.452E+02	0.1519
23	3.200E+01	8.464E+02	0.1518	293.15	24	3.350E+01	8.483E+02	0.1517
25	3.500E+01	8.506E+02	0.1516	293.15	26	3.700E+01	8.538E+02	0.1514
27	4.000E+01	8.592E+02	0.1511	293.15	28	4.200E+01	8.631E+02	0.1510
29	4.400E+01	8.670E+02	0.1508	293.15	30	4.500E+01	8.689E+02	0.1507
31	4.600E+01	8.709E+02	0.1506	293.15	32	4.700E+01	8.794E+02	0.1501
33	4.800E+01	9.099E+02	0.1487	293.15	34	5.000E+01	9.784E+02	0.1456
35	5.200E+01	1.054E+03	0.1425	293.15	36	5.400E+01	1.131E+03	0.1397
37	5.700E+01	1.244E+03	0.1360	293.15	38	5.850E+01	1.302E+03	0.1343
39	6.000E+01	1.362E+03	0.1326	293.15	40	6.100E+01	1.404E+03	0.1315
41	6.200E+01	1.451E+03	0.1303	293.15	42	6.300E+01	1.502E+03	0.1291
43	6.450E+01	1.590E+03	0.1271	293.15	44	6.600E+01	1.699E+03	0.1249
45	6.800E+01	1.892E+03	0.1213	293.15	46	7.100E+01	2.375E+03	0.1143
47	7.400E+01	3.468E+03	0.1040	293.15	48	7.700E+01	8.273E+03	0.0856
49	8.000E+01	1.615E+04	0.0753	293.15	50	8.300E+01	1.933E+04	0.0730
51	8.600E+01	2.161E+04	0.0717	293.15	52	8.800E+01	2.329E+04	0.0708
53	8.900E+01	2.418E+04	0.0704	293.15	54	9.000E+01	2.509E+04	0.0700
55	9.100E+01	2.602E+04	0.0696	293.15	56	9.200E+01	2.696E+04	0.0692
57	9.400E+01	2.879E+04	0.0685	293.15	58	9.600E+01	3.050E+04	0.0679

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59 9.900E+01 3.268E+04 0.0672 293.15	60 1.020E+02 3.427E+04 0.0667 293.15
61 1.050E+02 3.521E+04 0.0664 293.15	62 1.090E+02 3.545E+04 0.0664 293.15
63 1.140E+02 3.405E+04 0.0668 293.15	64 1.170E+02 3.225E+04 0.0673 293.15
65 1.190E+02 3.072E+04 0.0678 293.15	66 1.210E+02 2.900E+04 0.0684 293.15
67 1.220E+02 2.810E+04 0.0687 293.15	68 1.230E+02 2.719E+04 0.0691 293.15
69 1.245E+02 2.582E+04 0.0696 293.15	70 1.260E+02 2.450E+04 0.0702 293.15
71 1.280E+02 2.284E+04 0.0710 293.15	72 1.305E+02 2.100E+04 0.0720 293.15
73 1.325E+02 1.971E+04 0.0728 293.15	74 1.350E+02 1.833E+04 0.0737 293.15
75 1.400E+02 1.617E+04 0.0753 293.15	76 1.450E+02 1.462E+04 0.0767 293.15
77 1.480E+02 1.391E+04 0.0774 293.15	78 1.500E+02 1.350E+04 0.0778 293.15
79 1.514E+02 1.324E+04 0.0781 293.15	80 1.524E+02 1.307E+04 0.0783 293.15
81 1.530E+02 1.298E+04 0.0784 293.15	82 1.540E+02 1.282E+04 0.0786 293.15
83 1.600E+02 1.205E+04 0.0795 293.15	84 1.650E+02 1.158E+04 0.0801 293.15
85 1.700E+02 1.122E+04 0.0806 293.15	86 1.750E+02 1.094E+04 0.0810 293.15
87 1.780E+02 1.080E+04 0.0812 293.15	88 1.800E+02 1.072E+04 0.0813 293.15
89 1.810E+02 1.068E+04 0.0813 293.15	90 1.820E+02 1.064E+04 0.0814 293.15
91 1.830E+02 1.061E+04 0.0815 293.15	92 1.840E+02 1.058E+04 0.0815 293.15
93 1.850E+02 1.055E+04 0.0815 293.15	94 1.870E+02 1.049E+04 0.0816 293.15
95 1.900E+02 1.041E+04 0.0818 293.15	96 1.950E+02 1.031E+04 0.0819 293.15
97 2.020E+02 1.020E+04 0.0821 293.15	98 2.100E+02 1.012E+04 0.0822 293.15
99 2.200E+02 1.006E+04 0.0823 293.15	100 2.350E+02 1.002E+04 0.0824 293.15
101 2.400E+02 1.001E+04 0.0824 293.15	102 2.600E+02 1.000E+04 0.0824 293.15
103 2.800E+02 1.000E+04 0.0824 293.15	104 3.000E+02 1.000E+04 0.0824 293.15
105 3.200E+02 1.000E+04 0.0824 293.15	106 3.400E+02 1.000E+04 0.0824 293.15
107 3.600E+02 1.000E+04 0.0824 293.15	108 3.800E+02 1.000E+04 0.0824 293.15
109 4.000E+02 1.000E+04 0.0824 293.15	110 4.200E+02 1.000E+04 0.0824 293.15
111 4.400E+02 1.000E+04 0.0824 293.15	112 4.550E+02 1.000E+04 0.0824 293.15
113 4.650E+02 1.000E+04 0.0824 293.15	114 4.730E+02 1.000E+04 0.0824 293.15
115 4.780E+02 1.000E+04 0.0824 293.15	116 4.820E+02 1.000E+04 0.0824 293.15
117 4.850E+02 1.000E+04 0.0824 293.15	118 4.870E+02 1.000E+04 0.0824 293.15
119 4.880E+02 1.000E+04 0.0824 293.15	120 4.890E+02 1.000E+04 0.0824 293.15

Initial Water Storage = 43.9438 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.14050
Head (cm) = 1.10868E+03

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LiqWater Flow (cm)=-4.41906E-02
IsoVapor Flow (cm)=-1.15185E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

43.9438+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 43.8995 vs. 43.8995

Mass Balance = -7.8448E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.14412
Head (cm) = 1.01383E+03
LiqWater Flow (cm)=-3.60501E-05
IsoVapor Flow (cm)=-3.54633E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

47.6738+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 47.6738 vs. 47.6738

Mass Balance = -1.2937E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 9.4972E+00 [cm]
 Potential Evaporation = 9.9853E+01 [cm]
 Actual Evaporation = 3.7476E+01 [cm]
 Evaporation during Growth = 2.3380E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 1.3204E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 4.7674E+01 [cm]
 Mass Balance Error = -4.6000E-03 [cm]
 Total Successful Time Steps = 11918
 Total Attempted Time Steps = 12973
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3951
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.3223E+01	0.050	1.3554E+01	0.200	1.3237E+01
0.450	1.3139E+01	0.800	1.3056E+01	1.250	1.2954E+01
1.850	1.2821E+01	2.600	1.2657E+01	3.500	1.2465E+01
4.750	1.2207E+01	6.500	1.1863E+01	8.500	1.1496E+01
10.750	1.1109E+01	13.250	1.0715E+01	16.000	1.0314E+01
18.750	9.9484E+00	21.500	9.6093E+00	24.250	9.2969E+00
26.500	9.0568E+00	28.250	8.8787E+00	29.500	8.7556E+00
30.500	8.6591E+00	31.500	8.5646E+00	32.750	8.4488E+00
34.250	8.3137E+00	36.000	8.1601E+00	38.500	7.9476E+00
41.000	7.7437E+00	43.000	7.5843E+00	44.500	7.4671E+00
45.500	7.3895E+00	46.500	7.3124E+00	47.500	7.2356E+00
49.000	7.1200E+00	51.000	6.9618E+00	53.000	6.7975E+00
55.500	6.5842E+00	57.750	6.3824E+00	59.250	6.2448E+00
60.500	6.1278E+00	61.500	6.0330E+00	62.500	5.9369E+00
63.750	5.8152E+00	65.250	5.6661E+00	67.000	5.4886E+00
69.500	5.2270E+00	72.500	4.8948E+00	75.500	4.5360E+00
78.500	4.1281E+00	81.500	3.6992E+00	84.500	3.2765E+00
87.000	2.9326E+00	88.500	2.7301E+00	89.500	2.5970E+00
90.500	2.4656E+00	91.500	2.3353E+00	93.000	2.1440E+00
95.000	1.8957E+00	97.500	1.5987E+00	100.500	1.2675E+00

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103.500	9.6659E-01	107.000	6.6381E-01	111.500	3.6748E-01
115.500	1.6214E-01	118.000	6.2481E-02	120.000	8.6762E-03
121.500	-2.7397E-03	122.500	-4.5924E-03	123.750	-5.5897E-03
125.250	-6.4083E-03	127.000	-7.2663E-03	129.250	-8.2699E-03
131.500	-9.1333E-03	133.750	-9.8288E-03	137.500	-1.0551E-02
142.500	-1.0781E-02	146.500	-1.0507E-02	149.000	-1.0179E-02
150.700	-9.9072E-03	151.900	-9.6976E-03	152.700	-9.5512E-03
153.500	-9.3989E-03	157.000	-8.6636E-03	162.500	-7.5172E-03
167.500	-6.4781E-03	172.500	-5.4977E-03	176.500	-4.7837E-03
179.000	-4.3637E-03	180.500	-4.1231E-03	181.500	-3.9663E-03
182.500	-3.8134E-03	183.500	-3.6644E-03	184.500	-3.5194E-03
186.000	-3.3074E-03	188.500	-2.9738E-03	192.500	-2.4857E-03
198.500	-1.8642E-03	206.000	-1.2623E-03	215.000	-7.4087E-04
227.500	-2.8374E-04	237.500	-1.1683E-04	250.000	3.6393E-05
270.000	1.0840E-04	290.000	1.2682E-04	310.000	1.3100E-04
330.000	1.3185E-04	350.000	1.3200E-04	370.000	1.3203E-04
390.000	1.3203E-04	410.000	1.3204E-04	430.000	1.3204E-04
447.500	1.3204E-04	460.000	1.3204E-04	469.000	1.3204E-04
475.500	1.3204E-04	480.000	1.3204E-04	483.500	1.3204E-04
486.000	1.3204E-04	487.500	1.3204E-04	488.500	1.3204E-04
489.000	1.3204E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	3.2791E-02	0.300	5.4557E-02
0.600	7.5977E-02	1.000	9.6819E-02	1.500	1.2744E-01
2.200	1.5612E-01	3.000	1.8274E-01	4.000	2.4566E-01
5.500	3.2702E-01	7.500	3.4923E-01	9.500	3.6741E-01
12.000	3.7645E-01	14.500	3.8335E-01	17.500	3.5120E-01
20.000	3.2821E-01	23.000	3.0516E-01	25.500	2.3664E-01
27.500	1.7708E-01	29.000	1.2317E-01	30.000	9.6914E-02
31.000	9.5399E-02	32.000	1.1748E-01	33.500	1.3804E-01
35.000	1.5796E-01	37.000	2.2043E-01	40.000	2.1383E-01
42.000	1.6812E-01	44.000	1.2417E-01	45.000	8.2214E-02
46.000	8.1686E-02	47.000	8.1178E-02	48.000	1.2097E-01
50.000	1.5933E-01	52.000	1.5754E-01	54.000	1.9495E-01
57.000	1.7315E-01	58.500	1.1473E-01	60.000	9.5025E-02
61.000	7.5704E-02	62.000	7.5403E-02	63.000	9.3890E-02
64.500	1.1199E-01	66.000	1.2972E-01	68.000	1.8350E-01
71.000	2.1627E-01	74.000	2.1133E-01	77.000	2.0432E-01
80.000	1.9576E-01	83.000	1.8607E-01	86.000	1.4563E-01

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88.000	8.3250E-02	89.000	5.4036E-02	90.000	5.2495E-02
91.000	5.0856E-02	92.000	7.3640E-02	94.000	9.0535E-02
96.000	1.0234E-01	99.000	1.0063E-01	102.000	7.4152E-02
105.000	5.1054E-02	109.000	2.2964E-02	114.000	9.7757E-03
117.000	6.0784E-03	119.000	5.6599E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 3 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\3_.inp

Results File: c:\a\3_1957.res

Date of Run: 08 Jun 2021

Time of Run: 12:23:48.73

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.014E+03	0.1441	293.15	2	1.000E-01	7.713E+02	0.1560
3	3.000E-01	6.792E+02	0.1619	293.15	4	6.000E-01	6.928E+02	0.1610
5	1.000E+00	7.193E+02	0.1592	293.15	6	1.500E+00	7.219E+02	0.1590
7	2.200E+00	7.168E+02	0.1594	293.15	8	3.000E+00	7.166E+02	0.1594
9	4.000E+00	7.173E+02	0.1593	293.15	10	5.500E+00	7.184E+02	0.1593
11	7.500E+00	7.212E+02	0.1591	293.15	12	9.500E+00	7.254E+02	0.1588
13	1.200E+01	7.328E+02	0.1583	293.15	14	1.450E+01	7.426E+02	0.1577
15	1.750E+01	7.575E+02	0.1568	293.15	16	2.000E+01	7.725E+02	0.1559
17	2.300E+01	7.936E+02	0.1547	293.15	18	2.550E+01	8.135E+02	0.1536
19	2.750E+01	8.308E+02	0.1526	293.15	20	2.900E+01	8.443E+02	0.1519
21	3.000E+01	8.536E+02	0.1514	293.15	22	3.100E+01	8.630E+02	0.1510
23	3.200E+01	8.725E+02	0.1505	293.15	24	3.350E+01	8.867E+02	0.1498
25	3.500E+01	9.008E+02	0.1491	293.15	26	3.700E+01	9.187E+02	0.1482
27	4.000E+01	9.427E+02	0.1472	293.15	28	4.200E+01	9.555E+02	0.1466
29	4.400E+01	9.650E+02	0.1462	293.15	30	4.500E+01	9.684E+02	0.1460
31	4.600E+01	9.708E+02	0.1459	293.15	32	4.700E+01	9.774E+02	0.1456
33	4.800E+01	9.908E+02	0.1451	293.15	34	5.000E+01	9.910E+02	0.1451
35	5.200E+01	9.714E+02	0.1459	293.15	36	5.400E+01	9.455E+02	0.1470
37	5.700E+01	9.077E+02	0.1488	293.15	38	5.850E+01	8.918E+02	0.1495
39	6.000E+01	8.778E+02	0.1502	293.15	40	6.100E+01	8.695E+02	0.1506
41	6.200E+01	8.621E+02	0.1510	293.15	42	6.300E+01	8.554E+02	0.1513
43	6.450E+01	8.468E+02	0.1518	293.15	44	6.600E+01	8.398E+02	0.1522
45	6.800E+01	8.326E+02	0.1525	293.15	46	7.100E+01	8.264E+02	0.1529
47	7.400E+01	8.252E+02	0.1529	293.15	48	7.700E+01	8.288E+02	0.1527
49	8.000E+01	8.372E+02	0.1523	293.15	50	8.300E+01	8.506E+02	0.1516
51	8.600E+01	8.696E+02	0.1506	293.15	52	8.800E+01	8.858E+02	0.1498
53	8.900E+01	8.950E+02	0.1494	293.15	54	9.000E+01	9.051E+02	0.1489
55	9.100E+01	9.161E+02	0.1484	293.15	56	9.200E+01	9.280E+02	0.1478
57	9.400E+01	9.552E+02	0.1466	293.15	58	9.600E+01	9.874E+02	0.1452

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59 9.900E+01 1.048E+03 0.1428 293.15	60 1.020E+02 1.127E+03 0.1399 293.15
61 1.050E+02 1.235E+03 0.1363 293.15	62 1.090E+02 1.456E+03 0.1302 293.15
63 1.140E+02 2.056E+03 0.1187 293.15	64 1.170E+02 3.027E+03 0.1075 293.15
65 1.190E+02 4.972E+03 0.0956 293.15	66 1.210E+02 1.382E+04 0.0775 293.15
67 1.220E+02 2.067E+04 0.0722 293.15	68 1.230E+02 2.400E+04 0.0705 293.15
69 1.245E+02 2.480E+04 0.0701 293.15	70 1.260E+02 2.425E+04 0.0703 293.15
71 1.280E+02 2.302E+04 0.0709 293.15	72 1.305E+02 2.141E+04 0.0718 293.15
73 1.325E+02 2.021E+04 0.0725 293.15	74 1.350E+02 1.886E+04 0.0733 293.15
75 1.400E+02 1.667E+04 0.0749 293.15	76 1.450E+02 1.505E+04 0.0763 293.15
77 1.480E+02 1.430E+04 0.0770 293.15	78 1.500E+02 1.387E+04 0.0774 293.15
79 1.514E+02 1.359E+04 0.0777 293.15	80 1.524E+02 1.341E+04 0.0779 293.15
81 1.530E+02 1.331E+04 0.0780 293.15	82 1.540E+02 1.314E+04 0.0782 293.15
83 1.600E+02 1.232E+04 0.0792 293.15	84 1.650E+02 1.180E+04 0.0798 293.15
85 1.700E+02 1.141E+04 0.0803 293.15	86 1.750E+02 1.110E+04 0.0807 293.15
87 1.780E+02 1.094E+04 0.0810 293.15	88 1.800E+02 1.085E+04 0.0811 293.15
89 1.810E+02 1.081E+04 0.0812 293.15	90 1.820E+02 1.077E+04 0.0812 293.15
91 1.830E+02 1.073E+04 0.0813 293.15	92 1.840E+02 1.069E+04 0.0813 293.15
93 1.850E+02 1.066E+04 0.0814 293.15	94 1.870E+02 1.059E+04 0.0815 293.15
95 1.900E+02 1.051E+04 0.0816 293.15	96 1.950E+02 1.039E+04 0.0818 293.15
97 2.020E+02 1.026E+04 0.0820 293.15	98 2.100E+02 1.017E+04 0.0821 293.15
99 2.200E+02 1.009E+04 0.0823 293.15	100 2.350E+02 1.003E+04 0.0823 293.15
101 2.400E+02 1.002E+04 0.0824 293.15	102 2.600E+02 1.001E+04 0.0824 293.15
103 2.800E+02 1.000E+04 0.0824 293.15	104 3.000E+02 1.000E+04 0.0824 293.15
105 3.200E+02 1.000E+04 0.0824 293.15	106 3.400E+02 1.000E+04 0.0824 293.15
107 3.600E+02 1.000E+04 0.0824 293.15	108 3.800E+02 1.000E+04 0.0824 293.15
109 4.000E+02 1.000E+04 0.0824 293.15	110 4.200E+02 1.000E+04 0.0824 293.15
111 4.400E+02 1.000E+04 0.0824 293.15	112 4.550E+02 1.000E+04 0.0824 293.15
113 4.650E+02 1.000E+04 0.0824 293.15	114 4.730E+02 1.000E+04 0.0824 293.15
115 4.780E+02 1.000E+04 0.0824 293.15	116 4.820E+02 1.000E+04 0.0824 293.15
117 4.850E+02 1.000E+04 0.0824 293.15	118 4.870E+02 1.000E+04 0.0824 293.15
119 4.880E+02 1.000E+04 0.0824 293.15	120 4.890E+02 1.000E+04 0.0824 293.15

Initial Water Storage = 47.6738 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.13950
Head (cm) = 1.13685E+03

December 2023

LiqWater Flow (cm)=-4.40286E-02
IsoVapor Flow (cm)=-3.93919E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

47.6738+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 47.6295 vs. 47.6295

Mass Balance = -2.1586E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.13874
Head (cm) = 1.15922E+03
LiqWater Flow (cm)=-5.81939E-02
IsoVapor Flow (cm)=-5.48841E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

49.1530+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 49.0945 vs. 49.0946

Mass Balance = -7.5156E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 1.0987E+01 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 3.8295E+01 [cm]
 Evaporation during Growth = 2.4115E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 1.3204E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 4.9095E+01 [cm]
 Mass Balance Error = -4.6564E-03 [cm]
 Total Successful Time Steps = 11905
 Total Attempted Time Steps = 12945
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3866
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.2403E+01	0.050	1.2733E+01	0.200	1.2417E+01
0.450	1.2322E+01	0.800	1.2246E+01	1.250	1.2150E+01
1.850	1.2023E+01	2.600	1.1869E+01	3.500	1.1687E+01
4.750	1.1443E+01	6.500	1.1119E+01	8.500	1.0772E+01
10.750	1.0406E+01	13.250	1.0031E+01	16.000	9.6480E+00
18.750	9.2959E+00	21.500	8.9658E+00	24.250	8.6580E+00
26.500	8.4186E+00	28.250	8.2392E+00	29.500	8.1142E+00
30.500	8.0157E+00	31.500	7.9188E+00	32.750	7.7993E+00
34.250	7.6586E+00	36.000	7.4976E+00	38.500	7.2725E+00
41.000	7.0538E+00	43.000	6.8817E+00	44.500	6.7545E+00
45.500	6.6703E+00	46.500	6.5865E+00	47.500	6.5032E+00
49.000	6.3790E+00	51.000	6.2150E+00	53.000	6.0525E+00
55.500	5.8507E+00	57.750	5.6707E+00	59.250	5.5511E+00
60.500	5.4517E+00	61.500	5.3723E+00	62.500	5.2931E+00
63.750	5.1942E+00	65.250	5.0759E+00	67.000	4.9381E+00
69.500	4.7419E+00	72.500	4.5076E+00	75.500	4.2748E+00
78.500	4.0438E+00	81.500	3.8150E+00	84.500	3.5897E+00
87.000	3.4048E+00	88.500	3.2950E+00	89.500	3.2222E+00
90.500	3.1497E+00	91.500	3.0775E+00	93.000	2.9698E+00
95.000	2.8273E+00	97.500	2.6506E+00	100.500	2.4405E+00

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103.500	2.2316E+00	107.000	1.9880E+00	111.500	1.6714E+00
115.500	1.3740E+00	118.000	1.1720E+00	120.000	9.9209E-01
121.500	9.1514E-01	122.500	8.6026E-01	123.750	7.9331E-01
125.250	7.1639E-01	127.000	6.3269E-01	129.250	5.3551E-01
131.500	4.5070E-01	133.750	3.7632E-01	137.500	2.7265E-01
142.500	1.6441E-01	146.500	9.8287E-02	149.000	6.5512E-02
150.700	4.7212E-02	151.900	3.6260E-02	152.700	2.9873E-02
153.500	2.4083E-02	157.000	3.8004E-03	162.500	-4.7958E-03
167.500	-6.0504E-03	172.500	-5.6276E-03	176.500	-5.0318E-03
179.000	-4.6444E-03	180.500	-4.4151E-03	181.500	-4.2639E-03
182.500	-4.1152E-03	183.500	-3.9692E-03	184.500	-3.8261E-03
186.000	-3.6159E-03	188.500	-3.2820E-03	192.500	-2.7875E-03
198.500	-2.1460E-03	206.000	-1.5078E-03	215.000	-9.3574E-04
227.500	-4.1019E-04	237.500	-2.0399E-04	250.000	-8.1096E-06
270.000	9.3777E-05	290.000	1.2270E-04	310.000	1.2998E-04
330.000	1.3162E-04	350.000	1.3196E-04	370.000	1.3202E-04
390.000	1.3203E-04	410.000	1.3204E-04	430.000	1.3204E-04
447.500	1.3204E-04	460.000	1.3204E-04	469.000	1.3204E-04
475.500	1.3204E-04	480.000	1.3204E-04	483.500	1.3204E-04
486.000	1.3204E-04	487.500	1.3204E-04	488.500	1.3204E-04
489.000	1.3204E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	3.3071E-02	0.300	5.5027E-02
0.600	7.6630E-02	1.000	9.7643E-02	1.500	1.2851E-01
2.200	1.5741E-01	3.000	1.8423E-01	4.000	2.4762E-01
5.500	3.2955E-01	7.500	3.5185E-01	9.500	3.7011E-01
12.000	3.7917E-01	14.500	3.8610E-01	17.500	3.5380E-01
20.000	3.3073E-01	23.000	3.0757E-01	25.500	2.3857E-01
27.500	1.7857E-01	29.000	1.2423E-01	30.000	9.7756E-02
31.000	9.6240E-02	32.000	1.1853E-01	33.500	1.3932E-01
35.000	1.5947E-01	37.000	2.2262E-01	40.000	2.1606E-01
42.000	1.6992E-01	44.000	1.2554E-01	45.000	8.3131E-02
46.000	8.2609E-02	47.000	8.2128E-02	48.000	1.2255E-01
50.000	1.6181E-01	52.000	1.6037E-01	54.000	1.9893E-01
57.000	1.7734E-01	58.500	1.1774E-01	60.000	9.7727E-02
61.000	7.7983E-02	62.000	7.7797E-02	63.000	9.7026E-02
64.500	1.1606E-01	66.000	1.3492E-01	68.000	1.9183E-01
71.000	2.2839E-01	74.000	2.2627E-01	77.000	2.2376E-01
80.000	2.2063E-01	83.000	2.1621E-01	86.000	1.7630E-01

December 2023

88.000	1.0423E-01	89.000	6.8969E-02	90.000	6.8455E-02
91.000	6.7941E-02	92.000	1.0114E-01	94.000	1.3281E-01
96.000	1.6346E-01	99.000	1.9161E-01	102.000	1.8717E-01
105.000	2.1332E-01	109.000	2.6546E-01	114.000	2.2644E-01
117.000	1.3880E-01	119.000	1.0994E-01	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 3 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\3_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                40.298
 1 22.530 135.832  4.717 13.987  0.000  0.000 44.127  11138 -0.00397
 2 22.530 135.832  5.977 16.475  0.000  0.000 44.209  11053 -0.00423
 3 22.530 135.832  6.040 16.527  0.000  0.000 44.176  11086 -0.00427
 4 22.530 135.832  6.056 16.518  0.000  0.000 44.136  11068 -0.00423
 5 22.530 135.832  6.044 16.531  0.000  0.000 44.096  11057 -0.00434
 6 22.530 135.832  6.039 16.531  0.000  0.000 44.060  11061 -0.00433
 7 22.530 135.832  6.036 16.530  0.000  0.000 44.028  11083 -0.00436
 8 22.530 135.832  6.038 16.524  0.000  0.000 43.999  11070 -0.00436
 9 22.530 135.832  6.033 16.531  0.000  0.000 43.970  11051 -0.00431
10 22.530 135.832  6.030 16.530  0.000  0.000 43.944  11055 -0.00438
11 50.698 113.700  9.497 37.476  0.000  0.000 47.674  11918 -0.00460
12 50.698 113.759 10.987 38.295  0.000  0.000 49.095  11905 -0.00466
-----
SUM= 326.6951585.780 79.494 238.454  0.000  0.002          -0.05205--
```

Sensitivity Analysis #1: Soil Sample 4 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\4_.inp
Results File: c:\a\4_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:19:15.89
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	5.526E+03	0.1424	293.15	2	1.000E-01	4.567E+03	0.1505
3	3.000E-01	4.577E+03	0.1504	293.15	4	6.000E-01	4.691E+03	0.1493
5	1.000E+00	4.665E+03	0.1496	293.15	6	1.500E+00	4.653E+03	0.1497
7	2.200E+00	4.640E+03	0.1498	293.15	8	3.000E+00	4.623E+03	0.1500
9	4.000E+00	4.600E+03	0.1502	293.15	10	5.500E+00	4.564E+03	0.1505
11	7.500E+00	4.515E+03	0.1510	293.15	12	9.500E+00	4.471E+03	0.1514
13	1.200E+01	4.428E+03	0.1518	293.15	14	1.450E+01	4.403E+03	0.1521
15	1.750E+01	4.396E+03	0.1522	293.15	16	2.000E+01	4.409E+03	0.1520
17	2.300E+01	4.443E+03	0.1517	293.15	18	2.550E+01	4.485E+03	0.1513
19	2.750E+01	4.526E+03	0.1509	293.15	20	2.900E+01	4.560E+03	0.1506
21	3.000E+01	4.584E+03	0.1503	293.15	22	3.100E+01	4.609E+03	0.1501
23	3.200E+01	4.635E+03	0.1498	293.15	24	3.350E+01	4.675E+03	0.1495
25	3.500E+01	4.717E+03	0.1491	293.15	26	3.700E+01	4.773E+03	0.1486
27	4.000E+01	4.857E+03	0.1478	293.15	28	4.200E+01	4.909E+03	0.1474
29	4.400E+01	4.958E+03	0.1469	293.15	30	4.500E+01	4.981E+03	0.1467
31	4.600E+01	5.002E+03	0.1466	293.15	32	4.700E+01	5.068E+03	0.1460
33	4.800E+01	5.273E+03	0.1443	293.15	34	5.000E+01	5.673E+03	0.1413
35	5.200E+01	6.035E+03	0.1388	293.15	36	5.400E+01	6.360E+03	0.1367
37	5.700E+01	6.827E+03	0.1339	293.15	38	5.850E+01	7.096E+03	0.1324
39	6.000E+01	7.405E+03	0.1308	293.15	40	6.100E+01	7.638E+03	0.1296
41	6.200E+01	7.899E+03	0.1284	293.15	42	6.300E+01	8.192E+03	0.1270
43	6.450E+01	8.699E+03	0.1248	293.15	44	6.600E+01	9.302E+03	0.1225
45	6.800E+01	1.029E+04	0.1190	293.15	46	7.100E+01	1.223E+04	0.1132
47	7.400E+01	1.475E+04	0.1073	293.15	48	7.700E+01	1.757E+04	0.1021
49	8.000E+01	2.013E+04	0.0982	293.15	50	8.300E+01	2.202E+04	0.0958
51	8.600E+01	2.329E+04	0.0943	293.15	52	8.800E+01	2.391E+04	0.0936
53	8.900E+01	2.417E+04	0.0933	293.15	54	9.000E+01	2.439E+04	0.0931
55	9.100E+01	2.460E+04	0.0928	293.15	56	9.200E+01	2.478E+04	0.0927
57	9.400E+01	2.507E+04	0.0924	293.15	58	9.600E+01	2.529E+04	0.0921
59	9.900E+01	2.549E+04	0.0919	293.15	60	1.020E+02	2.550E+04	0.0919
61	1.050E+02	2.533E+04	0.0921	293.15	62	1.090E+02	2.481E+04	0.0926
63	1.140E+02	2.375E+04	0.0938	293.15	64	1.170E+02	2.298E+04	0.0946

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65	1.190E+02	2.244E+04	0.0953	293.15	66	1.210E+02	2.189E+04	0.0959	293.15
67	1.220E+02	2.162E+04	0.0963	293.15	68	1.230E+02	2.134E+04	0.0966	293.15
69	1.245E+02	2.094E+04	0.0971	293.15	70	1.260E+02	2.055E+04	0.0977	293.15
71	1.280E+02	2.005E+04	0.0983	293.15	72	1.305E+02	1.945E+04	0.0992	293.15
73	1.325E+02	1.901E+04	0.0998	293.15	74	1.350E+02	1.848E+04	0.1006	293.15
75	1.400E+02	1.756E+04	0.1021	293.15	76	1.450E+02	1.677E+04	0.1034	293.15
77	1.480E+02	1.635E+04	0.1042	293.15	78	1.500E+02	1.610E+04	0.1047	293.15
79	1.514E+02	1.592E+04	0.1050	293.15	80	1.524E+02	1.581E+04	0.1052	293.15
81	1.530E+02	1.574E+04	0.1053	293.15	82	1.540E+02	1.562E+04	0.1056	293.15
83	1.600E+02	1.501E+04	0.1068	293.15	84	1.650E+02	1.456E+04	0.1077	293.15
85	1.700E+02	1.416E+04	0.1085	293.15	86	1.750E+02	1.381E+04	0.1093	293.15
87	1.780E+02	1.361E+04	0.1098	293.15	88	1.800E+02	1.349E+04	0.1101	293.15
89	1.810E+02	1.343E+04	0.1102	293.15	90	1.820E+02	1.337E+04	0.1103	293.15
91	1.830E+02	1.331E+04	0.1105	293.15	92	1.840E+02	1.326E+04	0.1106	293.15
93	1.850E+02	1.320E+04	0.1107	293.15	94	1.870E+02	1.309E+04	0.1110	293.15
95	1.900E+02	1.294E+04	0.1114	293.15	96	1.950E+02	1.270E+04	0.1120	293.15
97	2.020E+02	1.240E+04	0.1127	293.15	98	2.100E+02	1.211E+04	0.1135	293.15
99	2.200E+02	1.179E+04	0.1144	293.15	100	2.350E+02	1.140E+04	0.1155	293.15
101	2.400E+02	1.129E+04	0.1158	293.15	102	2.600E+02	1.093E+04	0.1169	293.15
103	2.800E+02	1.066E+04	0.1177	293.15	104	3.000E+02	1.047E+04	0.1184	293.15
105	3.200E+02	1.033E+04	0.1188	293.15	106	3.400E+02	1.023E+04	0.1192	293.15
107	3.600E+02	1.015E+04	0.1194	293.15	108	3.800E+02	1.010E+04	0.1196	293.15
109	4.000E+02	1.007E+04	0.1197	293.15	110	4.200E+02	1.004E+04	0.1198	293.15
111	4.400E+02	1.003E+04	0.1198	293.15	112	4.550E+02	1.002E+04	0.1199	293.15
113	4.650E+02	1.002E+04	0.1199	293.15	114	4.730E+02	1.002E+04	0.1199	293.15
115	4.780E+02	1.002E+04	0.1199	293.15	116	4.820E+02	1.002E+04	0.1199	293.15
117	4.850E+02	1.002E+04	0.1199	293.15	118	4.870E+02	1.002E+04	0.1199	293.15
119	4.880E+02	1.002E+04	0.1199	293.15	120	4.890E+02	1.002E+04	0.1199	293.15

Initial Water Storage = 57.5409 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.13653
Head (cm) = 6.38415E+03
LiqWater Flow (cm)=-6.79953E-02
IsoVapor Flow (cm)=-1.12428E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

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PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.5409+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 57.4725 vs. 57.4725

Mass Balance = -1.3735E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.14237

Head (cm) = 5.52688E+03

LiqWater Flow (cm)=-3.95353E-02

IsoVapor Flow (cm)=-8.66396E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.4479+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 57.4082 vs. 57.4082

Mass Balance = -7.2269E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.3583E+02 [cm]

Potential Transpiration = 1.6719E+01 [cm]

Actual Transpiration = 2.2780E+00 [cm]

Potential Evaporation = 1.1911E+02 [cm]

Actual Evaporation = 2.0386E+01 [cm]

Evaporation during Growth = 1.1999E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 2.2530E+01 [cm]

Total Basal Liquid Flux (drainage) = 3.0704E-03 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.7408E+01 [cm]
 Mass Balance Error = -4.6132E-03 [cm]
 Total Successful Time Steps = 11350
 Total Attempted Time Steps = 12594
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6269
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.1437E+00	0.050	3.7192E+00	0.200	3.3310E+00
0.450	2.7116E+00	0.800	2.4058E+00	1.250	2.2917E+00
1.850	2.2186E+00	2.600	2.1596E+00	3.500	2.1073E+00
4.750	2.0469E+00	6.500	1.9702E+00	8.500	1.8873E+00
10.750	1.7990E+00	13.250	1.7070E+00	16.000	1.6124E+00
18.750	1.5244E+00	21.500	1.4414E+00	24.250	1.3635E+00
26.500	1.3028E+00	28.250	1.2572E+00	29.500	1.2255E+00
30.500	1.2005E+00	31.500	1.1759E+00	32.750	1.1455E+00
34.250	1.1099E+00	36.000	1.0691E+00	38.500	1.0121E+00
41.000	9.5685E-01	43.000	9.1349E-01	44.500	8.8150E-01
45.500	8.6035E-01	46.500	8.3961E-01	47.500	8.1925E-01
49.000	7.8750E-01	51.000	7.4602E-01	53.000	7.0564E-01
55.500	6.5676E-01	57.750	6.1434E-01	59.250	5.8669E-01
60.500	5.6405E-01	61.500	5.4617E-01	62.500	5.2849E-01
63.750	5.0665E-01	65.250	4.8083E-01	67.000	4.5118E-01
69.500	4.0973E-01	72.500	3.6155E-01	75.500	3.1520E-01
78.500	2.7098E-01	81.500	2.2923E-01	84.500	1.9026E-01
87.000	1.6027E-01	88.500	1.4334E-01	89.500	1.3243E-01
90.500	1.2187E-01	91.500	1.1166E-01	93.000	9.6907E-02
95.000	7.8528E-02	97.500	5.7125E-02	100.500	3.3714E-02
103.500	1.1980E-02	107.000	-1.2266E-02	111.500	-4.3326E-02
115.500	-7.3133E-02	118.000	-9.3530E-02	120.000	-1.1111E-01
121.500	-1.1081E-01	122.500	-1.1057E-01	123.750	-1.1023E-01
125.250	-1.0978E-01	127.000	-1.0919E-01	129.250	-1.0834E-01
131.500	-1.0741E-01	133.750	-1.0641E-01	137.500	-1.0461E-01
142.500	-1.0200E-01	146.500	-9.9781E-02	149.000	-9.8347E-02
150.700	-9.7356E-02	151.900	-9.6648E-02	152.700	-9.6174E-02
153.500	-9.5697E-02	157.000	-9.3589E-02	162.500	-9.0214E-02
167.500	-8.7105E-02	172.500	-8.3980E-02	176.500	-8.1480E-02
179.000	-7.9920E-02	180.500	-7.8985E-02	181.500	-7.8363E-02
182.500	-7.7741E-02	183.500	-7.7120E-02	184.500	-7.6500E-02

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186.000	-7.5572E-02	188.500	-7.4030E-02	192.500	-7.1579E-02
198.500	-6.7949E-02	206.000	-6.3510E-02	215.000	-5.8339E-02
227.500	-5.1462E-02	237.500	-4.6381E-02	250.000	-4.0200E-02
270.000	-3.1538E-02	290.000	-2.4111E-02	310.000	-1.7879E-02
330.000	-1.2763E-02	350.000	-8.6531E-03	370.000	-5.4204E-03
390.000	-2.9273E-03	410.000	-1.0345E-03	430.000	3.9335E-04
447.500	1.3477E-03	460.000	1.9206E-03	469.000	2.2969E-03
475.500	2.5543E-03	480.000	2.7283E-03	483.500	2.8620E-03
486.000	2.9569E-03	487.500	3.0137E-03	488.500	3.0515E-03
489.000	3.0704E-03				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.4378E-03	0.300	4.4894E-03
0.600	7.1063E-03	1.000	1.0350E-02	1.500	1.5515E-02
2.200	2.1757E-02	3.000	2.8597E-02	4.000	4.3062E-02
5.500	6.4380E-02	7.500	7.5647E-02	9.500	8.4019E-02
12.000	8.9360E-02	14.500	9.2905E-02	17.500	8.6858E-02
20.000	8.2324E-02	23.000	7.7449E-02	25.500	6.0438E-02
27.500	4.5398E-02	29.000	3.1646E-02	30.000	2.4928E-02
31.000	2.4559E-02	32.000	3.0261E-02	33.500	3.5583E-02
35.000	4.0741E-02	37.000	5.6882E-02	40.000	5.5159E-02
42.000	4.3334E-02	44.000	3.1980E-02	45.000	2.1164E-02
46.000	2.1021E-02	47.000	2.0876E-02	48.000	3.1020E-02
50.000	4.0471E-02	52.000	3.9484E-02	54.000	4.8089E-02
57.000	4.1697E-02	58.500	2.7299E-02	60.000	2.2361E-02
61.000	1.7693E-02	62.000	1.7506E-02	63.000	2.1658E-02
64.500	2.5603E-02	66.000	2.9432E-02	68.000	4.1217E-02
71.000	4.7898E-02	74.000	4.6135E-02	77.000	4.4106E-02
80.000	4.1791E-02	83.000	3.9214E-02	86.000	3.0367E-02
88.000	1.7272E-02	89.000	1.1199E-02	90.000	1.0886E-02
91.000	1.0577E-02	92.000	1.5413E-02	94.000	1.9398E-02
96.000	2.2937E-02	99.000	2.5555E-02	102.000	2.4155E-02
105.000	2.7284E-02	109.000	3.5077E-02	114.000	3.3377E-02
117.000	2.2472E-02	119.000	1.9111E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00--

Sensitivity Analysis #1: Soil Sample 4 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\4_.inp
Results File: c:\a\4_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:19:15.89
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	5.527E+03	0.1424	293.15	2	1.000E-01	4.567E+03	0.1505
3	3.000E-01	4.578E+03	0.1504	293.15	4	6.000E-01	4.692E+03	0.1493
5	1.000E+00	4.665E+03	0.1496	293.15	6	1.500E+00	4.653E+03	0.1497
7	2.200E+00	4.640E+03	0.1498	293.15	8	3.000E+00	4.623E+03	0.1500
9	4.000E+00	4.601E+03	0.1502	293.15	10	5.500E+00	4.564E+03	0.1505
11	7.500E+00	4.515E+03	0.1510	293.15	12	9.500E+00	4.472E+03	0.1514
13	1.200E+01	4.429E+03	0.1518	293.15	14	1.450E+01	4.403E+03	0.1521
15	1.750E+01	4.397E+03	0.1522	293.15	16	2.000E+01	4.409E+03	0.1520
17	2.300E+01	4.444E+03	0.1517	293.15	18	2.550E+01	4.486E+03	0.1513
19	2.750E+01	4.526E+03	0.1509	293.15	20	2.900E+01	4.560E+03	0.1506
21	3.000E+01	4.584E+03	0.1503	293.15	22	3.100E+01	4.609E+03	0.1501
23	3.200E+01	4.635E+03	0.1498	293.15	24	3.350E+01	4.676E+03	0.1495
25	3.500E+01	4.717E+03	0.1491	293.15	26	3.700E+01	4.773E+03	0.1486
27	4.000E+01	4.857E+03	0.1478	293.15	28	4.200E+01	4.910E+03	0.1474
29	4.400E+01	4.959E+03	0.1469	293.15	30	4.500E+01	4.982E+03	0.1467
31	4.600E+01	5.003E+03	0.1466	293.15	32	4.700E+01	5.069E+03	0.1460
33	4.800E+01	5.274E+03	0.1443	293.15	34	5.000E+01	5.674E+03	0.1413
35	5.200E+01	6.036E+03	0.1388	293.15	36	5.400E+01	6.361E+03	0.1367
37	5.700E+01	6.830E+03	0.1339	293.15	38	5.850E+01	7.099E+03	0.1324
39	6.000E+01	7.408E+03	0.1308	293.15	40	6.100E+01	7.642E+03	0.1296
41	6.200E+01	7.904E+03	0.1283	293.15	42	6.300E+01	8.197E+03	0.1270
43	6.450E+01	8.705E+03	0.1248	293.15	44	6.600E+01	9.310E+03	0.1224
45	6.800E+01	1.030E+04	0.1189	293.15	46	7.100E+01	1.225E+04	0.1131
47	7.400E+01	1.478E+04	0.1072	293.15	48	7.700E+01	1.762E+04	0.1020
49	8.000E+01	2.019E+04	0.0981	293.15	50	8.300E+01	2.211E+04	0.0957
51	8.600E+01	2.340E+04	0.0942	293.15	52	8.800E+01	2.403E+04	0.0935
53	8.900E+01	2.429E+04	0.0932	293.15	54	9.000E+01	2.453E+04	0.0929
55	9.100E+01	2.474E+04	0.0927	293.15	56	9.200E+01	2.493E+04	0.0925
57	9.400E+01	2.524E+04	0.0922	293.15	58	9.600E+01	2.549E+04	0.0919
59	9.900E+01	2.571E+04	0.0917	293.15	60	1.020E+02	2.577E+04	0.0916
61	1.050E+02	2.564E+04	0.0918	293.15	62	1.090E+02	2.516E+04	0.0923
63	1.140E+02	2.415E+04	0.0933	293.15	64	1.170E+02	2.339E+04	0.0942

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65	1.190E+02	2.285E+04	0.0948	293.15	66	1.210E+02	2.231E+04	0.0954	293.15
67	1.220E+02	2.203E+04	0.0958	293.15	68	1.230E+02	2.176E+04	0.0961	293.15
69	1.245E+02	2.136E+04	0.0966	293.15	70	1.260E+02	2.097E+04	0.0971	293.15
71	1.280E+02	2.046E+04	0.0978	293.15	72	1.305E+02	1.986E+04	0.0986	293.15
73	1.325E+02	1.941E+04	0.0993	293.15	74	1.350E+02	1.888E+04	0.1000	293.15
75	1.400E+02	1.794E+04	0.1015	293.15	76	1.450E+02	1.714E+04	0.1028	293.15
77	1.480E+02	1.671E+04	0.1035	293.15	78	1.500E+02	1.645E+04	0.1040	293.15
79	1.514E+02	1.628E+04	0.1043	293.15	80	1.524E+02	1.616E+04	0.1046	293.15
81	1.530E+02	1.608E+04	0.1047	293.15	82	1.540E+02	1.597E+04	0.1049	293.15
83	1.600E+02	1.534E+04	0.1061	293.15	84	1.650E+02	1.488E+04	0.1070	293.15
85	1.700E+02	1.447E+04	0.1079	293.15	86	1.750E+02	1.410E+04	0.1087	293.15
87	1.780E+02	1.390E+04	0.1091	293.15	88	1.800E+02	1.377E+04	0.1094	293.15
89	1.810E+02	1.371E+04	0.1096	293.15	90	1.820E+02	1.365E+04	0.1097	293.15
91	1.830E+02	1.359E+04	0.1098	293.15	92	1.840E+02	1.353E+04	0.1100	293.15
93	1.850E+02	1.347E+04	0.1101	293.15	94	1.870E+02	1.336E+04	0.1104	293.15
95	1.900E+02	1.320E+04	0.1108	293.15	96	1.950E+02	1.295E+04	0.1114	293.15
97	2.020E+02	1.264E+04	0.1121	293.15	98	2.100E+02	1.233E+04	0.1129	293.15
99	2.200E+02	1.199E+04	0.1138	293.15	100	2.350E+02	1.158E+04	0.1150	293.15
101	2.400E+02	1.146E+04	0.1153	293.15	102	2.600E+02	1.107E+04	0.1165	293.15
103	2.800E+02	1.078E+04	0.1174	293.15	104	3.000E+02	1.057E+04	0.1180	293.15
105	3.200E+02	1.041E+04	0.1186	293.15	106	3.400E+02	1.029E+04	0.1190	293.15
107	3.600E+02	1.020E+04	0.1192	293.15	108	3.800E+02	1.014E+04	0.1195	293.15
109	4.000E+02	1.010E+04	0.1196	293.15	110	4.200E+02	1.007E+04	0.1197	293.15
111	4.400E+02	1.005E+04	0.1198	293.15	112	4.550E+02	1.004E+04	0.1198	293.15
113	4.650E+02	1.003E+04	0.1198	293.15	114	4.730E+02	1.003E+04	0.1198	293.15
115	4.780E+02	1.003E+04	0.1198	293.15	116	4.820E+02	1.003E+04	0.1198	293.15
117	4.850E+02	1.003E+04	0.1198	293.15	118	4.870E+02	1.003E+04	0.1198	293.15
119	4.880E+02	1.003E+04	0.1198	293.15	120	4.890E+02	1.003E+04	0.1198	293.15

Initial Water Storage = 57.4082 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.13989
Head (cm) = 5.87208E+03
LiqWater Flow (cm)=-4.40976E-02
IsoVapor Flow (cm)=-7.81667E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.4082+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 57.3639 vs. 57.3639

Mass Balance = -7.9352E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.15763

Head (cm) = 3.89468E+03

LiqWater Flow (cm)= 9.08724E-05

IsoVapor Flow (cm)=-1.17193E-04

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

61.2510+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 61.2510 vs. 61.2510

Mass Balance = -3.1652E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]
Potential Transpiration = 1.3848E+01 [cm]
Actual Transpiration = 4.4009E+00 [cm]
Potential Evaporation = 9.9853E+01 [cm]
Actual Evaporation = 4.2457E+01 [cm]
Evaporation during Growth = 2.8271E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 3.0678E-03 [cm]

December 2023

Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.1251E+01 [cm]
 Mass Balance Error = -5.2471E-03 [cm]
 Total Successful Time Steps = 12382
 Total Attempted Time Steps = 13780
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3418
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	8.2416E+00	0.050	9.0595E+00	0.200	8.4181E+00
0.450	8.2996E+00	0.800	8.2484E+00	1.250	8.1959E+00
1.850	8.1335E+00	2.600	8.0590E+00	3.500	7.9717E+00
4.750	7.8519E+00	6.500	7.6864E+00	8.500	7.5025E+00
10.750	7.3036E+00	13.250	7.0947E+00	16.000	6.8784E+00
18.750	6.6769E+00	21.500	6.4867E+00	24.250	6.3082E+00
26.500	6.1692E+00	28.250	6.0650E+00	29.500	5.9925E+00
30.500	5.9355E+00	31.500	5.8794E+00	32.750	5.8103E+00
34.250	5.7293E+00	36.000	5.6366E+00	38.500	5.5073E+00
41.000	5.3819E+00	43.000	5.2830E+00	44.500	5.2097E+00
45.500	5.1611E+00	46.500	5.1127E+00	47.500	5.0644E+00
49.000	4.9893E+00	51.000	4.8827E+00	53.000	4.7695E+00
55.500	4.6206E+00	57.750	4.4778E+00	59.250	4.3798E+00
60.500	4.2958E+00	61.500	4.2274E+00	62.500	4.1577E+00
63.750	4.0690E+00	65.250	3.9594E+00	67.000	3.8278E+00
69.500	3.6325E+00	72.500	3.3840E+00	75.500	3.1225E+00
78.500	2.8513E+00	81.500	2.5757E+00	84.500	2.3012E+00
87.000	2.0768E+00	88.500	1.9447E+00	89.500	1.8577E+00
90.500	1.7717E+00	91.500	1.6869E+00	93.000	1.5617E+00
95.000	1.4000E+00	97.500	1.2054E+00	100.500	9.8680E-01
103.500	7.8479E-01	107.000	5.7050E-01	111.500	3.3437E-01
115.500	1.7098E-01	118.000	8.6630E-02	120.000	2.8184E-02
121.500	3.7682E-03	122.500	-1.0470E-02	123.750	-2.5891E-02
125.250	-4.0587E-02	127.000	-5.3981E-02	129.250	-6.6245E-02
131.500	-7.4313E-02	133.750	-8.0099E-02	137.500	-8.6501E-02
142.500	-9.0214E-02	146.500	-9.1043E-02	149.000	-9.1026E-02
150.700	-9.0827E-02	151.900	-9.0608E-02	152.700	-9.0430E-02
153.500	-9.0233E-02	157.000	-8.9241E-02	162.500	-8.6928E-02
167.500	-8.4497E-02	172.500	-8.1881E-02	176.500	-7.9712E-02
179.000	-7.8338E-02	180.500	-7.7509E-02	181.500	-7.6955E-02
182.500	-7.6400E-02	183.500	-7.5844E-02	184.500	-7.5289E-02

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186.000	-7.4454E-02	188.500	-7.3063E-02	192.500	-7.0841E-02
198.500	-6.7531E-02	206.000	-6.3457E-02	215.000	-5.8683E-02
227.500	-5.2291E-02	237.500	-4.7517E-02	250.000	-4.1689E-02
270.000	-3.3392E-02	290.000	-2.6151E-02	310.000	-1.9955E-02
330.000	-1.4755E-02	350.000	-1.0472E-02	370.000	-7.0088E-03
390.000	-4.2522E-03	410.000	-2.0830E-03	430.000	-3.7953E-04
447.500	8.0956E-04	460.000	1.5461E-03	469.000	2.0387E-03
475.500	2.3795E-03	480.000	2.6110E-03	483.500	2.7893E-03
486.000	2.9160E-03	487.500	2.9919E-03	488.500	3.0425E-03
489.000	3.0678E-03				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	6.8519E-03	0.300	1.2275E-02
0.600	1.8664E-02	1.000	2.5973E-02	1.500	3.7101E-02
2.200	4.9439E-02	3.000	6.1985E-02	4.000	8.8613E-02
5.500	1.2563E-01	7.500	1.4155E-01	9.500	1.5420E-01
12.000	1.6260E-01	14.500	1.6880E-01	17.500	1.5751E-01
20.000	1.4925E-01	23.000	1.4080E-01	25.500	1.1030E-01
27.500	8.3122E-02	29.000	5.8091E-02	30.000	4.5841E-02
31.000	4.5248E-02	32.000	5.5866E-02	33.500	6.5888E-02
35.000	7.5653E-02	37.000	1.0602E-01	40.000	1.0342E-01
42.000	8.1559E-02	44.000	6.0399E-02	45.000	4.0034E-02
46.000	3.9818E-02	47.000	3.9690E-02	48.000	5.9653E-02
50.000	7.9625E-02	52.000	7.9414E-02	54.000	9.8665E-02
57.000	8.7600E-02	58.500	5.7892E-02	60.000	4.7759E-02
61.000	3.7925E-02	62.000	3.7628E-02	63.000	4.6644E-02
64.500	5.5226E-02	66.000	6.3504E-02	68.000	8.8849E-02
71.000	1.0301E-01	74.000	9.9096E-02	77.000	9.4865E-02
80.000	9.0297E-02	83.000	8.5350E-02	86.000	6.6639E-02
88.000	3.8063E-02	89.000	2.4710E-02	90.000	2.4029E-02
91.000	2.3333E-02	92.000	3.3934E-02	94.000	4.2331E-02
96.000	4.9192E-02	99.000	5.2303E-02	102.000	4.5791E-02
105.000	4.6456E-02	109.000	5.0019E-02	114.000	3.7986E-02
117.000	2.2774E-02	119.000	1.8189E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 4 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\4_.inp
Results File: c:\a\4_1957.res
Date of Run: 08 Jun 2021
Time of Run: 14:19:15.89
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	3.895E+03	0.1576	293.15	2	1.000E-01	3.084E+03	0.1687 293.15
3	3.000E-01	2.764E+03	0.1742	293.15	4	6.000E-01	2.801E+03	0.1735 293.15
5	1.000E+00	2.915E+03	0.1715	293.15	6	1.500E+00	2.918E+03	0.1715 293.15
7	2.200E+00	2.901E+03	0.1717	293.15	8	3.000E+00	2.905E+03	0.1717 293.15
9	4.000E+00	2.910E+03	0.1716	293.15	10	5.500E+00	2.920E+03	0.1714 293.15
11	7.500E+00	2.938E+03	0.1711	293.15	12	9.500E+00	2.963E+03	0.1707 293.15
13	1.200E+01	3.004E+03	0.1700	293.15	14	1.450E+01	3.055E+03	0.1692 293.15
15	1.750E+01	3.130E+03	0.1680	293.15	16	2.000E+01	3.203E+03	0.1669 293.15
17	2.300E+01	3.305E+03	0.1653	293.15	18	2.550E+01	3.399E+03	0.1640 293.15
19	2.750E+01	3.480E+03	0.1629	293.15	20	2.900E+01	3.542E+03	0.1620 293.15
21	3.000E+01	3.585E+03	0.1615	293.15	22	3.100E+01	3.628E+03	0.1609 293.15
23	3.200E+01	3.671E+03	0.1604	293.15	24	3.350E+01	3.735E+03	0.1596 293.15
25	3.500E+01	3.797E+03	0.1588	293.15	26	3.700E+01	3.876E+03	0.1578 293.15
27	4.000E+01	3.981E+03	0.1566	293.15	28	4.200E+01	4.037E+03	0.1560 293.15
29	4.400E+01	4.079E+03	0.1555	293.15	30	4.500E+01	4.094E+03	0.1554 293.15
31	4.600E+01	4.105E+03	0.1552	293.15	32	4.700E+01	4.130E+03	0.1550 293.15
33	4.800E+01	4.173E+03	0.1545	293.15	34	5.000E+01	4.159E+03	0.1546 293.15
35	5.200E+01	4.077E+03	0.1555	293.15	36	5.400E+01	3.977E+03	0.1567 293.15
37	5.700E+01	3.837E+03	0.1583	293.15	38	5.850E+01	3.779E+03	0.1590 293.15
39	6.000E+01	3.730E+03	0.1596	293.15	40	6.100E+01	3.702E+03	0.1600 293.15
41	6.200E+01	3.677E+03	0.1603	293.15	42	6.300E+01	3.656E+03	0.1606 293.15
43	6.450E+01	3.630E+03	0.1609	293.15	44	6.600E+01	3.611E+03	0.1611 293.15
45	6.800E+01	3.595E+03	0.1613	293.15	46	7.100E+01	3.593E+03	0.1614 293.15
47	7.400E+01	3.614E+03	0.1611	293.15	48	7.700E+01	3.658E+03	0.1605 293.15
49	8.000E+01	3.726E+03	0.1597	293.15	50	8.300E+01	3.820E+03	0.1585 293.15
51	8.600E+01	3.941E+03	0.1571	293.15	52	8.800E+01	4.040E+03	0.1560 293.15
53	8.900E+01	4.095E+03	0.1553	293.15	54	9.000E+01	4.154E+03	0.1547 293.15
55	9.100E+01	4.218E+03	0.1540	293.15	56	9.200E+01	4.287E+03	0.1533 293.15
57	9.400E+01	4.440E+03	0.1517	293.15	58	9.600E+01	4.618E+03	0.1500 293.15
59	9.900E+01	4.939E+03	0.1471	293.15	60	1.020E+02	5.344E+03	0.1438 293.15
61	1.050E+02	5.859E+03	0.1400	293.15	62	1.090E+02	6.794E+03	0.1341 293.15
63	1.140E+02	8.592E+03	0.1253	293.15	64	1.170E+02	1.012E+04	0.1195 293.15

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65	1.190E+02	1.135E+04	0.1157	293.15	66	1.210E+02	1.270E+04	0.1120	293.15
67	1.220E+02	1.341E+04	0.1103	293.15	68	1.230E+02	1.410E+04	0.1087	293.15
69	1.245E+02	1.509E+04	0.1066	293.15	70	1.260E+02	1.595E+04	0.1049	293.15
71	1.280E+02	1.683E+04	0.1033	293.15	72	1.305E+02	1.748E+04	0.1022	293.15
73	1.325E+02	1.772E+04	0.1018	293.15	74	1.350E+02	1.779E+04	0.1017	293.15
75	1.400E+02	1.751E+04	0.1022	293.15	76	1.450E+02	1.705E+04	0.1030	293.15
77	1.480E+02	1.675E+04	0.1035	293.15	78	1.500E+02	1.655E+04	0.1038	293.15
79	1.514E+02	1.640E+04	0.1041	293.15	80	1.524E+02	1.630E+04	0.1043	293.15
81	1.530E+02	1.625E+04	0.1044	293.15	82	1.540E+02	1.615E+04	0.1046	293.15
83	1.600E+02	1.557E+04	0.1056	293.15	84	1.650E+02	1.513E+04	0.1065	293.15
85	1.700E+02	1.473E+04	0.1073	293.15	86	1.750E+02	1.436E+04	0.1081	293.15
87	1.780E+02	1.416E+04	0.1086	293.15	88	1.800E+02	1.403E+04	0.1088	293.15
89	1.810E+02	1.396E+04	0.1090	293.15	90	1.820E+02	1.390E+04	0.1091	293.15
91	1.830E+02	1.384E+04	0.1093	293.15	92	1.840E+02	1.378E+04	0.1094	293.15
93	1.850E+02	1.372E+04	0.1095	293.15	94	1.870E+02	1.361E+04	0.1098	293.15
95	1.900E+02	1.344E+04	0.1102	293.15	96	1.950E+02	1.318E+04	0.1108	293.15
97	2.020E+02	1.286E+04	0.1116	293.15	98	2.100E+02	1.254E+04	0.1124	293.15
99	2.200E+02	1.218E+04	0.1133	293.15	100	2.350E+02	1.175E+04	0.1145	293.15
101	2.400E+02	1.163E+04	0.1149	293.15	102	2.600E+02	1.121E+04	0.1161	293.15
103	2.800E+02	1.090E+04	0.1170	293.15	104	3.000E+02	1.066E+04	0.1177	293.15
105	3.200E+02	1.049E+04	0.1183	293.15	106	3.400E+02	1.035E+04	0.1187	293.15
107	3.600E+02	1.025E+04	0.1191	293.15	108	3.800E+02	1.018E+04	0.1193	293.15
109	4.000E+02	1.013E+04	0.1195	293.15	110	4.200E+02	1.009E+04	0.1196	293.15
111	4.400E+02	1.007E+04	0.1197	293.15	112	4.550E+02	1.005E+04	0.1197	293.15
113	4.650E+02	1.005E+04	0.1198	293.15	114	4.730E+02	1.004E+04	0.1198	293.15
115	4.780E+02	1.004E+04	0.1198	293.15	116	4.820E+02	1.004E+04	0.1198	293.15
117	4.850E+02	1.004E+04	0.1198	293.15	118	4.870E+02	1.004E+04	0.1198	293.15
119	4.880E+02	1.004E+04	0.1198	293.15	120	4.890E+02	1.004E+04	0.1198	293.15

Initial Water Storage = 61.2510 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.15290
Head (cm) = 4.32490E+03
LiqWater Flow (cm)=-4.39433E-02
IsoVapor Flow (cm)=-1.19706E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

61.2510+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 61.2067 vs. 61.2067

Mass Balance = -1.0274E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.15462

Head (cm) = 4.16169E+03

LiqWater Flow (cm)=-5.80856E-02

IsoVapor Flow (cm)=-1.46973E-04

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

62.9561+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 62.8976 vs. 62.8976

Mass Balance = -1.6394E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1376E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 5.3558E+00 [cm]

Potential Evaporation = 9.9911E+01 [cm]

Actual Evaporation = 4.3698E+01 [cm]

Evaporation during Growth = 2.9454E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 3.0536E-03 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.2898E+01 [cm]
 Mass Balance Error = -4.9977E-03 [cm]
 Total Successful Time Steps = 12263
 Total Attempted Time Steps = 13534
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3314
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	7.0005E+00	0.050	7.7209E+00	0.200	7.1611E+00
0.450	7.0617E+00	0.800	7.0201E+00	1.250	6.9780E+00
1.850	6.9286E+00	2.600	6.8700E+00	3.500	6.8014E+00
4.750	6.7070E+00	6.500	6.5758E+00	8.500	6.4290E+00
10.750	6.2693E+00	13.250	6.1002E+00	16.000	5.9234E+00
18.750	5.7569E+00	21.500	5.5977E+00	24.250	5.4459E+00
26.500	5.3260E+00	28.250	5.2351E+00	29.500	5.1712E+00
30.500	5.1207E+00	31.500	5.0707E+00	32.750	5.0088E+00
34.250	4.9355E+00	36.000	4.8510E+00	38.500	4.7322E+00
41.000	4.6156E+00	43.000	4.5235E+00	44.500	4.4551E+00
45.500	4.4097E+00	46.500	4.3648E+00	47.500	4.3204E+00
49.000	4.2523E+00	51.000	4.1613E+00	53.000	4.0701E+00
55.500	3.9560E+00	57.750	3.8531E+00	59.250	3.7845E+00
60.500	3.7274E+00	61.500	3.6817E+00	62.500	3.6361E+00
63.750	3.5790E+00	65.250	3.5107E+00	67.000	3.4311E+00
69.500	3.3177E+00	72.500	3.1820E+00	75.500	3.0467E+00
78.500	2.9118E+00	81.500	2.7772E+00	84.500	2.6426E+00
87.000	2.5305E+00	88.500	2.4632E+00	89.500	2.4183E+00
90.500	2.3734E+00	91.500	2.3284E+00	93.000	2.2608E+00
95.000	2.1704E+00	97.500	2.0568E+00	100.500	1.9193E+00
103.500	1.7798E+00	107.000	1.6141E+00	111.500	1.3936E+00
115.500	1.1856E+00	118.000	1.0504E+00	120.000	9.3944E-01
121.500	8.9836E-01	122.500	8.7028E-01	123.750	8.3450E-01
125.250	7.9076E-01	127.000	7.3949E-01	129.250	6.7452E-01
131.500	6.1242E-01	133.750	5.5341E-01	137.500	4.6222E-01
142.500	3.5887E-01	146.500	2.8855E-01	149.000	2.4872E-01
150.700	2.2338E-01	151.900	2.0632E-01	152.700	1.9534E-01
153.500	1.8458E-01	157.000	1.3922E-01	162.500	8.2408E-02
167.500	4.0971E-02	172.500	8.8263E-03	176.500	-1.0352E-02
179.000	-2.0189E-02	180.500	-2.5312E-02	181.500	-2.8483E-02
182.500	-3.1420E-02	183.500	-3.4136E-02	184.500	-3.6639E-02

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186.000	-4.0091E-02	188.500	-4.4914E-02	192.500	-5.0688E-02
198.500	-5.5569E-02	206.000	-5.7337E-02	215.000	-5.6163E-02
227.500	-5.1963E-02	237.500	-4.7851E-02	250.000	-4.2620E-02
270.000	-3.4778E-02	290.000	-2.7783E-02	310.000	-2.1691E-02
330.000	-1.6482E-02	350.000	-1.2101E-02	370.000	-8.4741E-03
390.000	-5.5093E-03	410.000	-3.1045E-03	430.000	-1.1510E-03
447.500	2.6176E-04	460.000	1.1589E-03	469.000	1.7673E-03
475.500	2.1917E-03	480.000	2.4811E-03	483.500	2.7044E-03
486.000	2.8633E-03	487.500	2.9585E-03	488.500	3.0219E-03
489.000	3.0536E-03				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	7.3982E-03	0.300	1.3176E-02
0.600	1.9885E-02	1.000	2.7482E-02	1.500	3.9042E-02
2.200	5.1763E-02	3.000	6.4650E-02	4.000	9.2139E-02
5.500	1.3027E-01	7.500	1.4651E-01	9.500	1.5947E-01
12.000	1.6811E-01	14.500	1.7459E-01	17.500	1.6304E-01
20.000	1.5461E-01	23.000	1.4600E-01	25.500	1.1447E-01
27.500	8.6336E-02	29.000	6.0374E-02	30.000	4.7663E-02
31.000	4.7067E-02	32.000	5.8136E-02	33.500	6.8610E-02
35.000	7.8831E-02	37.000	1.1057E-01	40.000	1.0801E-01
42.000	8.5264E-02	44.000	6.3206E-02	45.000	4.1915E-02
46.000	4.1710E-02	47.000	4.1640E-02	48.000	6.2876E-02
50.000	8.4675E-02	52.000	8.5175E-02	54.000	1.0675E-01
57.000	9.6069E-02	58.500	6.3946E-02	60.000	5.3156E-02
61.000	4.2435E-02	62.000	4.2333E-02	63.000	5.2777E-02
64.500	6.3053E-02	66.000	7.3202E-02	68.000	1.0383E-01
71.000	1.2317E-01	74.000	1.2163E-01	77.000	1.1999E-01
80.000	1.1828E-01	83.000	1.1649E-01	86.000	9.5515E-02
88.000	5.6659E-02	89.000	3.7551E-02	90.000	3.7326E-02
91.000	3.7097E-02	92.000	5.5297E-02	94.000	7.2779E-02
96.000	8.9754E-02	99.000	1.0544E-01	102.000	1.0310E-01
105.000	1.1748E-01	109.000	1.4615E-01	114.000	1.2445E-01
117.000	7.5814E-02	119.000	5.9646E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 4 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\4_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                    58.647
 1 22.530 135.832 2.669 19.079 0.000 0.003 59.431 11387 -0.00464
 2 22.530 135.832 2.561 20.419 0.000 0.003 58.982 11371 -0.00469
 3 22.530 135.832 2.452 20.403 0.000 0.003 58.658 11400 -0.00461
 4 22.530 135.832 2.393 20.393 0.000 0.003 58.403 11373 -0.00456
 5 22.530 135.832 2.354 20.392 0.000 0.003 58.188 11375 -0.00453
 6 22.530 135.832 2.328 20.389 0.000 0.003 58.001 11390 -0.00449
 7 22.530 135.832 2.310 20.388 0.000 0.003 57.834 11385 -0.00450
 8 22.530 135.832 2.299 20.383 0.000 0.003 57.683 11364 -0.00448
 9 22.530 135.832 2.287 20.387 0.000 0.003 57.541 11382 -0.00466
10 22.530 135.832 2.278 20.386 0.000 0.003 57.408 11350 -0.00461
11 50.698 113.700 4.401 42.457 0.000 0.003 61.251 12382 -0.00525
12 50.698 113.759 5.356 43.698 0.000 0.003 62.898 12263 -0.00500
-----
SUM= 326.6951585.780 33.689 288.774 0.000 0.037 -0.05602
```

Sensitivity Analysis #1: Soil Sample 5 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\5_.inp
Results File: c:\a\5_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:24:04.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	3.667E+03	0.2053	293.15	2	1.000E-01	2.955E+03	0.2158 293.15
3	3.000E-01	3.067E+03	0.2139	293.15	4	6.000E-01	3.090E+03	0.2136 293.15
5	1.000E+00	3.073E+03	0.2138	293.15	6	1.500E+00	3.064E+03	0.2140 293.15
7	2.200E+00	3.049E+03	0.2142	293.15	8	3.000E+00	3.031E+03	0.2145 293.15
9	4.000E+00	3.006E+03	0.2149	293.15	10	5.500E+00	2.968E+03	0.2156 293.15
11	7.500E+00	2.921E+03	0.2163	293.15	12	9.500E+00	2.886E+03	0.2169 293.15
13	1.200E+01	2.863E+03	0.2173	293.15	14	1.450E+01	2.862E+03	0.2174 293.15
15	1.750E+01	2.887E+03	0.2169	293.15	16	2.000E+01	2.926E+03	0.2163 293.15
17	2.300E+01	2.990E+03	0.2152	293.15	18	2.550E+01	3.055E+03	0.2141 293.15
19	2.750E+01	3.113E+03	0.2132	293.15	20	2.900E+01	3.158E+03	0.2125 293.15
21	3.000E+01	3.189E+03	0.2120	293.15	22	3.100E+01	3.220E+03	0.2115 293.15
23	3.200E+01	3.252E+03	0.2111	293.15	24	3.350E+01	3.298E+03	0.2104 293.15
25	3.500E+01	3.344E+03	0.2097	293.15	26	3.700E+01	3.401E+03	0.2089 293.15
27	4.000E+01	3.477E+03	0.2078	293.15	28	4.200E+01	3.517E+03	0.2073 293.15
29	4.400E+01	3.547E+03	0.2069	293.15	30	4.500E+01	3.559E+03	0.2067 293.15
31	4.600E+01	3.568E+03	0.2066	293.15	32	4.700E+01	3.638E+03	0.2057 293.15
33	4.800E+01	4.182E+03	0.1991	293.15	34	5.000E+01	6.019E+03	0.1829 293.15
35	5.200E+01	1.163E+04	0.1567	293.15	36	5.400E+01	1.954E+04	0.1386 293.15
37	5.700E+01	2.565E+04	0.1300	293.15	38	5.850E+01	2.789E+04	0.1274 293.15
39	6.000E+01	2.982E+04	0.1254	293.15	40	6.100E+01	3.099E+04	0.1243 293.15
41	6.200E+01	3.207E+04	0.1233	293.15	42	6.300E+01	3.306E+04	0.1224 293.15
43	6.450E+01	3.436E+04	0.1213	293.15	44	6.600E+01	3.545E+04	0.1204 293.15
45	6.800E+01	3.660E+04	0.1195	293.15	46	7.100E+01	3.779E+04	0.1186 293.15
47	7.400E+01	3.853E+04	0.1180	293.15	48	7.700E+01	3.900E+04	0.1177 293.15
49	8.000E+01	3.929E+04	0.1175	293.15	50	8.300E+01	3.946E+04	0.1174 293.15
51	8.600E+01	3.955E+04	0.1173	293.15	52	8.800E+01	3.957E+04	0.1173 293.15
53	8.900E+01	3.957E+04	0.1173	293.15	54	9.000E+01	3.957E+04	0.1173 293.15
55	9.100E+01	3.955E+04	0.1173	293.15	56	9.200E+01	3.953E+04	0.1173 293.15
57	9.400E+01	3.947E+04	0.1173	293.15	58	9.600E+01	3.938E+04	0.1174 293.15
59	9.900E+01	3.917E+04	0.1176	293.15	60	1.020E+02	3.882E+04	0.1178 293.15
61	1.050E+02	3.829E+04	0.1182	293.15	62	1.090E+02	3.714E+04	0.1191 293.15
63	1.140E+02	3.442E+04	0.1212	293.15	64	1.170E+02	3.142E+04	0.1239 293.15

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65	1.190E+02	2.881E+04	0.1264	293.15	66	1.210E+02	2.595E+04	0.1296	293.15
67	1.220E+02	2.455E+04	0.1313	293.15	68	1.230E+02	2.322E+04	0.1331	293.15
69	1.245E+02	2.139E+04	0.1357	293.15	70	1.260E+02	1.980E+04	0.1382	293.15
71	1.280E+02	1.804E+04	0.1413	293.15	72	1.305E+02	1.631E+04	0.1446	293.15
73	1.325E+02	1.523E+04	0.1470	293.15	74	1.350E+02	1.416E+04	0.1496	293.15
75	1.400E+02	1.266E+04	0.1536	293.15	76	1.450E+02	1.172E+04	0.1564	293.15
77	1.480E+02	1.132E+04	0.1577	293.15	78	1.500E+02	1.111E+04	0.1584	293.15
79	1.514E+02	1.098E+04	0.1588	293.15	80	1.524E+02	1.090E+04	0.1591	293.15
81	1.530E+02	1.085E+04	0.1593	293.15	82	1.540E+02	1.077E+04	0.1595	293.15
83	1.600E+02	1.045E+04	0.1607	293.15	84	1.650E+02	1.028E+04	0.1613	293.15
85	1.700E+02	1.017E+04	0.1617	293.15	86	1.750E+02	1.010E+04	0.1620	293.15
87	1.780E+02	1.007E+04	0.1621	293.15	88	1.800E+02	1.006E+04	0.1621	293.15
89	1.810E+02	1.005E+04	0.1622	293.15	90	1.820E+02	1.005E+04	0.1622	293.15
91	1.830E+02	1.004E+04	0.1622	293.15	92	1.840E+02	1.004E+04	0.1622	293.15
93	1.850E+02	1.003E+04	0.1622	293.15	94	1.870E+02	1.002E+04	0.1623	293.15
95	1.900E+02	1.002E+04	0.1623	293.15	96	1.950E+02	1.001E+04	0.1623	293.15
97	2.020E+02	1.000E+04	0.1623	293.15	98	2.100E+02	1.000E+04	0.1623	293.15
99	2.200E+02	1.000E+04	0.1624	293.15	100	2.350E+02	1.000E+04	0.1624	293.15
101	2.400E+02	1.000E+04	0.1624	293.15	102	2.600E+02	1.000E+04	0.1624	293.15
103	2.800E+02	1.000E+04	0.1624	293.15	104	3.000E+02	1.000E+04	0.1624	293.15
105	3.200E+02	1.000E+04	0.1624	293.15	106	3.400E+02	1.000E+04	0.1624	293.15
107	3.600E+02	1.000E+04	0.1624	293.15	108	3.800E+02	1.000E+04	0.1624	293.15
109	4.000E+02	1.000E+04	0.1624	293.15	110	4.200E+02	1.000E+04	0.1624	293.15
111	4.400E+02	1.000E+04	0.1624	293.15	112	4.550E+02	1.000E+04	0.1624	293.15
113	4.650E+02	1.000E+04	0.1624	293.15	114	4.730E+02	1.000E+04	0.1624	293.15
115	4.780E+02	1.000E+04	0.1624	293.15	116	4.820E+02	1.000E+04	0.1624	293.15
117	4.850E+02	1.000E+04	0.1624	293.15	118	4.870E+02	1.000E+04	0.1624	293.15
119	4.880E+02	1.000E+04	0.1624	293.15	120	4.890E+02	1.000E+04	0.1624	293.15

Initial Water Storage = 78.5816 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.19812
Head (cm) = 4.27442E+03
LiqWater Flow (cm)=-6.79839E-02
IsoVapor Flow (cm)=-5.73575E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

78.5816+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 78.5132 vs. 78.5132

Mass Balance = -1.4097E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.20529

Head (cm) = 3.66706E+03

LiqWater Flow (cm)=-3.95748E-02

IsoVapor Flow (cm)=-4.63233E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

78.5727+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 78.5330 vs. 78.5330

Mass Balance = -7.8496E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.3583E+02 [cm]

Potential Transpiration = 1.6719E+01 [cm]

Actual Transpiration = 2.2597E+00 [cm]

Potential Evaporation = 1.1911E+02 [cm]

Actual Evaporation = 2.0323E+01 [cm]

Evaporation during Growth = 1.1932E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 2.2530E+01 [cm]

Total Basal Liquid Flux (drainage) = 1.2396E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 7.8533E+01 [cm]
 Mass Balance Error = -4.8273E-03 [cm]
 Total Successful Time Steps = 11386
 Total Attempted Time Steps = 12653
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6262
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.2063E+00	0.050	4.2416E+00	0.200	3.9027E+00
0.450	3.0071E+00	0.800	2.5450E+00	1.250	2.3727E+00
1.850	2.2690E+00	2.600	2.1900E+00	3.500	2.1195E+00
4.750	2.0349E+00	6.500	1.9236E+00	8.500	1.8023E+00
10.750	1.6733E+00	13.250	1.5393E+00	16.000	1.4014E+00
18.750	1.2737E+00	21.500	1.1536E+00	24.250	1.0413E+00
26.500	9.5395E-01	28.250	8.8855E-01	29.500	8.4307E-01
30.500	8.0731E-01	31.500	7.7214E-01	32.750	7.2888E-01
34.250	6.7814E-01	36.000	6.2023E-01	38.500	5.3976E-01
41.000	4.6217E-01	43.000	4.0146E-01	44.500	3.5679E-01
45.500	3.2728E-01	46.500	2.9730E-01	47.500	2.6051E-01
49.000	2.1342E-01	51.000	1.5531E-01	53.000	1.0092E-01
55.500	4.7964E-02	57.750	2.3124E-02	59.250	1.4639E-02
60.500	1.0404E-02	61.500	8.0854E-03	62.500	6.3927E-03
63.750	4.8482E-03	65.250	3.5700E-03	67.000	2.5474E-03
69.500	1.6094E-03	72.500	9.6614E-04	75.500	5.8887E-04
78.500	3.5790E-04	81.500	2.0999E-04	84.500	1.0885E-04
87.000	4.4495E-05	88.500	9.3699E-06	89.500	-1.3689E-05
90.500	-3.6920E-05	91.500	-6.0842E-05	93.000	-9.8614E-05
95.000	-1.5721E-04	97.500	-2.4782E-04	100.500	-4.0650E-04
103.500	-6.5219E-04	107.000	-1.1216E-03	111.500	-2.3555E-03
115.500	-5.0983E-03	118.000	-8.6621E-03	120.000	-1.3908E-02
121.500	-1.5660E-02	122.500	-1.6752E-02	123.750	-1.7970E-02
125.250	-1.9146E-02	127.000	-2.0054E-02	129.250	-2.0492E-02
131.500	-2.0247E-02	133.750	-1.9446E-02	137.500	-1.7323E-02
142.500	-1.4091E-02	146.500	-1.1595E-02	149.000	-1.0119E-02
150.700	-9.1717E-03	151.900	-8.5344E-03	152.700	-8.1252E-03
153.500	-7.7245E-03	157.000	-6.0224E-03	162.500	-4.0527E-03
167.500	-2.7045E-03	172.500	-1.7290E-03	176.500	-1.1853E-03
179.000	-9.1637E-04	180.500	-7.7952E-04	181.500	-6.9567E-04
182.500	-6.1877E-04	183.500	-5.4834E-04	184.500	-4.8396E-04

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186.000	-3.9582E-04	188.500	-2.7405E-04	192.500	-1.2884E-04
198.500	8.3882E-07	206.000	7.5390E-05	215.000	1.0921E-04
227.500	1.2152E-04	237.500	1.2313E-04	250.000	1.2386E-04
270.000	1.2395E-04	290.000	1.2396E-04	310.000	1.2396E-04
330.000	1.2396E-04	350.000	1.2396E-04	370.000	1.2396E-04
390.000	1.2396E-04	410.000	1.2396E-04	430.000	1.2396E-04
447.500	1.2396E-04	460.000	1.2396E-04	469.000	1.2396E-04
475.500	1.2396E-04	480.000	1.2396E-04	483.500	1.2396E-04
486.000	1.2396E-04	487.500	1.2396E-04	488.500	1.2396E-04
489.000	1.2396E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.7726E-03	0.300	5.4782E-03
0.600	9.3104E-03	1.000	1.4440E-02	1.500	2.2667E-02
2.200	3.3227E-02	3.000	4.4842E-02	4.000	6.7797E-02
5.500	1.0061E-01	7.500	1.1565E-01	9.500	1.2601E-01
12.000	1.3217E-01	14.500	1.3681E-01	17.500	1.2709E-01
20.000	1.1977E-01	23.000	1.1207E-01	25.500	8.7130E-02
27.500	6.5269E-02	29.000	4.5393E-02	30.000	3.5698E-02
31.000	3.5112E-02	32.000	4.3194E-02	33.500	5.0656E-02
35.000	5.7823E-02	37.000	8.0384E-02	40.000	7.7510E-02
42.000	6.0704E-02	44.000	4.4693E-02	45.000	2.9553E-02
46.000	2.9337E-02	47.000	2.8990E-02	48.000	4.1390E-02
50.000	5.1002E-02	52.000	4.5863E-02	54.000	4.7615E-02
57.000	2.6266E-02	58.500	1.3156E-02	60.000	8.2192E-03
61.000	5.4465E-03	62.000	4.5359E-03	63.000	4.7492E-03
64.500	4.4225E-03	66.000	4.0436E-03	68.000	4.2294E-03
71.000	3.2573E-03	74.000	2.1255E-03	77.000	1.4196E-03
80.000	9.8623E-04	83.000	7.3198E-04	86.000	5.0142E-04
88.000	2.8382E-04	89.000	1.8833E-04	90.000	1.9060E-04
91.000	1.9603E-04	92.000	3.0707E-04	94.000	4.6461E-04
96.000	6.8921E-04	99.000	1.1310E-03	102.000	1.6228E-03
105.000	2.7972E-03	109.000	6.1667E-03	114.000	1.0956E-02
117.000	1.0717E-02	119.000	1.1825E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 5

Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\5_.inp
Results File: c:\a\5_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:24:04.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	3.667E+03	0.2053	293.15	2	1.000E-01	2.955E+03	0.2158 293.15
3	3.000E-01	3.067E+03	0.2139	293.15	4	6.000E-01	3.091E+03	0.2136 293.15
5	1.000E+00	3.073E+03	0.2138	293.15	6	1.500E+00	3.065E+03	0.2140 293.15
7	2.200E+00	3.049E+03	0.2142	293.15	8	3.000E+00	3.031E+03	0.2145 293.15
9	4.000E+00	3.006E+03	0.2149	293.15	10	5.500E+00	2.968E+03	0.2156 293.15
11	7.500E+00	2.921E+03	0.2163	293.15	12	9.500E+00	2.886E+03	0.2169 293.15
13	1.200E+01	2.863E+03	0.2173	293.15	14	1.450E+01	2.862E+03	0.2174 293.15
15	1.750E+01	2.887E+03	0.2169	293.15	16	2.000E+01	2.926E+03	0.2163 293.15
17	2.300E+01	2.990E+03	0.2152	293.15	18	2.550E+01	3.055E+03	0.2141 293.15
19	2.750E+01	3.113E+03	0.2132	293.15	20	2.900E+01	3.158E+03	0.2125 293.15
21	3.000E+01	3.189E+03	0.2120	293.15	22	3.100E+01	3.220E+03	0.2115 293.15
23	3.200E+01	3.252E+03	0.2111	293.15	24	3.350E+01	3.298E+03	0.2104 293.15
25	3.500E+01	3.344E+03	0.2097	293.15	26	3.700E+01	3.401E+03	0.2089 293.15
27	4.000E+01	3.477E+03	0.2078	293.15	28	4.200E+01	3.517E+03	0.2073 293.15
29	4.400E+01	3.548E+03	0.2069	293.15	30	4.500E+01	3.559E+03	0.2067 293.15
31	4.600E+01	3.568E+03	0.2066	293.15	32	4.700E+01	3.638E+03	0.2057 293.15
33	4.800E+01	4.182E+03	0.1991	293.15	34	5.000E+01	6.020E+03	0.1829 293.15
35	5.200E+01	1.163E+04	0.1567	293.15	36	5.400E+01	1.956E+04	0.1386 293.15
37	5.700E+01	2.567E+04	0.1299	293.15	38	5.850E+01	2.791E+04	0.1274 293.15
39	6.000E+01	2.985E+04	0.1254	293.15	40	6.100E+01	3.102E+04	0.1242 293.15
41	6.200E+01	3.211E+04	0.1232	293.15	42	6.300E+01	3.309E+04	0.1223 293.15
43	6.450E+01	3.440E+04	0.1212	293.15	44	6.600E+01	3.549E+04	0.1203 293.15
45	6.800E+01	3.664E+04	0.1194	293.15	46	7.100E+01	3.783E+04	0.1185 293.15
47	7.400E+01	3.858E+04	0.1180	293.15	48	7.700E+01	3.905E+04	0.1176 293.15
49	8.000E+01	3.935E+04	0.1174	293.15	50	8.300E+01	3.952E+04	0.1173 293.15
51	8.600E+01	3.961E+04	0.1172	293.15	52	8.800E+01	3.963E+04	0.1172 293.15
53	8.900E+01	3.964E+04	0.1172	293.15	54	9.000E+01	3.963E+04	0.1172 293.15
55	9.100E+01	3.962E+04	0.1172	293.15	56	9.200E+01	3.961E+04	0.1172 293.15
57	9.400E+01	3.955E+04	0.1173	293.15	58	9.600E+01	3.946E+04	0.1173 293.15
59	9.900E+01	3.926E+04	0.1175	293.15	60	1.020E+02	3.894E+04	0.1177 293.15
61	1.050E+02	3.844E+04	0.1181	293.15	62	1.090E+02	3.734E+04	0.1189 293.15
63	1.140E+02	3.475E+04	0.1209	293.15	64	1.170E+02	3.188E+04	0.1234 293.15

