## MAESPA OUTPUT

**File name: Dayflx.dat**

*Content description:*

DOY: simulation date
Tree: tree number
Spec: tree species number
absPAR: absorbed PAR MJ tree-1 d-1
absNIR: absorbed NIR MJ tree-1 d-1
absTherm: absorbed thermal MJ tree-1 d-1
totPs: gross photosynthesis mol tree-1 d-1
totRf: daily foliar respiration mol tree-1 d-1
netPs: photosyn. net of foliar resp mol tree-1 d-1
totLE1: daily transpiration mol H2O tree-1 d-1
totLE2: daily transpirn (CANOPY calc) mol H2O m-2 d-1
totH: daily sensible heat flux MJ tree-1 d-1

**File name: hrflux.dat**

*Content description: Physical, light, physiologic and thermal properties of the canopy*

DOY: simulation date
Tree: tree number
Spec: tree species number
Hour: (half)hour of the day
hrPAR: absorbed PAR umol tree-1 s-1
hrNIR: absorbed NIR W tree-1
hrTHM: absorbed thermal W tree-1
hrPS: photosynthesis (net of leaf resp) umol tree-1 s-1
hrRf: hourly leaf respiration umol tree-1 s-1
hrRmW: hourly stem + branch Rm umol tree-1 s-1
hrLE: hourly transpiration mmol tree-1 s-1
LECAN: hourly transpirn: CANOPY calc : mmol H2O m-2 s-1
Gscan: canopy stomatal conductance : mol CO2 tree-1 s-1
Gbhcan: canopy boundary layer conductance to heat : mol tree-1 s-1
hrH: hourly sensible heat flux: MJ tree-1 s-1
TCAN: Average foliage temperature (deg C)
ALMAX: Canopy maximum leaf photosynthesis rate (umol m-2 s-1)
PSIL: Canopy average leaf water potential (MPa)
PSILMIN: Canopy minimum leaf water potential (MPa)
CI : Canopy average intercellular CO2 conc. (ppm)
TAIR: Air temperature (deg C)
VPD: vapor pressure deficit (kPa)
PAR: Above-canopy incident PAR (umol m-2 s-1)
ZEN: Zenithal angle (rad)
AZ: Asimutal angle (rad)
RAD: Above-canopy incident RAD (W m-2)

**File name: layflx.dat**

*Content description: Physical, light, physiologic and thermal properties of the canopy by layer*

Date: simulation date
Hour: (half)hour of the day
Tree#: Tree ID number
SpeciesID#: tree species ID number
Area of given layer(L) (m^2)
JMAX(current) in given layer(L) (umol m-2 s-1)
VCMAX(current) in given layer(L) (umol m-2 s-1)
absorbed PAR for a given layer(L) (umol m-2 leaf s-1)
photosynthesis net of Rleaf for a given layer(L)(umol m-2 leaf s-1)
transpiration for a given layer(L) (umol m-2 leaf s-1)

**File name: Met_out.d**

*Content description: Meteorological values read in or calculated by the model*

DOY: simulation date
Hour: (half)hour of the day
WIND: wind speed above the canopy (m s-1)
TAIR: air temperature (ºC)
TSOIL: soil temperature (ºC)
RH: relative humidity (fraction)
VPD: vapour pressure deficit (Pa)
VMFD: vapour pressure mole fraction deficit (mmol mol-1)
CA: atmospheric CO2 concentration (ppm)
PAR: hourly incident photosynthetically active radiation (mmol m-2s-1)
RAD: hourly incident total short-wave radiation (W m-2)
FBEAM: fraction of incident PAR which is direct-beam (fraction)
PRESS: atmospheric pressure (Pa)
TDEW: dewpoint temperature (ºC)
SW: soil water content (?)
PPT: precipitation (mm)
TMIN: minimum daily temperature (ºC)
TMAX: maximum daily temperature (ºC)

**File name: Canopy_points_out.dat**

Content description: Location, light, and thermal data for points in the canopy

DOY: simulation date
Hour : (half)hour of the day
Tree : ID number of the tree
Canopy_Point#: numerical point number
Canopy_Point_X: X world coordinate of the point
Canopy_Point_Y : Y world coordinate of the point
Canopy_Point_Z : Z world coordinate of the point
Canopy_Point_Temp(°C): temperature calculated for the point
SUNLA
Area: area represented by the point
BEXT
FBeam
Zenithal_angle
ABSRP_PAR
ABSRP_NIR
ABSRP_TH
BFPAR
DFPAR
BFNIR
DFNIR
DFTHR
SCLOSTPAR
SCLOSTNIR
SCLOSTTH
DOWNTH
PAR_Above
NIR_Above
THR_Above

