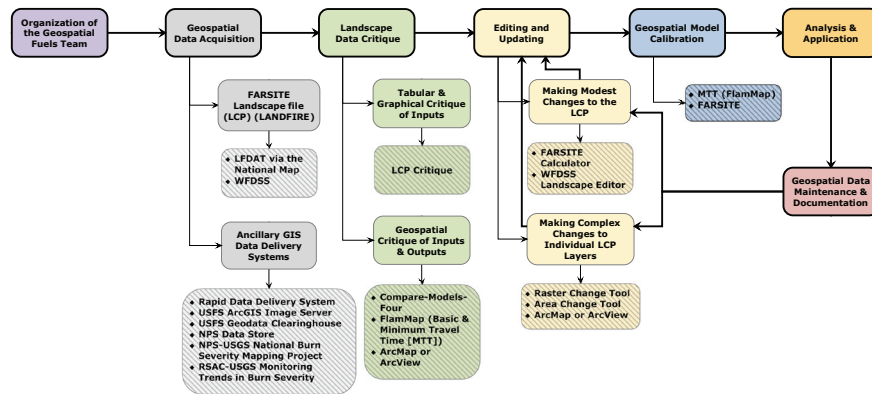


# Guidebook on LANDFIRE Fuels Data Acquisition, Critique, Modification, Maintenance, and Model Calibration

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## Abstract

With the advent of LANDFIRE fuels layers, an increasing number of specialists are using the data in a variety of fire modeling systems. However, a comprehensive guide on acquiring, critiquing, and editing (ACE) geospatial fuels data does not exist. This paper provides guidance on ACE as well as on assembling a geospatial fuels team, model calibration, and maintaining geospatial data and documentation.

The LANDFIRE Data Access Tool (LFDAT), an ArcMap extension, and the Wildland Fire Decision Support System (WFDSS) are the primary tools outlined in this guide to obtain the Fire Area Simulator (FARSITE) landscape file (LCP) for geospatial fuels application. Other useful geographic information system (GIS) data acquisition websites and layers for geospatial fire analysis are also provided. Critiquing the data consists of (1) a tabular critique of the inputs using LCP Critique and (2) a geospatial critique of the inputs and outputs using FlamMap and ArcMap. Detailed information is provided on many of the layers that constitute the LCP (fuel model, canopy cover, stand height, crown base height, crown bulk density).

Inputs are spatially critiqued using FlamMap and ArcMap in combination with the existing vegetation type layer. Outputs critiqued include flame length, rate of spread, fireline intensity, crown fire activity, and fire growth. Compare-Models-Four and Minimum Travel Time (MTT) are discussed, the WFDSS landscape editor is demonstrated as a tool to edit and update an LCP and a section on model calibration using FARSITE and MTT is included. The paper concludes with direction and discussion on data maintenance, documentation, and complexities of a national fuels dataset for field application.

**Keywords:** FARSITE, fire behavior, fire modeling, FlamMap, GIS, geospatial fire analysis, LCP Critique, LFDAT, MTT, WFDSS

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