

Default Fire Family Plus Database to use within the Fire Environment Mapping System (FEMS)

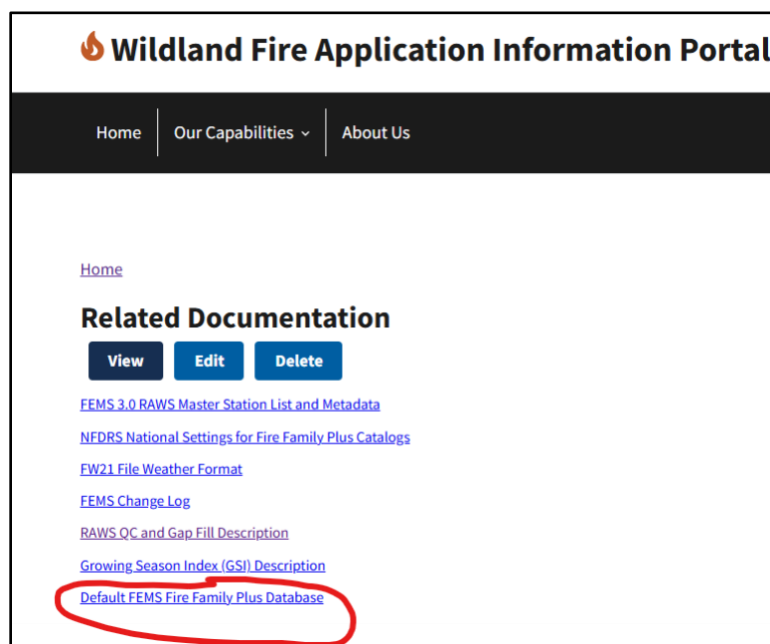
The intent of this document is to provide users with consistent fire danger outputs between Fire Family Plus and FEMS. Since station information within FEMS has been updated by its connection to WXweather there is a need for users to ensure that station information matches what is in FEMS to ensure consistent outputs. Additional changes within FEMS include new national GSI default settings, adjustment of KBDI threshold, and standard slope class. Some stations may not have historical data (e.g., stations installed after 1/1/2020), but current data are available for download.

To ensure that Fire Family Plus outputs match FEMS fire danger outputs user must follow the following steps.

1. Ensure user has the March 2024 build of Fire Family Plus (FF+). Check the version by opening FF+, click on Help, About FF+.



2. Download the Default FEMS Fire Family Plus Database from the FEMS web portal: <https://www.wildfire.gov/page/related-documentation>



3. Once you download the database, ensure you save a copy of the default database that can be used whenever you start a new session of FF+.
4. Open FF+ and then open the Default FEMS database (FEMS_Default_Blank_V1). **Do not start a new** database as it will have the wrong station catalog information. **Before you do any work on the Default FEMS database**, click on File and Save As. Name the database with your preferred naming convention.
5. Ensure you have the correct FF+ database by Clicking Data, Stations, (choose any station) and click Edit. The station Catalog should open and look at the KBDI Threshold, it should read 800 and the slope class should read 1 (circled in Red). The 6 yellow highlighted fields are the only other fields that are required to calculate fire danger and the rest of the data only deals with station management and does not impact fire danger outputs and can/should be left alone.

Station Information

Station ID: 015201 Name: GROVE HILL Station Type: [dropdown]

NFDRS Fuel Model: Y - Timber (2016) Use 88 NFDRS Fuel Model: ☒

Observing Agency: [dropdown] Agency Unit: AL S&PF

Latitude (Deg): 31.6907 Elevation (ft): 445 Slope Position: [dropdown]

Longitude (Deg): -87.7606 Average Precip (in): 60.55 Slope Class: 1: 0 - 25%

State: AL Aspect: [dropdown] Climate Class: [dropdown]

County: [dropdown] Time Zone Offset: [dropdown]

USFS Region: [dropdown]

Green Up Date: 1/1 Herbs are Annuals: ☐ Start FM 1000: [dropdown]

Earliest Freeze Date: 12/31 FM 1 = FM 10 (88 Only): ☒ Deciduous Shrubs (88 Only): ☒ Start KBDI: 100

☐ Use Brush Dormant Date: 9/16 Regular Scheduled Obs Hour: 13

☒ Use Weighed 10-Hr Sticks WRCC ID: AGRO NESDIS ID: 32B3C810

Moisture of Extinction Override (%): [text box]