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65	1.190E+02	2.938E+04	0.1259	293.15	66	1.210E+02	2.661E+04	0.1288	293.15
67	1.220E+02	2.524E+04	0.1305	293.15	68	1.230E+02	2.393E+04	0.1321	293.15
69	1.245E+02	2.211E+04	0.1346	293.15	70	1.260E+02	2.051E+04	0.1370	293.15
71	1.280E+02	1.870E+04	0.1400	293.15	72	1.305E+02	1.692E+04	0.1434	293.15
73	1.325E+02	1.578E+04	0.1458	293.15	74	1.350E+02	1.464E+04	0.1484	293.15
75	1.400E+02	1.303E+04	0.1525	293.15	76	1.450E+02	1.200E+04	0.1555	293.15
77	1.480E+02	1.156E+04	0.1569	293.15	78	1.500E+02	1.132E+04	0.1577	293.15
79	1.514E+02	1.117E+04	0.1582	293.15	80	1.524E+02	1.108E+04	0.1585	293.15
81	1.530E+02	1.103E+04	0.1587	293.15	82	1.540E+02	1.094E+04	0.1589	293.15
83	1.600E+02	1.056E+04	0.1603	293.15	84	1.650E+02	1.036E+04	0.1610	293.15
85	1.700E+02	1.023E+04	0.1615	293.15	86	1.750E+02	1.014E+04	0.1618	293.15
87	1.780E+02	1.010E+04	0.1620	293.15	88	1.800E+02	1.008E+04	0.1620	293.15
89	1.810E+02	1.008E+04	0.1621	293.15	90	1.820E+02	1.007E+04	0.1621	293.15
91	1.830E+02	1.006E+04	0.1621	293.15	92	1.840E+02	1.005E+04	0.1621	293.15
93	1.850E+02	1.005E+04	0.1622	293.15	94	1.870E+02	1.004E+04	0.1622	293.15
95	1.900E+02	1.003E+04	0.1622	293.15	96	1.950E+02	1.001E+04	0.1623	293.15
97	2.020E+02	1.001E+04	0.1623	293.15	98	2.100E+02	1.000E+04	0.1623	293.15
99	2.200E+02	1.000E+04	0.1624	293.15	100	2.350E+02	1.000E+04	0.1624	293.15
101	2.400E+02	1.000E+04	0.1624	293.15	102	2.600E+02	1.000E+04	0.1624	293.15
103	2.800E+02	1.000E+04	0.1624	293.15	104	3.000E+02	1.000E+04	0.1624	293.15
105	3.200E+02	1.000E+04	0.1624	293.15	106	3.400E+02	1.000E+04	0.1624	293.15
107	3.600E+02	1.000E+04	0.1624	293.15	108	3.800E+02	1.000E+04	0.1624	293.15
109	4.000E+02	1.000E+04	0.1624	293.15	110	4.200E+02	1.000E+04	0.1624	293.15
111	4.400E+02	1.000E+04	0.1624	293.15	112	4.550E+02	1.000E+04	0.1624	293.15
113	4.650E+02	1.000E+04	0.1624	293.15	114	4.730E+02	1.000E+04	0.1624	293.15
115	4.780E+02	1.000E+04	0.1624	293.15	116	4.820E+02	1.000E+04	0.1624	293.15
117	4.850E+02	1.000E+04	0.1624	293.15	118	4.870E+02	1.000E+04	0.1624	293.15
119	4.880E+02	1.000E+04	0.1624	293.15	120	4.890E+02	1.000E+04	0.1624	293.15

Initial Water Storage = 78.5330 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.20240
Head (cm) = 3.89806E+03
LiqWater Flow (cm)=-4.41170E-02
IsoVapor Flow (cm)=-3.87811E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

78.5330+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 78.4887 vs. 78.4887

Mass Balance = -8.0182E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.24484

Head (cm) = 1.69109E+03

LiqWater Flow (cm)= 4.07653E-05

IsoVapor Flow (cm)=-2.78357E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

81.6554+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 81.6554 vs. 81.6554

Mass Balance = -7.5614E-08 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1370E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 4.2289E+00 [cm]

Potential Evaporation = 9.9853E+01 [cm]

Actual Evaporation = 4.3352E+01 [cm]

Evaporation during Growth = 2.9166E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 1.2430E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 8.1655E+01 [cm]
 Mass Balance Error = -5.4184E-03 [cm]
 Total Successful Time Steps = 12331
 Total Attempted Time Steps = 13697
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3308
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	7.3461E+00	0.050	8.2307E+00	0.200	7.6008E+00
0.450	7.4307E+00	0.800	7.3389E+00	1.250	7.2535E+00
1.850	7.1560E+00	2.600	7.0402E+00	3.500	6.9039E+00
4.750	6.7155E+00	6.500	6.4542E+00	8.500	6.1636E+00
10.750	5.8486E+00	13.250	5.5162E+00	16.000	5.1687E+00
18.750	4.8402E+00	21.500	4.5255E+00	24.250	4.2251E+00
26.500	3.9875E+00	28.250	3.8073E+00	29.500	3.6807E+00
30.500	3.5805E+00	31.500	3.4813E+00	32.750	3.3584E+00
34.250	3.2130E+00	36.000	3.0454E+00	38.500	2.8096E+00
41.000	2.5782E+00	43.000	2.3950E+00	44.500	2.2589E+00
45.500	2.1684E+00	46.500	2.0784E+00	47.500	1.9885E+00
49.000	1.8427E+00	51.000	1.6130E+00	53.000	1.3336E+00
55.500	9.6064E-01	57.750	6.4433E-01	59.250	4.4985E-01
60.500	3.0754E-01	61.500	2.1073E-01	62.500	1.3076E-01
63.750	5.6027E-02	65.250	1.6786E-02	67.000	6.5037E-03
69.500	2.7642E-03	72.500	1.3051E-03	75.500	7.0082E-04
78.500	4.0142E-04	81.500	2.3081E-04	84.500	1.2066E-04
87.000	5.2516E-05	88.500	1.5816E-05	89.500	-8.1320E-06
90.500	-3.2129E-05	91.500	-5.6718E-05	93.000	-9.5370E-05
95.000	-1.5491E-04	97.500	-2.4648E-04	100.500	-4.0595E-04
103.500	-6.5163E-04	107.000	-1.1174E-03	111.500	-2.3215E-03
115.500	-4.8979E-03	118.000	-8.0865E-03	120.000	-1.2537E-02
121.500	-1.4162E-02	122.500	-1.5211E-02	123.750	-1.6424E-02
125.250	-1.7652E-02	127.000	-1.8699E-02	129.250	-1.9389E-02
131.500	-1.9426E-02	133.750	-1.8910E-02	137.500	-1.7214E-02
142.500	-1.4380E-02	146.500	-1.2076E-02	149.000	-1.0678E-02
150.700	-9.7675E-03	151.900	-9.1492E-03	152.700	-8.7497E-03
153.500	-8.3568E-03	157.000	-6.6736E-03	162.500	-4.6561E-03
167.500	-3.2278E-03	172.500	-2.1572E-03	176.500	-1.5375E-03
179.000	-1.2235E-03	180.500	-1.0609E-03	181.500	-9.6034E-04
182.500	-8.6731E-04	183.500	-7.8134E-04	184.500	-7.0201E-04

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186.000	-5.9234E-04	188.500	-4.3787E-04	192.500	-2.4794E-04
198.500	-6.9142E-05	206.000	4.1626E-05	215.000	9.6603E-05
227.500	1.1909E-04	237.500	1.2239E-04	250.000	1.2405E-04
270.000	1.2428E-04	290.000	1.2429E-04	310.000	1.2430E-04
330.000	1.2430E-04	350.000	1.2430E-04	370.000	1.2430E-04
390.000	1.2430E-04	410.000	1.2430E-04	430.000	1.2430E-04
447.500	1.2430E-04	460.000	1.2430E-04	469.000	1.2430E-04
475.500	1.2430E-04	480.000	1.2430E-04	483.500	1.2430E-04
486.000	1.2430E-04	487.500	1.2430E-04	488.500	1.2430E-04
489.000	1.2430E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	8.3339E-03	0.300	1.5797E-02
0.600	2.5275E-02	1.000	3.6444E-02	1.500	5.3245E-02
2.200	7.1849E-02	3.000	9.0490E-02	4.000	1.2944E-01
5.500	1.8298E-01	7.500	2.0503E-01	9.500	2.2201E-01
12.000	2.3251E-01	14.500	2.4056E-01	17.500	2.2427E-01
20.000	2.1239E-01	23.000	2.0007E-01	25.500	1.5655E-01
27.500	1.1791E-01	29.000	8.2377E-02	30.000	6.4995E-02
31.000	6.4146E-02	32.000	7.9186E-02	33.500	9.3366E-02
35.000	1.0716E-01	37.000	1.5006E-01	40.000	1.4621E-01
42.000	1.1521E-01	44.000	8.5249E-02	45.000	5.6479E-02
46.000	5.6147E-02	47.000	5.6007E-02	48.000	8.5026E-02
50.000	1.1055E-01	52.000	1.0336E-01	54.000	1.1623E-01
57.000	7.7728E-02	58.500	3.9895E-02	60.000	2.2649E-02
61.000	1.3134E-02	62.000	9.2708E-03	63.000	8.1759E-03
64.500	6.0999E-03	66.000	4.6854E-03	68.000	4.2146E-03
71.000	2.9443E-03	74.000	1.8433E-03	77.000	1.2016E-03
80.000	8.1520E-04	83.000	5.8829E-04	86.000	3.9153E-04
88.000	2.1827E-04	89.000	1.4408E-04	90.000	1.4534E-04
91.000	1.4930E-04	92.000	2.3401E-04	94.000	3.5611E-04
96.000	5.3337E-04	99.000	8.8967E-04	102.000	1.2953E-03
105.000	2.2579E-03	109.000	5.0236E-03	114.000	8.9507E-03
117.000	8.6952E-03	119.000	9.4822E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 5 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\5_.inp
Results File: c:\a\5_1957.res
Date of Run: 08 Jun 2021
Time of Run: 14:24:04.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.691E+03	0.2448	293.15	2	1.000E-01	1.377E+03	0.2562 293.15
3	3.000E-01	1.250E+03	0.2617	293.15	4	6.000E-01	1.275E+03	0.2605 293.15
5	1.000E+00	1.317E+03	0.2587	293.15	6	1.500E+00	1.316E+03	0.2587 293.15
7	2.200E+00	1.310E+03	0.2590	293.15	8	3.000E+00	1.311E+03	0.2589 293.15
9	4.000E+00	1.313E+03	0.2589	293.15	10	5.500E+00	1.317E+03	0.2587 293.15
11	7.500E+00	1.325E+03	0.2583	293.15	12	9.500E+00	1.337E+03	0.2579 293.15
13	1.200E+01	1.355E+03	0.2571	293.15	14	1.450E+01	1.379E+03	0.2561 293.15
15	1.750E+01	1.413E+03	0.2547	293.15	16	2.000E+01	1.447E+03	0.2534 293.15
17	2.300E+01	1.494E+03	0.2517	293.15	18	2.550E+01	1.537E+03	0.2501 293.15
19	2.750E+01	1.573E+03	0.2488	293.15	20	2.900E+01	1.600E+03	0.2479 293.15
21	3.000E+01	1.619E+03	0.2472	293.15	22	3.100E+01	1.638E+03	0.2466 293.15
23	3.200E+01	1.656E+03	0.2460	293.15	24	3.350E+01	1.684E+03	0.2451 293.15
25	3.500E+01	1.710E+03	0.2442	293.15	26	3.700E+01	1.743E+03	0.2432 293.15
27	4.000E+01	1.785E+03	0.2419	293.15	28	4.200E+01	1.806E+03	0.2413 293.15
29	4.400E+01	1.821E+03	0.2408	293.15	30	4.500E+01	1.826E+03	0.2407 293.15
31	4.600E+01	1.830E+03	0.2406	293.15	32	4.700E+01	1.852E+03	0.2399 293.15
33	4.800E+01	1.904E+03	0.2384	293.15	34	5.000E+01	1.838E+03	0.2403 293.15
35	5.200E+01	1.826E+03	0.2407	293.15	36	5.400E+01	1.897E+03	0.2386 293.15
37	5.700E+01	2.221E+03	0.2303	293.15	38	5.850E+01	2.536E+03	0.2235 293.15
39	6.000E+01	3.064E+03	0.2140	293.15	40	6.100E+01	3.636E+03	0.2057 293.15
41	6.200E+01	4.561E+03	0.1952	293.15	42	6.300E+01	6.236E+03	0.1814 293.15
43	6.450E+01	1.351E+04	0.1512	293.15	44	6.600E+01	2.476E+04	0.1311 293.15
45	6.800E+01	3.214E+04	0.1232	293.15	46	7.100E+01	3.618E+04	0.1198 293.15
47	7.400E+01	3.797E+04	0.1184	293.15	48	7.700E+01	3.882E+04	0.1178 293.15
49	8.000E+01	3.926E+04	0.1175	293.15	50	8.300E+01	3.948E+04	0.1173 293.15
51	8.600E+01	3.959E+04	0.1173	293.15	52	8.800E+01	3.963E+04	0.1172 293.15
53	8.900E+01	3.963E+04	0.1172	293.15	54	9.000E+01	3.963E+04	0.1172 293.15
55	9.100E+01	3.962E+04	0.1172	293.15	56	9.200E+01	3.960E+04	0.1173 293.15
57	9.400E+01	3.955E+04	0.1173	293.15	58	9.600E+01	3.946E+04	0.1174 293.15
59	9.900E+01	3.924E+04	0.1175	293.15	60	1.020E+02	3.890E+04	0.1177 293.15
61	1.050E+02	3.837E+04	0.1181	293.15	62	1.090E+02	3.724E+04	0.1190 293.15
63	1.140E+02	3.465E+04	0.1210	293.15	64	1.170E+02	3.190E+04	0.1234 293.15

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65	1.190E+02	2.955E+04	0.1257	293.15	66	1.210E+02	2.695E+04	0.1284	293.15
67	1.220E+02	2.566E+04	0.1299	293.15	68	1.230E+02	2.442E+04	0.1315	293.15
69	1.245E+02	2.266E+04	0.1338	293.15	70	1.260E+02	2.109E+04	0.1361	293.15
71	1.280E+02	1.930E+04	0.1390	293.15	72	1.305E+02	1.747E+04	0.1423	293.15
73	1.325E+02	1.629E+04	0.1447	293.15	74	1.350E+02	1.510E+04	0.1473	293.15
75	1.400E+02	1.338E+04	0.1516	293.15	76	1.450E+02	1.227E+04	0.1547	293.15
77	1.480E+02	1.179E+04	0.1562	293.15	78	1.500E+02	1.153E+04	0.1570	293.15
79	1.514E+02	1.137E+04	0.1575	293.15	80	1.524E+02	1.127E+04	0.1579	293.15
81	1.530E+02	1.121E+04	0.1581	293.15	82	1.540E+02	1.111E+04	0.1584	293.15
83	1.600E+02	1.069E+04	0.1598	293.15	84	1.650E+02	1.045E+04	0.1607	293.15
85	1.700E+02	1.029E+04	0.1612	293.15	86	1.750E+02	1.019E+04	0.1616	293.15
87	1.780E+02	1.014E+04	0.1618	293.15	88	1.800E+02	1.012E+04	0.1619	293.15
89	1.810E+02	1.011E+04	0.1619	293.15	90	1.820E+02	1.010E+04	0.1620	293.15
91	1.830E+02	1.009E+04	0.1620	293.15	92	1.840E+02	1.008E+04	0.1621	293.15
93	1.850E+02	1.007E+04	0.1621	293.15	94	1.870E+02	1.006E+04	0.1621	293.15
95	1.900E+02	1.004E+04	0.1622	293.15	96	1.950E+02	1.002E+04	0.1623	293.15
97	2.020E+02	1.001E+04	0.1623	293.15	98	2.100E+02	1.000E+04	0.1623	293.15
99	2.200E+02	1.000E+04	0.1623	293.15	100	2.350E+02	1.000E+04	0.1624	293.15
101	2.400E+02	1.000E+04	0.1624	293.15	102	2.600E+02	1.000E+04	0.1624	293.15
103	2.800E+02	1.000E+04	0.1624	293.15	104	3.000E+02	1.000E+04	0.1624	293.15
105	3.200E+02	1.000E+04	0.1624	293.15	106	3.400E+02	1.000E+04	0.1624	293.15
107	3.600E+02	1.000E+04	0.1624	293.15	108	3.800E+02	1.000E+04	0.1624	293.15
109	4.000E+02	1.000E+04	0.1624	293.15	110	4.200E+02	1.000E+04	0.1624	293.15
111	4.400E+02	1.000E+04	0.1624	293.15	112	4.550E+02	1.000E+04	0.1624	293.15
113	4.650E+02	1.000E+04	0.1624	293.15	114	4.730E+02	1.000E+04	0.1624	293.15
115	4.780E+02	1.000E+04	0.1624	293.15	116	4.820E+02	1.000E+04	0.1624	293.15
117	4.850E+02	1.000E+04	0.1624	293.15	118	4.870E+02	1.000E+04	0.1624	293.15
119	4.880E+02	1.000E+04	0.1624	293.15	120	4.890E+02	1.000E+04	0.1624	293.15

Initial Water Storage = 81.6554 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.23978
Head (cm) = 1.85667E+03
LiqWater Flow (cm)=-4.40209E-02
IsoVapor Flow (cm)=-2.62746E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

81.6554+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 81.6111 vs. 81.6111

Mass Balance = -8.0934E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.24051

Head (cm) = 1.83181E+03

LiqWater Flow (cm)=-5.81665E-02

IsoVapor Flow (cm)=-3.64498E-05

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

82.3446+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 82.2861 vs. 82.2861

Mass Balance = -1.1775E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1376E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 4.9989E+00 [cm]

Potential Evaporation = 9.9911E+01 [cm]

Actual Evaporation = 4.5073E+01 [cm]

Evaporation during Growth = 3.0829E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 1.2430E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 8.2286E+01 [cm]
 Mass Balance Error = -4.5019E-03 [cm]
 Total Successful Time Steps = 12067
 Total Attempted Time Steps = 13219
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3194
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	5.6252E+00	0.050	6.2554E+00	0.200	5.8498E+00
0.450	5.7189E+00	0.800	5.6453E+00	1.250	5.5798E+00
1.850	5.5076E+00	2.600	5.4233E+00	3.500	5.3241E+00
4.750	5.1868E+00	6.500	4.9960E+00	8.500	4.7835E+00
10.750	4.5537E+00	13.250	4.3125E+00	16.000	4.0619E+00
18.750	3.8268E+00	21.500	3.6030E+00	24.250	3.3909E+00
26.500	3.2242E+00	28.250	3.0981E+00	29.500	3.0099E+00
30.500	2.9401E+00	31.500	2.8712E+00	32.750	2.7860E+00
34.250	2.6854E+00	36.000	2.5696E+00	38.500	2.4072E+00
41.000	2.2485E+00	43.000	2.1233E+00	44.500	2.0305E+00
45.500	1.9689E+00	46.500	1.9080E+00	47.500	1.8491E+00
49.000	1.7523E+00	51.000	1.6191E+00	53.000	1.4847E+00
55.500	1.3162E+00	57.750	1.1622E+00	59.250	1.0580E+00
60.500	9.6843E-01	61.500	8.9424E-01	62.500	8.1589E-01
63.750	7.0831E-01	65.250	5.4968E-01	67.000	3.6238E-01
69.500	1.6056E-01	72.500	4.1585E-02	75.500	1.0336E-02
78.500	3.1917E-03	81.500	1.1323E-03	84.500	4.1765E-04
87.000	1.7417E-04	88.500	8.6385E-05	89.500	3.9005E-05
90.500	-1.2480E-06	91.500	-3.7184E-05	93.000	-8.7826E-05
95.000	-1.5623E-04	97.500	-2.5476E-04	100.500	-4.1932E-04
103.500	-6.6646E-04	107.000	-1.1246E-03	111.500	-2.2747E-03
115.500	-4.6646E-03	118.000	-7.5958E-03	120.000	-1.1677E-02
121.500	-1.3095E-02	122.500	-1.4021E-02	123.750	-1.5116E-02
125.250	-1.6276E-02	127.000	-1.7346E-02	129.250	-1.8197E-02
131.500	-1.8468E-02	133.750	-1.8216E-02	137.500	-1.6937E-02
142.500	-1.4496E-02	146.500	-1.2394E-02	149.000	-1.1084E-02
150.700	-1.0219E-02	151.900	-9.6268E-03	152.700	-9.2416E-03
153.500	-8.8613E-03	157.000	-7.2192E-03	162.500	-5.1907E-03
167.500	-3.7131E-03	172.500	-2.5721E-03	176.500	-1.8904E-03
179.000	-1.5378E-03	180.500	-1.3526E-03	181.500	-1.2373E-03
182.500	-1.1297E-03	183.500	-1.0296E-03	184.500	-9.3642E-04

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186.000	-8.0665E-04	188.500	-6.2086E-04	192.500	-3.8654E-04
198.500	-1.5606E-04	206.000	-3.9609E-06	215.000	7.7554E-05
227.500	1.1446E-04	237.500	1.2046E-04	250.000	1.2373E-04
270.000	1.2425E-04	290.000	1.2429E-04	310.000	1.2430E-04
330.000	1.2430E-04	350.000	1.2430E-04	370.000	1.2430E-04
390.000	1.2430E-04	410.000	1.2430E-04	430.000	1.2430E-04
447.500	1.2430E-04	460.000	1.2430E-04	469.000	1.2430E-04
475.500	1.2430E-04	480.000	1.2430E-04	483.500	1.2430E-04
486.000	1.2430E-04	487.500	1.2430E-04	488.500	1.2430E-04
489.000	1.2430E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	9.6642E-03	0.300	1.7898E-02
0.600	2.8023E-02	1.000	3.9754E-02	1.500	5.7389E-02
2.200	7.6667E-02	3.000	9.5897E-02	4.000	1.3645E-01
5.500	1.9197E-01	7.500	2.1437E-01	9.500	2.3175E-01
12.000	2.4250E-01	14.500	2.5079E-01	17.500	2.3380E-01
20.000	2.2144E-01	23.000	2.0868E-01	25.500	1.6334E-01
27.500	1.2305E-01	29.000	8.5987E-02	30.000	6.7853E-02
31.000	6.6976E-02	32.000	8.2693E-02	33.500	9.7527E-02
35.000	1.1197E-01	37.000	1.5687E-01	40.000	1.5294E-01
42.000	1.2058E-01	44.000	8.9268E-02	45.000	5.9158E-02
46.000	5.8825E-02	47.000	5.8839E-02	48.000	9.1597E-02
50.000	1.2524E-01	52.000	1.2455E-01	54.000	1.5272E-01
57.000	1.3114E-01	58.500	8.4561E-02	60.000	6.7634E-02
61.000	5.2366E-02	62.000	5.0403E-02	63.000	6.0218E-02
64.500	6.6276E-02	66.000	6.8502E-02	68.000	7.4497E-02
71.000	3.8243E-02	74.000	1.2350E-02	77.000	4.3239E-03
80.000	1.7650E-03	83.000	8.8586E-04	86.000	4.7579E-04
88.000	2.4343E-04	89.000	1.5608E-04	90.000	1.5422E-04
91.000	1.5620E-04	92.000	2.4260E-04	94.000	3.6634E-04
96.000	5.4811E-04	99.000	9.1629E-04	102.000	1.3348E-03
105.000	2.3187E-03	109.000	5.1061E-03	114.000	8.9164E-03
117.000	8.5307E-03	119.000	9.2199E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 5 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\5_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =              79.393
 1 22.530 135.832  3.279 18.304  0.000  0.000  80.344  11360 -0.00463
 2 22.530 135.832  2.928 20.306  0.000  0.000  79.644  11405 -0.00456
 3 22.530 135.832  2.603 20.330  0.000  0.000  79.245  11415 -0.00468
 4 22.530 135.832  2.439 20.324  0.000  0.000  79.016  11408 -0.00465
 5 22.530 135.832  2.354 20.325  0.000  0.000  78.872  11381 -0.00471
 6 22.530 135.832  2.310 20.324  0.000  0.000  78.772  11385 -0.00472
 7 22.530 135.832  2.286 20.324  0.000  0.000  78.697  11405 -0.00470
 8 22.530 135.832  2.274 20.322  0.000  0.000  78.636  11401 -0.00469
 9 22.530 135.832  2.265 20.323  0.000  0.000  78.582  11385 -0.00477
10 22.530 135.832  2.260 20.323  0.000  0.000  78.533  11386 -0.00483
11 50.698 113.700  4.229 43.352  0.000  0.000  81.655  12331 -0.00542
12 50.698 113.759  4.999 45.073  0.000  0.000  82.286  12067 -0.00450
-----
SUM= 326.6951585.780 34.225 289.632  0.000  0.001              -0.05685
```

Sensitivity Analysis #1: Soil Sample 6 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\6_.inp
Results File: C:\A\6_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:32:53.95
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	8.514E+03	0.1635	293.15	2	1.000E-01	6.993E+03	0.1715
3	3.000E-01	6.992E+03	0.1715	293.15	4	6.000E-01	7.182E+03	0.1704
5	1.000E+00	7.141E+03	0.1706	293.15	6	1.500E+00	7.122E+03	0.1707
7	2.200E+00	7.102E+03	0.1708	293.15	8	3.000E+00	7.076E+03	0.1710
9	4.000E+00	7.041E+03	0.1712	293.15	10	5.500E+00	6.984E+03	0.1715
11	7.500E+00	6.907E+03	0.1720	293.15	12	9.500E+00	6.837E+03	0.1724
13	1.200E+01	6.766E+03	0.1728	293.15	14	1.450E+01	6.719E+03	0.1731
15	1.750E+01	6.698E+03	0.1733	293.15	16	2.000E+01	6.707E+03	0.1732
17	2.300E+01	6.745E+03	0.1730	293.15	18	2.550E+01	6.794E+03	0.1727
19	2.750E+01	6.842E+03	0.1724	293.15	20	2.900E+01	6.882E+03	0.1721
21	3.000E+01	6.910E+03	0.1720	293.15	22	3.100E+01	6.939E+03	0.1718
23	3.200E+01	6.969E+03	0.1716	293.15	24	3.350E+01	7.014E+03	0.1713
25	3.500E+01	7.059E+03	0.1711	293.15	26	3.700E+01	7.119E+03	0.1707
27	4.000E+01	7.202E+03	0.1703	293.15	28	4.200E+01	7.249E+03	0.1700
29	4.400E+01	7.288E+03	0.1698	293.15	30	4.500E+01	7.304E+03	0.1697
31	4.600E+01	7.317E+03	0.1696	293.15	32	4.700E+01	7.438E+03	0.1689
33	4.800E+01	8.549E+03	0.1633	293.15	34	5.000E+01	1.005E+04	0.1571
35	5.200E+01	1.196E+04	0.1506	293.15	36	5.400E+01	1.534E+04	0.1417
37	5.700E+01	2.278E+04	0.1288	293.15	38	5.850E+01	2.619E+04	0.1245
39	6.000E+01	2.861E+04	0.1218	293.15	40	6.100E+01	2.979E+04	0.1206
41	6.200E+01	3.071E+04	0.1197	293.15	42	6.300E+01	3.145E+04	0.1190
43	6.450E+01	3.235E+04	0.1182	293.15	44	6.600E+01	3.313E+04	0.1175
45	6.800E+01	3.406E+04	0.1167	293.15	46	7.100E+01	3.531E+04	0.1157
47	7.400E+01	3.637E+04	0.1149	293.15	48	7.700E+01	3.720E+04	0.1143
49	8.000E+01	3.781E+04	0.1138	293.15	50	8.300E+01	3.821E+04	0.1135
51	8.600E+01	3.843E+04	0.1134	293.15	52	8.800E+01	3.849E+04	0.1133
53	8.900E+01	3.849E+04	0.1133	293.15	54	9.000E+01	3.848E+04	0.1133
55	9.100E+01	3.845E+04	0.1133	293.15	56	9.200E+01	3.840E+04	0.1134
57	9.400E+01	3.826E+04	0.1135	293.15	58	9.600E+01	3.806E+04	0.1136
59	9.900E+01	3.760E+04	0.1140	293.15	60	1.020E+02	3.693E+04	0.1145
61	1.050E+02	3.600E+04	0.1152	293.15	62	1.090E+02	3.424E+04	0.1166
63	1.140E+02	3.096E+04	0.1195	293.15	64	1.170E+02	2.838E+04	0.1220

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65	1.190E+02	2.660E+04	0.1240	293.15	66	1.210E+02	2.488E+04	0.1260	293.15
67	1.220E+02	2.406E+04	0.1270	293.15	68	1.230E+02	2.329E+04	0.1281	293.15
69	1.245E+02	2.221E+04	0.1296	293.15	70	1.260E+02	2.123E+04	0.1310	293.15
71	1.280E+02	2.007E+04	0.1328	293.15	72	1.305E+02	1.884E+04	0.1348	293.15
73	1.325E+02	1.800E+04	0.1363	293.15	74	1.350E+02	1.710E+04	0.1380	293.15
75	1.400E+02	1.568E+04	0.1410	293.15	76	1.450E+02	1.460E+04	0.1435	293.15
77	1.480E+02	1.407E+04	0.1448	293.15	78	1.500E+02	1.376E+04	0.1455	293.15
79	1.514E+02	1.356E+04	0.1461	293.15	80	1.524E+02	1.342E+04	0.1464	293.15
81	1.530E+02	1.334E+04	0.1466	293.15	82	1.540E+02	1.322E+04	0.1470	293.15
83	1.600E+02	1.256E+04	0.1488	293.15	84	1.650E+02	1.212E+04	0.1501	293.15
85	1.700E+02	1.176E+04	0.1512	293.15	86	1.750E+02	1.146E+04	0.1521	293.15
87	1.780E+02	1.131E+04	0.1526	293.15	88	1.800E+02	1.121E+04	0.1530	293.15
89	1.810E+02	1.117E+04	0.1531	293.15	90	1.820E+02	1.112E+04	0.1532	293.15
91	1.830E+02	1.108E+04	0.1534	293.15	92	1.840E+02	1.104E+04	0.1535	293.15
93	1.850E+02	1.100E+04	0.1537	293.15	94	1.870E+02	1.093E+04	0.1539	293.15
95	1.900E+02	1.083E+04	0.1542	293.15	96	1.950E+02	1.068E+04	0.1548	293.15
97	2.020E+02	1.052E+04	0.1553	293.15	98	2.100E+02	1.037E+04	0.1559	293.15
99	2.200E+02	1.025E+04	0.1563	293.15	100	2.350E+02	1.013E+04	0.1568	293.15
101	2.400E+02	1.010E+04	0.1569	293.15	102	2.600E+02	1.004E+04	0.1571	293.15
103	2.800E+02	1.001E+04	0.1572	293.15	104	3.000E+02	1.000E+04	0.1572	293.15
105	3.200E+02	1.000E+04	0.1573	293.15	106	3.400E+02	1.000E+04	0.1573	293.15
107	3.600E+02	1.000E+04	0.1573	293.15	108	3.800E+02	1.000E+04	0.1573	293.15
109	4.000E+02	1.000E+04	0.1573	293.15	110	4.200E+02	1.000E+04	0.1573	293.15
111	4.400E+02	1.000E+04	0.1573	293.15	112	4.550E+02	1.000E+04	0.1573	293.15
113	4.650E+02	1.000E+04	0.1573	293.15	114	4.730E+02	1.000E+04	0.1573	293.15
115	4.780E+02	1.000E+04	0.1573	293.15	116	4.820E+02	1.000E+04	0.1573	293.15
117	4.850E+02	1.000E+04	0.1573	293.15	118	4.870E+02	1.000E+04	0.1573	293.15
119	4.880E+02	1.000E+04	0.1573	293.15	120	4.890E+02	1.000E+04	0.1573	293.15

Initial Water Storage = 73.9881 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.15796
Head (cm) = 9.81665E+03
LiqWater Flow (cm)=-6.79612E-02
IsoVapor Flow (cm)=-1.61647E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

73.9881+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 73.9197 vs. 73.9197

Mass Balance = -1.2642E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.16351

Head (cm) = 8.51277E+03

LiqWater Flow (cm)=-3.94977E-02

IsoVapor Flow (cm)=-1.30500E-04

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

73.9440+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 73.9043 vs. 73.9043

Mass Balance = -7.0051E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]
Potential Transpiration = 1.6719E+01 [cm]
Actual Transpiration = 8.7603E-01 [cm]
Potential Evaporation = 1.1911E+02 [cm]
Actual Evaporation = 2.1741E+01 [cm]
Evaporation during Growth = 1.2879E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 2.2530E+01 [cm]
Total Basal Liquid Flux (drainage) = 6.9151E-04 [cm]

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Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 7.3904E+01 [cm]
 Mass Balance Error = -4.3393E-03 [cm]
 Total Successful Time Steps = 11331
 Total Attempted Time Steps = 12599
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 5993
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	7.8850E-01	0.050	2.4686E+00	0.200	3.3835E+00
0.450	2.4601E+00	0.800	1.8554E+00	1.250	1.4631E+00
1.850	1.1940E+00	2.600	1.0184E+00	3.500	9.0906E-01
4.750	8.2786E-01	6.500	7.6165E-01	8.500	7.0990E-01
10.750	6.6449E-01	13.250	6.2145E-01	16.000	5.7926E-01
18.750	5.3990E-01	21.500	5.0255E-01	24.250	4.6694E-01
26.500	4.3885E-01	28.250	4.1751E-01	29.500	4.0251E-01
30.500	3.9064E-01	31.500	3.7889E-01	32.750	3.6437E-01
34.250	3.4718E-01	36.000	3.2741E-01	38.500	2.9970E-01
41.000	2.7266E-01	43.000	2.5141E-01	44.500	2.3572E-01
45.500	2.2535E-01	46.500	2.1769E-01	47.500	2.1869E-01
49.000	1.8997E-01	51.000	1.5868E-01	53.000	1.3223E-01
55.500	1.0277E-01	57.750	7.8731E-02	59.250	6.4747E-02
60.500	5.4526E-02	61.500	4.7289E-02	62.500	4.0901E-02
63.750	3.4009E-02	65.250	2.7310E-02	67.000	2.1184E-02
69.500	1.4848E-02	72.500	9.9376E-03	75.500	6.6888E-03
78.500	4.4367E-03	81.500	2.7970E-03	84.500	1.5297E-03
87.000	6.4394E-04	88.500	1.4519E-04	89.500	-1.8317E-04
90.500	-5.1203E-04	91.500	-8.4577E-04	93.000	-1.3614E-03
95.000	-2.1134E-03	97.500	-3.1921E-03	100.500	-4.8645E-03
103.500	-7.1485E-03	107.000	-1.0951E-02	111.500	-1.8933E-02
115.500	-3.1549E-02	118.000	-4.3276E-02	120.000	-5.5684E-02
121.500	-5.6794E-02	122.500	-5.7305E-02	123.750	-5.7728E-02
125.250	-5.7967E-02	127.000	-5.7924E-02	129.250	-5.7464E-02
131.500	-5.6652E-02	133.750	-5.5565E-02	137.500	-5.3320E-02
142.500	-4.9856E-02	146.500	-4.6890E-02	149.000	-4.4989E-02
150.700	-4.3688E-02	151.900	-4.2769E-02	152.700	-4.2157E-02
153.500	-4.1545E-02	157.000	-3.8851E-02	162.500	-3.4807E-02
167.500	-3.1284E-02	172.500	-2.7948E-02	176.500	-2.5449E-02
179.000	-2.3951E-02	180.500	-2.3079E-02	181.500	-2.2505E-02
182.500	-2.1941E-02	183.500	-2.1386E-02	184.500	-2.0840E-02

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186.000	-2.0034E-02	188.500	-1.8735E-02	192.500	-1.6764E-02
198.500	-1.4073E-02	206.000	-1.1161E-02	215.000	-8.2438E-03
227.500	-5.0931E-03	237.500	-3.4590E-03	250.000	-1.7144E-03
270.000	-3.2607E-04	290.000	2.9708E-04	310.000	5.5079E-04
330.000	6.4508E-04	350.000	6.7727E-04	370.000	6.8743E-04
390.000	6.9041E-04	410.000	6.9123E-04	430.000	6.9144E-04
447.500	6.9149E-04	460.000	6.9150E-04	469.000	6.9150E-04
475.500	6.9150E-04	480.000	6.9150E-04	483.500	6.9151E-04
486.000	6.9151E-04	487.500	6.9151E-04	488.500	6.9151E-04
489.000	6.9151E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	9.6599E-04	0.300	1.8032E-03
0.600	2.8946E-03	1.000	4.2493E-03	1.500	6.4330E-03
2.200	9.0695E-03	3.000	1.1928E-02	4.000	1.7829E-02
5.500	2.6579E-02	7.500	3.1137E-02	9.500	3.4389E-02
12.000	3.6426E-02	14.500	3.8180E-02	17.500	3.6826E-02
20.000	3.5792E-02	23.000	3.4531E-02	25.500	2.7463E-02
27.500	2.0943E-02	29.000	1.4751E-02	30.000	1.1689E-02
31.000	1.1577E-02	32.000	1.4335E-02	33.500	1.6969E-02
35.000	1.9542E-02	37.000	2.7453E-02	40.000	2.6801E-02
42.000	2.1128E-02	44.000	1.5638E-02	45.000	1.0364E-02
46.000	1.0309E-02	47.000	1.0354E-02	48.000	1.6021E-02
50.000	2.1789E-02	52.000	2.1784E-02	54.000	2.6782E-02
57.000	2.2139E-02	58.500	1.3689E-02	60.000	1.0325E-02
61.000	7.6314E-03	62.000	6.9813E-03	63.000	7.9126E-03
64.500	8.0801E-03	66.000	7.9266E-03	68.000	8.9029E-03
71.000	7.4945E-03	74.000	5.3817E-03	77.000	3.9936E-03
80.000	3.0844E-03	83.000	2.5105E-03	86.000	1.8290E-03
88.000	1.0534E-03	89.000	6.9922E-04	90.000	7.0392E-04
91.000	7.1635E-04	92.000	1.1050E-03	94.000	1.6029E-03
96.000	2.2532E-03	99.000	3.3738E-03	102.000	4.3711E-03
105.000	6.7451E-03	109.000	1.2707E-02	114.000	1.8119E-02
117.000	1.5151E-02	119.000	1.4822E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 6 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\6_.inp

Results File: C:\A\6_1956.res

Date of Run: 08 Jun 2021

Time of Run: 14:32:53.95

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	8.513E+03	0.1635	293.15	2	1.000E-01	6.992E+03	0.1715
3	3.000E-01	6.991E+03	0.1715	293.15	4	6.000E-01	7.181E+03	0.1704
5	1.000E+00	7.141E+03	0.1706	293.15	6	1.500E+00	7.121E+03	0.1707
7	2.200E+00	7.102E+03	0.1708	293.15	8	3.000E+00	7.075E+03	0.1710
9	4.000E+00	7.040E+03	0.1712	293.15	10	5.500E+00	6.984E+03	0.1715
11	7.500E+00	6.907E+03	0.1720	293.15	12	9.500E+00	6.836E+03	0.1724
13	1.200E+01	6.765E+03	0.1728	293.15	14	1.450E+01	6.719E+03	0.1731
15	1.750E+01	6.698E+03	0.1733	293.15	16	2.000E+01	6.707E+03	0.1732
17	2.300E+01	6.744E+03	0.1730	293.15	18	2.550E+01	6.793E+03	0.1727
19	2.750E+01	6.841E+03	0.1724	293.15	20	2.900E+01	6.881E+03	0.1721
21	3.000E+01	6.909E+03	0.1720	293.15	22	3.100E+01	6.938E+03	0.1718
23	3.200E+01	6.968E+03	0.1716	293.15	24	3.350E+01	7.013E+03	0.1713
25	3.500E+01	7.059E+03	0.1711	293.15	26	3.700E+01	7.118E+03	0.1707
27	4.000E+01	7.201E+03	0.1703	293.15	28	4.200E+01	7.248E+03	0.1700
29	4.400E+01	7.287E+03	0.1698	293.15	30	4.500E+01	7.303E+03	0.1697
31	4.600E+01	7.317E+03	0.1696	293.15	32	4.700E+01	7.438E+03	0.1689
33	4.800E+01	8.548E+03	0.1633	293.15	34	5.000E+01	1.005E+04	0.1571
35	5.200E+01	1.196E+04	0.1506	293.15	36	5.400E+01	1.534E+04	0.1417
37	5.700E+01	2.279E+04	0.1287	293.15	38	5.850E+01	2.620E+04	0.1244
39	6.000E+01	2.863E+04	0.1218	293.15	40	6.100E+01	2.981E+04	0.1206
41	6.200E+01	3.073E+04	0.1197	293.15	42	6.300E+01	3.147E+04	0.1190
43	6.450E+01	3.238E+04	0.1182	293.15	44	6.600E+01	3.317E+04	0.1175
45	6.800E+01	3.410E+04	0.1167	293.15	46	7.100E+01	3.535E+04	0.1157
47	7.400E+01	3.642E+04	0.1149	293.15	48	7.700E+01	3.726E+04	0.1142
49	8.000E+01	3.788E+04	0.1138	293.15	50	8.300E+01	3.829E+04	0.1135
51	8.600E+01	3.852E+04	0.1133	293.15	52	8.800E+01	3.858E+04	0.1133
53	8.900E+01	3.859E+04	0.1132	293.15	54	9.000E+01	3.859E+04	0.1132
55	9.100E+01	3.856E+04	0.1133	293.15	56	9.200E+01	3.853E+04	0.1133
57	9.400E+01	3.840E+04	0.1134	293.15	58	9.600E+01	3.821E+04	0.1135

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59 9.900E+01 3.779E+04 0.1138 293.15	60 1.020E+02 3.717E+04 0.1143 293.15
61 1.050E+02 3.629E+04 0.1150 293.15	62 1.090E+02 3.461E+04 0.1163 293.15
63 1.140E+02 3.145E+04 0.1190 293.15	64 1.170E+02 2.894E+04 0.1215 293.15
65 1.190E+02 2.719E+04 0.1233 293.15	66 1.210E+02 2.547E+04 0.1253 293.15
67 1.220E+02 2.466E+04 0.1263 293.15	68 1.230E+02 2.389E+04 0.1273 293.15
69 1.245E+02 2.280E+04 0.1287 293.15	70 1.260E+02 2.181E+04 0.1301 293.15
71 1.280E+02 2.063E+04 0.1319 293.15	72 1.305E+02 1.938E+04 0.1339 293.15
73 1.325E+02 1.852E+04 0.1354 293.15	74 1.350E+02 1.759E+04 0.1371 293.15
75 1.400E+02 1.611E+04 0.1401 293.15	76 1.450E+02 1.499E+04 0.1425 293.15
77 1.480E+02 1.444E+04 0.1438 293.15	78 1.500E+02 1.411E+04 0.1447 293.15
79 1.514E+02 1.390E+04 0.1452 293.15	80 1.524E+02 1.376E+04 0.1456 293.15
81 1.530E+02 1.367E+04 0.1458 293.15	82 1.540E+02 1.354E+04 0.1461 293.15
83 1.600E+02 1.284E+04 0.1480 293.15	84 1.650E+02 1.238E+04 0.1493 293.15
85 1.700E+02 1.199E+04 0.1505 293.15	86 1.750E+02 1.167E+04 0.1515 293.15
87 1.780E+02 1.150E+04 0.1520 293.15	88 1.800E+02 1.140E+04 0.1523 293.15
89 1.810E+02 1.135E+04 0.1525 293.15	90 1.820E+02 1.130E+04 0.1527 293.15
91 1.830E+02 1.126E+04 0.1528 293.15	92 1.840E+02 1.121E+04 0.1530 293.15
93 1.850E+02 1.117E+04 0.1531 293.15	94 1.870E+02 1.109E+04 0.1534 293.15
95 1.900E+02 1.098E+04 0.1537 293.15	96 1.950E+02 1.082E+04 0.1543 293.15
97 2.020E+02 1.063E+04 0.1549 293.15	98 2.100E+02 1.047E+04 0.1555 293.15
99 2.200E+02 1.032E+04 0.1561 293.15	100 2.350E+02 1.017E+04 0.1566 293.15
101 2.400E+02 1.014E+04 0.1567 293.15	102 2.600E+02 1.006E+04 0.1570 293.15
103 2.800E+02 1.002E+04 0.1572 293.15	104 3.000E+02 1.001E+04 0.1572 293.15
105 3.200E+02 1.000E+04 0.1572 293.15	106 3.400E+02 1.000E+04 0.1573 293.15
107 3.600E+02 1.000E+04 0.1573 293.15	108 3.800E+02 1.000E+04 0.1573 293.15
109 4.000E+02 1.000E+04 0.1573 293.15	110 4.200E+02 1.000E+04 0.1573 293.15
111 4.400E+02 1.000E+04 0.1573 293.15	112 4.550E+02 1.000E+04 0.1573 293.15
113 4.650E+02 1.000E+04 0.1573 293.15	114 4.730E+02 1.000E+04 0.1573 293.15
115 4.780E+02 1.000E+04 0.1573 293.15	116 4.820E+02 1.000E+04 0.1573 293.15
117 4.850E+02 1.000E+04 0.1573 293.15	118 4.870E+02 1.000E+04 0.1573 293.15
119 4.880E+02 1.000E+04 0.1573 293.15	120 4.890E+02 1.000E+04 0.1573 293.15

Initial Water Storage = 73.9043 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.16121
Head (cm) = 9.02652E+03

December 2023

LiqWater Flow (cm)=-4.40693E-02
IsoVapor Flow (cm)=-1.15611E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

73.9043+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 73.8600 vs. 73.8600

Mass Balance = -7.6750E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.19928
Head (cm) = 3.73916E+03
LiqWater Flow (cm)= 8.68411E-05
IsoVapor Flow (cm)=-5.34413E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

77.1931+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 77.1931 vs. 77.1931

Mass Balance = -2.5988E-08 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 2.5359E+00 [cm]
 Potential Evaporation = 9.9853E+01 [cm]
 Actual Evaporation = 4.4878E+01 [cm]
 Evaporation during Growth = 3.0692E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 6.9340E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 7.7193E+01 [cm]
 Mass Balance Error = -4.6067E-03 [cm]
 Total Successful Time Steps = 12106
 Total Attempted Time Steps = 13253
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3199
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	5.8208E+00	0.050	6.6269E+00	0.200	6.6269E+00
0.450	6.2599E+00	0.800	6.0458E+00	1.250	5.9019E+00
1.850	5.7900E+00	2.600	5.6926E+00	3.500	5.5974E+00
4.750	5.4777E+00	6.500	5.3167E+00	8.500	5.1367E+00
10.750	4.9391E+00	13.250	4.7267E+00	16.000	4.5013E+00
18.750	4.2852E+00	21.500	4.0758E+00	24.250	3.8733E+00
26.500	3.7115E+00	28.250	3.5879E+00	29.500	3.5006E+00
30.500	3.4312E+00	31.500	3.3623E+00	32.750	3.2768E+00
34.250	3.1750E+00	36.000	3.0572E+00	38.500	2.8904E+00
41.000	2.7255E+00	43.000	2.5945E+00	44.500	2.4967E+00
45.500	2.4317E+00	46.500	2.3678E+00	47.500	2.3088E+00
49.000	2.2021E+00	51.000	2.0496E+00	53.000	1.8823E+00
55.500	1.6513E+00	57.750	1.4199E+00	59.250	1.2638E+00
60.500	1.1343E+00	61.500	1.0323E+00	62.500	9.3222E-01
63.750	8.1074E-01	65.250	6.7168E-01	67.000	5.2050E-01
69.500	3.3114E-01	72.500	1.5803E-01	75.500	5.4876E-02
78.500	1.8514E-02	81.500	7.8236E-03	84.500	3.5212E-03
87.000	1.6182E-03	88.500	7.8758E-04	89.500	2.9816E-04
90.500	-1.4824E-04	91.500	-5.6731E-04	93.000	-1.1750E-03
95.000	-1.9913E-03	97.500	-3.1099E-03	100.500	-4.7939E-03

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103.500	-7.0599E-03	107.000	-1.0782E-02	111.500	-1.8426E-02
115.500	-3.0017E-02	118.000	-4.0350E-02	120.000	-5.0921E-02
121.500	-5.2266E-02	122.500	-5.2968E-02	123.750	-5.3646E-02
125.250	-5.4188E-02	127.000	-5.4492E-02	129.250	-5.4443E-02
131.500	-5.3993E-02	133.750	-5.3235E-02	137.500	-5.1479E-02
142.500	-4.8556E-02	146.500	-4.5964E-02	149.000	-4.4277E-02
150.700	-4.3115E-02	151.900	-4.2290E-02	152.700	-4.1739E-02
153.500	-4.1187E-02	157.000	-3.8747E-02	162.500	-3.5040E-02
167.500	-3.1776E-02	172.500	-2.8657E-02	176.500	-2.6297E-02
179.000	-2.4875E-02	180.500	-2.4043E-02	181.500	-2.3495E-02
182.500	-2.2955E-02	183.500	-2.2423E-02	184.500	-2.1898E-02
186.000	-2.1122E-02	188.500	-1.9866E-02	192.500	-1.7948E-02
198.500	-1.5303E-02	206.000	-1.2392E-02	215.000	-9.4189E-03
227.500	-6.1171E-03	237.500	-4.3229E-03	250.000	-2.3724E-03
270.000	-7.0451E-04	290.000	1.0598E-04	310.000	4.6519E-04
330.000	6.1112E-04	350.000	6.6576E-04	370.000	6.8472E-04
390.000	6.9084E-04	410.000	6.9269E-04	430.000	6.9322E-04
447.500	6.9334E-04	460.000	6.9338E-04	469.000	6.9339E-04
475.500	6.9339E-04	480.000	6.9340E-04	483.500	6.9340E-04
486.000	6.9340E-04	487.500	6.9340E-04	488.500	6.9340E-04
489.000	6.9340E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.3884E-03	0.300	7.6100E-03
0.600	1.1288E-02	1.000	1.5500E-02	1.500	2.2156E-02
2.200	2.9966E-02	3.000	3.8596E-02	4.000	5.7169E-02
5.500	8.4905E-02	7.500	9.9630E-02	9.500	1.1145E-01
12.000	1.2003E-01	14.500	1.2629E-01	17.500	1.1922E-01
20.000	1.1384E-01	23.000	1.0813E-01	25.500	8.5064E-02
27.500	6.4278E-02	29.000	4.4997E-02	30.000	3.5543E-02
31.000	3.5115E-02	32.000	4.3391E-02	33.500	5.1231E-02
35.000	5.8881E-02	37.000	8.2604E-02	40.000	8.0664E-02
42.000	6.3643E-02	44.000	4.7140E-02	45.000	3.1247E-02
46.000	3.1078E-02	47.000	3.1152E-02	48.000	4.9283E-02
50.000	6.8611E-02	52.000	6.8316E-02	54.000	8.2532E-02
57.000	6.8033E-02	58.500	4.2688E-02	60.000	3.3016E-02
61.000	2.4886E-02	62.000	2.3215E-02	63.000	2.6757E-02
64.500	2.7706E-02	66.000	2.6916E-02	68.000	2.8268E-02
71.000	1.9078E-02	74.000	1.0011E-02	77.000	5.4332E-03
80.000	3.3071E-03	83.000	2.3305E-03	86.000	1.5781E-03

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88.000	8.8418E-04	89.000	5.8128E-04	90.000	5.8088E-04
91.000	5.8783E-04	92.000	9.0288E-04	94.000	1.3029E-03
96.000	1.8270E-03	99.000	2.7348E-03	102.000	3.5493E-03
105.000	5.4895E-03	109.000	1.0364E-02	114.000	1.4762E-02
117.000	1.2261E-02	119.000	1.1898E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 6 Wet Year 2

December 2023

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INITIAL CONDITIONS

Input File: c:\a\6_.inp

Results File: C:\A\6_1957.res

Date of Run: 08 Jun 2021

Time of Run: 14:32:53.95

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	3.739E+03	0.1993	293.15	2	1.000E-01	3.249E+03	0.2061 293.15
3	3.000E-01	2.937E+03	0.2111	293.15	4	6.000E-01	2.907E+03	0.2116 293.15
5	1.000E+00	2.988E+03	0.2102	293.15	6	1.500E+00	3.037E+03	0.2094 293.15
7	2.200E+00	3.023E+03	0.2096	293.15	8	3.000E+00	3.015E+03	0.2097 293.15
9	4.000E+00	3.019E+03	0.2097	293.15	10	5.500E+00	3.023E+03	0.2096 293.15
11	7.500E+00	3.030E+03	0.2095	293.15	12	9.500E+00	3.041E+03	0.2093 293.15
13	1.200E+01	3.058E+03	0.2090	293.15	14	1.450E+01	3.078E+03	0.2087 293.15
15	1.750E+01	3.108E+03	0.2082	293.15	16	2.000E+01	3.137E+03	0.2078 293.15
17	2.300E+01	3.175E+03	0.2072	293.15	18	2.550E+01	3.208E+03	0.2067 293.15
19	2.750E+01	3.236E+03	0.2062	293.15	20	2.900E+01	3.257E+03	0.2059 293.15
21	3.000E+01	3.271E+03	0.2057	293.15	22	3.100E+01	3.285E+03	0.2055 293.15
23	3.200E+01	3.299E+03	0.2053	293.15	24	3.350E+01	3.319E+03	0.2050 293.15
25	3.500E+01	3.338E+03	0.2047	293.15	26	3.700E+01	3.362E+03	0.2044 293.15
27	4.000E+01	3.394E+03	0.2039	293.15	28	4.200E+01	3.411E+03	0.2037 293.15
29	4.400E+01	3.424E+03	0.2035	293.15	30	4.500E+01	3.429E+03	0.2034 293.15
31	4.600E+01	3.433E+03	0.2034	293.15	32	4.700E+01	3.471E+03	0.2028 293.15
33	4.800E+01	3.774E+03	0.1988	293.15	34	5.000E+01	3.913E+03	0.1971 293.15
35	5.200E+01	3.815E+03	0.1983	293.15	36	5.400E+01	3.731E+03	0.1994 293.15
37	5.700E+01	3.727E+03	0.1994	293.15	38	5.850E+01	3.785E+03	0.1987 293.15
39	6.000E+01	3.887E+03	0.1974	293.15	40	6.100E+01	3.981E+03	0.1963 293.15
41	6.200E+01	4.099E+03	0.1950	293.15	42	6.300E+01	4.245E+03	0.1933 293.15
43	6.450E+01	4.527E+03	0.1904	293.15	44	6.600E+01	4.905E+03	0.1867 293.15
45	6.800E+01	5.633E+03	0.1806	293.15	46	7.100E+01	7.664E+03	0.1677 293.15
47	7.400E+01	1.278E+04	0.1482	293.15	48	7.700E+01	2.381E+04	0.1274 293.15
49	8.000E+01	3.246E+04	0.1181	293.15	50	8.300E+01	3.600E+04	0.1152 293.15
51	8.600E+01	3.746E+04	0.1141	293.15	52	8.800E+01	3.796E+04	0.1137 293.15
53	8.900E+01	3.811E+04	0.1136	293.15	54	9.000E+01	3.822E+04	0.1135 293.15
55	9.100E+01	3.828E+04	0.1135	293.15	56	9.200E+01	3.830E+04	0.1135 293.15
57	9.400E+01	3.825E+04	0.1135	293.15	58	9.600E+01	3.809E+04	0.1136 293.15

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59 9.900E+01 3.768E+04 0.1139 293.15	60 1.020E+02 3.704E+04 0.1144 293.15
61 1.050E+02 3.615E+04 0.1151 293.15	62 1.090E+02 3.447E+04 0.1164 293.15
63 1.140E+02 3.140E+04 0.1191 293.15	64 1.170E+02 2.903E+04 0.1214 293.15
65 1.190E+02 2.737E+04 0.1231 293.15	66 1.210E+02 2.575E+04 0.1250 293.15
67 1.220E+02 2.498E+04 0.1259 293.15	68 1.230E+02 2.423E+04 0.1268 293.15
69 1.245E+02 2.318E+04 0.1282 293.15	70 1.260E+02 2.222E+04 0.1295 293.15
71 1.280E+02 2.107E+04 0.1312 293.15	72 1.305E+02 1.982E+04 0.1332 293.15
73 1.325E+02 1.896E+04 0.1346 293.15	74 1.350E+02 1.803E+04 0.1363 293.15
75 1.400E+02 1.652E+04 0.1392 293.15	76 1.450E+02 1.536E+04 0.1417 293.15
77 1.480E+02 1.478E+04 0.1430 293.15	78 1.500E+02 1.444E+04 0.1438 293.15
79 1.514E+02 1.422E+04 0.1444 293.15	80 1.524E+02 1.407E+04 0.1448 293.15
81 1.530E+02 1.398E+04 0.1450 293.15	82 1.540E+02 1.384E+04 0.1453 293.15
83 1.600E+02 1.311E+04 0.1473 293.15	84 1.650E+02 1.262E+04 0.1486 293.15
85 1.700E+02 1.221E+04 0.1498 293.15	86 1.750E+02 1.187E+04 0.1509 293.15
87 1.780E+02 1.169E+04 0.1514 293.15	88 1.800E+02 1.158E+04 0.1518 293.15
89 1.810E+02 1.153E+04 0.1519 293.15	90 1.820E+02 1.148E+04 0.1521 293.15
91 1.830E+02 1.143E+04 0.1522 293.15	92 1.840E+02 1.138E+04 0.1524 293.15
93 1.850E+02 1.134E+04 0.1525 293.15	94 1.870E+02 1.125E+04 0.1528 293.15
95 1.900E+02 1.113E+04 0.1532 293.15	96 1.950E+02 1.095E+04 0.1538 293.15
97 2.020E+02 1.075E+04 0.1545 293.15	98 2.100E+02 1.056E+04 0.1552 293.15
99 2.200E+02 1.039E+04 0.1558 293.15	100 2.350E+02 1.022E+04 0.1564 293.15
101 2.400E+02 1.018E+04 0.1566 293.15	102 2.600E+02 1.008E+04 0.1570 293.15
103 2.800E+02 1.003E+04 0.1571 293.15	104 3.000E+02 1.001E+04 0.1572 293.15
105 3.200E+02 1.000E+04 0.1572 293.15	106 3.400E+02 1.000E+04 0.1573 293.15
107 3.600E+02 1.000E+04 0.1573 293.15	108 3.800E+02 1.000E+04 0.1573 293.15
109 4.000E+02 1.000E+04 0.1573 293.15	110 4.200E+02 1.000E+04 0.1573 293.15
111 4.400E+02 1.000E+04 0.1573 293.15	112 4.550E+02 1.000E+04 0.1573 293.15
113 4.650E+02 1.000E+04 0.1573 293.15	114 4.730E+02 1.000E+04 0.1573 293.15
115 4.780E+02 1.000E+04 0.1573 293.15	116 4.820E+02 1.000E+04 0.1573 293.15
117 4.850E+02 1.000E+04 0.1573 293.15	118 4.870E+02 1.000E+04 0.1573 293.15
119 4.880E+02 1.000E+04 0.1573 293.15	120 4.890E+02 1.000E+04 0.1573 293.15

Initial Water Storage = 77.1931 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.19625
Head (cm) = 3.98727E+03

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LiqWater Flow (cm)=-4.40980E-02
IsoVapor Flow (cm)=-5.03779E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

77.1931+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 77.1488 vs. 77.1488

Mass Balance = -7.6951E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.19725
Head (cm) = 3.90269E+03
LiqWater Flow (cm)=-5.82066E-02
IsoVapor Flow (cm)=-6.28569E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

77.9874+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 77.9289 vs. 77.9289

Mass Balance = -1.0292E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
Actual Transpiration = 3.4332E+00 [cm]
Potential Evaporation = 9.9911E+01 [cm]
Actual Evaporation = 4.6532E+01 [cm]
Evaporation during Growth = 3.2288E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 6.9340E-04 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 5.0698E+01 [cm]
Actual Rainfall = 5.0698E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 7.7929E+01 [cm]
Mass Balance Error = -3.6261E-03 [cm]
Total Successful Time Steps = 11887
Total Attempted Time Steps = 12904
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 3088
Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	4.1660E+00	0.050	4.8207E+00	0.200	4.9354E+00
0.450	4.5972E+00	0.800	4.4034E+00	1.250	4.2798E+00
1.850	4.1910E+00	2.600	4.1204E+00	3.500	4.0564E+00
4.750	3.9794E+00	6.500	3.8773E+00	8.500	3.7639E+00
10.750	3.6400E+00	13.250	3.5078E+00	16.000	3.3691E+00
18.750	3.2376E+00	21.500	3.1115E+00	24.250	2.9909E+00
26.500	2.8953E+00	28.250	2.8228E+00	29.500	2.7717E+00
30.500	2.7314E+00	31.500	2.6913E+00	32.750	2.6418E+00
34.250	2.5830E+00	36.000	2.5153E+00	38.500	2.4199E+00
41.000	2.3262E+00	43.000	2.2521E+00	44.500	2.1970E+00
45.500	2.1605E+00	46.500	2.1255E+00	47.500	2.0987E+00
49.000	2.0336E+00	51.000	1.9441E+00	53.000	1.8528E+00
55.500	1.7374E+00	57.750	1.6318E+00	59.250	1.5610E+00
60.500	1.5015E+00	61.500	1.4538E+00	62.500	1.4058E+00
63.750	1.3455E+00	65.250	1.2723E+00	67.000	1.1858E+00
69.500	1.0589E+00	72.500	8.9511E-01	75.500	7.0672E-01
78.500	5.0079E-01	81.500	3.2360E-01	84.500	1.9213E-01
87.000	1.1676E-01	88.500	8.4018E-02	89.500	6.6408E-02
90.500	5.1997E-02	91.500	4.0315E-02	93.000	2.6598E-02
95.000	1.4547E-02	97.500	5.0897E-03	100.500	-1.2445E-03

December 2023

103.500	-5.4960E-03	107.000	-1.0042E-02	111.500	-1.7568E-02
115.500	-2.8398E-02	118.000	-3.8072E-02	120.000	-4.8040E-02
121.500	-4.9202E-02	122.500	-4.9817E-02	123.750	-5.0426E-02
125.250	-5.0946E-02	127.000	-5.1291E-02	129.250	-5.1382E-02
131.500	-5.1140E-02	133.750	-5.0628E-02	137.500	-4.9315E-02
142.500	-4.6949E-02	146.500	-4.4747E-02	149.000	-4.3283E-02
150.700	-4.2262E-02	151.900	-4.1532E-02	152.700	-4.1043E-02
153.500	-4.0551E-02	157.000	-3.8365E-02	162.500	-3.4987E-02
167.500	-3.1977E-02	172.500	-2.9070E-02	176.500	-2.6852E-02
179.000	-2.5507E-02	180.500	-2.4718E-02	181.500	-2.4198E-02
182.500	-2.3684E-02	183.500	-2.3177E-02	184.500	-2.2676E-02
186.000	-2.1933E-02	188.500	-2.0727E-02	192.500	-1.8877E-02
198.500	-1.6300E-02	206.000	-1.3428E-02	215.000	-1.0445E-02
227.500	-7.0562E-03	237.500	-5.1429E-03	250.000	-3.0324E-03
270.000	-1.1164E-03	290.000	-1.2111E-04	310.000	3.5301E-04
330.000	5.6092E-04	350.000	6.4522E-04	370.000	6.7698E-04
390.000	6.8814E-04	410.000	6.9181E-04	430.000	6.9295E-04
447.500	6.9325E-04	460.000	6.9334E-04	469.000	6.9337E-04
475.500	6.9338E-04	480.000	6.9339E-04	483.500	6.9339E-04
486.000	6.9340E-04	487.500	6.9340E-04	488.500	6.9340E-04
489.000	6.9340E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	5.5425E-03	0.300	9.5219E-03
0.600	1.3891E-02	1.000	1.8717E-02	1.500	2.6316E-02
2.200	3.5007E-02	3.000	4.4419E-02	4.000	6.4827E-02
5.500	9.4849E-02	7.500	1.1000E-01	9.500	1.2223E-01
12.000	1.3098E-01	14.500	1.3745E-01	17.500	1.2953E-01
20.000	1.2356E-01	23.000	1.1729E-01	25.500	9.2252E-02
27.500	6.9711E-02	29.000	4.8806E-02	30.000	3.8556E-02
31.000	3.8096E-02	32.000	4.7081E-02	33.500	5.5603E-02
35.000	6.3923E-02	37.000	8.9715E-02	40.000	8.7675E-02
42.000	6.9215E-02	44.000	5.1301E-02	45.000	3.4017E-02
46.000	3.3845E-02	47.000	3.4042E-02	48.000	5.5315E-02
50.000	8.0092E-02	52.000	8.2918E-02	54.000	1.0484E-01
57.000	9.4156E-02	58.500	6.2349E-02	60.000	5.1464E-02
61.000	4.0848E-02	62.000	4.0476E-02	63.000	5.0067E-02
64.500	5.8983E-02	66.000	6.7321E-02	68.000	9.2825E-02
71.000	1.0388E-01	74.000	9.4274E-02	77.000	8.2024E-02
80.000	6.6503E-02	83.000	4.7949E-02	86.000	2.4661E-02

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88.000	9.8162E-03	89.000	5.2085E-03	90.000	4.1104E-03
91.000	3.2347E-03	92.000	3.8332E-03	94.000	3.4030E-03
96.000	3.1927E-03	99.000	3.3939E-03	102.000	3.8431E-03
105.000	5.6606E-03	109.000	1.0421E-02	114.000	1.4570E-02
117.000	1.1998E-02	119.000	1.1596E-02	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample 6 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is C:\A\6_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =              76.901
 1 22.530 135.832  2.138 21.189  0.000  0.001  76.106  11340 -0.00446
 2 22.530 135.832  1.515 21.786  0.000  0.001  75.339  11333 -0.00452
 3 22.530 135.832  1.209 21.758  0.000  0.001  74.905  11344 -0.00451
 4 22.530 135.832  1.058 21.747  0.000  0.001  74.635  11346 -0.00442
 5 22.530 135.832  0.978 21.746  0.000  0.001  74.444  11333 -0.00452
 6 22.530 135.832  0.935 21.743  0.000  0.001  74.300  11330 -0.00438
 7 22.530 135.832  0.909 21.743  0.000  0.001  74.182  11366 -0.00441
 8 22.530 135.832  0.895 21.740  0.000  0.001  74.080  11324 -0.00448
 9 22.530 135.832  0.884 21.742  0.000  0.001  73.988  11330 -0.00442
10 22.530 135.832  0.876 21.741  0.000  0.001  73.904  11331 -0.00434
11 50.698 113.700  2.536 44.878  0.000  0.001  77.193  12106 -0.00461
12 50.698 113.759  3.433 46.532  0.000  0.001  77.929  11887 -0.00363
-----
SUM= 326.6951585.780 17.366 308.345  0.000  0.008              -0.05268
```

Sensitivity Analysis #1: Soil Sample TP3 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP153_.inp
Results File: C:\A\TP153_1955.res
Date of Run: 08 Jun 2021
Time of Run: 14:57:47.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.171E+01	0.2626	293.15	2	1.000E-01	1.175E+02	0.2542 293.15
3	3.000E-01	1.077E+02	0.2571	293.15	4	6.000E-01	1.075E+02	0.2572 293.15
5	1.000E+00	1.065E+02	0.2575	293.15	6	1.500E+00	1.051E+02	0.2580 293.15
7	2.200E+00	1.030E+02	0.2586	293.15	8	3.000E+00	1.006E+02	0.2594 293.15
9	4.000E+00	9.754E+01	0.2605	293.15	10	5.500E+00	9.325E+01	0.2620 293.15
11	7.500E+00	8.858E+01	0.2638	293.15	12	9.500E+00	8.530E+01	0.2651 293.15
13	1.200E+01	8.295E+01	0.2660	293.15	14	1.450E+01	8.217E+01	0.2663 293.15
15	1.750E+01	8.299E+01	0.2660	293.15	16	2.000E+01	8.498E+01	0.2652 293.15
17	2.300E+01	8.901E+01	0.2636	293.15	18	2.550E+01	9.372E+01	0.2618 293.15
19	2.750E+01	9.841E+01	0.2602	293.15	20	2.900E+01	1.024E+02	0.2588 293.15
21	3.000E+01	1.054E+02	0.2579	293.15	22	3.100E+01	1.084E+02	0.2569 293.15
23	3.200E+01	1.117E+02	0.2559	293.15	24	3.350E+01	1.169E+02	0.2544 293.15
25	3.500E+01	1.222E+02	0.2529	293.15	26	3.700E+01	1.295E+02	0.2509 293.15
27	4.000E+01	1.401E+02	0.2483	293.15	28	4.200E+01	1.466E+02	0.2468 293.15
29	4.400E+01	1.523E+02	0.2455	293.15	30	4.500E+01	1.548E+02	0.2450 293.15
31	4.600E+01	1.571E+02	0.2445	293.15	32	4.700E+01	1.661E+02	0.2427 293.15
33	4.800E+01	2.032E+02	0.2361	293.15	34	5.000E+01	3.685E+02	0.2175 293.15
35	5.200E+01	4.900E+03	0.1511	293.15	36	5.400E+01	1.417E+04	0.1300 293.15
37	5.700E+01	2.075E+04	0.1232	293.15	38	5.850E+01	2.401E+04	0.1207 293.15
39	6.000E+01	2.709E+04	0.1187	293.15	40	6.100E+01	2.894E+04	0.1175 293.15
41	6.200E+01	3.063E+04	0.1166	293.15	42	6.300E+01	3.212E+04	0.1158 293.15
43	6.450E+01	3.401E+04	0.1149	293.15	44	6.600E+01	3.551E+04	0.1142 293.15
45	6.800E+01	3.699E+04	0.1135	293.15	46	7.100E+01	3.834E+04	0.1130 293.15
47	7.400E+01	3.909E+04	0.1127	293.15	48	7.700E+01	3.949E+04	0.1125 293.15
49	8.000E+01	3.971E+04	0.1124	293.15	50	8.300E+01	3.983E+04	0.1124 293.15
51	8.600E+01	3.989E+04	0.1123	293.15	52	8.800E+01	3.991E+04	0.1123 293.15
53	8.900E+01	3.992E+04	0.1123	293.15	54	9.000E+01	3.993E+04	0.1123 293.15
55	9.100E+01	3.993E+04	0.1123	293.15	56	9.200E+01	3.993E+04	0.1123 293.15
57	9.400E+01	3.992E+04	0.1123	293.15	58	9.600E+01	3.990E+04	0.1123 293.15

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59 9.900E+01 3.984E+04 0.1124 293.15	60 1.020E+02 3.973E+04 0.1124 293.15
61 1.050E+02 3.953E+04 0.1125 293.15	62 1.090E+02 3.902E+04 0.1127 293.15
63 1.140E+02 3.749E+04 0.1133 293.15	64 1.170E+02 3.541E+04 0.1142 293.15
65 1.190E+02 3.341E+04 0.1152 293.15	66 1.210E+02 3.097E+04 0.1164 293.15
67 1.220E+02 2.966E+04 0.1171 293.15	68 1.230E+02 2.832E+04 0.1179 293.15
69 1.245E+02 2.628E+04 0.1192 293.15	70 1.260E+02 2.430E+04 0.1205 293.15
71 1.280E+02 2.182E+04 0.1223 293.15	72 1.305E+02 1.906E+04 0.1247 293.15
73 1.325E+02 1.715E+04 0.1266 293.15	74 1.350E+02 1.516E+04 0.1288 293.15
75 1.400E+02 1.244E+04 0.1325 293.15	76 1.450E+02 1.106E+04 0.1347 293.15
77 1.480E+02 1.061E+04 0.1355 293.15	78 1.500E+02 1.041E+04 0.1358 293.15
79 1.514E+02 1.030E+04 0.1360 293.15	80 1.524E+02 1.024E+04 0.1362 293.15
81 1.530E+02 1.021E+04 0.1362 293.15	82 1.540E+02 1.017E+04 0.1363 293.15
83 1.600E+02 1.005E+04 0.1365 293.15	84 1.650E+02 1.001E+04 0.1366 293.15
85 1.700E+02 1.000E+04 0.1366 293.15	86 1.750E+02 1.000E+04 0.1366 293.15
87 1.780E+02 1.000E+04 0.1366 293.15	88 1.800E+02 1.000E+04 0.1366 293.15
89 1.810E+02 1.000E+04 0.1366 293.15	90 1.820E+02 1.000E+04 0.1366 293.15
91 1.830E+02 1.000E+04 0.1366 293.15	92 1.840E+02 1.000E+04 0.1366 293.15
93 1.850E+02 1.000E+04 0.1366 293.15	94 1.870E+02 1.000E+04 0.1366 293.15
95 1.900E+02 1.000E+04 0.1366 293.15	96 1.950E+02 1.000E+04 0.1366 293.15
97 2.020E+02 1.000E+04 0.1366 293.15	98 2.100E+02 1.000E+04 0.1366 293.15
99 2.200E+02 1.000E+04 0.1366 293.15	100 2.350E+02 1.000E+04 0.1366 293.15
101 2.400E+02 1.000E+04 0.1366 293.15	102 2.600E+02 1.000E+04 0.1366 293.15
103 2.800E+02 1.000E+04 0.1366 293.15	104 3.000E+02 1.000E+04 0.1366 293.15
105 3.200E+02 1.000E+04 0.1366 293.15	106 3.400E+02 1.000E+04 0.1366 293.15
107 3.600E+02 1.000E+04 0.1366 293.15	108 3.800E+02 1.000E+04 0.1366 293.15
109 4.000E+02 1.000E+04 0.1366 293.15	110 4.200E+02 1.000E+04 0.1366 293.15
111 4.400E+02 1.000E+04 0.1366 293.15	112 4.550E+02 1.000E+04 0.1366 293.15
113 4.650E+02 1.000E+04 0.1366 293.15	114 4.730E+02 1.000E+04 0.1366 293.15
115 4.780E+02 1.000E+04 0.1366 293.15	116 4.820E+02 1.000E+04 0.1366 293.15
117 4.850E+02 1.000E+04 0.1366 293.15	118 4.870E+02 1.000E+04 0.1366 293.15
119 4.880E+02 1.000E+04 0.1366 293.15	120 4.890E+02 1.000E+04 0.1366 293.15

Initial Water Storage = 71.1541 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.25130
Head (cm) = 1.27995E+02

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LiqWater Flow (cm)=-6.78266E-02
IsoVapor Flow (cm)=-2.95160E-06
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

71.1541+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 71.0857 vs. 71.0857

Mass Balance = -7.5315E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.26259
Head (cm) = 9.17112E+01
LiqWater Flow (cm)=-3.94241E-02
IsoVapor Flow (cm)=-1.36948E-06
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

71.1715+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 71.1318 vs. 71.1318

Mass Balance = -2.0222E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

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Potential Transpiration = 1.6719E+01 [cm]
 Actual Transpiration = 7.5729E+00 [cm]
 Potential Evaporation = 1.1911E+02 [cm]
 Actual Evaporation = 1.4983E+01 [cm]
 Evaporation during Growth = 8.6212E+00 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 7.3146E-06 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 7.1132E+01 [cm]
 Mass Balance Error = -4.2128E-03 [cm]
 Total Successful Time Steps = 13218
 Total Attempted Time Steps = 16298
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6883
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	7.5463E+00	0.050	9.2177E+00	0.200	8.2437E+00
0.450	7.6585E+00	0.800	7.4114E+00	1.250	7.2889E+00
1.850	7.1292E+00	2.600	6.9301E+00	3.500	6.6937E+00
4.750	6.3754E+00	6.500	5.9574E+00	8.500	5.5221E+00
10.750	5.0746E+00	13.250	4.6337E+00	16.000	4.1941E+00
18.750	3.7901E+00	21.500	3.4108E+00	24.250	3.0578E+00
26.500	2.7840E+00	28.250	2.5789E+00	29.500	2.4365E+00
30.500	2.3247E+00	31.500	2.2150E+00	32.750	2.0810E+00
34.250	1.9258E+00	36.000	1.7530E+00	38.500	1.5201E+00
41.000	1.3023E+00	43.000	1.1339E+00	44.500	1.0101E+00
45.500	9.2833E-01	46.500	8.4604E-01	47.500	7.6366E-01
49.000	6.4263E-01	51.000	4.8330E-01	53.000	3.2775E-01
55.500	1.3939E-01	57.750	2.2979E-02	59.250	4.2981E-03
60.500	1.9266E-03	61.500	1.2259E-03	62.500	8.4591E-04
63.750	5.6745E-04	65.250	3.7520E-04	67.000	2.4253E-04
69.500	1.3597E-04	72.500	7.2388E-05	75.500	3.9563E-05
78.500	2.1907E-05	81.500	1.2139E-05	84.500	6.5481E-06
87.000	3.6882E-06	88.500	2.3632E-06	89.500	1.5604E-06
90.500	8.0791E-07	91.500	7.8025E-08	93.000	-1.0231E-06
95.000	-2.6683E-06	97.500	-5.2494E-06	100.500	-1.0148E-05

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103.500	-1.8531E-05	107.000	-3.5971E-05	111.500	-8.5635E-05
115.500	-2.0574E-04	118.000	-3.6887E-04	120.000	-6.3008E-04
121.500	-7.2150E-04	122.500	-7.9059E-04	123.750	-8.8678E-04
125.250	-1.0147E-03	127.000	-1.1821E-03	129.250	-1.4142E-03
131.500	-1.6375E-03	133.750	-1.8138E-03	137.500	-1.8530E-03
142.500	-1.4359E-03	146.500	-9.8650E-04	149.000	-7.2074E-04
150.700	-5.6642E-04	151.900	-4.7278E-04	152.700	-4.1776E-04
153.500	-3.6669E-04	157.000	-1.6858E-04	162.500	-5.3257E-05
167.500	-1.2861E-05	172.500	1.2026E-06	176.500	4.9478E-06
179.000	6.0753E-06	180.500	6.4794E-06	181.500	6.6851E-06
182.500	6.8414E-06	183.500	6.9595E-06	184.500	7.0482E-06
186.000	7.1470E-06	188.500	7.2373E-06	192.500	7.2934E-06
198.500	7.3114E-06	206.000	7.3143E-06	215.000	7.3146E-06
227.500	7.3146E-06	237.500	7.3146E-06	250.000	7.3146E-06
270.000	7.3146E-06	290.000	7.3146E-06	310.000	7.3146E-06
330.000	7.3146E-06	350.000	7.3146E-06	370.000	7.3146E-06
390.000	7.3146E-06	410.000	7.3146E-06	430.000	7.3146E-06
447.500	7.3146E-06	460.000	7.3146E-06	469.000	7.3146E-06
475.500	7.3146E-06	480.000	7.3146E-06	483.500	7.3146E-06
486.000	7.3146E-06	487.500	7.3146E-06	488.500	7.3146E-06
489.000	7.3146E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.8783E-02	0.300	5.3369E-02
0.600	8.1282E-02	1.000	1.1106E-01	1.500	1.5385E-01
2.200	1.9596E-01	3.000	2.3458E-01	4.000	3.1689E-01
5.500	4.1742E-01	7.500	4.3516E-01	9.500	4.4711E-01
12.000	4.4051E-01	14.500	4.4051E-01	17.500	4.0417E-01
20.000	3.7921E-01	23.000	3.5286E-01	25.500	2.7382E-01
27.500	2.0496E-01	29.000	1.4234E-01	30.000	1.1171E-01
31.000	1.0951E-01	32.000	1.3393E-01	33.500	1.5481E-01
35.000	1.7247E-01	37.000	2.3229E-01	40.000	2.1723E-01
42.000	1.6863E-01	44.000	1.2416E-01	45.000	8.2188E-02
46.000	8.1672E-02	47.000	8.1208E-02	48.000	1.2080E-01
50.000	1.5651E-01	52.000	1.4900E-01	54.000	1.6992E-01
57.000	8.6255E-02	58.500	2.9455E-02	60.000	1.4253E-02
61.000	8.3652E-03	62.000	6.3220E-03	63.000	6.1038E-03
64.500	5.1531E-03	66.000	4.3345E-03	68.000	4.1158E-03
71.000	2.7836E-03	74.000	1.5800E-03	77.000	8.9740E-04
80.000	5.1217E-04	83.000	2.9868E-04	86.000	1.5469E-04

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88.000	7.2341E-05	89.000	4.4055E-05	90.000	4.1486E-05
91.000	4.0418E-05	92.000	6.1208E-05	94.000	9.1932E-05
96.000	1.4421E-04	99.000	2.7208E-04	102.000	4.5833E-04
105.000	9.2136E-04	109.000	2.4179E-03	114.000	5.1427E-03
117.000	5.6954E-03	119.000	6.9665E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP3 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP153_.inp
Results File: C:\A\TP153_1956.res
Date of Run: 08 Jun 2021
Time of Run: 14:57:47.25
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.171E+01	0.2626	293.15	2	1.000E-01	1.175E+02	0.2542 293.15
3	3.000E-01	1.077E+02	0.2571	293.15	4	6.000E-01	1.075E+02	0.2572 293.15
5	1.000E+00	1.065E+02	0.2575	293.15	6	1.500E+00	1.051E+02	0.2580 293.15
7	2.200E+00	1.030E+02	0.2586	293.15	8	3.000E+00	1.006E+02	0.2594 293.15
9	4.000E+00	9.753E+01	0.2605	293.15	10	5.500E+00	9.325E+01	0.2620 293.15
11	7.500E+00	8.858E+01	0.2638	293.15	12	9.500E+00	8.530E+01	0.2651 293.15
13	1.200E+01	8.295E+01	0.2660	293.15	14	1.450E+01	8.217E+01	0.2663 293.15
15	1.750E+01	8.298E+01	0.2660	293.15	16	2.000E+01	8.498E+01	0.2652 293.15
17	2.300E+01	8.900E+01	0.2636	293.15	18	2.550E+01	9.372E+01	0.2619 293.15
19	2.750E+01	9.840E+01	0.2602	293.15	20	2.900E+01	1.024E+02	0.2588 293.15
21	3.000E+01	1.053E+02	0.2579	293.15	22	3.100E+01	1.084E+02	0.2569 293.15
23	3.200E+01	1.117E+02	0.2559	293.15	24	3.350E+01	1.168E+02	0.2544 293.15
25	3.500E+01	1.222E+02	0.2529	293.15	26	3.700E+01	1.295E+02	0.2509 293.15
27	4.000E+01	1.401E+02	0.2483	293.15	28	4.200E+01	1.466E+02	0.2468 293.15
29	4.400E+01	1.522E+02	0.2455	293.15	30	4.500E+01	1.548E+02	0.2450 293.15
31	4.600E+01	1.570E+02	0.2445	293.15	32	4.700E+01	1.661E+02	0.2427 293.15
33	4.800E+01	2.032E+02	0.2361	293.15	34	5.000E+01	3.684E+02	0.2175 293.15
35	5.200E+01	4.901E+03	0.1511	293.15	36	5.400E+01	1.418E+04	0.1300 293.15
37	5.700E+01	2.078E+04	0.1232	293.15	38	5.850E+01	2.404E+04	0.1207 293.15
39	6.000E+01	2.711E+04	0.1186	293.15	40	6.100E+01	2.897E+04	0.1175 293.15
41	6.200E+01	3.065E+04	0.1166	293.15	42	6.300E+01	3.214E+04	0.1158 293.15
43	6.450E+01	3.403E+04	0.1149	293.15	44	6.600E+01	3.553E+04	0.1142 293.15
45	6.800E+01	3.700E+04	0.1135	293.15	46	7.100E+01	3.835E+04	0.1130 293.15
47	7.400E+01	3.909E+04	0.1127	293.15	48	7.700E+01	3.949E+04	0.1125 293.15
49	8.000E+01	3.971E+04	0.1124	293.15	50	8.300E+01	3.983E+04	0.1124 293.15
51	8.600E+01	3.989E+04	0.1123	293.15	52	8.800E+01	3.992E+04	0.1123 293.15
53	8.900E+01	3.992E+04	0.1123	293.15	54	9.000E+01	3.993E+04	0.1123 293.15
55	9.100E+01	3.993E+04	0.1123	293.15	56	9.200E+01	3.993E+04	0.1123 293.15
57	9.400E+01	3.992E+04	0.1123	293.15	58	9.600E+01	3.990E+04	0.1123 293.15
59	9.900E+01	3.985E+04	0.1123	293.15	60	1.020E+02	3.975E+04	0.1124 293.15
61	1.050E+02	3.956E+04	0.1125	293.15	62	1.090E+02	3.908E+04	0.1127 293.15
63	1.140E+02	3.762E+04	0.1133	293.15	64	1.170E+02	3.564E+04	0.1141 293.15

