# **Schedule file notes for running DailyDayCent**

When creating your schedule file for DailyDayCent keep in mind that it operates using daily weather data and must be able to find and read your daily weather data file. The "F" weather option choice is the only valid weather option for the initial block in a DailyDayCent schedule file. The weather filename of the daily weather data file must also appear in your schedule file following the "F". If you use a weather option value other than "F" for the initial weather option in your schedule file the simulation will not run. Subsequent blocks may use either the "F", to start reading from the start of a daily weather file, or "C", to continue reading the current weather file, weather options.

The value for NLAYER in the **<site>.100** file should be set to match the number of ADEP values that you are using when you match the layering to the **soils.in** file. For the example above NLAYER should be set to 7.

**sitepar.in example:**

0 / 1 = Use extra weather drivers (solrad, rhumid, windsp), 0 = don't use (for PET)

1.0 / sublimscale

0.18 / reflec - vegetation reflectivity/albedo (frac)

0.65 / albedo - snow albedo (frac)

0.90 / fswcinit - initial swc, fraction of field capacity

0.000001 / dmpflux - in h2oflux routine (0.000001 = original value)

4 / hours\_rain - duration of each rain event

0 / # of days between rainfall event and drainage of soil (-1=computed)

1 0 / watertable[month] - 0 = no water table, 1 = water table

2 0

3 0

4 0

5 0

6 0

7 0

8 0

9 0

10 0

11 0

12 0

-200 / hpotdeep - hydraulic water potential of deep storage layer (units?)

0.0002 / ksatdeep - saturated hydraulic conductivity of deep storage layer (cm/sec)

1 58 / cldcov[month] - cloud cover (%)

2 58

3 58

4 58

5 58

6 58

7 58

8 58

9 58

10 58

11 58

12 58

5.0 16.4 / min and max temperature for bottom soil layer (°C)

0.003 / damping factor for calculating soil temperature by layer

30.0 / timlag, days from Jan 1 to coolest temp at bottom of soil (days)

0.03 / min water/temperature limitation coefficient for nitrify

50 90 / turn off respiration restraint on denitrification between these days

0.8 / proportion of nitrified N that is lost as N2O (0.0-1.0)

0.4 / maximum daily nitrification amount (g N m-2 d-1)

1 / snow effect on soil surface temp: 0 = not insulating, 1 = insulating 11

0.2 / fraction of new net mineralization that goes to nitrate (NO3-) (0.0-1.0)

NOTES:

Values in this file that should normally not be changed:

sublimscale – scaling multiplier for sublimation

dmpflux – damping factor for soil water flux, in h2oflux routine

hours\_rain – duration of each rain event (hours)

If modifying the hours\_rain parameter value be aware that the smallest valid value for the hours\_rain parameter is 2.0. Valid values for hours\_rain must be a multiple of 2 and may not exceed 24.

## Two valid formats for a DailyDayCent weather data file

**Daily Weather Data File (use extra weather drivers = 0)**

1 1 1990 1 7.040 -10.300 0.000

2 1 1990 2 9.200 -10.530 0.000

3 1 1990 3 11.840 -7.330 0.000

4 1 1990 4 1.297 -10.310 0.000

5 1 1990 5 1.239 -16.010 0.000

6 1 1990 6 3.745 -9.380 0.000

...

27 12 1992 362 11.320 -12.880 0.000

28 12 1992 363 7.050 -10.180 0.000

29 12 1992 364 -1.095 -8.370 0.000

30 12 1992 365 7.330 -11.490 0.000

31 12 1992 366 7.330 -11.490 0.000

NOTES:

Column 1 – Day of month (1-31)

Column 2 – Month of year (1-12)

Column 3 – Year (4 digits)

Column 4 – Day of the year (1-366)

Column 5 – Maximum temperature for day (°C)

Column 6 – Minimum temperature for day (°C)

Column 7 – Precipitation for day (cm)

Missing weather data values for precipitation, minimum temperature and maximum temperature are represented by the value -99.9

PET is computed using air temperature and the FWLOSS(4) input variable from the FIX.100 file.

**Daily Weather Data File (use extra weather drivers = 1)**

1 1 1990 1 7.040 -10.300 0.000 186.425 55.42 10.939

2 1 1990 2 9.200 -10.530 0.000 158.115 57.42 5.552

3 1 1990 3 11.840 -7.330 0.000 222.946 42.13 9.165

4 1 1990 4 1.297 -10.310 0.000 182.844 40.97 12.543

5 1 1990 5 1.239 -16.010 0.000 213.159 52.25 5.214

6 1 1990 6 3.745 -9.380 0.000 230.346 41.89 10.603

...

