An Evaluation of Fire Danger and Behavior Indices in the Great Lakes Region Calculated from Station and Gridded Weather Information


User Feedback

- “GLFF gives me more tools to help set staffing and the associated activities with fire danger ratings”.
- “I use the GLFF system extensively as a guide for when to staff helicopters … to assess the potential for fire ignition and spread for an extended period of time... Another benefit of this system is that it helps greatly in justifying expenditures for fire preparedness”.
- “I opened the site you sent and heard angels singing, THANK YOU! And you actually have Grand Junction MI on the map! WOW.”
- “The major drawbacks I see are the forecast area boundaries. Little Falls Area sits on the 3 main NWS forecasting boundaries for Minnesota. If you add in Aberdeen, I see four different forecasters drawing lines on a map.”

Critical Design Features

- Single web portal: weather integrated with fire danger and behavior
- Weather information: station observations and NWS gridded analysis (RTMA) and forecast (NDFD) products
- Canadian Forest Fire Danger Rating System (CFFDRS): fuel moisture codes and fire behavior indices
- Daily products valid at 1300 CDT (1800 UTC):
  - Gridded Weather Information
  - Forecast Grids from NDFD
  - Daily Products

Known Issues

- Wind speeds differ among stations/networks due to siting
- Higher wind speeds from gridded products (analyses and forecasts) than from observations
- Use GPS to identify closest
- Daily products valid at 1300 CDT (1800 UTC):
  - Grass fuel
  - Objective:
  - Great Lakes Fire and Fuels System
  - Observations, RTMA and NDFD grids available for lower 48 states
  - Probabilistic weighting of precipitation
- State and local level control: initialize and adjust as needed

Recent and Future Upgrades

- Design Team Recommendations and Needs
  - Calculate and display station and gridded analysis and forecast products at hourly intervals for CFFDRS Indices sensitive to rapidly changing weather
  - CFFDRS Indices at hourly intervals from station data already available: FFMC, ISI, FWI, DSR
  - Grass fuel model indices now available: Grass FMC, Grass ISI (Wolfon 2009)
  - Need hourly updates of forecasts at stations and at all grid points with lead times of 3-48 h
  - Probabilistic weighting of precipitation
  - Time series and tabular graphics of hourly forecasts at stations with lead times of 3-48 h
  - Maps with 3-48 h slider to select forecasts at all grid points synced with station values

Extending to CONUS

- Observations, RTMA and NDFD grids available for lower 48 states and Alaska
- CFFDRS Indices being computed for lower 48 states now
- Capabilities developed for the Lakes States applicable nationwide and in Canada but requires regional calibration of initial values and appropriate thresholds for fire danger ratings

Mobile Apps in Developments

- Provide seamless access to GLFF products whether at office or in the field
- Use GPS to identify closest observing site
- Return current and forecast conditions for that location
- Display conditions in surrounding area from gridded analysis and forecast products