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65	1.190E+02	3.374E+04	0.1150	293.15	66	1.210E+02	3.143E+04	0.1162	293.15
67	1.220E+02	3.018E+04	0.1169	293.15	68	1.230E+02	2.890E+04	0.1176	293.15
69	1.245E+02	2.695E+04	0.1187	293.15	70	1.260E+02	2.504E+04	0.1200	293.15
71	1.280E+02	2.264E+04	0.1217	293.15	72	1.305E+02	1.993E+04	0.1239	293.15
73	1.325E+02	1.802E+04	0.1257	293.15	74	1.350E+02	1.597E+04	0.1279	293.15
75	1.400E+02	1.302E+04	0.1316	293.15	76	1.450E+02	1.140E+04	0.1341	293.15
77	1.480E+02	1.084E+04	0.1351	293.15	78	1.500E+02	1.058E+04	0.1355	293.15
79	1.514E+02	1.044E+04	0.1358	293.15	80	1.524E+02	1.036E+04	0.1359	293.15
81	1.530E+02	1.032E+04	0.1360	293.15	82	1.540E+02	1.026E+04	0.1361	293.15
83	1.600E+02	1.008E+04	0.1365	293.15	84	1.650E+02	1.003E+04	0.1366	293.15
85	1.700E+02	1.001E+04	0.1366	293.15	86	1.750E+02	1.000E+04	0.1366	293.15
87	1.780E+02	1.000E+04	0.1366	293.15	88	1.800E+02	1.000E+04	0.1366	293.15
89	1.810E+02	1.000E+04	0.1366	293.15	90	1.820E+02	1.000E+04	0.1366	293.15
91	1.830E+02	1.000E+04	0.1366	293.15	92	1.840E+02	1.000E+04	0.1366	293.15
93	1.850E+02	1.000E+04	0.1366	293.15	94	1.870E+02	1.000E+04	0.1366	293.15
95	1.900E+02	1.000E+04	0.1366	293.15	96	1.950E+02	1.000E+04	0.1366	293.15
97	2.020E+02	1.000E+04	0.1366	293.15	98	2.100E+02	1.000E+04	0.1366	293.15
99	2.200E+02	1.000E+04	0.1366	293.15	100	2.350E+02	1.000E+04	0.1366	293.15
101	2.400E+02	1.000E+04	0.1366	293.15	102	2.600E+02	1.000E+04	0.1366	293.15
103	2.800E+02	1.000E+04	0.1366	293.15	104	3.000E+02	1.000E+04	0.1366	293.15
105	3.200E+02	1.000E+04	0.1366	293.15	106	3.400E+02	1.000E+04	0.1366	293.15
107	3.600E+02	1.000E+04	0.1366	293.15	108	3.800E+02	1.000E+04	0.1366	293.15
109	4.000E+02	1.000E+04	0.1366	293.15	110	4.200E+02	1.000E+04	0.1366	293.15
111	4.400E+02	1.000E+04	0.1366	293.15	112	4.550E+02	1.000E+04	0.1366	293.15
113	4.650E+02	1.000E+04	0.1366	293.15	114	4.730E+02	1.000E+04	0.1366	293.15
115	4.780E+02	1.000E+04	0.1366	293.15	116	4.820E+02	1.000E+04	0.1366	293.15
117	4.850E+02	1.000E+04	0.1366	293.15	118	4.870E+02	1.000E+04	0.1366	293.15
119	4.880E+02	1.000E+04	0.1366	293.15	120	4.890E+02	1.000E+04	0.1366	293.15

Initial Water Storage = 71.1318 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.25619
Head (cm) = 1.10718E+02
LiqWater Flow (cm)=-4.39783E-02
IsoVapor Flow (cm)=-1.29906E-06
Plant Sink (cm) = 0.00000E+00

LIQUID

December 2023

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

71.1318+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 71.0875 vs. 71.0875

Mass Balance = -1.0172E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.26921

Head (cm) = 7.55970E+01

LiqWater Flow (cm)= 2.96603E-04

IsoVapor Flow (cm)=-3.74237E-07

Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

80.6904+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 80.6904 vs. 80.6904

Mass Balance = -1.4141E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1

Potential Evapotranspiration = 1.1370E+02 [cm]

Potential Transpiration = 1.3848E+01 [cm]

Actual Transpiration = 9.6321E+00 [cm]

Potential Evaporation = 9.9853E+01 [cm]

Actual Evaporation = 3.1513E+01 [cm]

Evaporation during Growth = 2.0321E+01 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 7.3347E-06 [cm]

December 2023

Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 8.0690E+01 [cm]
 Mass Balance Error = -5.0706E-03 [cm]
 Total Successful Time Steps = 18479
 Total Attempted Time Steps = 25659
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 4508
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.9186E+01	0.050	2.1459E+01	0.200	1.9641E+01
0.450	1.9110E+01	0.800	1.8984E+01	1.250	1.8848E+01
1.850	1.8670E+01	2.600	1.8453E+01	3.500	1.8201E+01
4.750	1.7867E+01	6.500	1.7430E+01	8.500	1.6973E+01
10.750	1.6500E+01	13.250	1.6024E+01	16.000	1.5548E+01
18.750	1.5117E+01	21.500	1.4718E+01	24.250	1.4352E+01
26.500	1.4070E+01	28.250	1.3859E+01	29.500	1.3713E+01
30.500	1.3597E+01	31.500	1.3483E+01	32.750	1.3342E+01
34.250	1.3175E+01	36.000	1.2981E+01	38.500	1.2708E+01
41.000	1.2438E+01	43.000	1.2223E+01	44.500	1.2062E+01
45.500	1.1955E+01	46.500	1.1848E+01	47.500	1.1739E+01
49.000	1.1566E+01	51.000	1.1295E+01	53.000	1.0885E+01
55.500	1.0319E+01	57.750	9.7845E+00	59.250	9.4252E+00
60.500	9.1223E+00	61.500	8.8795E+00	62.500	8.6354E+00
63.750	8.3299E+00	65.250	7.9586E+00	67.000	7.5233E+00
69.500	6.9010E+00	72.500	6.1542E+00	75.500	5.4263E+00
78.500	4.7388E+00	81.500	4.0505E+00	84.500	3.3749E+00
87.000	2.8334E+00	88.500	2.5322E+00	89.500	2.3586E+00
90.500	2.2003E+00	91.500	2.0402E+00	93.000	1.7983E+00
95.000	1.4748E+00	97.500	1.0784E+00	100.500	6.2387E-01
103.500	2.0888E-01	107.000	1.3306E-03	111.500	-8.0945E-05
115.500	-2.0165E-04	118.000	-3.5007E-04	120.000	-5.7384E-04
121.500	-6.5517E-04	122.500	-7.1657E-04	123.750	-8.0189E-04
125.250	-9.1496E-04	127.000	-1.0630E-03	129.250	-1.2708E-03
131.500	-1.4781E-03	133.750	-1.6597E-03	137.500	-1.7841E-03
142.500	-1.5185E-03	146.500	-1.1274E-03	149.000	-8.6524E-04
150.700	-7.0263E-04	151.900	-5.9970E-04	152.700	-5.3747E-04
153.500	-4.7853E-04	157.000	-2.4087E-04	162.500	-8.6552E-05
167.500	-2.6854E-05	172.500	-4.0098E-06	176.500	2.6246E-06
179.000	4.7433E-06	180.500	5.5351E-06	181.500	5.9474E-06
182.500	6.2678E-06	183.500	6.5157E-06	184.500	6.7062E-06

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186.000	6.9241E-06	188.500	7.1333E-06	192.500	7.2740E-06
198.500	7.3243E-06	206.000	7.3334E-06	215.000	7.3346E-06
227.500	7.3347E-06	237.500	7.3347E-06	250.000	7.3347E-06
270.000	7.3347E-06	290.000	7.3347E-06	310.000	7.3347E-06
330.000	7.3347E-06	350.000	7.3347E-06	370.000	7.3347E-06
390.000	7.3347E-06	410.000	7.3347E-06	430.000	7.3347E-06
447.500	7.3347E-06	460.000	7.3347E-06	469.000	7.3347E-06
475.500	7.3347E-06	480.000	7.3347E-06	483.500	7.3347E-06
486.000	7.3347E-06	487.500	7.3347E-06	488.500	7.3347E-06
489.000	7.3347E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	3.7237E-02	0.300	6.5829E-02
0.600	9.5306E-02	1.000	1.2409E-01	1.500	1.6467E-01
2.200	2.0161E-01	3.000	2.3407E-01	4.000	3.1070E-01
5.500	4.0641E-01	7.500	4.2634E-01	9.500	4.4162E-01
12.000	4.4544E-01	14.500	4.4735E-01	17.500	4.0715E-01
20.000	3.7851E-01	23.000	3.4984E-01	25.500	2.6969E-01
27.500	2.0099E-01	29.000	1.3862E-01	30.000	1.0880E-01
31.000	1.0666E-01	32.000	1.3094E-01	33.500	1.5272E-01
35.000	1.7397E-01	37.000	2.3930E-01	40.000	2.2625E-01
42.000	1.7512E-01	44.000	1.2727E-01	45.000	8.3805E-02
46.000	8.2366E-02	47.000	8.1361E-02	48.000	1.2051E-01
50.000	1.5822E-01	52.000	1.5599E-01	54.000	1.9458E-01
57.000	1.7781E-01	58.500	1.1863E-01	60.000	9.8373E-02
61.000	7.8255E-02	62.000	7.7836E-02	63.000	9.7097E-02
64.500	1.1629E-01	66.000	1.3538E-01	68.000	1.9122E-01
71.000	2.2210E-01	74.000	2.0022E-01	77.000	1.7418E-01
80.000	1.6982E-01	83.000	1.5398E-01	86.000	1.0126E-01
88.000	2.5221E-02	89.000	6.6004E-03	90.000	2.8236E-03
91.000	1.3672E-03	92.000	1.0357E-03	94.000	4.5385E-04
96.000	2.4747E-04	99.000	2.6113E-04	102.000	4.0505E-04
105.000	8.0707E-04	109.000	2.1076E-03	114.000	4.4272E-03
117.000	4.8015E-03	119.000	5.7314E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00

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187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP3 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP153_.inp

Results File: C:\A\TP153_1957.res

Date of Run: 08 Jun 2021

Time of Run: 14:57:47.25

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	7.560E+01	0.2692	293.15	2	1.000E-01	5.573E+01	0.2797
3	3.000E-01	5.984E+01	0.2772	293.15	4	6.000E-01	5.944E+01	0.2775
5	1.000E+00	5.904E+01	0.2777	293.15	6	1.500E+00	5.865E+01	0.2779
7	2.200E+00	5.814E+01	0.2782	293.15	8	3.000E+00	5.766E+01	0.2785
9	4.000E+00	5.718E+01	0.2788	293.15	10	5.500E+00	5.671E+01	0.2791
11	7.500E+00	5.657E+01	0.2792	293.15	12	9.500E+00	5.696E+01	0.2789
13	1.200E+01	5.825E+01	0.2782	293.15	14	1.450E+01	6.045E+01	0.2769
15	1.750E+01	6.438E+01	0.2747	293.15	16	2.000E+01	6.865E+01	0.2725
17	2.300E+01	7.473E+01	0.2696	293.15	18	2.550E+01	7.987E+01	0.2673
19	2.750E+01	8.348E+01	0.2658	293.15	20	2.900E+01	8.562E+01	0.2649
21	3.000E+01	8.671E+01	0.2645	293.15	22	3.100E+01	8.749E+01	0.2642
23	3.200E+01	8.797E+01	0.2640	293.15	24	3.350E+01	8.813E+01	0.2640
25	3.500E+01	8.770E+01	0.2641	293.15	26	3.700E+01	8.639E+01	0.2646
27	4.000E+01	8.337E+01	0.2659	293.15	28	4.200E+01	8.105E+01	0.2668
29	4.400E+01	7.862E+01	0.2679	293.15	30	4.500E+01	7.740E+01	0.2684
31	4.600E+01	7.618E+01	0.2689	293.15	32	4.700E+01	7.449E+01	0.2697
33	4.800E+01	7.148E+01	0.2711	293.15	34	5.000E+01	6.627E+01	0.2737
35	5.200E+01	6.207E+01	0.2760	293.15	36	5.400E+01	5.866E+01	0.2779
37	5.700E+01	5.464E+01	0.2803	293.15	38	5.850E+01	5.301E+01	0.2814
39	6.000E+01	5.158E+01	0.2823	293.15	40	6.100E+01	5.073E+01	0.2829
41	6.200E+01	4.996E+01	0.2834	293.15	42	6.300E+01	4.925E+01	0.2839
43	6.450E+01	4.831E+01	0.2845	293.15	44	6.600E+01	4.750E+01	0.2851
45	6.800E+01	4.661E+01	0.2858	293.15	46	7.100E+01	4.568E+01	0.2864
47	7.400E+01	4.522E+01	0.2868	293.15	48	7.700E+01	4.525E+01	0.2868
49	8.000E+01	4.584E+01	0.2863	293.15	50	8.300E+01	4.713E+01	0.2854
51	8.600E+01	4.934E+01	0.2838	293.15	52	8.800E+01	5.148E+01	0.2824
53	8.900E+01	5.281E+01	0.2815	293.15	54	9.000E+01	5.435E+01	0.2805
55	9.100E+01	5.614E+01	0.2794	293.15	56	9.200E+01	5.823E+01	0.2782
57	9.400E+01	6.355E+01	0.2752	293.15	58	9.600E+01	7.104E+01	0.2713

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59 9.900E+01 9.003E+01 0.2632 293.15	60 1.020E+02 1.347E+02 0.2496 293.15
61 1.050E+02 1.899E+03 0.1728 293.15	62 1.090E+02 3.534E+04 0.1143 293.15
63 1.140E+02 3.731E+04 0.1134 293.15	64 1.170E+02 3.555E+04 0.1142 293.15
65 1.190E+02 3.377E+04 0.1150 293.15	66 1.210E+02 3.161E+04 0.1161 293.15
67 1.220E+02 3.044E+04 0.1167 293.15	68 1.230E+02 2.924E+04 0.1174 293.15
69 1.245E+02 2.742E+04 0.1184 293.15	70 1.260E+02 2.562E+04 0.1196 293.15
71 1.280E+02 2.333E+04 0.1212 293.15	72 1.305E+02 2.070E+04 0.1233 293.15
73 1.325E+02 1.881E+04 0.1249 293.15	74 1.350E+02 1.673E+04 0.1270 293.15
75 1.400E+02 1.360E+04 0.1308 293.15	76 1.450E+02 1.177E+04 0.1335 293.15
77 1.480E+02 1.110E+04 0.1346 293.15	78 1.500E+02 1.078E+04 0.1352 293.15
79 1.514E+02 1.061E+04 0.1355 293.15	80 1.524E+02 1.051E+04 0.1357 293.15
81 1.530E+02 1.045E+04 0.1358 293.15	82 1.540E+02 1.037E+04 0.1359 293.15
83 1.600E+02 1.012E+04 0.1364 293.15	84 1.650E+02 1.004E+04 0.1365 293.15
85 1.700E+02 1.002E+04 0.1366 293.15	86 1.750E+02 1.001E+04 0.1366 293.15
87 1.780E+02 1.000E+04 0.1366 293.15	88 1.800E+02 1.000E+04 0.1366 293.15
89 1.810E+02 1.000E+04 0.1366 293.15	90 1.820E+02 1.000E+04 0.1366 293.15
91 1.830E+02 1.000E+04 0.1366 293.15	92 1.840E+02 1.000E+04 0.1366 293.15
93 1.850E+02 1.000E+04 0.1366 293.15	94 1.870E+02 1.000E+04 0.1366 293.15
95 1.900E+02 1.000E+04 0.1366 293.15	96 1.950E+02 1.000E+04 0.1366 293.15
97 2.020E+02 1.000E+04 0.1366 293.15	98 2.100E+02 1.000E+04 0.1366 293.15
99 2.200E+02 1.000E+04 0.1366 293.15	100 2.350E+02 1.000E+04 0.1366 293.15
101 2.400E+02 1.000E+04 0.1366 293.15	102 2.600E+02 1.000E+04 0.1366 293.15
103 2.800E+02 1.000E+04 0.1366 293.15	104 3.000E+02 1.000E+04 0.1366 293.15
105 3.200E+02 1.000E+04 0.1366 293.15	106 3.400E+02 1.000E+04 0.1366 293.15
107 3.600E+02 1.000E+04 0.1366 293.15	108 3.800E+02 1.000E+04 0.1366 293.15
109 4.000E+02 1.000E+04 0.1366 293.15	110 4.200E+02 1.000E+04 0.1366 293.15
111 4.400E+02 1.000E+04 0.1366 293.15	112 4.550E+02 1.000E+04 0.1366 293.15
113 4.650E+02 1.000E+04 0.1366 293.15	114 4.730E+02 1.000E+04 0.1366 293.15
115 4.780E+02 1.000E+04 0.1366 293.15	116 4.820E+02 1.000E+04 0.1366 293.15
117 4.850E+02 1.000E+04 0.1366 293.15	118 4.870E+02 1.000E+04 0.1366 293.15
119 4.880E+02 1.000E+04 0.1366 293.15	120 4.890E+02 1.000E+04 0.1366 293.15

Initial Water Storage = 80.6904 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.25900
Head (cm) = 1.01908E+02

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LiqWater Flow (cm)=-4.37871E-02
IsoVapor Flow (cm)=-8.37341E-07
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

80.6904+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 80.6461 vs. 80.6461

Mass Balance = -2.5768E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.26040
Head (cm) = 9.78080E+01
LiqWater Flow (cm)=-5.77587E-02
IsoVapor Flow (cm)=-8.89376E-07
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

88.7816+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 88.7231 vs. 88.7231

Mass Balance = -6.2663E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 1.0723E+01 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 3.1948E+01 [cm]
 Evaporation during Growth = 2.0568E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 7.3347E-06 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 8.8723E+01 [cm]
 Mass Balance Error = -4.5942E-03 [cm]
 Total Successful Time Steps = 18607
 Total Attempted Time Steps = 25900
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 4461
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.8751E+01	0.050	2.0877E+01	0.200	1.9145E+01
0.450	1.8684E+01	0.800	1.8569E+01	1.250	1.8445E+01
1.850	1.8283E+01	2.600	1.8085E+01	3.500	1.7855E+01
4.750	1.7551E+01	6.500	1.7152E+01	8.500	1.6733E+01
10.750	1.6297E+01	13.250	1.5855E+01	16.000	1.5411E+01
18.750	1.5006E+01	21.500	1.4628E+01	24.250	1.4279E+01
26.500	1.4010E+01	28.250	1.3810E+01	29.500	1.3671E+01
30.500	1.3563E+01	31.500	1.3456E+01	32.750	1.3326E+01
34.250	1.3174E+01	36.000	1.3002E+01	38.500	1.2765E+01
41.000	1.2545E+01	43.000	1.2376E+01	44.500	1.2255E+01
45.500	1.2176E+01	46.500	1.2099E+01	47.500	1.2024E+01
49.000	1.1912E+01	51.000	1.1769E+01	53.000	1.1631E+01
55.500	1.1463E+01	57.750	1.1319E+01	59.250	1.1225E+01
60.500	1.1149E+01	61.500	1.1088E+01	62.500	1.1028E+01
63.750	1.0953E+01	65.250	1.0866E+01	67.000	1.0765E+01
69.500	1.0624E+01	72.500	1.0459E+01	75.500	1.0298E+01
78.500	1.0139E+01	81.500	9.9804E+00	84.500	9.8197E+00
87.000	9.6823E+00	88.500	9.5975E+00	89.500	9.5400E+00
90.500	9.4811E+00	91.500	9.4212E+00	93.000	9.3287E+00
95.000	9.1980E+00	97.500	9.0209E+00	100.500	8.7741E+00

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103.500	8.4715E+00	107.000	7.8154E+00	111.500	6.6817E+00
115.500	5.6658E+00	118.000	5.0228E+00	120.000	4.4939E+00
121.500	4.2146E+00	122.500	4.0308E+00	123.750	3.8038E+00
125.250	3.5309E+00	127.000	3.2215E+00	129.250	2.8268E+00
131.500	2.4372E+00	133.750	2.0559E+00	137.500	1.4403E+00
142.500	6.9053E-01	146.500	1.9624E-01	149.000	1.0864E-02
150.700	-5.7103E-04	151.900	-6.9198E-04	152.700	-6.4513E-04
153.500	-5.8645E-04	157.000	-3.2000E-04	162.500	-1.2730E-04
167.500	-4.5703E-05	172.500	-1.1734E-05	176.500	-1.0807E-06
179.000	2.5019E-06	180.500	3.8903E-06	181.500	4.6274E-06
182.500	5.2117E-06	183.500	5.6728E-06	184.500	6.0346E-06
186.000	6.4575E-06	188.500	6.8813E-06	192.500	7.1862E-06
198.500	7.3064E-06	206.000	7.3309E-06	215.000	7.3343E-06
227.500	7.3347E-06	237.500	7.3347E-06	250.000	7.3347E-06
270.000	7.3347E-06	290.000	7.3347E-06	310.000	7.3347E-06
330.000	7.3347E-06	350.000	7.3347E-06	370.000	7.3347E-06
390.000	7.3347E-06	410.000	7.3347E-06	430.000	7.3347E-06
447.500	7.3347E-06	460.000	7.3347E-06	469.000	7.3347E-06
475.500	7.3347E-06	480.000	7.3347E-06	483.500	7.3347E-06
486.000	7.3347E-06	487.500	7.3347E-06	488.500	7.3347E-06
489.000	7.3347E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	3.7466E-02	0.300	6.6079E-02
0.600	9.5560E-02	1.000	1.2428E-01	1.500	1.6485E-01
2.200	2.0173E-01	3.000	2.3411E-01	4.000	3.1072E-01
5.500	4.0609E-01	7.500	4.2587E-01	9.500	4.4107E-01
12.000	4.4475E-01	14.500	4.4638E-01	17.500	4.0509E-01
20.000	3.7809E-01	23.000	3.4861E-01	25.500	2.6777E-01
27.500	1.9918E-01	29.000	1.3812E-01	30.000	1.0821E-01
31.000	1.0589E-01	32.000	1.2982E-01	33.500	1.5095E-01
35.000	1.7126E-01	37.000	2.3561E-01	40.000	2.1881E-01
42.000	1.6769E-01	44.000	1.1983E-01	45.000	7.8372E-02
46.000	7.6272E-02	47.000	7.4954E-02	48.000	1.1027E-01
50.000	1.4068E-01	52.000	1.3618E-01	54.000	1.6381E-01
57.000	1.3998E-01	58.500	9.1174E-02	60.000	7.3940E-02
61.000	5.8441E-02	62.000	5.7586E-02	63.000	7.0848E-02
64.500	8.3287E-02	66.000	9.4961E-02	68.000	1.3142E-01
71.000	1.5032E-01	74.000	1.4406E-01	77.000	1.3744E-01
80.000	1.3233E-01	83.000	1.2833E-01	86.000	1.0404E-01

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88.000	6.1663E-02	89.000	4.0911E-02	90.000	4.1011E-02
91.000	4.0650E-02	92.000	6.1280E-02	94.000	8.2140E-02
96.000	1.0566E-01	99.000	1.3474E-01	102.000	1.4794E-01
105.000	1.9782E-01	109.000	2.8453E-01	114.000	2.6781E-01
117.000	1.7554E-01	119.000	1.5834E-01	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP3 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is C:\A\TP153_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                66.808
 1 22.530 135.832  5.370 12.835  0.000  0.000  71.137  13204 -0.00364
 2 22.530 135.832  7.513 14.805  0.000  0.000  71.353  13208 -0.00416
 3 22.530 135.832  7.588 14.969  0.000  0.000  71.330  13247 -0.00405
 4 22.530 135.832  7.595 14.973  0.000  0.000  71.296  13199 -0.00417
 5 22.530 135.832  7.586 14.983  0.000  0.000  71.261  13215 -0.00415
 6 22.530 135.832  7.581 14.984  0.000  0.000  71.230  13204 -0.00424
 7 22.530 135.832  7.578 14.984  0.000  0.000  71.203  13231 -0.00423
 8 22.530 135.832  7.582 14.975  0.000  0.000  71.179  13202 -0.00418
 9 22.530 135.832  7.576 14.984  0.000  0.000  71.154  13209 -0.00411
10 22.530 135.832  7.573 14.983  0.000  0.000  71.132  13218 -0.00421
11 50.698 113.700  9.632 31.513  0.000  0.000  80.690  18479 -0.00507
12 50.698 113.759 10.723 31.948  0.000  0.000  88.723  18607 -0.00459
-----
SUM= 326.6951585.780 93.895 210.935  0.000  0.000                -0.05082
```


Sensitivity Analysis #1: Soil Sample TP4 Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP154_.inp

Results File: C:\A\TP154_1955.res

Date of Run: 08 Jun 2021

Time of Run: 15:03:45.00

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.618E+04	0.1808	293.15	2	1.000E-01	7.348E+04	0.1858 293.15
3	3.000E-01	1.318E+03	0.2781	293.15	4	6.000E-01	1.031E+02	0.3579 293.15
5	1.000E+00	6.096E+01	0.3763	293.15	6	1.500E+00	4.504E+01	0.3869 293.15
7	2.200E+00	3.665E+01	0.3942	293.15	8	3.000E+00	3.347E+01	0.3974 293.15
9	4.000E+00	3.430E+01	0.3965	293.15	10	5.500E+00	4.619E+01	0.3861 293.15
11	7.500E+00	8.840E+01	0.3633	293.15	12	9.500E+00	5.573E+03	0.2407 293.15
13	1.200E+01	2.769E+04	0.2049	293.15	14	1.450E+01	3.434E+04	0.2005 293.15
15	1.750E+01	3.721E+04	0.1989	293.15	16	2.000E+01	3.838E+04	0.1983 293.15
17	2.300E+01	3.913E+04	0.1979	293.15	18	2.550E+01	3.948E+04	0.1977 293.15
19	2.750E+01	3.966E+04	0.1976	293.15	20	2.900E+01	3.975E+04	0.1976 293.15
21	3.000E+01	3.980E+04	0.1976	293.15	22	3.100E+01	3.984E+04	0.1976 293.15
23	3.200E+01	3.987E+04	0.1975	293.15	24	3.350E+01	3.990E+04	0.1975 293.15
25	3.500E+01	3.993E+04	0.1975	293.15	26	3.700E+01	3.995E+04	0.1975 293.15
27	4.000E+01	3.997E+04	0.1975	293.15	28	4.200E+01	3.998E+04	0.1975 293.15
29	4.400E+01	3.999E+04	0.1975	293.15	30	4.500E+01	3.999E+04	0.1975 293.15
31	4.600E+01	3.999E+04	0.1975	293.15	32	4.700E+01	3.999E+04	0.1975 293.15
33	4.800E+01	3.999E+04	0.1975	293.15	34	5.000E+01	4.000E+04	0.1975 293.15
35	5.200E+01	4.000E+04	0.1975	293.15	36	5.400E+01	4.000E+04	0.1975 293.15
37	5.700E+01	4.000E+04	0.1975	293.15	38	5.850E+01	4.000E+04	0.1975 293.15
39	6.000E+01	4.000E+04	0.1975	293.15	40	6.100E+01	4.000E+04	0.1975 293.15
41	6.200E+01	4.000E+04	0.1975	293.15	42	6.300E+01	4.000E+04	0.1975 293.15
43	6.450E+01	4.000E+04	0.1975	293.15	44	6.600E+01	4.000E+04	0.1975 293.15
45	6.800E+01	4.000E+04	0.1975	293.15	46	7.100E+01	4.000E+04	0.1975 293.15
47	7.400E+01	4.000E+04	0.1975	293.15	48	7.700E+01	4.000E+04	0.1975 293.15
49	8.000E+01	3.999E+04	0.1975	293.15	50	8.300E+01	3.999E+04	0.1975 293.15
51	8.600E+01	3.998E+04	0.1975	293.15	52	8.800E+01	3.998E+04	0.1975 293.15
53	8.900E+01	3.997E+04	0.1975	293.15	54	9.000E+01	3.996E+04	0.1975 293.15
55	9.100E+01	3.996E+04	0.1975	293.15	56	9.200E+01	3.995E+04	0.1975 293.15
57	9.400E+01	3.993E+04	0.1975	293.15	58	9.600E+01	3.990E+04	0.1975 293.15

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59 9.900E+01 3.983E+04 0.1976 293.15	60 1.020E+02 3.971E+04 0.1976 293.15
61 1.050E+02 3.950E+04 0.1977 293.15	62 1.090E+02 3.897E+04 0.1980 293.15
63 1.140E+02 3.742E+04 0.1988 293.15	64 1.170E+02 3.531E+04 0.2000 293.15
65 1.190E+02 3.326E+04 0.2012 293.15	66 1.210E+02 3.075E+04 0.2028 293.15
67 1.220E+02 2.940E+04 0.2037 293.15	68 1.230E+02 2.801E+04 0.2047 293.15
69 1.245E+02 2.591E+04 0.2063 293.15	70 1.260E+02 2.386E+04 0.2080 293.15
71 1.280E+02 2.130E+04 0.2104 293.15	72 1.305E+02 1.843E+04 0.2135 293.15
73 1.325E+02 1.643E+04 0.2159 293.15	74 1.350E+02 1.434E+04 0.2189 293.15
75 1.400E+02 1.167E+04 0.2235 293.15	76 1.450E+02 1.055E+04 0.2257 293.15
77 1.480E+02 1.026E+04 0.2264 293.15	78 1.500E+02 1.015E+04 0.2266 293.15
79 1.514E+02 1.010E+04 0.2267 293.15	80 1.524E+02 1.007E+04 0.2268 293.15
81 1.530E+02 1.006E+04 0.2268 293.15	82 1.540E+02 1.004E+04 0.2269 293.15
83 1.600E+02 1.001E+04 0.2269 293.15	84 1.650E+02 1.000E+04 0.2270 293.15
85 1.700E+02 1.000E+04 0.2270 293.15	86 1.750E+02 1.000E+04 0.2270 293.15
87 1.780E+02 1.000E+04 0.2270 293.15	88 1.800E+02 1.000E+04 0.2270 293.15
89 1.810E+02 1.000E+04 0.2270 293.15	90 1.820E+02 1.000E+04 0.2270 293.15
91 1.830E+02 1.000E+04 0.2270 293.15	92 1.840E+02 1.000E+04 0.2270 293.15
93 1.850E+02 1.000E+04 0.2270 293.15	94 1.870E+02 1.000E+04 0.2270 293.15
95 1.900E+02 1.000E+04 0.2270 293.15	96 1.950E+02 1.000E+04 0.2270 293.15
97 2.020E+02 1.000E+04 0.2270 293.15	98 2.100E+02 1.000E+04 0.2270 293.15
99 2.200E+02 1.000E+04 0.2270 293.15	100 2.350E+02 1.000E+04 0.2270 293.15
101 2.400E+02 1.000E+04 0.2270 293.15	102 2.600E+02 1.000E+04 0.2270 293.15
103 2.800E+02 1.000E+04 0.2270 293.15	104 3.000E+02 1.000E+04 0.2270 293.15
105 3.200E+02 1.000E+04 0.2270 293.15	106 3.400E+02 1.000E+04 0.2270 293.15
107 3.600E+02 1.000E+04 0.2270 293.15	108 3.800E+02 1.000E+04 0.2270 293.15
109 4.000E+02 1.000E+04 0.2270 293.15	110 4.200E+02 1.000E+04 0.2270 293.15
111 4.400E+02 1.000E+04 0.2270 293.15	112 4.550E+02 1.000E+04 0.2270 293.15
113 4.650E+02 1.000E+04 0.2270 293.15	114 4.730E+02 1.000E+04 0.2270 293.15
115 4.780E+02 1.000E+04 0.2270 293.15	116 4.820E+02 1.000E+04 0.2270 293.15
117 4.850E+02 1.000E+04 0.2270 293.15	118 4.870E+02 1.000E+04 0.2270 293.15
119 4.880E+02 1.000E+04 0.2270 293.15	120 4.890E+02 1.000E+04 0.2270 293.15

Initial Water Storage = 108.8100 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.15749
Head (cm) = 3.80927E+05

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LiqWater Flow (cm)=-2.74924E-06
IsoVapor Flow (cm)=-6.72302E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

108.8100+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 108.7416 vs. 108.7416

Mass Balance = -8.5685E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.18095
Head (cm) = 9.55061E+04
LiqWater Flow (cm)=-7.36418E-06
IsoVapor Flow (cm)=-3.97372E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

108.8026+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 108.7629 vs. 108.7629

Mass Balance = -6.8656E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

December 2023

Potential Transpiration = 1.6719E+01 [cm]
 Actual Transpiration = 2.2586E+00 [cm]
 Potential Evaporation = 1.1911E+02 [cm]
 Actual Evaporation = 5.5829E+00 [cm]
 Evaporation during Growth = 3.3569E+00 [cm]
 Total Runoff = 1.4975E+01 [cm]
 Total Infiltration = 7.5547E+00 [cm]
 Total Basal Liquid Flux (drainage) = 1.0621E-08 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 1.0876E+02 [cm]
 Mass Balance Error = -2.3970E-01 [cm]
 Total Successful Time Steps = 59299
 Total Attempted Time Steps = 86892
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 37535
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	1.9718E+00	0.050	3.0688E+00	0.200	2.4194E+00
0.450	2.1641E+00	0.800	1.9732E+00	1.250	1.8335E+00
1.850	1.6503E+00	2.600	1.4288E+00	3.500	1.1910E+00
4.750	8.7896E-01	6.500	5.1707E-01	8.500	2.6469E-01
10.750	1.5600E-02	13.250	2.9372E-04	16.000	7.7725E-05
18.750	3.1730E-05	21.500	1.4586E-05	24.250	7.4604E-06
26.500	4.4639E-06	28.250	3.0451E-06	29.500	2.3371E-06
30.500	1.8898E-06	31.500	1.5346E-06	32.750	1.1813E-06
34.250	8.7726E-07	36.000	6.2220E-07	38.500	3.8501E-07
41.000	2.5584E-07	43.000	1.8701E-07	44.500	1.5236E-07
45.500	1.3347E-07	46.500	1.1828E-08	47.500	1.0561E-09
49.000	9.0001E-10	51.000	7.5910E-10	53.000	6.6325E-10
55.500	5.8122E-10	57.750	5.3730E-10	59.250	5.1426E-10
60.500	4.9865E-10	61.500	4.8751E-10	62.500	4.7729E-10
63.750	4.6522E-10	65.250	4.5101E-10	67.000	4.3346E-10
69.500	4.0346E-10	72.500	3.4936E-10	75.500	2.6077E-10
78.500	1.1106E-10	81.500	-1.4467E-10	84.500	-5.8307E-10
87.000	-1.2102E-09	88.500	-1.7539E-09	89.500	-2.1907E-09
90.500	-2.7162E-09	91.500	-3.3483E-09	93.000	-4.4892E-09
95.000	-6.6783E-09	97.500	-1.0635E-08	100.500	-1.8829E-08

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103.500	-3.3176E-08	107.000	-6.3067E-08	111.500	-1.4777E-07
115.500	-3.5170E-07	118.000	-6.2738E-07	120.000	-1.0667E-06
121.500	-1.2217E-06	122.500	-1.3399E-06	123.750	-1.5061E-06
125.250	-1.7298E-06	127.000	-2.0289E-06	129.250	-2.4572E-06
131.500	-2.8821E-06	133.750	-3.2227E-06	137.500	-3.1719E-06
142.500	-2.0302E-06	146.500	-1.1041E-06	149.000	-6.6560E-07
150.700	-4.5304E-07	151.900	-3.4127E-07	152.700	-2.8264E-07
153.500	-2.3226E-07	157.000	-6.4314E-08	162.500	-5.6109E-09
167.500	7.1883E-09	172.500	9.9655E-09	176.500	1.0444E-08
179.000	1.0550E-08	180.500	1.0580E-08	181.500	1.0594E-08
182.500	1.0603E-08	183.500	1.0609E-08	184.500	1.0613E-08
186.000	1.0617E-08	188.500	1.0620E-08	192.500	1.0621E-08
198.500	1.0621E-08	206.000	1.0621E-08	215.000	1.0621E-08
227.500	1.0621E-08	237.500	1.0621E-08	250.000	1.0621E-08
270.000	1.0621E-08	290.000	1.0621E-08	310.000	1.0621E-08
330.000	1.0621E-08	350.000	1.0621E-08	370.000	1.0621E-08
390.000	1.0621E-08	410.000	1.0621E-08	430.000	1.0621E-08
447.500	1.0621E-08	460.000	1.0621E-08	469.000	1.0621E-08
475.500	1.0621E-08	480.000	1.0621E-08	483.500	1.0621E-08
486.000	1.0621E-08	487.500	1.0621E-08	488.500	1.0621E-08
489.000	1.0621E-08				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	5.0446E-02	0.300	8.2695E-02
0.600	1.1286E-01	1.000	1.4139E-01	1.500	1.8305E-01
2.200	2.2019E-01	3.000	2.3912E-01	4.000	3.1241E-01
5.500	3.4467E-01	7.500	2.4736E-01	9.500	1.9923E-01
12.000	5.5052E-02	14.500	2.4795E-02	17.500	1.0089E-02
20.000	4.9932E-03	23.000	2.3195E-03	25.500	1.0350E-03
27.500	5.0398E-04	29.000	2.5517E-04	30.000	1.6263E-04
31.000	1.2989E-04	32.000	1.2994E-04	33.500	1.1234E-04
35.000	9.4704E-05	37.000	8.8442E-05	40.000	4.8320E-05
42.000	2.5831E-05	44.000	1.3052E-05	45.000	7.1391E-06
46.000	5.8679E-06	47.000	4.8285E-06	48.000	5.9706E-06
50.000	5.4944E-06	52.000	3.8545E-06	54.000	3.4590E-06
57.000	2.0606E-06	58.500	1.1610E-06	60.000	8.4951E-07
61.000	6.3797E-07	62.000	6.1138E-07	63.000	7.4813E-07
64.500	9.0494E-07	66.000	1.1134E-06	68.000	1.8151E-06
71.000	2.9329E-06	74.000	4.3166E-06	77.000	6.7270E-06
80.000	1.0869E-05	83.000	1.7965E-05	86.000	2.5096E-05

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88.000	2.1515E-05	89.000	1.7191E-05	90.000	2.0598E-05
91.000	2.4678E-05	92.000	4.4351E-05	94.000	8.4542E-05
96.000	1.5150E-04	99.000	3.1003E-04	102.000	5.3266E-04
105.000	1.0703E-03	109.000	2.7899E-03	114.000	5.8889E-03
117.000	6.4641E-03	119.000	7.8299E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP4 Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP154_.inp
Results File: C:\A\TP154_1956.res
Date of Run: 08 Jun 2021
Time of Run: 15:03:45.00
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.551E+04	0.1810	293.15	2	1.000E-01	7.300E+04	0.1859 293.15
3	3.000E-01	3.794E+03	0.2501	293.15	4	6.000E-01	1.119E+02	0.3551 293.15
5	1.000E+00	6.659E+01	0.3732	293.15	6	1.500E+00	4.903E+01	0.3839 293.15
7	2.200E+00	3.986E+01	0.3912	293.15	8	3.000E+00	3.655E+01	0.3943 293.15
9	4.000E+00	3.778E+01	0.3931	293.15	10	5.500E+00	5.114E+01	0.3825 293.15
11	7.500E+00	9.009E+01	0.3626	293.15	12	9.500E+00	4.998E+03	0.2433 293.15
13	1.200E+01	2.754E+04	0.2050	293.15	14	1.450E+01	3.433E+04	0.2005 293.15
15	1.750E+01	3.722E+04	0.1989	293.15	16	2.000E+01	3.840E+04	0.1983 293.15
17	2.300E+01	3.914E+04	0.1979	293.15	18	2.550E+01	3.949E+04	0.1977 293.15
19	2.750E+01	3.967E+04	0.1976	293.15	20	2.900E+01	3.976E+04	0.1976 293.15
21	3.000E+01	3.980E+04	0.1976	293.15	22	3.100E+01	3.984E+04	0.1976 293.15
23	3.200E+01	3.987E+04	0.1975	293.15	24	3.350E+01	3.990E+04	0.1975 293.15
25	3.500E+01	3.993E+04	0.1975	293.15	26	3.700E+01	3.995E+04	0.1975 293.15
27	4.000E+01	3.997E+04	0.1975	293.15	28	4.200E+01	3.998E+04	0.1975 293.15
29	4.400E+01	3.999E+04	0.1975	293.15	30	4.500E+01	3.999E+04	0.1975 293.15
31	4.600E+01	3.999E+04	0.1975	293.15	32	4.700E+01	3.999E+04	0.1975 293.15
33	4.800E+01	3.999E+04	0.1975	293.15	34	5.000E+01	4.000E+04	0.1975 293.15
35	5.200E+01	4.000E+04	0.1975	293.15	36	5.400E+01	4.000E+04	0.1975 293.15
37	5.700E+01	4.000E+04	0.1975	293.15	38	5.850E+01	4.000E+04	0.1975 293.15
39	6.000E+01	4.000E+04	0.1975	293.15	40	6.100E+01	4.000E+04	0.1975 293.15
41	6.200E+01	4.000E+04	0.1975	293.15	42	6.300E+01	4.000E+04	0.1975 293.15
43	6.450E+01	4.000E+04	0.1975	293.15	44	6.600E+01	4.000E+04	0.1975 293.15
45	6.800E+01	4.000E+04	0.1975	293.15	46	7.100E+01	4.000E+04	0.1975 293.15
47	7.400E+01	4.000E+04	0.1975	293.15	48	7.700E+01	4.000E+04	0.1975 293.15
49	8.000E+01	3.999E+04	0.1975	293.15	50	8.300E+01	3.999E+04	0.1975 293.15
51	8.600E+01	3.998E+04	0.1975	293.15	52	8.800E+01	3.998E+04	0.1975 293.15
53	8.900E+01	3.997E+04	0.1975	293.15	54	9.000E+01	3.997E+04	0.1975 293.15
55	9.100E+01	3.996E+04	0.1975	293.15	56	9.200E+01	3.995E+04	0.1975 293.15
57	9.400E+01	3.993E+04	0.1975	293.15	58	9.600E+01	3.990E+04	0.1975 293.15

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59 9.900E+01 3.984E+04 0.1976 293.15	60 1.020E+02 3.972E+04 0.1976 293.15
61 1.050E+02 3.952E+04 0.1977 293.15	62 1.090E+02 3.902E+04 0.1980 293.15
63 1.140E+02 3.755E+04 0.1987 293.15	64 1.170E+02 3.555E+04 0.1998 293.15
65 1.190E+02 3.360E+04 0.2010 293.15	66 1.210E+02 3.122E+04 0.2024 293.15
67 1.220E+02 2.993E+04 0.2033 293.15	68 1.230E+02 2.861E+04 0.2042 293.15
69 1.245E+02 2.660E+04 0.2057 293.15	70 1.260E+02 2.464E+04 0.2073 293.15
71 1.280E+02 2.216E+04 0.2095 293.15	72 1.305E+02 1.934E+04 0.2124 293.15
73 1.325E+02 1.734E+04 0.2148 293.15	74 1.350E+02 1.519E+04 0.2176 293.15
75 1.400E+02 1.221E+04 0.2225 293.15	76 1.450E+02 1.081E+04 0.2252 293.15
77 1.480E+02 1.040E+04 0.2261 293.15	78 1.500E+02 1.024E+04 0.2264 293.15
79 1.514E+02 1.016E+04 0.2266 293.15	80 1.524E+02 1.012E+04 0.2267 293.15
81 1.530E+02 1.010E+04 0.2267 293.15	82 1.540E+02 1.007E+04 0.2268 293.15
83 1.600E+02 1.001E+04 0.2269 293.15	84 1.650E+02 1.000E+04 0.2270 293.15
85 1.700E+02 1.000E+04 0.2270 293.15	86 1.750E+02 1.000E+04 0.2270 293.15
87 1.780E+02 1.000E+04 0.2270 293.15	88 1.800E+02 1.000E+04 0.2270 293.15
89 1.810E+02 1.000E+04 0.2270 293.15	90 1.820E+02 1.000E+04 0.2270 293.15
91 1.830E+02 1.000E+04 0.2270 293.15	92 1.840E+02 1.000E+04 0.2270 293.15
93 1.850E+02 1.000E+04 0.2270 293.15	94 1.870E+02 1.000E+04 0.2270 293.15
95 1.900E+02 1.000E+04 0.2270 293.15	96 1.950E+02 1.000E+04 0.2270 293.15
97 2.020E+02 1.000E+04 0.2270 293.15	98 2.100E+02 1.000E+04 0.2270 293.15
99 2.200E+02 1.000E+04 0.2270 293.15	100 2.350E+02 1.000E+04 0.2270 293.15
101 2.400E+02 1.000E+04 0.2270 293.15	102 2.600E+02 1.000E+04 0.2270 293.15
103 2.800E+02 1.000E+04 0.2270 293.15	104 3.000E+02 1.000E+04 0.2270 293.15
105 3.200E+02 1.000E+04 0.2270 293.15	106 3.400E+02 1.000E+04 0.2270 293.15
107 3.600E+02 1.000E+04 0.2270 293.15	108 3.800E+02 1.000E+04 0.2270 293.15
109 4.000E+02 1.000E+04 0.2270 293.15	110 4.200E+02 1.000E+04 0.2270 293.15
111 4.400E+02 1.000E+04 0.2270 293.15	112 4.550E+02 1.000E+04 0.2270 293.15
113 4.650E+02 1.000E+04 0.2270 293.15	114 4.730E+02 1.000E+04 0.2270 293.15
115 4.780E+02 1.000E+04 0.2270 293.15	116 4.820E+02 1.000E+04 0.2270 293.15
117 4.850E+02 1.000E+04 0.2270 293.15	118 4.870E+02 1.000E+04 0.2270 293.15
119 4.880E+02 1.000E+04 0.2270 293.15	120 4.890E+02 1.000E+04 0.2270 293.15

Initial Water Storage = 108.7629 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.16470
Head (cm) = 2.43898E+05

December 2023

LiqWater Flow (cm)=-3.46047E-06
IsoVapor Flow (cm)=-4.34837E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

108.7629+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 108.7186 vs. 108.7186

Mass Balance = -5.2622E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.42377
Head (cm) = 1.52674E+01
LiqWater Flow (cm)=-3.74578E-04
IsoVapor Flow (cm)=-1.09842E-08
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

110.0710+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 110.0710 vs. 110.0710

Mass Balance = -2.2666E-09 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 2.6858E+00 [cm]
 Potential Evaporation = 9.9853E+01 [cm]
 Actual Evaporation = 1.1226E+01 [cm]
 Evaporation during Growth = 7.0812E+00 [cm]
 Total Runoff = 3.5847E+01 [cm]
 Total Infiltration = 1.4852E+01 [cm]
 Total Basal Liquid Flux (drainage) = 1.0650E-08 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 1.1007E+02 [cm]
 Mass Balance Error = -3.6875E-01 [cm]
 Total Successful Time Steps = 69246
 Total Attempted Time Steps = 90725
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 55988
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	3.6251E+00	0.050	6.3285E+00	0.200	4.7760E+00
0.450	4.0283E+00	0.800	3.6823E+00	1.250	3.5422E+00
1.850	3.3837E+00	2.600	3.2031E+00	3.500	2.9985E+00
4.750	2.7408E+00	6.500	2.4174E+00	8.500	2.0681E+00
10.750	1.3840E+00	13.250	5.4142E-01	16.000	7.2986E-03
18.750	1.8708E-04	21.500	5.1669E-05	24.250	1.9364E-05
26.500	9.4411E-06	28.250	5.5967E-06	29.500	3.9279E-06
30.500	2.9664E-06	31.500	2.2663E-06	32.750	1.6259E-06
34.250	1.1323E-06	36.000	7.5693E-07	38.500	4.4199E-07
41.000	2.8468E-07	43.000	2.0416E-07	44.500	1.6464E-07
45.500	1.4330E-07	46.500	1.2627E-08	47.500	1.1216E-09
49.000	9.4870E-10	51.000	7.9354E-10	53.000	6.8836E-10
55.500	5.9851E-10	57.750	5.5042E-10	59.250	5.2522E-10
60.500	5.0817E-10	61.500	4.9602E-10	62.500	4.8492E-10
63.750	4.7185E-10	65.250	4.5659E-10	67.000	4.3788E-10
69.500	4.0620E-10	72.500	3.4958E-10	75.500	2.5721E-10
78.500	1.0125E-10	81.500	-1.6532E-10	84.500	-6.2285E-10
87.000	-1.2783E-09	88.500	-1.8472E-09	89.500	-2.3043E-09
90.500	-2.8546E-09	91.500	-3.5168E-09	93.000	-4.7120E-09
95.000	-7.0053E-09	97.500	-1.1146E-08	100.500	-1.9695E-08

December 2023

103.500	-3.4557E-08	107.000	-6.5151E-08	111.500	-1.4984E-07
115.500	-3.4474E-07	118.000	-5.9482E-07	120.000	-9.7066E-07
121.500	-1.1089E-06	122.500	-1.2140E-06	123.750	-1.3613E-06
125.250	-1.5582E-06	127.000	-1.8206E-06	129.250	-2.1984E-06
131.500	-2.5863E-06	133.750	-2.9351E-06	137.500	-3.1098E-06
142.500	-2.3009E-06	146.500	-1.4087E-06	149.000	-9.1503E-07
150.700	-6.5452E-07	151.900	-5.0984E-07	152.700	-4.3100E-07
153.500	-3.6143E-07	157.000	-1.1707E-07	162.500	-2.0230E-08
167.500	3.4002E-09	172.500	9.1133E-09	176.500	1.0200E-08
179.000	1.0458E-08	180.500	1.0536E-08	181.500	1.0572E-08
182.500	1.0597E-08	183.500	1.0614E-08	184.500	1.0625E-08
186.000	1.0637E-08	188.500	1.0646E-08	192.500	1.0649E-08
198.500	1.0650E-08	206.000	1.0650E-08	215.000	1.0650E-08
227.500	1.0650E-08	237.500	1.0650E-08	250.000	1.0650E-08
270.000	1.0650E-08	290.000	1.0650E-08	310.000	1.0650E-08
330.000	1.0650E-08	350.000	1.0650E-08	370.000	1.0650E-08
390.000	1.0650E-08	410.000	1.0650E-08	430.000	1.0650E-08
447.500	1.0650E-08	460.000	1.0650E-08	469.000	1.0650E-08
475.500	1.0650E-08	480.000	1.0650E-08	483.500	1.0650E-08
486.000	1.0650E-08	487.500	1.0650E-08	488.500	1.0650E-08
489.000	1.0650E-08				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.3833E-02	0.300	6.9357E-02
0.600	9.0833E-02	1.000	1.0851E-01	1.500	1.3316E-01
2.200	1.5405E-01	3.000	1.7609E-01	4.000	2.2062E-01
5.500	2.7451E-01	7.500	3.0191E-01	9.500	3.6718E-01
12.000	4.2640E-01	14.500	2.5407E-01	17.500	2.8540E-02
20.000	9.4358E-03	23.000	3.2497E-03	25.500	1.2178E-03
27.500	5.3859E-04	29.000	2.5906E-04	30.000	1.6078E-04
31.000	1.2579E-04	32.000	1.2382E-04	33.500	1.0528E-04
35.000	8.7705E-05	37.000	8.1040E-05	40.000	4.3854E-05
42.000	2.3309E-05	44.000	1.1710E-05	45.000	6.3838E-06
46.000	5.2271E-06	47.000	4.2819E-06	48.000	5.2660E-06
50.000	4.7762E-06	52.000	3.2780E-06	54.000	2.8473E-06
57.000	1.5794E-06	58.500	8.4947E-07	60.000	5.9179E-07
61.000	4.3062E-07	62.000	4.0132E-07	63.000	4.8035E-07
64.500	5.7033E-07	66.000	7.0184E-07	68.000	1.1730E-06
71.000	2.0194E-06	74.000	3.1741E-06	77.000	5.2120E-06
80.000	8.7386E-06	83.000	1.4806E-05	86.000	2.1021E-05

December 2023

88.000	1.8162E-05	89.000	1.4559E-05	90.000	1.7492E-05
91.000	2.1008E-05	92.000	3.7835E-05	94.000	7.2374E-05
96.000	1.3005E-04	99.000	2.6694E-04	102.000	4.5947E-04
105.000	9.2355E-04	109.000	2.4021E-03	114.000	5.0231E-03
117.000	5.4153E-03	119.000	6.4157E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample TP3 Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: C:\A\TP154_.inp
Results File: C:\A\TP154_1957.res
Date of Run: 08 Jun 2021
Time of Run: 15:03:45.00
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.527E+01	0.4238	293.15	2	1.000E-01	1.517E+01	0.4240
3	3.000E-01	1.498E+01	0.4244	293.15	4	6.000E-01	1.472E+01	0.4249
5	1.000E+00	1.443E+01	0.4255	293.15	6	1.500E+00	1.416E+01	0.4261
7	2.200E+00	1.401E+01	0.4265	293.15	8	3.000E+00	1.430E+01	0.4258
9	4.000E+00	1.576E+01	0.4228	293.15	10	5.500E+00	2.300E+01	0.4103
11	7.500E+00	4.657E+01	0.3858	293.15	12	9.500E+00	6.316E+01	0.3750
13	1.200E+01	9.190E+01	0.3619	293.15	14	1.450E+01	9.856E+02	0.2863
15	1.750E+01	2.133E+04	0.2103	293.15	16	2.000E+01	3.033E+04	0.2030
17	2.300E+01	3.564E+04	0.1998	293.15	18	2.550E+01	3.785E+04	0.1986
19	2.750E+01	3.881E+04	0.1981	293.15	20	2.900E+01	3.924E+04	0.1979
21	3.000E+01	3.944E+04	0.1978	293.15	22	3.100E+01	3.959E+04	0.1977
23	3.200E+01	3.970E+04	0.1976	293.15	24	3.350E+01	3.981E+04	0.1976
25	3.500E+01	3.987E+04	0.1975	293.15	26	3.700E+01	3.993E+04	0.1975
27	4.000E+01	3.996E+04	0.1975	293.15	28	4.200E+01	3.998E+04	0.1975
29	4.400E+01	3.998E+04	0.1975	293.15	30	4.500E+01	3.999E+04	0.1975
31	4.600E+01	3.999E+04	0.1975	293.15	32	4.700E+01	3.999E+04	0.1975
33	4.800E+01	3.999E+04	0.1975	293.15	34	5.000E+01	4.000E+04	0.1975
35	5.200E+01	4.000E+04	0.1975	293.15	36	5.400E+01	4.000E+04	0.1975
37	5.700E+01	4.000E+04	0.1975	293.15	38	5.850E+01	4.000E+04	0.1975
39	6.000E+01	4.000E+04	0.1975	293.15	40	6.100E+01	4.000E+04	0.1975
41	6.200E+01	4.000E+04	0.1975	293.15	42	6.300E+01	4.000E+04	0.1975
43	6.450E+01	4.000E+04	0.1975	293.15	44	6.600E+01	4.000E+04	0.1975
45	6.800E+01	4.000E+04	0.1975	293.15	46	7.100E+01	4.000E+04	0.1975
47	7.400E+01	4.000E+04	0.1975	293.15	48	7.700E+01	4.000E+04	0.1975
49	8.000E+01	3.999E+04	0.1975	293.15	50	8.300E+01	3.999E+04	0.1975
51	8.600E+01	3.998E+04	0.1975	293.15	52	8.800E+01	3.997E+04	0.1975
53	8.900E+01	3.997E+04	0.1975	293.15	54	9.000E+01	3.996E+04	0.1975
55	9.100E+01	3.996E+04	0.1975	293.15	56	9.200E+01	3.995E+04	0.1975
57	9.400E+01	3.992E+04	0.1975	293.15	58	9.600E+01	3.989E+04	0.1975

December 2023

59 9.900E+01 3.981E+04 0.1976 293.15	60 1.020E+02 3.968E+04 0.1976 293.15
61 1.050E+02 3.946E+04 0.1977 293.15	62 1.090E+02 3.891E+04 0.1980 293.15
63 1.140E+02 3.741E+04 0.1988 293.15	64 1.170E+02 3.547E+04 0.1999 293.15
65 1.190E+02 3.364E+04 0.2009 293.15	66 1.210E+02 3.142E+04 0.2023 293.15
67 1.220E+02 3.022E+04 0.2031 293.15	68 1.230E+02 2.898E+04 0.2040 293.15
69 1.245E+02 2.710E+04 0.2053 293.15	70 1.260E+02 2.525E+04 0.2068 293.15
71 1.280E+02 2.289E+04 0.2089 293.15	72 1.305E+02 2.015E+04 0.2115 293.15
73 1.325E+02 1.817E+04 0.2138 293.15	74 1.350E+02 1.599E+04 0.2165 293.15
75 1.400E+02 1.278E+04 0.2214 293.15	76 1.450E+02 1.111E+04 0.2246 293.15
77 1.480E+02 1.058E+04 0.2257 293.15	78 1.500E+02 1.036E+04 0.2262 293.15
79 1.514E+02 1.025E+04 0.2264 293.15	80 1.524E+02 1.019E+04 0.2265 293.15
81 1.530E+02 1.016E+04 0.2266 293.15	82 1.540E+02 1.012E+04 0.2267 293.15
83 1.600E+02 1.003E+04 0.2269 293.15	84 1.650E+02 1.001E+04 0.2269 293.15
85 1.700E+02 1.000E+04 0.2270 293.15	86 1.750E+02 1.000E+04 0.2270 293.15
87 1.780E+02 1.000E+04 0.2270 293.15	88 1.800E+02 1.000E+04 0.2270 293.15
89 1.810E+02 1.000E+04 0.2270 293.15	90 1.820E+02 1.000E+04 0.2270 293.15
91 1.830E+02 1.000E+04 0.2270 293.15	92 1.840E+02 1.000E+04 0.2270 293.15
93 1.850E+02 1.000E+04 0.2270 293.15	94 1.870E+02 1.000E+04 0.2270 293.15
95 1.900E+02 1.000E+04 0.2270 293.15	96 1.950E+02 1.000E+04 0.2270 293.15
97 2.020E+02 1.000E+04 0.2270 293.15	98 2.100E+02 1.000E+04 0.2270 293.15
99 2.200E+02 1.000E+04 0.2270 293.15	100 2.350E+02 1.000E+04 0.2270 293.15
101 2.400E+02 1.000E+04 0.2270 293.15	102 2.600E+02 1.000E+04 0.2270 293.15
103 2.800E+02 1.000E+04 0.2270 293.15	104 3.000E+02 1.000E+04 0.2270 293.15
105 3.200E+02 1.000E+04 0.2270 293.15	106 3.400E+02 1.000E+04 0.2270 293.15
107 3.600E+02 1.000E+04 0.2270 293.15	108 3.800E+02 1.000E+04 0.2270 293.15
109 4.000E+02 1.000E+04 0.2270 293.15	110 4.200E+02 1.000E+04 0.2270 293.15
111 4.400E+02 1.000E+04 0.2270 293.15	112 4.550E+02 1.000E+04 0.2270 293.15
113 4.650E+02 1.000E+04 0.2270 293.15	114 4.730E+02 1.000E+04 0.2270 293.15
115 4.780E+02 1.000E+04 0.2270 293.15	116 4.820E+02 1.000E+04 0.2270 293.15
117 4.850E+02 1.000E+04 0.2270 293.15	118 4.870E+02 1.000E+04 0.2270 293.15
119 4.880E+02 1.000E+04 0.2270 293.15	120 4.890E+02 1.000E+04 0.2270 293.15

Initial Water Storage = 110.0710 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.37887
Head (cm) = 5.66466E+01

December 2023

LiqWater Flow (cm)=-4.20373E-02
IsoVapor Flow (cm)=-1.67620E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

110.0710+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 110.0267 vs. 110.0267

Mass Balance = -1.8825E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.34369
Head (cm) = 1.56626E+02
LiqWater Flow (cm)=-4.64206E-02
IsoVapor Flow (cm)=-8.40479E-03
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

110.7873+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 110.7288 vs. 110.7288

Mass Balance = -1.1117E-05 cm; Time step attempts = 28 and successes = 26

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

December 2023

Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 2.8205E+00 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 1.1842E+01 [cm]
 Evaporation during Growth = 7.2923E+00 [cm]
 Total Runoff = 3.5791E+01 [cm]
 Total Infiltration = 1.4907E+01 [cm]
 Total Basal Liquid Flux (drainage) = 1.0650E-08 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 1.1073E+02 [cm]
 Mass Balance Error = -4.1266E-01 [cm]
 Total Successful Time Steps = 107824
 Total Attempted Time Steps = 165945
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 58784
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	3.0656E+00	0.050	6.0253E+00	0.200	4.4418E+00
0.450	3.6520E+00	0.800	3.3525E+00	1.250	3.2118E+00
1.850	3.0887E+00	2.600	2.9474E+00	3.500	2.7913E+00
4.750	2.5970E+00	6.500	2.3597E+00	8.500	2.1306E+00
10.750	1.8936E+00	13.250	1.5927E+00	16.000	9.6377E-01
18.750	1.9785E-01	21.500	1.4768E-03	24.250	1.5604E-04
26.500	6.0897E-05	28.250	3.3084E-05	29.500	2.2126E-05
30.500	1.6107E-05	31.500	1.1830E-05	32.750	8.0182E-06
34.250	5.1665E-06	36.000	3.0962E-06	38.500	1.4926E-06
41.000	7.9735E-07	43.000	4.8175E-07	44.500	3.4501E-07
45.500	2.7607E-07	46.500	2.2436E-08	47.500	1.8467E-09
49.000	1.3945E-09	51.000	1.0382E-09	53.000	8.2484E-10
55.500	6.6260E-10	57.750	5.8644E-10	59.250	5.4895E-10
60.500	5.2495E-10	61.500	5.0842E-10	62.500	4.9377E-10
63.750	4.7700E-10	65.250	4.5804E-10	67.000	4.3534E-10
69.500	3.9766E-10	72.500	3.3113E-10	75.500	2.2311E-10
78.500	4.1215E-11	81.500	-2.6861E-10	84.500	-7.9752E-10
87.000	-1.5488E-09	88.500	-2.1954E-09	89.500	-2.7122E-09
90.500	-3.3308E-09	91.500	-4.0705E-09	93.000	-5.3971E-09
95.000	-7.9061E-09	97.500	-1.2363E-08	100.500	-2.1327E-08

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103.500	-3.6472E-08	107.000	-6.6817E-08	111.500	-1.4835E-07
115.500	-3.3155E-07	118.000	-5.6523E-07	120.000	-9.1441E-07
121.500	-1.0332E-06	122.500	-1.1230E-06	123.750	-1.2485E-06
125.250	-1.4170E-06	127.000	-1.6429E-06	129.250	-1.9736E-06
131.500	-2.3242E-06	133.750	-2.6641E-06	137.500	-2.9752E-06
142.500	-2.4761E-06	146.500	-1.6823E-06	149.000	-1.1690E-06
150.700	-8.7418E-07	151.900	-7.0138E-07	152.700	-6.0366E-07
153.500	-5.1516E-07	157.000	-1.8817E-07	162.500	-4.2467E-08
167.500	-3.0430E-09	172.500	7.4636E-09	176.500	9.6454E-09
179.000	1.0197E-08	180.500	1.0371E-08	181.500	1.0454E-08
182.500	1.0513E-08	183.500	1.0554E-08	184.500	1.0583E-08
186.000	1.0613E-08	188.500	1.0636E-08	192.500	1.0647E-08
198.500	1.0650E-08	206.000	1.0650E-08	215.000	1.0650E-08
227.500	1.0650E-08	237.500	1.0650E-08	250.000	1.0650E-08
270.000	1.0650E-08	290.000	1.0650E-08	310.000	1.0650E-08
330.000	1.0650E-08	350.000	1.0650E-08	370.000	1.0650E-08
390.000	1.0650E-08	410.000	1.0650E-08	430.000	1.0650E-08
447.500	1.0650E-08	460.000	1.0650E-08	469.000	1.0650E-08
475.500	1.0650E-08	480.000	1.0650E-08	483.500	1.0650E-08
486.000	1.0650E-08	487.500	1.0650E-08	488.500	1.0650E-08
489.000	1.0650E-08				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.3658E-02	0.300	6.9041E-02
0.600	9.0592E-02	1.000	1.0660E-01	1.500	1.2945E-01
2.200	1.4430E-01	3.000	1.5673E-01	4.000	1.9219E-01
5.500	2.2849E-01	7.500	2.1340E-01	9.500	2.1700E-01
12.000	2.6194E-01	14.500	3.9439E-01	17.500	4.0521E-01
20.000	1.1097E-01	23.000	2.1096E-02	25.500	6.8856E-03
27.500	2.7984E-03	29.000	1.2610E-03	30.000	7.4639E-04
31.000	5.5510E-04	32.000	5.1738E-04	33.500	4.0314E-04
35.000	3.0502E-04	37.000	2.4570E-04	40.000	1.0995E-04
42.000	5.1220E-05	44.000	2.2824E-05	45.000	1.1728E-05
46.000	9.0849E-06	47.000	7.0661E-06	48.000	8.2787E-06
50.000	6.9524E-06	52.000	4.4818E-06	54.000	3.6922E-06
57.000	1.9266E-06	58.500	1.0036E-06	60.000	6.7740E-07
61.000	4.8289E-07	62.000	4.4156E-07	63.000	5.1994E-07
64.500	6.0676E-07	66.000	7.4127E-07	68.000	1.2441E-06
71.000	2.1882E-06	74.000	3.5215E-06	77.000	5.8887E-06
80.000	9.9955E-06	83.000	1.7062E-05	86.000	2.4314E-05

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88.000	2.1014E-05	89.000	1.6835E-05	90.000	2.0208E-05
91.000	2.4235E-05	92.000	4.3568E-05	94.000	8.2945E-05
96.000	1.4803E-04	99.000	2.9986E-04	102.000	5.0697E-04
105.000	9.9734E-04	109.000	2.5181E-03	114.000	5.0787E-03
117.000	5.3596E-03	119.000	6.2763E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

-

Sensitivity Analysis #1: Soil Sample TP3 Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is C:\A\TP154_1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                110.986
 1 22.530 135.832  3.711  5.283 14.884  0.000 109.874  42462 -0.23658
 2 22.530 135.832  2.866  5.653 14.822  0.000 109.313  71455 -0.24987
 3 22.530 135.832  2.485  5.588 14.929  0.000 109.061  48127 -0.22040
 4 22.530 135.832  2.323  5.596 14.869  0.000 109.025  56942 -0.22177
 5 22.530 135.832  2.318  5.627 14.858  0.000 108.957  40899 -0.20513
 6 22.530 135.832  2.303  5.592 14.860  0.000 108.932  56139 -0.20086
 7 22.530 135.832  2.297  5.639 14.834  0.000 108.915  56787 -0.22415
 8 22.530 135.832  2.315  5.603 14.900  0.000 108.826  40151 -0.19992
 9 22.530 135.832  2.278  5.583 14.890  0.000 108.810  51948 -0.20578
10 22.530 135.832  2.259  5.583 14.975  0.000 108.763  59299 -0.23970
11 50.698 113.700  2.686 11.226 35.847  0.000 110.071  69246 -0.36875
12 50.698 113.759  2.820 11.842 35.791  0.000 110.729 107824 -0.41266
-----
SUM= 326.6951585.780 30.661 78.817 220.460 0.000                -2.98558
```

Sensitivity Analysis #1: Soil Sample Grand Junction (Alluvium) Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_A.inp

Results File: c:\a\gj_a1955.res

Date of Run: 07 Dec 2021

Time of Run: 08:47:06.58

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.640E+02	0.2106	293.15	2	1.000E-01	7.698E+02	0.2223
3	3.000E-01	8.121E+02	0.2195	293.15	4	6.000E-01	8.091E+02	0.2197
5	1.000E+00	8.052E+02	0.2199	293.15	6	1.500E+00	8.011E+02	0.2202
7	2.200E+00	7.948E+02	0.2206	293.15	8	3.000E+00	7.871E+02	0.2211
9	4.000E+00	7.772E+02	0.2218	293.15	10	5.500E+00	7.634E+02	0.2227
11	7.500E+00	7.496E+02	0.2237	293.15	12	9.500E+00	7.429E+02	0.2242
13	1.200E+01	7.446E+02	0.2241	293.15	14	1.450E+01	7.563E+02	0.2232
15	1.750E+01	7.820E+02	0.2215	293.15	16	2.000E+01	8.120E+02	0.2195
17	2.300E+01	8.577E+02	0.2166	293.15	18	2.550E+01	9.022E+02	0.2140
19	2.750E+01	9.408E+02	0.2118	293.15	20	2.900E+01	9.706E+02	0.2102
21	3.000E+01	9.906E+02	0.2092	293.15	22	3.100E+01	1.010E+03	0.2082
23	3.200E+01	1.030E+03	0.2072	293.15	24	3.350E+01	1.058E+03	0.2059
25	3.500E+01	1.085E+03	0.2046	293.15	26	3.700E+01	1.118E+03	0.2032
27	4.000E+01	1.159E+03	0.2014	293.15	28	4.200E+01	1.183E+03	0.2003
29	4.400E+01	1.205E+03	0.1995	293.15	30	4.500E+01	1.215E+03	0.1991
31	4.600E+01	1.225E+03	0.1987	293.15	32	4.700E+01	1.258E+03	0.1974
33	4.800E+01	1.378E+03	0.1930	293.15	34	5.000E+01	1.738E+03	0.1823
35	5.200E+01	2.480E+03	0.1670	293.15	36	5.400E+01	4.703E+03	0.1425
37	5.700E+01	1.135E+04	0.1144	293.15	38	5.850E+01	1.419E+04	0.1082
39	6.000E+01	1.614E+04	0.1048	293.15	40	6.100E+01	1.739E+04	0.1028
41	6.200E+01	1.871E+04	0.1010	293.15	42	6.300E+01	2.013E+04	0.0991
43	6.450E+01	2.241E+04	0.0965	293.15	44	6.600E+01	2.477E+04	0.0941
45	6.800E+01	2.782E+04	0.0914	293.15	46	7.100E+01	3.171E+04	0.0885
47	7.400E+01	3.452E+04	0.0866	293.15	48	7.700E+01	3.640E+04	0.0855
49	8.000E+01	3.762E+04	0.0848	293.15	50	8.300E+01	3.839E+04	0.0844
51	8.600E+01	3.887E+04	0.0841	293.15	52	8.800E+01	3.908E+04	0.0840
53	8.900E+01	3.915E+04	0.0839	293.15	54	9.000E+01	3.921E+04	0.0839
55	9.100E+01	3.926E+04	0.0839	293.15	56	9.200E+01	3.929E+04	0.0839
57	9.400E+01	3.931E+04	0.0839	293.15	58	9.600E+01	3.929E+04	0.0839

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59 9.900E+01 3.915E+04 0.0839 293.15	60 1.020E+02 3.888E+04 0.0841 293.15
61 1.050E+02 3.843E+04 0.0843 293.15	62 1.090E+02 3.741E+04 0.0849 293.15
63 1.140E+02 3.497E+04 0.0863 293.15	64 1.170E+02 3.236E+04 0.0880 293.15
65 1.190E+02 3.014E+04 0.0896 293.15	66 1.210E+02 2.765E+04 0.0916 293.15
67 1.220E+02 2.639E+04 0.0926 293.15	68 1.230E+02 2.514E+04 0.0938 293.15
69 1.245E+02 2.335E+04 0.0955 293.15	70 1.260E+02 2.171E+04 0.0973 293.15
71 1.280E+02 1.978E+04 0.0996 293.15	72 1.305E+02 1.781E+04 0.1022 293.15
73 1.325E+02 1.652E+04 0.1041 293.15	74 1.350E+02 1.522E+04 0.1063 293.15
75 1.400E+02 1.336E+04 0.1098 293.15	76 1.450E+02 1.218E+04 0.1124 293.15
77 1.480E+02 1.169E+04 0.1135 293.15	78 1.500E+02 1.142E+04 0.1142 293.15
79 1.514E+02 1.125E+04 0.1146 293.15	80 1.524E+02 1.115E+04 0.1149 293.15
81 1.530E+02 1.109E+04 0.1150 293.15	82 1.540E+02 1.100E+04 0.1153 293.15
83 1.600E+02 1.058E+04 0.1164 293.15	84 1.650E+02 1.037E+04 0.1170 293.15
85 1.700E+02 1.023E+04 0.1174 293.15	86 1.750E+02 1.014E+04 0.1176 293.15
87 1.780E+02 1.010E+04 0.1178 293.15	88 1.800E+02 1.008E+04 0.1178 293.15
89 1.810E+02 1.007E+04 0.1178 293.15	90 1.820E+02 1.006E+04 0.1179 293.15
91 1.830E+02 1.006E+04 0.1179 293.15	92 1.840E+02 1.005E+04 0.1179 293.15
93 1.850E+02 1.005E+04 0.1179 293.15	94 1.870E+02 1.004E+04 0.1179 293.15
95 1.900E+02 1.002E+04 0.1180 293.15	96 1.950E+02 1.001E+04 0.1180 293.15
97 2.020E+02 1.001E+04 0.1180 293.15	98 2.100E+02 1.000E+04 0.1180 293.15
99 2.200E+02 1.000E+04 0.1180 293.15	100 2.350E+02 1.000E+04 0.1181 293.15
101 2.400E+02 1.000E+04 0.1181 293.15	102 2.600E+02 1.000E+04 0.1181 293.15
103 2.800E+02 1.000E+04 0.1181 293.15	104 3.000E+02 1.000E+04 0.1181 293.15
105 3.200E+02 1.000E+04 0.1181 293.15	106 3.400E+02 1.000E+04 0.1181 293.15
107 3.600E+02 1.000E+04 0.1181 293.15	108 3.800E+02 1.000E+04 0.1181 293.15
109 4.000E+02 1.000E+04 0.1181 293.15	110 4.200E+02 1.000E+04 0.1181 293.15
111 4.400E+02 1.000E+04 0.1181 293.15	112 4.550E+02 1.000E+04 0.1181 293.15
113 4.650E+02 1.000E+04 0.1181 293.15	114 4.730E+02 1.000E+04 0.1181 293.15
115 4.780E+02 1.000E+04 0.1181 293.15	116 4.820E+02 1.000E+04 0.1181 293.15
117 4.850E+02 1.000E+04 0.1181 293.15	118 4.870E+02 1.000E+04 0.1181 293.15
119 4.880E+02 1.000E+04 0.1181 293.15	120 4.890E+02 1.000E+04 0.1181 293.15

Initial Water Storage = 60.3263 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.20172
Head (cm) = 1.15054E+03

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LiqWater Flow (cm)=-6.79398E-02
IsoVapor Flow (cm)=-1.71068E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

60.3263+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 60.2579 vs. 60.2579

Mass Balance = -1.5992E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.21057
Head (cm) = 9.64063E+02
LiqWater Flow (cm)=-3.95874E-02
IsoVapor Flow (cm)=-1.26934E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

60.3265+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 60.2868 vs. 60.2868

Mass Balance = -9.5220E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

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Potential Transpiration = 1.6719E+01 [cm]
 Actual Transpiration = 5.2341E+00 [cm]
 Potential Evaporation = 1.1911E+02 [cm]
 Actual Evaporation = 1.7340E+01 [cm]
 Evaporation during Growth = 1.0069E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 9.4688E-05 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.0287E+01 [cm]
 Mass Balance Error = -4.6467E-03 [cm]
 Total Successful Time Steps = 11430
 Total Attempted Time Steps = 12783
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6675
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	5.1901E+00	0.050	7.0256E+00	0.200	6.1257E+00
0.450	5.4856E+00	0.800	5.1786E+00	1.250	5.0665E+00
1.850	4.9639E+00	2.600	4.8396E+00	3.500	4.6926E+00
4.750	4.4922E+00	6.500	4.2228E+00	8.500	3.9355E+00
10.750	3.6367E+00	13.250	3.3344E+00	16.000	3.0309E+00
18.750	2.7557E+00	21.500	2.5004E+00	24.250	2.2649E+00
26.500	2.0841E+00	28.250	1.9501E+00	29.500	1.8577E+00
30.500	1.7854E+00	31.500	1.7147E+00	32.750	1.6283E+00
34.250	1.5276E+00	36.000	1.4137E+00	38.500	1.2569E+00
41.000	1.1077E+00	43.000	9.9185E-01	44.500	9.0716E-01
45.500	8.5138E-01	46.500	7.9491E-01	47.500	7.3670E-01
49.000	6.5660E-01	51.000	5.5428E-01	53.000	4.5590E-01
55.500	3.3907E-01	57.750	2.4308E-01	59.250	1.8322E-01
60.500	1.3744E-01	61.500	1.0392E-01	62.500	7.4693E-02
63.750	4.6617E-02	65.250	2.6273E-02	67.000	1.4515E-02
69.500	7.2549E-03	72.500	3.6879E-03	75.500	2.0587E-03
78.500	1.2117E-03	81.500	7.3200E-04	84.500	4.4176E-04
87.000	2.8431E-04	88.500	2.1086E-04	89.500	1.6714E-04
90.500	1.2731E-04	91.500	9.0436E-05	93.000	3.8378E-05
95.000	-2.7285E-05	97.500	-1.1183E-04	100.500	-2.3409E-04

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103.500	-4.0291E-04	107.000	-7.0423E-04	111.500	-1.4509E-03
115.500	-3.0139E-03	118.000	-4.9745E-03	120.000	-7.8295E-03
121.500	-8.8847E-03	122.500	-9.6104E-03	123.750	-1.0517E-02
125.250	-1.1554E-02	127.000	-1.2627E-02	129.250	-1.3668E-02
131.500	-1.4260E-02	133.750	-1.4371E-02	137.500	-1.3644E-02
142.500	-1.1773E-02	146.500	-1.0016E-02	149.000	-8.8881E-03
150.700	-8.1389E-03	151.900	-7.6248E-03	152.700	-7.2908E-03
153.500	-6.9609E-03	157.000	-5.5301E-03	162.500	-3.8218E-03
167.500	-2.6156E-03	172.500	-1.7205E-03	176.500	-1.2098E-03
179.000	-9.5353E-04	180.500	-8.2179E-04	181.500	-7.4067E-04
182.500	-6.6589E-04	183.500	-5.9706E-04	184.500	-5.3382E-04
186.000	-4.4677E-04	188.500	-3.2525E-04	192.500	-1.7794E-04
198.500	-4.2678E-05	206.000	3.8187E-05	215.000	7.6631E-05
227.500	9.1495E-05	237.500	9.3560E-05	250.000	9.4549E-05
270.000	9.4678E-05	290.000	9.4687E-05	310.000	9.4688E-05
330.000	9.4688E-05	350.000	9.4688E-05	370.000	9.4688E-05
390.000	9.4688E-05	410.000	9.4688E-05	430.000	9.4688E-05
447.500	9.4688E-05	460.000	9.4688E-05	469.000	9.4688E-05
475.500	9.4688E-05	480.000	9.4688E-05	483.500	9.4688E-05
486.000	9.4688E-05	487.500	9.4688E-05	488.500	9.4688E-05
489.000	9.4688E-05				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	1.7389E-02	0.300	3.1248E-02
0.600	4.7046E-02	1.000	6.4458E-02	1.500	9.0255E-02
2.200	1.1697E-01	3.000	1.4253E-01	4.000	1.9714E-01
5.500	2.6725E-01	7.500	2.8610E-01	9.500	2.9824E-01
12.000	3.0181E-01	14.500	3.0339E-01	17.500	2.7514E-01
20.000	2.5531E-01	23.000	2.3549E-01	25.500	1.8074E-01
27.500	1.3390E-01	29.000	9.2349E-02	30.000	7.2218E-02
31.000	7.0636E-02	32.000	8.6411E-02	33.500	1.0051E-01
35.000	1.1383E-01	37.000	1.5669E-01	40.000	1.4912E-01
42.000	1.1589E-01	44.000	8.4761E-02	45.000	5.5889E-02
46.000	5.5342E-02	47.000	5.4540E-02	48.000	7.9590E-02
50.000	1.0137E-01	52.000	9.6724E-02	54.000	1.1399E-01
57.000	8.9717E-02	58.500	5.4125E-02	60.000	3.9284E-02
61.000	2.7815E-02	62.000	2.3853E-02	63.000	2.4752E-02
64.500	2.1561E-02	66.000	1.8105E-02	68.000	1.7263E-02
71.000	1.2388E-02	74.000	7.8164E-03	77.000	5.0650E-03
80.000	3.3365E-03	83.000	2.2418E-03	86.000	1.3016E-03

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88.000	6.3329E-04	89.000	3.8558E-04	90.000	3.5656E-04
91.000	3.3450E-04	92.000	4.7837E-04	94.000	6.1219E-04
96.000	7.9108E-04	99.000	1.1294E-03	102.000	1.4995E-03
105.000	2.4770E-03	109.000	5.2758E-03	114.000	9.0463E-03
117.000	8.6899E-03	119.000	9.5218E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Alluvium) Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_A.inp

Results File: c:\a\gj_a1956.res

Date of Run: 07 Dec 2021

Time of Run: 08:47:06.58

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	9.641E+02	0.2106	293.15	2	1.000E-01	7.698E+02	0.2223
3	3.000E-01	8.121E+02	0.2195	293.15	4	6.000E-01	8.091E+02	0.2197
5	1.000E+00	8.052E+02	0.2199	293.15	6	1.500E+00	8.011E+02	0.2202
7	2.200E+00	7.948E+02	0.2206	293.15	8	3.000E+00	7.871E+02	0.2211
9	4.000E+00	7.772E+02	0.2218	293.15	10	5.500E+00	7.635E+02	0.2227
11	7.500E+00	7.496E+02	0.2237	293.15	12	9.500E+00	7.429E+02	0.2242
13	1.200E+01	7.446E+02	0.2241	293.15	14	1.450E+01	7.563E+02	0.2232
15	1.750E+01	7.820E+02	0.2215	293.15	16	2.000E+01	8.120E+02	0.2195
17	2.300E+01	8.577E+02	0.2166	293.15	18	2.550E+01	9.023E+02	0.2140
19	2.750E+01	9.408E+02	0.2118	293.15	20	2.900E+01	9.706E+02	0.2102
21	3.000E+01	9.906E+02	0.2092	293.15	22	3.100E+01	1.010E+03	0.2082
23	3.200E+01	1.030E+03	0.2072	293.15	24	3.350E+01	1.058E+03	0.2059
25	3.500E+01	1.085E+03	0.2046	293.15	26	3.700E+01	1.118E+03	0.2032
27	4.000E+01	1.159E+03	0.2014	293.15	28	4.200E+01	1.183E+03	0.2003
29	4.400E+01	1.205E+03	0.1995	293.15	30	4.500E+01	1.215E+03	0.1991
31	4.600E+01	1.225E+03	0.1987	293.15	32	4.700E+01	1.258E+03	0.1974
33	4.800E+01	1.378E+03	0.1930	293.15	34	5.000E+01	1.738E+03	0.1823
35	5.200E+01	2.480E+03	0.1670	293.15	36	5.400E+01	4.705E+03	0.1425
37	5.700E+01	1.136E+04	0.1144	293.15	38	5.850E+01	1.420E+04	0.1082
39	6.000E+01	1.615E+04	0.1047	293.15	40	6.100E+01	1.741E+04	0.1028
41	6.200E+01	1.873E+04	0.1009	293.15	42	6.300E+01	2.015E+04	0.0991
43	6.450E+01	2.243E+04	0.0965	293.15	44	6.600E+01	2.480E+04	0.0941
45	6.800E+01	2.785E+04	0.0914	293.15	46	7.100E+01	3.173E+04	0.0885
47	7.400E+01	3.454E+04	0.0866	293.15	48	7.700E+01	3.642E+04	0.0855
49	8.000E+01	3.764E+04	0.0848	293.15	50	8.300E+01	3.841E+04	0.0844
51	8.600E+01	3.889E+04	0.0841	293.15	52	8.800E+01	3.909E+04	0.0840
53	8.900E+01	3.917E+04	0.0839	293.15	54	9.000E+01	3.923E+04	0.0839
55	9.100E+01	3.928E+04	0.0839	293.15	56	9.200E+01	3.932E+04	0.0839
57	9.400E+01	3.935E+04	0.0838	293.15	58	9.600E+01	3.933E+04	0.0839

