

Fire Weather Cloud Chart

Fire Weather and Fire Behavior Impacts from Clouds

High Clouds:

Cloud bases typically 16,000 - 50,000 ft (5 - 15 km)

Usually seen as indirect indicators of potential behavior



Cirrus Streaks

- Single or multiple bands across sky indicating jet stream aloft
- Possible instability or surface winds increasing fire behavior



Cirrus

- Dense, in patches, not increasing, or with tufts
- No significant fire weather or fire behavior expected



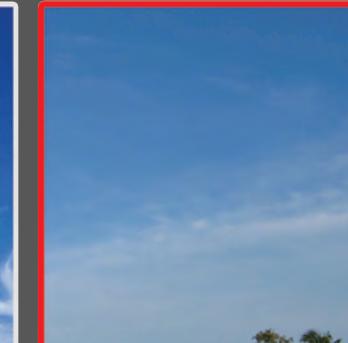
Cirrus

- Anvil-shaped remains of a thunderstorm
- Watch for gusty winds from nearby decaying thunderstorms



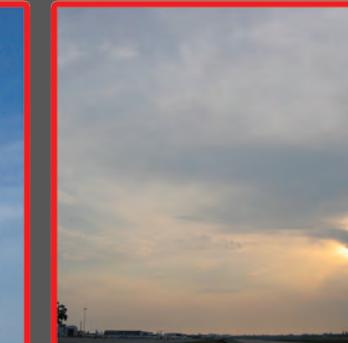
Cirrus

- In hooks or filaments, increasing in density
- Often indicates cold air aloft, watch for possible instability leading to more active fire



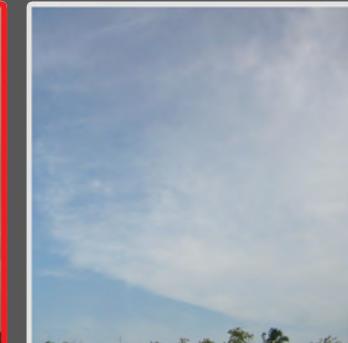
Cirrostratus

- Cirrus bands, transparent, relatively near the horizon
- Typically indicates weather fronts are 2 to 3 days away



Cirrostratus

- Cirrus bands, covering majority of the sky with sun obscured
- Typically indicates weather fronts are one day or less away



Cirrostratus

- Sun mostly visible
- No significant impact on fire weather or fire behavior



Cirrocumulus

- Alone or with some cirrus or cirrostratus
- Very high instability, usually little impact on surface conditions

Middle Clouds:

Cloud bases typically 6,500 - 23,000 ft (2 - 7 km)

Can be direct and/or indirect indicators of potential behavior



Altostratus / Nimbostratus

- Usually dense enough to hide the sun or moon
- Often contains steady rain, watch for slippery footing, expect minimal fire activity



Altocumulus

- Semi-transparent, one level
- Indicates weak mid-level instability and increasing moisture, possible monsoon thunderstorm development within 24 hours



Wave Clouds (ACSL)

- Formed by strong winds over uneven terrain, often repeating downwind
- These strong winds may surface and result in running fire



Altocumulus

- One or more bands or layers, expanding, thickening
- Indicates instability present, monitor for additional development



Altocumulus

- From the spreading of cumulus or cumulonimbus
- Could indicate presence of nearby thunderstorms, caution for gusty winds generally from the direction of the clouds



Altocumulus

- Generally opaque layers, possibly containing virga
- Weak instability, virga may result in gusty winds, cloud density usually inhibits further convection



**Altocumulus Castellanus (Top)
Altocumulus Floccus (Bottom)**

- Flat base with turrets or cumulus-like tufts
- When observed in morning hours, often indicates afternoon/evening thunderstorms



Altocumulus

- Chaotic sky, cloud bases at several levels
- Lower cloud base may block view of higher based storms, hides potential for lightning and gusty winds

Low Clouds:

Cloud bases up to 6,500 ft (0 - 2 km)

Usually have direct impact on potential fire weather and fire behavior



Fair Weather Cumulus

- Flattened appearance
- Weak instability present, but rarely results in further development, active fire behavior still possible, especially under low humidity



Cumulus

- Moderate/strong vertical development, or towering cumulus
- Atmosphere is unstable, monitor for further development and increased fire activity



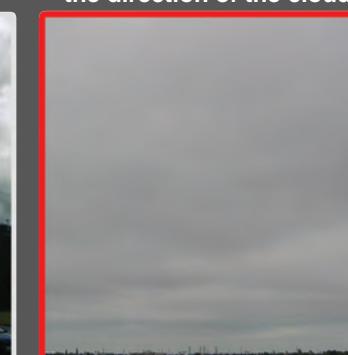
Cumulonimbus (aka Cb)

- Tops not fibrous, no anvil
- Significant vertical motion present, gusty downdrafts likely, thunderstorms are possible, erratic fire activity



Stratocumulus

- Moderate instability
- Showers and downdrafts likely, thunderstorms possibly hidden, variable fire behavior



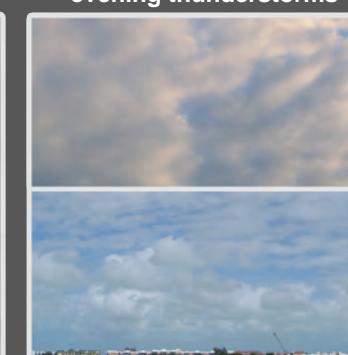
Stratus

- Smooth appearance, continuous low layer
- Often inhibits aircraft use, minimal fire activity



Stratus Fractus / Cumulus Fractus

- Occurs with rain or snow
- Usually associated with cold front, winds may push fire



Stratocumulus & Cumulus

- Usually associated with cool weather
- Fire activity may increase with afternoon heating and instability



Mature Thunderstorm

- Strong downdraft winds, lightning, heavy rain, and hail possible underneath
- Distant terrain channelled winds and lightning possible

*Note: Clouds with a red box indicate clouds of critical concern for firefighters as outlined in S-290 and S-490.

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This poster was produced by NOAA's National Weather Service in conjunction with Predictive Services (<https://www.nifc.gov/>, <https://www.weather.gov/fire/>).

Special Cases:
 These phenomena occur under significantly unstable conditions. Exercise extreme caution when they are observed, particularly when fire is between you and it.



Pyrocumulus

- Unstable conditions where smoke moisture condenses to form cumulus
- Downdrafts, rain, lightning possible



Tornado

- Rapidly rotating column that touches the ground under a thunderstorm
- Seek immediate shelter in a sturdy building



Fire Whirl

- Localized, intense wind swirl under unstable conditions with possible speeds exceeding 50 mph
- Can scatter fire, spot across lines, and enter safe zones



Shelf Cloud

- Represents the leading edge of strong winds in advance of a thunderstorm
- Can extend ahead and past the main thunderstorm column



Virga

- Rain or snow that evaporates before reaching the ground
- Sudden, gusty outflow winds may dramatically increase fire behavior