

## Wind File (.WND)

The Wind (.WND) File is a ASCII text file required for any *FARSITE* simulation.

Wind information must be input as a stream of data contained in a Wind (.WND) File or as a [gridded weather](#) (.ATM) file. As with Weather (.WTR) Files, you may input up to five Wind (.WND) Files for a given project. This can be important to simulate spatially varying winds (e.g. ridge winds vs. slope winds) on the landscape (see [Simulate > Modify Map > Weather Monitoring and Grid](#) for directions on how to specify spatial locations for weather/wind streams).

Each Wind (.WND) File must contain data in the space delimited ASCII format specified below. A generic text editing application such as *Notepad or WordPad*, a spreadsheet, or the [FARSITE Editor](#) can be used to create or edit ASCII text files. *FARSITE* also has [Custom Editors](#) for each ASCII text file type found in the "FARSITE Project" dialog box. The Wind (.WND) File can also be automatically generated using the [Input > Generate from Types \(WTR/WND\)](#) command once you've defined [weather/wind types](#).

Winds are usually variable in space and time. *FARSITE* however, assumes winds to be constant in space for a give wind stream but variable in time. That is, there is no topographic effects on winds. The input format of winds is similar to that for a Weather (.WTR) File that can be output from a spreadsheet. Inputs can be at any temporal resolution (e.g. hourly); sub-hourly observation should specify minutes (e.g. 1430).

All inputs MUST be integers. Each column must be space delimited (leave a space between columns). *FARSITE* allows weather inputs in English or metric units. The units are selected by inserting the word ENGLISH or METRIC as the first line of the Wind (.WND) File.

### ***Month Day Hour Speed Direction CloudCover***

- ***Hour*** is specified as 0-2359, to the nearest minute (integer).
- ***Speed*** is either the 20ft windspeed specified in miles per hour or the 10m windspeed in kilometers per hour (0-300, integer)
- ***Direction*** is specified in degrees, clockwise from north (0-360), (integer). A "-1" in the direction field indicates the winds to be up slope, similarly downslope winds can be specified with a "-2".
- ***CloudCover*** is specified as a percentage, 0 to 100 (integer).

Specifying up slope or down slope winds only uses the slope at individual points in the slope theme of the Landscape (.LCP) File. It will not simulate complex terrain influenced winds such as up canyon winds.


Changes can be made to the wind stream after the simulation is running by editing the wind file and re-loading or using the Wind (.WND) File Custom Editor.

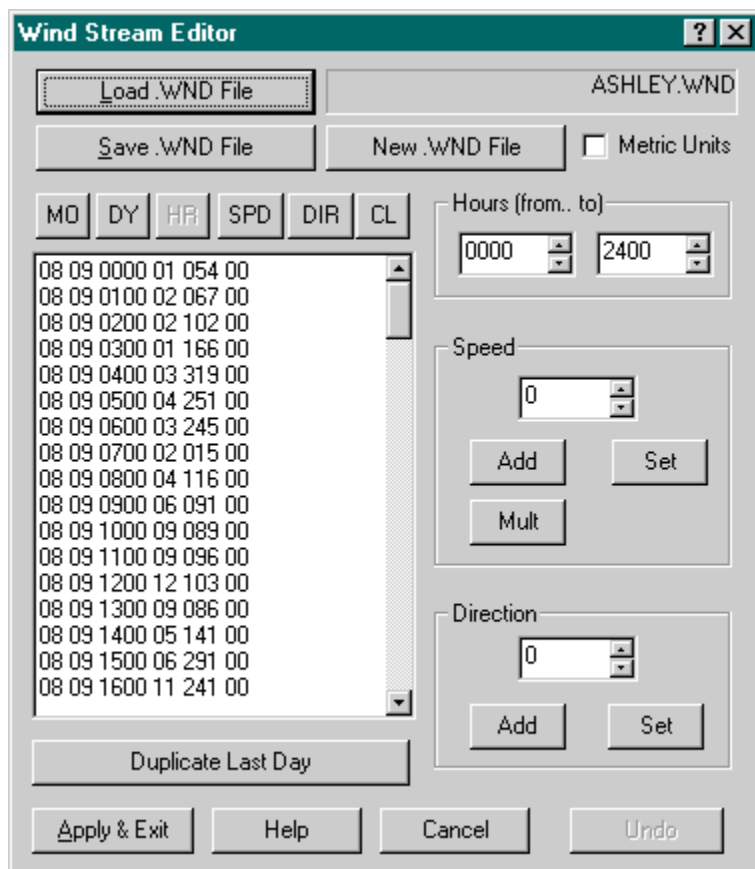
**Note:** Wind observations do not have to be on a regular interval. You can, for example, enter wind observations every 10 minutes during the afternoon, and only every 2 hours at night.

## Example of a .WND File

```
ENGLISH
8 10 0 1 54 0
8 10 100 2 67 0
8 10 200 2 102 0
8 10 300 1 166 0
8 10 400 3 319 0
8 10 500 4 251 0
8 10 600 3 245 0
8 10 700 2 15 0
8 10 800 4 116 0
8 10 900 6 91 0
8 10 1000 9 89 0
8 10 1100 9 96 0
```

## Using the Wind File Custom Editor

The Wind (.WND) File Custom Editor is accessed through the ["FARSITE Project" dialog box](#). The  button to the right of the Wind (.WND) File text box brings up the custom editor for generating or editing a Wind (.WND) File.



### Editing an Existing Wind File

If you currently have a Wind (.WND) File loaded, this dialog box will allow you to edit the

contents of that file.

The Custom Editor allows direct editing in the text box by selecting text with the cursor, using the backspace key, and typing text similar to a word processor or text editor.

You can also use a variety of tools in the Custom Editor. First select the range of lines you wish to edit with the cursor. You can use the Add, Mult, and Set buttons to modify the block of lines selected in the text box.

- The Add button adds the value displayed in the spin box to all the values in the currently selected lines.
- The Set button replaces the values in the currently selected lines with the value displayed in the spin box.
- The Mult button multiplies the value displayed in the spin box to all the values in the currently selected lines.

### **Create a New Wind File**

To generate a new Wind (.WND) File click the New .WND File button. A single day of wind data is listed in the text box with four hour periods. You can edit this days data and add new time periods.

Remember the weather and wind streams need to begin one full day before the beginning of your *FARSITE* simulation and take into account any needs for a [conditioning period](#).

Then create additional days with the Duplicate Last Day button which creates new lines with the next day's date. These new lines can be edited as shown above.

### **Finally**

Before clicking the Apply & Exit button make sure the modified file has been saved with the Save .WND File button. If you don't save the changes, they will still be in effect for the current simulation, but they will be lost when the simulation is terminated. However if the Project (.FPJ) File is saved with an unsaved edited Wind (.WND) File, the Wind (.WND) File will then be automatically saved also.

## **Generating Wind Files in Fire Family Plus**

Wind (.WND) Files can be generated from hourly WIMS data in *FireFamily Plus*. From the menu bar in *FireFamily Plus* go to the Weather > Hourly Data Analysis > FarSite Exports command. Make sure you have a *FireFamily Plus* database that contains hourly observations.

## **Gridded Wind Inputs to *FARSITE***

If you have access to a weather model that produces [gridded weather](#) files of near-surface weather and winds, you can use these in a *FARSITE* simulation. These files will substitute for the above wind files.