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59 9.900E+01 3.920E+04 0.0839 293.15	60 1.020E+02 3.895E+04 0.0841 293.15
61 1.050E+02 3.852E+04 0.0843 293.15	62 1.090E+02 3.756E+04 0.0848 293.15
63 1.140E+02 3.525E+04 0.0862 293.15	64 1.170E+02 3.276E+04 0.0878 293.15
65 1.190E+02 3.063E+04 0.0893 293.15	66 1.210E+02 2.825E+04 0.0911 293.15
67 1.220E+02 2.703E+04 0.0921 293.15	68 1.230E+02 2.582E+04 0.0932 293.15
69 1.245E+02 2.407E+04 0.0948 293.15	70 1.260E+02 2.244E+04 0.0965 293.15
71 1.280E+02 2.052E+04 0.0987 293.15	72 1.305E+02 1.850E+04 0.1012 293.15
73 1.325E+02 1.717E+04 0.1031 293.15	74 1.350E+02 1.580E+04 0.1053 293.15
75 1.400E+02 1.382E+04 0.1089 293.15	76 1.450E+02 1.253E+04 0.1116 293.15
77 1.480E+02 1.198E+04 0.1128 293.15	78 1.500E+02 1.168E+04 0.1136 293.15
79 1.514E+02 1.150E+04 0.1140 293.15	80 1.524E+02 1.138E+04 0.1143 293.15
81 1.530E+02 1.131E+04 0.1145 293.15	82 1.540E+02 1.121E+04 0.1147 293.15
83 1.600E+02 1.073E+04 0.1160 293.15	84 1.650E+02 1.048E+04 0.1167 293.15
85 1.700E+02 1.030E+04 0.1172 293.15	86 1.750E+02 1.019E+04 0.1175 293.15
87 1.780E+02 1.014E+04 0.1176 293.15	88 1.800E+02 1.012E+04 0.1177 293.15
89 1.810E+02 1.011E+04 0.1177 293.15	90 1.820E+02 1.010E+04 0.1178 293.15
91 1.830E+02 1.009E+04 0.1178 293.15	92 1.840E+02 1.008E+04 0.1178 293.15
93 1.850E+02 1.007E+04 0.1178 293.15	94 1.870E+02 1.006E+04 0.1179 293.15
95 1.900E+02 1.004E+04 0.1179 293.15	96 1.950E+02 1.002E+04 0.1180 293.15
97 2.020E+02 1.001E+04 0.1180 293.15	98 2.100E+02 1.000E+04 0.1180 293.15
99 2.200E+02 1.000E+04 0.1180 293.15	100 2.350E+02 1.000E+04 0.1180 293.15
101 2.400E+02 1.000E+04 0.1181 293.15	102 2.600E+02 1.000E+04 0.1181 293.15
103 2.800E+02 1.000E+04 0.1181 293.15	104 3.000E+02 1.000E+04 0.1181 293.15
105 3.200E+02 1.000E+04 0.1181 293.15	106 3.400E+02 1.000E+04 0.1181 293.15
107 3.600E+02 1.000E+04 0.1181 293.15	108 3.800E+02 1.000E+04 0.1181 293.15
109 4.000E+02 1.000E+04 0.1181 293.15	110 4.200E+02 1.000E+04 0.1181 293.15
111 4.400E+02 1.000E+04 0.1181 293.15	112 4.550E+02 1.000E+04 0.1181 293.15
113 4.650E+02 1.000E+04 0.1181 293.15	114 4.730E+02 1.000E+04 0.1181 293.15
115 4.780E+02 1.000E+04 0.1181 293.15	116 4.820E+02 1.000E+04 0.1181 293.15
117 4.850E+02 1.000E+04 0.1181 293.15	118 4.870E+02 1.000E+04 0.1181 293.15
119 4.880E+02 1.000E+04 0.1181 293.15	120 4.890E+02 1.000E+04 0.1181 293.15

Initial Water Storage = 60.2868 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.20703
Head (cm) = 1.03392E+03

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LiqWater Flow (cm)=-4.41125E-02
IsoVapor Flow (cm)=-1.03791E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

60.2868+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 60.2425 vs. 60.2425

Mass Balance = -8.1838E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.25698
Head (cm) = 4.15063E+02
LiqWater Flow (cm)= 4.31085E-04
IsoVapor Flow (cm)=-7.51728E-06
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

64.2622+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 64.2622 vs. 64.2622

Mass Balance = -2.3724E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 7.9501E+00 [cm]
 Potential Evaporation = 9.9853E+01 [cm]
 Actual Evaporation = 3.8780E+01 [cm]
 Evaporation during Growth = 2.4765E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 9.4947E-05 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.4262E+01 [cm]
 Mass Balance Error = -7.1568E-03 [cm]
 Total Successful Time Steps = 12869
 Total Attempted Time Steps = 14670
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3724
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.1918E+01	0.050	1.3785E+01	0.200	1.2365E+01
0.450	1.1888E+01	0.800	1.1780E+01	1.250	1.1677E+01
1.850	1.1540E+01	2.600	1.1368E+01	3.500	1.1162E+01
4.750	1.0879E+01	6.500	1.0496E+01	8.500	1.0081E+01
10.750	9.6424E+00	13.250	9.1947E+00	16.000	8.7412E+00
18.750	8.3279E+00	21.500	7.9424E+00	24.250	7.5835E+00
26.500	7.3030E+00	28.250	7.0908E+00	29.500	6.9416E+00
30.500	6.8232E+00	31.500	6.7055E+00	32.750	6.5592E+00
34.250	6.3847E+00	36.000	6.1819E+00	38.500	5.8930E+00
41.000	5.6047E+00	43.000	5.3742E+00	44.500	5.2013E+00
45.500	5.0860E+00	46.500	4.9706E+00	47.500	4.8539E+00
49.000	4.6717E+00	51.000	4.4060E+00	53.000	4.1098E+00
55.500	3.6795E+00	57.750	3.2353E+00	59.250	2.9350E+00
60.500	2.6857E+00	61.500	2.4884E+00	62.500	2.2931E+00
63.750	2.0534E+00	65.250	1.7719E+00	67.000	1.4549E+00
69.500	1.0315E+00	72.500	6.0070E-01	75.500	2.7561E-01
78.500	4.6502E-02	81.500	3.1701E-03	84.500	9.0944E-04
87.000	4.6109E-04	88.500	3.1465E-04	89.500	2.3908E-04
90.500	1.7775E-04	91.500	1.2627E-04	93.000	5.9337E-05
95.000	-1.6275E-05	97.500	-1.0749E-04	100.500	-2.3402E-04

December 2023

103.500	-4.0546E-04	107.000	-7.0687E-04	111.500	-1.4362E-03
115.500	-2.8987E-03	118.000	-4.6470E-03	120.000	-7.0635E-03
121.500	-8.0108E-03	122.500	-8.6728E-03	123.750	-9.5135E-03
125.250	-1.0496E-02	127.000	-1.1552E-02	129.250	-1.2649E-02
131.500	-1.3369E-02	133.750	-1.3666E-02	137.500	-1.3299E-02
142.500	-1.1830E-02	146.500	-1.0294E-02	149.000	-9.2647E-03
150.700	-8.5662E-03	151.900	-8.0806E-03	152.700	-7.7625E-03
153.500	-7.4463E-03	157.000	-6.0589E-03	162.500	-4.3387E-03
167.500	-3.0800E-03	172.500	-2.1117E-03	176.500	-1.5384E-03
179.000	-1.2436E-03	180.500	-1.0895E-03	181.500	-9.9382E-04
182.500	-9.0482E-04	183.500	-8.2219E-04	184.500	-7.4557E-04
186.000	-6.3913E-04	188.500	-4.8772E-04	192.500	-2.9871E-04
198.500	-1.1615E-04	206.000	1.1396E-06	215.000	6.1973E-05
227.500	8.8337E-05	237.500	9.2437E-05	250.000	9.4594E-05
270.000	9.4918E-05	290.000	9.4945E-05	310.000	9.4947E-05
330.000	9.4947E-05	350.000	9.4947E-05	370.000	9.4947E-05
390.000	9.4947E-05	410.000	9.4947E-05	430.000	9.4947E-05
447.500	9.4947E-05	460.000	9.4947E-05	469.000	9.4947E-05
475.500	9.4947E-05	480.000	9.4947E-05	483.500	9.4947E-05
486.000	9.4947E-05	487.500	9.4947E-05	488.500	9.4947E-05
489.000	9.4947E-05				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.5294E-02	0.300	4.4440E-02
0.600	6.4920E-02	1.000	8.6478E-02	1.500	1.1836E-01
2.200	1.5062E-01	3.000	1.8167E-01	4.000	2.5061E-01
5.500	3.4192E-01	7.500	3.7169E-01	9.500	3.9439E-01
12.000	4.0471E-01	14.500	4.1190E-01	17.500	3.7776E-01
20.000	3.5357E-01	23.000	3.2920E-01	25.500	2.5551E-01
27.500	1.9135E-01	29.000	1.3317E-01	30.000	1.0482E-01
31.000	1.0322E-01	32.000	1.2715E-01	33.500	1.4949E-01
35.000	1.7116E-01	37.000	2.3905E-01	40.000	2.3220E-01
42.000	1.8268E-01	44.000	1.3500E-01	45.000	8.9399E-02
46.000	8.8834E-02	47.000	8.8305E-02	48.000	1.3169E-01
50.000	1.7356E-01	52.000	1.7128E-01	54.000	2.1069E-01
57.000	1.8340E-01	58.500	1.1919E-01	60.000	9.5334E-02
61.000	7.3522E-02	62.000	7.0532E-02	63.000	8.4022E-02
64.500	9.2176E-02	66.000	9.5537E-02	68.000	1.0859E-01
71.000	6.8572E-02	74.000	2.3286E-02	77.000	8.4160E-03
80.000	3.9260E-03	83.000	2.2156E-03	86.000	1.1916E-03

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88.000	5.6388E-04	89.000	3.3984E-04	90.000	3.1169E-04
91.000	2.9039E-04	92.000	4.1275E-04	94.000	5.2285E-04
96.000	6.7007E-04	99.000	9.4890E-04	102.000	1.2553E-03
105.000	2.0706E-03	109.000	4.4034E-03	114.000	7.5044E-03
117.000	7.1213E-03	119.000	7.6866E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Alluvium) Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_A.inp

Results File: c:\a\gj_a1957.res

Date of Run: 07 Dec 2021

Time of Run: 08:47:06.58

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	4.151E+02	0.2570	293.15	2	1.000E-01	5.159E+02	0.2444
3	3.000E-01	4.993E+02	0.2463	293.15	4	6.000E-01	4.880E+02	0.2476
5	1.000E+00	4.907E+02	0.2473	293.15	6	1.500E+00	4.906E+02	0.2473
7	2.200E+00	4.910E+02	0.2472	293.15	8	3.000E+00	4.921E+02	0.2471
9	4.000E+00	4.942E+02	0.2468	293.15	10	5.500E+00	4.991E+02	0.2463
11	7.500E+00	5.090E+02	0.2452	293.15	12	9.500E+00	5.227E+02	0.2436
13	1.200E+01	5.454E+02	0.2412	293.15	14	1.450E+01	5.743E+02	0.2383
15	1.750E+01	6.163E+02	0.2344	293.15	16	2.000E+01	6.547E+02	0.2311
17	2.300E+01	7.000E+02	0.2274	293.15	18	2.550E+01	7.312E+02	0.2251
19	2.750E+01	7.494E+02	0.2237	293.15	20	2.900E+01	7.586E+02	0.2231
21	3.000E+01	7.627E+02	0.2228	293.15	22	3.100E+01	7.653E+02	0.2226
23	3.200E+01	7.665E+02	0.2225	293.15	24	3.350E+01	7.662E+02	0.2226
25	3.500E+01	7.638E+02	0.2227	293.15	26	3.700E+01	7.586E+02	0.2231
27	4.000E+01	7.486E+02	0.2238	293.15	28	4.200E+01	7.419E+02	0.2243
29	4.400E+01	7.356E+02	0.2247	293.15	30	4.500E+01	7.327E+02	0.2249
31	4.600E+01	7.300E+02	0.2251	293.15	32	4.700E+01	7.240E+02	0.2256
33	4.800E+01	7.098E+02	0.2267	293.15	34	5.000E+01	6.892E+02	0.2283
35	5.200E+01	6.779E+02	0.2292	293.15	36	5.400E+01	6.748E+02	0.2294
37	5.700E+01	6.844E+02	0.2286	293.15	38	5.850E+01	6.956E+02	0.2277
39	6.000E+01	7.116E+02	0.2265	293.15	40	6.100E+01	7.251E+02	0.2255
41	6.200E+01	7.413E+02	0.2243	293.15	42	6.300E+01	7.603E+02	0.2230
43	6.450E+01	7.954E+02	0.2206	293.15	44	6.600E+01	8.401E+02	0.2177
45	6.800E+01	9.200E+02	0.2130	293.15	46	7.100E+01	1.113E+03	0.2033
47	7.400E+01	1.506E+03	0.1889	293.15	48	7.700E+01	2.690E+03	0.1637
49	8.000E+01	1.692E+04	0.1035	293.15	50	8.300E+01	3.339E+04	0.0874
51	8.600E+01	3.733E+04	0.0850	293.15	52	8.800E+01	3.832E+04	0.0844
53	8.900E+01	3.862E+04	0.0842	293.15	54	9.000E+01	3.884E+04	0.0841
55	9.100E+01	3.899E+04	0.0840	293.15	56	9.200E+01	3.910E+04	0.0840
57	9.400E+01	3.921E+04	0.0839	293.15	58	9.600E+01	3.923E+04	0.0839

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59 9.900E+01 3.912E+04 0.0840 293.15	60 1.020E+02 3.886E+04 0.0841 293.15
61 1.050E+02 3.841E+04 0.0844 293.15	62 1.090E+02 3.741E+04 0.0849 293.15
63 1.140E+02 3.511E+04 0.0863 293.15	64 1.170E+02 3.274E+04 0.0878 293.15
65 1.190E+02 3.075E+04 0.0892 293.15	66 1.210E+02 2.852E+04 0.0909 293.15
67 1.220E+02 2.738E+04 0.0918 293.15	68 1.230E+02 2.624E+04 0.0928 293.15
69 1.245E+02 2.458E+04 0.0943 293.15	70 1.260E+02 2.302E+04 0.0959 293.15
71 1.280E+02 2.114E+04 0.0979 293.15	72 1.305E+02 1.913E+04 0.1004 293.15
73 1.325E+02 1.777E+04 0.1023 293.15	74 1.350E+02 1.635E+04 0.1044 293.15
75 1.400E+02 1.426E+04 0.1080 293.15	76 1.450E+02 1.288E+04 0.1108 293.15
77 1.480E+02 1.227E+04 0.1122 293.15	78 1.500E+02 1.195E+04 0.1129 293.15
79 1.514E+02 1.174E+04 0.1134 293.15	80 1.524E+02 1.161E+04 0.1137 293.15
81 1.530E+02 1.154E+04 0.1139 293.15	82 1.540E+02 1.142E+04 0.1142 293.15
83 1.600E+02 1.089E+04 0.1156 293.15	84 1.650E+02 1.059E+04 0.1164 293.15
85 1.700E+02 1.039E+04 0.1169 293.15	86 1.750E+02 1.025E+04 0.1173 293.15
87 1.780E+02 1.019E+04 0.1175 293.15	88 1.800E+02 1.016E+04 0.1176 293.15
89 1.810E+02 1.015E+04 0.1176 293.15	90 1.820E+02 1.013E+04 0.1177 293.15
91 1.830E+02 1.012E+04 0.1177 293.15	92 1.840E+02 1.011E+04 0.1177 293.15
93 1.850E+02 1.010E+04 0.1178 293.15	94 1.870E+02 1.008E+04 0.1178 293.15
95 1.900E+02 1.006E+04 0.1179 293.15	96 1.950E+02 1.003E+04 0.1179 293.15
97 2.020E+02 1.002E+04 0.1180 293.15	98 2.100E+02 1.001E+04 0.1180 293.15
99 2.200E+02 1.000E+04 0.1180 293.15	100 2.350E+02 1.000E+04 0.1180 293.15
101 2.400E+02 1.000E+04 0.1180 293.15	102 2.600E+02 1.000E+04 0.1181 293.15
103 2.800E+02 1.000E+04 0.1181 293.15	104 3.000E+02 1.000E+04 0.1181 293.15
105 3.200E+02 1.000E+04 0.1181 293.15	106 3.400E+02 1.000E+04 0.1181 293.15
107 3.600E+02 1.000E+04 0.1181 293.15	108 3.800E+02 1.000E+04 0.1181 293.15
109 4.000E+02 1.000E+04 0.1181 293.15	110 4.200E+02 1.000E+04 0.1181 293.15
111 4.400E+02 1.000E+04 0.1181 293.15	112 4.550E+02 1.000E+04 0.1181 293.15
113 4.650E+02 1.000E+04 0.1181 293.15	114 4.730E+02 1.000E+04 0.1181 293.15
115 4.780E+02 1.000E+04 0.1181 293.15	116 4.820E+02 1.000E+04 0.1181 293.15
117 4.850E+02 1.000E+04 0.1181 293.15	118 4.870E+02 1.000E+04 0.1181 293.15
119 4.880E+02 1.000E+04 0.1181 293.15	120 4.890E+02 1.000E+04 0.1181 293.15

Initial Water Storage = 64.2622 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.24676
Head (cm) = 4.94967E+02

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LiqWater Flow (cm)=-4.37770E-02
IsoVapor Flow (cm)=-1.08847E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

64.2622+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 64.2179 vs. 64.2179

Mass Balance = -1.7041E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.25276
Head (cm) = 4.46178E+02
LiqWater Flow (cm)=-5.77680E-02
IsoVapor Flow (cm)=-1.42818E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

65.5413+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 65.4828 vs. 65.4828

Mass Balance = -3.7784E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 9.3419E+00 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 4.0142E+01 [cm]
 Evaporation during Growth = 2.6009E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 9.4947E-05 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.5483E+01 [cm]
 Mass Balance Error = -6.4348E-03 [cm]
 Total Successful Time Steps = 12697
 Total Attempted Time Steps = 14399
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3604
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.0556E+01	0.050	1.2135E+01	0.200	1.0878E+01
0.450	1.0533E+01	0.800	1.0439E+01	1.250	1.0350E+01
1.850	1.0231E+01	2.600	1.0080E+01	3.500	9.8988E+00
4.750	9.6492E+00	6.500	9.3084E+00	8.500	8.9365E+00
10.750	8.5403E+00	13.250	8.1311E+00	16.000	7.7123E+00
18.750	7.3261E+00	21.500	6.9635E+00	24.250	6.6249E+00
26.500	6.3617E+00	28.250	6.1644E+00	29.500	6.0271E+00
30.500	5.9189E+00	31.500	5.8124E+00	32.750	5.6812E+00
34.250	5.5268E+00	36.000	5.3501E+00	38.500	5.1030E+00
41.000	4.8628E+00	43.000	4.6737E+00	44.500	4.5337E+00
45.500	4.4410E+00	46.500	4.3488E+00	47.500	4.2571E+00
49.000	4.1195E+00	51.000	3.9364E+00	53.000	3.7535E+00
55.500	3.5253E+00	57.750	3.3202E+00	59.250	3.1835E+00
60.500	3.0696E+00	61.500	2.9785E+00	62.500	2.8873E+00
63.750	2.7734E+00	65.250	2.6366E+00	67.000	2.4774E+00
69.500	2.2503E+00	72.500	1.9753E+00	75.500	1.6899E+00
78.500	1.3702E+00	81.500	9.1886E-01	84.500	5.0961E-01
87.000	2.6301E-01	88.500	1.5431E-01	89.500	9.7960E-02
90.500	5.8216E-02	91.500	3.3714E-02	93.000	1.5371E-02
95.000	5.9463E-03	97.500	2.0022E-03	100.500	4.6867E-04

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103.500	-1.6120E-04	107.000	-6.3670E-04	111.500	-1.3878E-03
115.500	-2.7593E-03	118.000	-4.3770E-03	120.000	-6.5999E-03
121.500	-7.4201E-03	122.500	-7.9939E-03	123.750	-8.7281E-03
125.250	-9.6038E-03	127.000	-1.0577E-02	129.250	-1.1655E-02
131.500	-1.2446E-02	133.750	-1.2886E-02	137.500	-1.2837E-02
142.500	-1.1745E-02	146.500	-1.0430E-02	149.000	-9.5047E-03
150.700	-8.8625E-03	151.900	-8.4102E-03	152.700	-8.1115E-03
153.500	-7.8128E-03	157.000	-6.4863E-03	162.500	-4.7860E-03
167.500	-3.5022E-03	172.500	-2.4839E-03	176.500	-1.8618E-03
179.000	-1.5353E-03	180.500	-1.3623E-03	181.500	-1.2540E-03
182.500	-1.1526E-03	183.500	-1.0577E-03	184.500	-9.6906E-04
186.000	-8.4497E-04	188.500	-6.6569E-04	192.500	-4.3634E-04
198.500	-2.0528E-04	206.000	-4.7510E-05	215.000	4.0617E-05
227.500	8.2778E-05	237.500	9.0029E-05	250.000	9.4167E-05
270.000	9.4874E-05	290.000	9.4941E-05	310.000	9.4947E-05
330.000	9.4947E-05	350.000	9.4947E-05	370.000	9.4947E-05
390.000	9.4947E-05	410.000	9.4947E-05	430.000	9.4947E-05
447.500	9.4947E-05	460.000	9.4947E-05	469.000	9.4947E-05
475.500	9.4947E-05	480.000	9.4947E-05	483.500	9.4947E-05
486.000	9.4947E-05	487.500	9.4947E-05	488.500	9.4947E-05
489.000	9.4947E-05				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	2.6005E-02	0.300	4.5523E-02
0.600	6.6346E-02	1.000	8.8205E-02	1.500	1.2053E-01
2.200	1.5317E-01	3.000	1.8451E-01	4.000	2.5424E-01
5.500	3.4641E-01	7.500	3.7617E-01	9.500	3.9897E-01
12.000	4.0964E-01	14.500	4.1700E-01	17.500	3.8252E-01
20.000	3.5802E-01	23.000	3.3328E-01	25.500	2.5865E-01
27.500	1.9371E-01	29.000	1.3483E-01	30.000	1.0614E-01
31.000	1.0452E-01	32.000	1.2878E-01	33.500	1.5143E-01
35.000	1.7341E-01	37.000	2.4227E-01	40.000	2.3541E-01
42.000	1.8527E-01	44.000	1.3697E-01	45.000	9.0715E-02
46.000	9.0159E-02	47.000	8.9685E-02	48.000	1.3404E-01
50.000	1.7750E-01	52.000	1.7622E-01	54.000	2.1857E-01
57.000	1.9432E-01	58.500	1.2869E-01	60.000	1.0648E-01
61.000	8.4741E-02	62.000	8.4260E-02	63.000	1.0466E-01
64.500	1.2418E-01	66.000	1.4256E-01	68.000	1.9855E-01
71.000	2.2836E-01	74.000	2.1694E-01	77.000	2.0122E-01
80.000	1.8003E-01	83.000	1.5151E-01	86.000	8.9343E-02

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88.000	3.4731E-02	89.000	1.6883E-02	90.000	1.1505E-02
91.000	7.5252E-03	92.000	7.3045E-03	94.000	4.4454E-03
96.000	2.7637E-03	99.000	1.7457E-03	102.000	1.5444E-03
105.000	2.2344E-03	109.000	4.5317E-03	114.000	7.5006E-03
117.000	7.0064E-03	119.000	7.4950E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Alluvium) Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\GJ_A1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                    57.729
 1 22.530 135.832  4.520 14.838  0.000  0.000  60.905  11425 -0.00446
 2 22.530 135.832  5.430 17.149  0.000  0.000  60.861  11436 -0.00473
 3 22.530 135.832  5.366 17.320  0.000  0.000  60.710  11456 -0.00464
 4 22.530 135.832  5.308 17.331  0.000  0.000  60.605  11423 -0.00466
 5 22.530 135.832  5.273 17.340  0.000  0.000  60.526  11429 -0.00469
 6 22.530 135.832  5.256 17.340  0.000  0.000  60.465  11430 -0.00461
 7 22.530 135.832  5.246 17.340  0.000  0.000  60.413  11449 -0.00465
 8 22.530 135.832  5.244 17.334  0.000  0.000  60.370  11422 -0.00468
 9 22.530 135.832  5.238 17.340  0.000  0.000  60.326  11423 -0.00470
10 22.530 135.832  5.234 17.340  0.000  0.000  60.287  11430 -0.00465
11 50.698 113.700  7.950 38.780  0.000  0.000  64.262  12869 -0.00716
12 50.698 113.759  9.342 40.142  0.000  0.000  65.483  12697 -0.00643
-----
SUM= 326.6951585.780 69.407 249.593  0.000  0.001          -0.06005
```

Sensitivity Analysis #1: Soil Sample Grand Junction (Shale) Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_S.inp

Results File: c:\a\GJ_S1955.res

Date of Run: 07 Dec 2021

Time of Run: 08:57:03.76

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.048E+05	0.0660	293.15	2	1.000E-01	8.424E+04	0.0699
3	3.000E-01	3.229E+04	0.0896	293.15	4	6.000E-01	1.790E+03	0.1889
5	1.000E+00	1.220E+03	0.2078	293.15	6	1.500E+00	9.780E+02	0.2193
7	2.200E+00	8.521E+02	0.2267	293.15	8	3.000E+00	8.186E+02	0.2289
9	4.000E+00	8.646E+02	0.2259	293.15	10	5.500E+00	1.082E+03	0.2140
11	7.500E+00	1.478E+03	0.1981	293.15	12	9.500E+00	2.430E+03	0.1748
13	1.200E+01	1.549E+04	0.1085	293.15	14	1.450E+01	2.772E+04	0.0933
15	1.750E+01	3.295E+04	0.0892	293.15	16	2.000E+01	3.539E+04	0.0875
17	2.300E+01	3.724E+04	0.0864	293.15	18	2.550E+01	3.821E+04	0.0858
19	2.750E+01	3.874E+04	0.0855	293.15	20	2.900E+01	3.903E+04	0.0853
21	3.000E+01	3.919E+04	0.0852	293.15	22	3.100E+01	3.932E+04	0.0852
23	3.200E+01	3.943E+04	0.0851	293.15	24	3.350E+01	3.955E+04	0.0850
25	3.500E+01	3.965E+04	0.0850	293.15	26	3.700E+01	3.975E+04	0.0849
27	4.000E+01	3.984E+04	0.0849	293.15	28	4.200E+01	3.988E+04	0.0849
29	4.400E+01	3.990E+04	0.0849	293.15	30	4.500E+01	3.991E+04	0.0848
31	4.600E+01	3.992E+04	0.0848	293.15	32	4.700E+01	3.993E+04	0.0848
33	4.800E+01	3.994E+04	0.0848	293.15	34	5.000E+01	3.995E+04	0.0848
35	5.200E+01	3.995E+04	0.0848	293.15	36	5.400E+01	3.996E+04	0.0848
37	5.700E+01	3.996E+04	0.0848	293.15	38	5.850E+01	3.996E+04	0.0848
39	6.000E+01	3.996E+04	0.0848	293.15	40	6.100E+01	3.996E+04	0.0848
41	6.200E+01	3.996E+04	0.0848	293.15	42	6.300E+01	3.996E+04	0.0848
43	6.450E+01	3.996E+04	0.0848	293.15	44	6.600E+01	3.996E+04	0.0848
45	6.800E+01	3.996E+04	0.0848	293.15	46	7.100E+01	3.996E+04	0.0848
47	7.400E+01	3.995E+04	0.0848	293.15	48	7.700E+01	3.995E+04	0.0848
49	8.000E+01	3.994E+04	0.0848	293.15	50	8.300E+01	3.992E+04	0.0848
51	8.600E+01	3.990E+04	0.0849	293.15	52	8.800E+01	3.988E+04	0.0849
53	8.900E+01	3.987E+04	0.0849	293.15	54	9.000E+01	3.985E+04	0.0849
55	9.100E+01	3.984E+04	0.0849	293.15	56	9.200E+01	3.982E+04	0.0849
57	9.400E+01	3.977E+04	0.0849	293.15	58	9.600E+01	3.970E+04	0.0850

December 2023

59 9.900E+01 3.955E+04 0.0850 293.15	60 1.020E+02 3.932E+04 0.0852 293.15
61 1.050E+02 3.896E+04 0.0854 293.15	62 1.090E+02 3.815E+04 0.0858 293.15
63 1.140E+02 3.608E+04 0.0871 293.15	64 1.170E+02 3.360E+04 0.0887 293.15
65 1.190E+02 3.125E+04 0.0904 293.15	66 1.210E+02 2.842E+04 0.0927 293.15
67 1.220E+02 2.693E+04 0.0940 293.15	68 1.230E+02 2.541E+04 0.0954 293.15
69 1.245E+02 2.316E+04 0.0977 293.15	70 1.260E+02 2.104E+04 0.1002 293.15
71 1.280E+02 1.846E+04 0.1036 293.15	72 1.305E+02 1.573E+04 0.1081 293.15
73 1.325E+02 1.397E+04 0.1114 293.15	74 1.350E+02 1.232E+04 0.1151 293.15
75 1.400E+02 1.070E+04 0.1194 293.15	76 1.450E+02 1.019E+04 0.1209 293.15
77 1.480E+02 1.008E+04 0.1213 293.15	78 1.500E+02 1.004E+04 0.1214 293.15
79 1.514E+02 1.003E+04 0.1214 293.15	80 1.524E+02 1.002E+04 0.1215 293.15
81 1.530E+02 1.001E+04 0.1215 293.15	82 1.540E+02 1.001E+04 0.1215 293.15
83 1.600E+02 1.000E+04 0.1215 293.15	84 1.650E+02 1.000E+04 0.1215 293.15
85 1.700E+02 1.000E+04 0.1215 293.15	86 1.750E+02 1.000E+04 0.1215 293.15
87 1.780E+02 1.000E+04 0.1215 293.15	88 1.800E+02 1.000E+04 0.1215 293.15
89 1.810E+02 1.000E+04 0.1215 293.15	90 1.820E+02 1.000E+04 0.1215 293.15
91 1.830E+02 1.000E+04 0.1215 293.15	92 1.840E+02 1.000E+04 0.1215 293.15
93 1.850E+02 1.000E+04 0.1215 293.15	94 1.870E+02 1.000E+04 0.1215 293.15
95 1.900E+02 1.000E+04 0.1215 293.15	96 1.950E+02 1.000E+04 0.1215 293.15
97 2.020E+02 1.000E+04 0.1215 293.15	98 2.100E+02 1.000E+04 0.1215 293.15
99 2.200E+02 1.000E+04 0.1215 293.15	100 2.350E+02 1.000E+04 0.1215 293.15
101 2.400E+02 1.000E+04 0.1215 293.15	102 2.600E+02 1.000E+04 0.1215 293.15
103 2.800E+02 1.000E+04 0.1215 293.15	104 3.000E+02 1.000E+04 0.1215 293.15
105 3.200E+02 1.000E+04 0.1215 293.15	106 3.400E+02 1.000E+04 0.1215 293.15
107 3.600E+02 1.000E+04 0.1215 293.15	108 3.800E+02 1.000E+04 0.1215 293.15
109 4.000E+02 1.000E+04 0.1215 293.15	110 4.200E+02 1.000E+04 0.1215 293.15
111 4.400E+02 1.000E+04 0.1215 293.15	112 4.550E+02 1.000E+04 0.1215 293.15
113 4.650E+02 1.000E+04 0.1215 293.15	114 4.730E+02 1.000E+04 0.1215 293.15
115 4.780E+02 1.000E+04 0.1215 293.15	116 4.820E+02 1.000E+04 0.1215 293.15
117 4.850E+02 1.000E+04 0.1215 293.15	118 4.870E+02 1.000E+04 0.1215 293.15
119 4.880E+02 1.000E+04 0.1215 293.15	120 4.890E+02 1.000E+04 0.1215 293.15

Initial Water Storage = 56.1014 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.01109
Head (cm) = 1.00000E+08

December 2023

LiqWater Flow (cm)=-1.99901E-05
IsoVapor Flow (cm)=-3.00013E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.1014+ 0.0000+ 0.0000 - 0.0328- 0.0000- 0.0000 = 56.0686 vs. 56.0686

Mass Balance = -2.7831E-06 cm; Time step attempts = 26 and successes = 25

Evaporation: Potential = 0.0684 cm, Actual = 0.0328 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.06605
Head (cm) = 1.04604E+05
LiqWater Flow (cm)=-9.62797E-05
IsoVapor Flow (cm)=-3.94713E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.1110+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 56.0713 vs. 56.0713

Mass Balance = -6.4622E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.3583E+02 [cm]

December 2023

Potential Transpiration = 1.6719E+01 [cm]
 Actual Transpiration = 1.9644E+00 [cm]
 Potential Evaporation = 1.1911E+02 [cm]
 Actual Evaporation = 4.7161E+00 [cm]
 Evaporation during Growth = 2.7026E+00 [cm]
 Total Runoff = 1.5961E+01 [cm]
 Total Infiltration = 6.5685E+00 [cm]
 Total Basal Liquid Flux (drainage) = 2.4792E-06 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6071E+01 [cm]
 Mass Balance Error = -8.1926E-02 [cm]
 Total Successful Time Steps = 20405
 Total Attempted Time Steps = 23736
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 17145
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.8524E+00	0.050	2.7326E+00	0.200	2.1469E+00
0.450	1.8709E+00	0.800	1.7317E+00	1.250	1.6046E+00
1.850	1.4400E+00	2.600	1.2493E+00	3.500	1.0430E+00
4.750	7.9846E-01	6.500	5.3729E-01	8.500	3.3536E-01
10.750	1.6839E-01	13.250	3.4206E-02	16.000	4.2325E-03
18.750	1.3034E-03	21.500	5.7506E-04	24.250	3.0023E-04
26.500	1.8691E-04	28.250	1.3229E-04	29.500	1.0435E-04
30.500	8.6380E-05	31.500	7.1768E-05	32.750	5.6892E-05
34.250	4.3550E-05	36.000	3.1896E-05	38.500	2.0429E-05
41.000	1.3639E-05	43.000	9.8075E-06	44.500	7.7593E-06
45.500	6.6073E-06	46.500	1.8240E-06	47.500	4.9640E-07
49.000	3.8927E-07	51.000	2.8716E-07	53.000	2.1399E-07
55.500	1.4823E-07	57.750	1.1120E-07	59.250	9.1520E-08
60.500	7.8224E-08	61.500	6.8860E-08	62.500	6.0494E-08
63.750	5.0977E-08	65.250	4.0616E-08	67.000	2.8959E-08
69.500	1.1413E-08	72.500	-1.5763E-08	75.500	-5.5662E-08
78.500	-1.1745E-07	81.500	-2.1480E-07	84.500	-3.6877E-07
87.000	-5.7164E-07	88.500	-7.3761E-07	89.500	-8.6708E-07
90.500	-1.0184E-06	91.500	-1.1952E-06	93.000	-1.5056E-06
95.000	-2.0689E-06	97.500	-3.0345E-06	100.500	-4.8860E-06

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103.500	-7.9019E-06	107.000	-1.3837E-05	111.500	-2.9895E-05
115.500	-6.7326E-05	118.000	-1.1937E-04	120.000	-2.0598E-04
121.500	-2.4782E-04	122.500	-2.8120E-04	123.750	-3.2990E-04
125.250	-3.9783E-04	127.000	-4.9078E-04	129.250	-6.2076E-04
131.500	-7.3223E-04	133.750	-7.7595E-04	137.500	-5.8521E-04
142.500	-2.5730E-04	146.500	-1.0857E-04	149.000	-5.6274E-05
150.700	-3.4481E-05	151.900	-2.4048E-05	152.700	-1.8926E-05
153.500	-1.4723E-05	157.000	-1.9291E-06	162.500	1.6866E-06
167.500	2.3387E-06	172.500	2.4566E-06	176.500	2.4739E-06
179.000	2.4773E-06	180.500	2.4781E-06	181.500	2.4785E-06
182.500	2.4788E-06	183.500	2.4789E-06	184.500	2.4790E-06
186.000	2.4791E-06	188.500	2.4791E-06	192.500	2.4792E-06
198.500	2.4792E-06	206.000	2.4792E-06	215.000	2.4792E-06
227.500	2.4792E-06	237.500	2.4792E-06	250.000	2.4792E-06
270.000	2.4792E-06	290.000	2.4792E-06	310.000	2.4792E-06
330.000	2.4792E-06	350.000	2.4792E-06	370.000	2.4792E-06
390.000	2.4792E-06	410.000	2.4792E-06	430.000	2.4792E-06
447.500	2.4792E-06	460.000	2.4792E-06	469.000	2.4792E-06
475.500	2.4792E-06	480.000	2.4792E-06	483.500	2.4792E-06
486.000	2.4792E-06	487.500	2.4792E-06	488.500	2.4792E-06
489.000	2.4792E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.1015E-02	0.300	6.9114E-02
0.600	9.7240E-02	1.000	1.2447E-01	1.500	1.6184E-01
2.200	1.8824E-01	3.000	2.0354E-01	4.000	2.4170E-01
5.500	2.5380E-01	7.500	1.8854E-01	9.500	1.5532E-01
12.000	1.1198E-01	14.500	5.2430E-02	17.500	2.0909E-02
20.000	1.0716E-02	23.000	5.3592E-03	25.500	2.5863E-03
27.500	1.3485E-03	29.000	7.2006E-04	30.000	4.7591E-04
31.000	3.9426E-04	32.000	4.0924E-04	33.500	3.7375E-04
35.000	3.3340E-04	37.000	3.3650E-04	40.000	2.0704E-04
42.000	1.2154E-04	44.000	6.8261E-05	45.000	3.9660E-05
46.000	3.4794E-05	47.000	3.0645E-05	48.000	4.0751E-05
50.000	4.3929E-05	52.000	3.6824E-05	54.000	4.0053E-05
57.000	3.1438E-05	58.500	2.0066E-05	60.000	1.6260E-05
61.000	1.2862E-05	62.000	1.2787E-05	63.000	1.5969E-05
64.500	1.9294E-05	66.000	2.2866E-05	68.000	3.3770E-05
71.000	4.3657E-05	74.000	4.8541E-05	77.000	5.5971E-05
80.000	6.7322E-05	83.000	8.4826E-05	86.000	9.3360E-05

December 2023

88.000	6.9336E-05	89.000	5.1820E-05	90.000	5.8318E-05
91.000	6.5868E-05	92.000	1.1197E-04	94.000	1.9300E-04
96.000	3.1538E-04	99.000	5.7169E-04	102.000	8.7868E-04
105.000	1.5951E-03	109.000	3.7102E-03	114.000	6.9839E-03
117.000	7.1365E-03	119.000	8.1930E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Shale) Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_S.inp

Results File: c:\a\GJ_S1956.res

Date of Run: 07 Dec 2021

Time of Run: 08:57:03.76

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.046E+05	0.0661	293.15	2	1.000E-01	8.409E+04	0.0699 293.15
3	3.000E-01	3.211E+04	0.0898	293.15	4	6.000E-01	1.789E+03	0.1889 293.15
5	1.000E+00	1.219E+03	0.2078	293.15	6	1.500E+00	9.775E+02	0.2193 293.15
7	2.200E+00	8.515E+02	0.2267	293.15	8	3.000E+00	8.179E+02	0.2289 293.15
9	4.000E+00	8.637E+02	0.2259	293.15	10	5.500E+00	1.081E+03	0.2140 293.15
11	7.500E+00	1.477E+03	0.1982	293.15	12	9.500E+00	2.428E+03	0.1749 293.15
13	1.200E+01	1.548E+04	0.1085	293.15	14	1.450E+01	2.771E+04	0.0933 293.15
15	1.750E+01	3.294E+04	0.0892	293.15	16	2.000E+01	3.539E+04	0.0875 293.15
17	2.300E+01	3.724E+04	0.0864	293.15	18	2.550E+01	3.822E+04	0.0858 293.15
19	2.750E+01	3.875E+04	0.0855	293.15	20	2.900E+01	3.904E+04	0.0853 293.15
21	3.000E+01	3.919E+04	0.0852	293.15	22	3.100E+01	3.932E+04	0.0852 293.15
23	3.200E+01	3.943E+04	0.0851	293.15	24	3.350E+01	3.956E+04	0.0850 293.15
25	3.500E+01	3.966E+04	0.0850	293.15	26	3.700E+01	3.975E+04	0.0849 293.15
27	4.000E+01	3.984E+04	0.0849	293.15	28	4.200E+01	3.989E+04	0.0849 293.15
29	4.400E+01	3.991E+04	0.0848	293.15	30	4.500E+01	3.992E+04	0.0848 293.15
31	4.600E+01	3.993E+04	0.0848	293.15	32	4.700E+01	3.994E+04	0.0848 293.15
33	4.800E+01	3.995E+04	0.0848	293.15	34	5.000E+01	3.996E+04	0.0848 293.15
35	5.200E+01	3.997E+04	0.0848	293.15	36	5.400E+01	3.997E+04	0.0848 293.15
37	5.700E+01	3.998E+04	0.0848	293.15	38	5.850E+01	3.998E+04	0.0848 293.15
39	6.000E+01	3.998E+04	0.0848	293.15	40	6.100E+01	3.998E+04	0.0848 293.15
41	6.200E+01	3.998E+04	0.0848	293.15	42	6.300E+01	3.998E+04	0.0848 293.15
43	6.450E+01	3.998E+04	0.0848	293.15	44	6.600E+01	3.998E+04	0.0848 293.15
45	6.800E+01	3.998E+04	0.0848	293.15	46	7.100E+01	3.998E+04	0.0848 293.15
47	7.400E+01	3.997E+04	0.0848	293.15	48	7.700E+01	3.997E+04	0.0848 293.15
49	8.000E+01	3.996E+04	0.0848	293.15	50	8.300E+01	3.995E+04	0.0848 293.15
51	8.600E+01	3.993E+04	0.0848	293.15	52	8.800E+01	3.991E+04	0.0848 293.15
53	8.900E+01	3.990E+04	0.0849	293.15	54	9.000E+01	3.988E+04	0.0849 293.15
55	9.100E+01	3.987E+04	0.0849	293.15	56	9.200E+01	3.985E+04	0.0849 293.15
57	9.400E+01	3.980E+04	0.0849	293.15	58	9.600E+01	3.974E+04	0.0849 293.15

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59 9.900E+01 3.960E+04 0.0850 293.15	60 1.020E+02 3.938E+04 0.0851 293.15
61 1.050E+02 3.904E+04 0.0853 293.15	62 1.090E+02 3.826E+04 0.0858 293.15
63 1.140E+02 3.630E+04 0.0870 293.15	64 1.170E+02 3.393E+04 0.0885 293.15
65 1.190E+02 3.170E+04 0.0901 293.15	66 1.210E+02 2.901E+04 0.0922 293.15
67 1.220E+02 2.758E+04 0.0934 293.15	68 1.230E+02 2.613E+04 0.0947 293.15
69 1.245E+02 2.397E+04 0.0969 293.15	70 1.260E+02 2.191E+04 0.0991 293.15
71 1.280E+02 1.938E+04 0.1024 293.15	72 1.305E+02 1.662E+04 0.1065 293.15
73 1.325E+02 1.478E+04 0.1098 293.15	74 1.350E+02 1.298E+04 0.1136 293.15
75 1.400E+02 1.100E+04 0.1185 293.15	76 1.450E+02 1.030E+04 0.1206 293.15
77 1.480E+02 1.013E+04 0.1211 293.15	78 1.500E+02 1.007E+04 0.1213 293.15
79 1.514E+02 1.005E+04 0.1214 293.15	80 1.524E+02 1.003E+04 0.1214 293.15
81 1.530E+02 1.003E+04 0.1214 293.15	82 1.540E+02 1.002E+04 0.1215 293.15
83 1.600E+02 1.000E+04 0.1215 293.15	84 1.650E+02 1.000E+04 0.1215 293.15
85 1.700E+02 1.000E+04 0.1215 293.15	86 1.750E+02 1.000E+04 0.1215 293.15
87 1.780E+02 1.000E+04 0.1215 293.15	88 1.800E+02 1.000E+04 0.1215 293.15
89 1.810E+02 1.000E+04 0.1215 293.15	90 1.820E+02 1.000E+04 0.1215 293.15
91 1.830E+02 1.000E+04 0.1215 293.15	92 1.840E+02 1.000E+04 0.1215 293.15
93 1.850E+02 1.000E+04 0.1215 293.15	94 1.870E+02 1.000E+04 0.1215 293.15
95 1.900E+02 1.000E+04 0.1215 293.15	96 1.950E+02 1.000E+04 0.1215 293.15
97 2.020E+02 1.000E+04 0.1215 293.15	98 2.100E+02 1.000E+04 0.1215 293.15
99 2.200E+02 1.000E+04 0.1215 293.15	100 2.350E+02 1.000E+04 0.1215 293.15
101 2.400E+02 1.000E+04 0.1215 293.15	102 2.600E+02 1.000E+04 0.1215 293.15
103 2.800E+02 1.000E+04 0.1215 293.15	104 3.000E+02 1.000E+04 0.1215 293.15
105 3.200E+02 1.000E+04 0.1215 293.15	106 3.400E+02 1.000E+04 0.1215 293.15
107 3.600E+02 1.000E+04 0.1215 293.15	108 3.800E+02 1.000E+04 0.1215 293.15
109 4.000E+02 1.000E+04 0.1215 293.15	110 4.200E+02 1.000E+04 0.1215 293.15
111 4.400E+02 1.000E+04 0.1215 293.15	112 4.550E+02 1.000E+04 0.1215 293.15
113 4.650E+02 1.000E+04 0.1215 293.15	114 4.730E+02 1.000E+04 0.1215 293.15
115 4.780E+02 1.000E+04 0.1215 293.15	116 4.820E+02 1.000E+04 0.1215 293.15
117 4.850E+02 1.000E+04 0.1215 293.15	118 4.870E+02 1.000E+04 0.1215 293.15
119 4.880E+02 1.000E+04 0.1215 293.15	120 4.890E+02 1.000E+04 0.1215 293.15

Initial Water Storage = 56.0713 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.05357
Head (cm) = 2.34165E+05

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LiqWater Flow (cm)=-2.01100E-05
IsoVapor Flow (cm)=-4.36557E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.0713+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.0270 vs. 56.0270

Mass Balance = -5.5924E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.25979
Head (cm) = 4.70681E+02
LiqWater Flow (cm)=-2.72162E-04
IsoVapor Flow (cm)=-5.90883E-08
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.5642+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 56.5642 vs. 56.5642

Mass Balance = -3.3800E-09 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 2.5779E+00 [cm]
 Potential Evaporation = 9.9853E+01 [cm]
 Actual Evaporation = 9.6184E+00 [cm]
 Evaporation during Growth = 5.9147E+00 [cm]
 Total Runoff = 3.8159E+01 [cm]
 Total Infiltration = 1.2540E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.4860E-06 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6564E+01 [cm]
 Mass Balance Error = -1.4943E-01 [cm]
 Total Successful Time Steps = 31374
 Total Attempted Time Steps = 37633
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 24754
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
-----	-----	-----	-----	-----	-----
0.000	2.9213E+00	0.050	5.1581E+00	0.200	3.8404E+00
0.450	3.1840E+00	0.800	2.7998E+00	1.250	2.6204E+00
1.850	2.4361E+00	2.600	2.2214E+00	3.500	1.9841E+00
4.750	1.6905E+00	6.500	1.3406E+00	8.500	9.9349E-01
10.750	6.3375E-01	13.250	1.9993E-01	16.000	1.8323E-02
18.750	2.8601E-03	21.500	9.6429E-04	24.250	4.3030E-04
26.500	2.4542E-04	28.250	1.6512E-04	29.500	1.2658E-04
30.500	1.0274E-04	31.500	8.3991E-05	32.750	6.5457E-05
34.250	4.9405E-05	36.000	3.5775E-05	38.500	2.2714E-05
41.000	1.5134E-05	43.000	1.0896E-05	44.500	8.6437E-06
45.500	7.3795E-06	46.500	2.0439E-06	47.500	5.5849E-07
49.000	4.4139E-07	51.000	3.2978E-07	53.000	2.4966E-07
55.500	1.7737E-07	57.750	1.3618E-07	59.250	1.1411E-07
60.500	9.9062E-08	61.500	8.8396E-08	62.500	7.8811E-08
63.750	6.7855E-08	65.250	5.5889E-08	67.000	4.2465E-08
69.500	2.2535E-08	72.500	-7.3701E-09	75.500	-4.9981E-08
78.500	-1.1460E-07	81.500	-2.1509E-07	84.500	-3.7284E-07
87.000	-5.7984E-07	88.500	-7.4895E-07	89.500	-8.8079E-07
90.500	-1.0348E-06	91.500	-1.2148E-06	93.000	-1.5306E-06
95.000	-2.1034E-06	97.500	-3.0848E-06	100.500	-4.9634E-06

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103.500	-8.0115E-06	107.000	-1.3964E-05	111.500	-2.9778E-05
115.500	-6.5186E-05	118.000	-1.1198E-04	120.000	-1.8522E-04
121.500	-2.2161E-04	122.500	-2.5057E-04	123.750	-2.9272E-04
125.250	-3.5137E-04	127.000	-4.3221E-04	129.250	-5.4920E-04
131.500	-6.6032E-04	133.750	-7.2949E-04	137.500	-6.2736E-04
142.500	-3.2548E-04	146.500	-1.5374E-04	149.000	-8.5752E-05
150.700	-5.5504E-05	151.900	-4.0375E-05	152.700	-3.2700E-05
153.500	-2.6255E-05	157.000	-5.6989E-06	162.500	8.4563E-07
167.500	2.1630E-06	172.500	2.4284E-06	176.500	2.4712E-06
179.000	2.4803E-06	180.500	2.4828E-06	181.500	2.4839E-06
182.500	2.4846E-06	183.500	2.4851E-06	184.500	2.4854E-06
186.000	2.4857E-06	188.500	2.4859E-06	192.500	2.4859E-06
198.500	2.4860E-06	206.000	2.4860E-06	215.000	2.4860E-06
227.500	2.4860E-06	237.500	2.4860E-06	250.000	2.4860E-06
270.000	2.4860E-06	290.000	2.4860E-06	310.000	2.4860E-06
330.000	2.4860E-06	350.000	2.4860E-06	370.000	2.4860E-06
390.000	2.4860E-06	410.000	2.4860E-06	430.000	2.4860E-06
447.500	2.4860E-06	460.000	2.4860E-06	469.000	2.4860E-06
475.500	2.4860E-06	480.000	2.4860E-06	483.500	2.4860E-06
486.000	2.4860E-06	487.500	2.4860E-06	488.500	2.4860E-06
489.000	2.4860E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.0362E-02	0.300	6.7828E-02
0.600	9.4951E-02	1.000	1.2136E-01	1.500	1.5949E-01
2.200	1.9308E-01	3.000	2.1948E-01	4.000	2.8103E-01
5.500	3.4615E-01	7.500	3.3303E-01	9.500	3.0301E-01
12.000	2.3329E-01	14.500	1.0692E-01	17.500	2.8500E-02
20.000	1.2152E-02	23.000	5.4192E-03	25.500	2.4749E-03
27.500	1.2560E-03	29.000	6.6150E-04	30.000	4.3409E-04
31.000	3.5751E-04	32.000	3.6923E-04	33.500	3.3500E-04
35.000	2.9687E-04	37.000	2.9668E-04	40.000	1.7887E-04
42.000	1.0292E-04	44.000	5.6260E-05	45.000	3.2139E-05
46.000	2.7655E-05	47.000	2.3815E-05	48.000	3.0867E-05
50.000	3.1358E-05	52.000	2.4525E-05	54.000	2.4731E-05
57.000	1.7380E-05	58.500	1.0549E-05	60.000	8.1835E-06
61.000	6.3163E-06	62.000	6.1514E-06	63.000	7.5563E-06
64.500	8.9782E-06	66.000	1.0560E-05	68.000	1.5648E-05
71.000	2.0851E-05	74.000	2.4501E-05	77.000	3.0382E-05
80.000	3.9634E-05	83.000	5.4115E-05	86.000	6.3987E-05

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88.000	4.9524E-05	89.000	3.7698E-05	90.000	4.3137E-05
91.000	4.9458E-05	92.000	8.5216E-05	94.000	1.5025E-04
96.000	2.4995E-04	99.000	4.6198E-04	102.000	7.1941E-04
105.000	1.3169E-03	109.000	3.0797E-03	114.000	5.7882E-03
117.000	5.8520E-03	119.000	6.6147E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Shale) Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\GJ_S.inp

Results File: c:\a\GJ_S1957.res

Date of Run: 07 Dec 2021

Time of Run: 08:57:03.76

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	4.707E+02	0.2598	293.15	2	1.000E-01	4.706E+02	0.2598
3	3.000E-01	4.711E+02	0.2597	293.15	4	6.000E-01	4.731E+02	0.2595
5	1.000E+00	4.783E+02	0.2589	293.15	6	1.500E+00	4.899E+02	0.2575
7	2.200E+00	5.190E+02	0.2542	293.15	8	3.000E+00	5.807E+02	0.2479
9	4.000E+00	7.278E+02	0.2353	293.15	10	5.500E+00	1.054E+03	0.2154
11	7.500E+00	1.310E+03	0.2042	293.15	12	9.500E+00	1.587E+03	0.1947
13	1.200E+01	2.646E+03	0.1711	293.15	14	1.450E+01	1.136E+04	0.1176
15	1.750E+01	2.468E+04	0.0961	293.15	16	2.000E+01	3.083E+04	0.0907
17	2.300E+01	3.504E+04	0.0878	293.15	18	2.550E+01	3.707E+04	0.0865
19	2.750E+01	3.808E+04	0.0859	293.15	20	2.900E+01	3.860E+04	0.0856
21	3.000E+01	3.886E+04	0.0854	293.15	22	3.100E+01	3.907E+04	0.0853
23	3.200E+01	3.924E+04	0.0852	293.15	24	3.350E+01	3.943E+04	0.0851
25	3.500E+01	3.957E+04	0.0850	293.15	26	3.700E+01	3.970E+04	0.0850
27	4.000E+01	3.982E+04	0.0849	293.15	28	4.200E+01	3.987E+04	0.0849
29	4.400E+01	3.990E+04	0.0849	293.15	30	4.500E+01	3.992E+04	0.0848
31	4.600E+01	3.993E+04	0.0848	293.15	32	4.700E+01	3.994E+04	0.0848
33	4.800E+01	3.995E+04	0.0848	293.15	34	5.000E+01	3.996E+04	0.0848
35	5.200E+01	3.997E+04	0.0848	293.15	36	5.400E+01	3.998E+04	0.0848
37	5.700E+01	3.998E+04	0.0848	293.15	38	5.850E+01	3.998E+04	0.0848
39	6.000E+01	3.999E+04	0.0848	293.15	40	6.100E+01	3.999E+04	0.0848
41	6.200E+01	3.999E+04	0.0848	293.15	42	6.300E+01	3.999E+04	0.0848
43	6.450E+01	3.999E+04	0.0848	293.15	44	6.600E+01	3.999E+04	0.0848
45	6.800E+01	3.999E+04	0.0848	293.15	46	7.100E+01	3.998E+04	0.0848
47	7.400E+01	3.998E+04	0.0848	293.15	48	7.700E+01	3.998E+04	0.0848
49	8.000E+01	3.997E+04	0.0848	293.15	50	8.300E+01	3.995E+04	0.0848
51	8.600E+01	3.993E+04	0.0848	293.15	52	8.800E+01	3.991E+04	0.0848
53	8.900E+01	3.990E+04	0.0849	293.15	54	9.000E+01	3.988E+04	0.0849
55	9.100E+01	3.987E+04	0.0849	293.15	56	9.200E+01	3.984E+04	0.0849
57	9.400E+01	3.979E+04	0.0849	293.15	58	9.600E+01	3.972E+04	0.0850

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59 9.900E+01 3.957E+04 0.0850 293.15	60 1.020E+02 3.934E+04 0.0852 293.15
61 1.050E+02 3.897E+04 0.0854 293.15	62 1.090E+02 3.816E+04 0.0858 293.15
63 1.140E+02 3.618E+04 0.0870 293.15	64 1.170E+02 3.390E+04 0.0885 293.15
65 1.190E+02 3.180E+04 0.0900 293.15	66 1.210E+02 2.930E+04 0.0919 293.15
67 1.220E+02 2.797E+04 0.0931 293.15	68 1.230E+02 2.662E+04 0.0943 293.15
69 1.245E+02 2.459E+04 0.0962 293.15	70 1.260E+02 2.263E+04 0.0983 293.15
71 1.280E+02 2.018E+04 0.1013 293.15	72 1.305E+02 1.743E+04 0.1052 293.15
73 1.325E+02 1.555E+04 0.1084 293.15	74 1.350E+02 1.364E+04 0.1121 293.15
75 1.400E+02 1.135E+04 0.1176 293.15	76 1.450E+02 1.044E+04 0.1202 293.15
77 1.480E+02 1.021E+04 0.1209 293.15	78 1.500E+02 1.012E+04 0.1211 293.15
79 1.514E+02 1.008E+04 0.1213 293.15	80 1.524E+02 1.006E+04 0.1213 293.15
81 1.530E+02 1.005E+04 0.1214 293.15	82 1.540E+02 1.003E+04 0.1214 293.15
83 1.600E+02 1.001E+04 0.1215 293.15	84 1.650E+02 1.000E+04 0.1215 293.15
85 1.700E+02 1.000E+04 0.1215 293.15	86 1.750E+02 1.000E+04 0.1215 293.15
87 1.780E+02 1.000E+04 0.1215 293.15	88 1.800E+02 1.000E+04 0.1215 293.15
89 1.810E+02 1.000E+04 0.1215 293.15	90 1.820E+02 1.000E+04 0.1215 293.15
91 1.830E+02 1.000E+04 0.1215 293.15	92 1.840E+02 1.000E+04 0.1215 293.15
93 1.850E+02 1.000E+04 0.1215 293.15	94 1.870E+02 1.000E+04 0.1215 293.15
95 1.900E+02 1.000E+04 0.1215 293.15	96 1.950E+02 1.000E+04 0.1215 293.15
97 2.020E+02 1.000E+04 0.1215 293.15	98 2.100E+02 1.000E+04 0.1215 293.15
99 2.200E+02 1.000E+04 0.1215 293.15	100 2.350E+02 1.000E+04 0.1215 293.15
101 2.400E+02 1.000E+04 0.1215 293.15	102 2.600E+02 1.000E+04 0.1215 293.15
103 2.800E+02 1.000E+04 0.1215 293.15	104 3.000E+02 1.000E+04 0.1215 293.15
105 3.200E+02 1.000E+04 0.1215 293.15	106 3.400E+02 1.000E+04 0.1215 293.15
107 3.600E+02 1.000E+04 0.1215 293.15	108 3.800E+02 1.000E+04 0.1215 293.15
109 4.000E+02 1.000E+04 0.1215 293.15	110 4.200E+02 1.000E+04 0.1215 293.15
111 4.400E+02 1.000E+04 0.1215 293.15	112 4.550E+02 1.000E+04 0.1215 293.15
113 4.650E+02 1.000E+04 0.1215 293.15	114 4.730E+02 1.000E+04 0.1215 293.15
115 4.780E+02 1.000E+04 0.1215 293.15	116 4.820E+02 1.000E+04 0.1215 293.15
117 4.850E+02 1.000E+04 0.1215 293.15	118 4.870E+02 1.000E+04 0.1215 293.15
119 4.880E+02 1.000E+04 0.1215 293.15	120 4.890E+02 1.000E+04 0.1215 293.15

Initial Water Storage = 56.5642 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.20549
Head (cm) = 1.27596E+03

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LiqWater Flow (cm)=-4.10868E-02
IsoVapor Flow (cm)=-4.96813E-04
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.5642+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.5199 vs. 56.5199

Mass Balance = -2.4151E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm3/cm3) = 0.17156
Head (cm) = 2.61753E+03
LiqWater Flow (cm)=-3.72266E-02
IsoVapor Flow (cm)=-1.71216E-02
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.6235+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 56.5650 vs. 56.5650

Mass Balance = -1.1013E-05 cm; Time step attempts = 26 and successes = 25

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]

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Potential Transpiration = 1.3848E+01 [cm]
 Actual Transpiration = 2.7915E+00 [cm]
 Potential Evaporation = 9.9911E+01 [cm]
 Actual Evaporation = 9.8798E+00 [cm]
 Evaporation during Growth = 5.9343E+00 [cm]
 Total Runoff = 3.8176E+01 [cm]
 Total Infiltration = 1.2522E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.4860E-06 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6565E+01 [cm]
 Mass Balance Error = -1.4991E-01 [cm]
 Total Successful Time Steps = 31301
 Total Attempted Time Steps = 37562
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 24613
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.6425E+00	0.050	4.9733E+00	0.200	3.6520E+00
0.450	3.0099E+00	0.800	2.6696E+00	1.250	2.5182E+00
1.850	2.3625E+00	2.600	2.1709E+00	3.500	1.9510E+00
4.750	1.6681E+00	6.500	1.3178E+00	8.500	9.7701E-01
10.750	6.5313E-01	13.250	3.6264E-01	16.000	9.6185E-02
18.750	1.0833E-02	21.500	2.4976E-03	24.250	9.6705E-04
26.500	5.1717E-04	28.250	3.3378E-04	29.500	2.4854E-04
30.500	1.9696E-04	31.500	1.5704E-04	32.750	1.1837E-04
34.250	8.5781E-05	36.000	5.9103E-05	38.500	3.4881E-05
41.000	2.1918E-05	43.000	1.5087E-05	44.500	1.1647E-05
45.500	9.7688E-06	46.500	2.6624E-06	47.500	7.1714E-07
49.000	5.5531E-07	51.000	4.0680E-07	53.000	3.0342E-07
55.500	2.1242E-07	57.750	1.6170E-07	59.250	1.3476E-07
60.500	1.1652E-07	61.500	1.0364E-07	62.500	9.2115E-08
63.750	7.8998E-08	65.250	6.4775E-08	67.000	4.8962E-08
69.500	2.5811E-08	72.500	-8.2030E-09	75.500	-5.5867E-08
78.500	-1.2734E-07	81.500	-2.3766E-07	84.500	-4.0985E-07
87.000	-6.3450E-07	88.500	-8.1715E-07	89.500	-9.5914E-07
90.500	-1.1245E-06	91.500	-1.3171E-06	93.000	-1.6538E-06
95.000	-2.2594E-06	97.500	-3.2868E-06	100.500	-5.2201E-06

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103.500	-8.2939E-06	107.000	-1.4168E-05	111.500	-2.9344E-05
115.500	-6.2394E-05	118.000	-1.0557E-04	120.000	-1.7240E-04
121.500	-2.0352E-04	122.500	-2.2808E-04	123.750	-2.6368E-04
125.250	-3.1343E-04	127.000	-3.8272E-04	129.250	-4.8612E-04
131.500	-5.9128E-04	133.750	-6.7292E-04	137.500	-6.4265E-04
142.500	-3.8644E-04	146.500	-2.0256E-04	149.000	-1.2054E-04
150.700	-8.1640E-05	151.900	-6.1345E-05	152.700	-5.0729E-05
153.500	-4.1622E-05	157.000	-1.1322E-05	162.500	-5.6581E-07
167.500	1.8254E-06	172.500	2.3566E-06	176.500	2.4503E-06
179.000	2.4714E-06	180.500	2.4775E-06	181.500	2.4803E-06
182.500	2.4822E-06	183.500	2.4834E-06	184.500	2.4843E-06
186.000	2.4851E-06	188.500	2.4857E-06	192.500	2.4859E-06
198.500	2.4860E-06	206.000	2.4860E-06	215.000	2.4860E-06
227.500	2.4860E-06	237.500	2.4860E-06	250.000	2.4860E-06
270.000	2.4860E-06	290.000	2.4860E-06	310.000	2.4860E-06
330.000	2.4860E-06	350.000	2.4860E-06	370.000	2.4860E-06
390.000	2.4860E-06	410.000	2.4860E-06	430.000	2.4860E-06
447.500	2.4860E-06	460.000	2.4860E-06	469.000	2.4860E-06
475.500	2.4860E-06	480.000	2.4860E-06	483.500	2.4860E-06
486.000	2.4860E-06	487.500	2.4860E-06	488.500	2.4860E-06
489.000	2.4860E-06				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	4.0453E-02	0.300	6.7943E-02
0.600	9.5107E-02	1.000	1.2155E-01	1.500	1.5974E-01
2.200	1.9340E-01	3.000	2.1997E-01	4.000	2.8200E-01
5.500	3.4834E-01	7.500	3.3792E-01	9.500	3.1772E-01
12.000	2.6643E-01	14.500	1.9835E-01	17.500	6.8370E-02
20.000	2.6301E-02	23.000	1.0979E-02	25.500	4.7534E-03
27.500	2.2980E-03	29.000	1.1631E-03	30.000	7.4222E-04
31.000	5.9408E-04	32.000	5.9603E-04	33.500	5.1816E-04
35.000	4.4020E-04	37.000	4.1713E-04	40.000	2.3555E-04
42.000	1.3006E-04	44.000	6.8453E-05	45.000	3.8362E-05
46.000	3.2384E-05	47.000	2.7336E-05	48.000	3.4697E-05
50.000	3.3725E-05	52.000	2.5066E-05	54.000	2.3831E-05
57.000	1.5197E-05	58.500	8.7630E-06	60.000	6.4746E-06
61.000	4.8503E-06	62.000	4.5996E-06	63.000	5.5236E-06
64.500	6.3998E-06	66.000	7.4238E-06	68.000	1.0994E-05
71.000	1.5121E-05	74.000	1.8836E-05	77.000	2.5045E-05
80.000	3.4981E-05	83.000	5.0659E-05	86.000	6.2737E-05

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88.000	4.9735E-05	89.000	3.8238E-05	90.000	4.4136E-05
91.000	5.0982E-05	92.000	8.8396E-05	94.000	1.5736E-04
96.000	2.6333E-04	99.000	4.8835E-04	102.000	7.5837E-04
105.000	1.3772E-03	109.000	3.1698E-03	114.000	5.8086E-03
117.000	5.7682E-03	119.000	6.4492E-03	121.000	0.0000E+00
122.000	0.0000E+00	123.000	0.0000E+00	124.500	0.0000E+00
126.000	0.0000E+00	128.000	0.0000E+00	130.500	0.0000E+00
132.500	0.0000E+00	135.000	0.0000E+00	140.000	0.0000E+00
145.000	0.0000E+00	148.000	0.0000E+00	150.000	0.0000E+00
151.400	0.0000E+00	152.400	0.0000E+00	153.000	0.0000E+00
154.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	178.000	0.0000E+00
180.000	0.0000E+00	181.000	0.0000E+00	182.000	0.0000E+00
183.000	0.0000E+00	184.000	0.0000E+00	185.000	0.0000E+00
187.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
202.000	0.0000E+00	210.000	0.0000E+00	220.000	0.0000E+00
235.000	0.0000E+00	240.000	0.0000E+00	260.000	0.0000E+00
280.000	0.0000E+00	300.000	0.0000E+00	320.000	0.0000E+00
340.000	0.0000E+00	360.000	0.0000E+00	380.000	0.0000E+00
400.000	0.0000E+00	420.000	0.0000E+00	440.000	0.0000E+00
455.000	0.0000E+00	465.000	0.0000E+00	473.000	0.0000E+00
478.000	0.0000E+00	482.000	0.0000E+00	485.000	0.0000E+00
487.000	0.0000E+00	488.000	0.0000E+00	489.000	0.0000E+00

Sensitivity Analysis #1: Soil Sample Grand Junction (Shale) Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\gj_s1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                    59.422
 1 22.530 135.832  3.688  4.518 15.975  0.000 57.879  23123 -0.10813
 2 22.530 135.832  2.824  4.711 15.971  0.000 56.991  20950 -0.08761
 3 22.530 135.832  2.337  4.715 15.963  0.000 56.588  20454 -0.08210
 4 22.530 135.832  2.125  4.721 15.961  0.000 56.393  20421 -0.08222
 5 22.530 135.832  2.039  4.716 15.962  0.000 56.288  20442 -0.08198
 6 22.530 135.832  2.000  4.717 15.961  0.000 56.222  20427 -0.08212
 7 22.530 135.832  1.982  4.719 15.959  0.000 56.173  20447 -0.08212
 8 22.530 135.832  1.967  4.722 15.962  0.000 56.134  20408 -0.08185
 9 22.530 135.832  1.967  4.715 15.963  0.000 56.101  20409 -0.08217
10 22.530 135.832  1.964  4.716 15.961  0.000 56.071  20405 -0.08193
11 50.698 113.700  2.578  9.618 38.159  0.000 56.564  31374 -0.14943
12 50.698 113.759  2.792  9.880 38.176  0.000 56.565  31301 -0.14991
-----
SUM= 326.6951585.780 28.262 66.468 235.973  0.000                -1.15157
```

Sensitivity Analysis #2: Grass Vegetation Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10g.inp

Results File: c:\a\60_10g1955.res

Date of Run: 19 Oct 2023

Time of Run: 14:21:05.28

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.524E+03	0.0715	293.15	2	1.000E-01	2.084E+03	0.0756
3	3.000E-01	1.922E+03	0.0774	293.15	4	6.000E-01	1.974E+03	0.0768
5	1.000E+00	2.018E+03	0.0763	293.15	6	1.500E+00	2.011E+03	0.0764
7	2.200E+00	1.999E+03	0.0765	293.15	8	3.000E+00	1.996E+03	0.0766
9	4.000E+00	1.989E+03	0.0766	293.15	10	5.500E+00	1.978E+03	0.0767
11	7.500E+00	1.962E+03	0.0769	293.15	12	9.500E+00	1.946E+03	0.0771
13	1.200E+01	1.925E+03	0.0774	293.15	14	1.450E+01	1.904E+03	0.0776
15	1.750E+01	1.881E+03	0.0779	293.15	16	2.000E+01	1.864E+03	0.0781
17	2.200E+01	1.852E+03	0.0782	293.15	18	2.350E+01	1.844E+03	0.0783
19	2.500E+01	1.837E+03	0.0784	293.15	20	2.540E+01	1.836E+03	0.0784
21	2.600E+01	1.834E+03	0.1961	293.15	22	2.700E+01	1.832E+03	0.1962
23	2.850E+01	1.830E+03	0.1962	293.15	24	2.950E+01	1.829E+03	0.1963
25	3.050E+01	1.829E+03	0.1963	293.15	26	3.100E+01	1.829E+03	0.1962
27	3.200E+01	1.838E+03	0.1960	293.15	28	3.350E+01	1.857E+03	0.1954
29	3.500E+01	1.883E+03	0.1946	293.15	30	3.700E+01	1.929E+03	0.1933
31	4.000E+01	2.018E+03	0.1908	293.15	32	4.200E+01	2.089E+03	0.1889
33	4.400E+01	2.169E+03	0.1868	293.15	34	4.500E+01	2.211E+03	0.1858
35	4.600E+01	2.254E+03	0.1848	293.15	36	4.700E+01	2.299E+03	0.1837
37	4.800E+01	2.344E+03	0.1827	293.15	38	5.000E+01	2.434E+03	0.1807
39	5.200E+01	2.523E+03	0.1788	293.15	40	5.400E+01	2.607E+03	0.1771
41	5.700E+01	2.723E+03	0.1749	293.15	42	5.850E+01	2.776E+03	0.1739
43	6.000E+01	2.827E+03	0.1730	293.15	44	6.100E+01	2.861E+03	0.1724
45	6.200E+01	2.893E+03	0.1719	293.15	46	6.300E+01	2.926E+03	0.1713
47	6.450E+01	2.975E+03	0.1705	293.15	48	6.600E+01	3.024E+03	0.1697
49	6.800E+01	3.094E+03	0.1686	293.15	50	7.100E+01	3.207E+03	0.1668
51	7.400E+01	3.337E+03	0.1649	293.15	52	7.700E+01	3.485E+03	0.1628
53	8.000E+01	3.654E+03	0.1606	293.15	54	8.300E+01	3.843E+03	0.1582
55	8.600E+01	4.051E+03	0.1558	293.15	56	8.900E+01	4.273E+03	0.1534
57	9.200E+01	4.501E+03	0.1511	293.15	58	9.500E+01	4.724E+03	0.1490

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59 9.700E+01 4.861E+03 0.1478 293.15	60 9.780E+01 4.913E+03 0.1473 293.15
61 9.800E+01 4.941E+03 0.1864 293.15	62 9.900E+01 5.271E+03 0.1835 293.15
63 1.010E+02 5.973E+03 0.1781 293.15	64 1.030E+02 6.692E+03 0.1733 293.15
65 1.050E+02 7.385E+03 0.1692 293.15	66 1.090E+02 8.530E+03 0.1634 293.15
67 1.140E+02 9.735E+03 0.1583 293.15	68 1.170E+02 1.046E+04 0.1556 293.15
69 1.190E+02 1.096E+04 0.1538 293.15	70 1.210E+02 1.147E+04 0.1521 293.15
71 1.220E+02 1.172E+04 0.1513 293.15	72 1.230E+02 1.198E+04 0.1505 293.15
73 1.245E+02 1.238E+04 0.1493 293.15	74 1.260E+02 1.277E+04 0.1482 293.15
75 1.280E+02 1.327E+04 0.1468 293.15	76 1.305E+02 1.383E+04 0.1453 293.15
77 1.325E+02 1.421E+04 0.1444 293.15	78 1.350E+02 1.456E+04 0.1436 293.15
79 1.400E+02 1.472E+04 0.1432 293.15	80 1.450E+02 1.432E+04 0.1441 293.15
81 1.500E+02 1.376E+04 0.1456 293.15	82 1.550E+02 1.322E+04 0.1470 293.15
83 1.600E+02 1.277E+04 0.1482 293.15	84 1.650E+02 1.239E+04 0.1493 293.15
85 1.700E+02 1.206E+04 0.1503 293.15	86 1.750E+02 1.177E+04 0.1512 293.15
87 1.800E+02 1.151E+04 0.1520 293.15	88 1.850E+02 1.129E+04 0.1527 293.15
89 1.900E+02 1.109E+04 0.1534 293.15	90 1.950E+02 1.092E+04 0.1539 293.15
91 2.000E+02 1.077E+04 0.1545 293.15	92 2.050E+02 1.064E+04 0.1549 293.15
93 2.100E+02 1.052E+04 0.1553 293.15	94 2.130E+02 1.046E+04 0.1555 293.15
95 2.150E+02 1.042E+04 0.1557 293.15	96 2.170E+02 1.039E+04 0.1558 293.15
97 2.185E+02 1.036E+04 0.1559 293.15	98 2.197E+02 1.034E+04 0.1560 293.15
99 2.200E+02 1.034E+04 0.1188 293.15	100 2.210E+02 1.034E+04 0.1188 293.15
101 2.230E+02 1.033E+04 0.1188 293.15	102 2.250E+02 1.032E+04 0.1188 293.15
103 2.280E+02 1.031E+04 0.1189 293.15	104 2.310E+02 1.030E+04 0.1189 293.15
105 2.340E+02 1.029E+04 0.1190 293.15	106 2.370E+02 1.028E+04 0.1190 293.15
107 2.400E+02 1.027E+04 0.1190 293.15	108 2.430E+02 1.026E+04 0.1190 293.15
109 2.460E+02 1.025E+04 0.1191 293.15	110 2.480E+02 1.025E+04 0.1191 293.15
111 2.495E+02 1.025E+04 0.1191 293.15	112 2.502E+02 1.024E+04 0.1191 293.15
113 2.510E+02 1.024E+04 0.0526 293.15	114 2.520E+02 1.023E+04 0.0526 293.15
115 2.540E+02 1.021E+04 0.0526 293.15	116 2.570E+02 1.018E+04 0.0527 293.15
117 2.600E+02 1.015E+04 0.0527 293.15	118 2.650E+02 1.012E+04 0.0528 293.15
119 2.730E+02 1.008E+04 0.0529 293.15	120 2.800E+02 1.005E+04 0.0529 293.15
121 2.900E+02 1.003E+04 0.0530 293.15	122 3.150E+02 1.000E+04 0.0530 293.15
123 3.250E+02 1.000E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 51.0268 cm

NOTE: There are no temperature data when plants are modelled.

December 2023

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.06807
Head (cm) = 2.99240E+03
LiqWater Flow (cm)=-6.81929E-02
IsoVapor Flow (cm)=-3.43470E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

51.0268+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 50.9584 vs. 50.9584

Mass Balance = -1.4655E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07152
Head (cm) = 2.52441E+03
LiqWater Flow (cm)=-3.96542E-02
IsoVapor Flow (cm)=-2.14311E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

51.0304+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 50.9907 vs. 50.9907

Mass Balance = -7.2023E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.3583E+02 [cm]
 Potential Transpiration = 8.3595E+00 [cm]
 Actual Transpiration = 2.8469E+00 [cm]
 Potential Evaporation = 1.2747E+02 [cm]
 Actual Evaporation = 1.9725E+01 [cm]
 Evaporation during Growth = 1.1890E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5217E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.0991E+01 [cm]
 Mass Balance Error = -5.9732E-03 [cm]
 Total Successful Time Steps = 12012
 Total Attempted Time Steps = 13676
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6406
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.8051E+00	0.050	3.2024E+00	0.200	2.9400E+00
0.450	2.8543E+00	0.800	2.8305E+00	1.250	2.8088E+00
1.850	2.7846E+00	2.600	2.7567E+00	3.500	2.7244E+00
4.750	2.6799E+00	6.500	2.6176E+00	8.500	2.5472E+00
10.750	2.4700E+00	13.250	2.3877E+00	16.000	2.3015E+00
18.750	2.2203E+00	21.000	2.1570E+00	22.750	2.1096E+00
24.250	2.0700E+00	25.200	2.0456E+00	25.700	2.0328E+00
26.500	2.0126E+00	27.750	1.9817E+00	29.000	1.9515E+00
30.000	1.9278E+00	30.750	1.9107E+00	31.500	1.8947E+00

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32.750	1.8653E+00	34.250	1.8304E+00	36.000	1.7903E+00
38.500	1.7337E+00	41.000	1.6784E+00	43.000	1.6347E+00
44.500	1.6023E+00	45.500	1.5808E+00	46.500	1.5595E+00
47.500	1.5382E+00	49.000	1.5066E+00	51.000	1.4648E+00
53.000	1.4235E+00	55.500	1.3723E+00	57.750	1.3269E+00
59.250	1.2968E+00	60.500	1.2719E+00	61.500	1.2520E+00
62.500	1.2322E+00	63.750	1.2076E+00	65.250	1.1781E+00
67.000	1.1440E+00	69.500	1.0954E+00	72.500	1.0376E+00
75.500	9.8023E-01	78.500	9.2320E-01	81.500	8.6650E-01
84.500	8.1010E-01	87.500	7.5401E-01	90.500	6.9822E-01
93.500	6.4275E-01	96.000	5.9680E-01	97.400	5.7118E-01
97.900	5.6149E-01	98.500	5.4837E-01	100.000	5.1875E-01
102.000	4.8010E-01	104.000	4.4241E-01	107.000	3.8745E-01
111.500	3.1045E-01	115.500	2.4916E-01	118.000	2.1375E-01
120.000	1.8702E-01	121.500	1.6814E-01	122.500	1.5594E-01
123.750	1.4119E-01	125.250	1.2431E-01	127.000	1.0555E-01
129.250	8.2897E-02	131.500	6.1780E-02	133.750	4.1733E-02
137.500	9.9223E-03	142.500	-3.1544E-02	147.500	-3.0925E-02
152.500	-3.0046E-02	157.500	-2.8951E-02	162.500	-2.7672E-02
167.500	-2.6242E-02	172.500	-2.4697E-02	177.500	-2.3073E-02
182.500	-2.1405E-02	187.500	-1.9721E-02	192.500	-1.8048E-02
197.500	-1.6409E-02	202.500	-1.4821E-02	207.500	-1.3296E-02
211.500	-1.2135E-02	214.000	-1.1432E-02	216.000	-1.0881E-02
217.750	-1.0410E-02	219.100	-1.0053E-02	219.850	-9.9847E-03
220.500	-9.8922E-03	222.000	-9.5322E-03	224.000	-9.0547E-03
226.500	-8.4609E-03	229.500	-7.7540E-03	232.500	-7.0524E-03
235.500	-6.3562E-03	238.500	-5.6650E-03	241.500	-4.9787E-03
244.500	-4.2972E-03	247.000	-3.7330E-03	248.750	-3.3398E-03
249.850	-3.0934E-03	250.600	-2.8507E-03	251.500	-2.4664E-03
253.000	-2.3304E-03	255.500	-2.1147E-03	258.500	-1.8754E-03
262.500	-1.5809E-03	269.000	-1.1669E-03	276.500	-7.9755E-04
285.000	-4.7032E-04	302.500	-1.5568E-05	320.000	1.3680E-04
337.500	2.2275E-04	362.500	2.4981E-04	387.500	2.5329E-04
410.000	2.5297E-04	430.000	2.5255E-04	447.500	2.5234E-04
462.500	2.5225E-04	475.000	2.5221E-04	484.000	2.5220E-04
491.500	2.5219E-04	497.500	2.5218E-04	502.500	2.5218E-04
507.000	2.5218E-04	510.500	2.5218E-04	513.500	2.5218E-04
516.000	2.5217E-04	517.500	2.5217E-04	518.500	2.5217E-04
519.000	2.5217E-04				

Total plant water uptake (cm) at different depths:

DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE

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0.000	0.0000E+00	0.100	2.9567E-03	0.300	5.2996E-03
0.600	8.0927E-03	1.000	1.1379E-02	1.500	1.6526E-02
2.200	2.2466E-02	3.000	2.8660E-02	4.000	4.1669E-02
5.500	6.0222E-02	7.500	6.9164E-02	9.500	7.6449E-02
12.000	8.1775E-02	14.500	8.5873E-02	17.500	8.0966E-02
20.000	6.3132E-02	22.000	4.7331E-02	23.500	3.9507E-02
25.000	2.4385E-02	25.400	1.2747E-02	26.000	2.0172E-02
27.000	3.0940E-02	28.500	3.0148E-02	29.500	2.3734E-02
30.500	1.7533E-02	31.000	1.7430E-02	32.000	2.8946E-02
33.500	3.4480E-02	35.000	3.9866E-02	37.000	5.6228E-02
40.000	5.5162E-02	42.000	4.3589E-02	44.000	3.2310E-02
45.000	2.1417E-02	46.000	2.1296E-02	47.000	2.1178E-02
48.000	3.1593E-02	50.000	4.1680E-02	52.000	4.1258E-02
54.000	5.1074E-02	57.000	4.5357E-02	58.500	3.0050E-02
60.000	2.4895E-02	61.000	1.9842E-02	62.000	1.9770E-02
63.000	2.4628E-02	64.500	2.9408E-02	66.000	3.4150E-02
68.000	4.8507E-02	71.000	5.7759E-02	74.000	5.7364E-02
77.000	5.7011E-02	80.000	5.6690E-02	83.000	5.6389E-02
86.000	5.6096E-02	89.000	5.5803E-02	92.000	5.5499E-02
95.000	4.5980E-02	97.000	2.5642E-02	97.800	9.1420E-03
98.000	1.1911E-02	99.000	2.9474E-02	101.000	3.8424E-02
103.000	3.7457E-02	105.000	5.4588E-02	109.000	7.6373E-02
114.000	6.0727E-02	117.000	3.5111E-02	119.000	2.6574E-02
121.000	1.8822E-02	122.000	1.2191E-02	123.000	1.4807E-02
124.500	1.7029E-02	126.000	1.9068E-02	128.000	2.3293E-02
130.500	2.2027E-02	132.500	2.1238E-02	135.000	3.4248E-02
140.000	4.4946E-02	145.000	0.0000E+00	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

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509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Grass Vegetation Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10g.inp

Results File: c:\a\60_10g1956.res

Date of Run: 19 Oct 2023

Time of Run: 14:21:05.28

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.524E+03	0.0715	293.15	2	1.000E-01	2.084E+03	0.0756
3	3.000E-01	1.922E+03	0.0774	293.15	4	6.000E-01	1.974E+03	0.0768
5	1.000E+00	2.018E+03	0.0763	293.15	6	1.500E+00	2.011E+03	0.0764
7	2.200E+00	1.999E+03	0.0765	293.15	8	3.000E+00	1.996E+03	0.0766
9	4.000E+00	1.989E+03	0.0766	293.15	10	5.500E+00	1.978E+03	0.0767
11	7.500E+00	1.962E+03	0.0769	293.15	12	9.500E+00	1.946E+03	0.0771
13	1.200E+01	1.925E+03	0.0774	293.15	14	1.450E+01	1.904E+03	0.0776
15	1.750E+01	1.881E+03	0.0779	293.15	16	2.000E+01	1.864E+03	0.0781
17	2.200E+01	1.852E+03	0.0782	293.15	18	2.350E+01	1.844E+03	0.0783
19	2.500E+01	1.837E+03	0.0784	293.15	20	2.540E+01	1.836E+03	0.0784
21	2.600E+01	1.834E+03	0.1961	293.15	22	2.700E+01	1.832E+03	0.1962
23	2.850E+01	1.830E+03	0.1962	293.15	24	2.950E+01	1.829E+03	0.1963
25	3.050E+01	1.829E+03	0.1963	293.15	26	3.100E+01	1.829E+03	0.1962
27	3.200E+01	1.838E+03	0.1960	293.15	28	3.350E+01	1.857E+03	0.1954
29	3.500E+01	1.883E+03	0.1946	293.15	30	3.700E+01	1.929E+03	0.1933
31	4.000E+01	2.018E+03	0.1908	293.15	32	4.200E+01	2.089E+03	0.1889
33	4.400E+01	2.169E+03	0.1868	293.15	34	4.500E+01	2.211E+03	0.1858
35	4.600E+01	2.254E+03	0.1848	293.15	36	4.700E+01	2.299E+03	0.1837
37	4.800E+01	2.344E+03	0.1827	293.15	38	5.000E+01	2.434E+03	0.1807
39	5.200E+01	2.523E+03	0.1788	293.15	40	5.400E+01	2.607E+03	0.1771
41	5.700E+01	2.723E+03	0.1749	293.15	42	5.850E+01	2.776E+03	0.1739
43	6.000E+01	2.827E+03	0.1730	293.15	44	6.100E+01	2.861E+03	0.1724
45	6.200E+01	2.893E+03	0.1719	293.15	46	6.300E+01	2.926E+03	0.1713
47	6.450E+01	2.975E+03	0.1705	293.15	48	6.600E+01	3.024E+03	0.1697
49	6.800E+01	3.094E+03	0.1686	293.15	50	7.100E+01	3.207E+03	0.1668
51	7.400E+01	3.337E+03	0.1649	293.15	52	7.700E+01	3.485E+03	0.1628
53	8.000E+01	3.654E+03	0.1606	293.15	54	8.300E+01	3.843E+03	0.1582
55	8.600E+01	4.051E+03	0.1558	293.15	56	8.900E+01	4.273E+03	0.1534
57	9.200E+01	4.502E+03	0.1511	293.15	58	9.500E+01	4.724E+03	0.1490

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59 9.700E+01 4.862E+03 0.1478 293.15	60 9.780E+01 4.913E+03 0.1473 293.15
61 9.800E+01 4.941E+03 0.1864 293.15	62 9.900E+01 5.272E+03 0.1835 293.15
63 1.010E+02 5.974E+03 0.1781 293.15	64 1.030E+02 6.693E+03 0.1733 293.15
65 1.050E+02 7.387E+03 0.1692 293.15	66 1.090E+02 8.533E+03 0.1634 293.15
67 1.140E+02 9.740E+03 0.1583 293.15	68 1.170E+02 1.047E+04 0.1555 293.15
69 1.190E+02 1.096E+04 0.1538 293.15	70 1.210E+02 1.148E+04 0.1521 293.15
71 1.220E+02 1.173E+04 0.1513 293.15	72 1.230E+02 1.200E+04 0.1505 293.15
73 1.245E+02 1.239E+04 0.1493 293.15	74 1.260E+02 1.278E+04 0.1482 293.15
75 1.280E+02 1.329E+04 0.1468 293.15	76 1.305E+02 1.386E+04 0.1453 293.15
77 1.325E+02 1.425E+04 0.1443 293.15	78 1.350E+02 1.460E+04 0.1435 293.15
79 1.400E+02 1.478E+04 0.1430 293.15	80 1.450E+02 1.440E+04 0.1439 293.15
81 1.500E+02 1.384E+04 0.1453 293.15	82 1.550E+02 1.332E+04 0.1467 293.15
83 1.600E+02 1.287E+04 0.1479 293.15	84 1.650E+02 1.250E+04 0.1490 293.15
85 1.700E+02 1.217E+04 0.1499 293.15	86 1.750E+02 1.188E+04 0.1508 293.15
87 1.800E+02 1.163E+04 0.1516 293.15	88 1.850E+02 1.140E+04 0.1523 293.15
89 1.900E+02 1.120E+04 0.1530 293.15	90 1.950E+02 1.102E+04 0.1536 293.15
91 2.000E+02 1.087E+04 0.1541 293.15	92 2.050E+02 1.073E+04 0.1546 293.15
93 2.100E+02 1.061E+04 0.1550 293.15	94 2.130E+02 1.054E+04 0.1553 293.15
95 2.150E+02 1.050E+04 0.1554 293.15	96 2.170E+02 1.047E+04 0.1555 293.15
97 2.185E+02 1.044E+04 0.1556 293.15	98 2.197E+02 1.042E+04 0.1557 293.15
99 2.200E+02 1.041E+04 0.1185 293.15	100 2.210E+02 1.041E+04 0.1186 293.15
101 2.230E+02 1.040E+04 0.1186 293.15	102 2.250E+02 1.039E+04 0.1186 293.15
103 2.280E+02 1.038E+04 0.1187 293.15	104 2.310E+02 1.037E+04 0.1187 293.15
105 2.340E+02 1.036E+04 0.1187 293.15	106 2.370E+02 1.035E+04 0.1188 293.15
107 2.400E+02 1.034E+04 0.1188 293.15	108 2.430E+02 1.033E+04 0.1188 293.15
109 2.460E+02 1.032E+04 0.1188 293.15	110 2.480E+02 1.032E+04 0.1189 293.15
111 2.495E+02 1.031E+04 0.1189 293.15	112 2.502E+02 1.031E+04 0.1189 293.15
113 2.510E+02 1.031E+04 0.0525 293.15	114 2.520E+02 1.029E+04 0.0525 293.15
115 2.540E+02 1.027E+04 0.0525 293.15	116 2.570E+02 1.024E+04 0.0526 293.15
117 2.600E+02 1.021E+04 0.0526 293.15	118 2.650E+02 1.016E+04 0.0527 293.15
119 2.730E+02 1.011E+04 0.0528 293.15	120 2.800E+02 1.008E+04 0.0529 293.15
121 2.900E+02 1.004E+04 0.0529 293.15	122 3.150E+02 1.001E+04 0.0530 293.15
123 3.250E+02 1.000E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 50.9907 cm

NOTE: There are no temperature data when plants are modelled.

