NFDRS Changes Cheat Sheet

Fire Danger Refresher

- Fire danger is a descriptor of the combination of factors that affect the ignition, spread, and resistance to suppression of a wildfire in a specific area
- Fire danger DOES NOT quantify actual energy release, spread rates, or flame length
- Use percentiles rather than absolute values and best to associate with fire activity
- Outputs are numeric measures of fire business that provide a tool to assist the fire manager in making the most appropriate fire management decisions

NFDRSv3 vs NFDRSv4

NFDRSv4 officially replaced NFDRSv3 in 2023 with the operational transition starting in 2022.

Feature	NFDRSv3 (Legacy)	NFDRSv4 (Current)
Temporal Scale	Daily (1300 LST)	**Hourly (24/7)**
Fire Danger Output	Fire danger at 1300 LST (Day = 1300 - 1300 LST)	**Hourly & daily max/min indices (Day = local midnight to local midnight)**
User Input	Manual (e.g., SOW, Greenup)	**None (Fully Automated)**
Fuel Models	40 Models (A–U)	**5 Models (V, W, X, Y, Z)**
Dead Fuel	Fosberg/Deeming	**Nelson Model** (Accounts for solar/diurnal)
Live Fuel Moisture	Manual green-up date required, season codes and greenness	**Controlled by Growing Season Index (GSI) fully automated**
Snow Cover	Not required-manually activated or deactivated RAWS to control	**Required Automated through SNODAS**

What to know if you are a fire weather forecaster?

- NFDRSv4 is hourly and fully automated
    - More sensitive to missing, erroneous, or changes to input data
    - Not all forecast data exists at hourly timescale so interpolation and assumptions made
- New dead fuel moisture model may yield different ranges/values of dead fuel moistures
- No national comprehensive comparison of NFDRSv3 and NFDRSv4 and still learning and understanding differences

WIMS to FEMS Transition

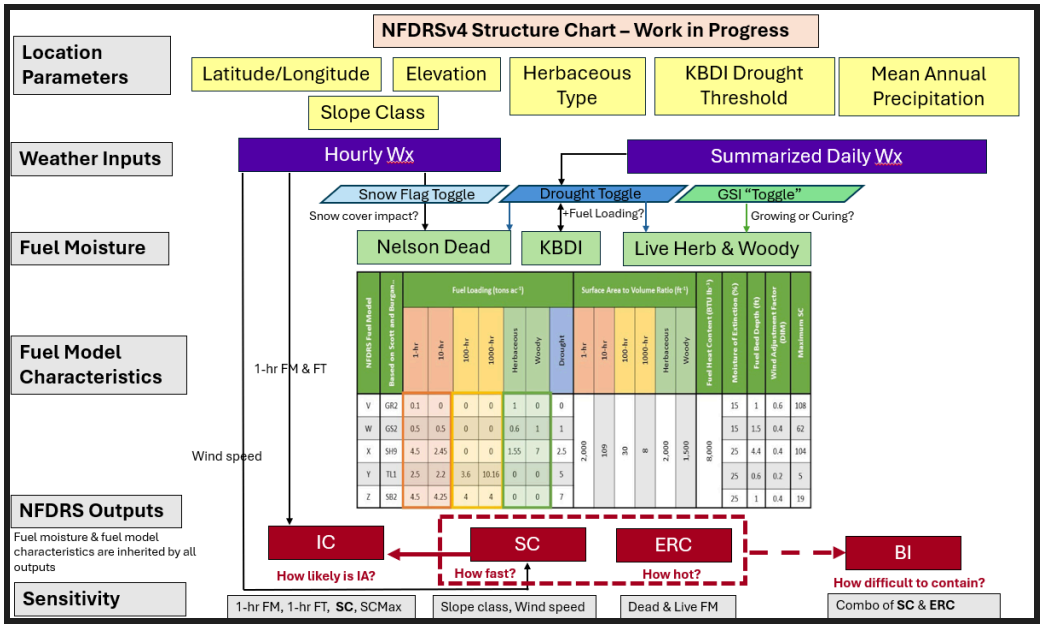
The Weather Information Management System (WIMS) reached end of life in September 2025 with the Fire Environment Mapping System (FEMS) replacing WIMS as the authoritative database for NFDRS.