OK Cancel

NFDRS4 Specific

Fuel Model	Max SC
V	108
W	62
X	104
Y	5
Z	19

KBDI Threshold: 800

6. Download fire weather data from FEMS website, <https://fems.fs2c.usda.gov/download>. You will need to log in to get data for more than 1 year.
 - a. Data subject area select Weather
 - b. Data Set- choose either Observation, Forecast or Observation and Appended Forecast
 - c. Date Time Frequency- to build a robust database use Hourly.
 - d. Data Format- select FW21
 - e. Date Range- Choose your date range for your station. It will only go to the year 2005 or when the station was established if the station was established after 2005.
 - f. Start Hour- can leave as default from 00:00 to 23:00
 - g. Selected Stations: choose your station or stations depending on the amount of data you are requesting.

- h. Click on the Download Data button and save the file to your computer to use in Fire Family Plus.

FEMS Data Download

Options to refine your download will appear as you make selections.
Changes to selections may impact your available options and selections.

Data Subject Area Required

Weather

Data Set Required

Weather Observation

Date Time Frequency Required

☐ Daily
☒ Hourly

Data Format Required

FW21 (LST - Local Standard Time)

Time is adjusted to time zone of station but not adjusted for daylight savings.

Date Range Required

Start Date: 01/01/2005
End Date: 02/19/2025

Start Hour ? **End Hour** ?

00:00 23:00

Selected Station(s) Required

Search All Stations...

- Only 1 station can be selected for requests greater than one year.
- Up to 10 stations can be selected for requests between 2 weeks and one year.
- Unlimited stations can be selected for requests less than 2 weeks.

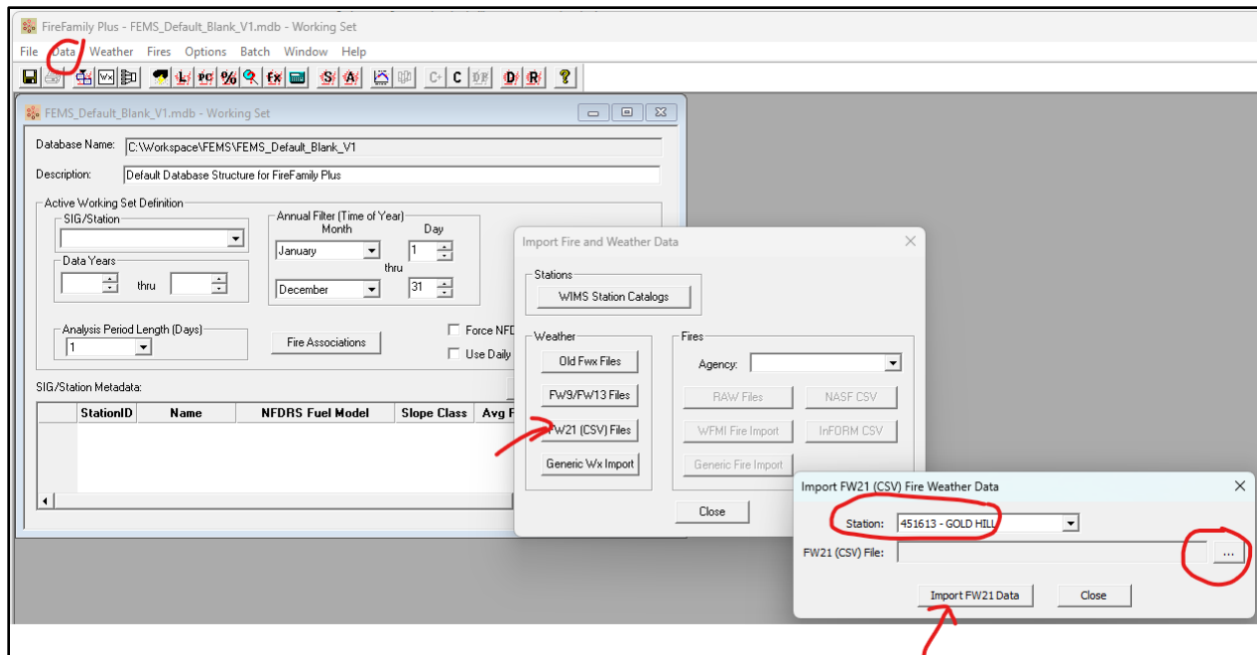
These are your selected stations.