December 2023

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07021
Head (cm) = 2.69064E+03
LiqWater Flow (cm)=-4.42126E-02
IsoVapor Flow (cm)=-2.17250E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

50.9907+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 50.9464 vs. 50.9464

Mass Balance = -8.0263E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07676
Head (cm) = 1.97726E+03
LiqWater Flow (cm)=-1.37870E-04
IsoVapor Flow (cm)=-2.92452E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.2561+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 56.2561 vs. 56.2561

Mass Balance = -2.1542E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.1370E+02 [cm]
 Potential Transpiration = 6.9239E+00 [cm]
 Actual Transpiration = 3.9889E+00 [cm]
 Potential Evaporation = 1.0678E+02 [cm]
 Actual Evaporation = 4.1451E+01 [cm]
 Evaporation during Growth = 2.7498E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6256E+01 [cm]
 Mass Balance Error = -7.0283E-03 [cm]
 Total Successful Time Steps = 13102
 Total Attempted Time Steps = 14986
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3776
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	9.2474E+00	0.050	9.4591E+00	0.200	9.2747E+00
0.450	9.2441E+00	0.800	9.2220E+00	1.250	9.1945E+00
1.850	9.1589E+00	2.600	9.1145E+00	3.500	9.0608E+00
4.750	8.9861E+00	6.500	8.8824E+00	8.500	8.7667E+00
10.750	8.6407E+00	13.250	8.5070E+00	16.000	8.3670E+00
18.750	8.2349E+00	21.000	8.1318E+00	22.750	8.0544E+00
24.250	7.9897E+00	25.200	7.9497E+00	25.700	7.9288E+00
26.500	7.8868E+00	27.750	7.8221E+00	29.000	7.7587E+00
30.000	7.7085E+00	30.750	7.6714E+00	31.500	7.6348E+00

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32.750	7.5739E+00	34.250	7.5025E+00	36.000	7.4210E+00
38.500	7.3073E+00	41.000	7.1965E+00	43.000	7.1082E+00
44.500	7.0415E+00	45.500	6.9967E+00	46.500	6.9513E+00
47.500	6.9054E+00	49.000	6.8354E+00	51.000	6.7387E+00
53.000	6.6382E+00	55.500	6.5074E+00	57.750	6.3828E+00
59.250	6.2975E+00	60.500	6.2246E+00	61.500	6.1654E+00
62.500	6.1053E+00	63.750	6.0290E+00	65.250	5.9356E+00
67.000	5.8242E+00	69.500	5.6610E+00	72.500	5.4574E+00
75.500	5.2462E+00	78.500	5.0272E+00	81.500	4.8002E+00
84.500	4.5653E+00	87.500	4.3225E+00	90.500	4.0722E+00
93.500	3.8149E+00	96.000	3.5954E+00	97.400	3.4709E+00
97.900	3.4260E+00	98.500	3.3712E+00	100.000	3.2325E+00
102.000	3.0398E+00	104.000	2.8413E+00	107.000	2.5380E+00
111.500	2.0815E+00	115.500	1.6908E+00	118.000	1.4563E+00
120.000	1.2750E+00	121.500	1.1446E+00	122.500	1.0598E+00
123.750	9.5655E-01	125.250	8.3805E-01	127.000	7.0684E-01
129.250	5.5157E-01	131.500	4.1542E-01	133.750	2.9668E-01
137.500	1.3862E-01	142.500	2.0266E-02	147.500	-1.1557E-02
152.500	-2.2649E-02	157.500	-2.5845E-02	162.500	-2.6118E-02
167.500	-2.5304E-02	172.500	-2.4065E-02	177.500	-2.2648E-02
182.500	-2.1152E-02	187.500	-1.9622E-02	192.500	-1.8088E-02
197.500	-1.6568E-02	202.500	-1.5077E-02	207.500	-1.3626E-02
211.500	-1.2505E-02	214.000	-1.1819E-02	216.000	-1.1279E-02
217.750	-1.0814E-02	219.100	-1.0460E-02	219.850	-1.0399E-02
220.500	-1.0311E-02	222.000	-9.9518E-03	224.000	-9.4746E-03
226.500	-8.8803E-03	229.500	-8.1714E-03	232.500	-7.4665E-03
235.500	-6.7657E-03	238.500	-6.0689E-03	241.500	-5.3759E-03
244.500	-4.6869E-03	247.000	-4.1157E-03	248.750	-3.7174E-03
249.850	-3.4676E-03	250.600	-3.2117E-03	251.500	-2.7794E-03
253.000	-2.6434E-03	255.500	-2.4263E-03	258.500	-2.1826E-03
262.500	-1.8794E-03	269.000	-1.4446E-03	276.500	-1.0434E-03
285.000	-6.7582E-04	302.500	-1.3640E-04	320.000	6.7918E-05
337.500	1.9326E-04	362.500	2.4223E-04	387.500	2.5233E-04
410.000	2.5342E-04	430.000	2.5327E-04	447.500	2.5309E-04
462.500	2.5298E-04	475.000	2.5293E-04	484.000	2.5290E-04
491.500	2.5289E-04	497.500	2.5288E-04	502.500	2.5288E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE

December 2023

0.000	0.0000E+00	0.100	6.1102E-03	0.300	1.0547E-02
0.600	1.5308E-02	1.000	2.0381E-02	1.500	2.8039E-02
2.200	3.6069E-02	3.000	4.4091E-02	4.000	6.1825E-02
5.500	8.6291E-02	7.500	9.6435E-02	9.500	1.0493E-01
12.000	1.1103E-01	14.500	1.1600E-01	17.500	1.0912E-01
20.000	8.5059E-02	22.000	6.3796E-02	23.500	5.3291E-02
25.000	3.2931E-02	25.400	1.7223E-02	26.000	2.7268E-02
27.000	4.1847E-02	28.500	4.0802E-02	29.500	3.2132E-02
30.500	2.3743E-02	31.000	2.3609E-02	32.000	3.9248E-02
33.500	4.6886E-02	35.000	5.4432E-02	37.000	7.7209E-02
40.000	7.6374E-02	42.000	6.0689E-02	44.000	4.5246E-02
45.000	3.0082E-02	46.000	3.0005E-02	47.000	2.9934E-02
48.000	4.4800E-02	50.000	5.9488E-02	52.000	5.9271E-02
54.000	7.3850E-02	57.000	6.6200E-02	58.500	4.4058E-02
60.000	3.6656E-02	61.000	2.9293E-02	62.000	2.9261E-02
63.000	3.6534E-02	64.500	4.3765E-02	66.000	5.0967E-02
68.000	7.2622E-02	71.000	8.6738E-02	74.000	8.6298E-02
77.000	8.5823E-02	80.000	8.5336E-02	83.000	8.4837E-02
86.000	8.4326E-02	89.000	8.3808E-02	92.000	8.3286E-02
95.000	6.8971E-02	97.000	3.8462E-02	97.800	1.3714E-02
98.000	1.7045E-02	99.000	4.2101E-02	101.000	5.4686E-02
103.000	5.3120E-02	105.000	7.7140E-02	109.000	1.0710E-01
114.000	8.3869E-02	117.000	4.7655E-02	119.000	3.5447E-02
121.000	2.4526E-02	122.000	1.5659E-02	123.000	1.8711E-02
124.500	2.0922E-02	126.000	2.2675E-02	128.000	2.6360E-02
130.500	2.3284E-02	132.500	2.1222E-02	135.000	3.2076E-02
140.000	3.8909E-02	145.000	0.0000E+00	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

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509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Grass Vegetation Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10g.inp
Results File: c:\a\60_10g1957.res
Date of Run: 19 Oct 2023
Time of Run: 14:21:05.28
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions					
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA	TEMP
	(cm)	(cm)	(vol.)	(K)		(cm)	(cm)	(vol.)	(K)
1	0.000E+00	1.977E+03	0.0768	293.15	2	1.000E-01	1.556E+03	0.0822	293.15
3	3.000E-01	1.294E+03	0.0866	293.15	4	6.000E-01	1.227E+03	0.0880	293.15
5	1.000E+00	1.247E+03	0.0876	293.15	6	1.500E+00	1.303E+03	0.0865	293.15
7	2.200E+00	1.317E+03	0.0862	293.15	8	3.000E+00	1.308E+03	0.0864	293.15
9	4.000E+00	1.302E+03	0.0865	293.15	10	5.500E+00	1.303E+03	0.0865	293.15
11	7.500E+00	1.304E+03	0.0865	293.15	12	9.500E+00	1.305E+03	0.0864	293.15
13	1.200E+01	1.307E+03	0.0864	293.15	14	1.450E+01	1.311E+03	0.0863	293.15
15	1.750E+01	1.317E+03	0.0862	293.15	16	2.000E+01	1.323E+03	0.0861	293.15
17	2.200E+01	1.329E+03	0.0860	293.15	18	2.350E+01	1.333E+03	0.0859	293.15
19	2.500E+01	1.338E+03	0.0858	293.15	20	2.540E+01	1.340E+03	0.0858	293.15
21	2.600E+01	1.341E+03	0.2144	293.15	22	2.700E+01	1.341E+03	0.2144	293.15
23	2.850E+01	1.343E+03	0.2144	293.15	24	2.950E+01	1.343E+03	0.2143	293.15
25	3.050E+01	1.344E+03	0.2143	293.15	26	3.100E+01	1.347E+03	0.2141	293.15
27	3.200E+01	1.369E+03	0.2132	293.15	28	3.350E+01	1.404E+03	0.2117	293.15
29	3.500E+01	1.442E+03	0.2100	293.15	30	3.700E+01	1.498E+03	0.2078	293.15
31	4.000E+01	1.583E+03	0.2045	293.15	32	4.200E+01	1.636E+03	0.2026	293.15
33	4.400E+01	1.679E+03	0.2011	293.15	34	4.500E+01	1.696E+03	0.2005	293.15
35	4.600E+01	1.710E+03	0.2001	293.15	36	4.700E+01	1.721E+03	0.1997	293.15
37	4.800E+01	1.728E+03	0.1995	293.15	38	5.000E+01	1.734E+03	0.1993	293.15
39	5.200E+01	1.728E+03	0.1995	293.15	40	5.400E+01	1.715E+03	0.1999	293.15
41	5.700E+01	1.687E+03	0.2009	293.15	42	5.850E+01	1.671E+03	0.2014	293.15
43	6.000E+01	1.655E+03	0.2020	293.15	44	6.100E+01	1.644E+03	0.2023	293.15
45	6.200E+01	1.634E+03	0.2027	293.15	46	6.300E+01	1.623E+03	0.2031	293.15
47	6.450E+01	1.608E+03	0.2036	293.15	48	6.600E+01	1.594E+03	0.2042	293.15
49	6.800E+01	1.576E+03	0.2048	293.15	50	7.100E+01	1.552E+03	0.2057	293.15
51	7.400E+01	1.531E+03	0.2065	293.15	52	7.700E+01	1.513E+03	0.2072	293.15
53	8.000E+01	1.498E+03	0.2078	293.15	54	8.300E+01	1.486E+03	0.2083	293.15
55	8.600E+01	1.476E+03	0.2087	293.15	56	8.900E+01	1.469E+03	0.2089	293.15

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57 9.200E+01 1.465E+03 0.2091 293.15	58 9.500E+01 1.462E+03 0.2092 293.15
59 9.700E+01 1.462E+03 0.2092 293.15	60 9.780E+01 1.462E+03 0.2092 293.15
61 9.800E+01 1.463E+03 0.2482 293.15	62 9.900E+01 1.472E+03 0.2478 293.15
63 1.010E+02 1.495E+03 0.2470 293.15	64 1.030E+02 1.525E+03 0.2459 293.15
65 1.050E+02 1.563E+03 0.2445 293.15	66 1.090E+02 1.666E+03 0.2409 293.15
67 1.140E+02 1.865E+03 0.2347 293.15	68 1.170E+02 2.034E+03 0.2300 293.15
69 1.190E+02 2.177E+03 0.2264 293.15	70 1.210E+02 2.352E+03 0.2224 293.15
71 1.220E+02 2.454E+03 0.2202 293.15	72 1.230E+02 2.568E+03 0.2178 293.15
73 1.245E+02 2.765E+03 0.2141 293.15	74 1.260E+02 3.000E+03 0.2100 293.15
75 1.280E+02 3.393E+03 0.2039 293.15	76 1.305E+02 4.060E+03 0.1954 293.15
77 1.325E+02 4.788E+03 0.1878 293.15	78 1.350E+02 6.035E+03 0.1777 293.15
79 1.400E+02 9.381E+03 0.1597 293.15	80 1.450E+02 1.197E+04 0.1506 293.15
81 1.500E+02 1.297E+04 0.1476 293.15	82 1.550E+02 1.308E+04 0.1473 293.15
83 1.600E+02 1.286E+04 0.1479 293.15	84 1.650E+02 1.256E+04 0.1488 293.15
85 1.700E+02 1.226E+04 0.1497 293.15	86 1.750E+02 1.198E+04 0.1505 293.15
87 1.800E+02 1.173E+04 0.1513 293.15	88 1.850E+02 1.150E+04 0.1520 293.15
89 1.900E+02 1.130E+04 0.1527 293.15	90 1.950E+02 1.112E+04 0.1533 293.15
91 2.000E+02 1.096E+04 0.1538 293.15	92 2.050E+02 1.082E+04 0.1543 293.15
93 2.100E+02 1.069E+04 0.1547 293.15	94 2.130E+02 1.062E+04 0.1550 293.15
95 2.150E+02 1.058E+04 0.1551 293.15	96 2.170E+02 1.054E+04 0.1553 293.15
97 2.185E+02 1.051E+04 0.1554 293.15	98 2.197E+02 1.049E+04 0.1554 293.15
99 2.200E+02 1.049E+04 0.1183 293.15	100 2.210E+02 1.048E+04 0.1183 293.15
101 2.230E+02 1.047E+04 0.1183 293.15	102 2.250E+02 1.047E+04 0.1184 293.15
103 2.280E+02 1.045E+04 0.1184 293.15	104 2.310E+02 1.044E+04 0.1185 293.15
105 2.340E+02 1.043E+04 0.1185 293.15	106 2.370E+02 1.042E+04 0.1185 293.15
107 2.400E+02 1.041E+04 0.1186 293.15	108 2.430E+02 1.040E+04 0.1186 293.15
109 2.460E+02 1.039E+04 0.1186 293.15	110 2.480E+02 1.039E+04 0.1186 293.15
111 2.495E+02 1.038E+04 0.1186 293.15	112 2.502E+02 1.038E+04 0.1186 293.15
113 2.510E+02 1.038E+04 0.0524 293.15	114 2.520E+02 1.036E+04 0.0524 293.15
115 2.540E+02 1.033E+04 0.0524 293.15	116 2.570E+02 1.029E+04 0.0525 293.15
117 2.600E+02 1.026E+04 0.0526 293.15	118 2.650E+02 1.021E+04 0.0526 293.15
119 2.730E+02 1.015E+04 0.0527 293.15	120 2.800E+02 1.011E+04 0.0528 293.15
121 2.900E+02 1.006E+04 0.0529 293.15	122 3.150E+02 1.002E+04 0.0530 293.15
123 3.250E+02 1.001E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 56.2561 cm

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NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07478
Head (cm) = 2.16472E+03
LiqWater Flow (cm)=-4.41701E-02
IsoVapor Flow (cm)=-3.02753E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.2561+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.2118 vs. 56.2118

Mass Balance = -1.3429E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07498
Head (cm) = 2.14456E+03
LiqWater Flow (cm)=-5.84265E-02
IsoVapor Flow (cm)=-3.90763E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

58.5201+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 58.4616 vs. 58.4616

Mass Balance = -5.6232E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]
Potential Transpiration = 6.9239E+00 [cm]
Actual Transpiration = 4.6777E+00 [cm]
Potential Evaporation = 1.0684E+02 [cm]
Actual Evaporation = 4.3821E+01 [cm]
Evaporation during Growth = 2.9656E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 5.0698E+01 [cm]
Actual Rainfall = 5.0698E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 5.8462E+01 [cm]
Mass Balance Error = -6.2371E-03 [cm]
Total Successful Time Steps = 12893
Total Attempted Time Steps = 14552
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 3604
Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	6.8772E+00	0.050	7.0492E+00	0.200	6.8950E+00
0.450	6.8742E+00	0.800	6.8559E+00	1.250	6.8331E+00
1.850	6.8028E+00	2.600	6.7646E+00	3.500	6.7186E+00
4.750	6.6544E+00	6.500	6.5653E+00	8.500	6.4659E+00
10.750	6.3577E+00	13.250	6.2430E+00	16.000	6.1227E+00
18.750	6.0089E+00	21.000	5.9197E+00	22.750	5.8525E+00
24.250	5.7961E+00	25.200	5.7611E+00	25.700	5.7428E+00
26.500	5.7129E+00	27.750	5.6669E+00	29.000	5.6218E+00

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30.000	5.5862E+00	30.750	5.5600E+00	31.500	5.5343E+00
32.750	5.4899E+00	34.250	5.4359E+00	36.000	5.3724E+00
38.500	5.2808E+00	41.000	5.1885E+00	43.000	5.1145E+00
44.500	5.0592E+00	45.500	5.0223E+00	46.500	4.9855E+00
47.500	4.9488E+00	49.000	4.8939E+00	51.000	4.8210E+00
53.000	4.7486E+00	55.500	4.6585E+00	57.750	4.5777E+00
59.250	4.5240E+00	60.500	4.4792E+00	61.500	4.4434E+00
62.500	4.4076E+00	63.750	4.3629E+00	65.250	4.3092E+00
67.000	4.2464E+00	69.500	4.1567E+00	72.500	4.0489E+00
75.500	3.9407E+00	78.500	3.8323E+00	81.500	3.7237E+00
84.500	3.6149E+00	87.500	3.5059E+00	90.500	3.3967E+00
93.500	3.2871E+00	96.000	3.1956E+00	97.400	3.1443E+00
97.900	3.1259E+00	98.500	3.1035E+00	100.000	3.0476E+00
102.000	2.9722E+00	104.000	2.8961E+00	107.000	2.7807E+00
111.500	2.6032E+00	115.500	2.4386E+00	118.000	2.3323E+00
120.000	2.2451E+00	121.500	2.1777E+00	122.500	2.1319E+00
123.750	2.0738E+00	125.250	2.0019E+00	127.000	1.9152E+00
129.250	1.7982E+00	131.500	1.6727E+00	133.750	1.5393E+00
137.500	1.2991E+00	142.500	9.4780E-01	147.500	7.0465E-01
152.500	4.9316E-01	157.500	3.2092E-01	162.500	1.8863E-01
167.500	9.5194E-02	172.500	3.6719E-02	177.500	5.2032E-03
182.500	-9.2772E-03	187.500	-1.4803E-02	192.500	-1.6216E-02
197.500	-1.5903E-02	202.500	-1.4917E-02	207.500	-1.3691E-02
211.500	-1.2658E-02	214.000	-1.2008E-02	216.000	-1.1489E-02
217.750	-1.1038E-02	219.100	-1.0692E-02	219.850	-1.0641E-02
220.500	-1.0559E-02	222.000	-1.0206E-02	224.000	-9.7356E-03
226.500	-9.1495E-03	229.500	-8.4488E-03	232.500	-7.7510E-03
235.500	-7.0560E-03	238.500	-6.3640E-03	241.500	-5.6750E-03
244.500	-4.9890E-03	247.000	-4.4199E-03	248.750	-4.0228E-03
249.850	-3.7737E-03	250.600	-3.5081E-03	251.500	-3.0334E-03
253.000	-2.8999E-03	255.500	-2.6854E-03	258.500	-2.4425E-03
262.500	-2.1373E-03	269.000	-1.6926E-03	276.500	-1.2708E-03
285.000	-8.7394E-04	302.500	-2.6610E-04	320.000	-1.1767E-05
337.500	1.5430E-04	362.500	2.2964E-04	387.500	2.4911E-04
410.000	2.5266E-04	430.000	2.5315E-04	447.500	2.5309E-04
462.500	2.5300E-04	475.000	2.5295E-04	484.000	2.5292E-04
491.500	2.5290E-04	497.500	2.5289E-04	502.500	2.5288E-04
507.000	2.5288E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

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DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	6.5327E-03	0.300	1.1251E-02
0.600	1.6279E-02	1.000	2.1601E-02	1.500	2.9623E-02
2.200	3.7983E-02	3.000	4.6310E-02	4.000	6.4785E-02
5.500	9.0210E-02	7.500	1.0061E-01	9.500	1.0934E-01
12.000	1.1560E-01	14.500	1.2074E-01	17.500	1.1357E-01
20.000	8.8563E-02	22.000	6.6452E-02	23.500	5.5535E-02
25.000	3.4338E-02	25.400	1.7961E-02	26.000	2.8442E-02
27.000	4.3656E-02	28.500	4.2578E-02	29.500	3.3536E-02
30.500	2.4785E-02	31.000	2.4652E-02	32.000	4.1048E-02
33.500	4.9145E-02	35.000	5.7167E-02	37.000	8.1300E-02
40.000	8.0746E-02	42.000	6.4324E-02	44.000	4.8070E-02
45.000	3.1997E-02	46.000	3.1952E-02	47.000	3.1912E-02
48.000	4.7814E-02	50.000	6.3632E-02	52.000	6.3542E-02
54.000	7.9353E-02	57.000	7.1369E-02	58.500	4.7576E-02
60.000	3.9651E-02	61.000	3.1725E-02	62.000	3.1731E-02
63.000	3.9672E-02	64.500	4.7617E-02	66.000	5.5564E-02
68.000	7.9408E-02	71.000	9.5354E-02	74.000	9.5393E-02
77.000	9.5372E-02	80.000	9.5270E-02	83.000	9.5161E-02
86.000	9.5041E-02	89.000	9.4914E-02	92.000	9.4780E-02
95.000	7.8867E-02	97.000	4.4121E-02	97.800	1.5751E-02
98.000	1.9312E-02	99.000	4.8100E-02	101.000	6.3613E-02
103.000	6.3022E-02	105.000	9.3566E-02	109.000	1.3712E-01
114.000	1.1770E-01	117.000	7.1795E-02	119.000	5.6420E-02
121.000	4.1508E-02	122.000	2.7391E-02	123.000	3.3878E-02
124.500	3.9982E-02	126.000	4.5829E-02	128.000	5.7454E-02
130.500	5.5505E-02	132.500	5.3855E-02	135.000	8.6121E-02
140.000	1.0422E-01	145.000	0.0000E+00	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00

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470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00
509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Grass Vegetation Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\60_10g1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                46.984
 1 22.530 135.832  2.157 17.018  0.000  0.000  50.344  11901 -0.00544
 2 22.530 135.832  2.606 19.369  0.000  0.000  50.905  11999 -0.00592
 3 22.530 135.832  2.744 19.607  0.000  0.000  51.089  12042 -0.00601
 4 22.530 135.832  2.804 19.675  0.000  0.000  51.146  12003 -0.00605
 5 22.530 135.832  2.828 19.709  0.000  0.000  51.145  12031 -0.00596
 6 22.530 135.832  2.839 19.718  0.000  0.000  51.124  12040 -0.00597
 7 22.530 135.832  2.844 19.722  0.000  0.000  51.094  12011 -0.00612
 8 22.530 135.832  2.848 19.717  0.000  0.000  51.064  12024 -0.00615
 9 22.530 135.832  2.847 19.726  0.000  0.000  51.027  12015 -0.00609
10 22.530 135.832  2.847 19.725  0.000  0.000  50.991  12012 -0.00597
11 50.698 113.700  3.989 41.451  0.000  0.000  56.256  13102 -0.00703
12 50.698 113.759  4.678 43.821  0.000  0.000  58.462  12893 -0.00624
-----
SUM= 326.6951585.780 36.031 279.256  0.000  0.003          -0.07295
```

Sensitivity Analysis #2: Reclaimed Vegetation Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10r.inp

Results File: c:\a\60_10r1955.res

Date of Run: 19 Oct 2023

Time of Run: 14:26:03.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.613E+03	0.0708	293.15	2	1.000E-01	2.138E+03	0.0750
3	3.000E-01	1.971E+03	0.0768	293.15	4	6.000E-01	2.029E+03	0.0762
5	1.000E+00	2.073E+03	0.0757	293.15	6	1.500E+00	2.065E+03	0.0758
7	2.200E+00	2.053E+03	0.0759	293.15	8	3.000E+00	2.049E+03	0.0760
9	4.000E+00	2.042E+03	0.0760	293.15	10	5.500E+00	2.031E+03	0.0762
11	7.500E+00	2.014E+03	0.0764	293.15	12	9.500E+00	1.996E+03	0.0765
13	1.200E+01	1.974E+03	0.0768	293.15	14	1.450E+01	1.952E+03	0.0770
15	1.750E+01	1.928E+03	0.0773	293.15	16	2.000E+01	1.910E+03	0.0775
17	2.200E+01	1.898E+03	0.0777	293.15	18	2.350E+01	1.890E+03	0.0778
19	2.500E+01	1.883E+03	0.0778	293.15	20	2.540E+01	1.882E+03	0.0779
21	2.600E+01	1.880E+03	0.1947	293.15	22	2.700E+01	1.878E+03	0.1948
23	2.850E+01	1.876E+03	0.1948	293.15	24	2.950E+01	1.875E+03	0.1948
25	3.050E+01	1.875E+03	0.1949	293.15	26	3.100E+01	1.876E+03	0.1948
27	3.200E+01	1.886E+03	0.1945	293.15	28	3.350E+01	1.909E+03	0.1938
29	3.500E+01	1.940E+03	0.1930	293.15	30	3.700E+01	1.992E+03	0.1915
31	4.000E+01	2.095E+03	0.1887	293.15	32	4.200E+01	2.178E+03	0.1866
33	4.400E+01	2.270E+03	0.1844	293.15	34	4.500E+01	2.320E+03	0.1832
35	4.600E+01	2.370E+03	0.1821	293.15	36	4.700E+01	2.422E+03	0.1810
37	4.800E+01	2.475E+03	0.1798	293.15	38	5.000E+01	2.582E+03	0.1776
39	5.200E+01	2.687E+03	0.1756	293.15	40	5.400E+01	2.787E+03	0.1737
41	5.700E+01	2.925E+03	0.1713	293.15	42	5.850E+01	2.990E+03	0.1702
43	6.000E+01	3.052E+03	0.1692	293.15	44	6.100E+01	3.093E+03	0.1686
45	6.200E+01	3.134E+03	0.1679	293.15	46	6.300E+01	3.175E+03	0.1673
47	6.450E+01	3.238E+03	0.1663	293.15	48	6.600E+01	3.302E+03	0.1654
49	6.800E+01	3.393E+03	0.1641	293.15	50	7.100E+01	3.545E+03	0.1620
51	7.400E+01	3.720E+03	0.1598	293.15	52	7.700E+01	3.920E+03	0.1573
53	8.000E+01	4.147E+03	0.1548	293.15	54	8.300E+01	4.397E+03	0.1522
55	8.600E+01	4.666E+03	0.1496	293.15	56	8.900E+01	4.939E+03	0.1471
57	9.200E+01	5.200E+03	0.1449	293.15	58	9.500E+01	5.426E+03	0.1431

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59 9.700E+01 5.545E+03 0.1422 293.15	60 9.780E+01 5.584E+03 0.1419 293.15
61 9.800E+01 5.605E+03 0.1809 293.15	62 9.900E+01 5.813E+03 0.1793 293.15
63 1.010E+02 6.120E+03 0.1771 293.15	64 1.030E+02 6.283E+03 0.1760 293.15
65 1.050E+02 6.329E+03 0.1756 293.15	66 1.090E+02 6.195E+03 0.1766 293.15
67 1.140E+02 5.920E+03 0.1785 293.15	68 1.170E+02 5.766E+03 0.1796 293.15
69 1.190E+02 5.674E+03 0.1803 293.15	70 1.210E+02 5.591E+03 0.1810 293.15
71 1.220E+02 5.553E+03 0.1813 293.15	72 1.230E+02 5.518E+03 0.1815 293.15
73 1.245E+02 5.469E+03 0.1819 293.15	74 1.260E+02 5.427E+03 0.1823 293.15
75 1.280E+02 5.379E+03 0.1827 293.15	76 1.305E+02 5.334E+03 0.1830 293.15
77 1.325E+02 5.309E+03 0.1832 293.15	78 1.350E+02 5.292E+03 0.1834 293.15
79 1.400E+02 5.307E+03 0.1832 293.15	80 1.450E+02 5.385E+03 0.1826 293.15
81 1.500E+02 5.523E+03 0.1815 293.15	82 1.550E+02 5.716E+03 0.1800 293.15
83 1.600E+02 5.954E+03 0.1782 293.15	84 1.650E+02 6.226E+03 0.1763 293.15
85 1.700E+02 6.517E+03 0.1744 293.15	86 1.750E+02 6.817E+03 0.1725 293.15
87 1.800E+02 7.117E+03 0.1707 293.15	88 1.850E+02 7.413E+03 0.1691 293.15
89 1.900E+02 7.702E+03 0.1675 293.15	90 1.950E+02 7.984E+03 0.1661 293.15
91 2.000E+02 8.257E+03 0.1647 293.15	92 2.050E+02 8.518E+03 0.1635 293.15
93 2.100E+02 8.765E+03 0.1624 293.15	94 2.130E+02 8.906E+03 0.1617 293.15
95 2.150E+02 8.996E+03 0.1613 293.15	96 2.170E+02 9.085E+03 0.1610 293.15
97 2.185E+02 9.149E+03 0.1607 293.15	98 2.197E+02 9.199E+03 0.1605 293.15
99 2.200E+02 9.205E+03 0.1228 293.15	100 2.210E+02 9.213E+03 0.1228 293.15
101 2.230E+02 9.229E+03 0.1227 293.15	102 2.250E+02 9.244E+03 0.1227 293.15
103 2.280E+02 9.266E+03 0.1226 293.15	104 2.310E+02 9.285E+03 0.1225 293.15
105 2.340E+02 9.302E+03 0.1225 293.15	106 2.370E+02 9.317E+03 0.1224 293.15
107 2.400E+02 9.331E+03 0.1223 293.15	108 2.430E+02 9.342E+03 0.1223 293.15
109 2.460E+02 9.352E+03 0.1223 293.15	110 2.480E+02 9.357E+03 0.1222 293.15
111 2.495E+02 9.360E+03 0.1222 293.15	112 2.502E+02 9.362E+03 0.1222 293.15
113 2.510E+02 9.368E+03 0.0542 293.15	114 2.520E+02 9.394E+03 0.0541 293.15
115 2.540E+02 9.443E+03 0.0540 293.15	116 2.570E+02 9.512E+03 0.0539 293.15
117 2.600E+02 9.574E+03 0.0538 293.15	118 2.650E+02 9.663E+03 0.0536 293.15
119 2.730E+02 9.773E+03 0.0534 293.15	120 2.800E+02 9.844E+03 0.0533 293.15
121 2.900E+02 9.913E+03 0.0531 293.15	122 3.150E+02 9.975E+03 0.0530 293.15
123 3.250E+02 9.987E+03 0.0530 293.15	124 3.500E+02 9.997E+03 0.0530 293.15
125 3.750E+02 9.999E+03 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 53.4800 cm

NOTE: There are no temperature data when plants are modelled.

December 2023

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.06724
Head (cm) = 3.12077E+03
LiqWater Flow (cm)=-6.81822E-02
IsoVapor Flow (cm)=-3.91562E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

53.4800+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 53.4116 vs. 53.4116

Mass Balance = -1.6230E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07082
Head (cm) = 2.61132E+03
LiqWater Flow (cm)=-3.96513E-02
IsoVapor Flow (cm)=-2.36681E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

53.7387+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 53.6990 vs. 53.6990

Mass Balance = -7.3301E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.3583E+02 [cm]
 Potential Transpiration = 1.1360E+01 [cm]
 Actual Transpiration = 3.7128E+00 [cm]
 Potential Evaporation = 1.2447E+02 [cm]
 Actual Evaporation = 1.8604E+01 [cm]
 Evaporation during Growth = 1.0961E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5217E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.3699E+01 [cm]
 Mass Balance Error = -6.1486E-03 [cm]
 Total Successful Time Steps = 12050
 Total Attempted Time Steps = 13709
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6478
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	3.9259E+00	0.050	4.3213E+00	0.200	4.0694E+00
0.450	3.9826E+00	0.800	3.9556E+00	1.250	3.9308E+00
1.850	3.9030E+00	2.600	3.8703E+00	3.500	3.8312E+00
4.750	3.7750E+00	6.500	3.6913E+00	8.500	3.5896E+00
10.750	3.4705E+00	13.250	3.3343E+00	16.000	3.1823E+00
18.750	3.0298E+00	21.000	2.9057E+00	22.750	2.8099E+00
24.250	2.7284E+00	25.200	2.6773E+00	25.700	2.6504E+00
26.500	2.6077E+00	27.750	2.5417E+00	29.000	2.4767E+00
30.000	2.4251E+00	30.750	2.3874E+00	31.500	2.3507E+00

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32.750	2.2868E+00	34.250	2.2108E+00	36.000	2.1232E+00
38.500	2.0004E+00	41.000	1.8811E+00	43.000	1.7879E+00
44.500	1.7195E+00	45.500	1.6746E+00	46.500	1.6302E+00
47.500	1.5865E+00	49.000	1.5217E+00	51.000	1.4379E+00
53.000	1.3565E+00	55.500	1.2578E+00	57.750	1.1730E+00
59.250	1.1179E+00	60.500	1.0730E+00	61.500	1.0376E+00
62.500	1.0029E+00	63.750	9.6009E-01	65.250	9.1001E-01
67.000	8.5302E-01	69.500	7.7428E-01	72.500	6.8451E-01
75.500	5.9943E-01	78.500	5.1905E-01	81.500	4.4340E-01
84.500	3.7257E-01	87.500	3.0667E-01	90.500	2.4583E-01
93.500	1.9016E-01	96.000	1.4821E-01	97.400	1.2641E-01
97.900	1.1889E-01	98.500	1.0920E-01	100.000	8.5674E-02
102.000	5.6743E-02	104.000	3.0381E-02	107.000	-5.1681E-03
111.500	-4.6219E-02	115.500	-6.8791E-02	118.000	-7.7606E-02
120.000	-8.1809E-02	121.500	-8.2807E-02	122.500	-8.2749E-02
123.750	-8.1767E-02	125.250	-7.8945E-02	127.000	-7.3718E-02
129.250	-6.3658E-02	131.500	-4.9388E-02	133.750	-3.1732E-02
137.500	4.7506E-03	142.500	7.1950E-02	147.500	1.5650E-01
152.500	1.4902E-01	157.500	1.4107E-01	162.500	1.3268E-01
167.500	1.2393E-01	172.500	1.1494E-01	177.500	1.0582E-01
182.500	9.6721E-02	187.500	8.7753E-02	192.500	7.9033E-02
197.500	7.0667E-02	202.500	6.2759E-02	207.500	5.5399E-02
211.500	5.0008E-02	214.000	4.6838E-02	216.000	4.4412E-02
217.750	4.2385E-02	219.100	4.0878E-02	219.850	4.0432E-02
220.500	3.9971E-02	222.000	3.8494E-02	224.000	3.6546E-02
226.500	3.4137E-02	229.500	3.1290E-02	232.500	2.8486E-02
235.500	2.5723E-02	238.500	2.2998E-02	241.500	2.0310E-02
244.500	1.7655E-02	247.000	1.5468E-02	248.750	1.3949E-02
249.850	1.2999E-02	250.600	1.2176E-02	251.500	1.1062E-02
253.000	1.0417E-02	255.500	9.4073E-03	258.500	8.3113E-03
262.500	7.0004E-03	269.000	5.2405E-03	276.500	3.7808E-03
285.000	2.5834E-03	302.500	1.0977E-03	320.000	6.3860E-04
337.500	3.8431E-04	362.500	2.8644E-04	387.500	2.6082E-04
410.000	2.5472E-04	430.000	2.5296E-04	447.500	2.5246E-04
462.500	2.5228E-04	475.000	2.5222E-04	484.000	2.5220E-04
491.500	2.5219E-04	497.500	2.5218E-04	502.500	2.5218E-04
507.000	2.5218E-04	510.500	2.5218E-04	513.500	2.5218E-04
516.000	2.5217E-04	517.500	2.5217E-04	518.500	2.5217E-04
519.000	2.5217E-04				

Total plant water uptake (cm) at different depths:

DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE

December 2023

0.000	0.0000E+00	0.100	3.1959E-03	0.300	5.7595E-03
0.600	8.8859E-03	1.000	1.2706E-02	1.500	1.8827E-02
2.200	2.6348E-02	3.000	3.4874E-02	4.000	5.3000E-02
5.500	8.1313E-02	7.500	1.0028E-01	9.500	1.1816E-01
12.000	1.3568E-01	14.500	1.5156E-01	17.500	1.5220E-01
20.000	1.2397E-01	22.000	9.5702E-02	23.500	8.1398E-02
25.000	5.1057E-02	25.400	2.6792E-02	26.000	4.2638E-02
27.000	6.5976E-02	28.500	6.5010E-02	29.500	5.1495E-02
30.500	3.8238E-02	31.000	3.8089E-02	32.000	6.3357E-02
33.500	7.5515E-02	35.000	8.7206E-02	37.000	1.2254E-01
40.000	1.1895E-01	42.000	9.3067E-02	44.000	6.8135E-02
45.000	4.4847E-02	46.000	4.4259E-02	47.000	4.3660E-02
48.000	6.4577E-02	50.000	8.3645E-02	52.000	8.1171E-02
54.000	9.8387E-02	57.000	8.4488E-02	58.500	5.4996E-02
60.000	4.4740E-02	61.000	3.5219E-02	62.000	3.4651E-02
63.000	4.2612E-02	64.500	4.9887E-02	66.000	5.6767E-02
68.000	7.8399E-02	71.000	8.9296E-02	74.000	8.4542E-02
77.000	7.9767E-02	80.000	7.4930E-02	83.000	6.9999E-02
86.000	6.4952E-02	89.000	5.9779E-02	92.000	5.4476E-02
95.000	4.0873E-02	97.000	2.1169E-02	97.800	7.3124E-03
98.000	9.4549E-03	99.000	2.2719E-02	101.000	2.7740E-02
103.000	2.5082E-02	105.000	3.3520E-02	109.000	3.7627E-02
114.000	1.9092E-02	117.000	6.4863E-03	119.000	2.2603E-03
121.000	-5.1803E-04	122.000	-1.0877E-03	123.000	-2.2915E-03
124.500	-4.4365E-03	126.000	-7.1567E-03	128.000	-1.2622E-02
130.500	-1.6931E-02	132.500	-2.0395E-02	135.000	-4.1213E-02
140.000	-7.3981E-02	145.000	-9.1887E-02	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

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509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Reclaimed Vegetation Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10r.inp

Results File: c:\a\60_10r1956.res

Date of Run: 19 Oct 2023

Time of Run: 14:26:03.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions					
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA	TEMP
	(cm)	(cm)	(vol.)	(K)		(cm)	(cm)	(vol.)	(K)
1	0.000E+00	2.611E+03	0.0708	293.15	2	1.000E-01	2.137E+03	0.0751	293.15
3	3.000E-01	1.970E+03	0.0768	293.15	4	6.000E-01	2.028E+03	0.0762	293.15
5	1.000E+00	2.072E+03	0.0757	293.15	6	1.500E+00	2.064E+03	0.0758	293.15
7	2.200E+00	2.052E+03	0.0759	293.15	8	3.000E+00	2.048E+03	0.0760	293.15
9	4.000E+00	2.041E+03	0.0761	293.15	10	5.500E+00	2.030E+03	0.0762	293.15
11	7.500E+00	2.013E+03	0.0764	293.15	12	9.500E+00	1.995E+03	0.0766	293.15
13	1.200E+01	1.973E+03	0.0768	293.15	14	1.450E+01	1.951E+03	0.0771	293.15
15	1.750E+01	1.927E+03	0.0773	293.15	16	2.000E+01	1.910E+03	0.0775	293.15
17	2.200E+01	1.897E+03	0.0777	293.15	18	2.350E+01	1.889E+03	0.0778	293.15
19	2.500E+01	1.882E+03	0.0779	293.15	20	2.540E+01	1.881E+03	0.0779	293.15
21	2.600E+01	1.879E+03	0.1947	293.15	22	2.700E+01	1.877E+03	0.1948	293.15
23	2.850E+01	1.875E+03	0.1948	293.15	24	2.950E+01	1.875E+03	0.1949	293.15
25	3.050E+01	1.874E+03	0.1949	293.15	26	3.100E+01	1.875E+03	0.1949	293.15
27	3.200E+01	1.886E+03	0.1945	293.15	28	3.350E+01	1.908E+03	0.1939	293.15
29	3.500E+01	1.939E+03	0.1930	293.15	30	3.700E+01	1.991E+03	0.1915	293.15
31	4.000E+01	2.094E+03	0.1888	293.15	32	4.200E+01	2.176E+03	0.1867	293.15
33	4.400E+01	2.268E+03	0.1844	293.15	34	4.500E+01	2.317E+03	0.1833	293.15
35	4.600E+01	2.368E+03	0.1822	293.15	36	4.700E+01	2.420E+03	0.1810	293.15
37	4.800E+01	2.472E+03	0.1799	293.15	38	5.000E+01	2.579E+03	0.1777	293.15
39	5.200E+01	2.683E+03	0.1757	293.15	40	5.400E+01	2.783E+03	0.1738	293.15
41	5.700E+01	2.919E+03	0.1714	293.15	42	5.850E+01	2.984E+03	0.1703	293.15
43	6.000E+01	3.046E+03	0.1693	293.15	44	6.100E+01	3.086E+03	0.1687	293.15
45	6.200E+01	3.127E+03	0.1680	293.15	46	6.300E+01	3.168E+03	0.1674	293.15
47	6.450E+01	3.229E+03	0.1665	293.15	48	6.600E+01	3.293E+03	0.1655	293.15
49	6.800E+01	3.383E+03	0.1642	293.15	50	7.100E+01	3.533E+03	0.1622	293.15
51	7.400E+01	3.705E+03	0.1599	293.15	52	7.700E+01	3.901E+03	0.1576	293.15
53	8.000E+01	4.124E+03	0.1550	293.15	54	8.300E+01	4.369E+03	0.1524	293.15
55	8.600E+01	4.631E+03	0.1499	293.15	56	8.900E+01	4.897E+03	0.1475	293.15

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57 9.200E+01 5.150E+03 0.1453 293.15	58 9.500E+01 5.368E+03 0.1436 293.15
59 9.700E+01 5.483E+03 0.1427 293.15	60 9.780E+01 5.521E+03 0.1424 293.15
61 9.800E+01 5.540E+03 0.1814 293.15	62 9.900E+01 5.741E+03 0.1798 293.15
63 1.010E+02 6.034E+03 0.1777 293.15	64 1.030E+02 6.187E+03 0.1766 293.15
65 1.050E+02 6.225E+03 0.1763 293.15	66 1.090E+02 6.083E+03 0.1773 293.15
67 1.140E+02 5.801E+03 0.1794 293.15	68 1.170E+02 5.643E+03 0.1806 293.15
69 1.190E+02 5.549E+03 0.1813 293.15	70 1.210E+02 5.464E+03 0.1820 293.15
71 1.220E+02 5.425E+03 0.1823 293.15	72 1.230E+02 5.388E+03 0.1826 293.15
73 1.245E+02 5.338E+03 0.1830 293.15	74 1.260E+02 5.294E+03 0.1834 293.15
75 1.280E+02 5.244E+03 0.1838 293.15	76 1.305E+02 5.196E+03 0.1842 293.15
77 1.325E+02 5.168E+03 0.1844 293.15	78 1.350E+02 5.148E+03 0.1846 293.15
79 1.400E+02 5.153E+03 0.1846 293.15	80 1.450E+02 5.217E+03 0.1840 293.15
81 1.500E+02 5.339E+03 0.1830 293.15	82 1.550E+02 5.512E+03 0.1816 293.15
83 1.600E+02 5.728E+03 0.1799 293.15	84 1.650E+02 5.977E+03 0.1781 293.15
85 1.700E+02 6.247E+03 0.1762 293.15	86 1.750E+02 6.527E+03 0.1743 293.15
87 1.800E+02 6.812E+03 0.1726 293.15	88 1.850E+02 7.096E+03 0.1709 293.15
89 1.900E+02 7.379E+03 0.1693 293.15	90 1.950E+02 7.659E+03 0.1677 293.15
91 2.000E+02 7.936E+03 0.1663 293.15	92 2.050E+02 8.206E+03 0.1650 293.15
93 2.100E+02 8.469E+03 0.1637 293.15	94 2.130E+02 8.621E+03 0.1630 293.15
95 2.150E+02 8.720E+03 0.1626 293.15	96 2.170E+02 8.817E+03 0.1621 293.15
97 2.185E+02 8.889E+03 0.1618 293.15	98 2.197E+02 8.945E+03 0.1616 293.15
99 2.200E+02 8.951E+03 0.1238 293.15	100 2.210E+02 8.961E+03 0.1238 293.15
101 2.230E+02 8.979E+03 0.1237 293.15	102 2.250E+02 8.996E+03 0.1236 293.15
103 2.280E+02 9.020E+03 0.1235 293.15	104 2.310E+02 9.042E+03 0.1235 293.15
105 2.340E+02 9.062E+03 0.1234 293.15	106 2.370E+02 9.080E+03 0.1233 293.15
107 2.400E+02 9.096E+03 0.1232 293.15	108 2.430E+02 9.110E+03 0.1232 293.15
109 2.460E+02 9.122E+03 0.1231 293.15	110 2.480E+02 9.129E+03 0.1231 293.15
111 2.495E+02 9.134E+03 0.1231 293.15	112 2.502E+02 9.135E+03 0.1231 293.15
113 2.510E+02 9.143E+03 0.0546 293.15	114 2.520E+02 9.174E+03 0.0546 293.15
115 2.540E+02 9.233E+03 0.0545 293.15	116 2.570E+02 9.317E+03 0.0543 293.15
117 2.600E+02 9.395E+03 0.0541 293.15	118 2.650E+02 9.510E+03 0.0539 293.15
119 2.730E+02 9.659E+03 0.0536 293.15	120 2.800E+02 9.759E+03 0.0534 293.15
121 2.900E+02 9.860E+03 0.0532 293.15	122 3.150E+02 9.959E+03 0.0531 293.15
123 3.250E+02 9.978E+03 0.0530 293.15	124 3.500E+02 9.994E+03 0.0530 293.15
125 3.750E+02 9.998E+03 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 53.6990 cm

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NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.06947
Head (cm) = 2.79043E+03
LiqWater Flow (cm)=-4.42082E-02
IsoVapor Flow (cm)=-2.41493E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE
53.6990+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 53.6547 vs. 53.6547

Mass Balance = -8.2003E-07 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm
Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07610
Head (cm) = 2.03701E+03
LiqWater Flow (cm)=-1.41968E-04
IsoVapor Flow (cm)=-3.17808E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE
59.0505+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 59.0505 vs. 59.0505

Mass Balance = -2.4823E-06 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm
Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1370E+02 [cm]
Potential Transpiration = 9.4093E+00 [cm]
Actual Transpiration = 5.7218E+00 [cm]
Potential Evaporation = 1.0429E+02 [cm]
Actual Evaporation = 3.9632E+01 [cm]
Evaporation during Growth = 2.5792E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 5.0698E+01 [cm]
Actual Rainfall = 5.0698E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 5.9051E+01 [cm]
Mass Balance Error = -7.3149E-03 [cm]
Total Successful Time Steps = 13131
Total Attempted Time Steps = 14978
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 3858
Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	1.1066E+01	0.050	1.1298E+01	0.200	1.1092E+01
0.450	1.1063E+01	0.800	1.1038E+01	1.250	1.1006E+01
1.850	1.0965E+01	2.600	1.0911E+01	3.500	1.0845E+01
4.750	1.0749E+01	6.500	1.0609E+01	8.500	1.0444E+01
10.750	1.0252E+01	13.250	1.0036E+01	16.000	9.7964E+00
18.750	9.5566E+00	21.000	9.3616E+00	22.750	9.2111E+00
24.250	9.0831E+00	25.200	9.0027E+00	25.700	8.9605E+00
26.500	8.8844E+00	27.750	8.7666E+00	29.000	8.6502E+00

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30.000	8.5579E+00	30.750	8.4894E+00	31.500	8.4215E+00
32.750	8.3081E+00	34.250	8.1735E+00	36.000	8.0183E+00
38.500	7.8002E+00	41.000	7.5867E+00	43.000	7.4176E+00
44.500	7.2913E+00	45.500	7.2072E+00	46.500	7.1230E+00
47.500	7.0386E+00	49.000	6.9116E+00	51.000	6.7409E+00
53.000	6.5684E+00	55.500	6.3508E+00	57.750	6.1523E+00
59.250	6.0193E+00	60.500	5.9080E+00	61.500	5.8188E+00
62.500	5.7294E+00	63.750	5.6175E+00	65.250	5.4829E+00
67.000	5.3257E+00	69.500	5.1007E+00	72.500	4.8301E+00
75.500	4.5590E+00	78.500	4.2871E+00	81.500	4.0145E+00
84.500	3.7412E+00	87.500	3.4677E+00	90.500	3.1946E+00
93.500	2.9230E+00	96.000	2.6991E+00	97.400	2.5751E+00
97.900	2.5308E+00	98.500	2.4771E+00	100.000	2.3434E+00
102.000	2.1662E+00	104.000	1.9925E+00	107.000	1.7401E+00
111.500	1.3946E+00	115.500	1.1302E+00	118.000	9.8185E-01
120.000	8.7224E-01	121.500	7.9692E-01	122.500	7.4903E-01
123.750	6.9207E-01	125.250	6.2897E-01	127.000	5.6150E-01
129.250	4.8532E-01	131.500	4.2233E-01	133.750	3.6977E-01
137.500	3.0342E-01	142.500	2.6775E-01	147.500	2.7592E-01
152.500	2.2624E-01	157.500	1.9030E-01	162.500	1.6362E-01
167.500	1.4344E-01	172.500	1.2784E-01	177.500	1.1534E-01
182.500	1.0481E-01	187.500	9.5453E-02	192.500	8.6796E-02
197.500	7.8604E-02	202.500	7.0801E-02	207.500	6.3399E-02
211.500	5.7833E-02	214.000	5.4502E-02	216.000	5.1920E-02
217.750	4.9734E-02	219.100	4.8091E-02	219.850	4.7597E-02
220.500	4.7087E-02	222.000	4.5459E-02	224.000	4.3305E-02
226.500	4.0631E-02	229.500	3.7459E-02	232.500	3.4322E-02
235.500	3.1218E-02	238.500	2.8148E-02	241.500	2.5110E-02
244.500	2.2102E-02	247.000	1.9619E-02	248.750	1.7893E-02
249.850	1.6813E-02	250.600	1.5871E-02	251.500	1.4587E-02
253.000	1.3816E-02	255.500	1.2596E-02	258.500	1.1249E-02
262.500	9.6096E-03	269.000	7.3484E-03	276.500	5.3950E-03
285.000	3.7388E-03	302.500	1.5887E-03	320.000	8.8045E-04
337.500	4.7559E-04	362.500	3.1234E-04	387.500	2.6821E-04
410.000	2.5747E-04	430.000	2.5432E-04	447.500	2.5341E-04
462.500	2.5308E-04	475.000	2.5297E-04	484.000	2.5292E-04
491.500	2.5290E-04	497.500	2.5289E-04	502.500	2.5288E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

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DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	6.8409E-03	0.300	1.1952E-02
0.600	1.7633E-02	1.000	2.3949E-02	1.500	3.3731E-02
2.200	4.4762E-02	3.000	5.6598E-02	4.000	8.2615E-02
5.500	1.2207E-01	7.500	1.4637E-01	9.500	1.6991E-01
12.000	1.9344E-01	14.500	2.1556E-01	17.500	2.1664E-01
20.000	1.7683E-01	22.000	1.3680E-01	23.500	1.1658E-01
25.000	7.3294E-02	25.400	3.8491E-02	26.000	6.1302E-02
27.000	9.4930E-02	28.500	9.3627E-02	29.500	7.4200E-02
30.500	5.5121E-02	31.000	5.4932E-02	32.000	9.1650E-02
33.500	1.0989E-01	35.000	1.2777E-01	37.000	1.8108E-01
40.000	1.7790E-01	42.000	1.4025E-01	44.000	1.0349E-01
45.000	6.8390E-02	46.000	6.7766E-02	47.000	6.7121E-02
48.000	9.9682E-02	50.000	1.3013E-01	52.000	1.2722E-01
54.000	1.5524E-01	57.000	1.3443E-01	58.500	8.7801E-02
60.000	7.1609E-02	61.000	5.6439E-02	62.000	5.5578E-02
63.000	6.8381E-02	64.500	8.0053E-02	66.000	9.1006E-02
68.000	1.2537E-01	71.000	1.4197E-01	74.000	1.3334E-01
77.000	1.2463E-01	80.000	1.1587E-01	83.000	1.0709E-01
86.000	9.8311E-02	89.000	8.9545E-02	92.000	8.0806E-02
95.000	6.0085E-02	97.000	3.0951E-02	97.800	1.0669E-02
98.000	1.3178E-02	99.000	3.1268E-02	101.000	3.7259E-02
103.000	3.2900E-02	105.000	4.2948E-02	109.000	4.5959E-02
114.000	2.1887E-02	117.000	7.1464E-03	119.000	2.4249E-03
121.000	-5.4130E-04	122.000	-1.1219E-03	123.000	-2.3337E-03
124.500	-4.4349E-03	126.000	-7.0273E-03	128.000	-1.2118E-02
130.500	-1.5845E-02	132.500	-1.8742E-02	135.000	-3.7127E-02
140.000	-6.4678E-02	145.000	-7.8868E-02	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00

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470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00
509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Reclaimed Vegetation Wet Year 2

 UNSAT-H Version 3.01
 INITIAL CONDITIONS

Input File: c:\a\60_10r.inp

Results File: c:\a\60_10r1957.res

Date of Run: 19 Oct 2023

Time of Run: 14:26:03.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
-----				-----				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.)	(K)	(cm)	(cm)	(vol.)	(K)
-----				-----				
1	0.000E+00	2.037E+03	0.0761	293.15	2	1.000E-01	1.587E+03	0.0818
3	3.000E-01	1.315E+03	0.0862	293.15	4	6.000E-01	1.249E+03	0.0875
5	1.000E+00	1.271E+03	0.0871	293.15	6	1.500E+00	1.330E+03	0.0860
7	2.200E+00	1.341E+03	0.0858	293.15	8	3.000E+00	1.334E+03	0.0859
9	4.000E+00	1.327E+03	0.0860	293.15	10	5.500E+00	1.329E+03	0.0860
11	7.500E+00	1.329E+03	0.0860	293.15	12	9.500E+00	1.331E+03	0.0860
13	1.200E+01	1.333E+03	0.0859	293.15	14	1.450E+01	1.338E+03	0.0858
15	1.750E+01	1.344E+03	0.0857	293.15	16	2.000E+01	1.351E+03	0.0856
17	2.200E+01	1.357E+03	0.0855	293.15	18	2.350E+01	1.362E+03	0.0854
19	2.500E+01	1.367E+03	0.0853	293.15	20	2.540E+01	1.369E+03	0.0853
21	2.600E+01	1.370E+03	0.2131	293.15	22	2.700E+01	1.370E+03	0.2131
23	2.850E+01	1.372E+03	0.2131	293.15	24	2.950E+01	1.373E+03	0.2130
25	3.050E+01	1.374E+03	0.2130	293.15	26	3.100E+01	1.377E+03	0.2128
27	3.200E+01	1.400E+03	0.2118	293.15	28	3.350E+01	1.437E+03	0.2103
29	3.500E+01	1.478E+03	0.2086	293.15	30	3.700E+01	1.537E+03	0.2063
31	4.000E+01	1.627E+03	0.2030	293.15	32	4.200E+01	1.681E+03	0.2011
33	4.400E+01	1.725E+03	0.1996	293.15	34	4.500E+01	1.742E+03	0.1990
35	4.600E+01	1.755E+03	0.1986	293.15	36	4.700E+01	1.765E+03	0.1983
37	4.800E+01	1.771E+03	0.1981	293.15	38	5.000E+01	1.773E+03	0.1980
39	5.200E+01	1.765E+03	0.1983	293.15	40	5.400E+01	1.749E+03	0.1988
41	5.700E+01	1.716E+03	0.1999	293.15	42	5.850E+01	1.699E+03	0.2005
43	6.000E+01	1.682E+03	0.2010	293.15	44	6.100E+01	1.670E+03	0.2014
45	6.200E+01	1.659E+03	0.2018	293.15	46	6.300E+01	1.647E+03	0.2022
47	6.450E+01	1.631E+03	0.2028	293.15	48	6.600E+01	1.616E+03	0.2034
49	6.800E+01	1.596E+03	0.2041	293.15	50	7.100E+01	1.570E+03	0.2050
51	7.400E+01	1.548E+03	0.2059	293.15	52	7.700E+01	1.528E+03	0.2066
53	8.000E+01	1.511E+03	0.2073	293.15	54	8.300E+01	1.497E+03	0.2078
55	8.600E+01	1.486E+03	0.2083	293.15	56	8.900E+01	1.477E+03	0.2087

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57 9.200E+01 1.470E+03 0.2089 293.15	58 9.500E+01 1.465E+03 0.2091 293.15
59 9.700E+01 1.463E+03 0.2092 293.15	60 9.780E+01 1.463E+03 0.2092 293.15
61 9.800E+01 1.463E+03 0.2482 293.15	62 9.900E+01 1.466E+03 0.2481 293.15
63 1.010E+02 1.477E+03 0.2476 293.15	64 1.030E+02 1.494E+03 0.2470 293.15
65 1.050E+02 1.516E+03 0.2462 293.15	66 1.090E+02 1.578E+03 0.2439 293.15
67 1.140E+02 1.695E+03 0.2400 293.15	68 1.170E+02 1.787E+03 0.2371 293.15
69 1.190E+02 1.859E+03 0.2349 293.15	70 1.210E+02 1.942E+03 0.2326 293.15
71 1.220E+02 1.987E+03 0.2313 293.15	72 1.230E+02 2.035E+03 0.2300 293.15
73 1.245E+02 2.113E+03 0.2280 293.15	74 1.260E+02 2.198E+03 0.2259 293.15
75 1.280E+02 2.323E+03 0.2230 293.15	76 1.305E+02 2.499E+03 0.2192 293.15
77 1.325E+02 2.656E+03 0.2161 293.15	78 1.350E+02 2.871E+03 0.2122 293.15
79 1.400E+02 3.347E+03 0.2046 293.15	80 1.450E+02 3.833E+03 0.1981 293.15
81 1.500E+02 4.283E+03 0.1929 293.15	82 1.550E+02 4.689E+03 0.1888 293.15
83 1.600E+02 5.072E+03 0.1852 293.15	84 1.650E+02 5.446E+03 0.1821 293.15
85 1.700E+02 5.808E+03 0.1793 293.15	86 1.750E+02 6.154E+03 0.1768 293.15
87 1.800E+02 6.478E+03 0.1747 293.15	88 1.850E+02 6.784E+03 0.1727 293.15
89 1.900E+02 7.075E+03 0.1710 293.15	90 1.950E+02 7.357E+03 0.1694 293.15
91 2.000E+02 7.635E+03 0.1679 293.15	92 2.050E+02 7.908E+03 0.1664 293.15
93 2.100E+02 8.176E+03 0.1651 293.15	94 2.130E+02 8.335E+03 0.1643 293.15
95 2.150E+02 8.438E+03 0.1639 293.15	96 2.170E+02 8.540E+03 0.1634 293.15
97 2.185E+02 8.616E+03 0.1630 293.15	98 2.197E+02 8.676E+03 0.1628 293.15
99 2.200E+02 8.683E+03 0.1249 293.15	100 2.210E+02 8.693E+03 0.1249 293.15
101 2.230E+02 8.712E+03 0.1248 293.15	102 2.250E+02 8.730E+03 0.1247 293.15
103 2.280E+02 8.757E+03 0.1246 293.15	104 2.310E+02 8.781E+03 0.1245 293.15
105 2.340E+02 8.803E+03 0.1244 293.15	106 2.370E+02 8.823E+03 0.1243 293.15
107 2.400E+02 8.841E+03 0.1243 293.15	108 2.430E+02 8.857E+03 0.1242 293.15
109 2.460E+02 8.871E+03 0.1241 293.15	110 2.480E+02 8.879E+03 0.1241 293.15
111 2.495E+02 8.884E+03 0.1241 293.15	112 2.502E+02 8.887E+03 0.1241 293.15
113 2.510E+02 8.896E+03 0.0552 293.15	114 2.520E+02 8.930E+03 0.0551 293.15
115 2.540E+02 8.997E+03 0.0550 293.15	116 2.570E+02 9.093E+03 0.0547 293.15
117 2.600E+02 9.185E+03 0.0546 293.15	118 2.650E+02 9.324E+03 0.0543 293.15
119 2.730E+02 9.512E+03 0.0539 293.15	120 2.800E+02 9.644E+03 0.0536 293.15
121 2.900E+02 9.784E+03 0.0534 293.15	122 3.150E+02 9.933E+03 0.0531 293.15
123 3.250E+02 9.963E+03 0.0531 293.15	124 3.500E+02 9.990E+03 0.0530 293.15
125 3.750E+02 9.997E+03 0.0530 293.15	126 4.000E+02 9.999E+03 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 59.0505 cm

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NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07407
Head (cm) = 2.23630E+03
LiqWater Flow (cm)=-4.41649E-02
IsoVapor Flow (cm)=-3.30778E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

59.0505+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 59.0062 vs. 59.0062

Mass Balance = -1.4798E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07476
Head (cm) = 2.16662E+03
LiqWater Flow (cm)=-5.84250E-02
IsoVapor Flow (cm)=-4.02515E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

61.6108+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 61.5523 vs. 61.5523

Mass Balance = -7.4414E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]
Potential Transpiration = 9.4093E+00 [cm]
Actual Transpiration = 6.1113E+00 [cm]
Potential Evaporation = 1.0435E+02 [cm]
Actual Evaporation = 4.2091E+01 [cm]
Evaporation during Growth = 2.7964E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 5.0698E+01 [cm]
Actual Rainfall = 5.0698E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 6.1552E+01 [cm]
Mass Balance Error = -6.3204E-03 [cm]
Total Successful Time Steps = 12899
Total Attempted Time Steps = 14593
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 3630
Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	8.6071E+00	0.050	8.7682E+00	0.200	8.6288E+00
0.450	8.6035E+00	0.800	8.5820E+00	1.250	8.5547E+00
1.850	8.5176E+00	2.600	8.4696E+00	3.500	8.4096E+00
4.750	8.3227E+00	6.500	8.1949E+00	8.500	8.0419E+00
10.750	7.8643E+00	13.250	7.6619E+00	16.000	7.4359E+00
18.750	7.2080E+00	21.000	7.0215E+00	22.750	6.8767E+00
24.250	6.7530E+00	25.200	6.6751E+00	25.700	6.6342E+00
26.500	6.5676E+00	27.750	6.4643E+00	29.000	6.3622E+00

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30.000	6.2813E+00	30.750	6.2212E+00	31.500	6.1617E+00
32.750	6.0605E+00	34.250	5.9380E+00	36.000	5.7943E+00
38.500	5.5885E+00	41.000	5.3836E+00	43.000	5.2210E+00
44.500	5.1004E+00	45.500	5.0206E+00	46.500	4.9414E+00
47.500	4.8628E+00	49.000	4.7460E+00	51.000	4.5932E+00
53.000	4.4436E+00	55.500	4.2606E+00	57.750	4.1014E+00
59.250	3.9973E+00	60.500	3.9120E+00	61.500	3.8447E+00
62.500	3.7782E+00	63.750	3.6962E+00	65.250	3.5998E+00
67.000	3.4896E+00	69.500	3.3368E+00	72.500	3.1617E+00
75.500	2.9952E+00	78.500	2.8375E+00	81.500	2.6888E+00
84.500	2.5491E+00	87.500	2.4185E+00	90.500	2.2970E+00
93.500	2.1848E+00	96.000	2.0989E+00	97.400	2.0538E+00
97.900	2.0380E+00	98.500	2.0192E+00	100.000	1.9732E+00
102.000	1.9150E+00	104.000	1.8599E+00	107.000	1.7820E+00
111.500	1.6786E+00	115.500	1.6004E+00	118.000	1.5562E+00
120.000	1.5230E+00	121.500	1.4997E+00	122.500	1.4847E+00
123.750	1.4664E+00	125.250	1.4455E+00	127.000	1.4222E+00
129.250	1.3937E+00	131.500	1.3671E+00	133.750	1.3418E+00
137.500	1.3023E+00	142.500	1.2580E+00	147.500	1.2254E+00
152.500	1.0759E+00	157.500	9.2976E-01	162.500	7.8952E-01
167.500	6.5697E-01	172.500	5.3422E-01	177.500	4.2389E-01
182.500	3.2850E-01	187.500	2.4987E-01	192.500	1.8838E-01
197.500	1.4279E-01	202.500	1.1046E-01	207.500	8.8063E-02
211.500	7.5588E-02	214.000	6.9281E-02	216.000	6.4885E-02
217.750	6.1523E-02	219.100	5.9180E-02	219.850	5.8429E-02
220.500	5.7706E-02	222.000	5.5556E-02	224.000	5.2768E-02
226.500	4.9372E-02	229.500	4.5438E-02	232.500	4.1623E-02
235.500	3.7911E-02	238.500	3.4288E-02	241.500	3.0739E-02
244.500	2.7255E-02	247.000	2.4396E-02	248.750	2.2413E-02
249.850	2.1174E-02	250.600	2.0101E-02	251.500	1.8660E-02
253.000	1.7740E-02	255.500	1.6284E-02	258.500	1.4670E-02
262.500	1.2689E-02	269.000	9.9067E-03	276.500	7.4148E-03
285.000	5.2329E-03	302.500	2.2709E-03	320.000	1.2282E-03
337.500	6.1352E-04	362.500	3.5274E-04	387.500	2.7937E-04
410.000	2.6098E-04	430.000	2.5549E-04	447.500	2.5386E-04
462.500	2.5327E-04	475.000	2.5306E-04	484.000	2.5298E-04
491.500	2.5293E-04	497.500	2.5291E-04	502.500	2.5290E-04
507.000	2.5289E-04	510.500	2.5288E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5287E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

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DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	7.3834E-03	0.300	1.2854E-02
0.600	1.8884E-02	1.000	2.5550E-02	1.500	3.5856E-02
2.200	4.7410E-02	3.000	5.9768E-02	4.000	8.7018E-02
5.500	1.2823E-01	7.500	1.5346E-01	9.500	1.7792E-01
12.000	2.0240E-01	14.500	2.2550E-01	17.500	2.2669E-01
20.000	1.8514E-01	22.000	1.4333E-01	23.500	1.2223E-01
25.000	7.6907E-02	25.400	4.0398E-02	26.000	6.4353E-02
27.000	9.9676E-02	28.500	9.8342E-02	29.500	7.7955E-02
30.500	5.7923E-02	31.000	5.7744E-02	32.000	9.6537E-02
33.500	1.1608E-01	35.000	1.3533E-01	37.000	1.9246E-01
40.000	1.9006E-01	42.000	1.5032E-01	44.000	1.1125E-01
45.000	7.3625E-02	46.000	7.3056E-02	47.000	7.2461E-02
48.000	1.0776E-01	50.000	1.4107E-01	52.000	1.3829E-01
54.000	1.6922E-01	57.000	1.4710E-01	58.500	9.6264E-02
60.000	7.8680E-02	61.000	6.2105E-02	62.000	6.1250E-02
63.000	7.5474E-02	64.500	8.8569E-02	66.000	1.0096E-01
68.000	1.3962E-01	71.000	1.5901E-01	74.000	1.5016E-01
77.000	1.4104E-01	80.000	1.3177E-01	83.000	1.2238E-01
86.000	1.1290E-01	89.000	1.0333E-01	92.000	9.3686E-02
95.000	6.9989E-02	97.000	3.6162E-02	97.800	1.2481E-02
98.000	1.5180E-02	99.000	3.6307E-02	101.000	4.3979E-02
103.000	3.9497E-02	105.000	5.2463E-02	109.000	5.8254E-02
114.000	2.9110E-02	117.000	9.7748E-03	119.000	3.3757E-03
121.000	-7.6596E-04	122.000	-1.5996E-03	123.000	-3.3513E-03
124.500	-6.4315E-03	126.000	-1.0279E-02	128.000	-1.7895E-02
130.500	-2.3600E-02	132.500	-2.8035E-02	135.000	-5.5656E-02
140.000	-9.6412E-02	145.000	-1.1594E-01	150.000	0.0000E+00
155.000	0.0000E+00	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00

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470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00
509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Shrub Vegetation Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10s.inp

Results File: c:\a\60_10s1955.res

Date of Run: 19 Oct 2023

Time of Run: 14:07:33.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.465E+03	0.0720	293.15	2	1.000E-01	2.047E+03	0.0760
3	3.000E-01	1.888E+03	0.0778	293.15	4	6.000E-01	1.937E+03	0.0772
5	1.000E+00	1.980E+03	0.0767	293.15	6	1.500E+00	1.974E+03	0.0768
7	2.200E+00	1.962E+03	0.0769	293.15	8	3.000E+00	1.959E+03	0.0770
9	4.000E+00	1.953E+03	0.0770	293.15	10	5.500E+00	1.942E+03	0.0772
11	7.500E+00	1.927E+03	0.0773	293.15	12	9.500E+00	1.911E+03	0.0775
13	1.200E+01	1.891E+03	0.0777	293.15	14	1.450E+01	1.871E+03	0.0780
15	1.750E+01	1.849E+03	0.0783	293.15	16	2.000E+01	1.832E+03	0.0785
17	2.200E+01	1.820E+03	0.0786	293.15	18	2.350E+01	1.813E+03	0.0787
19	2.500E+01	1.806E+03	0.0788	293.15	20	2.540E+01	1.804E+03	0.0788
21	2.600E+01	1.802E+03	0.1971	293.15	22	2.700E+01	1.800E+03	0.1971
23	2.850E+01	1.798E+03	0.1972	293.15	24	2.950E+01	1.797E+03	0.1972
25	3.050E+01	1.797E+03	0.1973	293.15	26	3.100E+01	1.797E+03	0.1973
27	3.200E+01	1.804E+03	0.1970	293.15	28	3.350E+01	1.821E+03	0.1965
29	3.500E+01	1.844E+03	0.1958	293.15	30	3.700E+01	1.884E+03	0.1946
31	4.000E+01	1.964E+03	0.1923	293.15	32	4.200E+01	2.027E+03	0.1905
33	4.400E+01	2.097E+03	0.1887	293.15	34	4.500E+01	2.134E+03	0.1877
35	4.600E+01	2.172E+03	0.1868	293.15	36	4.700E+01	2.211E+03	0.1858
37	4.800E+01	2.250E+03	0.1849	293.15	38	5.000E+01	2.328E+03	0.1831
39	5.200E+01	2.404E+03	0.1814	293.15	40	5.400E+01	2.475E+03	0.1798
41	5.700E+01	2.571E+03	0.1779	293.15	42	5.850E+01	2.614E+03	0.1770
43	6.000E+01	2.655E+03	0.1762	293.15	44	6.100E+01	2.681E+03	0.1757
45	6.200E+01	2.706E+03	0.1752	293.15	46	6.300E+01	2.730E+03	0.1748
47	6.450E+01	2.766E+03	0.1741	293.15	48	6.600E+01	2.802E+03	0.1735
49	6.800E+01	2.851E+03	0.1726	293.15	50	7.100E+01	2.928E+03	0.1713
51	7.400E+01	3.013E+03	0.1699	293.15	52	7.700E+01	3.107E+03	0.1683
53	8.000E+01	3.212E+03	0.1667	293.15	54	8.300E+01	3.326E+03	0.1650
55	8.600E+01	3.448E+03	0.1633	293.15	56	8.900E+01	3.575E+03	0.1616
57	9.200E+01	3.702E+03	0.1600	293.15	58	9.500E+01	3.825E+03	0.1585

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59 9.700E+01 3.901E+03 0.1576 293.15	60 9.780E+01 3.930E+03 0.1572 293.15
61 9.800E+01 3.946E+03 0.1967 293.15	62 9.900E+01 4.142E+03 0.1945 293.15
63 1.010E+02 4.555E+03 0.1901 293.15	64 1.030E+02 4.979E+03 0.1861 293.15
65 1.050E+02 5.394E+03 0.1825 293.15	66 1.090E+02 6.108E+03 0.1772 293.15
67 1.140E+02 6.812E+03 0.1726 293.15	68 1.170E+02 7.205E+03 0.1702 293.15
69 1.190E+02 7.469E+03 0.1688 293.15	70 1.210E+02 7.738E+03 0.1673 293.15
71 1.220E+02 7.876E+03 0.1666 293.15	72 1.230E+02 8.018E+03 0.1659 293.15
73 1.245E+02 8.237E+03 0.1648 293.15	74 1.260E+02 8.464E+03 0.1637 293.15
75 1.280E+02 8.780E+03 0.1623 293.15	76 1.305E+02 9.198E+03 0.1605 293.15
77 1.325E+02 9.549E+03 0.1590 293.15	78 1.350E+02 1.000E+04 0.1572 293.15
79 1.400E+02 1.092E+04 0.1539 293.15	80 1.450E+02 1.174E+04 0.1512 293.15
81 1.500E+02 1.231E+04 0.1495 293.15	82 1.550E+02 1.252E+04 0.1489 293.15
83 1.600E+02 1.245E+04 0.1491 293.15	84 1.650E+02 1.224E+04 0.1497 293.15
85 1.700E+02 1.201E+04 0.1504 293.15	86 1.750E+02 1.179E+04 0.1511 293.15
87 1.800E+02 1.158E+04 0.1518 293.15	88 1.850E+02 1.139E+04 0.1524 293.15
89 1.900E+02 1.122E+04 0.1529 293.15	90 1.950E+02 1.106E+04 0.1535 293.15
91 2.000E+02 1.091E+04 0.1540 293.15	92 2.050E+02 1.077E+04 0.1545 293.15
93 2.100E+02 1.065E+04 0.1549 293.15	94 2.130E+02 1.058E+04 0.1551 293.15
95 2.150E+02 1.054E+04 0.1553 293.15	96 2.170E+02 1.050E+04 0.1554 293.15
97 2.185E+02 1.047E+04 0.1555 293.15	98 2.197E+02 1.045E+04 0.1556 293.15
99 2.200E+02 1.045E+04 0.1184 293.15	100 2.210E+02 1.044E+04 0.1184 293.15
101 2.230E+02 1.043E+04 0.1185 293.15	102 2.250E+02 1.042E+04 0.1185 293.15
103 2.280E+02 1.041E+04 0.1185 293.15	104 2.310E+02 1.040E+04 0.1186 293.15
105 2.340E+02 1.039E+04 0.1186 293.15	106 2.370E+02 1.038E+04 0.1187 293.15
107 2.400E+02 1.037E+04 0.1187 293.15	108 2.430E+02 1.036E+04 0.1187 293.15
109 2.460E+02 1.035E+04 0.1187 293.15	110 2.480E+02 1.035E+04 0.1188 293.15
111 2.495E+02 1.034E+04 0.1188 293.15	112 2.502E+02 1.034E+04 0.1188 293.15
113 2.510E+02 1.034E+04 0.0524 293.15	114 2.520E+02 1.032E+04 0.0525 293.15
115 2.540E+02 1.029E+04 0.0525 293.15	116 2.570E+02 1.026E+04 0.0526 293.15
117 2.600E+02 1.022E+04 0.0526 293.15	118 2.650E+02 1.018E+04 0.0527 293.15
119 2.730E+02 1.012E+04 0.0528 293.15	120 2.800E+02 1.008E+04 0.0529 293.15
121 2.900E+02 1.005E+04 0.0529 293.15	122 3.150E+02 1.001E+04 0.0530 293.15
123 3.250E+02 1.000E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 51.9876 cm

NOTE: There are no temperature data when plants are modelled.

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DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.06865
Head (cm) = 2.90641E+03
LiqWater Flow (cm)=-6.82002E-02
IsoVapor Flow (cm)=-3.13665E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

51.9876+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 51.9192 vs. 51.9192

Mass Balance = -1.3875E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07202
Head (cm) = 2.46449E+03
LiqWater Flow (cm)=-3.96564E-02
IsoVapor Flow (cm)=-1.99693E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

52.0287+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 51.9890 vs. 51.9890

Mass Balance = -7.1195E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.3583E+02 [cm]
 Potential Transpiration = 5.9064E+00 [cm]
 Actual Transpiration = 2.4423E+00 [cm]
 Potential Evaporation = 1.2993E+02 [cm]
 Actual Evaporation = 2.0092E+01 [cm]
 Evaporation during Growth = 1.2131E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5217E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.1989E+01 [cm]
 Mass Balance Error = -6.1649E-03 [cm]
 Total Successful Time Steps = 11993
 Total Attempted Time Steps = 13650
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6400
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.4378E+00	0.050	2.8633E+00	0.200	2.5679E+00
0.450	2.4850E+00	0.800	2.4622E+00	1.250	2.4413E+00
1.850	2.4184E+00	2.600	2.3925E+00	3.500	2.3629E+00
4.750	2.3223E+00	6.500	2.2653E+00	8.500	2.2000E+00
10.750	2.1273E+00	13.250	2.0481E+00	16.000	1.9637E+00
18.750	1.8829E+00	21.000	1.8194E+00	22.750	1.7717E+00
24.250	1.7319E+00	25.200	1.7073E+00	25.700	1.6945E+00
26.500	1.6742E+00	27.750	1.6432E+00	29.000	1.6132E+00
30.000	1.5896E+00	30.750	1.5728E+00	31.500	1.5571E+00

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32.750	1.5283E+00	34.250	1.4944E+00	36.000	1.4557E+00
38.500	1.4021E+00	41.000	1.3507E+00	43.000	1.3108E+00
44.500	1.2818E+00	45.500	1.2627E+00	46.500	1.2438E+00
47.500	1.2253E+00	49.000	1.1979E+00	51.000	1.1623E+00
53.000	1.1277E+00	55.500	1.0857E+00	57.750	1.0493E+00
59.250	1.0255E+00	60.500	1.0060E+00	61.500	9.9061E-01
62.500	9.7539E-01	63.750	9.5659E-01	65.250	9.3441E-01
67.000	9.0895E-01	69.500	8.7332E-01	72.500	8.3180E-01
75.500	7.9140E-01	78.500	7.5201E-01	81.500	7.1354E-01
84.500	6.7590E-01	87.500	6.3903E-01	90.500	6.0285E-01
93.500	5.6733E-01	96.000	5.3823E-01	97.400	5.2211E-01
97.900	5.1609E-01	98.500	5.0803E-01	100.000	4.8955E-01
102.000	4.6533E-01	104.000	4.4154E-01	107.000	4.0654E-01
111.500	3.5622E-01	115.500	3.1414E-01	118.000	2.8887E-01
120.000	2.6921E-01	121.500	2.5489E-01	122.500	2.4548E-01
123.750	2.3390E-01	125.250	2.2030E-01	127.000	2.0480E-01
129.250	1.8547E-01	131.500	1.6686E-01	133.750	1.4880E-01
137.500	1.1985E-01	142.500	8.3832E-02	147.500	5.0027E-02
152.500	1.7884E-02	157.500	-1.3403E-02	162.500	-1.4731E-02
167.500	-1.5717E-02	172.500	-1.6361E-02	177.500	-1.6670E-02
182.500	-1.6666E-02	187.500	-1.6378E-02	192.500	-1.5846E-02
197.500	-1.5111E-02	202.500	-1.4214E-02	207.500	-1.3193E-02
211.500	-1.2301E-02	214.000	-1.1723E-02	216.000	-1.1250E-02
217.750	-1.0830E-02	219.100	-1.0502E-02	219.850	-1.0454E-02
220.500	-1.0376E-02	222.000	-1.0035E-02	224.000	-9.5803E-03
226.500	-9.0105E-03	229.500	-8.3252E-03	232.500	-7.6391E-03
235.500	-6.9526E-03	238.500	-6.2663E-03	241.500	-5.5807E-03
244.500	-4.8962E-03	247.000	-4.3271E-03	248.750	-3.9296E-03
249.850	-3.6801E-03	250.600	-3.4180E-03	251.500	-2.9594E-03
253.000	-2.8238E-03	255.500	-2.6048E-03	258.500	-2.3555E-03
262.500	-2.0411E-03	269.000	-1.5827E-03	276.500	-1.1518E-03
285.000	-7.5303E-04	302.500	-1.6347E-04	320.000	5.6655E-05
337.500	1.9000E-04	362.500	2.4066E-04	387.500	2.5107E-04
410.000	2.5238E-04	430.000	2.5239E-04	447.500	2.5229E-04
462.500	2.5223E-04	475.000	2.5220E-04	484.000	2.5219E-04
491.500	2.5219E-04	497.500	2.5218E-04	502.500	2.5218E-04
507.000	2.5218E-04	510.500	2.5218E-04	513.500	2.5217E-04
516.000	2.5217E-04	517.500	2.5217E-04	518.500	2.5217E-04
519.000	2.5217E-04				

Total plant water uptake (cm) at different depths:

DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE

December 2023

0.000	0.0000E+00	0.100	2.9848E-03	0.300	5.2826E-03
0.600	7.9197E-03	1.000	1.0911E-02	1.500	1.5515E-02
2.200	2.0689E-02	3.000	2.6128E-02	4.000	3.7865E-02
5.500	5.4994E-02	7.500	6.4070E-02	9.500	7.2037E-02
12.000	7.8676E-02	14.500	8.4111E-02	17.500	8.0573E-02
20.000	6.3329E-02	22.000	4.7617E-02	23.500	3.9755E-02
25.000	2.4506E-02	25.400	1.2803E-02	26.000	2.0240E-02
27.000	3.0975E-02	28.500	3.0041E-02	29.500	2.3555E-02
30.500	1.7321E-02	31.000	1.7175E-02	32.000	2.8358E-02
33.500	3.3478E-02	35.000	3.8338E-02	37.000	5.3327E-02
40.000	5.1135E-02	42.000	3.9753E-02	44.000	2.8972E-02
45.000	1.9039E-02	46.000	1.8767E-02	47.000	1.8500E-02
48.000	2.7357E-02	50.000	3.5460E-02	52.000	3.4487E-02
54.000	4.1953E-02	57.000	3.6305E-02	58.500	2.3750E-02
60.000	1.9431E-02	61.000	1.5360E-02	62.000	1.5181E-02
63.000	1.8759E-02	64.500	2.2137E-02	66.000	2.5411E-02
68.000	3.5554E-02	71.000	4.1429E-02	74.000	4.0310E-02
77.000	3.9296E-02	80.000	3.8375E-02	83.000	3.7535E-02
86.000	3.6766E-02	89.000	3.6058E-02	92.000	3.5403E-02
95.000	2.8994E-02	97.000	1.6057E-02	97.800	5.7096E-03
98.000	7.3945E-03	99.000	1.8325E-02	101.000	2.3992E-02
103.000	2.3532E-02	105.000	3.4580E-02	109.000	4.9563E-02
114.000	4.1261E-02	117.000	2.4696E-02	119.000	1.9167E-02
121.000	1.3931E-02	122.000	9.1401E-03	123.000	1.1242E-02
124.500	1.3164E-02	126.000	1.4985E-02	128.000	1.8643E-02
130.500	1.7899E-02	132.500	1.7339E-02	135.000	2.7812E-02
140.000	3.4610E-02	145.000	3.2724E-02	150.000	3.1478E-02
155.000	3.0961E-02	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

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509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Shrub Vegetation Wet Year 1

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10s.inp

Results File: c:\a\60_10s1956.res

Date of Run: 19 Oct 2023

Time of Run: 14:07:33.62

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.464E+03	0.0720	293.15	2	1.000E-01	2.047E+03	0.0760
3	3.000E-01	1.888E+03	0.0778	293.15	4	6.000E-01	1.937E+03	0.0772
5	1.000E+00	1.979E+03	0.0767	293.15	6	1.500E+00	1.974E+03	0.0768
7	2.200E+00	1.962E+03	0.0769	293.15	8	3.000E+00	1.959E+03	0.0770
9	4.000E+00	1.952E+03	0.0770	293.15	10	5.500E+00	1.942E+03	0.0772
11	7.500E+00	1.927E+03	0.0773	293.15	12	9.500E+00	1.911E+03	0.0775
13	1.200E+01	1.891E+03	0.0778	293.15	14	1.450E+01	1.871E+03	0.0780
15	1.750E+01	1.849E+03	0.0783	293.15	16	2.000E+01	1.832E+03	0.0785
17	2.200E+01	1.820E+03	0.0786	293.15	18	2.350E+01	1.812E+03	0.0787
19	2.500E+01	1.805E+03	0.0788	293.15	20	2.540E+01	1.804E+03	0.0788
21	2.600E+01	1.802E+03	0.1971	293.15	22	2.700E+01	1.800E+03	0.1972
23	2.850E+01	1.798E+03	0.1972	293.15	24	2.950E+01	1.797E+03	0.1973
25	3.050E+01	1.796E+03	0.1973	293.15	26	3.100E+01	1.797E+03	0.1973
27	3.200E+01	1.804E+03	0.1970	293.15	28	3.350E+01	1.821E+03	0.1965
29	3.500E+01	1.844E+03	0.1958	293.15	30	3.700E+01	1.884E+03	0.1946
31	4.000E+01	1.964E+03	0.1923	293.15	32	4.200E+01	2.027E+03	0.1905
33	4.400E+01	2.097E+03	0.1887	293.15	34	4.500E+01	2.134E+03	0.1877
35	4.600E+01	2.172E+03	0.1868	293.15	36	4.700E+01	2.210E+03	0.1858
37	4.800E+01	2.249E+03	0.1849	293.15	38	5.000E+01	2.327E+03	0.1831
39	5.200E+01	2.403E+03	0.1814	293.15	40	5.400E+01	2.475E+03	0.1798
41	5.700E+01	2.570E+03	0.1779	293.15	42	5.850E+01	2.614E+03	0.1770
43	6.000E+01	2.654E+03	0.1762	293.15	44	6.100E+01	2.680E+03	0.1757
45	6.200E+01	2.705E+03	0.1753	293.15	46	6.300E+01	2.729E+03	0.1748
47	6.450E+01	2.765E+03	0.1741	293.15	48	6.600E+01	2.801E+03	0.1735
49	6.800E+01	2.850E+03	0.1726	293.15	50	7.100E+01	2.927E+03	0.1713
51	7.400E+01	3.011E+03	0.1699	293.15	52	7.700E+01	3.106E+03	0.1684
53	8.000E+01	3.210E+03	0.1668	293.15	54	8.300E+01	3.324E+03	0.1651
55	8.600E+01	3.446E+03	0.1634	293.15	56	8.900E+01	3.572E+03	0.1617
57	9.200E+01	3.699E+03	0.1600	293.15	58	9.500E+01	3.821E+03	0.1585

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59 9.700E+01 3.897E+03 0.1576 293.15	60 9.780E+01 3.925E+03 0.1573 293.15
61 9.800E+01 3.942E+03 0.1968 293.15	62 9.900E+01 4.137E+03 0.1945 293.15
63 1.010E+02 4.548E+03 0.1902 293.15	64 1.030E+02 4.970E+03 0.1862 293.15
65 1.050E+02 5.383E+03 0.1826 293.15	66 1.090E+02 6.093E+03 0.1773 293.15
67 1.140E+02 6.789E+03 0.1727 293.15	68 1.170E+02 7.178E+03 0.1704 293.15
69 1.190E+02 7.437E+03 0.1689 293.15	70 1.210E+02 7.702E+03 0.1675 293.15
71 1.220E+02 7.838E+03 0.1668 293.15	72 1.230E+02 7.977E+03 0.1661 293.15
73 1.245E+02 8.192E+03 0.1650 293.15	74 1.260E+02 8.414E+03 0.1640 293.15
75 1.280E+02 8.724E+03 0.1625 293.15	76 1.305E+02 9.133E+03 0.1607 293.15
77 1.325E+02 9.476E+03 0.1593 293.15	78 1.350E+02 9.918E+03 0.1576 293.15
79 1.400E+02 1.082E+04 0.1543 293.15	80 1.450E+02 1.162E+04 0.1516 293.15
81 1.500E+02 1.218E+04 0.1499 293.15	82 1.550E+02 1.241E+04 0.1492 293.15
83 1.600E+02 1.236E+04 0.1494 293.15	84 1.650E+02 1.218E+04 0.1499 293.15
85 1.700E+02 1.197E+04 0.1506 293.15	86 1.750E+02 1.177E+04 0.1512 293.15
87 1.800E+02 1.158E+04 0.1517 293.15	88 1.850E+02 1.141E+04 0.1523 293.15
89 1.900E+02 1.125E+04 0.1528 293.15	90 1.950E+02 1.110E+04 0.1533 293.15
91 2.000E+02 1.096E+04 0.1538 293.15	92 2.050E+02 1.083E+04 0.1542 293.15
93 2.100E+02 1.072E+04 0.1546 293.15	94 2.130E+02 1.065E+04 0.1549 293.15
95 2.150E+02 1.061E+04 0.1550 293.15	96 2.170E+02 1.057E+04 0.1552 293.15
97 2.185E+02 1.054E+04 0.1553 293.15	98 2.197E+02 1.052E+04 0.1553 293.15
99 2.200E+02 1.052E+04 0.1182 293.15	100 2.210E+02 1.051E+04 0.1182 293.15
101 2.230E+02 1.050E+04 0.1182 293.15	102 2.250E+02 1.049E+04 0.1183 293.15
103 2.280E+02 1.048E+04 0.1183 293.15	104 2.310E+02 1.047E+04 0.1184 293.15
105 2.340E+02 1.046E+04 0.1184 293.15	106 2.370E+02 1.045E+04 0.1184 293.15
107 2.400E+02 1.044E+04 0.1185 293.15	108 2.430E+02 1.043E+04 0.1185 293.15
109 2.460E+02 1.042E+04 0.1185 293.15	110 2.480E+02 1.042E+04 0.1185 293.15
111 2.495E+02 1.041E+04 0.1185 293.15	112 2.502E+02 1.041E+04 0.1186 293.15
113 2.510E+02 1.041E+04 0.0523 293.15	114 2.520E+02 1.039E+04 0.0524 293.15
115 2.540E+02 1.036E+04 0.0524 293.15	116 2.570E+02 1.032E+04 0.0525 293.15
117 2.600E+02 1.028E+04 0.0525 293.15	118 2.650E+02 1.023E+04 0.0526 293.15
119 2.730E+02 1.016E+04 0.0527 293.15	120 2.800E+02 1.011E+04 0.0528 293.15
121 2.900E+02 1.007E+04 0.0529 293.15	122 3.150E+02 1.002E+04 0.0530 293.15
123 3.250E+02 1.001E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 51.9890 cm

NOTE: There are no temperature data when plants are modelled.

December 2023

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07074
Head (cm) = 2.62145E+03
LiqWater Flow (cm)=-4.42159E-02
IsoVapor Flow (cm)=-2.01352E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

51.9890+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 51.9447 vs. 51.9447

Mass Balance = -7.9230E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07834
Head (cm) = 1.84232E+03
LiqWater Flow (cm)=-1.31917E-04
IsoVapor Flow (cm)=-2.39153E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.3203+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 57.3203 vs. 57.3203

Mass Balance = -1.0028E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

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UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 1
 Potential Evapotranspiration = 1.1370E+02 [cm]
 Potential Transpiration = 4.8921E+00 [cm]
 Actual Transpiration = 3.0570E+00 [cm]
 Potential Evaporation = 1.0881E+02 [cm]
 Actual Evaporation = 4.2317E+01 [cm]
 Evaporation during Growth = 2.8254E+01 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.7320E+01 [cm]
 Mass Balance Error = -7.0062E-03 [cm]
 Total Successful Time Steps = 13050
 Total Attempted Time Steps = 14869
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3748
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	8.3815E+00	0.050	8.5495E+00	0.200	8.4020E+00
0.450	8.3800E+00	0.800	8.3611E+00	1.250	8.3377E+00
1.850	8.3074E+00	2.600	8.2698E+00	3.500	8.2241E+00
4.750	8.1601E+00	6.500	8.0699E+00	8.500	7.9673E+00
10.750	7.8534E+00	13.250	7.7299E+00	16.000	7.5981E+00
18.750	7.4719E+00	21.000	7.3725E+00	22.750	7.2976E+00
24.250	7.2350E+00	25.200	7.1963E+00	25.700	7.1760E+00
26.500	7.1342E+00	27.750	7.0697E+00	29.000	7.0065E+00
30.000	6.9567E+00	30.750	6.9199E+00	31.500	6.8837E+00

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32.750	6.8236E+00	34.250	6.7533E+00	36.000	6.6736E+00
38.500	6.5634E+00	41.000	6.4577E+00	43.000	6.3745E+00
44.500	6.3125E+00	45.500	6.2712E+00	46.500	6.2298E+00
47.500	6.1881E+00	49.000	6.1251E+00	51.000	6.0392E+00
53.000	5.9509E+00	55.500	5.8373E+00	57.750	5.7304E+00
59.250	5.6577E+00	60.500	5.5959E+00	61.500	5.5458E+00
62.500	5.4950E+00	63.750	5.4309E+00	65.250	5.3525E+00
67.000	5.2596E+00	69.500	5.1239E+00	72.500	4.9560E+00
75.500	4.7828E+00	78.500	4.6042E+00	81.500	4.4203E+00
84.500	4.2308E+00	87.500	4.0360E+00	90.500	3.8361E+00
93.500	3.6315E+00	96.000	3.4575E+00	97.400	3.3590E+00
97.900	3.3235E+00	98.500	3.2809E+00	100.000	3.1724E+00
102.000	3.0208E+00	104.000	2.8634E+00	107.000	2.6209E+00
111.500	2.2486E+00	115.500	1.9223E+00	118.000	1.7232E+00
120.000	1.5673E+00	121.500	1.4535E+00	122.500	1.3787E+00
123.750	1.2868E+00	125.250	1.1796E+00	127.000	1.0583E+00
129.250	9.0979E-01	131.500	7.7167E-01	133.750	6.4292E-01
137.500	4.5015E-01	142.500	2.5978E-01	147.500	1.3422E-01
152.500	5.5759E-02	157.500	5.2702E-03	162.500	-6.2237E-03
167.500	-1.1300E-02	172.500	-1.3577E-02	177.500	-1.4581E-02
182.500	-1.4930E-02	187.500	-1.4882E-02	192.500	-1.4557E-02
197.500	-1.4018E-02	202.500	-1.3309E-02	207.500	-1.2462E-02
211.500	-1.1696E-02	214.000	-1.1190E-02	216.000	-1.0772E-02
217.750	-1.0396E-02	219.100	-1.0101E-02	219.850	-1.0068E-02
220.500	-1.0002E-02	222.000	-9.6935E-03	224.000	-9.2800E-03
226.500	-8.7612E-03	229.500	-8.1355E-03	232.500	-7.5075E-03
235.500	-6.8776E-03	238.500	-6.2466E-03	241.500	-5.6149E-03
244.500	-4.9831E-03	247.000	-4.4570E-03	248.750	-4.0891E-03
249.850	-3.8581E-03	250.600	-3.6013E-03	251.500	-3.1178E-03
253.000	-2.9940E-03	255.500	-2.7920E-03	258.500	-2.5587E-03
262.500	-2.2600E-03	269.000	-1.8137E-03	276.500	-1.3775E-03
285.000	-9.5892E-04	302.500	-3.0498E-04	320.000	-3.0343E-05
337.500	1.4839E-04	362.500	2.2809E-04	387.500	2.4846E-04
410.000	2.5228E-04	430.000	2.5294E-04	447.500	2.5297E-04
462.500	2.5294E-04	475.000	2.5291E-04	484.000	2.5289E-04
491.500	2.5288E-04	497.500	2.5288E-04	502.500	2.5287E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE	DEPTH	WATER UPTAKE

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0.000	0.0000E+00	0.100	4.9189E-03	0.300	8.4503E-03
0.600	1.2222E-02	1.000	1.6244E-02	1.500	2.2359E-02
2.200	2.8873E-02	3.000	3.5543E-02	4.000	5.0378E-02
5.500	7.1592E-02	7.500	8.1994E-02	9.500	9.1299E-02
12.000	9.9090E-02	14.500	1.0567E-01	17.500	1.0117E-01
20.000	7.9563E-02	22.000	5.9869E-02	23.500	5.0029E-02
25.000	3.0874E-02	25.400	1.6136E-02	26.000	2.5520E-02
27.000	3.9074E-02	28.500	3.7916E-02	29.500	2.9739E-02
30.500	2.1873E-02	31.000	2.1692E-02	32.000	3.5843E-02
33.500	4.2394E-02	35.000	4.8687E-02	37.000	6.7989E-02
40.000	6.5550E-02	42.000	5.1141E-02	44.000	3.7404E-02
45.000	2.4625E-02	46.000	2.4320E-02	47.000	2.4020E-02
48.000	3.5590E-02	50.000	4.6309E-02	52.000	4.5211E-02
54.000	5.5200E-02	57.000	4.8013E-02	58.500	3.1485E-02
60.000	2.5817E-02	61.000	2.0436E-02	62.000	2.0223E-02
63.000	2.5018E-02	64.500	2.9565E-02	66.000	3.3978E-02
68.000	4.7598E-02	71.000	5.5512E-02	74.000	5.3986E-02
77.000	5.2566E-02	80.000	5.1244E-02	83.000	5.0022E-02
86.000	4.8893E-02	89.000	4.7849E-02	92.000	4.6885E-02
95.000	3.8329E-02	97.000	2.1206E-02	97.800	7.5378E-03
98.000	9.3188E-03	99.000	2.3010E-02	101.000	2.9903E-02
103.000	2.9108E-02	105.000	4.2438E-02	109.000	5.9819E-02
114.000	4.8588E-02	117.000	2.8556E-02	119.000	2.1853E-02
121.000	1.5634E-02	122.000	1.0169E-02	123.000	1.2393E-02
124.500	1.4299E-02	126.000	1.6019E-02	128.000	1.9477E-02
130.500	1.8128E-02	132.500	1.7106E-02	135.000	2.6540E-02
140.000	3.1166E-02	145.000	2.8318E-02	150.000	2.6677E-02
155.000	2.5970E-02	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00

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509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Shrub Vegetation Wet Year 2

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10s.inp
Results File: c:\a\60_10s1957.res
Date of Run: 19 Oct 2023
Time of Run: 14:07:33.62
Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.)	(K)	(cm)	(cm)	(vol.)	(K)
1	0.000E+00	1.842E+03	0.0783	293.15	2	1.000E-01	1.482E+03	0.0834
3	3.000E-01	1.244E+03	0.0876	293.15	4	6.000E-01	1.177E+03	0.0890
5	1.000E+00	1.192E+03	0.0887	293.15	6	1.500E+00	1.244E+03	0.0876
7	2.200E+00	1.259E+03	0.0873	293.15	8	3.000E+00	1.252E+03	0.0875
9	4.000E+00	1.245E+03	0.0876	293.15	10	5.500E+00	1.246E+03	0.0876
11	7.500E+00	1.246E+03	0.0876	293.15	12	9.500E+00	1.247E+03	0.0875
13	1.200E+01	1.249E+03	0.0875	293.15	14	1.450E+01	1.252E+03	0.0875
15	1.750E+01	1.256E+03	0.0874	293.15	16	2.000E+01	1.261E+03	0.0873
17	2.200E+01	1.266E+03	0.0872	293.15	18	2.350E+01	1.269E+03	0.0871
19	2.500E+01	1.273E+03	0.0870	293.15	20	2.540E+01	1.275E+03	0.0870
21	2.600E+01	1.275E+03	0.2175	293.15	22	2.700E+01	1.276E+03	0.2175
23	2.850E+01	1.277E+03	0.2174	293.15	24	2.950E+01	1.277E+03	0.2174
25	3.050E+01	1.278E+03	0.2174	293.15	26	3.100E+01	1.280E+03	0.2172
27	3.200E+01	1.299E+03	0.2164	293.15	28	3.350E+01	1.329E+03	0.2150
29	3.500E+01	1.362E+03	0.2135	293.15	30	3.700E+01	1.410E+03	0.2114
31	4.000E+01	1.484E+03	0.2083	293.15	32	4.200E+01	1.530E+03	0.2065
33	4.400E+01	1.570E+03	0.2050	293.15	34	4.500E+01	1.587E+03	0.2044
35	4.600E+01	1.601E+03	0.2039	293.15	36	4.700E+01	1.612E+03	0.2035
37	4.800E+01	1.621E+03	0.2032	293.15	38	5.000E+01	1.630E+03	0.2029
39	5.200E+01	1.629E+03	0.2029	293.15	40	5.400E+01	1.620E+03	0.2032
41	5.700E+01	1.597E+03	0.2040	293.15	42	5.850E+01	1.584E+03	0.2045
43	6.000E+01	1.570E+03	0.2050	293.15	44	6.100E+01	1.560E+03	0.2054
45	6.200E+01	1.551E+03	0.2058	293.15	46	6.300E+01	1.541E+03	0.2061
47	6.450E+01	1.527E+03	0.2067	293.15	48	6.600E+01	1.514E+03	0.2072
49	6.800E+01	1.497E+03	0.2078	293.15	50	7.100E+01	1.473E+03	0.2088
51	7.400E+01	1.453E+03	0.2096	293.15	52	7.700E+01	1.435E+03	0.2104
53	8.000E+01	1.420E+03	0.2110	293.15	54	8.300E+01	1.407E+03	0.2115
55	8.600E+01	1.396E+03	0.2120	293.15	56	8.900E+01	1.388E+03	0.2123
57	9.200E+01	1.382E+03	0.2126	293.15	58	9.500E+01	1.378E+03	0.2128
59	9.700E+01	1.377E+03	0.2128	293.15	60	9.780E+01	1.376E+03	0.2129
61	9.800E+01	1.377E+03	0.2516	293.15	62	9.900E+01	1.381E+03	0.2515
63	1.010E+02	1.393E+03	0.2509	293.15	64	1.030E+02	1.412E+03	0.2502

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65 1.050E+02 1.436E+03 0.2492 293.15	66 1.090E+02 1.504E+03 0.2466 293.15
67 1.140E+02 1.633E+03 0.2420 293.15	68 1.170E+02 1.740E+03 0.2385 293.15
69 1.190E+02 1.827E+03 0.2358 293.15	70 1.210E+02 1.931E+03 0.2329 293.15
71 1.220E+02 1.989E+03 0.2313 293.15	72 1.230E+02 2.053E+03 0.2296 293.15
73 1.245E+02 2.159E+03 0.2269 293.15	74 1.260E+02 2.282E+03 0.2240 293.15
75 1.280E+02 2.474E+03 0.2198 293.15	76 1.305E+02 2.773E+03 0.2139 293.15
77 1.325E+02 3.072E+03 0.2088 293.15	78 1.350E+02 3.545E+03 0.2018 293.15
79 1.400E+02 4.972E+03 0.1861 293.15	80 1.450E+02 7.028E+03 0.1713 293.15
81 1.500E+02 9.171E+03 0.1606 293.15	82 1.550E+02 1.076E+04 0.1545 293.15
83 1.600E+02 1.158E+04 0.1518 293.15	84 1.650E+02 1.183E+04 0.1510 293.15
85 1.700E+02 1.181E+04 0.1510 293.15	86 1.750E+02 1.170E+04 0.1514 293.15
87 1.800E+02 1.156E+04 0.1518 293.15	88 1.850E+02 1.142E+04 0.1523 293.15
89 1.900E+02 1.127E+04 0.1528 293.15	90 1.950E+02 1.114E+04 0.1532 293.15
91 2.000E+02 1.101E+04 0.1536 293.15	92 2.050E+02 1.088E+04 0.1541 293.15
93 2.100E+02 1.077E+04 0.1544 293.15	94 2.130E+02 1.071E+04 0.1547 293.15
95 2.150E+02 1.067E+04 0.1548 293.15	96 2.170E+02 1.063E+04 0.1549 293.15
97 2.185E+02 1.061E+04 0.1550 293.15	98 2.197E+02 1.058E+04 0.1551 293.15
99 2.200E+02 1.058E+04 0.1180 293.15	100 2.210E+02 1.058E+04 0.1180 293.15
101 2.230E+02 1.057E+04 0.1180 293.15	102 2.250E+02 1.056E+04 0.1181 293.15
103 2.280E+02 1.055E+04 0.1181 293.15	104 2.310E+02 1.053E+04 0.1181 293.15
105 2.340E+02 1.052E+04 0.1182 293.15	106 2.370E+02 1.051E+04 0.1182 293.15
107 2.400E+02 1.050E+04 0.1182 293.15	108 2.430E+02 1.049E+04 0.1183 293.15
109 2.460E+02 1.049E+04 0.1183 293.15	110 2.480E+02 1.048E+04 0.1183 293.15
111 2.495E+02 1.048E+04 0.1183 293.15	112 2.502E+02 1.047E+04 0.1183 293.15
113 2.510E+02 1.047E+04 0.0522 293.15	114 2.520E+02 1.045E+04 0.0523 293.15
115 2.540E+02 1.042E+04 0.0523 293.15	116 2.570E+02 1.038E+04 0.0524 293.15
117 2.600E+02 1.034E+04 0.0524 293.15	118 2.650E+02 1.028E+04 0.0525 293.15
119 2.730E+02 1.020E+04 0.0527 293.15	120 2.800E+02 1.015E+04 0.0527 293.15
121 2.900E+02 1.009E+04 0.0528 293.15	122 3.150E+02 1.003E+04 0.0529 293.15
123 3.250E+02 1.002E+04 0.0530 293.15	124 3.500E+02 1.000E+04 0.0530 293.15
125 3.750E+02 1.000E+04 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 57.3203 cm

NOTE: There are no temperature data when plants are modelled.

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

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Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07644
Head (cm) = 2.00551E+03
LiqWater Flow (cm)=-4.41806E-02
IsoVapor Flow (cm)=-2.44236E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

57.3203+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 57.2760 vs. 57.2760

Mass Balance = -1.0979E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07753
Head (cm) = 1.91000E+03
LiqWater Flow (cm)=-5.84386E-02
IsoVapor Flow (cm)=-2.78776E-05
Plant Sink (cm) = 0.00000E+00

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

59.8395+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 59.7810 vs. 59.7810

Mass Balance = -2.3991E-06 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

Transpiration: Potential = 0.0000 cm, Actual = 0.0000 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

December 2023

Transpiration Scheme is: = 1
Potential Evapotranspiration = 1.1376E+02 [cm]
Potential Transpiration = 4.8921E+00 [cm]
Actual Transpiration = 3.4430E+00 [cm]
Potential Evaporation = 1.0887E+02 [cm]
Actual Evaporation = 4.4800E+01 [cm]
Evaporation during Growth = 3.0575E+01 [cm]
Total Runoff = 0.0000E+00 [cm]
Total Infiltration = 5.0698E+01 [cm]
Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
Total Applied Water = 5.0698E+01 [cm]
Actual Rainfall = 5.0698E+01 [cm]
Actual Irrigation = 0.0000E+00 [cm]
Total Final Moisture Storage = 5.9781E+01 [cm]
Mass Balance Error = -5.9007E-03 [cm]
Total Successful Time Steps = 12799
Total Attempted Time Steps = 14412
Total Time Step Reductions (DHMAX) = 0
Total Changes in Surface Boundary = 3559
Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	5.8981E+00	0.050	5.9836E+00	0.200	5.9091E+00
0.450	5.8972E+00	0.800	5.8824E+00	1.250	5.8641E+00
1.850	5.8396E+00	2.600	5.8088E+00	3.500	5.7714E+00
4.750	5.7188E+00	6.500	5.6443E+00	8.500	5.5591E+00
10.750	5.4642E+00	13.250	5.3608E+00	16.000	5.2501E+00
18.750	5.1434E+00	21.000	5.0590E+00	22.750	4.9952E+00
24.250	4.9416E+00	25.200	4.9084E+00	25.700	4.8910E+00
26.500	4.8620E+00	27.750	4.8174E+00	29.000	4.7739E+00
30.000	4.7397E+00	30.750	4.7146E+00	31.500	4.6899E+00
32.750	4.6477E+00	34.250	4.5967E+00	36.000	4.5372E+00
38.500	4.4524E+00	41.000	4.3686E+00	43.000	4.3024E+00
44.500	4.2536E+00	45.500	4.2214E+00	46.500	4.1895E+00
47.500	4.1580E+00	49.000	4.1113E+00	51.000	4.0506E+00
53.000	3.9915E+00	55.500	3.9194E+00	57.750	3.8569E+00
59.250	3.8159E+00	60.500	3.7822E+00	61.500	3.7556E+00
62.500	3.7291E+00	63.750	3.6964E+00	65.250	3.6576E+00
67.000	3.6129E+00	69.500	3.5500E+00	72.500	3.4759E+00
75.500	3.4031E+00	78.500	3.3315E+00	81.500	3.2608E+00
84.500	3.1911E+00	87.500	3.1220E+00	90.500	3.0537E+00
93.500	2.9859E+00	96.000	2.9297E+00	97.400	2.8984E+00
97.900	2.8872E+00	98.500	2.8738E+00	100.000	2.8400E+00

December 2023

102.000	2.7944E+00	104.000	2.7480E+00	107.000	2.6772E+00
111.500	2.5667E+00	115.500	2.4620E+00	118.000	2.3936E+00
120.000	2.3369E+00	121.500	2.2928E+00	122.500	2.2628E+00
123.750	2.2245E+00	125.250	2.1769E+00	127.000	2.1194E+00
129.250	2.0417E+00	131.500	1.9583E+00	133.750	1.8699E+00
137.500	1.7107E+00	142.500	1.4623E+00	147.500	1.1856E+00
152.500	9.0384E-01	157.500	6.3987E-01	162.500	4.4639E-01
167.500	2.8795E-01	172.500	1.6775E-01	177.500	8.5169E-02
182.500	3.5100E-02	187.500	8.5676E-03	192.500	-3.8580E-03
197.500	-9.0207E-03	202.500	-1.0785E-02	207.500	-1.1028E-02
211.500	-1.0679E-02	214.000	-1.0347E-02	216.000	-1.0036E-02
217.750	-9.7353E-03	219.100	-9.4887E-03	219.850	-9.4736E-03
220.500	-9.4232E-03	222.000	-9.1564E-03	224.000	-8.7964E-03
226.500	-8.3417E-03	229.500	-7.7888E-03	232.500	-7.2303E-03
235.500	-6.6672E-03	238.500	-6.1006E-03	241.500	-5.5315E-03
244.500	-4.9608E-03	247.000	-4.4845E-03	248.750	-4.1510E-03
249.850	-3.9415E-03	250.600	-3.6944E-03	251.500	-3.1965E-03
253.000	-3.0858E-03	255.500	-2.9032E-03	258.500	-2.6894E-03
262.500	-2.4120E-03	269.000	-1.9885E-03	276.500	-1.5606E-03
285.000	-1.1371E-03	302.500	-4.4512E-04	320.000	-1.2375E-04
337.500	9.7678E-05	362.500	2.0969E-04	387.500	2.4303E-04
410.000	2.5070E-04	430.000	2.5253E-04	447.500	2.5287E-04
462.500	2.5292E-04	475.000	2.5291E-04	484.000	2.5290E-04
491.500	2.5289E-04	497.500	2.5288E-04	502.500	2.5288E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Total plant water uptake (cm) at different depths:

DEPTH WATER UPTAKE DEPTH WATER UPTAKE DEPTH WATER UPTAKE

0.000	0.0000E+00	0.100	5.2035E-03	0.300	8.9241E-03
0.600	1.2877E-02	1.000	1.7074E-02	1.500	2.3449E-02
2.200	3.0210E-02	3.000	3.7117E-02	4.000	5.2518E-02
5.500	7.4502E-02	7.500	8.5200E-02	9.500	9.4783E-02
12.000	1.0281E-01	14.500	1.0962E-01	17.500	1.0496E-01
20.000	8.2572E-02	22.000	6.2157E-02	23.500	5.1961E-02
25.000	3.2083E-02	25.400	1.6771E-02	26.000	2.6527E-02
27.000	4.0623E-02	28.500	3.9429E-02	29.500	3.0931E-02
30.500	2.2753E-02	31.000	2.2571E-02	32.000	3.7348E-02
33.500	4.4259E-02	35.000	5.0913E-02	37.000	7.1257E-02
40.000	6.8930E-02	42.000	5.3890E-02	44.000	3.9490E-02
45.000	2.6024E-02	46.000	2.5725E-02	47.000	2.5432E-02
48.000	3.7714E-02	50.000	4.9161E-02	52.000	4.8079E-02
54.000	5.8805E-02	57.000	5.1281E-02	58.500	3.3669E-02

December 2023

60.000	2.7643E-02	61.000	2.1901E-02	62.000	2.1693E-02
63.000	2.6863E-02	64.500	3.1793E-02	66.000	3.6593E-02
68.000	5.1367E-02	71.000	6.0123E-02	74.000	5.8721E-02
77.000	5.7425E-02	80.000	5.6219E-02	83.000	5.5091E-02
86.000	5.4038E-02	89.000	5.3072E-02	92.000	5.2188E-02
95.000	4.2816E-02	97.000	2.3743E-02	97.800	8.4478E-03
98.000	1.0308E-02	99.000	2.5612E-02	101.000	3.3724E-02
103.000	3.3293E-02	105.000	4.9279E-02	109.000	7.1875E-02
114.000	6.1557E-02	117.000	3.7571E-02	119.000	2.9565E-02
121.000	2.1796E-02	122.000	1.4402E-02	123.000	1.7841E-02
124.500	2.1112E-02	126.000	2.4277E-02	128.000	3.0591E-02
130.500	2.9785E-02	132.500	2.9116E-02	135.000	4.7075E-02
140.000	5.8589E-02	145.000	5.3965E-02	150.000	4.8869E-02
155.000	4.3443E-02	160.000	0.0000E+00	165.000	0.0000E+00
170.000	0.0000E+00	175.000	0.0000E+00	180.000	0.0000E+00
185.000	0.0000E+00	190.000	0.0000E+00	195.000	0.0000E+00
200.000	0.0000E+00	205.000	0.0000E+00	210.000	0.0000E+00
213.000	0.0000E+00	215.000	0.0000E+00	217.000	0.0000E+00
218.500	0.0000E+00	219.700	0.0000E+00	220.000	0.0000E+00
221.000	0.0000E+00	223.000	0.0000E+00	225.000	0.0000E+00
228.000	0.0000E+00	231.000	0.0000E+00	234.000	0.0000E+00
237.000	0.0000E+00	240.000	0.0000E+00	243.000	0.0000E+00
246.000	0.0000E+00	248.000	0.0000E+00	249.500	0.0000E+00
250.200	0.0000E+00	251.000	0.0000E+00	252.000	0.0000E+00
254.000	0.0000E+00	257.000	0.0000E+00	260.000	0.0000E+00
265.000	0.0000E+00	273.000	0.0000E+00	280.000	0.0000E+00
290.000	0.0000E+00	315.000	0.0000E+00	325.000	0.0000E+00
350.000	0.0000E+00	375.000	0.0000E+00	400.000	0.0000E+00
420.000	0.0000E+00	440.000	0.0000E+00	455.000	0.0000E+00
470.000	0.0000E+00	480.000	0.0000E+00	488.000	0.0000E+00
495.000	0.0000E+00	500.000	0.0000E+00	505.000	0.0000E+00
509.000	0.0000E+00	512.000	0.0000E+00	515.000	0.0000E+00
517.000	0.0000E+00	518.000	0.0000E+00	519.000	0.0000E+00

Sensitivity Analysis #2: Shrub Vegetation Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\60_10s1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                46.984
 1 22.530 135.832  1.896 17.074  0.000  0.000  50.549  11924 -0.00548
 2 22.530 135.832  2.227 19.541  0.000  0.000  51.317  11965 -0.00603
 3 22.530 135.832  2.332 19.876  0.000  0.000  51.645  12028 -0.00606
 4 22.530 135.832  2.381 19.995  0.000  0.000  51.805  12006 -0.00594
 5 22.530 135.832  2.406 20.047  0.000  0.000  51.887  12013 -0.00604
 6 22.530 135.832  2.420 20.068  0.000  0.000  51.935  12028 -0.00613
 7 22.530 135.832  2.429 20.079  0.000  0.000  51.962  12031 -0.00617
 8 22.530 135.832  2.436 20.079  0.000  0.000  51.982  12024 -0.00589
 9 22.530 135.832  2.440 20.090  0.000  0.000  51.988  12011 -0.00607
10 22.530 135.832  2.442 20.092  0.000  0.000  51.989  11993 -0.00616
11 50.698 113.700  3.057 42.317  0.000  0.000  57.320  13050 -0.00701
12 50.698 113.759  3.443 44.800  0.000  0.000  59.781  12799 -0.00590
-----
SUM= 326.6951585.780 29.909 284.059  0.000  0.003                -0.07287
```


