



Understanding the Role of Enterprise Data Sources in the Fire Program Analysis (FPA) System DS_023_WP

Topic:

Defining and understanding how Fire Program Analysis (FPA) uses enterprise data sources.

Purpose

This paper describes the importance of using consistent national data sources when modeling fire behavior in FPA. Examples of data sources include fuel model data layers, weather records, and Wildland Urban Interface (WUI).

Terms

Enterprise Data – Spatial or non-spatial data designated by stakeholder organizations as being corporate or national in nature and extent. Enterprise data is typically maintained, updated and utilized as an authoritative source of information. Only staff with appropriate authority, using formalized protocols can add to, change or delete enterprise data. FPA can access enterprise data at the national or geographic areas larger than Fire Planning Units (FPU).

Issue Statement

National fire program staff from the five-wildland fire management bureaus analyze FPU investment alternatives and associated modeled performance to help formulate a portion of the national fire program out-year budget requests. Adopting consistent enterprise data sources ensures that FPA uses information during the modeling process that facilitates nationwide trade-off analysis. Inconsistent fuel data layers, nonstandard weather records data, and definitions or delineations of WUI result in simulations that cannot be rolled up and analyzed from a national strategic perspective.

Enterprise Data

Fuel Models

The FPA Initial Response Simulation (IRS) and Large Fire Modules (LFM) accept the Anderson 13 fuel models and the Scott and Burgan 40 fuel models. Both FPA modules require information about the entire FPU in order to simulate fire behavior. If fuel model data are not available for portions of the FPU, FPA outputs are unable to demonstrate the value of investing FPU funding in initial response organizations or the effects of those organizations in large fire simulation.

National fuel model data layers are important in developing investment alternatives and budgets. LANDFIRE is updating fuels information through a Rapid Refresh initiative. Rapid Refresh uses perimeter information from Burned Area Emergency Rehabilitation (BAER), Burned Area Reflectance Classification (BARC), and Monitoring Trends in Burn Severity (MTBS) to identify and update changes in the LANDFIRE fuel model data that have occurred between 2001 and



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2007. This update will be complete for the western states with LANDFIRE data developed prior to 2006, by June 2008.

FPA will model fuels for those areas of the country where LANDFIRE data will not be available before June 30, 2008 using either:

- The Southern Wildfire Risk Assessment (SWRA) data, or
- An FPA created fuel model data layer derived from local field unit data and satellite acquired data such as National Land Characterization Data (NLCD) and Normalized Difference Vegetation Index (NDVI).

Weather Records

Accurate weather records are important for realistic fire behavior simulation. For the CY2007/2008 analysis, FPA uses the FAMWEB data warehouse that contains national Fire Danger Rating System (NFDRS) and Remote Automated Weather Stations (RAWS) weather data. FPU's that have few or no weather stations, or want to augment their weather stations' data, can also use North American Regional Reanalysis (NARR) GRID data (developed by the Desert Research Institute under FPA contract) in the modeling process.

Wildland Urban Interface

The objective of FPA Performance Measure 2 is to reduce the probability of costly fire occurrence within the Wildland Urban Interface (WUI). FPA calculates this performance measure for each of the FPU's investment alternatives using the number and cost of fires in the WUI.

Data developed and maintained by the University of Wisconsin's SILVIS Laboratory has been adopted by FPA as the enterprise WUI data layer. A 2 Km (1.2 mile) buffer has been extended beyond the SILVIS-defined WUI for use in FPA models. SILVIS data is the only consistently defined measure of WUI that can be applied nationally to meet FPA's needs. When comparing model results nationwide, consistent data is vital to calculating the FPA performance measures for wildland fire program budget formulation. When national consistency and standards can be applied to the WUI data, FPA plans to incorporate Community Wildfire Protection (CWPP) WUI information into the application.

Discussion

Consistent enterprise data is necessary when modeling investment alternatives and performance measures on a national basis. This allows decision makers to reliably interpret results and reduce local bias that could cause inconsistent model results between FPU's. Analysis based on inconsistent data typically results in outputs that cannot be compared or analyzed from one location to another. FPA provides a national analysis for informing the national fire program budget formulation process. It is critical that decision makers rely on simulation results based on common assumptions and definitions applied to all the data.



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Conclusions

Enterprise data sources are critical to FPA implementation. FPA does not own the enterprise data sources, but relies on the national systems of record and data accepted by the fire community as authoritative sources of data. Accessing data directly from these sources ensures that information is entered according to agency protocol, and does not duplicate effort by having FPU's manually input data into FPA. This reduces workload for field personnel in each of the five wildland fire fighting agencies.

Appendices

University of Wisconsin Silvis lab web site for more information on WUI data.
<http://silvis.forest.wisc.edu/library/WUIDefinitions2.asp>