CHAPTER 9

SWAT INPUT DATA: .WND

SWAT requires daily wind speed values when the Penman-Monteith method is selected to calculate potential evapotranspiration. Values for all these parameters may be read from records of observed data or they may be generated. This chapter reviews the input file used to read in measured daily wind speed values.

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

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

Variable name	Definition
TITLE	The first line of the wind speed 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.
WND_SP	Daily average wind speed (m/s).
	A negative 99.0 (-99.0) should be inserted for missing wind speed values. This value tells SWAT to generate the missing value(s).
	Required.

The format of the wind speed 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
WND_SP	2-END	space 8-15	decimal(xxxx.xxx)	f8.3

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

For example, assume there are records for ten different wind speed gages stored in the .wnd. The formatting of the .wnd 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	WND_SP	2-END	space 8-15	decimal(xxxx.xxx)	f8.3
2	WND_SP	2-END	space 16-23	decimal(xxxx.xxx)	f8.3
3	WND_SP	2-END	space 24-31	decimal(xxxx.xxx)	f8.3
4	WND_SP	2-END	space 32-39	decimal(xxxx.xxx)	f8.3
5	WND_SP	2-END	space 40-47	decimal(xxxx.xxx)	f8.3
6	WND_SP	2-END	space 48-55	decimal(xxxx.xxx)	f8.3
7	WND_SP	2-END	space 56-63	decimal(xxxx.xxx)	f8.3
8	WND_SP	2-END	space 64-71	decimal(xxxx.xxx)	f8.3
9	WND_SP	2-END	space 72-79	decimal(xxxx.xxx)	f8.3
10	WND_SP	2-END	space 80-87	decimal(xxxx.xxx)	f8.3