Sensitivity Analysis #2: No Vegetation Average Year

December 2023

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10NV.inp
Results File: c:\a\60_10nv1955.res
Date of Run: 19 Oct 2023
Time of Run: 14:14:23.04
Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	2.253E+03	0.0739	293.15	2	1.000E-01	1.911E+03	0.0775 293.15
3	3.000E-01	1.769E+03	0.0793	293.15	4	6.000E-01	1.800E+03	0.0789 293.15
5	1.000E+00	1.846E+03	0.0783	293.15	6	1.500E+00	1.839E+03	0.0784 293.15
7	2.200E+00	1.830E+03	0.0785	293.15	8	3.000E+00	1.827E+03	0.0785 293.15
9	4.000E+00	1.822E+03	0.0786	293.15	10	5.500E+00	1.813E+03	0.0787 293.15
11	7.500E+00	1.800E+03	0.0789	293.15	12	9.500E+00	1.786E+03	0.0790 293.15
13	1.200E+01	1.769E+03	0.0793	293.15	14	1.450E+01	1.752E+03	0.0795 293.15
15	1.750E+01	1.732E+03	0.0797	293.15	16	2.000E+01	1.716E+03	0.0799 293.15
17	2.200E+01	1.705E+03	0.0801	293.15	18	2.350E+01	1.698E+03	0.0802 293.15
19	2.500E+01	1.691E+03	0.0803	293.15	20	2.540E+01	1.689E+03	0.0803 293.15
21	2.600E+01	1.687E+03	0.2008	293.15	22	2.700E+01	1.686E+03	0.2009 293.15
23	2.850E+01	1.683E+03	0.2010	293.15	24	2.950E+01	1.682E+03	0.2010 293.15
25	3.050E+01	1.681E+03	0.2011	293.15	26	3.100E+01	1.681E+03	0.2011 293.15
27	3.200E+01	1.684E+03	0.2010	293.15	28	3.350E+01	1.693E+03	0.2007 293.15
29	3.500E+01	1.707E+03	0.2002	293.15	30	3.700E+01	1.733E+03	0.1993 293.15
31	4.000E+01	1.785E+03	0.1976	293.15	32	4.200E+01	1.825E+03	0.1964 293.15
33	4.400E+01	1.870E+03	0.1950	293.15	34	4.500E+01	1.894E+03	0.1943 293.15
35	4.600E+01	1.917E+03	0.1936	293.15	36	4.700E+01	1.942E+03	0.1929 293.15
37	4.800E+01	1.966E+03	0.1922	293.15	38	5.000E+01	2.013E+03	0.1909 293.15
39	5.200E+01	2.058E+03	0.1897	293.15	40	5.400E+01	2.100E+03	0.1886 293.15
41	5.700E+01	2.153E+03	0.1872	293.15	42	5.850E+01	2.175E+03	0.1867 293.15
43	6.000E+01	2.195E+03	0.1862	293.15	44	6.100E+01	2.207E+03	0.1859 293.15
45	6.200E+01	2.218E+03	0.1856	293.15	46	6.300E+01	2.228E+03	0.1854 293.15
47	6.450E+01	2.242E+03	0.1851	293.15	48	6.600E+01	2.254E+03	0.1848 293.15
49	6.800E+01	2.269E+03	0.1844	293.15	50	7.100E+01	2.290E+03	0.1839 293.15
51	7.400E+01	2.310E+03	0.1835	293.15	52	7.700E+01	2.332E+03	0.1830 293.15
53	8.000E+01	2.356E+03	0.1824	293.15	54	8.300E+01	2.381E+03	0.1819 293.15
55	8.600E+01	2.408E+03	0.1813	293.15	56	8.900E+01	2.436E+03	0.1807 293.15
57	9.200E+01	2.464E+03	0.1801	293.15	58	9.500E+01	2.493E+03	0.1795 293.15
59	9.700E+01	2.511E+03	0.1791	293.15	60	9.780E+01	2.518E+03	0.1789 293.15
61	9.800E+01	2.523E+03	0.2188	293.15	62	9.900E+01	2.580E+03	0.2176 293.15
63	1.010E+02	2.699E+03	0.2153	293.15	64	1.030E+02	2.821E+03	0.2131 293.15

December 2023

65 1.050E+02 2.942E+03 0.2110 293.15	66 1.090E+02 3.166E+03 0.2073 293.15
67 1.140E+02 3.392E+03 0.2040 293.15	68 1.170E+02 3.501E+03 0.2024 293.15
69 1.190E+02 3.565E+03 0.2016 293.15	70 1.210E+02 3.623E+03 0.2008 293.15
71 1.220E+02 3.651E+03 0.2004 293.15	72 1.230E+02 3.678E+03 0.2001 293.15
73 1.245E+02 3.716E+03 0.1996 293.15	74 1.260E+02 3.754E+03 0.1991 293.15
75 1.280E+02 3.803E+03 0.1985 293.15	76 1.305E+02 3.865E+03 0.1977 293.15
77 1.325E+02 3.916E+03 0.1971 293.15	78 1.350E+02 3.981E+03 0.1963 293.15
79 1.400E+02 4.121E+03 0.1947 293.15	80 1.450E+02 4.279E+03 0.1930 293.15
81 1.500E+02 4.458E+03 0.1911 293.15	82 1.550E+02 4.658E+03 0.1891 293.15
83 1.600E+02 4.882E+03 0.1870 293.15	84 1.650E+02 5.130E+03 0.1848 293.15
85 1.700E+02 5.401E+03 0.1825 293.15	86 1.750E+02 5.696E+03 0.1802 293.15
87 1.800E+02 6.011E+03 0.1778 293.15	88 1.850E+02 6.345E+03 0.1755 293.15
89 1.900E+02 6.695E+03 0.1733 293.15	90 1.950E+02 7.057E+03 0.1711 293.15
91 2.000E+02 7.426E+03 0.1690 293.15	92 2.050E+02 7.798E+03 0.1670 293.15
93 2.100E+02 8.168E+03 0.1652 293.15	94 2.130E+02 8.386E+03 0.1641 293.15
95 2.150E+02 8.530E+03 0.1634 293.15	96 2.170E+02 8.672E+03 0.1628 293.15
97 2.185E+02 8.776E+03 0.1623 293.15	98 2.197E+02 8.859E+03 0.1619 293.15
99 2.200E+02 8.869E+03 0.1241 293.15	100 2.210E+02 8.883E+03 0.1241 293.15
101 2.230E+02 8.911E+03 0.1240 293.15	102 2.250E+02 8.937E+03 0.1239 293.15
103 2.280E+02 8.973E+03 0.1237 293.15	104 2.310E+02 9.007E+03 0.1236 293.15
105 2.340E+02 9.037E+03 0.1235 293.15	106 2.370E+02 9.064E+03 0.1234 293.15
107 2.400E+02 9.087E+03 0.1233 293.15	108 2.430E+02 9.108E+03 0.1232 293.15
109 2.460E+02 9.125E+03 0.1231 293.15	110 2.480E+02 9.134E+03 0.1231 293.15
111 2.495E+02 9.141E+03 0.1231 293.15	112 2.502E+02 9.143E+03 0.1231 293.15
113 2.510E+02 9.153E+03 0.0546 293.15	114 2.520E+02 9.192E+03 0.0545 293.15
115 2.540E+02 9.265E+03 0.0544 293.15	116 2.570E+02 9.367E+03 0.0542 293.15
117 2.600E+02 9.459E+03 0.0540 293.15	118 2.650E+02 9.590E+03 0.0537 293.15
119 2.730E+02 9.745E+03 0.0535 293.15	120 2.800E+02 9.839E+03 0.0533 293.15
121 2.900E+02 9.922E+03 0.0531 293.15	122 3.150E+02 9.981E+03 0.0530 293.15
123 3.250E+02 9.991E+03 0.0530 293.15	124 3.500E+02 9.998E+03 0.0530 293.15
125 3.750E+02 9.999E+03 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 56.4772 cm

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000

December 2023

Water (cm³/cm³) = 0.07084
Head (cm) = 2.60843E+03
LiqWater Flow (cm)=-6.82238E-02
IsoVapor Flow (cm)=-2.22559E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.4772+ 0.0000+ 0.0000 - 0.0684- 0.0000- 0.0000 = 56.4088 vs. 56.4088

Mass Balance = -1.2388E-06 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0684 cm, Actual = 0.0684 cm

DAILY SUMMARY: Day = 365, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.07394
Head (cm) = 2.24998E+03
LiqWater Flow (cm)=-3.96633E-02
IsoVapor Flow (cm)=-1.51275E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.8140+ 0.0000+ 0.0000 - 0.0397- 0.0000- 0.0000 = 56.7743 vs. 56.7743

Mass Balance = -6.9421E-07 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0397 cm, Actual = 0.0397 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:
ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 0
Potential Evapotranspiration = 1.3583E+02 [cm]
Potential Transpiration = 0.0000E+00 [cm]
Actual Transpiration = 0.0000E+00 [cm]
Potential Evaporation = 1.3583E+02 [cm]
Actual Evaporation = 2.2238E+01 [cm]
Evaporation during Growth = 0.0000E+00 [cm]

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Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 2.2530E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5217E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 2.2530E+01 [cm]
 Actual Rainfall = 2.2530E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 5.6774E+01 [cm]
 Mass Balance Error = -5.9150E-03 [cm]
 Total Successful Time Steps = 11950
 Total Attempted Time Steps = 13587
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 6236
 Total Time Actually Simulated = 3.6500E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6500E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.9147E-01	0.050	7.2516E-01	0.200	4.1838E-01
0.450	3.3605E-01	0.800	3.2428E-01	1.250	3.1664E-01
1.850	3.1091E-01	2.600	3.0682E-01	3.500	3.0401E-01
4.750	3.0185E-01	6.500	3.0022E-01	8.500	2.9921E-01
10.750	2.9857E-01	13.250	2.9814E-01	16.000	2.9782E-01
18.750	2.9760E-01	21.000	2.9745E-01	22.750	2.9735E-01
24.250	2.9727E-01	25.200	2.9722E-01	25.700	2.9717E-01
26.500	2.9710E-01	27.750	2.9702E-01	29.000	2.9694E-01
30.000	2.9688E-01	30.750	2.9735E-01	31.500	2.9870E-01
32.750	2.9824E-01	34.250	2.9781E-01	36.000	2.9742E-01
38.500	2.9699E-01	41.000	2.9661E-01	43.000	2.9633E-01
44.500	2.9612E-01	45.500	2.9598E-01	46.500	2.9585E-01
47.500	2.9571E-01	49.000	2.9550E-01	51.000	2.9522E-01
53.000	2.9493E-01	55.500	2.9455E-01	57.750	2.9420E-01
59.250	2.9396E-01	60.500	2.9376E-01	61.500	2.9360E-01
62.500	2.9343E-01	63.750	2.9322E-01	65.250	2.9296E-01
67.000	2.9266E-01	69.500	2.9220E-01	72.500	2.9163E-01
75.500	2.9103E-01	78.500	2.9039E-01	81.500	2.8971E-01
84.500	2.8899E-01	87.500	2.8824E-01	90.500	2.8744E-01
93.500	2.8659E-01	96.000	2.8586E-01	97.400	2.8544E-01
97.900	2.8524E-01	98.500	2.8497E-01	100.000	2.8446E-01
102.000	2.8369E-01	104.000	2.8282E-01	107.000	2.8138E-01
111.500	2.7879E-01	115.500	2.7604E-01	118.000	2.7416E-01
120.000	2.7257E-01	121.500	2.7131E-01	122.500	2.7044E-01
123.750	2.6933E-01	125.250	2.6795E-01	127.000	2.6627E-01
129.250	2.6401E-01	131.500	2.6160E-01	133.750	2.5907E-01
137.500	2.5460E-01	142.500	2.4793E-01	147.500	2.4049E-01
152.500	2.3227E-01	157.500	2.2322E-01	162.500	2.1336E-01

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167.500	2.0269E-01	172.500	1.9126E-01	177.500	1.7916E-01
182.500	1.6651E-01	187.500	1.5344E-01	192.500	1.4015E-01
197.500	1.2685E-01	202.500	1.1376E-01	207.500	1.0114E-01
211.500	9.1601E-02	214.000	8.5895E-02	216.000	8.1483E-02
217.750	7.7763E-02	219.100	7.4978E-02	219.850	7.4060E-02
220.500	7.3159E-02	222.000	7.0420E-02	224.000	6.6799E-02
226.500	6.2313E-02	229.500	5.7003E-02	232.500	5.1765E-02
235.500	4.6596E-02	238.500	4.1496E-02	241.500	3.6462E-02
244.500	3.1491E-02	247.000	2.7400E-02	248.750	2.4558E-02
249.850	2.2782E-02	250.600	2.1305E-02	251.500	1.9478E-02
253.000	1.8205E-02	255.500	1.6215E-02	258.500	1.4060E-02
262.500	1.1501E-02	269.000	8.1329E-03	276.500	5.4727E-03
285.000	3.4248E-03	302.500	1.1760E-03	320.000	6.2003E-04
337.500	3.5625E-04	362.500	2.7602E-04	387.500	2.5807E-04
410.000	2.5398E-04	430.000	2.5277E-04	447.500	2.5240E-04
462.500	2.5227E-04	475.000	2.5222E-04	484.000	2.5220E-04
491.500	2.5219E-04	497.500	2.5218E-04	502.500	2.5218E-04
507.000	2.5218E-04	510.500	2.5218E-04	513.500	2.5218E-04
516.000	2.5217E-04	517.500	2.5217E-04	518.500	2.5217E-04
519.000	2.5217E-04				

Sensitivity Analysis #2: No Vegetation Wet Year 1

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INITIAL CONDITIONS

Input File: c:\a\60_10NV.inp

Results File: c:\a\60_10nv1956.res

Date of Run: 19 Oct 2023

Time of Run: 14:14:23.04

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions					Initial Conditions				
-----					-----				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA	TEMP
	(cm)	(cm)	(vol.)	(K)		(cm)	(cm)	(vol.)	(K)

1	0.000E+00	2.250E+03	0.0739	293.15	2	1.000E-01	1.909E+03	0.0775	293.15
3	3.000E-01	1.767E+03	0.0793	293.15	4	6.000E-01	1.798E+03	0.0789	293.15
5	1.000E+00	1.844E+03	0.0783	293.15	6	1.500E+00	1.838E+03	0.0784	293.15
7	2.200E+00	1.829E+03	0.0785	293.15	8	3.000E+00	1.825E+03	0.0785	293.15
9	4.000E+00	1.820E+03	0.0786	293.15	10	5.500E+00	1.811E+03	0.0787	293.15
11	7.500E+00	1.798E+03	0.0789	293.15	12	9.500E+00	1.785E+03	0.0791	293.15
13	1.200E+01	1.767E+03	0.0793	293.15	14	1.450E+01	1.750E+03	0.0795	293.15
15	1.750E+01	1.730E+03	0.0798	293.15	16	2.000E+01	1.715E+03	0.0800	293.15
17	2.200E+01	1.704E+03	0.0801	293.15	18	2.350E+01	1.696E+03	0.0802	293.15
19	2.500E+01	1.689E+03	0.0803	293.15	20	2.540E+01	1.688E+03	0.0803	293.15
21	2.600E+01	1.686E+03	0.2009	293.15	22	2.700E+01	1.684E+03	0.2010	293.15
23	2.850E+01	1.682E+03	0.2010	293.15	24	2.950E+01	1.680E+03	0.2011	293.15
25	3.050E+01	1.679E+03	0.2011	293.15	26	3.100E+01	1.679E+03	0.2011	293.15

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27 3.200E+01 1.682E+03 0.2010 293.15	28 3.350E+01 1.691E+03 0.2007 293.15
29 3.500E+01 1.705E+03 0.2002 293.15	30 3.700E+01 1.731E+03 0.1994 293.15
31 4.000E+01 1.782E+03 0.1977 293.15	32 4.200E+01 1.823E+03 0.1964 293.15
33 4.400E+01 1.867E+03 0.1951 293.15	34 4.500E+01 1.890E+03 0.1944 293.15
35 4.600E+01 1.914E+03 0.1937 293.15	36 4.700E+01 1.938E+03 0.1930 293.15
37 4.800E+01 1.962E+03 0.1923 293.15	38 5.000E+01 2.009E+03 0.1910 293.15
39 5.200E+01 2.054E+03 0.1898 293.15	40 5.400E+01 2.095E+03 0.1887 293.15
41 5.700E+01 2.147E+03 0.1874 293.15	42 5.850E+01 2.170E+03 0.1868 293.15
43 6.000E+01 2.189E+03 0.1863 293.15	44 6.100E+01 2.201E+03 0.1861 293.15
45 6.200E+01 2.212E+03 0.1858 293.15	46 6.300E+01 2.222E+03 0.1856 293.15
47 6.450E+01 2.235E+03 0.1852 293.15	48 6.600E+01 2.247E+03 0.1849 293.15
49 6.800E+01 2.262E+03 0.1846 293.15	50 7.100E+01 2.282E+03 0.1841 293.15
51 7.400E+01 2.302E+03 0.1837 293.15	52 7.700E+01 2.323E+03 0.1832 293.15
53 8.000E+01 2.346E+03 0.1827 293.15	54 8.300E+01 2.370E+03 0.1821 293.15
55 8.600E+01 2.396E+03 0.1815 293.15	56 8.900E+01 2.424E+03 0.1809 293.15
57 9.200E+01 2.451E+03 0.1803 293.15	58 9.500E+01 2.479E+03 0.1798 293.15
59 9.700E+01 2.496E+03 0.1794 293.15	60 9.780E+01 2.503E+03 0.1792 293.15
61 9.800E+01 2.508E+03 0.2191 293.15	62 9.900E+01 2.564E+03 0.2179 293.15
63 1.010E+02 2.680E+03 0.2157 293.15	64 1.030E+02 2.798E+03 0.2135 293.15
65 1.050E+02 2.914E+03 0.2114 293.15	66 1.090E+02 3.130E+03 0.2079 293.15
67 1.140E+02 3.344E+03 0.2046 293.15	68 1.170E+02 3.447E+03 0.2032 293.15
69 1.190E+02 3.507E+03 0.2023 293.15	70 1.210E+02 3.561E+03 0.2016 293.15
71 1.220E+02 3.586E+03 0.2013 293.15	72 1.230E+02 3.610E+03 0.2010 293.15
73 1.245E+02 3.646E+03 0.2005 293.15	74 1.260E+02 3.680E+03 0.2000 293.15
75 1.280E+02 3.724E+03 0.1995 293.15	76 1.305E+02 3.779E+03 0.1988 293.15
77 1.325E+02 3.824E+03 0.1982 293.15	78 1.350E+02 3.882E+03 0.1975 293.15
79 1.400E+02 4.006E+03 0.1960 293.15	80 1.450E+02 4.145E+03 0.1944 293.15
81 1.500E+02 4.302E+03 0.1927 293.15	82 1.550E+02 4.478E+03 0.1909 293.15
83 1.600E+02 4.674E+03 0.1889 293.15	84 1.650E+02 4.892E+03 0.1869 293.15
85 1.700E+02 5.130E+03 0.1847 293.15	86 1.750E+02 5.390E+03 0.1826 293.15

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87 1.800E+02 5.670E+03 0.1804 293.15	88 1.850E+02 5.969E+03 0.1781 293.15
89 1.900E+02 6.287E+03 0.1759 293.15	90 1.950E+02 6.621E+03 0.1737 293.15
91 2.000E+02 6.970E+03 0.1716 293.15	92 2.050E+02 7.330E+03 0.1695 293.15
93 2.100E+02 7.698E+03 0.1675 293.15	94 2.130E+02 7.920E+03 0.1664 293.15
95 2.150E+02 8.069E+03 0.1656 293.15	96 2.170E+02 8.218E+03 0.1649 293.15
97 2.185E+02 8.329E+03 0.1644 293.15	98 2.197E+02 8.418E+03 0.1640 293.15
99 2.200E+02 8.428E+03 0.1260 293.15	100 2.210E+02 8.443E+03 0.1259 293.15
101 2.230E+02 8.473E+03 0.1258 293.15	102 2.250E+02 8.501E+03 0.1257 293.15
103 2.280E+02 8.541E+03 0.1255 293.15	104 2.310E+02 8.578E+03 0.1254 293.15
105 2.340E+02 8.611E+03 0.1252 293.15	106 2.370E+02 8.642E+03 0.1251 293.15
107 2.400E+02 8.670E+03 0.1250 293.15	108 2.430E+02 8.694E+03 0.1249 293.15
109 2.460E+02 8.715E+03 0.1248 293.15	110 2.480E+02 8.727E+03 0.1247 293.15
111 2.495E+02 8.735E+03 0.1247 293.15	112 2.502E+02 8.739E+03 0.1247 293.15
113 2.510E+02 8.751E+03 0.0555 293.15	114 2.520E+02 8.796E+03 0.0554 293.15
115 2.540E+02 8.885E+03 0.0552 293.15	116 2.570E+02 9.011E+03 0.0549 293.15
117 2.600E+02 9.131E+03 0.0547 293.15	118 2.650E+02 9.310E+03 0.0543 293.15
119 2.730E+02 9.541E+03 0.0538 293.15	120 2.800E+02 9.694E+03 0.0535 293.15
121 2.900E+02 9.841E+03 0.0533 293.15	122 3.150E+02 9.961E+03 0.0531 293.15
123 3.250E+02 9.981E+03 0.0530 293.15	124 3.500E+02 9.996E+03 0.0530 293.15
125 3.750E+02 9.999E+03 0.0530 293.15	126 4.000E+02 1.000E+04 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 56.7743 cm

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.07278

Head (cm) = 2.37719E+03

LiqWater Flow (cm)=-4.42266E-02

IsoVapor Flow (cm)=-1.49941E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

56.7743+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 56.7300 vs. 56.7300

Mass Balance = -7.7209E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1

Depth (cm) = 0.00000

Water (cm³/cm³) = 0.08311

Head (cm) = 1.49821E+03

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LiqWater Flow (cm)=-1.03766E-04

IsoVapor Flow (cm)=-1.29928E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

62.1864+ 0.0000+ 0.0000 - 0.0000- 0.0000- 0.0000 = 62.1864 vs. 62.1864

Mass Balance = -1.7753E-07 cm; Time step attempts = 24 and successes = 24

Evaporation: Potential = 0.0000 cm, Actual = 0.0000 cm

1

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SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 0

Potential Evapotranspiration = 1.1370E+02 [cm]

Potential Transpiration = 0.0000E+00 [cm]

Actual Transpiration = 0.0000E+00 [cm]

Potential Evaporation = 1.1370E+02 [cm]

Actual Evaporation = 4.5293E+01 [cm]

Evaporation during Growth = 0.0000E+00 [cm]

Total Runoff = 0.0000E+00 [cm]

Total Infiltration = 5.0698E+01 [cm]

Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]

December 2023

Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.2186E+01 [cm]
 Mass Balance Error = -6.5437E-03 [cm]
 Total Successful Time Steps = 12980
 Total Attempted Time Steps = 14711
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3661
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	5.4059E+00	0.050	5.4830E+00	0.200	5.4196E+00
0.450	5.4137E+00	0.800	5.4073E+00	1.250	5.3998E+00
1.850	5.3910E+00	2.600	5.3810E+00	3.500	5.3694E+00
4.750	5.3534E+00	6.500	5.3315E+00	8.500	5.3069E+00
10.750	5.2797E+00	13.250	5.2501E+00	16.000	5.2182E+00
18.750	5.1871E+00	21.000	5.1623E+00	22.750	5.1433E+00
24.250	5.1273E+00	25.200	5.1172E+00	25.700	5.1120E+00
26.500	5.0910E+00	27.750	5.0584E+00	29.000	5.0258E+00
30.000	4.9998E+00	30.750	4.9805E+00	31.500	4.9616E+00
32.750	4.9298E+00	34.250	4.8930E+00	36.000	4.8513E+00
38.500	4.7938E+00	41.000	4.7387E+00	43.000	4.6954E+00
44.500	4.6632E+00	45.500	4.6417E+00	46.500	4.6201E+00

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47.500	4.5984E+00	49.000	4.5655E+00	51.000	4.5206E+00
53.000	4.4741E+00	55.500	4.4137E+00	57.750	4.3559E+00
59.250	4.3161E+00	60.500	4.2820E+00	61.500	4.2542E+00
62.500	4.2259E+00	63.750	4.1898E+00	65.250	4.1454E+00
67.000	4.0924E+00	69.500	4.0143E+00	72.500	3.9164E+00
75.500	3.8147E+00	78.500	3.7092E+00	81.500	3.6001E+00
84.500	3.4874E+00	87.500	3.3714E+00	90.500	3.2522E+00
93.500	3.1300E+00	96.000	3.0259E+00	97.400	2.9669E+00
97.900	2.9456E+00	98.500	2.9210E+00	100.000	2.8578E+00
102.000	2.7687E+00	104.000	2.6753E+00	107.000	2.5296E+00
111.500	2.2990E+00	115.500	2.0888E+00	118.000	1.9576E+00
120.000	1.8536E+00	121.500	1.7765E+00	122.500	1.7255E+00
123.750	1.6623E+00	125.250	1.5876E+00	127.000	1.5021E+00
129.250	1.3949E+00	131.500	1.2920E+00	133.750	1.1926E+00
137.500	1.0353E+00	142.500	8.5043E-01	147.500	6.9281E-01
152.500	5.6314E-01	157.500	4.5979E-01	162.500	3.7910E-01
167.500	3.1654E-01	172.500	2.6798E-01	177.500	2.3021E-01
182.500	2.0074E-01	187.500	1.7748E-01	192.500	1.5862E-01
197.500	1.4268E-01	202.500	1.2860E-01	207.500	1.1570E-01
211.500	1.0603E-01	214.000	1.0020E-01	216.000	9.5641E-02
217.750	9.1753E-02	219.100	8.8811E-02	219.850	8.7811E-02
220.500	8.6835E-02	222.000	8.3897E-02	224.000	8.0000E-02
226.500	7.5155E-02	229.500	6.9387E-02	232.500	6.3666E-02
235.500	5.7993E-02	238.500	5.2370E-02	241.500	4.6796E-02
244.500	4.1273E-02	247.000	3.6713E-02	248.750	3.3540E-02
249.850	3.1556E-02	250.600	2.9900E-02	251.500	2.7833E-02
253.000	2.6295E-02	255.500	2.3841E-02	258.500	2.1103E-02
262.500	1.7751E-02	269.000	1.3111E-02	276.500	9.1618E-03
285.000	5.9278E-03	302.500	2.0645E-03	320.000	1.0042E-03
337.500	4.7246E-04	362.500	3.0180E-04	387.500	2.6415E-04

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410.000	2.5613E-04	430.000	2.5392E-04	447.500	2.5327E-04
462.500	2.5303E-04	475.000	2.5295E-04	484.000	2.5291E-04
491.500	2.5289E-04	497.500	2.5288E-04	502.500	2.5288E-04
507.000	2.5287E-04	510.500	2.5287E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5286E-04
519.000	2.5286E-04				

Sensitivity Analysis #2: No Vegetation Wet Year 2

UNSAT-H Version 3.01
INITIAL CONDITIONS

Input File: c:\a\60_10NV.inp

Results File: c:\a\60_10nv1957.res

Date of Run: 19 Oct 2023

Time of Run: 14:14:23.04

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Initial Conditions				Initial Conditions				
NODE	DEPTH	HEAD	THETA	TEMP	NODE	DEPTH	HEAD	THETA
TEMP	(cm)	(cm)	(vol.) (K)	(cm)	(cm)	(vol.) (K)		
1	0.000E+00	1.498E+03	0.0831	293.15	2	1.000E-01	1.274E+03	0.0870 293.15
3	3.000E-01	1.098E+03	0.0907	293.15	4	6.000E-01	1.032E+03	0.0923 293.15
5	1.000E+00	1.035E+03	0.0922	293.15	6	1.500E+00	1.072E+03	0.0913 293.15
7	2.200E+00	1.092E+03	0.0909	293.15	8	3.000E+00	1.088E+03	0.0909 293.15
9	4.000E+00	1.082E+03	0.0911	293.15	10	5.500E+00	1.081E+03	0.0911 293.15
11	7.500E+00	1.081E+03	0.0911	293.15	12	9.500E+00	1.081E+03	0.0911 293.15
13	1.200E+01	1.081E+03	0.0911	293.15	14	1.450E+01	1.082E+03	0.0911 293.15
15	1.750E+01	1.084E+03	0.0911	293.15	16	2.000E+01	1.086E+03	0.0910 293.15
17	2.200E+01	1.088E+03	0.0910	293.15	18	2.350E+01	1.090E+03	0.0909 293.15
19	2.500E+01	1.092E+03	0.0909	293.15	20	2.540E+01	1.093E+03	0.0908 293.15
21	2.600E+01	1.093E+03	0.2271	293.15	22	2.700E+01	1.093E+03	0.2271 293.15
23	2.850E+01	1.093E+03	0.2271	293.15	24	2.950E+01	1.093E+03	0.2271 293.15
25	3.050E+01	1.093E+03	0.2271	293.15	26	3.100E+01	1.095E+03	0.2270 293.15
27	3.200E+01	1.107E+03	0.2263	293.15	28	3.350E+01	1.126E+03	0.2252 293.15
29	3.500E+01	1.148E+03	0.2240	293.15	30	3.700E+01	1.179E+03	0.2223 293.15
31	4.000E+01	1.230E+03	0.2197	293.15	32	4.200E+01	1.263E+03	0.2181 293.15
33	4.400E+01	1.295E+03	0.2166	293.15	34	4.500E+01	1.309E+03	0.2159 293.15
35	4.600E+01	1.323E+03	0.2153	293.15	36	4.700E+01	1.335E+03	0.2147 293.15
37	4.800E+01	1.345E+03	0.2142	293.15	38	5.000E+01	1.362E+03	0.2135 293.15
39	5.200E+01	1.372E+03	0.2131	293.15	40	5.400E+01	1.376E+03	0.2129 293.15
41	5.700E+01	1.371E+03	0.2131	293.15	42	5.850E+01	1.366E+03	0.2133 293.15
43	6.000E+01	1.359E+03	0.2136	293.15	44	6.100E+01	1.354E+03	0.2139 293.15
45	6.200E+01	1.348E+03	0.2141	293.15	46	6.300E+01	1.342E+03	0.2144 293.15
47	6.450E+01	1.333E+03	0.2148	293.15	48	6.600E+01	1.323E+03	0.2153 293.15
49	6.800E+01	1.310E+03	0.2158	293.15	50	7.100E+01	1.291E+03	0.2167 293.15
51	7.400E+01	1.274E+03	0.2176	293.15	52	7.700E+01	1.258E+03	0.2183 293.15
53	8.000E+01	1.244E+03	0.2190	293.15	54	8.300E+01	1.231E+03	0.2197 293.15
55	8.600E+01	1.220E+03	0.2202	293.15	56	8.900E+01	1.211E+03	0.2207 293.15
57	9.200E+01	1.203E+03	0.2211	293.15	58	9.500E+01	1.197E+03	0.2214 293.15
59	9.700E+01	1.194E+03	0.2216	293.15	60	9.780E+01	1.193E+03	0.2216 293.15

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61 9.800E+01 1.192E+03 0.2599 293.15	62 9.900E+01 1.189E+03 0.2600 293.15
63 1.010E+02 1.186E+03 0.2602 293.15	64 1.030E+02 1.186E+03 0.2602 293.15
65 1.050E+02 1.190E+03 0.2600 293.15	66 1.090E+02 1.208E+03 0.2591 293.15
67 1.140E+02 1.249E+03 0.2572 293.15	68 1.170E+02 1.284E+03 0.2556 293.15
69 1.190E+02 1.312E+03 0.2544 293.15	70 1.210E+02 1.344E+03 0.2530 293.15
71 1.220E+02 1.361E+03 0.2523 293.15	72 1.230E+02 1.380E+03 0.2515 293.15
73 1.245E+02 1.410E+03 0.2503 293.15	74 1.260E+02 1.443E+03 0.2489 293.15
75 1.280E+02 1.492E+03 0.2471 293.15	76 1.305E+02 1.561E+03 0.2445 293.15
77 1.325E+02 1.623E+03 0.2424 293.15	78 1.350E+02 1.711E+03 0.2394 293.15
79 1.400E+02 1.926E+03 0.2330 293.15	80 1.450E+02 2.197E+03 0.2260 293.15
81 1.500E+02 2.528E+03 0.2186 293.15	82 1.550E+02 2.908E+03 0.2115 293.15
83 1.600E+02 3.316E+03 0.2051 293.15	84 1.650E+02 3.731E+03 0.1994 293.15
85 1.700E+02 4.143E+03 0.1945 293.15	86 1.750E+02 4.553E+03 0.1901 293.15
87 1.800E+02 4.961E+03 0.1862 293.15	88 1.850E+02 5.364E+03 0.1828 293.15
89 1.900E+02 5.758E+03 0.1797 293.15	90 1.950E+02 6.141E+03 0.1769 293.15
91 2.000E+02 6.516E+03 0.1744 293.15	92 2.050E+02 6.886E+03 0.1721 293.15
93 2.100E+02 7.255E+03 0.1699 293.15	94 2.130E+02 7.478E+03 0.1687 293.15
95 2.150E+02 7.627E+03 0.1679 293.15	96 2.170E+02 7.776E+03 0.1671 293.15
97 2.185E+02 7.888E+03 0.1666 293.15	98 2.197E+02 7.977E+03 0.1661 293.15
99 2.200E+02 7.988E+03 0.1280 293.15	100 2.210E+02 8.003E+03 0.1279 293.15
101 2.230E+02 8.033E+03 0.1278 293.15	102 2.250E+02 8.061E+03 0.1276 293.15
103 2.280E+02 8.102E+03 0.1274 293.15	104 2.310E+02 8.139E+03 0.1273 293.15
105 2.340E+02 8.175E+03 0.1271 293.15	106 2.370E+02 8.207E+03 0.1270 293.15
107 2.400E+02 8.236E+03 0.1268 293.15	108 2.430E+02 8.263E+03 0.1267 293.15
109 2.460E+02 8.286E+03 0.1266 293.15	110 2.480E+02 8.300E+03 0.1265 293.15
111 2.495E+02 8.310E+03 0.1265 293.15	112 2.502E+02 8.314E+03 0.1265 293.15
113 2.510E+02 8.328E+03 0.0566 293.15	114 2.520E+02 8.376E+03 0.0565 293.15
115 2.540E+02 8.471E+03 0.0562 293.15	116 2.570E+02 8.611E+03 0.0559 293.15
117 2.600E+02 8.747E+03 0.0555 293.15	118 2.650E+02 8.962E+03 0.0550 293.15
119 2.730E+02 9.263E+03 0.0544 293.15	120 2.800E+02 9.479E+03 0.0540 293.15
121 2.900E+02 9.708E+03 0.0535 293.15	122 3.150E+02 9.923E+03 0.0531 293.15
123 3.250E+02 9.962E+03 0.0531 293.15	124 3.500E+02 9.991E+03 0.0530 293.15
125 3.750E+02 9.998E+03 0.0530 293.15	126 4.000E+02 9.999E+03 0.0530 293.15
127 4.200E+02 1.000E+04 0.0530 293.15	128 4.400E+02 1.000E+04 0.0530 293.15
129 4.550E+02 1.000E+04 0.0530 293.15	130 4.700E+02 1.000E+04 0.0530 293.15
131 4.800E+02 1.000E+04 0.0530 293.15	132 4.880E+02 1.000E+04 0.0530 293.15
133 4.950E+02 1.000E+04 0.0530 293.15	134 5.000E+02 1.000E+04 0.0530 293.15
135 5.050E+02 1.000E+04 0.0530 293.15	136 5.090E+02 1.000E+04 0.0530 293.15
137 5.120E+02 1.000E+04 0.0530 293.15	138 5.150E+02 1.000E+04 0.0530 293.15
139 5.170E+02 1.000E+04 0.0530 293.15	140 5.180E+02 1.000E+04 0.0530 293.15
141 5.190E+02 1.000E+04 0.0530 293.15	

Initial Water Storage = 62.1864 cm

DAILY SUMMARY: Day = 1, Simulated Time = 24.0000 hr

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Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.08144
Head (cm) = 1.60926E+03
LiqWater Flow (cm)=-4.42031E-02
IsoVapor Flow (cm)=-1.29165E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

62.1864+ 0.0000+ 0.0000 - 0.0443- 0.0000- 0.0000 = 62.1421 vs. 62.1421

Mass Balance = -8.2411E-07 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0443 cm, Actual = 0.0443 cm

DAILY SUMMARY: Day = 366, Simulated Time = 24.0000 hr

Node Number = 1
Depth (cm) = 0.00000
Water (cm³/cm³) = 0.08335
Head (cm) = 1.48318E+03
LiqWater Flow (cm)=-5.84444E-02
IsoVapor Flow (cm)=-1.30577E-05

LIQUID

PRESTOR INFIL RUNOFF EVAPO TRANS DRAIN NEWSTOR
STORAGE

65.0144+ 0.0000+ 0.0000 - 0.0585- 0.0000- 0.0000 = 64.9559 vs. 64.9559

Mass Balance = -1.2017E-06 cm; Time step attempts = 24 and successes = 24
Evaporation: Potential = 0.0585 cm, Actual = 0.0585 cm

1

UNSAT-H Version 3.01
SIMULATION SUMMARY

Title:

ET Cover - Crescent Junction with 10 average years (1946) followed by 2 wet yea

Transpiration Scheme is: = 0
Potential Evapotranspiration = 1.1376E+02 [cm]
Potential Transpiration = 0.0000E+00 [cm]
Actual Transpiration = 0.0000E+00 [cm]
Potential Evaporation = 1.1376E+02 [cm]

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Actual Evaporation = 4.7934E+01 [cm]
 Evaporation during Growth = 0.0000E+00 [cm]
 Total Runoff = 0.0000E+00 [cm]
 Total Infiltration = 5.0698E+01 [cm]
 Total Basal Liquid Flux (drainage) = 2.5286E-04 [cm]
 Total Basal Vapor Flux (temp-grad) = 0.0000E+00 [cm]
 Total Applied Water = 5.0698E+01 [cm]
 Actual Rainfall = 5.0698E+01 [cm]
 Actual Irrigation = 0.0000E+00 [cm]
 Total Final Moisture Storage = 6.4956E+01 [cm]
 Mass Balance Error = -5.5630E-03 [cm]
 Total Successful Time Steps = 12828
 Total Attempted Time Steps = 14419
 Total Time Step Reductions (DHMAX) = 0
 Total Changes in Surface Boundary = 3457
 Total Time Actually Simulated = 3.6600E+02 [days]

Total liquid water flow (cm) across different depths at the end of 3.6600E+02 days:

DEPTH	FLOW	DEPTH	FLOW	DEPTH	FLOW
0.000	2.7641E+00	0.050	2.8298E+00	0.200	2.7776E+00
0.450	2.7749E+00	0.800	2.7733E+00	1.250	2.7720E+00
1.850	2.7708E+00	2.600	2.7698E+00	3.500	2.7690E+00
4.750	2.7682E+00	6.500	2.7671E+00	8.500	2.7658E+00
10.750	2.7643E+00	13.250	2.7623E+00	16.000	2.7597E+00
18.750	2.7567E+00	21.000	2.7538E+00	22.750	2.7514E+00
24.250	2.7492E+00	25.200	2.7477E+00	25.700	2.7469E+00
26.500	2.7437E+00	27.750	2.7387E+00	29.000	2.7335E+00
30.000	2.7293E+00	30.750	2.7263E+00	31.500	2.7236E+00
32.750	2.7176E+00	34.250	2.7098E+00	36.000	2.6998E+00
38.500	2.6843E+00	41.000	2.6673E+00	43.000	2.6531E+00
44.500	2.6423E+00	45.500	2.6350E+00	46.500	2.6277E+00
47.500	2.6205E+00	49.000	2.6096E+00	51.000	2.5955E+00
53.000	2.5818E+00	55.500	2.5653E+00	57.750	2.5513E+00
59.250	2.5423E+00	60.500	2.5350E+00	61.500	2.5292E+00
62.500	2.5236E+00	63.750	2.5166E+00	65.250	2.5084E+00
67.000	2.4991E+00	69.500	2.4859E+00	72.500	2.4704E+00
75.500	2.4551E+00	78.500	2.4399E+00	81.500	2.4246E+00
84.500	2.4093E+00	87.500	2.3939E+00	90.500	2.3783E+00
93.500	2.3625E+00	96.000	2.3492E+00	97.400	2.3417E+00
97.900	2.3390E+00	98.500	2.3359E+00	100.000	2.3281E+00
102.000	2.3170E+00	104.000	2.3052E+00	107.000	2.2863E+00
111.500	2.2541E+00	115.500	2.2206E+00	118.000	2.1976E+00
120.000	2.1780E+00	121.500	2.1623E+00	122.500	2.1515E+00
123.750	2.1376E+00	125.250	2.1201E+00	127.000	2.0987E+00
129.250	2.0693E+00	131.500	2.0376E+00	133.750	2.0038E+00

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137.500	1.9429E+00	142.500	1.8485E+00	147.500	1.7401E+00
152.500	1.6181E+00	157.500	1.4846E+00	162.500	1.3434E+00
167.500	1.1985E+00	172.500	1.0534E+00	177.500	9.1103E-01
182.500	7.7373E-01	187.500	6.4419E-01	192.500	5.2525E-01
197.500	4.1966E-01	202.500	3.2960E-01	207.500	2.5635E-01
211.500	2.1131E-01	214.000	1.8810E-01	216.000	1.7210E-01
217.750	1.6026E-01	219.100	1.5236E-01	219.850	1.4936E-01
220.500	1.4674E-01	222.000	1.3994E-01	224.000	1.3130E-01
226.500	1.2100E-01	229.500	1.0947E-01	232.500	9.8665E-02
235.500	8.8492E-02	238.500	7.8868E-02	241.500	6.9711E-02
244.500	6.0945E-02	247.000	5.3905E-02	248.750	4.9079E-02
249.850	4.6086E-02	250.600	4.3712E-02	251.500	4.1013E-02
253.000	3.8605E-02	255.500	3.4900E-02	258.500	3.0938E-02
262.500	2.6223E-02	269.000	1.9834E-02	276.500	1.4290E-02
285.000	9.5677E-03	302.500	3.5101E-03	320.000	1.6640E-03
337.500	6.8942E-04	362.500	3.5265E-04	387.500	2.7543E-04
410.000	2.5914E-04	430.000	2.5480E-04	447.500	2.5360E-04
462.500	2.5317E-04	475.000	2.5301E-04	484.000	2.5295E-04
491.500	2.5292E-04	497.500	2.5290E-04	502.500	2.5289E-04
507.000	2.5288E-04	510.500	2.5288E-04	513.500	2.5287E-04
516.000	2.5287E-04	517.500	2.5287E-04	518.500	2.5287E-04

Sensitivity Analysis #2: No Vegetation Summary

December 2023

Created using BSUM300 Version 3.01; all units are cm

First file in series is c:\a\60_10nv1946.res

Year Precip PET Transp Evap Runoff Drain Store TimeStp MasBalErr

```
-----
Initial storage =                46.984
 1 22.530 135.832 0.000 18.030 0.000 0.000 51.489 11847 -0.00545
 2 22.530 135.832 0.000 21.020 0.000 0.000 53.004 11978 -0.00589
 3 22.530 135.832 0.000 21.652 0.000 0.000 53.888 12051 -0.00604
 4 22.530 135.832 0.000 21.907 0.000 0.000 54.516 12006 -0.00593
 5 22.530 135.832 0.000 22.040 0.000 0.000 55.011 11993 -0.00589
 6 22.530 135.832 0.000 22.110 0.000 0.000 55.437 11999 -0.00595
 7 22.530 135.832 0.000 22.158 0.000 0.000 55.814 12027 -0.00589
 8 22.530 135.832 0.000 22.191 0.000 0.000 56.159 11971 -0.00585
 9 22.530 135.832 0.000 22.218 0.000 0.000 56.477 11990 -0.00592
10 22.530 135.832 0.000 22.238 0.000 0.000 56.774 11950 -0.00591
11 50.698 113.700 0.000 45.293 0.000 0.000 62.186 12980 -0.00654
12 50.698 113.759 0.000 47.934 0.000 0.000 64.956 12828 -0.00556
-----
SUM= 326.6951585.780 0.000 308.791 0.000 0.003 -0.07083
```

APPENDIX C

DRAINAGE ROCK DESIGN CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Drainage Rock Analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 18, 2023

Checked by: Mike Beardsley



Date: December 18, 2023

Approved by: Greg Church



Date: December 18, 2023

C.1 EROSION CONTROL FOR SURFACE DRAINAGE

The surface areas utilized in the drainage calculations can be seen in Appendix F, Figure F-2. The area and flow length of these drainage areas were approximated based on the Final Remedial Action Plan (FRAP 2008, Addendum C, Final Design Drawings). The “rational method” was used to estimate runoff volumes, as described in Section F, Equation F-1. The time of concentration (t_c) is a characteristic of the geometry and slopes of the drainage areas and is computed using the Kirpich equation, as presented in NUREG/CR-4620 (refer to Section F, Equation F-2). As specified in the UMTRA Technical Approach Document (TAD) (DOE 1989), t_c is limited to a minimum of 2.5 minutes (DOE 1989). Using the tabular values in Appendix F, Table F-1 (DOE 1989), the percentage of rainfall intensity for a t_c of less than 1 hour can be determined.

The contributory surface area was calculated based on the assumed configuration shown in Appendix F, Figure F-2, where L is the critical slope length (USEPA 2011, Dwyer et al. 2007). The contributory area, slope, and slope lengths for the north, south, east, and west drainage trenches were derived from the FRAP (2008, Addendum C, Final Design Drawings). The rainfall 1-hour intensity corresponding to the computed time of concentration (t_c) was then computed using Appendix F, Equation F-3 (DOE 1989, p. 66). A value of 1.0 was used for the runoff concentration factor to calculate the runoff in Appendix F, Equation F-1.

