

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 in the upper right of OK-FIRE in orange*).

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 model output during a given 7-day period; 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 your native surface fuels this week (you may need to zoom in the map by left clicking your mouse to see all the station values)**
(FIRE section, Relative Greenness Map)

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 native surface fuels.

- 2) If different, change the Mesonet station on the HOME PAGE to the above selected station.**
(Click “Home” at the upper right of the web page; click “Choose a Station, select the station, and then “Submit”)

- 3) Check the current FUEL MODEL for that station and change it if you wish to model a different fuel complex**
(FIRE section, Station Fuel Model Options)

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 Model 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; however, we recommend using caution with Models D and N.

- 4) Look at the DATA BOXES at the left of the Home Page for CURRENT weather and fire danger conditions**

Note: For recent trends in Relative Humidity or Winds, go to WEATHER, RECENT Fire Weather, and Past 24-h Weather Chart (or Site-Specific Weather Charts). For recent trends in dead fuel moisture, Burning Index, or other fire danger indices, go to FIRE, RECENT Fire Danger, and Site-Specific Fire Danger Charts (or Past 24-h Burning Index Chart for just BI).

- 5) Look at the FORECAST charts for RELATIVE HUMIDITY and WINDS**
(WEATHER, FORECAST Fire Weather, NAM Forecast Chart (or Site-Specific Forecast Charts (NAM)))

- 6) Look at the FORECAST charts for BURNING INDEX and 1 & 10-HOUR DEAD FUEL MOISTURE for the above selected station; Spread Component and Ignition Component may also be of value to you**
(FIRE, FORECAST Fire Danger, Site-Specific Fire Danger Charts (or Forecast Burning Index Chart for just BI))

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.

NOTE: Since the greenness maps are updated weekly on Tuesday afternoons, you only need consider Steps 1-3 once per week - either late Tuesday or Wednesday. Thus, on most days you only need concern yourself with Steps 4-6.

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
(WEATHER section, default map that appears)

2) Look at the *CURRENT* maps for **RELATIVE HUMIDITY and **WIND****
(WEATHER section, CURRENT Fire Weather)

Note: For recent trends (e.g. over last 6 hours) in Relative Humidity or Winds, you can animate these maps by going to RECENT Fire Weather, Dynamic Weather Maps.

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****
(FIRE section, CURRENT Fire Danger)

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 RECENT Fire Danger, Dynamic Fire Danger Maps.

4) Look at the *FORECAST* maps for **RELATIVE HUMIDITY and **WIND****
(WEATHER section, FORECAST Fire Weather, Dynamic Forecast Maps (NAM))

Note: It is useful to animate these variables through the entire 84-h forecast period (the default for the animation).

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****
(FIRE section, FORECAST Fire Danger, Dynamic Fire Danger Maps)

Note: It is useful to animate these variables through the entire 84-h forecast period (the default for the animation).

**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 1-km default fuel model distribution (FIRE, Default Fuel Models Map) across Oklahoma (Models A, L, T, R, and P) and the current week's 1-km satellite-detected greenness levels (FIRE, Relative Greenness 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.