



**Weather and Prescribed
Burning**

**Weather Tutorial and
Fire Weather
Predictions**



A basic knowledge
and awareness of
weather is essential
for making critical
fire management
decisions.

Fire Weather Outline

- Intensity and Behavior.
- Fire Weather Forecast and Smoke Management.
- Critical Fire Weather Patterns and Weather Resources.



Risk, Threat, and Vulnerability

- Risk: The probability of the fire getting away and the landowner, burn boss, or crew member being sued.
- Threat: Refers to the source and means by which we could be sued.
- Vulnerability: Issues in our plan or unexpected issues that caused the plan to go awry.
- Having failed, what decisions did we make that would allow the suit to be successful.

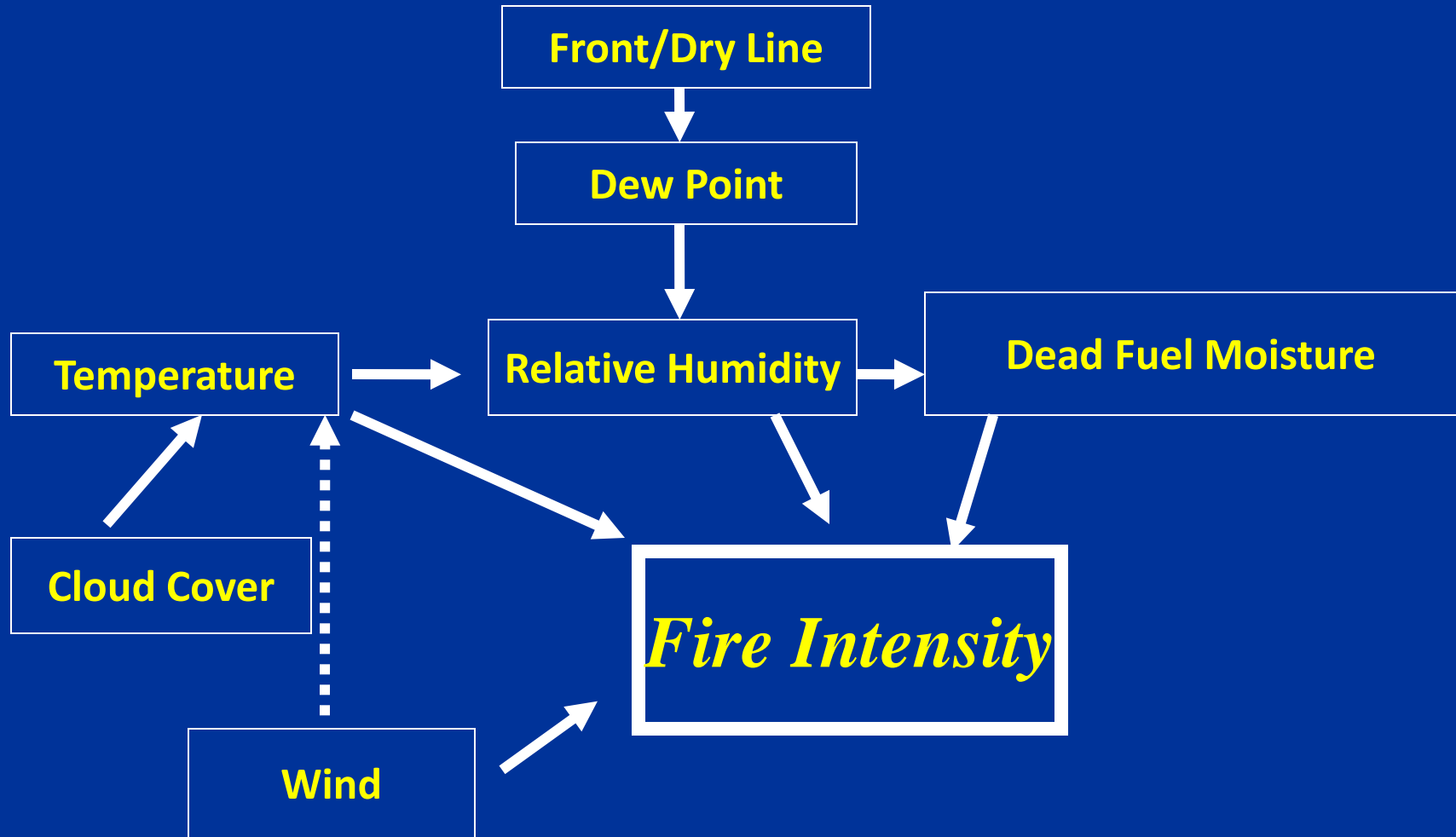
Weather

- Affects

- Fire Intensity.
- Fire Behavior.
- Effectiveness of controlling the target plans.
- Personnel comfort and safety.
- Keeping the fire in the planned area.

Weather Factors Affecting Fire Intensity

These factors are intergraded by the Burn Boss to determine the outcome of a fire.



Factors Affecting Fire Behavior and Fire Intensity

- Weather Factor
 - Extremely important for planning and conducting a prescribed burn
 - Fire Bosses need to be amateur weather geeks.
- Fuel Factors.
- Fire Behavior Factors

Using Weather Forecasts

- Understand weather vocabulary.
- Interpret weather maps.
- Understand fire weather forecasts.

