

CHAPTER 10

SWAT INPUT DATA: .HMD

SWAT requires daily relative humidity values when the Penman-Monteith or Priestley-Taylor method is used to calculate potential evapotranspiration and for the calculation of vapor stress on plant growth. Values for relative humidity may be read from records of observed data or they may be generated. This chapter reviews the input file used to read relative humidity values into the model.

One relative humidity input file may be used in a simulation. This file is able to hold records for more than one gage, so there is not a limitation on the number of gages that can be used in a simulation.

As with the precipitation file, the record in the relative humidity input file does not have to begin with the first day of simulation. SWAT is able to search for the beginning date in the relative humidity file and all the comments made for this feature in the discussion of the precipitation file pertain to the relative humidity file as well.

Following is a brief description of the variables in the relative humidity input file. They are listed in the order they appear within the file.

Variable name	Definition
TITLE	The first line of the relative humidity file is reserved for comments. The title line is not processed by the model and may be left blank. Optional.
YEAR	Year (4-digit). Required.
DATE	Julian date. Required.
RHD	Daily average relative humidity expressed as a fraction. A negative 99.0 (-99.0) should be inserted for missing relative humidity values. This value tells SWAT to generate the missing value(s). Required.

The format of the relative humidity input file with one record is:

Variable name	Line #	Position	Format	F90 Format
TITLE	1	unrestricted	character	unrestricted
YEAR	2-END	space 1-4	4-digit integer	i4
DATE	2-END	space 5-7	3-digit integer	i3
RHD	2-END	space 8-15	decimal(xxxx.xxx)	f8.3

To place more than one data record within the .hmd file, repeat the original formatting for the recorded data to the right of the existing data.

For example, assume there are records for five different relative humidity gages stored in the .hmd file. The formatting of the .hmd file is

Gage	Variable name	Line #	Position	Format	F90 Format
ALL	TITLE	1	unrestricted	character	unrestricted
ALL	YEAR	2-END	space 1-4	4-digit integer	i4
ALL	DATE	2-END	space 5-7	3-digit integer	i3
1	RHD	2-END	space 8-15	decimal(xxxx.xxx)	f8.3
2	RHD	2-END	space 16-23	decimal(xxxx.xxx)	f8.3
3	RHD	2-END	space 24-31	decimal(xxxx.xxx)	f8.3
4	RHD	2-END	space 32-39	decimal(xxxx.xxx)	f8.3
5	RHD	2-END	space 40-47	decimal(xxxx.xxx)	f8.3

