

Gridded Weather Input for Fire Area Simulation Model (FARSITE) Product Description Document (PDD)

Part I – Mission Connection

a. Product Description – [FARSITE](#) is a deterministic model developed and used by land management agencies. FARSITE simulates the spatial and temporal spread and behavior of fires under conditions of heterogeneous terrain, fuels, and weather. Required FARSITE weather input consists of maximum and minimum relative humidity, maximum and minimum temperature, daily precipitation, wind speed and direction and cloud cover. FARSITE is an important tool that fire agencies use to help keep firefighters safe. Pursuant to the NWS mission of saving lives and property, NOAA/NWS forecasters have been manually supplying FARSITE weather input to fire managers for a number of years.

FARSITE is an important tool for land management agencies in Western Region. This model is used to help plan safe and efficient suppression tactics for wildland fires, to better manage prescribed burns so that these fires do not become out-of-control wildland fires and to allow increased use of Wildland Fire Use (WFU) projects. Land management agencies are increasing use of WFU projects to achieve greater public lands fuels reduction goals at less taxpayer expense. Consequently, Western Region WFOs are receiving increasing requests from fire managers for FARSITE weather input. Increased automation is desired to reduce the workload involved in fulfilling these requests.

An IFPS formatter is available to provide FARSITE weather input automatically from the NDFD ([Gibson, Gorski, 2004](#)) based on the latitude and longitude of the fire as provided by the requesting fire official. This formatter will be available for download from the Western Region applications server and is easily implemented on any local AWIPS platform. FARSITE output from this formatter has been supplied to the requesting fire agency by a variety of means. In 2006, all Western Region WFOs will make FARSITE weather input available to the requesting official on the WFO fire weather web page.

b. Purpose – Establish a regional standard for providing requested FARSITE weather data via production from NDFD and access via WFO fire weather web pages. This will allow fire weather customers easier access to needed FARSITE weather data and will reduce workload on Western Region WFOs. Fire agency customers request FARSITE data via the web or telephone call to their servicing WFO.

c. Audience – Fire managers using FARSITE are the customers of this data and web page option. Most customers will be managers in the U.S. Forest Service, Bureau of Land Management, National Park Service and other federal and state land management agencies.

d. Presentation Format – FARSITE weather data support is presented in the standard format needed by this fire spread model. It is simple text arranged vertically by date and horizontally by weather element:

WTR (weather) output:

```
12 08 00 0700 1600 10 27 99 38 9870
12 09 00 0700 1600 10 33 73 43 9870
12 10 00 0700 1600 13 36 72 33 9870
12 11 00 0700 1600 14 37 66 33 9870
12 12 00 0700 1600 14 35 67 29 9870
12 13 00 0700 1600 13 33 64 30 9870
12 14 00 0700 1600 12 31 70 39 9870
12 15 00 0700 1600 12 31 71 39 9870
```

WND(wind output):

```
12 22 0000 11 200 44
12 22 0300 13 210 53
12 22 0600 17 220 70
12 22 0900 14 220 65
12 22 1200 11 220 56
12 22 1500 09 260 55
12 22 1800 08 310 52
12 22 2100 08 300 52
12 23 0000 08 240 52
12 23 0300 08 270 58
12 23 0600 07 310 70
12 23 0900 09 330 67
12 23 1200 10 001 60
12 23 1500 11 010 47
```

e. Feedback Method – The MIC solicits feedback from the fire agencies via telephone, e-mail and customer outreach visits.

f. Example - [National Weather Service - NWS Salt Lake City](http://www.wrh.noaa.gov/slc/projects/ifp/data/FARSITE/FARSITE.php)
(<http://www.wrh.noaa.gov/slc/projects/ifp/data/FARSITE/FARSITE.php>)

e. PDD Approved by Vickie Nadolski, Director, Western Region

Part II – Technical Description

a. Format and Science Basis – The methodology of delivering FARSITE weather support information was developed to ease the workload on the WFO and increase convenience for fire weather customers to request and access the information. The IFPS formatter utilizes the published WFO Digital Forecast Database (DFD) to generate this weather data in the format required by FARSITE. Prior to being published, the forecaster reviews and if necessary, adjusts the DFD to ensure consistency and accuracy with other products and the current assessment of expected meteorological conditions during the product valid time. It should be noted that this PDD represents a more efficient production and dissemination method for data that has been supplied by NOAA/NWS to fire weather customers for a number of years. The data type is not new.

b. Availability – FARSITE weather data will be generated upon request by a fire agency official, usually concurrent with a spot forecast request. When a forecaster creates a draft spot forecast from the DFD, FARSITE data will be automatically generated and sent to the WFO fire weather web page. If a FARSITE user does not need a full spot forecast, they can call the WFO. The forecaster can then produce FARSITE data by entering fire location and name in a small AWIPS GIU. Again, the data is produced and sent to the web automatically.

c. Additional Information – Information regarding the availability of FARSITE weather data on Western Region WFO fire weather web pages, as well as the procedure for requesting this support, will be provided in all 2006 Western Region Fire Weather Annual Operating Plans (AOP).