Atmospheric Pressure

Low Pressure (L)

- Low pressure areas have less atmospheric mass above their location

High Pressure (H)

- High pressure areas have more atmospheric mass above their location.

Weather maps use the reporting stations to plot the pressure values much like a topography map to find areas of low and high pressure.

Atmospheric Pressure - *continue*

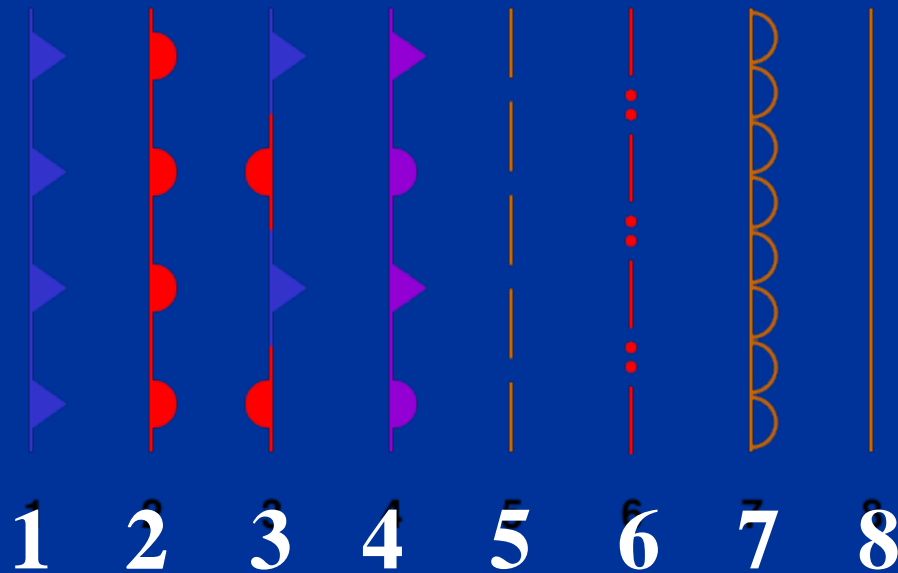
Low Pressure

- Associated with more violent weather fronts, troughs, and cyclones.
- Fall, Winter, and Spring have lower pressures and thus more weather variation.

High Pressure

- Associated with more stable air masses.
- Summer Highs can last some time creating less weather variation.

Fronts

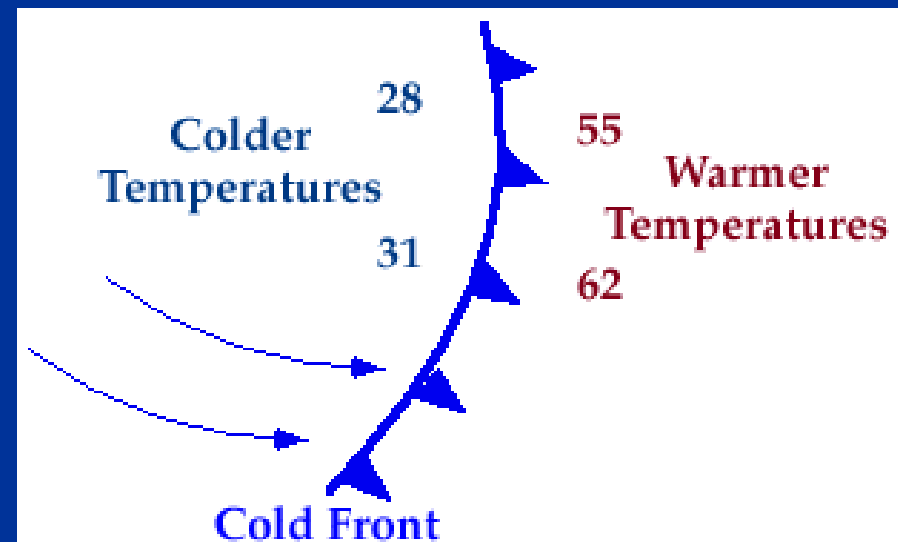


Weather Fronts

- | | |
|----------|------------------|
| 1 | cold front |
| 2 | warm front |
| 3 | stationary front |
| 4 | occluded front |
| 5 | surface trough |
| 6 | squall line |
| 7 | dry line |
| 8 | tropical wave |

Cold Front

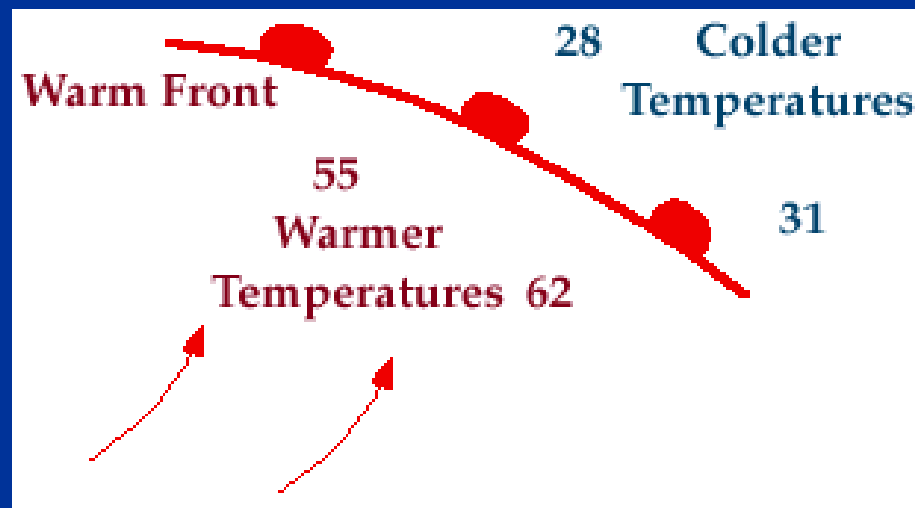
- The leading edge of a mass of air which is usually colder and drier than the air mass in front of it, outside of terrain effects.
- The colder air, being denser, wedges under the less dense warmer air, lifting it, causing the formation of mostly cumuliform (puffy, cotton-ball-like) clouds.
- The passage of a cold front usually results in velocity changes in winds and creates vertical movement of air (turbulence) and can set off atmospheric disturbances such as rain showers, thunderstorms, squall lines, tornadoes, and snowstorms ahead of and immediately behind the moving cold front.



