

Fire Weather

Fire weather depends on a combination of wildland fuels and surface weather conditions. Dead and live fuels are assessed weekly from a satellite that determines the greenness of the landscape. Surface weather conditions are monitored every 5-minutes from the Oklahoma Mesonet. This fire weather cheat sheet highlights the surface weather ingredients to monitor before wildfires and also includes several products to monitor once wildfires are underway.

Fire Weather Ingredients: WRAP

While the presence of wildland fuels is one necessary component for wildfires, weather conditions ultimately dictate whether or not a day is primed for wildfires to occur. There are four key fire weather ingredients and they include: High **Winds**, Low **Relative Humidity**, High **Air Temperature**, and No/Minimal Recent **Precipitation (WRAP)**.

High Winds are the second most critical weather ingredient for wildfires. In general, winds of 20 mph or greater increase spot fires and make containment considerably more difficult.

Low Relative Humidity is the most critical weather ingredient for wildfires and is most common in the afternoon when the air temperature is at its warmest. When relative humidity is at or below 20% extreme fire behavior can result and spot fires become frequent. **Watch out for areas of 20% or below relative humidity and 20 mph or higher winds- 20/20 rule!**

Warm Air Temperatures are another key weather ingredient for wildfires as warming can lower the relative humidity, reduce moisture for smaller dead fuels, and bring fuels closer to their ignition point.

No or Minimal Recent Precipitation is the final wildfire weather ingredient. Rainy conditions keep the relative humidity at levels unsupportive of wildfires while also limiting the ability of dead fuels to burn.

In the examples above from 2PM on March 6th, 2017, a dangerous combination of very high winds (30+ mph), very low relative humidity (less than 20%), warm temperatures (upper 70s to mid 80s F), and no recent precipitation (not shown) contributed to extreme fire weather conditions that resulted in an outbreak of wildfires throughout Northwest Oklahoma, the Texas Panhandle, and southwest Kansas.