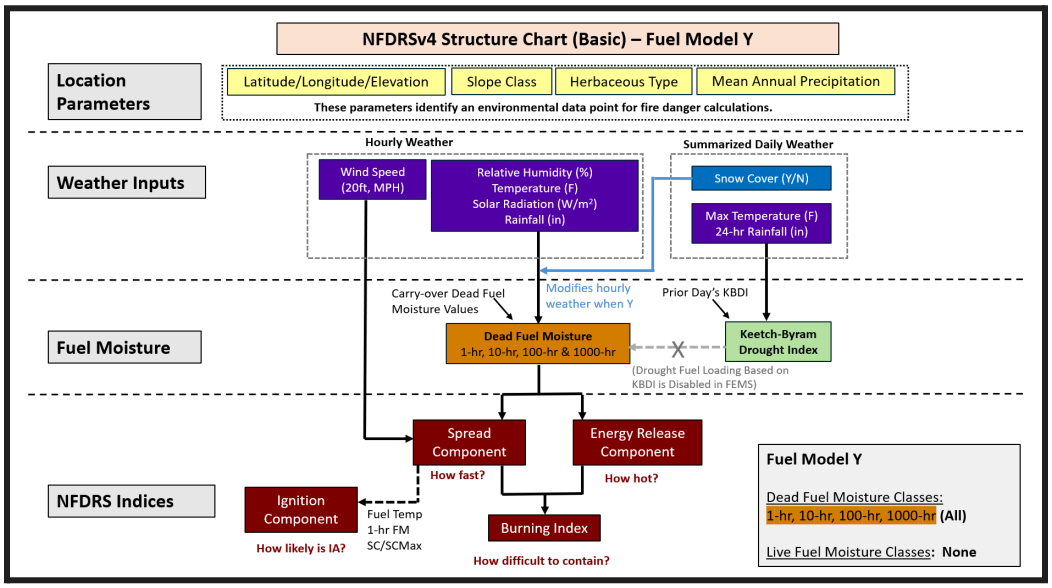
Capability	WIMS (Retired)	FEMS (Active)
Forecast Data	FWM (Manual/Point)	**NDFD/NBM Blend** (Automated)
Special Interest Groups	In-System	**None** (Must download & average manually)
Decision Support	Staffing/Adjective Levels	**Fire danger charts with 90th/97th annual percentiles based on POR**
Historical Data	Inconsistent	**2005–Present (QA/QC Gap-filled from gridded sources) (POR)**
Access	Terminal/Web/XML	**Map Interface & API**
Adjective Rating	Based on staffing level and IC	**No national standard for calculation (not available)**

What to know if you are a fire weather forecaster?

- FEMS provides NFDRS outputs in the mapping interface with tables, graphs, trend charts and download/API options.
- More than 3300 stations in FEMS, including RAWS, ASOS, and state mesonets
    - Not all state mesonets, non-fire RAWS, and ASOS in FEMS
    - 1991 stations have QC/QA period of record (POR) weather and fire danger data
- No more FWMs for fire danger calculations. Fully automated forecast using almost entirely NDFD and NBM forecasts
    - Using 00z/01z NDFD/NBM data for 7-day forecast
- WIMS capabilities not transitioned to FEMS
    - User managed Special Interest Groups (SIG's)
    - User managed weather observation manipulation
    - User managed model parameters. Now managed nationally in FEMS
    - Station specific Adjective and Staffing Level calculations
    - Decision support module
- More data and transparency

APPENDIX





FEMS Forecast Weather Feed Composition

	NDFD	NBM					
			CONUS				
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Temperature							
Relative Humidity							
Precipitation							
Wind							
Solar Radiation							
Snow Flag							
			Alaska/Hawaii/Puerto Rico/Guam				
Temperature							
Relative Humidity							
Precipitation							
Wind							
Solar Radiation							
Snow Flag							