Warm Front

Transition zone from cold air to warm air

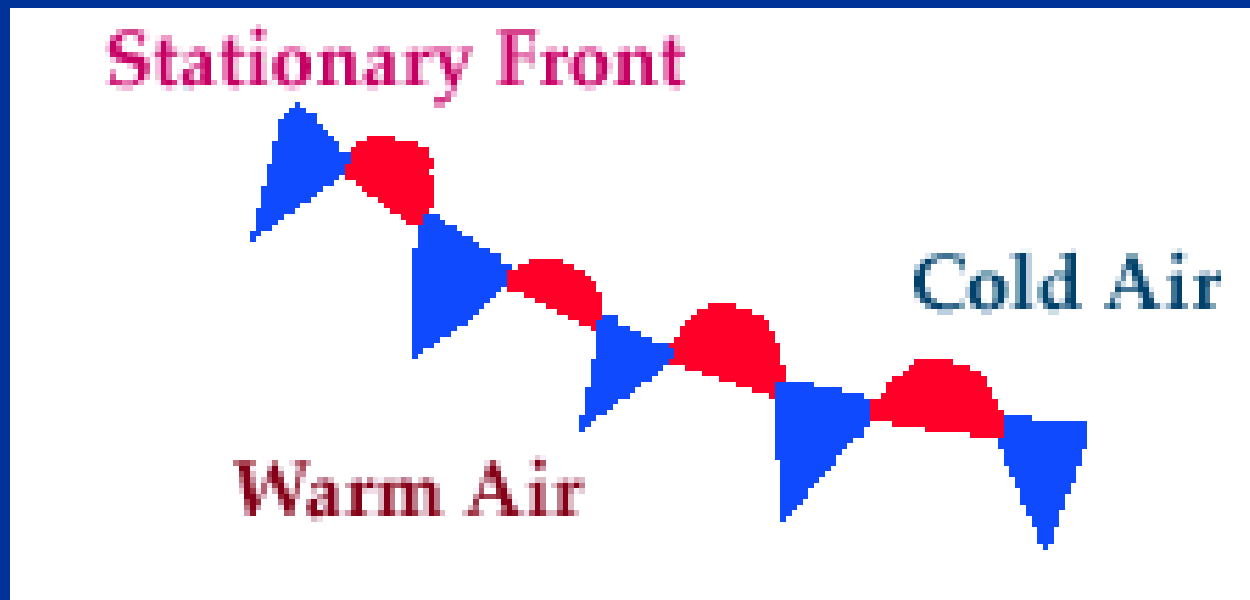
- A warm front is defined as the transition zone where a warm air mass is replacing a cold air mass.
- Warm fronts generally move from southwest to northeast and the air behind a warm front is warmer and more moist than the air ahead of it.
- When a warm front passes through, the air becomes noticeably warmer and more humid than it was before.



Stationary Front

A front that is not moving

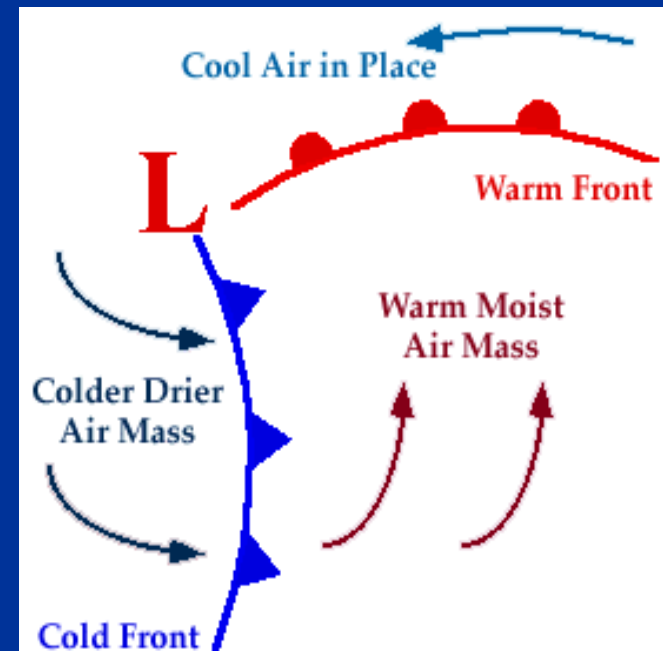
- When a warm or cold front stops moving, it becomes a stationary front. Once this boundary resumes its forward motion, it once again becomes a warm front or cold front.
- A stationary front is represented by alternating blue and red lines with blue triangles pointing towards the warmer air and red semicircles pointing towards the colder air.



