FIRE MODELING SERVICES FRAMEWORK

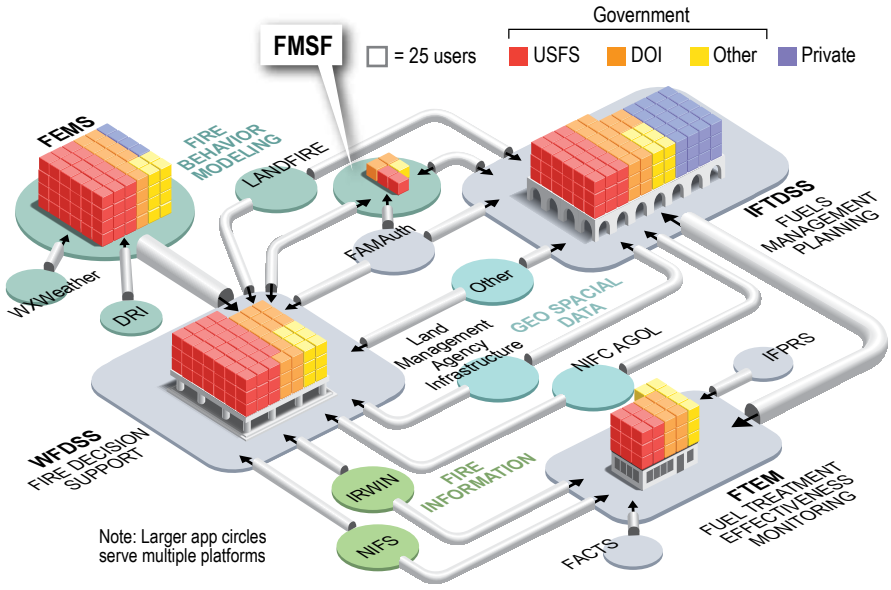
FMSF V2, A MORE EFFICIENT CLOUD-BASED API FOR FIRE BEHAVIOR MODELING

WHAT'S THE FIRE MODELING SERVICES FRAMEWORK?

The Fire Modeling Services Framework (FMSF) is a cloud-based service that provides an Application Programming Interface (API) which empowers both the users of expert systems as well as researchers and analysts to run wildland fire models on demand. It brings improved performance, consistent data, and faster analysis results for fire and fuels management while eliminating a user's need to maintain their own expensive computing infrastructure for these purposes.

The FMSF was the pioneer in the move toward Service Oriented Architecture (SOA) for fire management applications. Today, the FMSF, along with other services, is integral to wildland fire and fuels decision support.

The FMSF is an inter-agency project between the US Department of Agriculture, Forest Service and the US Department of the Interior.



JUNE 2025

ACTION NEEDED!

EXISTING USERS WILL NEED TO REQUEST ACCOUNTS FOR FMSF V2.

REGISTRATION IS CURRENTLY AVAILABLE. FMSF V1 WILL BE RETIRED IN JULY AND WILL NO LONGER BE ACCESSIBLE.

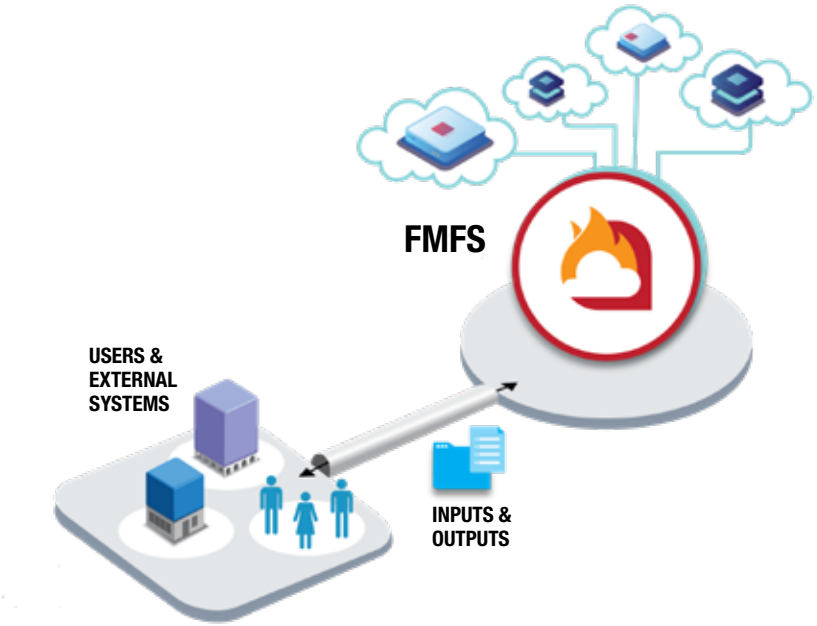
FMSF HOME PAGE FOR THE APPLICATION AND REGISTRATION HTTPS://FMSF2.FIRENET.GOV/

FMSF USER GUIDE HTTPS://FMSF2.FIRENET.GOV/HELP/HOME.HTM

MODEL POTENTIAL FIRE BEHAVIOR SUCH AS: FLAME LENGTH, RATE OF SPREAD, ARRIVAL TIME AND BURN PROBABILITY

WHAT'S NEW IN FMSF V2?

- Revised the API to simplify workflows
- More stable/reliable architecture results in fewer failed runs
- Each model request is run on dedicated infrastructure, therefore no more queues
- Rapid (<1 min) model spool up means models start running quickly
- More functionality available (i.e., custom fuel models, diurnal gridded winds, fire intensity outputs for FSPro) for available models
- Most model inputs permitted with fewer restrictions on ranges allowing for more fine tuning of model run parameters
- Landscape GeoTIFFs can be from any data source
- Improved coordination with the Missoula Fire Sciences Laboratory to deliver timely model fixes and new models



WHAT'S NEXT?

The next release will include 3 additional models. The SpatialFOFEM models were available in the prior version of the FMSF. FlamStat is new to the FMSF. Future releases will include additional models and enhancements to existing functionality.

FlamStat - Generates fire behavior distributions for each cell on a single landscape - accounting for the distribution of weather, wind, and fire shape.

SpatialFOFEM Consumption and Emissions - First order fire effects model for predicting fuel consumption and smoke production caused by prescribed fire or wildfire.

Spatial FOFEM Tree Mortality - First order fire effects model for predicting tree mortality caused by prescribed fire or wildfire.

FMSF V2 ALLOWS USERS TO EFFICIENTLY MODEL FIRE BEHAVIOR WITH FEWER RESTRICTIONS

FIRE BEHAVIOR MODELS AVAILABLE:

FLAMMAP (FLAM)
MTT (MTT_)
RANDIG (RNDG)
FSPRO (FSPR)
FARSITE (FARS)

Models in the FMSF can be used to predict fire behavior for Burn Plans aiding in the implementation of prescribed fire.

FOR MORE INFORMATION

Nicole Vaillant, PhD

FIRE MANAGEMENT SPECIALIST
FOREST SERVICE

nicole.vaillant@usda.gov

541-640-2217