

# OPERATIONAL PROCEDURES

## *Assessing Current and Future Fire Danger using OK-FIRE*

Keeping in mind the important weather and fire variables listed in “OK-FIRE Basics for *FIRE DANGER*”, along with the ranges of concern for each variable, you should be able with regular practice to reliably assess the current and future fire danger conditions for your area. Relative humidity, winds, and 1-hour dead fuel moisture are important, but in particular, pay attention to Burning Index (which integrates the fuel model, greenness level, and weather conditions). Remember that the NAM forecasts update every 6 hours, so always pay attention to the latest forecast updates (*update times are listed above the Mesonet station 12-hr forecast charts on the home page*).

### **SITE-SPECIFIC ASSESSMENT OF FIRE DANGER**

*Note:* For simplicity, this methodology identifies ONE nearby Mesonet station (Steps 1-3) that is appropriate for the fire danger model output; please note, however, that you can always use the nearest station to your area of interest for weather and dead fuel moisture, since these variables are not dependent on greenness or fuel model.

- 1) Choose a nearby Mesonet station that has a GREENNESS level appropriate for the observed levels of greenness of your local wildland surface fuels (you will need to zoom in on the map to see all the station values).** (“Relative Greenness Zoom Map” in left menu section; this map is updated daily with the latest satellite data)

*Note:* This step is especially important if you’re in an agricultural area of the state, as you should not use a Mesonet station whose greenness level is heavily influenced by crops or bare fields and not representative of local wildland surface fuels.

- 2) If different, change the primary Mesonet station on the HOME PAGE to the above selected station.** (Click the station listed above the first (primary) station data column; then click on your selected station on the Oklahoma map or select it in the alphabetical station menu)

- 3) Check the current FUEL MODEL for that primary Mesonet station and change it if you wish to model a different fuel complex.** (Select desired fuel model from fuel model menu located below “Current Fuel Model for (station name)” at the bottom of the left menu section)

*Note:* We recommend using Model T as a reliable “worst-case” scenario fuel model under most situations for Oklahoma fuels. However, if you wish to model just grasses, you can use Models A or L; or, if you’re in forest settings, you can use Model R (hardwood forest) or Model P (pine forest). Other fuel models are available as well: Models B and F for brushy evergreen landscapes, Model G for forests with heavy downed fuels, and Model K for light slash.

- 4) Look at the CURRENT weather and fire danger conditions in the station data tables and maps on the home page.**

*Note:* For recent trends in any of these variables, go to “Past & Forecast Charts/Tables”, select “Past” under Data Type, then select either “Charts” or “Tables” under Display Type, and then “Get Data”.

- 5) Look at the FORECAST charts for RELATIVE HUMIDITY and WINDS.** (See 12-hr chart on home page; for longer forecasts, go to “Past & Forecast Charts/Tables”, select “Forecast” under Data Type, and then “Get Data”; use the default “Standard Meteogram” listed in the Variable menu)

- 6) Look at the FORECAST charts for BURNING INDEX and 1 & 10-HR DEAD FUEL MOISTURE for the above selected station; Spread Component and Ignition Component may also be of value to you.**

(See 12-hr BI chart on home page; for longer forecasts and other variables, you can go to “Past & Forecast Charts/Tables”, select “Forecast” under Data Type, then the variable(s) of interest in the Variable pull-down menu, then “Get Data”)

*Note:* For any of the fire danger model indices (BI, SC, ERC, IC), it is also useful to compare a second fuel model on the charts. Simply select another fuel model in the pull-down menu entitled “Add Second Fuel Model:” and click “Get Data”. The second fuel model will show up in turquoise on the graph.

## **REGIONAL ASSESSMENT OF FIRE DANGER**

Here we are talking about using the MAP products, which give you a wider and more comprehensive picture of the fire danger conditions than by just looking at a particular Mesonet site. Through maps you can assess the current and forecast conditions in your area of the state, as well as the entire state, and see the progression of various weather systems across the region that may impact fire danger (e.g., fronts, dry lines).

- 1) **Look at the *CURRENT FIRE WEATHER* map.**  
(“Current Fire Weather Conditions” map in “Current Maps” section)

- 2) **Look at the *CURRENT* maps for **RELATIVE HUMIDITY and WIND.****  
(Regional RH and Winds map on home page; also “Current Maps” section)

*Note: For recent trends (e.g. over last 6 hours) in Relative Humidity and Winds, you can animate these maps by going to “Past & Forecast Animated Maps”, selecting “Past”, the duration you want, and then click the “Play” icon (right facing triangle) underneath the map. The default map is the Relative Humidity and Winds map. However, you can choose whichever map you wish in the pull-down Variable menu.*

- 3) **Look at the *CURRENT* maps for **BURNING INDEX and 1-HR DEAD FUEL MOISTURE; Spread Component and Ignition Component may also be of value to you.****  
(Regional BI map on home page; also “Current Maps” section)

*Note: For recent trends (e.g. over last 6 hours) in Burning Index, 1-hr Dead Fuel Moisture, or other variables, you can animate these maps by going to “Past & Forecast Animated Maps”, selecting “Past”, the variable(s) you want in the Variable pull-down menu, the duration you want, and then click the “Play” icon (right facing triangle) underneath the map.*

- 4) **Look at the *FORECAST* maps for **RELATIVE HUMIDITY and WIND.****

*Go to “Past & Forecast Animated Maps”, select “Forecast” (the default), the variable of interest (default is Relative Humidity and Winds map), the duration you want, and then click the “Play” icon (right facing triangle) underneath the map. The default duration of the animation is 84 hours.*

- 5) **Look at the *FORECAST* maps for **BURNING INDEX and 1-HR DEAD FUEL MOISTURE; Spread Component and Ignition Component may also be of value to you.****

*Go to “Past & Forecast Animated Maps”, select “Forecast” (the default), the variable of interest, the duration you want, and then click the “Play” icon (right facing triangle) underneath the map.*

**Fire Danger Categories:**    **LOW (BI < 20)**  
  **MODERATE (20 <= BI < 40)**  
  **HIGH (40 <= BI < 80)**  
  **SEVERE (80 <= BI < 110)**  
  **EXTREME (BI >= 110)**

### **NOTE:**

***Maps of Burning Index, Spread Component, Energy Release Component, and Ignition Component are calculated using the 500-m resolution default fuel model distribution (Default Fuel Model Zoom Map) across Oklahoma (Models A, B, F, L, P, R, and T) and the daily 500-m resolution satellite-detected greenness levels (Relative Greenness Zoom Map). All other variables (e.g., relative humidity, winds, 1-hr dead fuel moisture, KBDI) are independent of (not affected by) fuel model and greenness.***