Occluded Front

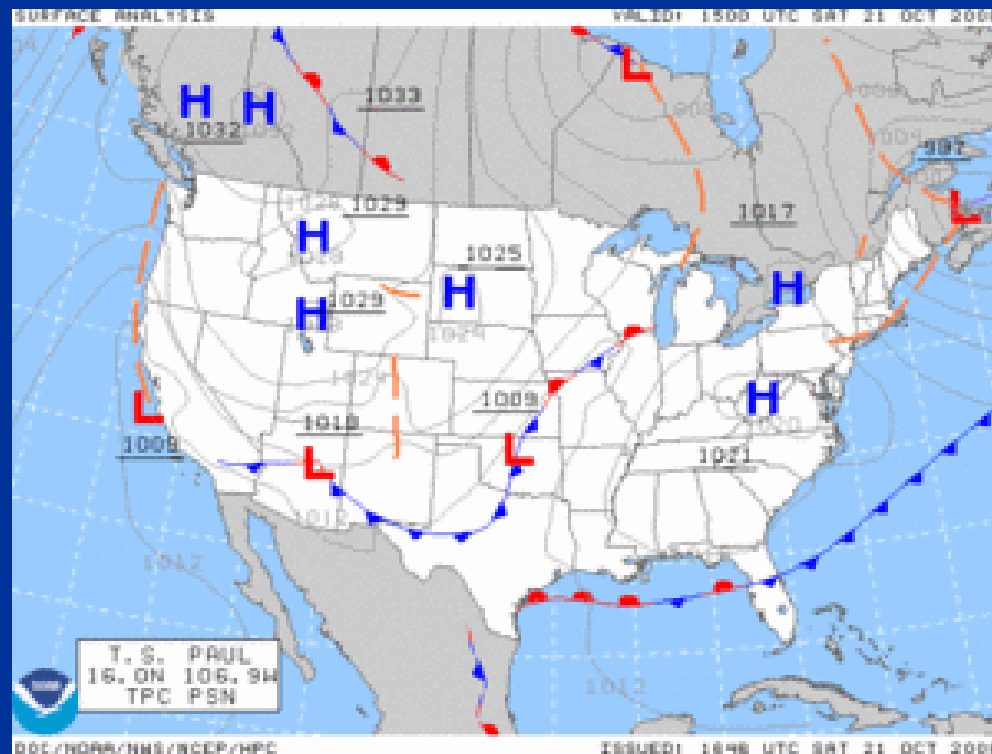
When a cold front overtakes a warm front

- A developing cyclone typically has a preceding warm front (the leading edge of a warm moist air mass) and a faster moving cold front (the leading edge of a colder drier air mass wrapping around the storm).
- North of the warm front is a mass of cooler air that was in place before the storm even entered the region.



