

## Product Description Document for the Experimental Grassland Fire Danger Index for the Kansas Plains

### Part 1 – Mission Connection

- 1. Product/Service Descriptions:**  
The Grassland Fire Danger Index (GFDI) product/service will be a text and graphical representation of the Grassland Fire Danger Index values that correspond to the likelihood that fires will get out of control. 3-hourly GFDI values will be represented, giving customers a clear indication of not only the index value but also the time and duration of the values at a specific grid location.
- 2. Purpose/Intended Use:**  
The GFDI forecast will be used as a fire weather planning aid for decision-making on issuing burn permits. Predictive Services meteorologists will use the output in resource planning for the following week. The index values for days 2 through 6 are intended to be a planning guideline.
- 3. Audience/Users:**  
The NWS graphic forecasts are intended for government emergency managers for guidance when issuing burn permits, Predictive Services meteorologists for resource planning purposes, and anyone in the general public who wishes to do any burning.
- 4. Presentation Format:**  
The product will be issued once per day; by 6am and will be available on the issuing WFO's website (TOP or ICT). On the fire weather section of the LDFD page for the ICT forecast area, a graphical LDFD image is shown with the GFDI values. The GFDI values will be color-coded to indicate the value of the index. The colors will be as follows:

  - Dark Green – Low
  - Green – Moderate
  - Blue – High
  - Yellow/Orange – Very High
  - Red - Extreme

A tabular version of the product will also be available on the WFO's website with a 24-hour index and 3-hourly indices for each county for 6 days.
- 5. Feedback Method:**  
Feedback will be solicited via a user survey that will be posted on the GFDI website until June 30, 2008. Customers will also be encouraged to provide feedback through e-mail to: [marybeth.schreck@noaa.gov](mailto:marybeth.schreck@noaa.gov) .

Changes will be made and suggestions for improvement will be incorporated into the experimental product to begin at a date yet to be determined.

Written comments may be mailed to:

National Weather Service  
2142 South Tyler Rd.  
Wichita, KS 67209  
Attn: Mary-Beth Schreck

## Part 2. – Technical Description

### 1. Format and Science Basis:

The GFDI uses a continuous, non-binned function that will allow for a much higher temporal and spatial resolution. The formula is

$$FDI = 10^{(0.009254 - 0.004096 * (100-C)^{1.536} + 0.01201 * T + 0.2789 * (V)^{0.5} - 0.09577 * (RH)^{0.5})}$$

Where

- T = Temperature ( $T^{\circ}C$ )
- RH = Relative Humidity ( $RH \%$ )
- V = Wind Speed ( $V \text{ km/h}$ ) (10 m, 10 min average)
- C = Curing ( $C \%$ )

The graphical fields are created in IFPS/GFE using standard grid-editing tools.

### 2. Training:

A training packet is being prepared for the curing observers. This packet will include photographic examples of various curing levels that the observer can compare to the current conditions. While we train the observers and during the winter season until green-up, we will keep the curing value at 100%.

### 3. Availability:

The graphics and tabular product will be available 24/7 and updated by 6am daily and as needed.