27 12 1992 362 11.320 -12.880 0.000 217.456 35.13 4.429

28 12 1992 363 7.050 -10.180 0.000 216.501 28.25 5.132

29 12 1992 364 -1.095 -8.370 0.000 93.833 53.59 5.264

30 12 1992 365 7.330 -11.490 0.000 152.243 35.88 3.098

31 12 1992 366 7.330 -11.490 0.000 152.243 35.88 3.098

NOTES: 13

Column 1 – Day of month (1-31)

Column 2 – Month of year (1-12)

Column 3 – Year (4 digits)

Column 4 – Day of the year (1-366)

Column 5 – Maximum temperature for day (°C)

Column 6 – Minimum temperature for day (°C)

Column 7 – Precipitation for day (cm)

Column 8 – Solar radiation (langleys/day)

Column 9 – Relative humidity, percentage (1 – 100%)

Column 10 – Wind speed (miles per hour)

Missing weather data values for precipitation, minimum temperature and maximum temperature are represented by the value -99.9.

The last three columns in the weather data file, solar radiation, relative humidity, and wind speed, are extra weather drivers used in the calculation of PET. The model will not accept missing data values for the extra weather drivers.

## soils.in example

0.0 2.0 1.44 0.31092 0.13578 0.80 0.01 0.39 0.28 0.01 0.11 0.00027 5.00

2.0 5.0 1.44 0.31092 0.13578 0.20 0.04 0.39 0.28 0.01 0.08 0.00027 5.00

5.0 10.0 1.44 0.31092 0.13578 0.00 0.25 0.39 0.28 0.01 0.05 0.00027 5.00

10.0 20.0 1.44 0.31092 0.13578 0.00 0.30 0.39 0.28 0.01 0.01 0.00027 5.00 9

20.0 30.0 1.44 0.31092 0.13578 0.00 0.10 0.39 0.28 0.01 0.00 0.00027 5.00

30.0 45.0 1.44 0.31092 0.13578 0.00 0.05 0.39 0.28 0.01 0.00 0.00027 5.00

45.0 60.0 1.44 0.31092 0.13578 0.00 0.04 0.39 0.28 0.01 0.00 0.00027 5.00

60.0 75.0 1.44 0.31092 0.13578 0.00 0.03 0.39 0.28 0.01 0.00 0.00027 5.00

75.0 90.0 1.44 0.31092 0.13578 0.00 0.02 0.39 0.28 0.01 0.00 0.00027 5.00

90.0 105.0 1.44 0.31092 0.13578 0.00 0.01 0.39 0.28 0.01 0.00 0.00027 5.00

105.0 120.0 1.44 0.31092 0.13578 0.00 0.00 0.39 0.28 0.01 0.00 0.00027 5.00

120.0 150.0 1.44 0.31092 0.13578 0.00 0.00 0.39 0.28 0.01 0.00 0.00027 5.00

Column 1 – Minimum depth of soil layer (cm)

Column 2 – Maximum depth of soil layer (cm)

Column 3 – Bulk density of soil layer (g/cm3)

Column 4 – Field capacity of soil layer, volumetric

Column 5 – Wilting point of soil layer, volumetric

Column 6 – Evaporation coefficient for soil layer (currently not being used)

Column 7 – Fraction of roots in soil layer, these values must sum to 1.0

Column 8 – Fraction of sand in soil layer, 0.0 - 1.0

Column 9 – Fraction of clay in soil layer, 0.0 - 1.0

Column 10 – Organic matter in soil layer, fraction 0.0 - 1.0

Column 11 – Minimum volumetric soil water content below wilting point for soil layer, soil water content will not be allowed to drop below this value

Column 12 – Saturated hydraulic conductivity of soil layer (cm sec-1)

Column 13 – pH of soil layer

**NOTES:**

Fraction of silt for soil layer is computed as follows:

fraction silt = (1.0 - (fraction sand + fraction clay))

For the trace gas subroutines it is currently recommended to use the following layering structure for the top 3 soil layers in your soils.in file:

layer 1 – 0.0 cm to 2.0 cm

layer 2 – 2.0 cm to 5.0 cm

layer 3 – 5.0 cm to 10.0 cm

The depth structure in this file should match the ADEP values in the FIX.100 file in such a way that the boundaries for the soil layer depths can be matched with the ADEP values. For example, using the file above and ADEP values of 10, 20, 15, 15, 30, 30, 30, 30, 30, and 30:

layers 1, 2 and 3 match the first 10 cm ADEP value

layers 4 and 5 match the second 20 cm ADEP value

layer 6 matches the third 15 cm ADEP value

layer 7 matches the fourth 15 cm ADEP value

layers 8 and 9 match the first 30 cm ADEP value

layers 10 and 11 match the second 30 cm ADEP value

layer 12 matches the third 30 cm ADEP value 10