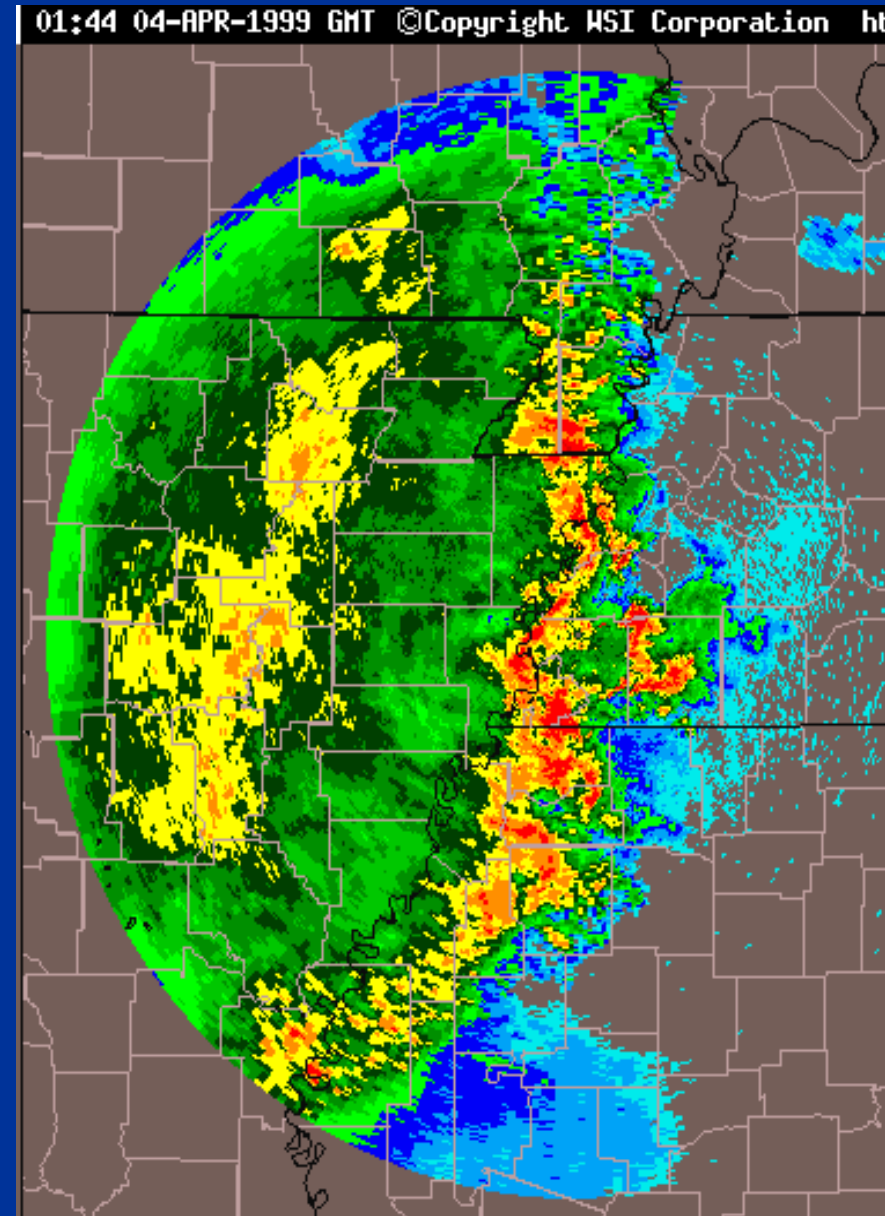
Surface Trough

- A trough of low pressure that contains significant weather phenomena (such as precipitation and distinct wind shifts) may be identified on the map by a thick brown dashed line running along the axis of the trough.
- On some maps this trough line may have the abbreviation, "TROF".



Squall Line

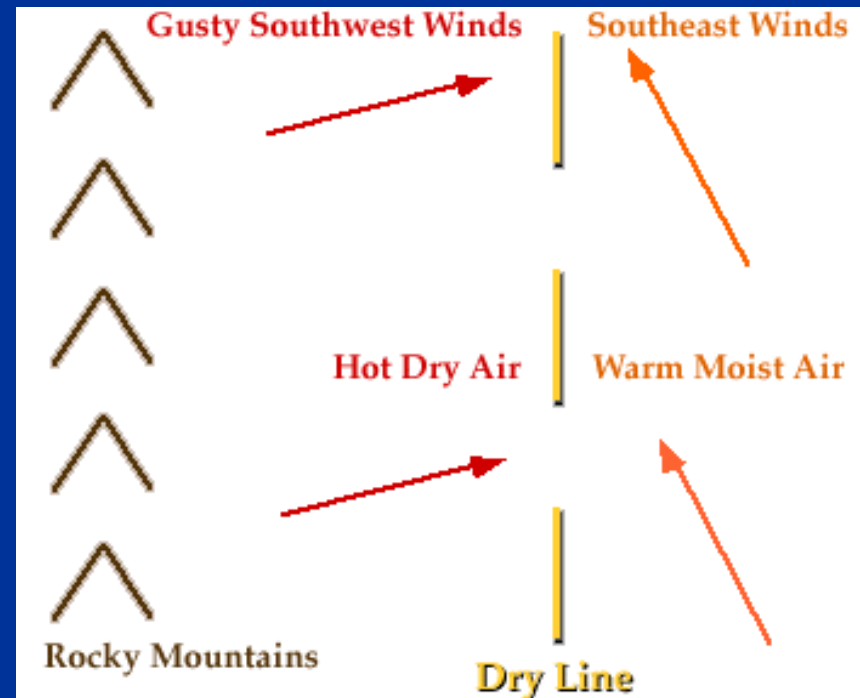
- A squall line is a line of thunderstorms that develop out ahead of and parallel to a cold front or dry line boundary.
- The storms first develop where there is the best combination of moisture, instability and lift.
- The storms will continue to evolve and new cells will develop (commonly toward the south and east).