C.1.1 Riprap Sizing for Side Slopes

The erosional stability of the side slopes is analyzed using the Abt and Johnson (1991) method, as discussed in NUREG-1623 (NRC 2002). This method is recommended for slopes greater than 10%. The D_{50} rock sizes using the Abt and Johnson method are calculated as:

$$D_{50} = 5.23 * S^{0.43} q^{0.56} \quad \text{Equation C-1}$$

where:

q = unit discharge (cfs/ft)

S = Slope (ft/ft).

C.1.2 Riprap Sizing for Bottom of Side Slopes

The perimeter apron will: (1) serve as an impact basin and provide for energy dissipation of runoff, (2) provide erosion protection, and (3) transition flow from side slopes to natural ground. The median rock size required in the perimeter apron was calculated using the equations derived by Abt et al. (1998), as outlined in NUREG 1623 (NRC 2002) as follows:

$$D_{50} = 10.46 * S^{0.43} (C_f * q_d)^{0.56} \quad \text{Equation C-2}$$

where:

D_{50} = median stone diameter (in.),

S = embankment side slope in decimal form,

C_f = flow concentration factor = 3 (Abt et al, 1991),

q_d = design unit discharge (cfs/ft).

Table C-1 provides a summary of the computed results for the side slopes. Table C-2 provides a summary of the computed results for the bottom of each respective drainage channel.

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Table C-1. Riprap – Drainage Trench Side Slopes Adjacent to Cover

Section	Area (acres)	C	L (ft)	S (ft/ft)	t _c (min.)	t _c , total (in.) ¹	PMP (in./hr)	I (in./hr)	Q (cfs)	q _d (cfs/ft)	D50 (in.)	Use D50 (in.)	Rock Layer Thickness (in.)
North Draining Cover Surface	57.47	1	566	0.02	4.6	4.6	8.2	44.8	2,574.4	0.59			
North Trench Slope	13.29	1	130	0.2	5.2	5.2	8.2	42.7	3,141.5	0.72	2.2	3	6 ²
North Trench Bottom	2.04	1											
South Draining Cover Surface	132.73	1	1307	0.02	8.8	8.8	8.2	33.4	4,437.6	1.01			
South Trench Slope	33.88	1	328	0.2	10.1	10.1	8.2	31.1	5,490.7	1.25	3	3	6 ²
South Trench Bottom	1.03	1											
West Trench Slope	10.59	1	249	0.2	1.0	2.5 ¹	8.2	54.2	573.4	0.31	1.4	2	4 ²
West Trench Bottom	0.42	1											
East Trench Slope	11.85	1	271	0.2	1.1	2.5 ¹	8.2	54.2	641.2	0.34	1.4	2	4 ²
East Trench Bottom	0.44	1											

¹ As specified in UMTRA TAD (DOE 1989), t_c is limited to a minimum of 2.5 minutes.

² Rock thickness doubled instead of the minimum 1.5 times the D₅₀ for conservatism.

December 2023

Table C-2. Riprap – Drainage Trench Bottom Below Side Slopes Adjacent to Cover

Section	Area (acres)	C	L (ft)	S (ft/ft)	t _c (min.)	t _c , adj(in.) ¹	PMP (in./hr)	I (in./hr)	Q (cfs)	q _d (cfs/ft)	C _f	D50 (in.)	Use D50 (in.)	Rock Layer Thickness (in.)
North Draining Cover Surface	57.47	1	566	0.02	4.6	4.6	8.2	44.8	2,574.4	0.59				
North Trench Slope	13.29	1	130	0.2	5.2	5.2	8.2	42.7	3,141.5	0.72				
North Trench Bottom	2.04	1									3	8.0	8	24
South Draining Cover Surface	132.73	1	1307	0.02	8.8	8.8	8.2	33.4	4,437.6	1.01				
South Trench Slope	33.88	1	328	0.2	10.1	10.1	8.2	31.1	5,490.7	1.25				
South Trench Bottom	1.03	1									3	11.0	12	36
West Trench Slope	10.59	1	249	0.2	1.0	2.5 ¹	8.2	54.2	573.4	0.31				
West Trench Bottom	0.42	1									3	5.0	6	18
East Trench Slope	11.85	1	271	0.2	1.1	2.5 ¹	8.2	54.2	641.2	0.34				
East Trench Bottom	0.44	1									3	5.3	6	18

¹ As specified in UMTRA TAD (DOE 1989), t_c is limited to a minimum of 2.5 minutes.

C.2 BEDDING FOR RIPRAP

The need for bedding material beneath the riprap was evaluated and summarized in this section. The interstitial flow velocity at the soil/rock interface was calculated utilizing the Leps (1973) procedure as recommended in NUREG 1623:

$$V_v = Wm^{0.5}i^{0.54}$$

Where: V_v = average velocity of water ($\frac{\text{in}}{\text{sec}}$)

W = empirical constant for specific rip rap size

m = hydraulic mean radius

i = hydraulic gradient

Values for $Wm^{0.5}$ are found in Table 4.2 in DOE (1989) as shown below:

Table C-3. Empirical Correlations for Flow in Rock

Rock size (in.)	$Wm^{0.5}$ (in./sec)
2	16
6	28
8	32
24	58
48	84

The D_{50} calculated rock size for each slope was conservatively used to determine the $Wm^{0.5}$ value. Table C-4 provides a summary of the calculations performed.

Table C-4. Interstitial Velocity

Slope	D50 (in.)	Slope (ft/ft)	$Wm^{0.5}$ (in./sec)	V (ft/sec)	Comment
North Slope	3	0.2	19	0.66	Bedding material may be warranted ¹
North Ditch	8	0.02	32	0.32	No bedding material required
West Slope	2	0.2	16	0.56	Bedding material may be warranted ¹
West Ditch	6	0.02	28	0.28	No bedding material required
East Slope	2	0.2	16	0.56	Bedding material may be warranted ¹
East Ditch	6	0.02	28	0.28	No bedding material required
South Slope	3	0.2	19	0.66	Bedding material may be warranted ¹
South Ditch	12	0.02	38.5	0.39	No bedding material required

¹ Bedding shall be included on the side slopes.

NUREG 1623 recommends that when the computed interstitial velocity is less than 0.5 ft per second, a filter is not needed. When velocities are between 0.5 and 1.0 ft per second, the need for a filter layer will be dependent upon the type of soil material placed at the interface. A filter should be provided when velocities are 1.0 ft per second or greater. Alluvium is intended to be the soil placed at the interface and thus a bedding material may be installed beneath the riprap on the north, south, west, and east slopes of the impoundment. Because there will be no specified soil texture requirements for the upper layer of soil on the side slopes, bedding material will be included as specified in Specification 32 11 22, Section 2.2 and as depicted on the contract drawings. No bedding material is required within the perimeter ditches.

C.3 REFERENCES

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APPENDIX D

SETTLEMENT CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Differential settlement analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 18, 2023

Checked by: Mike Beardsley



Date: December 18, 2023

Approved by: Greg Church



Date: December 18, 2023

DIFFERENTIAL SETTLEMENT RESULTS

The differential settlement results are based on the difference in tailings depth on the north side of the impoundment compared with those beneath the crest or center of the impoundment (Final Remedial Action Plan 2008, Addendum C, Drawings E-02-C-102 and E-02-C-103). The center of the impoundment has a tailings depth of approximately 48 feet, while the far northern perimeter of the impoundment has a tailings depth of approximately 26 feet.

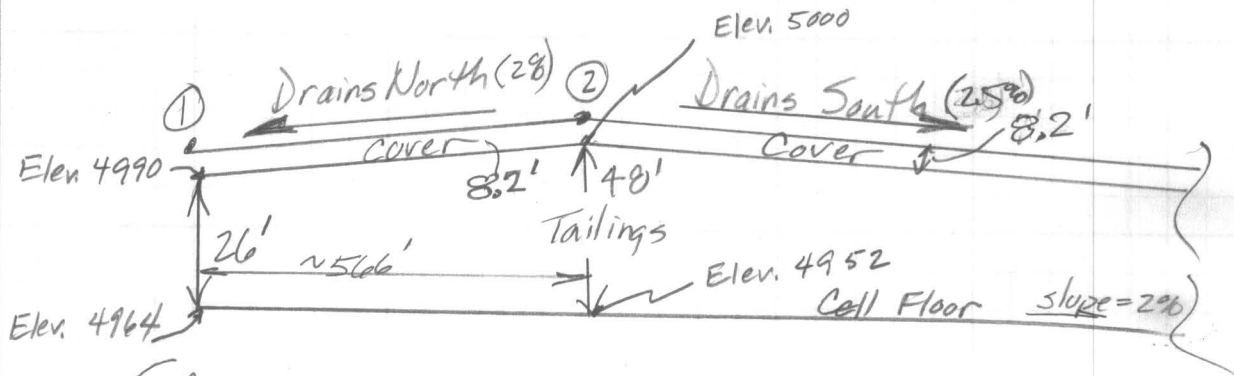
The primary settlement in the center of the impoundment was calculated to be 9.2 inches. The settlement along the northern perimeter was calculated to be 8.3 inches. The differential settlement of 0.96-inch will not create ponding issues along the northern slope of the impoundment with a slope length of 566 feet with a slope of 2%.

Secondary settlement was computed at the same two locations. The secondary settlement, given a performance period of 1,000 years in the center of the impoundment, was calculated to be 12.7 inches. The secondary settlement, calculated for the same 1,000-year period along the northern perimeter, was 6.9 inches for the same 1,000-year period.

The differential settlement, due to the secondary consolidation of 5.8 inches, will not create ponding along the slope length of 566 feet with a slope of 2%. The total differential settlement of the combined primary and secondary consolidation of approximately 6.8 inches will not create ponding along the slope length of 566 feet with a slope of 2%.

Details of the calculations performed are provided on the subsequent calculation sheets.

Reference: FRAP (2008), Addendum D, Dwg E-02-C-102 & E-02-C-103



{ Assumption: Worst-case differential settlement occurs in northern portion of cell due to largest tailings thickness difference. }

C_c values $\Rightarrow$ Reference: FRAP (2008), p.4-7, Table 4-4

	C_c	e_o
Sand Tailings	0.15	0.88
	0.07	0.638
Transition Tailings	0.20	0.808
	0.17	0.703
Slimes	0.38	1.157
	0.34	1.052
Avg. 0.22		0.87

Reference: Greg Church, NorthWind Portage project manager stated that tailings are mixed @ Mamb site prior to shipment to Crescent Junction site.

Therefore, use average values of C_c and e_o for tailings mixed.

Material wgt. per FRAP (2008), Jacobs calc, Addendum D

$\Rightarrow$ cover material/soil $\Rightarrow \gamma_a = 124 \text{ pcf}$
 tailings $\Rightarrow \gamma_T = 115 \text{ pcf}$

Primary Consolidation

$$S_R = \left(\frac{C_c}{1+e_0} \right) H \log_{10} \left(\frac{P_0 + P_v}{P_0} \right)$$

$$P_v = 8.2 (124) = 1018 \text{ psf} \quad \text{cover } \{ 98.5'' = 8.2'$$

$$P_{01} = 24/2 (115) = 1495 \text{ psf} \quad \text{shallow}$$

$$P_{02} = 48/2 (115) = 2760 \text{ psf} \quad \text{deep}$$

$$S_1 = \left(\frac{0.22}{1+0.87} \right) (26) \log_{10} \left(\frac{1495 + 1018}{1495} \right) = 0.69 \text{ ft} = 8.3 \text{ in}$$

$$S_2 = \left(\frac{0.22}{1+0.87} \right) (48) \log_{10} \left(\frac{2760 + 1018}{2760} \right) = 0.79 \text{ ft} = 9.2 \text{ in}$$

$\Delta S \approx 0.96$, this will not create ponding in surface

Secondary Consolidation

$$S_s = C_{\alpha} \cdot H \log \left(\frac{t_2}{t_1} \right) = 0.05 C_c H \log \left(\frac{t_2}{t_1} \right)$$

C_{α} = coefficient of secondary compression
 α = secondary compression index

$$C_{\alpha} = \frac{\alpha}{1+e_0}, \text{ where } e_0 = \text{initial void ratio} \quad \left\{ \begin{array}{l} \text{Ref: Civil} \\ \text{Engr. Ref.} \\ \text{Manual, Lindenberg,} \end{array} \right.$$

$$\frac{C_{\alpha}}{C_c} = 0.05 \quad \left\{ \begin{array}{l} \text{Ref: Holtz \& Kovacs, Intro.} \\ \text{to Geotech. Engr., 1981} \end{array} \right. \quad \left\{ \begin{array}{l} \text{5th ed., 1989} \end{array} \right.$$

$$S_s = 0.05 C_c H \log \left(\frac{t_2}{t_1} \right)$$

$t_2 = 1000 \text{ yrs}$ $\{$ design performance period
 $t_1 = 10 \text{ yrs}$ $\{$ time from tailings placement to final cover placement

$$S_{s1} = 0.05 (0.22) (26) \log \left(\frac{1000}{10} \right) = 0.57 \text{ ft} = 6.9 \text{ in}$$

$$S_{s2} = 0.05 (0.22) (48) \log \left(\frac{1000}{10} \right) = 1.06 \text{ ft} = 12.7 \text{ in}$$

$$\Delta S_s = 5.8 \text{ in}$$

Total $S = 5.8 + 0.96 \approx 6.8 \text{ in}$ $\left\{ \begin{array}{l} \text{this will not} \\ \text{create surface} \\ \text{ponding over} \\ \text{cover slope length} \\ \text{of } 566 \text{ ft } @ 2\% \end{array} \right.$

APPENDIX E

LIQUEFACTION DESIGN CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Liquefaction analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 1, 2023

Checked by: Mike Beardsley

Date: December 14, 2023

Approved by: Greg Church



Date: December 15, 2023

E.1 LIQUEFACTION

The tailings are being placed in the repository in an unsaturated condition. This analysis assumes a beyond-worst-case condition that downward migration of porewater or inclusion of meteoric water may create zones in the tailings with saturated conditions. Given the inclusion of a well-designed evapotranspiration (ET) cover, this scenario is highly unlikely; however, it is analyzed for conservatism.

The potential liquefaction of saturated zones of the tailings was checked with standard procedures outlined in Day (1999), based on the paper by Seed and Idriss (1971). This involves comparison of the seismic stress ratio (SSR) due to the design seismic event with the SSR that would cause liquefaction of the tailings at a specific depth of analysis. The analysis was performed assuming the entire tailings thickness is saturated. This situation is extremely unlikely, but was used to conservatively analyze the liquefaction potential.

These SSRs were calculated at the top and bottom of the tailings. The SSR due to the design seismic event was calculated from the peak estimated acceleration at the ground surface of 0.22 g. The SSR required for liquefaction was based on a conservatively estimated relative density of the tailings of 50 percent, based on the tailings compaction at 90 percent of Standard Proctor density (using a correlation in Holtz and Kovacs 1981). For this tailings relative density, fines content values ranging from 17 to 46 percent (representing the minimum and mean measured values), and the two depths of analysis, the SSR required to cause liquefaction was higher than the SSR from the design earthquake. This indicates that if the tailings were to become saturated, the tailings would not liquefy under peak seismic ground acceleration conditions.

Tailings liquefaction is not likely because of the placement of unsaturated tailings in the cell (as described above), the density that the tailings will achieve with placement in lifts and rolling with construction equipment, and the fines content of the tailings. In the event of zones of tailings becoming saturated, the calculated SSR required to cause liquefaction of the tailings is higher than the SSR for all of the cases considered, indicating that liquefaction would not occur. Note references below include that cited above and in the following liquefaction calculations.

E.2 REFERENCES

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Liquefaction Analysis ~ method per Day (1999)

1. Seismic Shear Ratio (due to peak acceleration)

$$SSR_a = 0.65 r_d \left(\frac{A_{max}}{g} \right) \left(\frac{\sigma_{vo}}{\sigma'_{vo}} \right)$$

where: A_{max} = peak acceleration @ ground surface
for Crescent Junction $A_{max} = 0.22g$

σ_{vo} = total vertical stress @ depth of analysis

σ'_{vo} = effective vertical stress @ depth of analysis

r_d = depth reduction factor = $1 - 0.012 \times z$

z = depth (meters) below ground surface @
depth of analysis

Assumptions: tailings thickness = 48 ft (thickest)
cover = 8.2 ft
saturated thickness = 48 ft (beyond worst case)
cover wgt. = 124 pcf (wet)
tailings wgt. = 124 pcf (saturated)

Calculate r_d :

@ top of tailings: $z = 8.2 \text{ ft} = 2.5 \text{ m}$

$$r_d = 1 - 0.012(2.5) = 0.970$$

@ bottom of tailings: $z = (48 + 8.2) = 56.2 \text{ ft} = 17.1 \text{ m}$

$$r_d = 1 - 0.012(17.1) = 0.795$$

Calculate SSR_a

@ top of tailings: $\sigma_{vo} = 8.2(124) = 1017 \text{ pcf}$

$$\sigma'_{vo} = 8.2(124) = 1017 \text{ pcf}$$

$$\sigma_{vo} / \sigma'_{vo} = 1.0$$

@ bottom of tailings: $\sigma_{vo} = 8.2(124) + 48(124) = 6969 \text{ pcf}$

$$\sigma'_{vo} = 6969 - 48(62.4) = 3974 \text{ pcf}$$

$$\sigma_{vo} / \sigma'_{vo} = 1.75$$

@ top of tailings:

$$SSR_a = 0.65 (0.97) (0.22) (1.0) = 0.139$$

@ bottom of tailings:

$$SSR_a = 0.65 (0.795) (0.22) (1.75) = 0.199$$

2. Stress Ratio causing Liquefaction, SSR_e

SSR_e is determined from Fig. 11.8 [Day (1999)] using calculated values of corrected blow count $(N_1)_{60}$ and fines content of tailings.

The fines content of tailings per FRAP (2008), Section 4.2.2, Table 4-7, pg 4-7.

min fines = 17%, avg. fines = 46%

$(N_1)_{60}$ represents the resistance to liquefaction in terms of a corrected SPT blow count. The corrections are made for 60% rod energy ratio and for overburden pressure per National Research Council (1985) and Carter & Bentley (1991).

For tailings compacted to 90% relative compaction, the equivalent relative density is 50% (Holtz & Kovacs 1981). A relative density of 50% is equivalent to a SPT blow count of 20 blows/ft (Lambe & Whitman, 1969 and Carter & Bentley, 1991). This is equivalent to a $(N_1)_{60}$ value of 15 (Carter & Bentley, 1991).

Using Fig. 11.8 [Day (1999)], the SSR_e value for 17% fines is 0.23; the SSR_e value for 46% fines is 0.27.

3. Stress Ratio Values

Location in Profile	% fines	SSR_a	SSR_e	Conclusion
top of tailings	17	0.139	0.23	No Liquefaction
	46	0.139	0.27	No Liquefaction
bottom of tailings	17	0.199	0.23	No Liquefaction
	46	0.199	0.27	No Liquefaction

No Liquefaction

GEOTECHNICAL AND FOUNDATION ENGINEERING

Design and Construction

Robert W. Day

McGraw-Hill

New York San Francisco Washington, D.C. Auckland Bogotá
Caracas Lisbon London Madrid Mexico City Milan
Montreal New Delhi San Juan Singapore
Sydney Tokyo Toronto

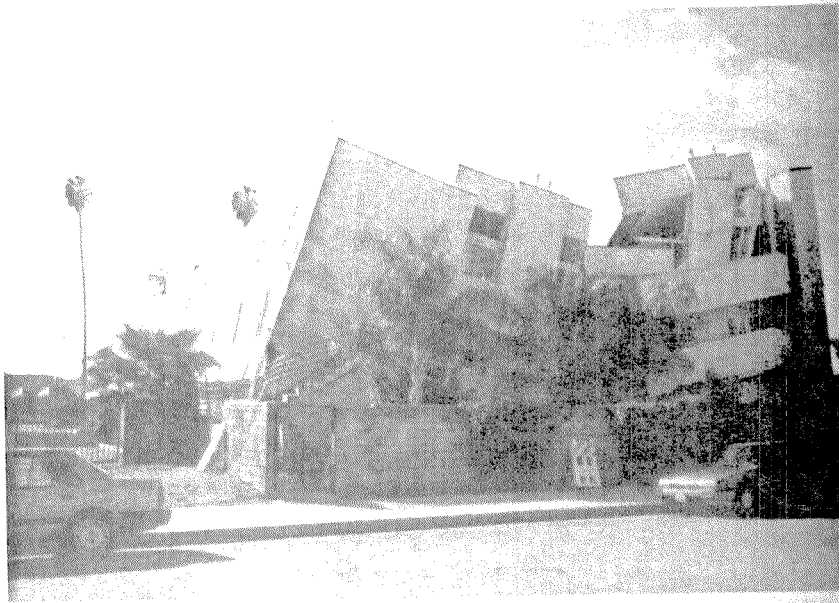


FIGURE 11.1 Building collapse caused by the 1994 Northridge, California, earthquake.

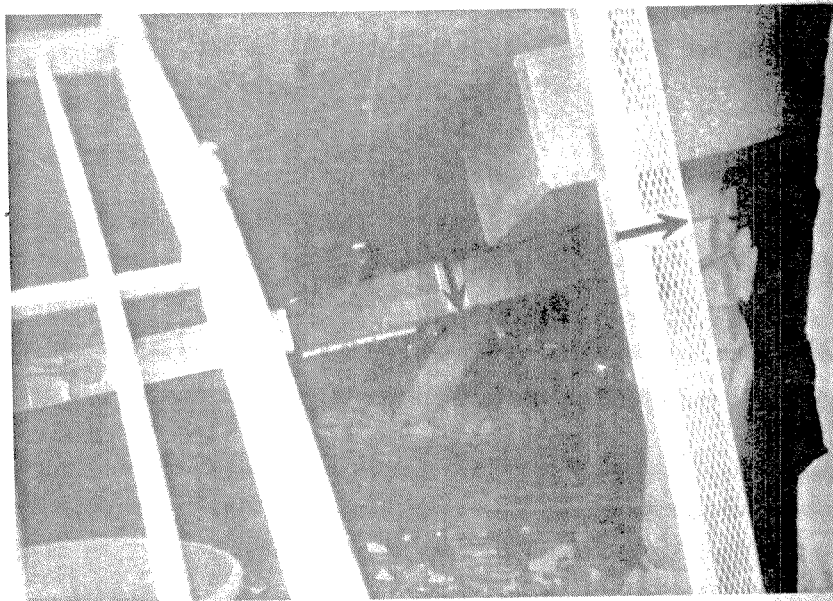


FIGURE 11.2 View inside the collapsed first floor parking garage (arrows point to columns).



FIGURE 11.3 Collapse of brick chimney, 1994 Northridge, California, earthquake.

two primary types of damage have developed: (1) longitudinal cracks at the top of the dam and (2) crest settlement. In the case of the Sheffield Dam, a complete failure did occur, probably due to liquefaction of the very loose and saturated lower portion of the embankment (Sherard et al., 1963).

11.2 EARTHQUAKES

A structure can be damaged by many different earthquake effects. Examples previously provided include a lack of shear resistance (Figs. 11.1 and 11.2) and poor construction practices (Fig. 11.3). The purpose of the following sections is to provide a brief summary of the common earthquake effects that need to be considered by the geotechnical engineer.

11.2.1 Fault and Ground Rupture Zone

Surface fault rupture caused by the earthquake is important because it has caused severe damage to buildings, bridges, dams, tunnels, canals, and underground utilities (Lawson et al., 1908; Ambraseys, 1960; Duke, 1960; California Department of Water Resources, 1967; Bonilla, 1970; Steinbrugge, 1970). Fault displacement is defined as the relative movement of the two sides of a fault, measured in a specific direction (Bonilla, 1970). Figure 11.4 shows the displacement of rock strata caused by the Carmel Valley Fault, located at Torrey Pines, California.

Examples of very large surface fault rupture are the 11 m (35 ft) of vertical displacement in the Assam earthquake of 1897 (Oldham, 1899) and the 9 m (29 ft) of horizontal

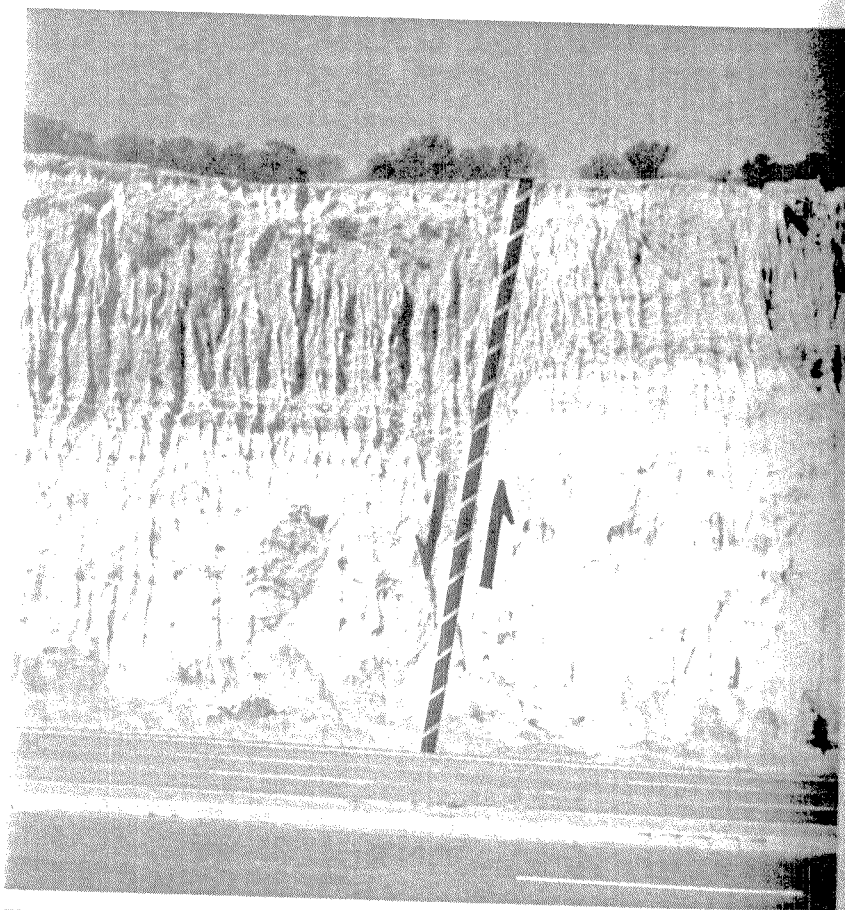


FIGURE 11.4 Carmel Valley Fault, located at Torrey Pines, California.

movement during the Gobi-Altai earthquake of 1957 (Florensov and Solonenko, 1965). The length of the fault rupture can be quite significant. For example, the estimated length of surface faulting in the 1964 Alaskan earthquake varied from 600 to 720 km (Savage and Hastie, 1966; Housner, 1970).

A recent (geologically speaking) earthquake caused the fault rupture shown in Fig. 11.5. The fault is located at the base of the Black Mountains, in California. The vertical fault displacement caused by the earthquake is the vertical distance between the two arrows in Fig. 11.5. The fault displacement occurred in an alluvial fan being deposited at the base of the Black Mountains. Most structures would be unable to accommodate the huge vertical displacement shown in Fig. 11.5.

In addition to fault rupture, there can also be ground rupture away from the main trace of the fault. These ground cracks could be caused by many different factors, such as movement of subsidiary faults, auxiliary movement that branches off from the main fault trace, or ground rupture caused by the differential or lateral movement of underlying soil deposits. For example, Fig. 11.6 shows ground rupture during the 1994 Northridge

California, earthquake. The direction of the ground shear movement shown in Fig. 11.6 is toward the northwest. The ground movement sheared both the concrete patio and adjacent pool and knocked the house off its foundation.

Since most structures will be unable to resist the shear movement associated with surface faulting and ground rupture, one design approach is to simply restrict construction in the active fault shear zone. The best individual to determine the location and width of the active fault shear zone is the engineering geologist. Seismic study maps, such as the *State of California Special Studies Zones Maps* (1982), which were developed as part of the Alquist-Priolo Special Studies Zones Act, delineate the approximate location of active fault zones that require special geologic studies. These maps also indicate the approximate locations of historic fault offsets, which are indicated by year of earthquake-associated event, as well as the locations of ongoing fault displacement due to fault creep. There are many other geologic references, such as the cross section shown in Fig. 4.2, that can be used to identify active shear fault zones. Trenches, such as shown in Figs. 4.20 and 4.21, can be excavated across the fault zone to more accurately identify the width of the active fault shear zone. Critical structures, such as essential transportation routes (see Sec. 2.2) that must cross the active shear fault zones, will need special designs to resist the earthquake forces induced by ground rupture.

11.2.2 Liquefaction

The typical subsurface condition that is susceptible to liquefaction is a loose or very loose sand that has been newly deposited or placed, with a groundwater table near ground surface. During an earthquake, the ground shaking causes the loose sand to contract, resulting in an increase in pore water pressure. Because the seismic shaking occurs so quickly, the



FIGURE 11.5 Fault rupture at the base of the Black Mountains (arrows indicate the amount of vertical displacement caused by the earthquake).

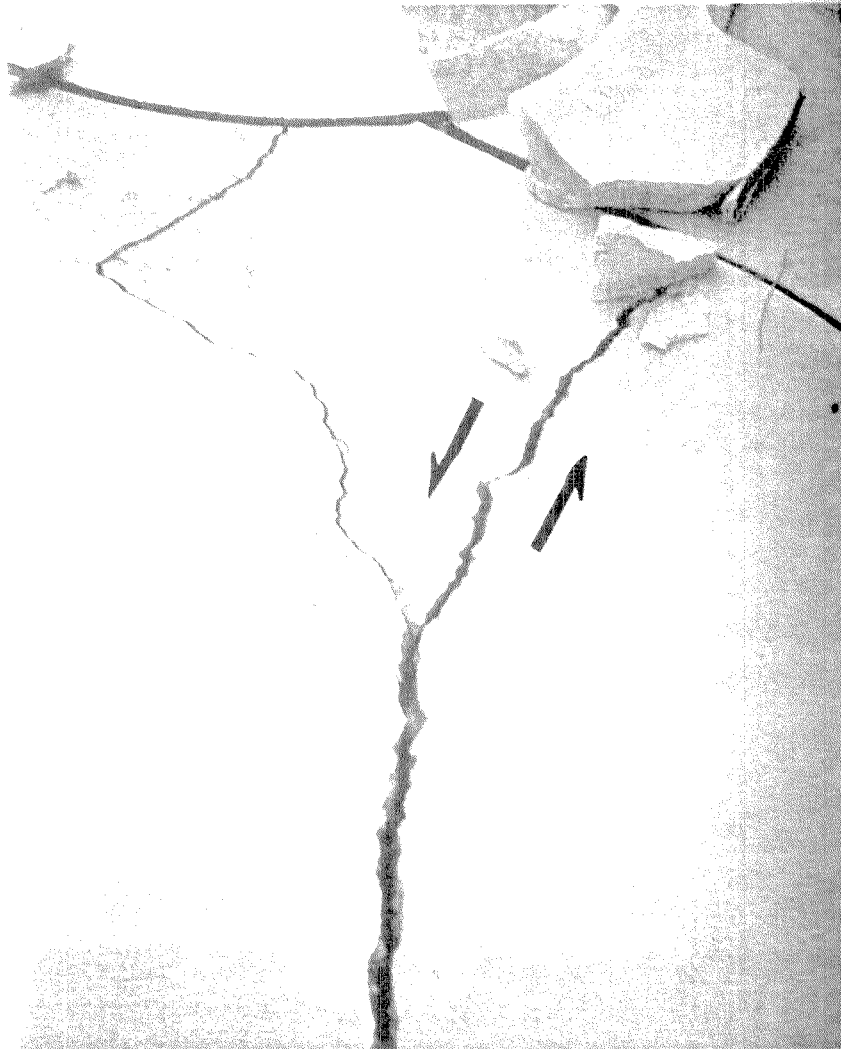


FIGURE 11.6 Ground rupture, 1994 Northridge, California, earthquake.

cohesionless soil is subjected to an undrained loading (total stress analysis). The increase in pore water pressure causes an upward flow of water to the ground surface, where it emerges in the form of mud spouts or sand boils. The development of high pore water pressures due to the ground shaking (i.e., the effective stress becomes zero) and the upward flow of water may turn the sand into a liquefied condition, which has been termed *liquefaction*. Structures on top of the loose sand deposit that has liquefied during an earthquake will sink or fall over, and buried tanks will float to the surface when the loose sand liquefies (Seed, 1970).

Liquefaction can also cause lateral movement of slopes and create flow slides (Ishihara, 1993). Seed (1970) states:

If liquefaction occurs in or under a sloping soil mass, the entire mass will flow or translate laterally to the unsupported side in a phenomenon termed a flow slide. Such slides also develop in loose, saturated, cohesionless materials during earthquakes and are reported at Chile (1960), Alaska (1964), and Niigata (1964).

An example of lateral movement of liquefied sand is shown in Fig. 11.7 (from Kerwin and Stone, 1997). This damage occurred to a marine facility at Redondo Beach King Harbor during the 1994 Northridge, California, earthquake. The 5.5 m (18 ft) of horizontal displacement was caused by the liquefaction of an offshore sloping fill mass that was constructed as a part of the marine facility.

There can also be liquefaction of seams of loose saturated sands within a slope. This can cause the entire slope to move laterally along the liquefied layer at the base. These types of gross slope failures caused by liquefied seams of soil caused extensive damage during the 1964 Alaskan earthquake (Shannon and Wilson, Inc., 1964; Hansen, 1965). It has been observed that slope movement of this type typically results in little damage to structures located on the main slide mass, but buildings located in the graben area are subjected to large differential settlements and are often completely destroyed (Seed, 1970).

Main Factors for Liquefaction of Cohesionless Soil. There are many factors that govern the liquefaction process. The most important factors are as follows:

1. *Earthquake intensity and duration.* In order to have liquefaction of soil, there must be ground shaking. The character of the ground motion, such as acceleration and frequency content, determines the shear strains that cause the contraction of the soil particles and the development of excess pore water pressures leading to liquefaction. The most common

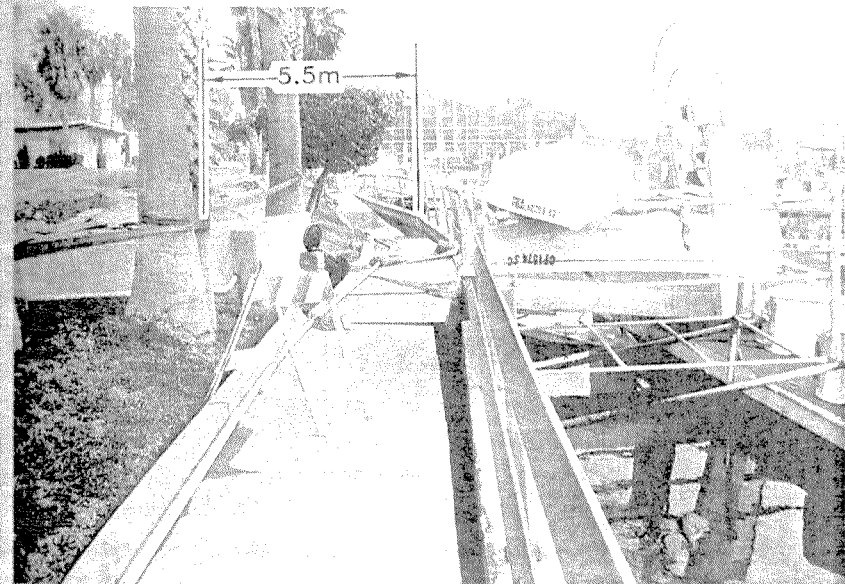


FIGURE 11.7 Damage to marine facility, 1994 Northridge, California, earthquake. (From Kerwin and Stone, 1997; reprinted with permission from the American Society of Civil Engineers.)

cause of liquefaction is the seismic energy released during an earthquake. The potential for liquefaction increases as the earthquake intensity and duration increase. Sites located near the epicenter of major earthquakes will be subjected to the largest intensity and duration of ground shaking (i.e., higher number of applications of cyclic shear strain). Besides earthquakes, other conditions can cause liquefaction, such as subsurface blasting.

2. Groundwater table. The condition most conducive to liquefaction is a near-surface groundwater table. Unsaturated soil located above the groundwater table will not liquefy.

3. Soil type. The soil types susceptible to liquefaction are nonplastic (cohesionless) soils. Seed et al. (1983) state that, on the basis of both laboratory testing and field performance, the great majority of clayey soils will not liquefy during earthquakes.

An approximate listing of cohesionless soils from least to most resistant to liquefaction are clean sands, nonplastic silty sands, nonplastic silt, and gravels. There could be numerous exceptions to this sequence. For example, Ishihara (1985, 1993) describes the case of tailings derived from the mining industry that were essentially composed of ground-up rocks and were classified as rock flour. Ishihara (1985, 1993) states that the rock flour in a water-saturated state did not possess significant cohesion and behaved as if it were a clean sand. These tailings were shown to exhibit as low a resistance to liquefaction as clean sand.

4. Soil relative density D_r . Cohesionless soils in a very loose relative density state are susceptible to liquefaction, while the same soil in a very dense relative density state will not liquefy. Very loose nonplastic soils will contract during the seismic shaking which will cause the development of excess pore water pressures. Very dense soils will dilate during seismic shaking and are not susceptible to liquefaction.

5. Particle size gradation. Poorly graded nonplastic soils tend to form more unstable particle arrangements and are more susceptible to liquefaction than well-graded soils.

6. Placement conditions. Hydraulic fills (fill placed under water) tend to be more susceptible to liquefaction because of the loose and segregated soil structure created by the soil particles falling through water.

7. Drainage conditions. If the excess pore water pressure can quickly dissipate, the soil may not liquefy. Thus gravel drains or gravel layers can reduce the liquefaction potential of adjacent soil.

8. Confining pressures. The greater the confining pressure, the less susceptible the soil is to liquefaction. Conditions that can create a higher confining pressure are a deeper groundwater table, soil that is located at a deeper depth below ground surface, and a surcharge pressure applied at ground surface. Case studies have shown that the possible zone of liquefaction usually extends from the ground surface to a maximum depth of about 15 m (50 ft). Deeper soils generally do not liquefy because of the higher confining pressures.

9. Aging. Newly deposited soils tend to be more susceptible to liquefaction than old deposits of soil. Older soil deposits may already have been subjected to seismic shaking or the soil particles may have deformed or been compressed into more stable arrangements.

Liquefaction Analysis. The most common type of analysis to determine the liquefaction potential is to use the standard penetration test (SPT) or the cone penetration test (CPT) (Seed et al., 1985; Stark and Olson, 1995). The analysis is based on the simplified method proposed by Seed and Idriss (1971). The method of analysis is as follows:

1. Seismic shear stress ratio (SSR) caused by the earthquake. The first step in the liquefaction analysis is to determine the seismic shear stress ratio (SSR). The seismic shear stress ratio induced by the earthquake at any point in the ground is estimated as follows (Seed and Idriss, 1971):

$$SSR = 0.65 r_d \left(\frac{a_{\max}}{g} \right) \left(\frac{\sigma_{v0}}{\sigma'_{v0}} \right) \quad (11.1)$$

where SSR = seismic shear stress ratio (dimensionless parameter)

$a_{\max}$ = peak acceleration measured or estimated at the ground surface of the site (m/s^2)

g = acceleration of gravity (9.81 m/s^2)*

σ_{v0} = total vertical stress at a particular depth where the liquefaction analysis is being performed (kPa) (in order to calculate the total vertical stress, the total unit weight γ , of the soil layers must be known)

σ'_{v0} = vertical effective stress at that same depth in the soil deposit where σ_{v0} was calculated (kPa) (in order to calculate the vertical effective stress, the location of the groundwater table must be known).

The term r_d = depth reduction factor, which can be estimated in the upper 10 m of soil as (Kayen et al., 1992):

$$r_d = 1 - (0.012)(z) \quad (11.2)$$

where z = depth in meters below the ground surface where the liquefaction analysis is being performed (i.e., the same depth used to calculate σ_{v0} and σ'_{v0})

2. Seismic shear stress ratio that will cause liquefaction of the soil. The second step is to determine the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil. Figure 11.8 presents a chart that can be used to determine the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil. In order to use this chart, the results of the standard penetration test (SPT) must be expressed in terms of the SPT $(N_1)_{60}$ value. In liquefaction analysis, the SPT N_{60} value [Eq. (4.3)] is corrected for the overburden pressure. When a correction is applied to the SPT N_{60} value to account for the effect of overburden pressure, these values are referred to as SPT $(N_1)_{60}$ values. The procedure consists of multiplying the N_{60} value by a correction C_N in order to calculate the SPT $(N_1)_{60}$ value, or:

$$(N_1)_{60} = C_N N_{60} = (100/\sigma'_{v0})^{0.5} N_{60} \quad (11.3)$$

where $(N_1)_{60}$ = standard penetration N -value corrected for both field testing procedures and overburden pressure

C_N = correction factor to account for the overburden pressure [as indicated in Eq. (11.3), C_N is approximately equal to $(100/\sigma'_{v0})^{0.5}$, where σ'_{v0} is the vertical effective stress in kPa]

N_{60} = standard penetration N -value corrected for testing procedures [note that N_{60} is calculated by using Eq. (4.3)]

Once the corrected SPT $(N_1)_{60}$ has been calculated, Fig. 11.8 can be used to determine the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil. Note that Fig. 11.8 is for a projected earthquake of 7.5 magnitude. The figure also has different curves that are to be used according to the percent fines in the soil. For a given $(N_1)_{60}$ value,

*Usually the engineering geologist will determine the peak acceleration at the ground surface at the site from fault, seismicity, and attenuation studies. Typically the engineering geologist provides a peak ground acceleration in the form of $a_{\max}/g = \text{a constant}$. For example, the engineering geologist may determine that the peak ground surface acceleration at a site is $a_{\max}/g = 0.1$, in which case the value of 0.1 (dimensionless) is substituted into Eq. (11.1) in place of $a_{\max}/g$.

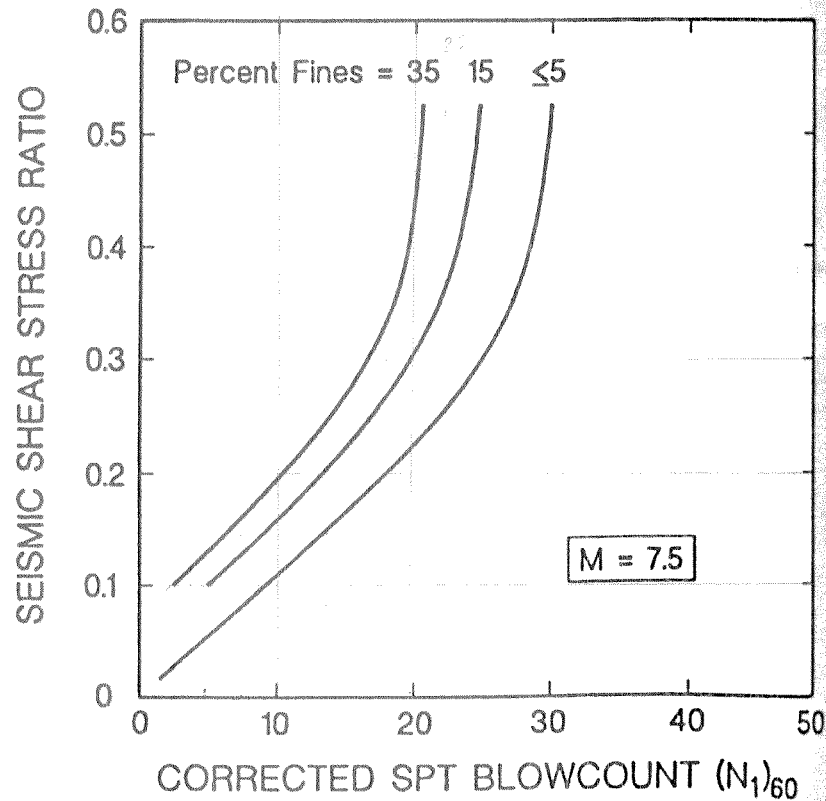


FIGURE 11.8 Relationship between seismic shear stress ratio (SSR) triggering liquefaction and $(N_1)_{60}$ values for clean and silty sands for $M = 7.5$ earthquakes. (After Seed and DeAlba, 1986; reproduced from Stark and Olson, 1995; reprinted with permission of the American Society of Civil Engineers.)

soils with more fines have a higher seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil.

Figure 11.9 presents a chart for clean sands (5 percent or less fines) and different magnitude earthquakes. The magnitude 7.5 curve in Fig. 11.9 is similar to the magnitude 7.5 curve for 5 percent or less fines in Fig. 11.8.

3. Compare seismic shear stress ratios. The final step in the liquefaction analysis is to compare the seismic shear stress ratio (SSR) values. If the SSR value from Eq. (11.1) is greater than the SSR value obtained from either Fig. 11.8 or Fig. 11.9, then liquefaction could occur during the earthquake, and vice versa.

Example. It is planned to construct a building on a cohesionless soil deposit (fines less than 5 percent). There is a nearby major active fault and the engineering geologist has determined that the peak ground acceleration (a_{max}) = 0.4g. Assume the site conditions are the same as stated in Prob. 18 (Chap. 6), i.e., a level ground surface with the groundwater table located 1.5 m below ground surface and the standard penetration test performed at a depth

of 3 m. If the earthquake magnitude (M) = 7.5, will the saturated clean sand located at a depth of 3 m below ground surface liquefy during the anticipated earthquake?

Solution. From Prob. 18 (Chap. 6), $\sigma'_{v0} = 43$ kPa and $N_{60} = 5$. Using the total unit weights from Prob. 18 (Chap. 6), $\sigma_{v0} = 58$ kPa. Since $z = 3$ m, $r_d = 0.96$. Using the following values:

$$r_d = 0.96$$

$$a_{max}/g = 0.4$$

$$(\sigma_{v0}/\sigma'_{v0}) = (58/43) = 1.35$$

and inserting the above values into Eq. (11.1), we find the seismic shear stress ratio (SSR) caused by the earthquake is 0.34.

The next step is to determine the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil. From Prob. 18 (Chap. 6), the N -value corrected for field testing procedures (N_{60}) = 5. Using Eq. (11.3) with $\sigma'_{v0} = 43$ kPa and $N_{60} = 5$, we find

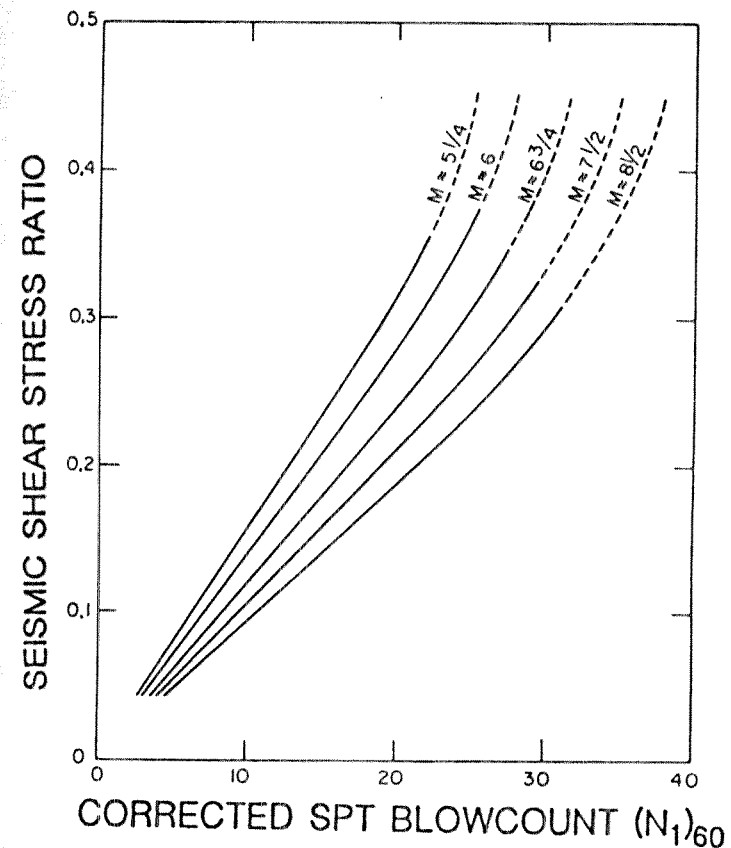


FIGURE 11.9 Relationship between seismic shear stress ratio (SSR) triggering liquefaction and $(N_1)_{60}$ values for clean sand for different magnitude earthquakes. (After Seed et al., 1983; reprinted with permission of the American Society of Civil Engineers.)

$(N_1)_{60} = 8$. Entering Fig. 11.8 with $(N_1)_{60} = 8$ and intersecting the curve labeled $\leq 5\%$ fines, the seismic shear stress ratio (SSR) that will cause liquefaction of the *in situ* soil at a depth of 3 m = 0.08.

The final step is to compare the SSR caused by the earthquake (SSR = 0.34) with the SSR that will cause liquefaction of the *in situ* soil (SSR = 0.08). From a comparison of the SSR values, it is probable that during the earthquake the *in situ* sand located at a depth of 3 m below ground surface will liquefy.

In the above liquefaction analysis, there are many different equations and corrections that are applied to the seismic shear stress ratio (SSR). For example, there are four different corrections (E_m , C_b , C_r , and σ'_{v0}) that are applied to the SPT N -value in order to calculate the $(N_1)_{60}$ value. All of these different equations and various corrections may provide the engineer with a sense of high accuracy, when in fact, the entire analysis is only a gross approximation. The analysis should be treated as such and engineering experience and judgment are essential in the final determination of whether or not a site has liquefaction potential.

11.2.3 Slope Movement and Settlement

Besides liquefaction of loose saturated sands, other soil conditions can result in slope movement or settlement during an earthquake. For example, Grantz et al. (1964) describe an interesting case of ground vibrations from the 1964 Alaskan earthquake that caused 0.8 m (2.6 ft) of alluvium settlement. Other loose soils, such as cohesionless sand and gravel, will also be susceptible to settlement due to the ground vibrations from earthquakes.

Slopes having a low factor of safety can experience large horizontal movement during an earthquake. Types of slopes most susceptible to movement during earthquakes include those slopes composed of soil that loses shear strength with strain (such as sensitive soil) and ancient landslides that can become reactivated by seismic forces (Day and Poland, 1996).

11.2.4 Translation and Rotation

An unusual effect caused by earthquakes is translation and rotation of objects. For example, Fig. 11.10 shows a photograph of a brick mailbox that rotated and translated (moved laterally) during the Northridge earthquake. The initial position in Fig. 11.10 refers to the pre-earthquake position of the mailbox.

Earthquakes have caused the rotation of other movable objects, such as grave markers (Athanasopoulos, 1995; Yegian et al., 1994). According to Athanasopoulos (1995), such objects will rotate in such a manner as to be aligned with the strong component of the earthquake. Besides rotation, translation (lateral movement) can also occur during an earthquake. The objects will tend to move in the same direction as the propagation of energy waves, i.e., in a direction away from the epicenter of the earthquake.

11.3 ESTIMATING EARTHQUAKE GROUND MOVEMENT

Often the geotechnical engineer will be required to estimate the amount of foundation displacement caused by earthquake-induced soil movement. For example, the *Uniform*

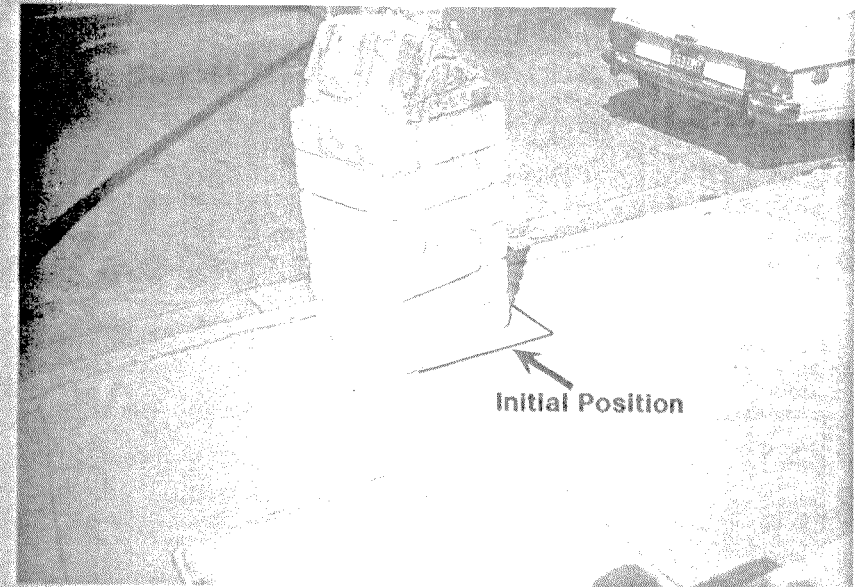


FIGURE 11.10 Rotation of brick mailbox, 1994 Northridge, California, earthquake.

Building Code (1997), which is the building code required for construction in California, states (code provision submitted by the author, adopted in May 1994):

The potential for soil liquefaction and soil strength loss during earthquakes shall be evaluated during the geotechnical investigation. The geotechnical report shall assess potential consequences of any liquefaction and soil strength loss, including estimation of differential settlement, lateral movement or reduction in foundation soil-bearing capacity, and discuss mitigating measures. Such measures shall be given consideration in the design of the building and may include, but are not limited to, ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacement or any combination of these measures.

The intent of this building code requirement is to obtain an approximate estimate of the foundation displacement caused by the earthquake induced soil movement. In terms of accuracy of the calculations used to determine the earthquake induced soil movement, Tokimatsu and Seed (1984) conclude:

It should be recognized that, even under static loading conditions, the error associated with the estimation of settlement is on the order of ± 25 to 50%. It is therefore reasonable to expect less accuracy in predicting settlements for the more complicated conditions associated with earthquake loading.... In the application of the methods, it is essential to check that the final results are reasonable in light of available experience.

Pseudostatic Approach. A vast majority of foundation and earthwork designs are based on the pseudostatic approach (Coduto, 1994). This method ignores the cyclic nature of earthquakes and treats them as if they apply an additional static force upon the slope, retaining wall, or foundation element. For example, as will be discussed in Sec. 15.3, a common

APPENDIX F

SURFACE ADMIXTURE DESIGN CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Surface admixture layer design

Quality Level: NQA-1 Quality Level 2

Prepared by:

Stephen F Dwyer



Date

December 18, 2023

Checked by:

Mike Beardsley



Date

December 18, 2023

Approved by:

Greg Church



Date

December 18, 2023

F.1 DESIGN OF COVER SURFACE LAYER (ROCK/SOIL ADMIXTURE)

Rock/soil admixtures provide a proven means to minimize erosion while allowing for vegetation establishment without a significant reduction in evaporation (Waugh et al. 1994, Dwyer 2003, Dwyer et al. 2007). Erosion (Ligotke 1994) and water balance studies (Waugh 1994) suggest that moderate amounts of gravel mixed into the cover topsoil will control both water and wind erosion. As wind and water pass over the cover surface, some winnowing of fines from the admixture is expected, creating a vegetated erosion-resistant surface referred to as a “desert pavement.”

F.1.1 Design Rainfall Event

The design event for evaluation of long-term erosional stability is the Probable Maximum Precipitation (PMP) event based on NRC guidelines in NUREG-1623. This worst-case storm event was used to design the surface admixture. The PMP 1-hour precipitation value of 8.2 inches was utilized in the design and analysis. The 1-hour time of concentration is generally considered conservative for any contributory area less than 50 acres (20 hectares) (Lindeburg 1989). This PMP value was obtained from Section 6.2.1, p. 6-3, Table 6-1, of the Final Remedial Action Plan (FRAP 2008) for a drainage area of less than 1 square mile (mi²).

The cover design life, per 40 Code of Federal Regulations (CFR) 192(a), shall be effective for up to 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. To appreciate the size of the PMP design event and for comparison purposes, the 1,000-return period (1-hour precipitation frequency) is 2.7 inches, as determined using data supplied by the National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) Hydrometeorological Design Studies Center (NOAA Atlas 14, Volume 1 for Thompson Springs, UT). The precipitation value for the PMP value is three times larger than the 1,000-return period value for the Crescent Junction site.

F.1.2 Runoff Prediction

The “rational method” was used to estimate runoff volumes. This method is commonly used in civil engineering applications and is a method recommended by the U.S. Department of Energy (DOE) for design of cover systems for sites regulated by the Uranium Mill Tailings Radiation Control Act of 1978 (i.e., UMTRA sites) (DOE 1989) and NUREG-1623. The rational method assumes that rainfall occurs uniformly over the watershed at a constant intensity for a duration equal to the time of concentration.

Using the rational method, the peak rate of runoff (Q), in cubic feet per second (cfs), is given by the following expression (the runoff units are in acre-inches/hour but are commonly rounded to cfs):

$$Q = C I A$$

Equation F-1

where:

C = Runoff coefficient (dimensionless) = 0.3 (Lindeburg 1989)

I = Rainfall intensity (in./hr)

A = Surface area that contributes to runoff (acres) = $L^2/4$, (USEPA 2012, Dwyer et al. 2007)

The time of concentration (t_c) was calculated based on the following Kirpich equation, as presented in NUREG 1623:

$$t_c = 0.0078 \frac{L^{0.77}}{S^{0.385}}$$

Equation F-2

where:

L = slope length (ft)

S = slope (ft/ft).

Using the tabular values in Table F-1 (DOE 1989), the percentage of rainfall intensity for a t_c of less than 1 hour can be determined.

Table F-1. Incremental Rainfall Duration Percentage (DOE 1989, Table 4.1)

Rainfall Duration (RD) (min.)	Percentage of 1-hour PMP (%)*
2.5	27.5
5	45
15	74
30	89
45	95
60	100

* Percent of 1-hour PMP = $RD / (0.089 \cdot RD + 0.0686)$.

The contributory surface area was calculated based on the assumed configuration shown in Figure F-1, where L is the critical slope length (USEPA 2012, Dwyer et al. 2007). Slopes and slope lengths were estimated from the approved drawings (FRAP 2008, Addendum D). The rainfall one-hour intensity corresponding to the computed time of concentration (t_c) is then computed as follows (DOE 1989, p. 66):

$$I = PMP_{(t_c)} \times \frac{60}{t_c}$$

Equation F-3

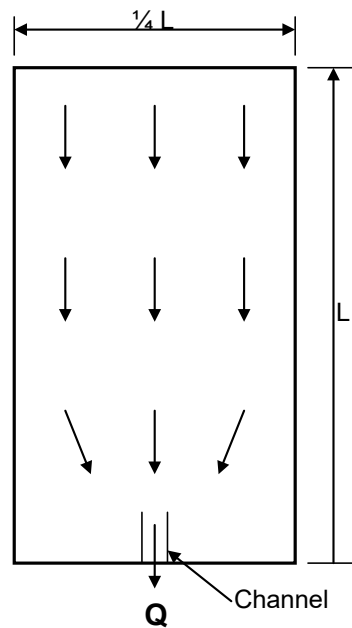


Figure F-1. Contributory Area for Gully Formation

Figure F-2 is a plan view of the cover system with final slopes and slope lengths. The longest and steepest slope from the center toward the south is 1,310 feet long at a slope of 2.5% (1300 feet top ridge to inside edge of transition rock along southern cap perimeter). The slope toward the north is 2% with a slope length of 548 feet.

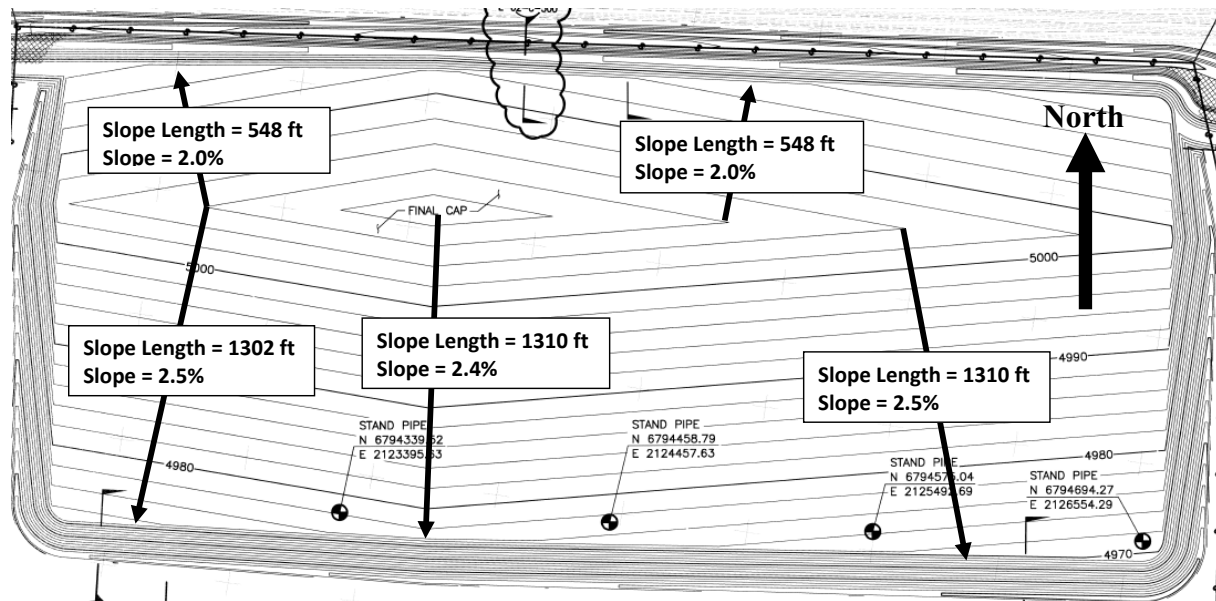


Figure F-2. Plan View of Planned Cover System Final Grades

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Table F-2 summarizes the computations for the southern slope length intervals for the 2.5% slope, while Table F-3 summarizes the northern slope length intervals for the 2% slope length.

Table F-2. Calculation of Rainfall Intensity for South Slope of 2.5%

C	L (ft)	S (%)	i (in./hr)	t _c (min)	Extrapolation ¹ (%)	I (in./hr)
1	1,300	2.5	8.2	8.1	57.5%	35.0
1	1,200	2.5	8.2	7.6	55.7%	36.2
1	1,100	2.5	8.2	7.1	53.8%	37.4
1	1,000	2.5	8.2	6.6	51.8%	38.7
1	900	2.5	8.2	6.1	49.5%	40.1
1	800	2.5	8.2	5.5	47.0%	41.7
1	700	2.5	8.2	5.0	44.2%	43.5
1	600	2.5	8.2	4.4	41.1%	45.5
1	525	2.5	8.2	4.0	38.5%	47.2
1	500	2.5	8.2	3.9	37.5%	47.8
1	400	2.5	8.2	3.3	33.4%	50.4
1	350	2.5	8.2	2.9	31.0%	51.9
1	300	2.5	8.2	2.6	28.4%	53.6
1	200	2.5	8.2	2.5 ²	27.5%	54.2
1	100	2.5	8.2	2.5 ²	27.5%	54.2

¹ Extrapolation is the percentage of the 1-hour PMP = $RD/(0.089*RD + 0.0686)$ (refer to Table F-1).

² t_c minimum is recommended to be 2.5 minutes (DOE 1989).

Table F-3. Calculation of Rainfall Intensity for North Slope of 2.0%

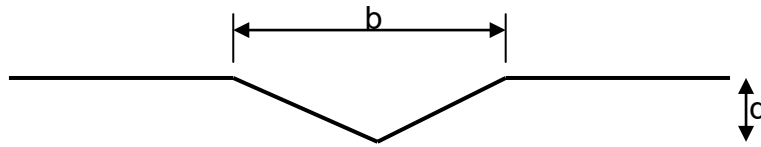
C	L (ft)	S (%)	i (in./hr)	t _c (min)	Extrapolation ¹ (%)	I (in./hr)
1	548	2.0	8.2	4.5	41.5%	45.2
1	500	2.0	8.2	4.2	39.7%	46.4
1	400	2.0	8.2	3.5	35.4%	49.1
1	300	2.0	8.2	2.8	30.3%	52.4
1	200	2.0	8.2	2.5 ²	27.5%	54.2
1	100	2.0	8.2	2.5 ²	27.5%	54.2

¹ Extrapolation is the percentage of the 1-hour PMP = $RD/(0.089*RD + 0.0686)$ (refer to Table F-1).

² t_c minimum is recommended to be 2.5 minutes (DOE 1989).

F.1.3 Channel Geometry

The channel geometry shown in Figure F-3 is that assumed for gully formation.

**Figure F-3. Channel Geometry**

The geometry of the channel that forms is based on regression equations developed from analysis of many channels (Simon, Li & Assoc. 1982). The channel width is given by the following equation:

$$b = 37 (Q_m^{0.38} / M^{0.39}) \quad \text{Equation F-4}$$

where:

b = width of flow (ft)

Q_m = mean annual flow (cfs)

M = fines content, percentage of silts and clays in soils.

One of the sensitive parameters for the admixture design is the fines content (M) of the surface soils. Based on the FRAP (2008, Attachment 5, Vol. 1 & 2), the fines content (silt and clay) can vary. The upper alluvium layer of the borrow has the lowest fines content, while the clay-rich shale underlying layer has the highest fines content. This upper borrow source soil is intended to be used as the soil within the admixture layer. The upper alluvium borrow source soils obtained from boreholes generally have an average fines content of approximately 64.8% (FRAP 2008, Attachment 5, Vol. 1, Appendix E, Table 1). The highest average fines content for the alluvium soil from fluvial/eolian samples was 72.5% (FRAP 2008, Attachment 5, Vol. 1, Appendix E, Table 1 – fluvial/eolian soils). The higher fines content allows for conservatism in the design; consequently, the higher value of 72.5% fines content was used in the admixture analysis. These fines content values were reduced by 60% to account for the volume percentage of rock proposed to be added to the soil. The mean annual flow (Q_m) is assumed to be between 10% and 20% of the peak rate of runoff (Q) (Dwyer et al. 2007). In this case, 10% was used partly because of conservatism already included in the calculations including the use of the storm intensity value associated with the PMP (8.2 in./hr) compared to the 1,000-year return period intensity value (2.7 in./hr). Additional conservatism includes that the larger rock size developed between the Dwyer (et al. 2007) method and NUREG-1623 method will govern the results. The admixture design is validated using methods described in NUREG-1623 and calculations summarized in Appendix J.

For the given discharge point of geometry, the hydraulic depth (d_h), defined as the flow cross-sectional area divided by the width of water surface, is half of the gully depth (d).

For flows at the critical slope:

$$b = 0.5 F^{0.6} F_r^{-0.4} Q^{0.4} \quad \text{Equation F-5}$$

where:

F = width to depth ratio = b/d_h

F_r = Froude Number ≈ 1.0

Q = peak rate of runoff.

F.1.4 Incipient Particle Size

The incipient particle size is the particle that is on the brink of movement at the assumed conditions. Any increase in the erosional forces acting on the particle (e.g., due to an increase in velocity or slope) will cause its movement. For construction purposes, the incipient particle size is assumed to be the D_{50} (50% of the rock passing the given sieve size). The rock is typically sorted in one-dimensional sieves; thus, the rock passing a 2-inch sieve can be 2 inches wide by 3 inches long and/or 3 inches deep. Converting the incipient particle size to the rock specified D_{50} value is therefore conservative given that the D_{50} rock will likely have a larger mass than the inferred incipient particle size. This incipient particle size (D_c) was calculated using the Shield's Equation:

$$D_c = \tau / F_s (\gamma_s - \gamma) \quad \text{Equation F-6}$$

where:

τ = total average shear stress (pcf)

F_s = Shield's dimensionless shear stress = 0.047

γ_s = specific weight of soil (pcf)

γ = water density = 62.4 pcf.

The total average shear stress is given by:

$$\tau = \gamma \, dh \, S \quad \text{Equation F-7}$$

where:

S = slope (ft/ft)

dh = hydraulic depth (ft).

F.1.5 Depth of Scour and Armoring Required

The incipient particle size defines the maximum size particle that will be eroded for a given set of conditions. Material larger than the incipient particle size will not be displaced or eroded and can form an armoring that will protect the surface from erosion by similar or lesser storm events.

The depth of scour (Y_s) to establish an armor layer is given by Pemberton and Lara (1984):

$$Y_s = Y_a [(1/P_c) - 1] \quad \text{Equation F-8}$$

where:

Y_s = scour depth

Y_a = armor layer thickness

P_c = decimal fraction of material coarser than the incipient particle size.

F.2 RESULTS

An Excel spreadsheet was used to simultaneously solve the multiple equations listed in Section F.1. Section F.2.1 presents calculated results for the rock/soil admixture for the 2.5% slope, with a total slope length of 1,300 feet. Section F.2.2 presents calculated results for the

rock/soil admixture for the 2% slope, with a total slope length of 548 feet. Tables F-4 through F-5 summarize the analyses performed.

F.2.1 Admixture Design for South Slope

Table F-4 (South Slope) summarizes the admixture calculations following the method outlined in Section F.1 while utilizing the intensity values (I) in Tables F-2 and F-3. The critical particle sizes (D_c) and admixture depth are computed based on the slope length location along each respective slope. For south slope lengths of 1,300 feet, a 2.0-inch-diameter D_{50} rock is required with a corresponding admixture depth of 10 inches. All mixtures are 60% rock to 40% soil by volume for the full admixture depth of 10 inches.

Appendix J summarizes the calculations performed to verify compliance with the long-term stability of a rocky soil slope per NUREG-1623. The slope lengths utilized in the calculations correspond to those from Table F-4. The slope is 2.5%; consequently, any calculation that computed a stable slope of greater than or equal to 2.5% (with the particle size determined in Table F-4) was acceptable.

F.2.2 Admixture Design for North Slope

Table F-5 provides a summary of the admixture calculations for the north slope following the method discussed in Section F.1 while utilizing the intensity values (I) in Table F-3. For all north slope lengths, 2.0-inch-diameter D_{50} rock is required with a corresponding admixture depth of 10 inches. The critical particle sizes (D_c) and admixture depth are computed based on the slope length along the 2% slope. For all slope lengths, the long-term stability of a rocky soil slope (per NUREG-1623) determined the critical rock size (D_c). All mixtures are 60% rock to 40% soil by volume for the full admixture depth of 10 inches.

Appendix J summarizes the calculations to verify compliance with the long-term stability of a rocky soil slope (per NUREG-1623) for the 2% slope. The slope lengths utilized in the calculations correspond to those from Table F-5. The slope is 2.0%; consequently, any calculation that computed a stable slope of greater than or equal to 2.0% (with the particle size determined in Table F-5) was acceptable.

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Table F-4. South Slope: Admixture Design Summary

I (in./hr)	S (%)	Slope Length (ft)	Rock Size D _c (in.)	use Rock Size D _c (in.)	% Gravel	Admix Depth (in.)	Comment
35.0	2.5	1,300	2.0	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
36.2	2.5	1,200	1.9	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
37.4	2.5	1,100	1.8	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
38.7	2.5	1,000	1.7	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
40.1	2.5	900	1.6	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
41.7	2.5	800	1.4	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
43.5	2.5	700	1.3	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
45.5	2.5	600	1.2	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
47.2	2.5	525	1.1	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
47.8	2.5	500	1.0	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
50.4	2.5	400	0.9	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.

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I (in./hr)	S (%)	Slope Length (ft)	Rock Size D _c (in.)	use Rock Size D _c (in.)	% Gravel	Admix Depth (in.)	Comment
51.9	2.5	350	0.8	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
53.6	2.5	300	0.7	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
54.2	2.5	200	0.5	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
54.2	2.5	100	0.3	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.

Table F-5. North Slope: Admixture Design Summary

I (in./hr)	S (%)	Slope Length (ft)	Rock Size D _c (in.)	use Rock Size D _c (in.)	% gravel	Admix Depth (in.)	Comment
45.2	2.0	548	0.9	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
46.4	2.0	500	0.8	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
49.1	2.0	400	0.7	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
52.4	2.0	300	0.6	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.
54.2	2.0	200	0.4	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.

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I (in./hr)	S (%)	Slope Length (ft)	Rock Size D _c (in.)	use Rock Size D _c (in.)	% gravel	Admix Depth (in.)	Comment
54.2	2.0	100	0.2	2.0	60	10	Admixture design satisfies long-term stability of rocky soil cover per NUREG-1623. Refer to Appendix J.

F.3 REFERENCES

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APPENDIX G

CRACKING CALCULATIONS & SLOPE REDUCTION

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Cover cracking analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 18, 2023

Checked by: Mike Beardsley



Date: December 18, 2023

Approved by: Greg Church



Date: December 18, 2023

Cover Cracking

Cover cracking was evaluated by comparison of allowable strain for the cover materials with maximum calculated strain due to differential settlement in the cover. The area of the cell with the highest anticipated differential settlement (and associated largest horizontal strain) is in the northern portion of the cell due to the largest differential in tailings thickness (26 ft at northern perimeter versus 48 ft at center crest).

The allowable strain for the cover materials was calculated using the equation in Caldwell and Reith (1993) based on soil plasticity index:

$$\epsilon_f = 0.05 + 0.003 * PI$$

where ϵ_f = soil tensile strain at failure (in percent)

PI = plasticity index of the cover soil.

The PI values from the borehole data (FRAP 2008, Addendum E, Table 1. Summary of Geotechnical Index Properties for Natural Soil materials at the Crescent Junction Site) cover material include alluvium (average PI is 7.3) and the weathered Mancos shale (average PI is 9.9). The worst-case strain would include the lowest soil tensile strain at failure, thus the soil with the lowest PI.

For the ET cover, with a weathered Mancos shale radon barrier with a PI of 7.3, the maximum allowable strain is:

$$\epsilon_f = 0.05 + 0.003 * 7.3 = 0.072\%$$

The differential settlement of tailings from the northern perimeter to the crest is 6.8 inches (adding primary and secondary settlement). This amount of differential settlement over the slope distance (566 ft) is equivalent to a horizontal tensile strain of approximately 5E-05 %. Refer to Appendix D for differential settlement calculations. This calculated strain is lower than the allowable tensile strain for the soil, indicating acceptable cover performance.

Even if one assumed that the embankment would have no settlement and the center or deepest tailings settled the full amount of 21.9 inches (primary 9.2 inches and secondary 12.7 inches), the calculated strain would only be 5E-04% - still considerably less than the allowable strain.

Slope Reduction

Given a total differential consolidation of 6.8 inches or 0.57 ft (Appendix D – Settlement Calculations), and a slope length of 566 ft, the subsequent reduction in slope is calculated to be 0.1%. The design slope of the cover system is 2%. Since the potential slope reduction is significantly less than the cover slope, surface ponding should not occur due to consolidation.

References

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Allowable cover strain $E_f = 0.05 + 0.003 * PI$

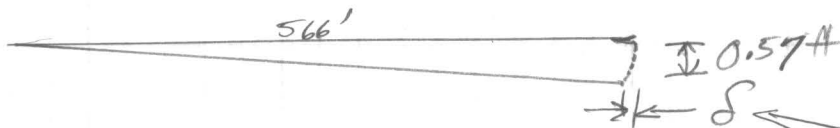
where: PI = plasticity index cover soil

$$E_f = 0.05 + 0.003 (7.3) = 0.072\%$$

↑ Worst case (alluvium PI)

Total Δ Consolidation = 6.8 inches [Appendix D - Settlement Calcs]

Slope Distance = 566 ft



Horizontal Displacement due to Settlement (δ)

$$(\delta + 566)^2 = 566^2 + 0.57^2$$

$$\delta = \sqrt{566^2 + 0.57^2} - 566 = 0.0003 \text{ ft}$$

$$\text{Tensile Strain } (E) = \frac{\delta}{566} = \frac{0.0003}{566} = 5.01 \text{E-}07 = 5.01 \text{E-}05\%$$

$\left(\frac{E}{(0.00005\%)} \ll \frac{E_f}{(0.072\%)} \right)$, therefore cracking not a problem

Slope Reduction due to Differential Settlement

$$= \frac{0.57}{566} = 0.001 \Rightarrow 0.1\%$$

Since the shallowest design slope of the cover is 2%, a slope reduction of 0.1% will not create ponding.

APPENDIX H

RADON FLUX CALCULATIONS

Calculation Cover Sheet

Client: North Wind Portage, Inc.

Project Title: Crescent Junction UMTRA Impoundment ET Cover Design

PO: 800152P122

Calculation Purpose: Radon Flux Analysis

Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer



Date: December 1, 2023

Checked by: Steven D. Rima, CHP



Date: December 1, 2023

Checked by: Greg Church



Date: December 15, 2023

H.1 RADON ATTENUATION

Federal regulations limiting radon releases to the atmosphere are contained in 40 CFR 192.02. These regulations require that release of radon-222 (Rn-222) to the atmosphere not exceed: (1) an average release rate of 20 picocuries per square meter per second (pCi/m²s); *or* (2) increase the annual average concentration of Rn-222 in the air at or above any location outside of the disposal site by more than 1/2 picocurie per liter (pCi/L).

The evapotranspiration (ET) cover soil functions as an effective barrier to gas diffusion; air-filled voids in the soil must be discontinuous. Gas diffuses slowly through wet soils that contain only occasional, unconnected air bubbles. The ET cover system was evaluated for its ability to limit radon flux (NRC 1989, 2003). The radon flux through the ET cover soil was calculated using the Uranium Mill Tailings Cover Calculator (<http://www.wise-uranium.org/ctc.html>) that is a clone of the Radon Attenuation Effectiveness and Cover Optimization with Moisture Effect (RAECOM) code, as described in Rogers and Associates (1984a, 1984b). It performs one-dimensional, steady-state radon diffusion calculations for a multi-layer system.

H.1.1 Input Data for Radon Flux Modeling

Input data for calculations utilized the previous borrow site investigation data summarized in Addendum D of the Final Remedial Action Plan (FRAP 2008). The radon calculation analyses performed showed that a cover 8.2 ft thick is adequate to limit radon flux (Section H.2).

H.1.1.1 Cover Thickness and Layer Data

An ET cover profile 8.2 ft (2.5 meters) thick is proposed as the final cover system. This final cover system profile (Figure H-1) that meets the flux criterion is presented in this report.

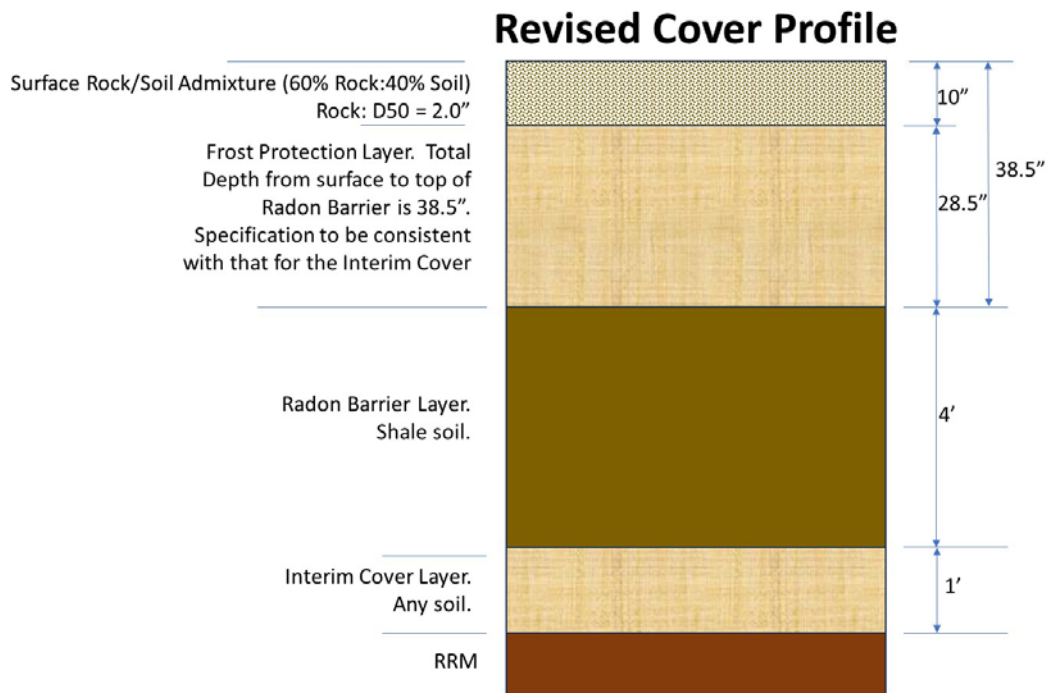


Figure H-1. ET Cover Profile

A 1-foot (31-centimeter)-thick interim cover is placed and compacted directly on top of the tailings. A 4-foot (122-centimeter)-thick compacted layer of conditioned shale is directly on top of the interim cover. A frost protection layer 38.5 in (98 cm) thick is above the radon barrier layer. The top of the frost protection layer - a rock/soil admixture designed to mitigate erosion - is a 10-in (25-centimeter)-thick layer of rock and soil mixed at a ratio of 60% rock to 40% soil by volume. The tailings were assumed to be 16 feet (5 m) thick (NRC 1989, Section C 1.1.1).

According to NUREG Guide 3.64: Section C 1.1.1, Layer Thicknesses (NRC 1989):

The thickness of the tailings source, x_t , will be determined from the applicant's estimates of total tailings production and areal extent of the pile. Because a tailings thickness greater than about 100-200 cm is effectively equivalent to an infinitely thick radon source, a value of $x_t = 500$ cm represents an equivalent infinitely thick tailings source of radon that may be used in the absence of more specific smaller values.

Thus, 16 feet (500 centimeters) is the maximum thickness to be used for tailings in the radon model. Tables H-1 to H-4 provide a layer-by-layer description of the input parameters.

H.1.1.2 Ra-226 Activity Concentration

Activity concentrations of radium-226 (Ra-226) in each respective layer are required input parameters. The Ra-226 activity concentration for the tailings was broken into two layers based on early conservative measurements: (1) the top 7 ft had an activity less than or equal to 707 pCi/g (mean of all samples collected from tailings pile, FRAP 2008, Addendum D, Calculation C-05, Table B-3), and (2) the tailings below 7 ft are assumed to have an activity of 1349 pCi/g (the mean of the samples collected in the slimes – FRAP 2008, Addendum D, Calculation C-05, Table B-3).

The tailings are actually mixed at the Moab site prior to shipment to Crescent Junction (CJ) for placement in the impoundment. The actual Ra-226 measurements made to date of material shipped to CJ has an average concentration of 455.5 pCi/g (Attachment H-1, Table H-5). The Ra-226 activity of material placed in the upper 7 ft of the impoundment to date is 441.1 pCi/g (Attachment H-1, Table H-6). A set of sensitivity analyses was included in this report (Sections H.2.1 to H.2.2) evaluating the radon concentration given the actual Ra-226 levels of the material actually placed to date. The tailings concentration of 455.5 pCi/g was conservatively used for the full 5 m depth even though the concentration in the upper 7 ft is only 441.1 pCi/g.

A value of 2.3 pCi/g was assumed for the shale soil (weathered Mancos shale ranged from 1.6 to 3.0 pCi/g with a mean value of 2.3 pCi/g; Reference: FRAP 2008, Addendum D, Calculation C-05, Appendix B, Table B-1), while 1.9 pCi/g was assumed for the alluvium soil (alluvial material ranged from 1.4 to 2.3 pCi/g with a mean value of 1.9 pCi/g; Reference: FRAP 2008, Addendum D, Calculation C-05, Appendix B, Table B-1). The admixture layer was adjusted for rock content mixed with alluvium soil and thus had a value of 0.76 pCi/g or 40% (admixture design includes 40% soil to 60% rock by volume) of the alluvium value.

H.1.1.3 Rn-222 Emanation Fraction

The Rn-222 emanation factor is a fraction of the total amount of Rn-222 produced by radium decay that escapes from the soil particles and gets into the pores of the soil. It depends on the soil material and the moisture content. The Rn-222 emanation factor varies over a range of 0.1 to 0.4 or more. A default value of 0.35 was used (NRC 1989, 2003).

H.1.1.4 Porosity

Porosity is the ratio of the pore volume (air- and water-filled) to the total volume of the soil. The porosity values for each layer are included in Tables H-1 and H-3. The tailings porosity was assumed to be 0.44 (FRAP 2008, Addendum D, Calculation C-05, Table B-2). The mean specific gravity of the tailings was 2.8 with a dry bulk density of 1.57 g/cm³; thus, the porosity is computed as $1 - (1.57/2.8)$.

The porosity of the moderately compacted interim cover soil was assumed to be 0.38 (FRAP 2008, Addendum D, Calculation C-05, Table B-2). Refer to Attachment H-1, Table H-19 for a summary of soil values from FRAP 2008, Attachment 5, Appendix K. This 0.38 porosity for the alluvium soil was based on a targeted remolded soil sample at 85% of the maximum dry density (MDD) per ASTM D1557, which equates to about 90% of the MDD per ASTM D698. The average porosity value for alluvium remolded to a target density of 92% of the MDD per ASTM D1557 is 0.33.

