



FIRE ENVIRONMENT MAPPING SYSTEM

FEMS 3.7 Release Notice

Date: July 15, 2026
Version: FEMS version 3.7

Description: The primary focus of the 3.7 Release is near real-time QAQC capabilities.

Maps

Weather

Hourly

- Vapor Pressure Deficit (VPD) Data is now available on the Hourly Weather map:
 - When the Weather Hourly Data Type is selected on the map, a Vapor Pressure Deficit option is now available in the Weather Data drop-down.
 - When the Vapor Pressure Deficit option is selected in the Weather Data drop-down, the Legend includes values for the VPD, and the icons reflect the appropriate VPD values and colors.
 - When a station icon is selected on the Weather Hourly map, the table in the pop-up window now includes a VPD (Pa) row with VPD hourly values.
 - When the “Expand to View Chart” accordion is expanded on the station pop-up window, an “Hourly Vapor Pressure” option is available. When this option is selected, the chart reflects the hourly VPD (in green) for the current date selected in the toolbar on the left side of the page, four days prior to the current date selection, and three days after the current date selection.

Daily

- Vapor Pressure Deficit (VPD) Data is now available on the Daily Weather map:
 - When the Weather Daily Data Type is selected on the map, a Max VPD option is now available in the Weather Data drop-down.
 - When the Max VPD option is selected in the Weather Data drop-down, the Legend includes values for the VPD, and the icons reflect the appropriate VPD values and colors.
 - When a station icon is selected on the Weather Daily map, the table in the pop-up window now includes Max VPD (Pa) and Min VPD (pa) rows with VPD Max and Min values.
 - When the “Expand to View Chart” accordion is expanded on the station pop-up window, a “VPD Max and Min” option is available. When this option is selected,

the chart reflects the VPD Max (in red) and VPD Min (in blue) for the current date selected in the toolbar on the left side of the page, three days prior to the current date selection, and three days after the current date selection.

- Adjustments were made to the Wind Direction arrows and barbs, so they display the correct degrees for the stations on the Daily Weather map.

Field Sample

- When a Field Sample site is selected on the Field Sample map, the system will now update the Historical Average, Min, and Max in the Fuel Chart in the pop-up window based on the Fuel Sample selected. NOTE: If you are logged into FEMS, you can change this selection by clicking a sample in the Fuel Sample Overview table. If you are not logged in, you must change the selection by using the filters in the toolbar on the left side of the page.

Fire Danger

- When the Fire Danger map is selected, the icons on the Fire Danger map are now colored to reflect the data values for the following types of data:
 - 1 Hr FM
 - 10 Hr FM
 - 100 Hr FM
 - 1000 Hr FM
 - KBDI
 - Herb FM
 - Woody FM
 - GSI
- The Fire Danger Map Legend was updated to reflect the color values for the following type of data:
 - 1 Hr FM
 - 10 Hr FM
 - 100 Hr FM
 - 1000 HR FM
 - KBDI
 - Herb FM
 - Woody FM
 - GSI
- When a station is selected on the Fire Danger map, the rows on the map are now colored to reflect the data values for the following types of data:
 - 1 Hr FM
 - 10 Hr FM
 - 100 Hr FM
 - 1000 Hr FM
 - KBDI
 - Herb FM
 - Woody FM
 - GSI

- A timeout error will no longer occur when the zoom level on the Fire Danger Map is at 3 or 4.
- When viewing a Fire Danger graph for a station in the pop-up window, the data point dates on the graph now match the same dates for the station's data point on the Weather graph.
- Rules were put in place to flag stations as having data quality issues when that station is missing observations. The flags will remain in place based on the following rules:
 - If a station has one or more missing observations within a 23-hour period of time, the data will be flagged as having QA issues. If all observation data for that station is received within a 24-hour period of time after the flag was turned on, the flag will then be turned off.
 - If a station is missing between 24-72 consecutive observations, then the QA flag will stay on for 7 days following the return of normal observations.
 - If, after 72 hours, there are still missing observations for the station, the QA flag will remain on for 30 days. After 30 days, if there are no missing observations in a 24-hour period of time, the quality flag will be turned off.

Tables

Stations

Weather

- When the Weather table with the Hourly option is selected, a new VPD (Pa) column displays with hourly values.
- When the Weather table with the Daily option is selected, new Max VPD (Pa) and Min VPD (Pa) columns display with daily values.
- When Solar Radiation data is missing for a station, it now displays as missing data (...), rather than displaying a 0 value on the Weather Station table.

Fire Danger

- When the Fire Danger tab is selected on a Station Table, the rows on the map are now colored to reflect the data values for the following types of data:
 - 1 Hr FM
 - 10 Hr FM
 - 100 Hr FM
 - 1000 Hr FM
 - KBDI
 - Herb FM
 - Woody FM
 - GSI

Station Metadata

- A FEMS Admin user can now edit the following Station Metadata for a selected station on the Station Tables page:
 - Avg Annual Precip
 - GSI VPD Min (Value can only be updated if there is historic data for the station.)