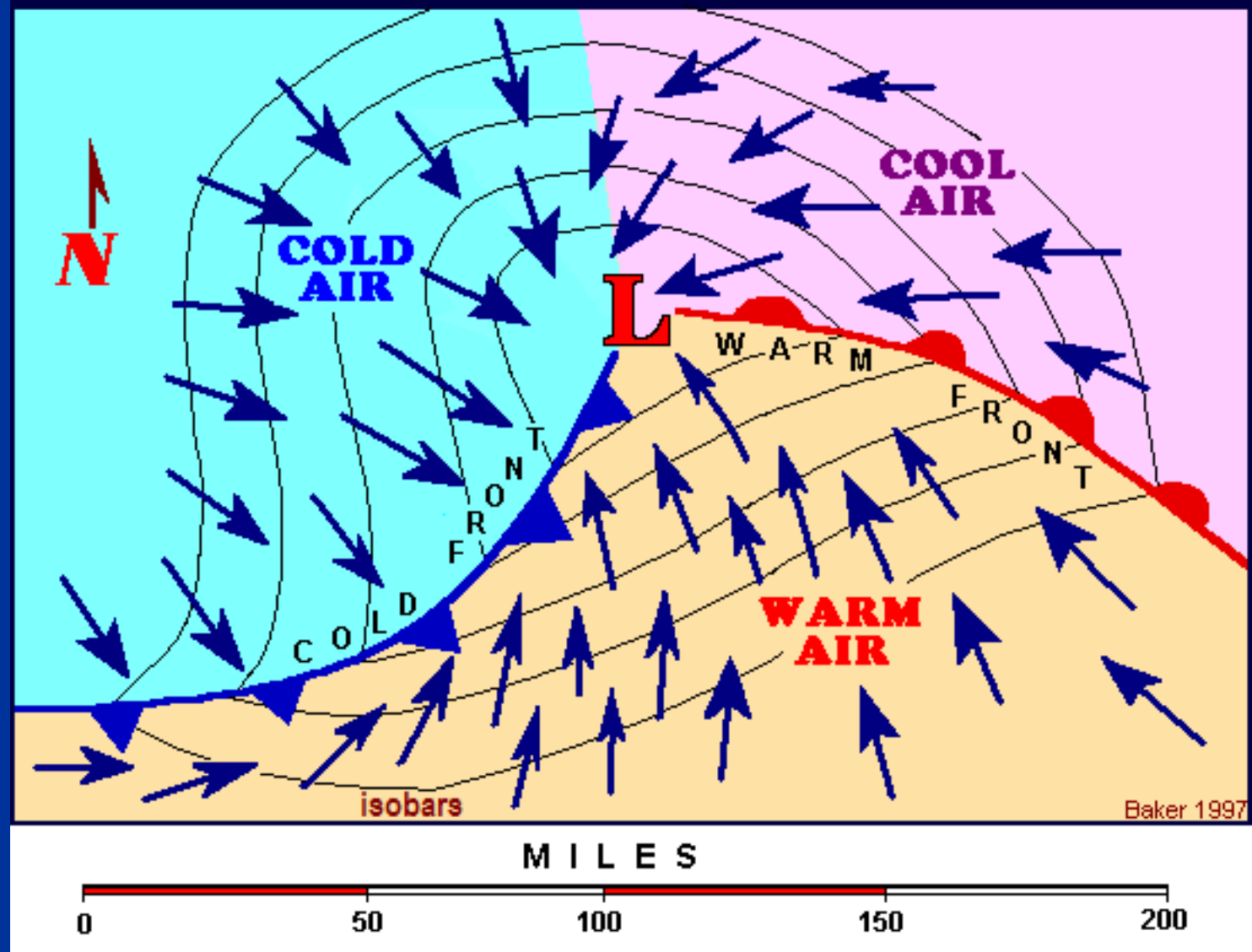
Dry Line

A moisture boundary

- A dry line is a boundary that separates a moist air mass from a dry air mass. Also called a "Dew Point Front", sharp changes in dew point temperature can be observed across a dry line.
- Dry lines are most commonly found just east of the Rocky Mountains, separating a warm moist air mass to the east from a hot dry air mass to the west.
- Drier air behind dry lines lifts the moist air ahead of it, triggering the development of thunderstorms along and ahead of the dry line (similar to cold fronts). It is not uncommon for tornadic supercells to develop along a dry line.



Typical Surface Wind Direction with Cold and Warm Fronts



Weather Elements

- ☒ Temperature (°F)
- ☒ Dewpoint (°F)
- ☒ Wind Chill (°F)

- ☒ Surface Wind mph
- ☒ Sky Coverage
- ☒ Precipitation Potential
- ☒ Relative Humidity