The porosity of the weathered shale soil layer was assumed to be 0.31 (FRAP 2008, Addendum D, Calculation C-05, Table B-2). The average porosity of the shale soil was 0.31 for soil compacted to a target remolded density of 92% of the MDD per ASTM D1557. The actual average remolded density was 91.4%. The porosity value for the shale soil remolded to a target density of 85% of the MDD per ASTM D1557 (approximately 90% of MDD per ASTM D698) is 0.36.

The porosity of the top admixture layer was adjusted for the addition of rock. The adjusted porosity is 0.15 (assuming the volume of rock content is 60%). Assuming the porosity is equal

to the saturated moisture content, the volumetric moisture content was lowered based on the following equation (ASTM D4718 and Bouwer and Rice 1984):

$$\theta_b = (1 - V_r)\theta_s$$

where: θ_b = bulk volumetric moisture content

θ_s = saturated volumetric moisture content

V_r = volume of rock.

H.1.1.5 Moisture Content

Moisture content (dry wt_%) is the percentage of water weight to dry soil weight. The long-term moisture content for the tailings was assumed to be 15% (FRAP 2008, Section 5.2.1, p. 5-3; FRAP 2008, Addendum D, Calculation C-05, Table B-5).

The long-term moisture content of the alluvium cover material is 9% (FRAP 2008, Section 5.2.1, p. 5-4; FRAP 2008, Addendum D, Calculation C-05, Table B-4). The admixture soil layer moisture content assuming alluvium soil is utilized was adjusted for the rock content (60%) to 3.6% per the equation described in Section H.1.1.4.

The mean long-term moisture content of the compacted clay derived from the on-site weathered remolded Mancos shale is 12.1%. This value is based on the mean of 12 samples of measured 15-bar moisture content analyses of remolded Mancos shale (FRAP 2008, Section 5.2.1, p. 5-4; FRAP 2008, Addendum D, Calculation C-05, Table B-4). This value was computed to be 12.4% (Attachment H-1, Table H-19), but a more conservative value of 12% in the radon calculations was used. This value is based on soil samples remolded to 92% of the MDD per ASTM D1557.

A sample of the shale material currently placed in the radon barrier was measured to have a grain size distribution of 32.9% clay and 62.5% silt with a dry bulk density of 1.61 g/cm³ (Attachment H-1, Table H-20). Utilizing the Rawls and Brankensiek (1982) empirical equation as recommended in NUREG-1620 (Page 5-6):

$$c = 0.026 + .0005x + 0.0158y$$

Where: c = volumetric moisture content @ 15-bar soil water-retention value

x = percent clay in soil

y = percent organic matter in soil (conservatively assumed to be zero)

Thus, $c = 19.05\%$; converted to a gravimetric moisture content of about 12%. Sensitivity analyses were performed lowering the long-term moisture content of the shale radon barrier layer to 11.8% from 12.1%. To put this soil sample moisture content into perspective, the grain size distribution of the shale soil classifies as a sandy clay loam per the USDA soil classification. The mean volumetric water content at -15 bar tension for the soil classification is 20.8% (Rawls et al. 1982, Table 2). This is greater than the 19.05% for the soil sample described above. Thus, the 19.05% volumetric moisture content converted to about 12% gravimetric moisture content is a reasonable value for the radon barrier soil.

H.1.1.6 Rn-222 Effective Diffusion Coefficient

The Rn-222 Effective Diffusion Coefficient (m^2/s) is defined from Fick's equation as the ratio of the diffusive flux density of radon activity across the pore area to the gradient of the radon activity concentration in the pore or interstitial space. This value was calculated in the model based on the assigned input parameters identified above.

H.2 RADON CALCULATIONS

The following subsections provide a summary of the input parameters and subsequent output for the myriad of calculations performed. A set of sensitivity analyses was performed evaluating the tailings Ra-226 activity concentration.

H.2.1 Sensitivity Analysis #1

The first radon calculation performed on the profile shown in Figure H-1 includes measured cover soil parameters as defined in FRAP (2008) and the assumed worst-case tailings concentrations as described in Section H.1.1.2. The input parameters used in sensitivity analysis #1 are summarized in Table H-1.

Table H-1. Sensitivity Analysis #1: Radon Flux Input Parameters

Layer (bottom to top)	Thickness	Ra-226 Activity Conc. (pCi/g)	Ra-226 Emanat	Porosity	Moisture (dry wt_%)	Rn-222 Diff. Coeff – calculated (m^2/s)
Tailings, below 7 ft	2.866 m (9 ft)	1349	0.35	0.44	15	1.121E-06
Tailings, upper 7 ft	2.134 m (7 ft)	707	0.35	0.44	15	1.121E-06
Interim Cover	0.305 m (1 ft)	1.9	0.35	0.38	9	1.620E-06
Shale Soil Layer	1.219 m (4 ft)	2.3	0.35	0.31	12	2.087E-07
Frost Protection Layer	0.724 m (28.5 in)	1.9	0.35	0.38	9	1.620E-06
Top Layer (Admixture) of Cover	0.254 m (10 in)	0.76	0.35	0.15	3.6	1.809E-07

The computed radon flux for the given profiles was $0.7 \text{ pCi}/\text{m}^2\text{s}$ (Table H-2). This value is less than the maximum allowable radon flux of $20 \text{ pCi}/\text{m}^2\text{s}$ per 40 CFR 192.02.

Table H-2. Sensitivity Analysis #1: Radon Flux Output Parameters

Layer	Thickness (m)	Exit Flux (pCi/m ² s)
Tailings – bottom layer	2.866	271.8
Tailings – top 7 ft layer	2.134	221.1
Interim Cover	0.305	76.3
Shale Soil Layer	1.219	3.0
Frost Protection Layer	0.724	0.6
Top Layer (Admixture) of Cover	0.254	0.7

H.2.2 Sensitivity Analysis #2

The sensitivity analysis #2 radon calculation performed includes the input parameters for the cover soils consistent with sensitivity analysis #1 while evaluating the actual measured tailings concentrations. This included measured cover soil parameters as described in sections H.1.1.4 and H.1.1.5 and the measured tailings concentrations described in Section H.1.1.2. The input parameters used in sensitivity analysis #2 are summarized in Table H-3.

Table H-3. Sensitivity Analysis #2: Radon Flux Input Parameters

Layer (bottom to top)	Thickness	Ra-226 Activity Conc. (pCi/g)	Ra-226 Emanat	Porosity	Moisture (dry wt_%)	Rn-222 Diff. Coeff – calculated (m ² /s)
Tailings, below 7 ft	2.866 m (9 ft)	455.5	0.35	0.44	15	1.121E-06
Tailings, upper 7 ft	2.134 m (7 ft)	455.5	0.35	0.44	15	1.121E-06
Interim Cover	0.305 m (1 ft)	1.9	0.35	0.38	9	1.620E-06
Shale Soil Layer	1.219 m (4 ft)	2.3	0.35	0.31	12	2.087E-07
Frost Protection Layer	0.724 m (28.5 in)	1.9	0.35	0.38	9	1.620E-06
Top Layer (Admixture) of Cover	0.254 m (10 in)	0.76	0.35	0.15	3.6	1.809E-07

The computed radon flux from sensitivity analysis #2 for the given profile was 0.6 pCi/m²s (Table H-4). This value is less than the maximum allowable radon flux of 20 pCi/m²s per 40 CFR 192.02.

Table H-4. Sensitivity Analysis #2: Radon Flux Output Parameters

Layer	Thickness (m)	Exit Flux (pCi/m ² s)
Tailings – bottom layer	2.866	7.3
Tailings – top 7 ft layer	2.134	135.9
Interim Cover	0.305	46.6
Shale Soil Layer	1.219	2.1
Frost Protection Layer	0.724	0.4
Top Layer (Admixture) of Cover	0.254	0.6

H.3 REFERENCES

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Attachment H-1

	2012		2013		2014		2015		2016		2017		2018		2019		2020		2021	
	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples	Average Activity	Number of Samples
January	376	64	0	0	398	27	233	16	259	30	693	18	505	18	287	20	431	15	443	16
February	330	64	0	0	291	30	135	30	210	32	635	14	207	16	312	28	443	12	490	17
March	373	68	379	24	283	34	384	34	581	22	691	18	207	18	421	32	460	17	376	19
April	405	68	354	36	221	34	660	34	680	18	282	16	594	10	437	32	493	17	566	17
May	371	21	493	34	360	32	543	36	767	12	389	16	658	18	442	30	576	15	516	16
June	465	18	516	32	616	34	369	24	733	20	497	18	673	18	368	34	441	17	498	18
July	488	15	623	38	558	36	603	36	408	16	477	12	566	16	494	34	387	18	498	17
August	510	18	565	34	535	24	627	34	600	18	516	20	515	18	495	38	435	17	505	18
September	612	39	597	32	584	40	585	34	684	16	589	16	537	20	385	38	560	16	631	17
October	610	56	456	36	556	36	388	34	731	24	545	16	627	18	429	18	519	17	792	15
November	517	42	465	10	397	22	194	34	756	32	570	16	474	16	450	15	439	17	723	15
December	0		377	24	0		303	26	699	18	547	16	377	8	425	12	380	17	711	13
	460	473	402	300	400	349	419	372	592	258	536	196	495	194	412	331	464	195	562	198
									Total activity all of samples based on average data				4,555	pCi/g Ra-226						
											Total Number of samples		2,866	Average wt. of samples 450 to 550 grams						
											Average Activity All Samples		455.5	pCi/g Ra-226						

[illegible]

December 2023

Table H-7. Summary of Soil Presented in FRAP (2008), Attachment 5, Appendix K

Soil Data Summary -- FRAP 2008, Attach 5, Appendix K								target remold density 112 pcf					target remold density 104 pcf					85% D155: 92% D155:	
Test Pit	depth	class	Ks (cm/sec Remold	SG	Pinhole Test	MDD (ASTM D1557)	Opt MC (D1557)	Remoldec	Remold di 15 bar mo	Grav Mois calculated	Remoldec	Remold di 15 bar mo	Grav Mois calculated	Remoldec	Remold di 15 bar mo	Grav Mois calculated	dry bulk density (pcf		
151	4.5	sheet wash	8.7E-07 85% ASTM 1557			118.5	13										CU triaxial shear test		
152	7.5	sheet wash		2.64	clear	121	13.5	91.3%	111	18.0	10.1	0.33	84.2%	102	16.3	10.0	0.38	102.3	
152	15	fluvial/eolian		6.1E-06	2.63	clear	128	10.5	91.4%	117	16.0	8.5	0.29	83.0%	106	14.7	8.6	0.35	
152	23	shale		1.7E-06			121	12	91.3%	111	24.5	13.9		84.5%	102	22.1	13.5		
153	3.5	sheet wash	1.4E-04 85% ASTM 1557	2.68		120.5	12.5	91.2%	110	18.9	10.7	0.34	84.6%	102	17.2	10.5	0.39		
153	8.5	fluvial/eolian		2.65	clear	118	11	91.5%	108	11.7	6.7	0.35	84.4%	100	10.4	6.5	0.40	100.6	
154	4	sheet wash				123	12												
154	12	fluvial/eolian		1.9E-06	2.65	barely visible	122.5	12											
154	20	shale	8.0E-07 92% ASTM D1557	2.73	clear	120.5	13	91.6%	110	21.6	12.2	0.35	84.6%	102	19.9	12.2	0.40	110.6	
155			3.0E-06		clear				111	16.7	9.4			102	14.2	8.7			
156	5	sheet wash		2.82		120	11.5												
156	12	eolian		2.64	clear	124.5	11												
156	22	shale		5.9E-09 92% ASTM D1557	2.56		127.5	11	91.5%	117	20.9	11.2	0.27	84.6%	108	16.3	9.4	0.33	117.1
			Alluvium	SG, avg	2.67			91.4%		shale avg	12.4	0.31	84.3%			10.6	0.36		
										alluv avg	9.0	0.33				8.9	0.38		

December 2023

Table H-8. Soil Sample Measurements for Radon Barrier Material

	Proctor Data		Target Remold Parameters ¹			Actual Remold Data			Volume Change Post Saturation ²			Volume Change Post Drying Curve ³		
	Opt. Moist. Cont.	Max. Dry Density	Moist. Cont.	Dry Bulk Density	% of Max. Density	Moist. Cont.	Dry Bulk Density	% of Max. Density	Dry Bulk Density	% Volume Change	% of Max. Density	Dry Bulk Density	% Volume Change	% of Max. Density
Sample Number	(%, g/g)	(g/cm ³)	(%, g/g)	(g/cm ³)	(%)	(%, g/g)	(g/cm ³)	(%)	(g/cm ³)	(%)	(%)	(g/cm ³)	(%)	(%)
6. Radon Barrier #2 (90.1%)	16.5	1.79	16.5	1.61	90%	16.3	1.61	90.1%	1.60	+1.08%	89.2%	1.60	+0.65%	89.5%
¹ Target Remold Parameters: 90% of maximum dry density at optimum moisture content based on standard proctor compaction test results.														
² Volume Change Post Saturation: Volume change measurements were obtained after saturated hydraulic conductivity testing.														
³ Volume Change Post Drying Curve: Volume change measurements were obtained throughout hanging column and pressure plate testing. The 'Volume Change Post Drying Curve' values represent the final sample dimensions after the last pressure plate point.														
Notes:														
"+" indicates sample swelling, "-" indicates sample settling, and "---" indicates no volume change occurred.														
 Daniel B. Stephens & Associates, Inc.														
Percent Gravel, Sand, Silt and Clay*														
	% Gravel		% Sand		% Silt		% Clay		% fines					
Sample Number	(>4.75mm)		(<4.75mm, >0.075mm)		(<0.075mm, >0.002mm)		(<0.002mm)							
6. Radon Barrier #2	0.7		3.9		62.5		32.9				95.4			

APPENDIX I

STABILITY CALCULATIONS

There is no change to the slope or slope materials from the original design.

The water balance condition of the slope should improve with the substitution of an evapotranspiration cover for the existing rock cover and thus the stability conditions should improve. That is, the ET Cover will not allow for net percolation of meteoric water and thus underlying cover soil layers including the RRM should dry over time and thus respective strength parameters will improve. This contrasts the existing rock cover that allows for infiltration while restricting the removal of this infiltrated water thus allowing continued recharge of water into the underlying cover soil layers and RRM. Consequently, the original stability calculations submitted and approved with the Final Remedial Action Plan (2008) will not be changed or amended.

JACOBS**Calculation Cover Sheet****(Ref. FOWI 116 Design Calculations)**Calculation No:
C-10

Page: 1 of 13

Rev. No.: 2

Revision Date:
4/17/08Previous Revision
Date: 2/15/08Current Revision
Date: 4/17/08Issuing Department:
*Federal Operations Design Engineering*Supersedes:
Revision 1 (dated 2/15/08)Client:
Project Title: Moab UMTRA Project
Project Number:
System:Engineering Discipline:

GeotechnicalCalculation Title:
Slope Stability of Crescent Junction Disposal Cell**Purpose:**

Uranium containment dike must be stable at the end of construction and for long term once the cover material is placed above it. For this purpose, slope stability runs were made to calculate factor of safety for various static and seismic conditions for both End of Construction and Long Term cases.

NQA-1 QUALITY LEVEL: 2Prepared by: *Almae Harris*Date: 4-17-2008Checked by: *KH Chappell*Date: 4-17-2008Engineering Managers Approval: *William D. Barto*Date: 5/5/2008

Revision History:

Pages Affected By Revision	Revised/Added/Deleted	Description of Revision
Rev. 2	Revision Page 4 of 13 Design Input	Changes to the tailings geometry obtained from the 90% drawings resulted in the following changes: Top of Dike: El. 4967' (instead of 4964') Cover thickness: 9 ft (instead of 10 ft) Cover top elevation: El. 4978 – 4982' at analysis location (instead of El. 4972')
	Addition Page 6 of 13 Calculation Section	Summary of results and analysis.
	Addition / Revision Pages 7 and 8 of 13 Drawings	Inserted new contour plan of tailings pile. Inserted new detail of tailings embankment geometry.
	Revision Pages 10 and 11 of 13 Slope Stability Analyses	New FS results – End of Construction (static). New FS results – End of Construction (seismic)
	Revision Page 12 and 13 of 13 Slope Stability Analyses	New results – Long Term (static) New results – Long Term (seismic)

Description of Calculation:

The calculations presented here are for determining and verifying stability of the disposal cell at the Crescent Junction disposal site in order to assess long term stability of the tailings.

A disposal cell section at southwest corner of the cell was analysed for End of Construction (short term) and Long Term cases. Stability of the cell dike was also assessed for the design seismic event for both short term and long term cases.

The subsurface conditions were determined from borings taken near the section. Geotechnical design parameters were developed/obtained from project reports and previous analyses.

The analyses were performed with an established commercial program SLIDE, V 5.0 by Rocscience. The SLIDE program analyzes the slope with various methods to determine factor of safety including Bishop Simplified, Janbu Simplified, Janbu Corrected, Spencer, Morgenstern-Price and Corps of Engineer Methods. Bishop and Janbu methods employ limit equilibrium analysis method while Spencer and Morgenstern-Price methods use both force equilibrium and moment equilibrium to calculate safety factors. In this analysis, Spencer results were reviewed for the lowest factor of safety.

Assumptions:

The plan location and cross section selected for analyses are shown in Figure 1 and 2. The location is within first phase of construction near southwest section of the disposal cell and represents critical height and geometry.

No groundwater table was assumed. All borings were dry, and the review of historical data indicated that water table at depth exceeding 100 feet below ground surface. It is assumed that the tailings will be deposited by compacting it to 90 percent of the maximum density as determined by ASTM D1557 at slightly above (2%) optimum moisture content. From the review of test results and previous analyses, it is determined that excess pore pressure will not be a factor in the stability analysis.

Design Inputs:

For SLIDE computer program, the design inputs were:

Material Properties

The material properties were obtained from borings, laboratory test results and from previous analyses performed by others.

MATERIAL	Unit Weight			Shear Strength			
	Dry (pcf)	Moisture Content (%)	Moist (pcf)	Total		Effective	
				Friction Angle (Degree)	Cohesion (psf)	Friction Angle (Degree)	Cohesion (psf)
UMTRA Cover	111	11.7	124	26	0	26	0
Tailings	98	17.4	115	0	615	32	0
Dike Fill	111	11.7	124	19	0	26	0
In-situ Overburden Material - ML	92	6.7	98	26	0	26	0
Weathered Mancos Shale	104	7.3	112	25	0	25	0

Note:

Physical properties of in-situ overburden soils and weathered Mancos Shale were determined from the earlier design phase calculations – 'Geotechnical Properties of Native Soils', Attachment 5, Vol. 1, Appendix E. Physical properties of UMTRA cover, tailings and dike fill, and strength properties of all materials were obtained from Attachment 5, Vol. 1, Appendix C.

Slope Geometry

The slope cross section was selected from 90° plans and shown in Figure 2.

Ground surface elevation at this section varied from 4954' to 4944' dipping towards the south.

Top of dike was estimated at Elevation 4967'.

Cover material will be 9-foot thick with top Elevation at 4978' – 4982' at the analysis location.

For site characterization and to determine geotechnical design parameters for the in-situ materials, Borings CRJ01 – 0205 and CRJ01 – 0212 were used.

Water surface was not used.

Dike exterior slope was configured at 5 horizontal to 1 vertical.

Analysis Conditions

End of Construction (short term) using shear strength derived from total stresses.

Long Term case was analysed using effective stresses.

Earthquake Effects

Seismic conditions were analyzed using guidance provided in the Technical Approach Document (TAD), 1989. TAD requires the use of pseudo-static approach where Peak Horizontal Acceleration (PHA) value of 0.22 g (previously determined) is taken as half of PHA or 0.11 g for End of Construction case, and 2/3rd of PHA or 0.15 g for Long Term case.

Required Minimum Factor of Safety

Guidelines provided in TAD for minimum acceptable safety factors are as under:

End of Construction – Static 1.3

End of Construction – Seismic 1.0

Long Term - Static 1.5

Long Term - Seismic 1.0

Software:

Title	Developer	Versions	Revision Level
SLIDE	Rocscience, Inc	5.0	

Calculation Section:

See attached

As seen in the attached stability runs, the following factor of safety were obtained for the containment dike:

End of Construction – Static	2.15
End of Construction – Seismic	1.31
Long Term - Static	2.78
Long Term - Seismic	1.51

Conclusions/Recommendations:

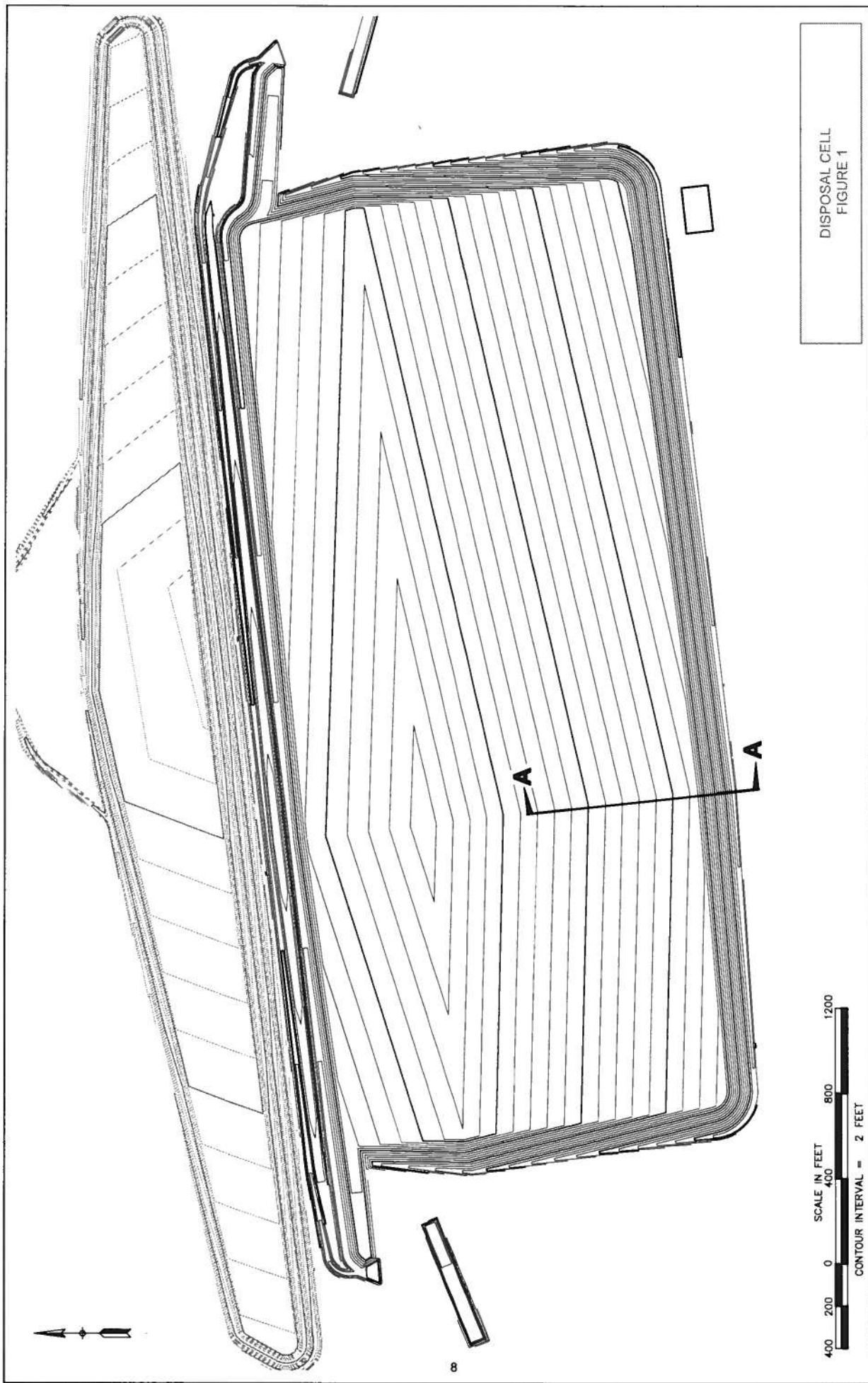
Based on the stability analyses, the disposal cell with its containment dike and cover material meets the factor of safety standards established for this structure. The stability results obtained by these analyses verify the results obtained and presented in the Revised Remedial Action Plan.

Reference:

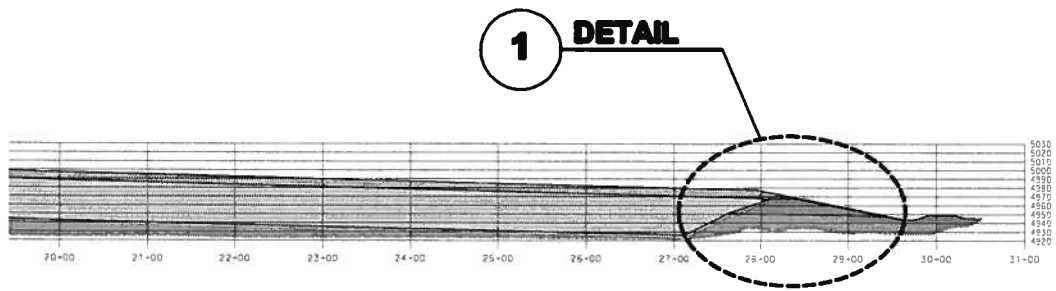
DOE (U.S. Department of Energy), Revised Remedial Action Plan and Site Design for Stabilization of Moab Title I Uranium Mill Tailings at the Crescent Junction, Utah, Disposal Site, Attachment 1 and Attachment 5, June 2007

U.S. Department of Energy, Technical Approach Document, 1989, DOE/UMTRA

SLIDE Computer program, prepared by Rocscience Inc. 31 Balsam Avenue, Toronto, Ontario



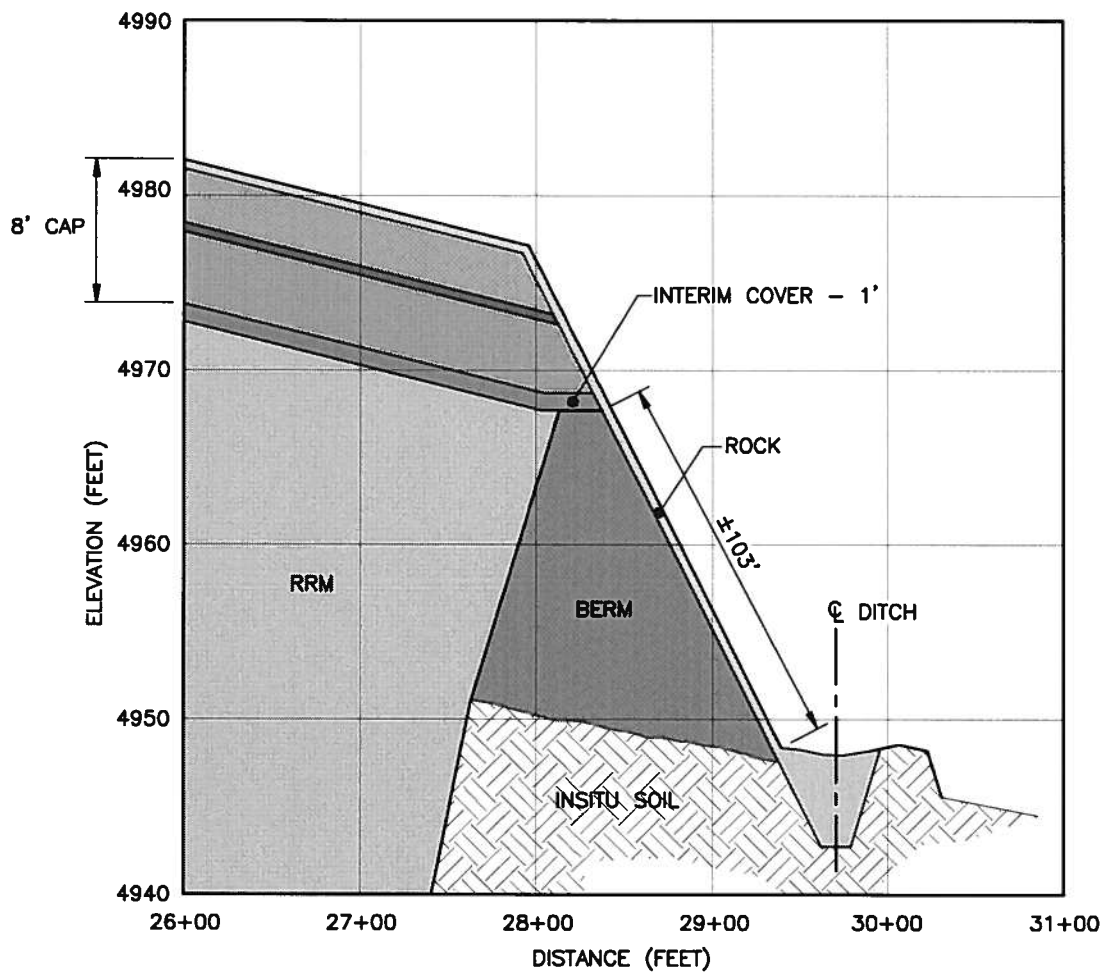
DISPOSAL CELL
FIGURE 1



CAP CROSS-SECTION A-A - NORTH-SOUTH

SCALE: HORIZONTAL 1"=200'

VERTICAL 1"=200'



1 DETAIL
SCALE: HORIZONTAL 1"=100'
VERTICAL 1"=10'

DISPOSAL CELL DIKE
FIGURE 2

Crescent Junction Disposal Cell

Material Properties

Material: UMTRA Cover
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

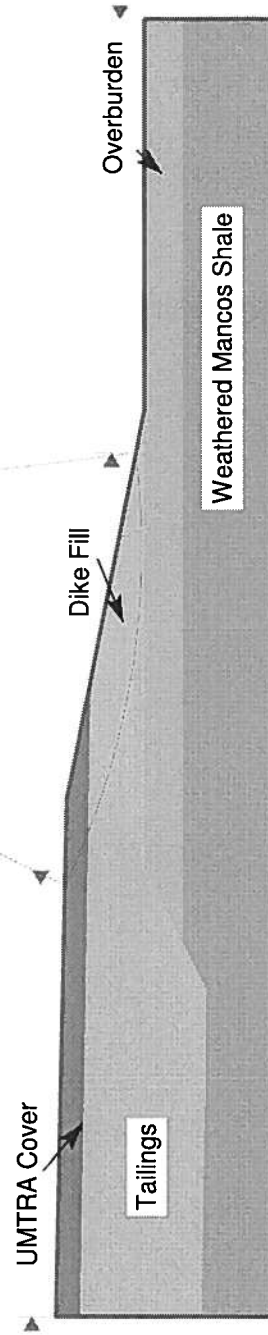
Material: Tailings
Unit Weight: 115 lb/ft³, Cohesion: 615 psf, Friction Angle: 0 degrees

Material: Dike Fill
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 19 degrees

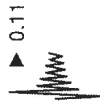
Material: Overburden
Unit Weight: 98 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

Material: Weathered Mancos shale
Unit Weight: 112 lb/ft³, Cohesion: 0 psf, Friction Angle: 25 degrees

2.149



End of Construction - Static

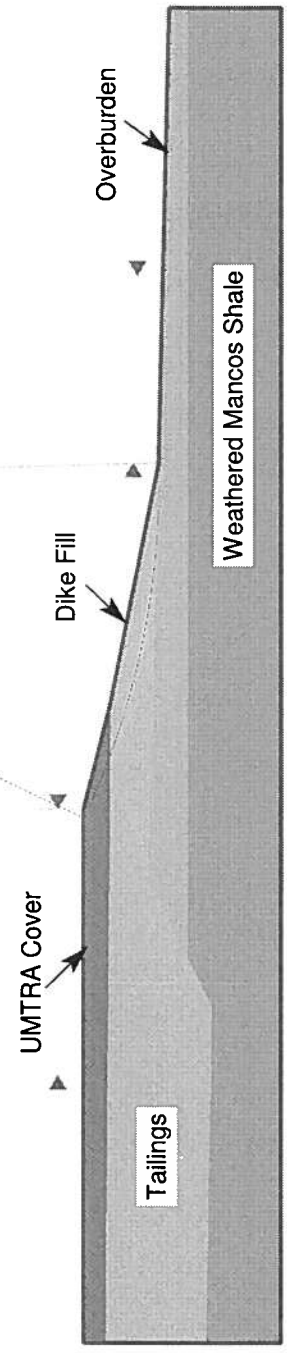


Crescent Junction Disposal Cell

Material Properties

- UMTRA Cover
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees
- Tailings
Unit Weight: 115 lb/ft³, Cohesion: 615 psf, Friction Angle: 0 degrees
- Dike Fill
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 19 degrees
- Overburden
Unit Weight: 98 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees
- Weathered Mancos shale
Unit Weight: 112 lb/ft³, Cohesion: 0 psf, Friction Angle: 25 degrees

1.175



End of Construction - Seismic

G:\TPW\GEOTECH\Moab-Oak Ridge\90% Design - St. Louis\Crescent Junction\End of Construction

Crescent Junction Disposal Cell

Material Properties

Material: UMTRA Cover
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

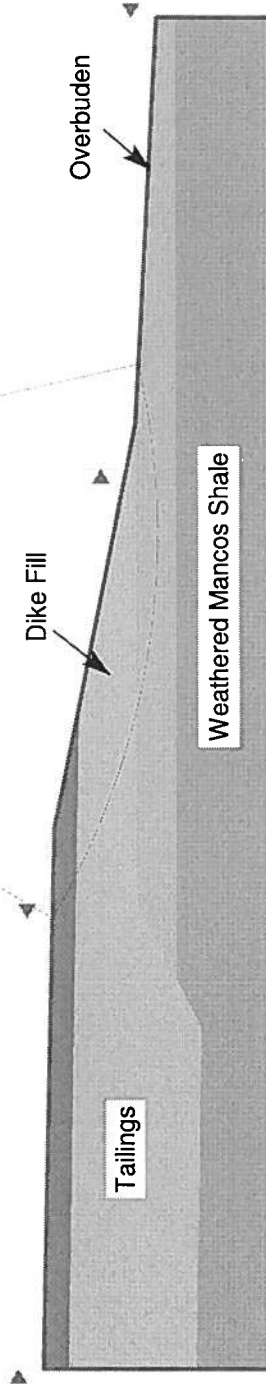
Material: Tailings
Unit Weight: 115 lb/ft³, Cohesion: 0 psf, Friction Angle: 32 degrees

Material: Dike Fill
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

Material: Overburden
Unit Weight: 98 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees

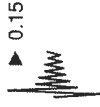
Material: Weathered Mancos shale
Unit Weight: 112 lb/ft³, Cohesion: 0 psf, Friction Angle: 25 degrees

2.782



Long Term - Static

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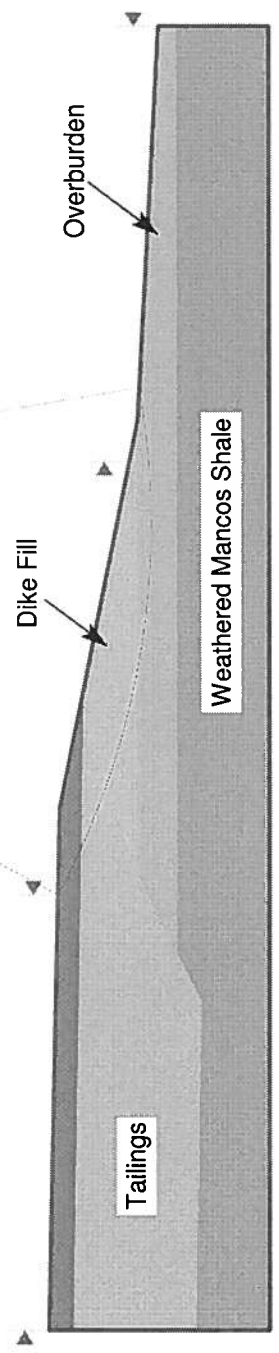


Crescent Junction Disposal Cell

1.510

Material Properties

- Material: UMTRA Cover
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees
- Material: Tailings
Unit Weight: 115 lb/ft³, Cohesion: 0 psf, Friction Angle: 32 degrees
- Material: Dike Fill
Unit Weight: 124 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees
- Material: Overburden
Unit Weight: 98 lb/ft³, Cohesion: 0 psf, Friction Angle: 26 degrees
- Material: Weathered Mancos shale
Unit Weight: 112 lb/ft³, Cohesion: 0 psf, Friction Angle: 25 degrees



Long Term - Seismic

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JACOBS**Calculation Cover Sheet****(Ref. FOWI 116 Design Calculations)**Calculation No:
C-11

Page: 1 of 14

Rev. No.: 1

Revision Date:
4/15/08Previous Revision
Date:
1/15/08Current Revision
Date:
4/15/08Issuing Department:
*Federal Operations Design Engineering*Supersedes:
Revision 0 (dated 1/15/08)Client: U.S. Department of Energy
Project Title: Moab – UMTRA Project
Project Number: 35DJ2600
System:Engineering Discipline:
Geotechnical

Calculation Title: Settlement Analysis of Uranium Mine Tailings at Crescent Junction, UT

Purpose:

Determine the magnitude of settlement for the uranium mill tailings pile to be constructed at the Crescent Junction Disposal site.

The present condition and characteristics of the uranium mill tailings at the Moab repository site are considerably different than what is anticipated to be placed at the Crescent Junction disposal site. Material properties of the existing mine tailings are available for the Moab site. During the course of this project, the mine tailings at Moab will be mixed and dried out to optimum moisture content before being transported to Crescent Junction. There, the tailings will be placed and compacted to 90% of the maximum density per ASTM D698. The settlement analysis is based on the consolidation characteristics of the remolded tailing materials as reported by others. Both primary and secondary settlements are estimated due to loads imposed on each incremental tailing layer by the cover material and the tailing material above. The settlement of the tailings was also assessed by estimating the compression of the tailing by its own weight.

NQA-1 QUALITY LEVEL: 2

Prepared by:

*A. Paul Hanson*Date: *4-15-2008*

Checked by:

*W. Chepkor*Date: *4-15-2008*

Engineering Managers Approval:

*William D. Bate*Date: *05/05/2008*

APPENDIX J

SURFACE ADMIXTURE COMPLIANCE WITH NUREG 1623

Calculation Cover Sheet

Client: North Wind Portage, Inc.
Project Title: Crescent Junction UMTRA Impoundment ET Cover Design
PO: 800152P122

Calculation Purpose: Surface admixture compliance with NUREG1623
Quality Level: NQA-1 Quality Level 2

Prepared by: Stephen F Dwyer 
Date: December 1, 2023

Checked by: Mike Beardsley 
Date: December 14, 2023

Approved by: Greg Church 
Date: December 15, 2023

J.1 LONG-TERM STABILITY OF SOIL COVER SURFACE

Horton (1945) is recommended to be used to determine the long-term stability of a soil cover per NUREG 1623. This equation is as follows:

$$S_s^{7/6} = [65 \cdot t^{5/3}] / [I \cdot L \cdot F \cdot n] \quad \text{Equation J-1}$$

where:

- S_s = maximum stable slope (%)
- $t = 0.4 \cdot D_{75}$ (75% of rock passing the given sieve size by weight) (in.)
- I = rainfall intensity (in./hr)
- L = slope length (ft)
- $F = 3$ (NUREG-1623)
- $n = 0.03$.

The acceptance criterion is defined as: if the maximum stable slope (S_s) is greater than or equal to the actual slope, the cover is stable. The D_{75} used in Equation J-1 is determined from the mixture of 60% rock to 40% soil by volume proposed as the surface layer of the cover system.

J.2 D_{75} Determination

The D_{75} value is derived from a mixture of the cap rock intended to be redeployed and the alluvium soil excavated from the site. Specifically, rock data contained in Table J-1 and soil data contained in Table J-2 was used to develop the D_{75} for the surface admixture layer. The rock and soil data used are typical of materials to be utilized in the surface admixture layer. Refer to Attachment J-1 for additional cap rock submittal data.

Table J-1. Cap Rock ($D_{50} = 2$ in) Submitted Nov 10, 2009 (approved site submittal)

Sieve (mm)	Sieve (in)	% Retained by weight	% Passing by weight
100	4	0	100
75	3	21.7	78.3
50	2	29.6	48.7
37.5	1.5	18.9	29.8
25	1	12.9	16.9
19	0.75	4.9	12
12.5	0.5	5.1	6.9
9.5	0.375	1.1	5.8
4.75	#4	1.7	4.1
2.35	#8	1	3.1
1.18	#16	0.7	2.4
0.6	#30	0.5	1.9
0.3	#50	0.4	1.5
0.15	#100	0.4	1.1
0.075	#200	0.4	0.7
pan		0.7	0

Table J-2. Alluvium Soil (DBSA 2020)

Sieve (mm)	Sieve (in)	% Retained by weight	% Passing by weight
100		0.0	100.0
75	3	0.0	100.0
50	2	1.0	99.0
37.5	1.5	0.0	99.0
25	1	0.3	98.7
19	0.75	0.5	98.2
9.5	0.375	1.0	97.2
4.75	#4	0.9	96.3
2	#10	1.0	95.4
0.85	#20	0.4	95.0
0.425	#40	0.5	94.5
0.25	#60	0.7	93.7
0.15	#100	3.3	90.4
0.106	#140	7.4	83.0
0.075	#200	12.3	70.7
pan		70.7	0

A sample of cap rock (Table 1) and sample of soil (Table 2) was weighed separately in the same container to ensure consistent volume. The samples were weighed to produce a weight conversion factor to be applied to the volumetric mix of the surface admixture. The results of this weight conversion factor were determined as follows:

Table J-3. Data Used to Determine Weight Conversion Factor

	Cap Rock (D ₅₀ 2 in)	Soil sample 1 (DBSA 2020)	
	weight (g)	air dried weight (g)	oven dried weight (g)
Container	990	990	
Total weight	20,987	18,913	
Net weight	19,997	17,923	16,988 ¹

¹The soil was oven dried to determine a gravimetric moisture content of 5.22%. The soil weight was adjusted to 16,988g by multiplying 17,983g by (1-0.0522).

The weight of rock (19,997 g) was divided by the weight of the same volume of oven dried soil (16,988 g) to determine a weight conversion factor of 1.18.

Table J-4 summarizes the results of the combined cap rock and soil at the volumetric ratio of 60% rock to 40% soil to determine the D₇₅ value for the mixture both without the weight conversion factor and with it. This comparison reveals the weight conversion factor has very little sensitivity to the determination of D₇₅ as can be seen in Table J-4 and Figure J-1.

Table J-4. Percent Weight Retained for 60%Rock to 40% Soil by Volume

Sieve (mm)	Percent Weight Retained (by weight)			
	Rock (D50=2")	Soil (Alluvium)	60:40 mixture by volume	60:40 mixture by volume ¹
100	100	100.0	100.0	100.0
75	78.3	100.0	87.0	86.1
50	48.7	99.0	68.8	66.9
37.5	29.8	99.0	57.5	54.8
25	16.9	98.7	49.6	46.5
19	12	98.2	46.5	43.2
12.5	6.9	97.6	43.2	39.9
9.5	5.8	97.2	42.4	38.8
4.75	4.1	96.3	41.0	37.4
2.35	3.1	95.5	40.1	36.8
2	2.9	95.4	39.9	36.5
1.18	2.4	95.1	39.5	36.0
0.85	2.1	95.0	39.3	35.9
0.6	1.9	94.6	39.0	35.6
0.425	1.7	94.5	38.8	35.4
0.3	1.5	94.1	38.5	35.1
0.25	1.4	93.7	38.3	34.8
0.15	1.1	90.4	36.8	33.4
0.106	0.9	83.0	33.7	30.7
0.075	0.7	70.7	28.7	26.0

¹ adjusted by weight conversion factor of 1.18

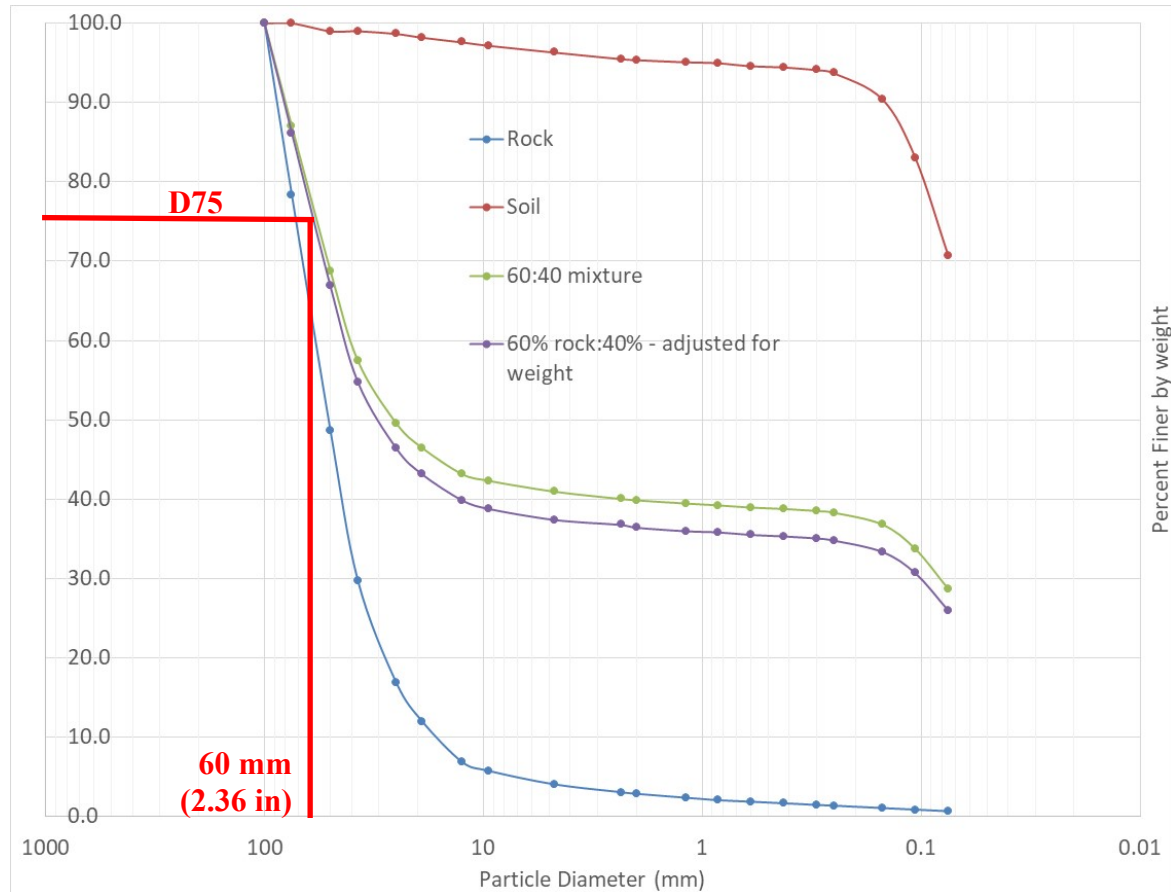


Figure J-1. D75 from Cap Rock (60%) and Alluvium Soil (40%) Combined by Volume

The D₇₅ value (Figure J-1) obtained by mixing existing cap rock (D₅₀ of 2-in) with alluvium soil is determined to be 60mm (2.36 in).

The rainfall intensity values are computed at intervals along both the north and south slopes of the final cover system. These computed values are found in Appendix F (Tables F-2 and F-3).

Utilizing Equation J-1 and rainfall intensity values computed in Appendix F, the following stable slopes (Table J-5) are computed for intervals along the south slope of the final cover system.

Table J-5. South Slope – Long-Term Stability of Final Cover System Surface

D75	t	P	L	F	n	Ss	Criteria
2.36	0.94	34.94	1310	3	0.03	2.6%	greater than 2.5%, therefore OK
2.36	0.94	35.05	1300	3	0.03	2.6%	greater than 2.5%, therefore OK
2.36	0.94	36.15	1200	3	0.03	2.8%	greater than 2.5%, therefore OK
2.36	0.94	37.35	1100	3	0.03	2.9%	greater than 2.5%, therefore OK
2.36	0.94	38.66	1000	3	0.03	3.0%	greater than 2.5%, therefore OK
2.36	0.94	40.10	900	3	0.03	3.2%	greater than 2.5%, therefore OK
2.36	0.94	41.70	800	3	0.03	3.5%	greater than 2.5%, therefore OK
2.36	0.94	43.48	700	3	0.03	3.7%	greater than 2.5%, therefore OK
2.36	0.94	45.48	600	3	0.03	4.1%	greater than 2.5%, therefore OK

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D75	t	P	L	F	n	Ss	Criteria
2.36	0.94	47.17	525	3	0.03	4.5%	greater than 2.5%, therefore OK
2.36	0.94	47.77	500	3	0.03	4.6%	greater than 2.5%, therefore OK
2.36	0.94	50.43	400	3	0.03	5.3%	greater than 2.5%, therefore OK
2.36	0.94	51.93	350	3	0.03	5.8%	greater than 2.5%, therefore OK
2.36	0.94	53.59	300	3	0.03	6.5%	greater than 2.5%, therefore OK
2.36	0.94	54.16	200	3	0.03	9.1%	greater than 2.5%, therefore OK
2.36	0.94	54.16	100	3	0.03	16.4%	greater than 2.5%, therefore OK

Utilizing Equation J-1 and rainfall intensity values computed in Appendix F, the following stable slopes (Table J-6) are computed for intervals along the north slope of the final cover system.

Table J-6. North Slope – Long-Term Stability of Final Cover System Surface

D75	t	P	L	F	n	Ss	Criteria
2.36	0.94	45.21	548	3	0.03	4.5%	greater than 2%, therefore OK
2.36	0.94	46.38	500	3	0.03	4.7%	greater than 2%, therefore OK
2.36	0.94	49.12	400	3	0.03	5.4%	greater than 2%, therefore OK
2.36	0.94	52.40	300	3	0.03	6.6%	greater than 2%, therefore OK
2.36	0.94	54.16	200	3	0.03	9.1%	greater than 2%, therefore OK
2.36	0.94	54.16	100	3	0.03	16.4%	greater than 2%, therefore OK

J.3 REFERENCES

1. Horton, R. E., "Erosional Development of Streams and Their Drainage Basins: Hydrophysical Approach to Quantitative Morphology," Geol. Soc. America Bull, Vol. 56, pp. 275-370, 1945.
2. U.S. Nuclear Regulatory Commission (NRC), 2002, NUREG-1623, *Design of Erosion Protection for Long-Term Stabilization*, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Washington, D.C.

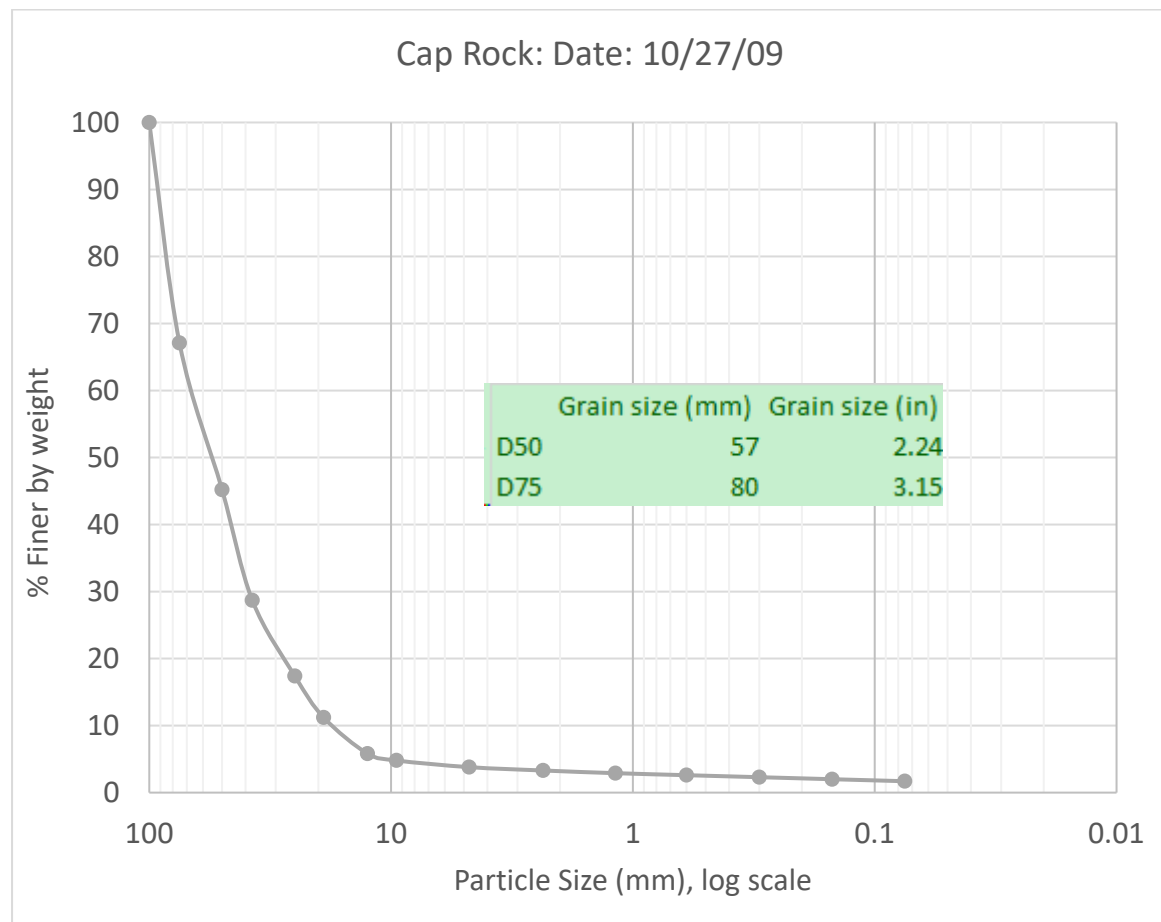
ATTACHMENT J-1

Rock Grain Size Distribution

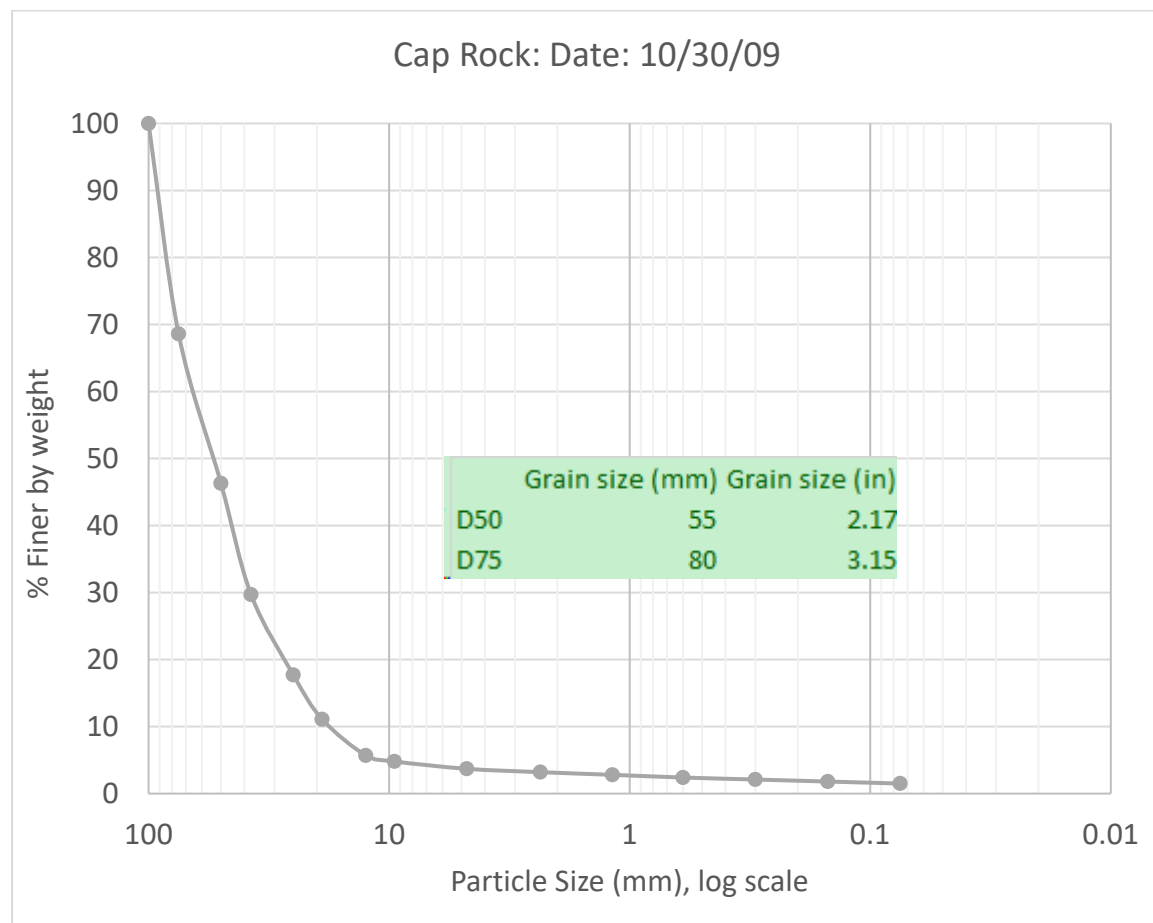
(Reference: Moab UMTRA Project Crescent Junction Disposal Cell Completion Report
Addendum A, PP A-377 to A-404, Report DOE-EM/GJRAC2040-A)

The following summary of grain size distributions for the existing cap rock at the site were submitted by the rock contractor and approved on the date indicated for each sample. The D_{50} and D_{75} for each sample is also provided.

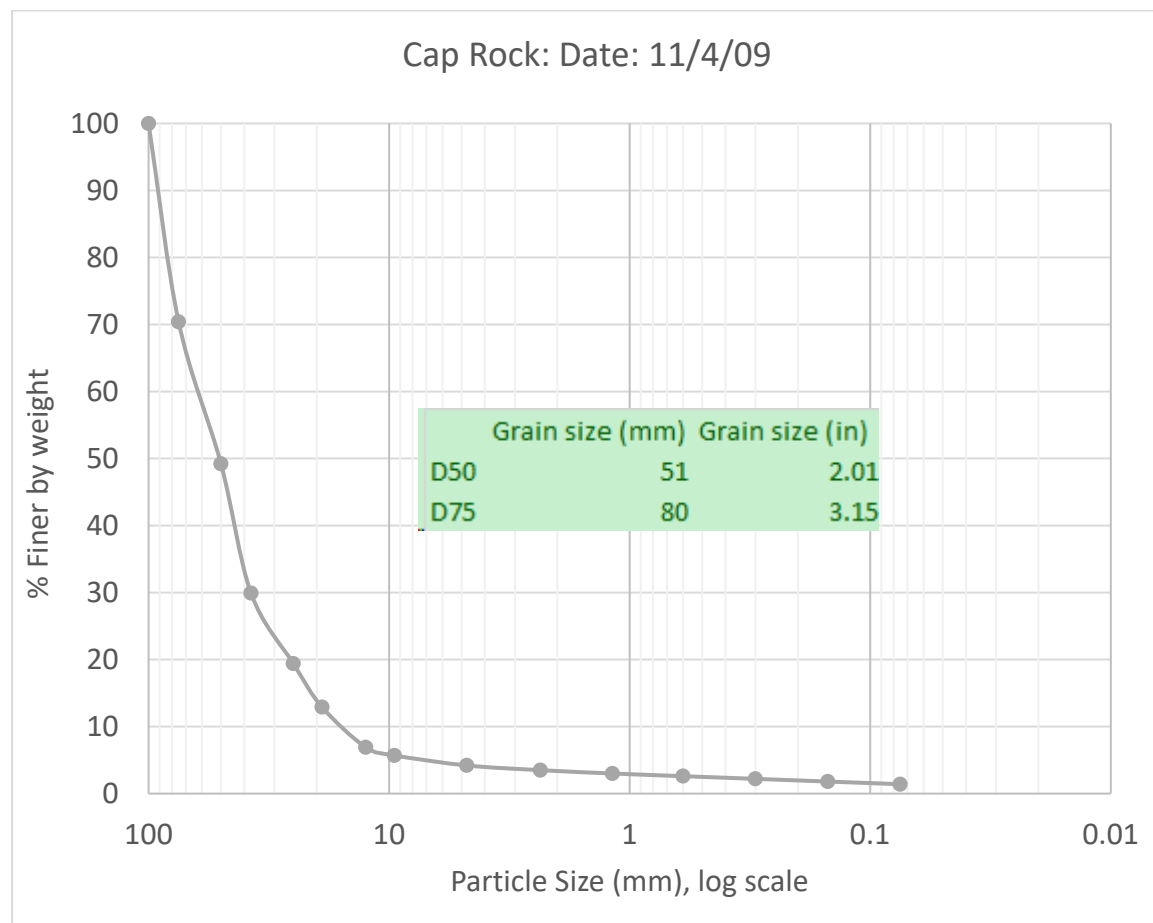
Cap Rock: Date: 10/27/09



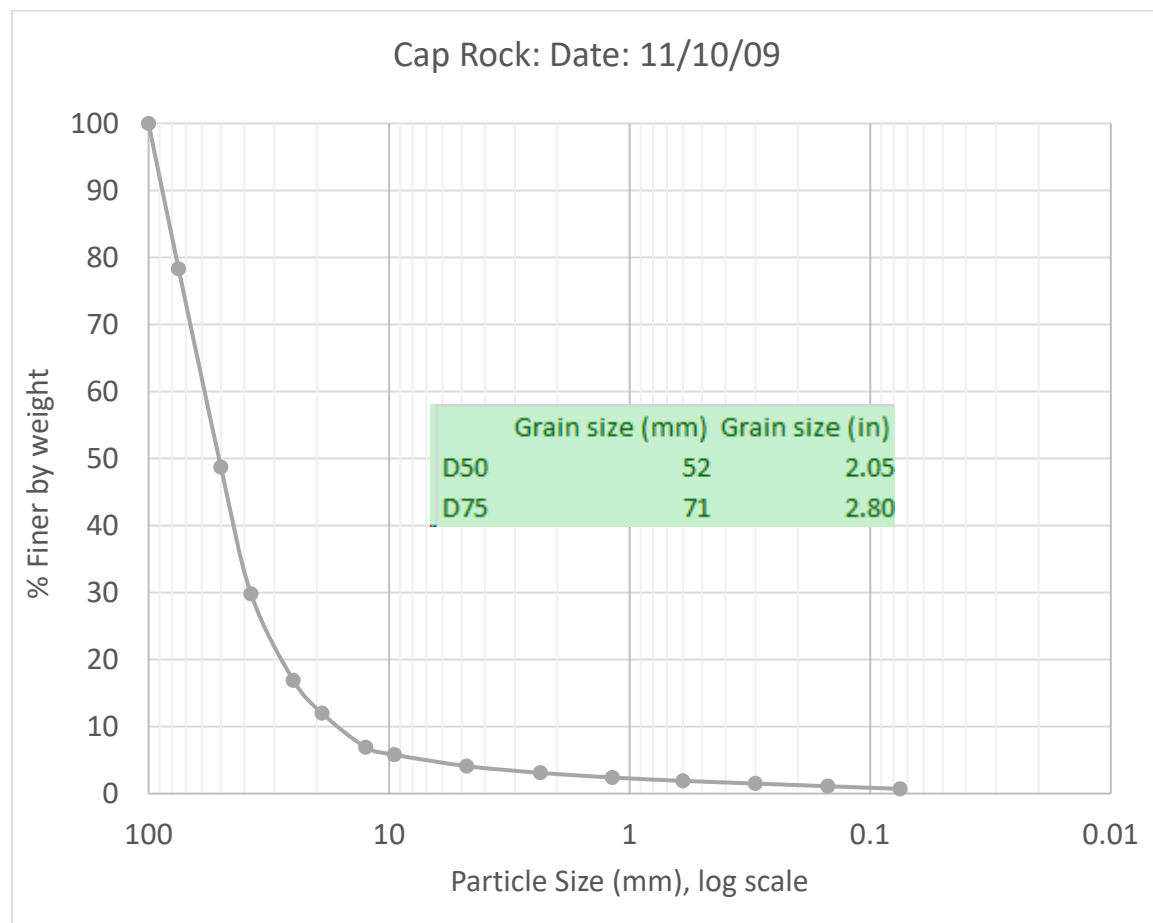
Cap Rock: Date: 10/30/09



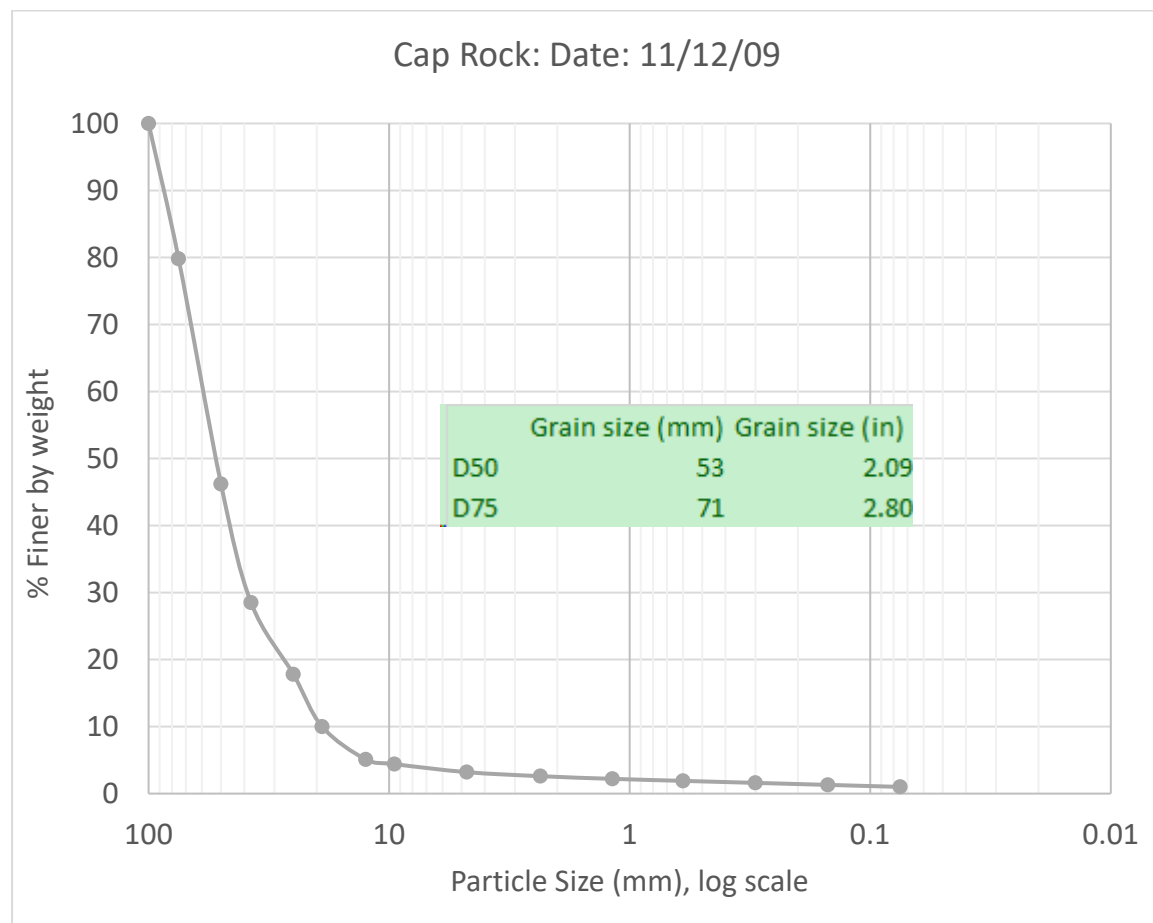
Cap Rock: Date: 11/4/09



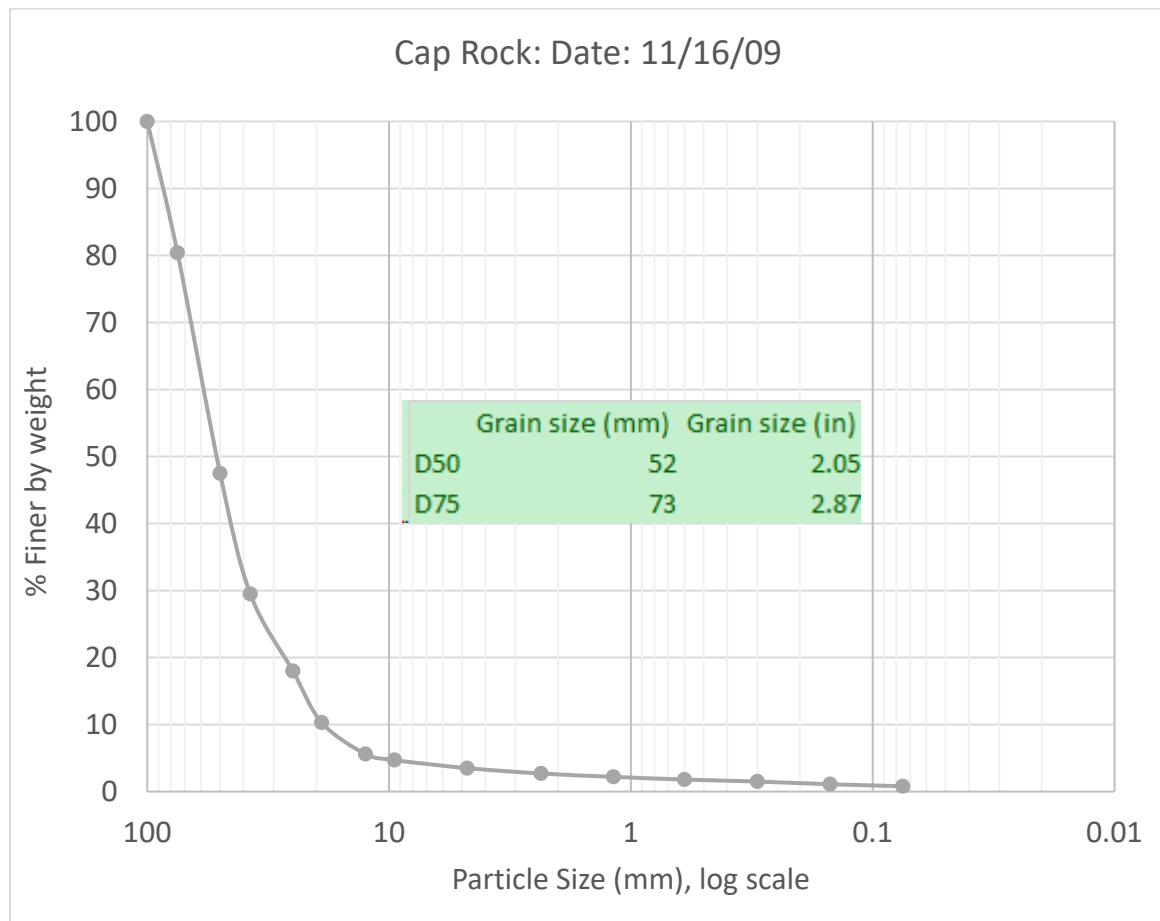
Cap Rock: Date: 11/10/09



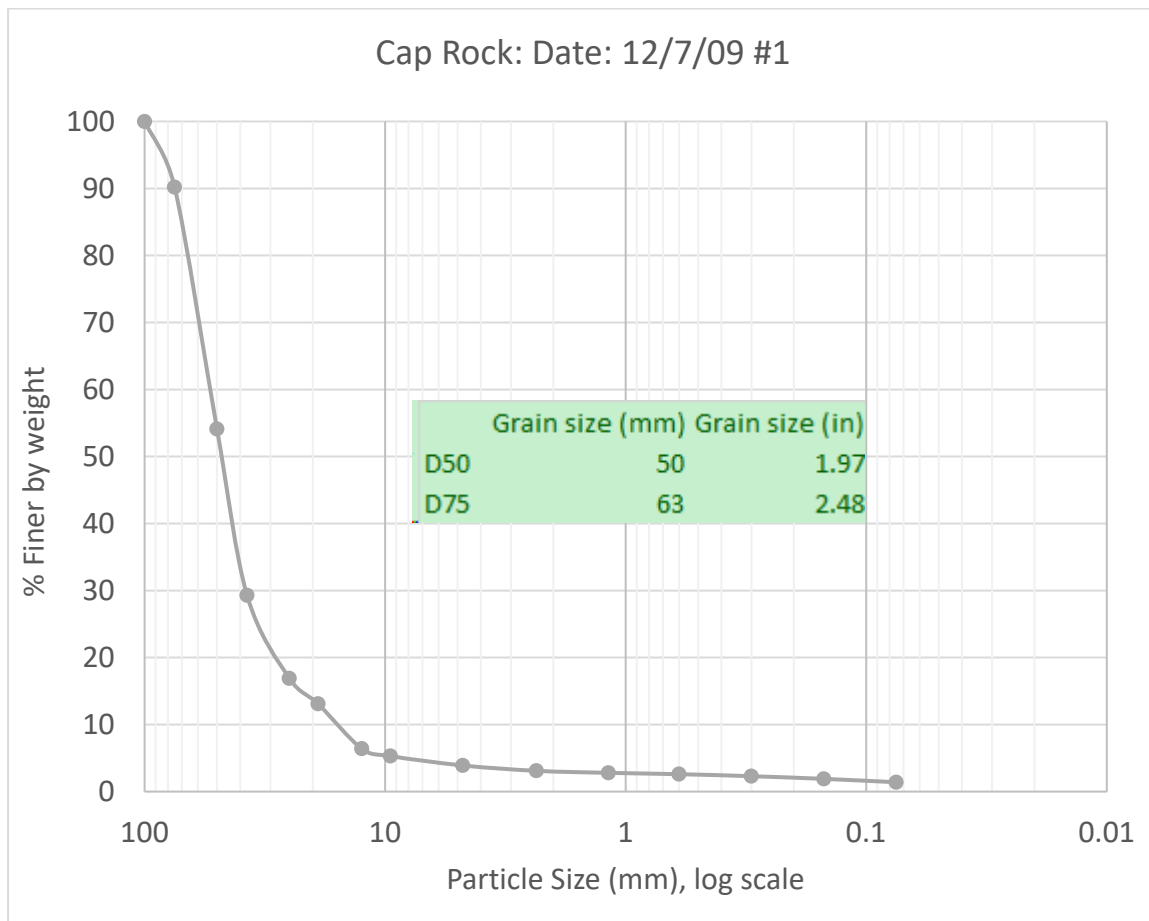
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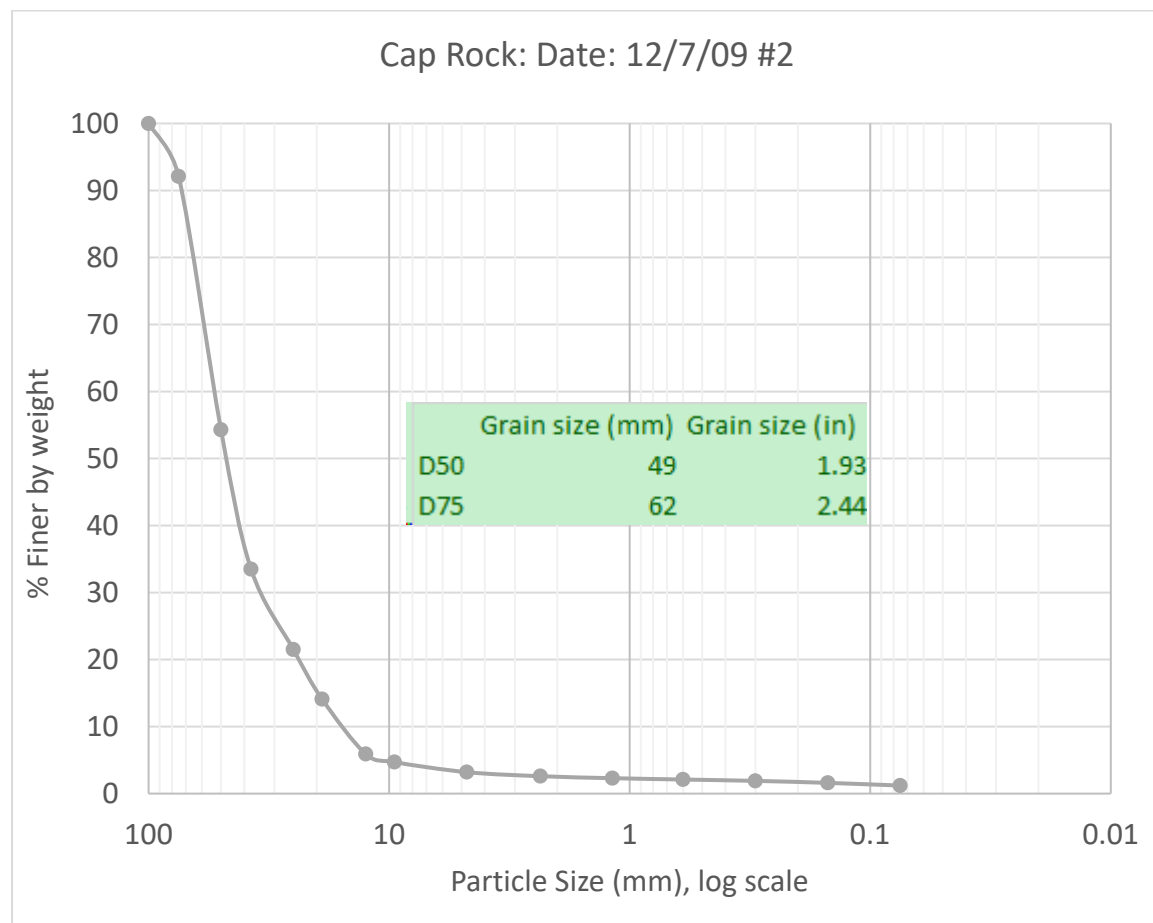
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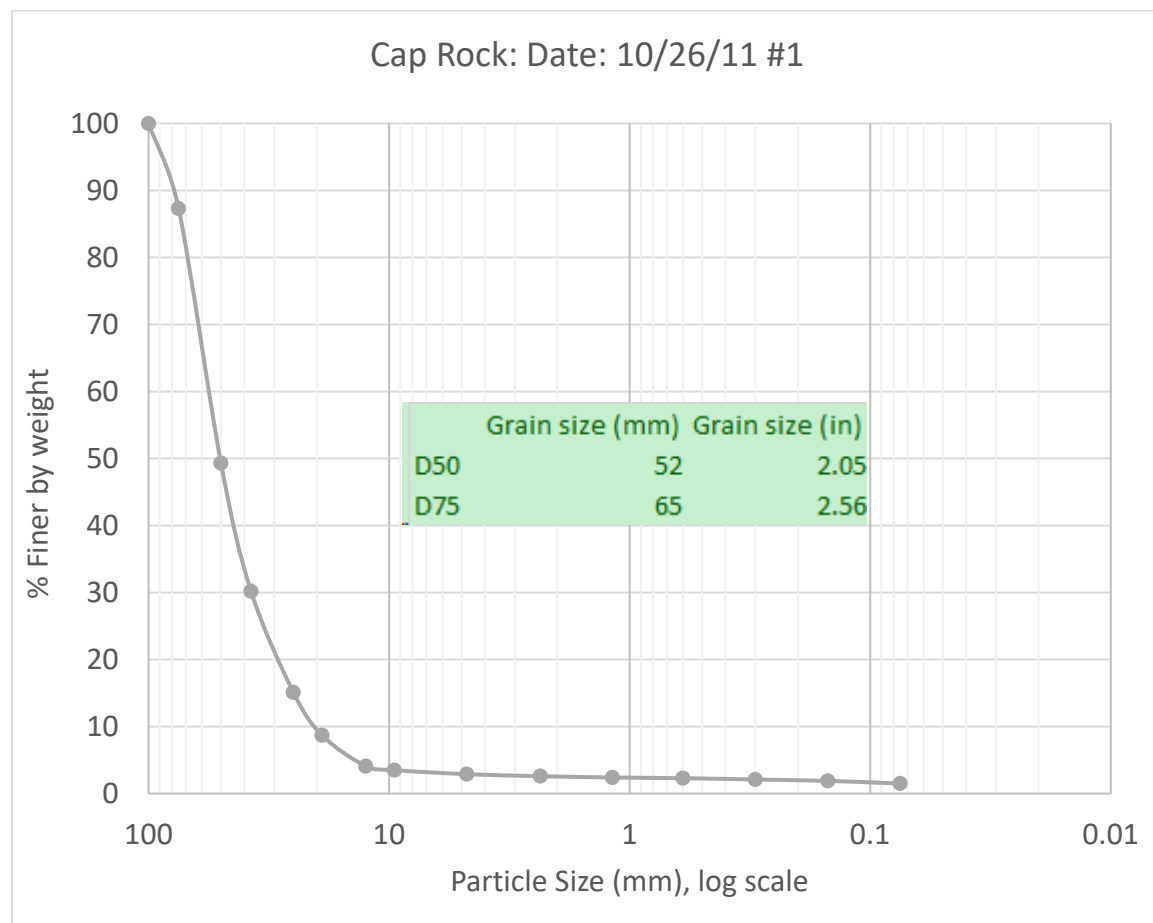
Cap Rock: Date: 12/7/09 #1



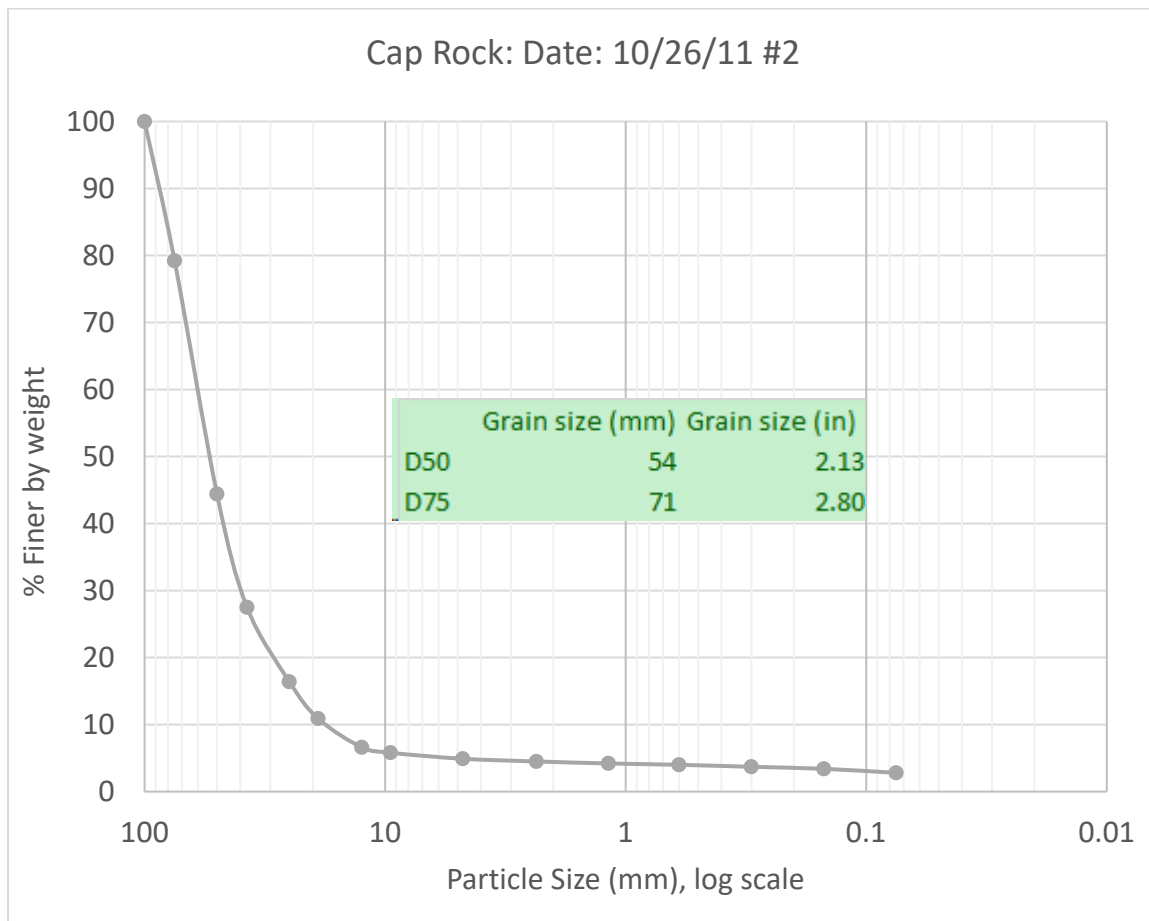
Cap Rock: Date: 12/7/09 #2



Cap Rock: Date: 10/26/11 #1



Cap Rock: Date: 10/26/11 #2



Average of above distributions:

Average	Grain size (mm)	Grain size (in)
D50	52.1	2.1
D75	70.5	2.8