Critical Fire Weather

The primary method NWS conveys critical fire weather patterns is by issuing **Red Flag Warnings** and **Fire Weather Watches**. Predictive service meteorologists issue **High Risks**.

The four critical weather elements:

- *Low RH*
- *Unstable air*
- *Strong surface wind*
- *Drought*

Critical fire weather patterns that support extreme fire behavior conditions can be separated into two primary categories: those that produce strong surface winds and those that induce atmospheric instability. Consider alignments.

Drought: look for ERC/BUI at 90th percentile or greater.

Hot-Dry-Unstable: Look for terms in forecast, observed conditions.

- Sunny for AM hours
- Temps above normal
- Poor RH recoveries
- Weak inversion
- Mid-level dry intrusion/slot
- Thermal low/trough
- High mixing heights/steep lapse rates
- Heat wave

Windy-Dry-Unstable: Look for terms in forecast, observed conditions.

- Subsidence sector of tropical storms
- Dry cold front passage/ wide gust spreads
- Outflow, microburst, gust front, downdraft
- Breakdown of upper-level ridge
- Downslope
- Offshore
- Mountain wave
- Strong jet
- Monsoon burst
- Land-sea breeze front
- Migrating surface dry line

Inversion Breaks: Fires become more active, perhaps rapidly.

- Quick jump in temps, drop in RH, increased wind
- Timing can vary by terrain, seasonality, latitude, and weather pattern change