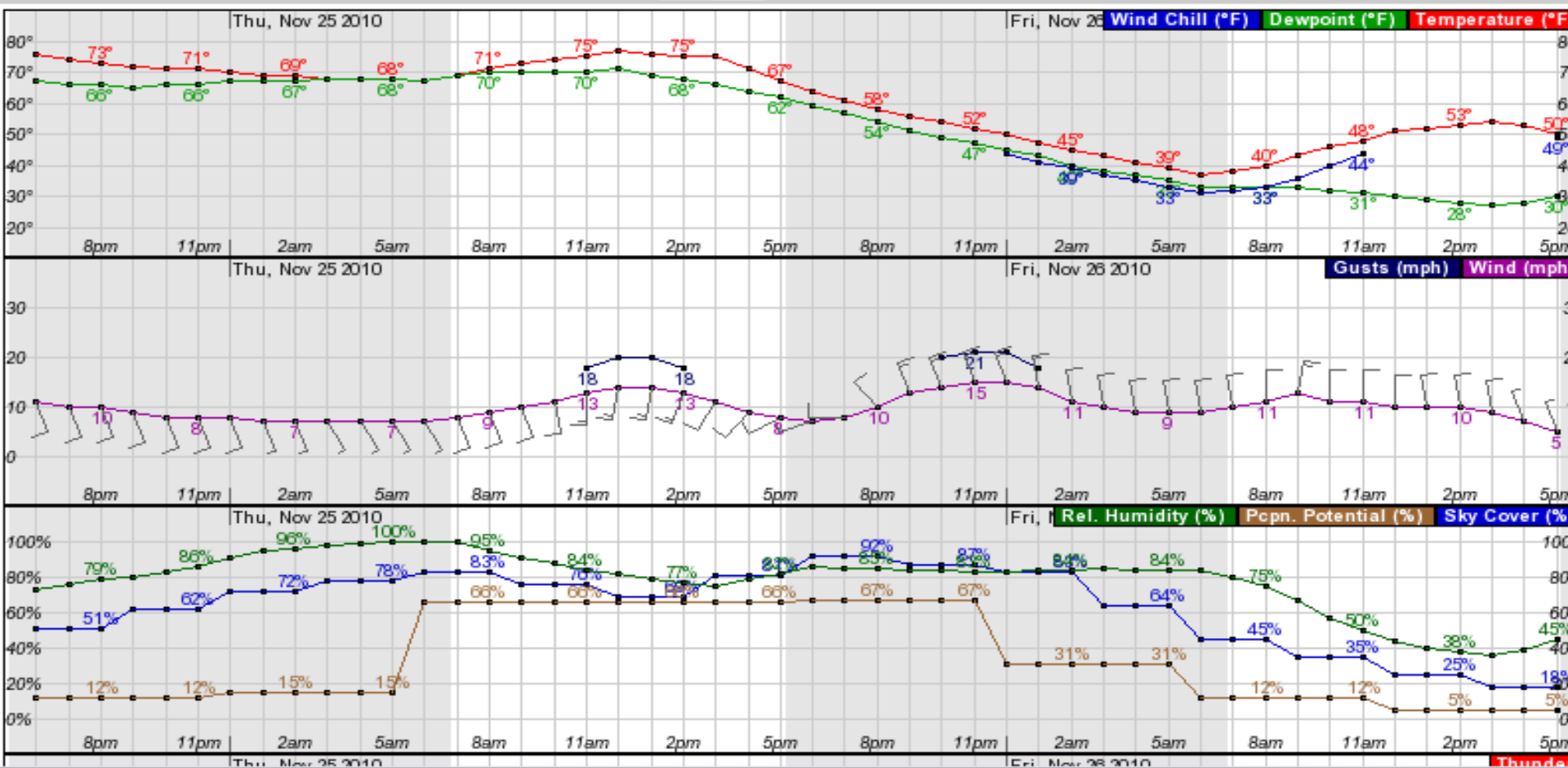
Weather/Precipitation

- ☒ Thunder
- ☒ Rain
- ☒ Snow
- ☒ Freezing Rain
- ☒ Sleet

48-Hour Period Starting: 6pm Wed, Nov 24 2010 Submit

Back 2 Days

Forward 2 Days



Warning!

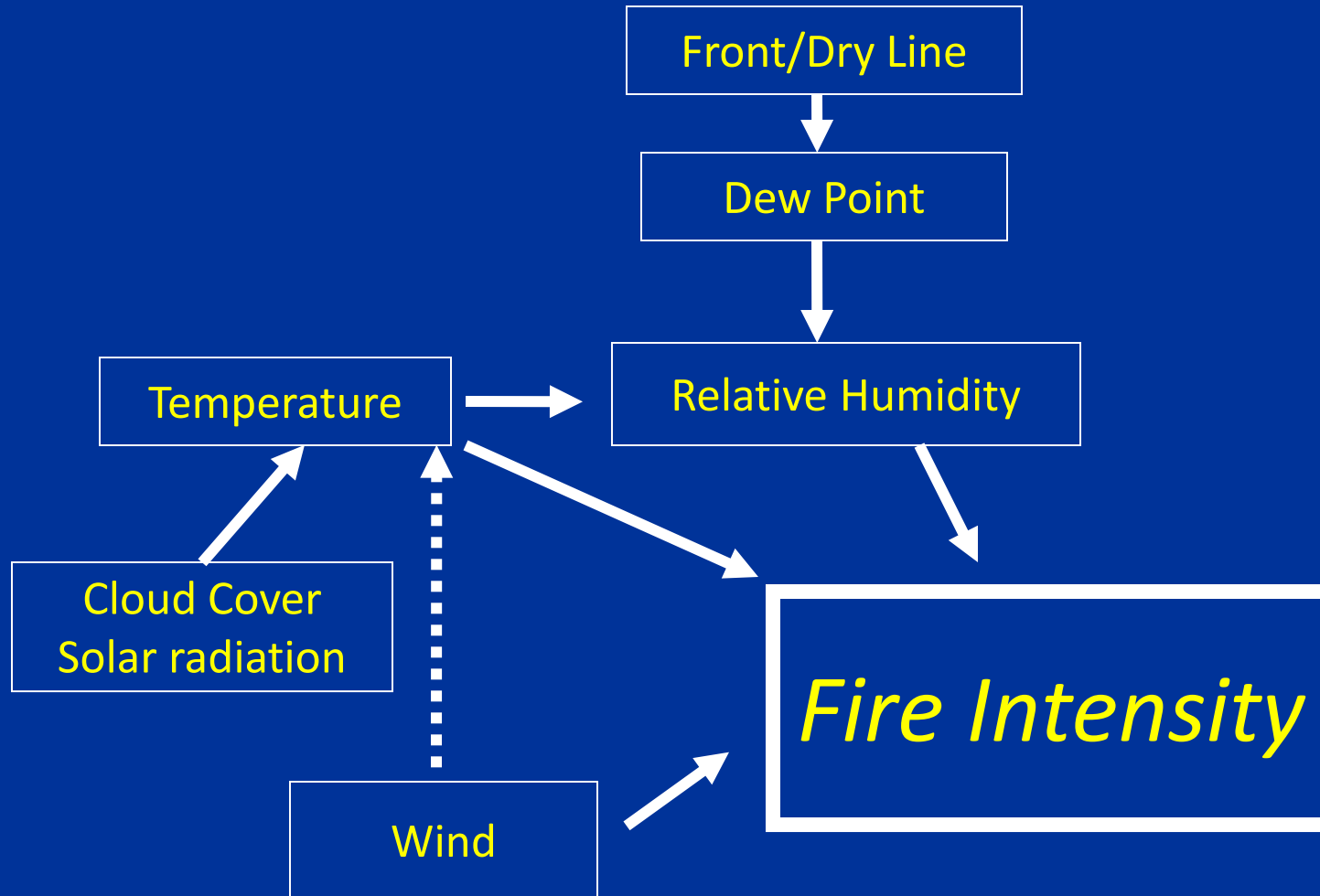
- Do not plan a burn if a frontal boundary is expected to cross within a bare minimum of 48 hours prior to the burn.
- Problems
 - Shifting winds
 - Strong winds
 - DewPoint shifts

Why do we need to know this?