Gold Hill, WA, 451613 x

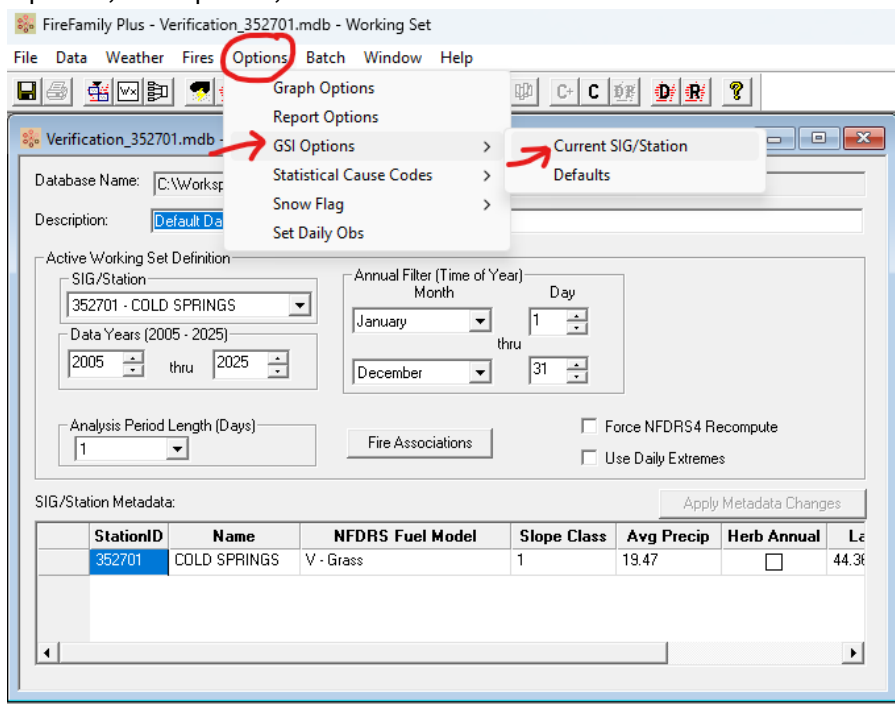
[Clear All](#)

Download Data [Copy Data Link](#)

7. You do not need to download any station metadata as it is pre-populated in FF+. It is important to note that FF+ does not know where the weather data is located so file management is very important when you download and save files. You can assign any weather data you download from FEMS to any station in FF+ if you are not careful.
8. In FF+ click on the Data tab, Import, FW21 (CSV) Files. Select the station for your weather station, click on the ... button and navigate to where you saved the download from FEMS and click on the Import Button. A question comes up, should existing records be overwritten? Click Yes. Weather data is being uploaded to FF+.



9. Adjust GSI settings to match national catalog. From the working set screen click on Options, GSI Options, Current SIG/Station.



10. In the GSI options tab, click on Load Saved Defaults on all 3 GSI tabs (GSI options, GSI Herb FM Options, GSI Woody FM Options) and click Apply.

GSI Options

GSI Options | GSI Herb FM Options | GSI Woody FM Options

	Min	Max
Temp Min Index (C):	-2.0	5.0
VPD Index (Pa):	1956.0	3882.0
Day Length Index (sec):	39600.0	43200.0
Running Total Precipitation (in): ☒	0.4	0.8
VPD Usage:	VPD Max	
GSI Running Average length (days):	28	
Running Total Precipitation Days:	28	

Load Standard Defaults Load Saved Defaults Save As Defaults

OK Cancel Apply

11. FF+ is now set up and ready to be used for analysis and the values should align closely with FEMS fire danger outputs.

12. Additional helpful hints with FEMS weather and station catalog data:

- a. On the Wildland Fire Portal <https://www.wildfire.gov/page/related-documentation> there is additional information on the settings within FEMS, the Master Station List/Metadata and additional write ups that will assist in understanding the FEMS data.

Wildland Fire Application Information Portal

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Related Documentation

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[FEMS 3.0 RAWS Master Station List and Metadata](#)

[NFDRS National Settings for Fire Family Plus Catalogs](#)

[FW21 File Weather Format](#)

[FEMS Change Log](#)

[RAWS QC and Gap Fill Description](#)

[Growing Season Index \(GSI\) Description](#)

[Default FEMS Fire Family Plus Database](#)