- GSI VPD Max (Value can only be updated if there is historic data for the station.)
- Station Visibility
- Weather Data Visibility – Hourly and Daily
- NFDRS Data Visibility – Hourly and Daily

Seasonal Trend Charts

- The Min and Max values were removed from the GSI Seasonal Trend Charts. Only the Current and Average values display.
- The Seasonal Trend Chart data that is available for a station is now based on the following rules:
 - No seasonal trend charts will display for a station that has no historical period of record (POR).
 - If a station has a historical POR between 3-5 years from the last update (12/31/2024), a Seasonal Trend Chart will display that includes the average line. No min, max, or percentile lines will be included in the chart.
 - If a station has a historical POR that is longer than 5 years from the last POR update (12/31/2024), then the Seasonal Trend Chart will include trend lines for min, max, and average, as well as percentile lines.
- VPD Max and VPD Min Seasonal Trend Charts are now available.

NFDRS Catalogs

- When a catalog is selected on the NFDRS Catalogs tab, an Audit Logs sub-tab is now available that identifies any changes made to that catalog.
- When creating or editing a Live Fuel Catalog, a FEMS Admin user can no longer enter the following VPD values:
 - Herbaceous VPD Min
 - Herbaceous VPD Max
 - Woody VPD Min
 - Woody VPD Max

Downloads

- When downloading Weather Hourly data, the file now includes hourly VPD (Pa) data.
- When downloading Weather Daily data, the file now includes Max VPD (Pa) data and Min VPD (Pa) data.
- When Weather or Fire Danger data is missing for a station based on the filter criteria, the system now includes blank lines for the missing data in the Weather and Fire Danger downloaded files.
- The system now includes Station IDs for the stations included in the Weather and Fire Danger download files.
- The system now displays the correct names of the download files when downloading multiple CSV files in a zipped file.
- When downloading FW21 Hourly Weather data, the system now displays the correct information about downloading the data for the local station time (LST), rather than referencing universal time (UTC).
- Users can now download Weather Station Metadata.

- The system no longer times out when downloading Weather or Fire Danger data for 50 or more stations in a Zipped Download file.
- The system no longer times out when downloading FW21 data outside of the queued download.
- When downloading Weather or Fire Danger data for more than 50 stations, the system will automatically queue the downloads.
- When downloading Fire Danger data for multiple fuel models, the system will automatically queue the download.

Fire Danger Calculator

- A new Fire Danger Calculator option is available in the hamburger drop-down menu. When you select this option, you can use a Scenario Calculator to calculate different Fuel Moisture values based on a selected station and model.

Data Process

Field Sample Data Import

- The Date-Time example on the CSV Template for importing data was updated to match the expected value (i.e., 2025-09-23T17:00Z)

Data

Stations

- New RAWs Stations were added to FEMS.

Weather

- When the FEMS system has been unable to review WXx weather data for a set period of time for a station, the system will automatically attempt to retrieve the weather data from the WRCCs DRI service.
- The FEMS system now sends e-mails to specific FEMS administrators when there are Weather data issues.
- Stored procedures for updating a station's Period of Record (POR) and Historical Data Flag were added to FEMS.
- The system now rounds the Precipitation data to two decimal places, rather than one.
- Stations will now always display Snow Flag data as Y or N, rather than 1 or 0.

Fire Danger

- Fire Danger observation data is now automatically recalculated after a Weather Observation gap fill.
- Fire Danger Min and Max Daily data is now automatically calculated after a Weather Observation gap fill.
- Fire Danger observations for GSI and KBDI now utilize local station time when the values are calculated.
- The FEMS system now sends e-mails to specific FEMS administrators when there are Fire Danger data issues.

- The system now appropriately returns Fire Danger Hourly and Daily Min and Max data for a station in all areas of the application, as long as that data exists in the database.
- When the Start Hour and End Hour filters are used to retrieve Fire Danger Hourly data in all areas of FEMS, the system now returns the correct data.
- When a FEMS Admin changes a station's metadata, FEMS will run the NFDRS recalculation process for that station.

Read Only API

- Weather Hourly VPD data are now available in the Read-Only API.
- Weather Min VPD and Weather Max VPD are now available in the Read-Only API.

FEMS 3.7 may be accessed by both public (unauthenticated user) and government wildland fire personnel (authenticated users) alike.

Unauthenticated users can access FEMS without a login and access the full fuel moisture dataset. Authenticated users can access, enter, and edit data, and will be able to edit Group or Site information, according to their FEMS role.

The FEMS business leads will be contacting the former Geographic Area NFMD leads to review permissions and assign roles in FEMS. Training for Area, Group, and Site roles is in development.

Additional information is also available on the FEMS Webpage:

<https://www.wildfire.gov/application/fems>.

The FEMS URL is <https://fems.fs2c.usda.gov/>.

FEMS 3.7 has been tested on devices with the following specifications:

Operating System:

Windows 11 Enterprise

Version 10.0.22631 Build 22631

Intel(R) Core(TM) i5-12600HX, 2500 Mhz, 12 Core(s) 16 Logical Precision

64-bit operating system, x64-based processor

Browser specifications:

Chrome: Version 133.0.6943.127 (Official Build) (64-bit)

Microsoft Edge: Version 133.0.3065.69(Official build) (64-bit)