**File name: Resp.dat**

Content description: Daily maintenance and growth respiration components

DOY: simulation date
Tree: tree number
Species: tree species number
Rmf: Foliage maintenance resp. mol m-2 d-1
Rmw: Stem maintenance resp. mol m-2 d-1
RmB: Branch maintenance resp. mol m-2 d-1
Rmcr: Coarse root maintenance resp. mol m-2 d-1
Rmfr: Fine root maintenance resp. mol m-2 d-1
Rgf: Foliage growth resp. mol m-2 d-1
Rgw: Stem growth resp. mol m-2 d-1
Rgb: Branch growth resp. mol m-2 d-1
Rgcr: Coarse root growth resp. mol m-2 d-1
Rgfr: Fine root growth resp. mol m-2 d-1

**File name: Resphr.dat**

Content description: Hourly maintenance respiration components

Rmf: Foliage maintenance resp. umol m-2 s-1
Rmw: Stem maintenance resp. umol m-2 s-1
RmB: Branch maintenance resp. umol m-2 s-1
Rmcr: Coarse root maintenance resp. umol m-2 s-1
Rmfr: Fine root maintenance resp. umol m-2 s-1
***NOTE: NO DATA IS WRITTEN TO FILE***

**File name: Watbal.dat**

*Content description: Half-hourly water and heat balance components.*

Day: simulation date
Hour: (half)hour of the day
wsoil: total soil water storage mm
wsoilroot: soil water storage in rooted zone mm
ppt : precipitation mm
canopystore : storage of intercepted rain mm
evapstore : evaporation of wet canopy mm
drainstore : drainage of wet canopy mm
tfall : throughfall of rain mm
et : modelled canopy transpiration mm
etmeas: measured ET, if provided in input mm
discharge: drainage at bottom of profile mm
overflow: over-land flow mm
weightedswp: soil water potential weighted by roots MPa
ktot: soil to leaf hydr. cond. mmol m-2 s-1 MPa-1
drythick: thickness of dry surface layer mm
soilevap: soil evaporation mm
soilmoist: measured soil water content (units vary)
fsoil: soil water modifier function (0-1)
qh: sensible heat flux W m-2
qe: latent heat flux W m-2
qn: net radiation W m-2
qc: soil heat transport W m-2
rglobund: net radiation underneath canopy W m-2
rglobabv: net radiation above canopy W m-2
radinterc: total radiation intercepted by canopy W m-2
rnet: net radiation above the canopy W m-2
totlai: leaf area index m2 m-2
tair: air temperature deg C
soilt1, soilt2: soil T in 1st and 2nd layer deg C
fracw1,fracw2: water content 1st and 2nd layer m3 m-3
FracaPAR: fraction of absorbed PAR

**File name: Watbalday.dat**

*Content description: Daily water and heat balance components.*

*Day: simulation date*
wsoil: total soil water storage mm
wsoilroot: soil water storage in rooted zone mm
swp: weighted soil water potential MPa
ppt : precipitation mm
tfall : throughfall of rain mm
et : modelled canopy transpiration mm
etmeas: measured ET, if provided in input mm
discharge: drainage at bottom of profile mm
soilevap: soil evaporation mm
fsoil: soil water modifier function (0-1)
qh: sensible heat flux MJ m-2 day-1
qe: latent heat flux MJ m-2 day-1
qn: net radiation MJ m-2 day-1
qc: soil heat transport MJ m-2 day-1
radinterc: total radiation intercepted MJ m-2 day-1

**File name: Watlay.dat**

*Content description:*

No header info

**File name: Watsoilt.dat**

*Content description:*

No header info

**File name: Wattest.dat**

*Content description:*

No header info

***NOTE: NO DATA IS WRITTEN TO FILE***

**File name: Watupt.dat**

*Content description:*

No header info

**File name: histo.dat**

*Content description: PAR histogram with PAR in defined bins.*

PAR:
Frequency:

**File name: Swplay.dat**

*Content description:*

No header info