Abstract: The Wildland Fire Assessment System (WFAS) is a component of the U.S. Forest Service, Fire and Aviation Management Web-based Decision Support System (DSS) that supports fire managers throughout the United States. Fire potential models for Mississippi and other Eastern fire environments have been developed as part of a National Aeronautic and Space Agency-funded study aimed at demonstrating the utility of NASA assets in fire potential decision support systems. Climate, fuels, topography and ignition are recognized as important components for modeling fire potential in Eastern forests and grasslands. We produced temporal and spatial water budget estimates using daily assessments of precipitation and evaporation (P-E) in a Geographic Information System. Precipitation values are derived from Doppler radar-based estimates of hourly rainfall accumulation, published on the Hydrologic Rainfall Analysis Project (HRAP) grid. Precipitation data are routinely available, but evaporation data are not. Regional estimates of evaporation have been produced to fill this void. Regression models that estimate daily evaporation in the Southern region of the United States were developed from readily available weather station observations. Evaporation estimates were combined with precipitation to compute the cumulative water budget. Improvement of these estimates when compared to Keetch-Byram Drought Index (KBDI) was demonstrated using fire location data in Mississippi. Evapotranspiration (ET) from the NASA Land Information System (LIS), is currently being evaluated as a landscape moisture variable. We have implemented a hierarchical modeling methodology that combines information derived from ICESat (GLAS) data

and MODIS Enhanced Vegetation Indices (EVI) to describe fuels structure. A graphical user interface (GUI) has been developed using Visual Basic (VB) that accesses an ESRI geospatial database that integrates water budget and fuels. The ignition component is derived from gravity models that assess the interaction of population density and forest area.

More Information: [Click here for model flowchart.](#) [Click here for more information on this work.](#) [Click here for sample example products.](#)