The development of this experimental product was a collaborative effort between the Desert Research Institute (DRI) Program for Climate, Ecosystem and Fire Applications (CEFA), the USDA Forest Service Missoula Fire Sciences Laboratory and the National Interagency Coordination Center. The project was funded by the National Predictive Services Group. The product is an operational daily forecast out to fifteen days of standardized NFDRS energy release component using fuel model G (ERC-G) based upon the National Centers for Environmental Prediction (NCEP) Global Forecast Model 00UTC run and daily 18UTC forecasts out to 15 days. Forecast days 1 through 8 are given on a 1° spatial resolution grid, and days 9 through 15 are on a 2.5° spatial resolution grid. Four map products are produced including ERC-G, ERC-G anomaly, standardized ERC-G and ensemble ERC-G. The ensemble product utilizes the NCEP Medium Range Forecast (MRF) model.

In order to produce anomalies and standardized values, a national gridded climatology of ERC-G was needed. This dataset was developed at the University of Montana, Numerical Terradynamic Simulation Group (NTSG) under direction of Larry Bradshaw at the Fire Sciences Laboratory, Missoula, MT. The NTSG has been working on building fine resolution daily meteorological and climatological data necessary for plant growth model inputs. The DAYMET model produces these particular data. This model generates daily surface temperature, precipitation, humidity and radiation over complex terrain using both a digital elevation model, and daily observations of minimum and maximum temperatures and precipitation from ground-based meteorological stations. The full DAYMET dataset contains 16-years (1982-1997) of daily temperature, precipitation, humidity and radiation estimates at an 8-km resolution. The Terrestrial Observation and Prediction System (TOPS) was designed to estimate daily biospheric mass and energy fluxes for the continental U.S. TOPS was used to integrate the NFDRS equations with gridded datasets to estimate the daily ERC-G (short needle pine, heavy dead loads) on an 8-km grid. The integration between NFDRS and TOPS required several adaptations and assumptions in three areas (live fuel moisture, state of the weather and precipitation rate) where NFDRS requires more explicit weather information than directly available from DAYMET.

Validation work was undertaken with actual RAWS observations to assess climatology and model similarity in the distribution of modeled ERC and forecasted temperature and relative humidity to RAWS. The DAYMET ERC, Global Forecast System (GFS) temperature and relative humidity, and MRF ensemble temperature and relative humidity values were adjusted to match the data distribution closer to RAWS using a simple statistical technique.

This product is considered experimental and work in progress. Feel free to report usability statements and comments to beth.hall@dri.edu.