Predict Fire Behavior and Fire Intensity

Weather Factors Affecting Fire Intensity

These factors are intergraded by the Burn Boss to determine the outcome of a fire.



Dew Point Facts

- The dew point is one of the most reliable measures of atmospheric moisture



Dew Point

- The temperature to which air must be cooled to reach saturation.
- An indicator of the moisture content on the air. The higher the dew point temperature, the higher the moisture content of the air.

Dew Point and Moisture

Rising
Dew
Point



Increasing
Moisture

Lowering
Dew
Point



Decreasing
Moisture

Solar Radiation

Cloud Cover

- Cloud cover can lower the temperature.
- Lower temperature raises humidity.

Temperature

- Temperature is a measure of the average energy of the particles (atoms or molecules) of a substance, or a measure of how **hot** or **cold** something is.
- The warmer the temperature, the quicker the fuel will ignite.

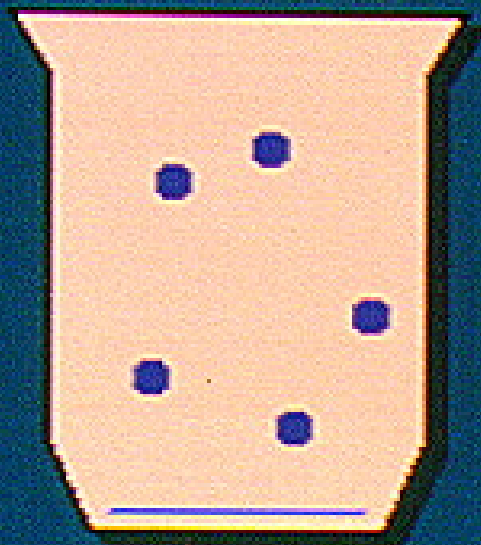
Relative Humidity

- Relative humidity is defined as the ratio of the partial pressure of water vapor in a gaseous mixture of air and water to the saturated vapor pressure of water at a given temperature.

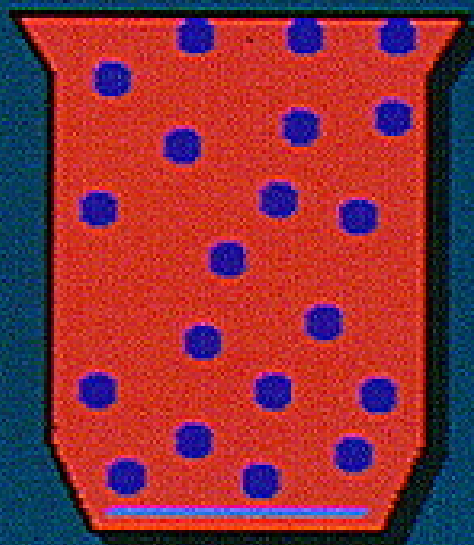
Relative Humidity - *continue*

- What does it mean for prescribed burning?
 - The amount of water in the dead fuel.
 - More water in the dead fuel, the less it will burn.
 - Dead fuel responds over time to relative humidity.
 - Some fuel responds quickly (grass).
 - Other fuel may take a long time to respond (logs or slash).
- Relative humidity and temperature have an inverse relationship.

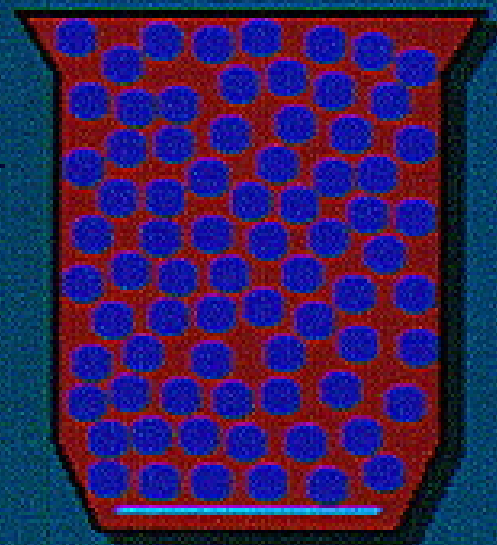
TEMPERATURE VS WATER VAPOR



WARM



MEDIUM



HIGH

**The warmer the air, the more
water vapor it can hold.**

Wind

- Wind combined with higher temperatures can increase drying of vegetation.
- Wind speed and direction has a direct influence on Fire Intensity.
 - Adds oxygen to increase fire temperature.
 - Dries vegetation ahead of the fire front.
- Learn your prevailing wind direction.

Wind-driven Fire

Power of wind =
power of fire



Wind-Driven Fires

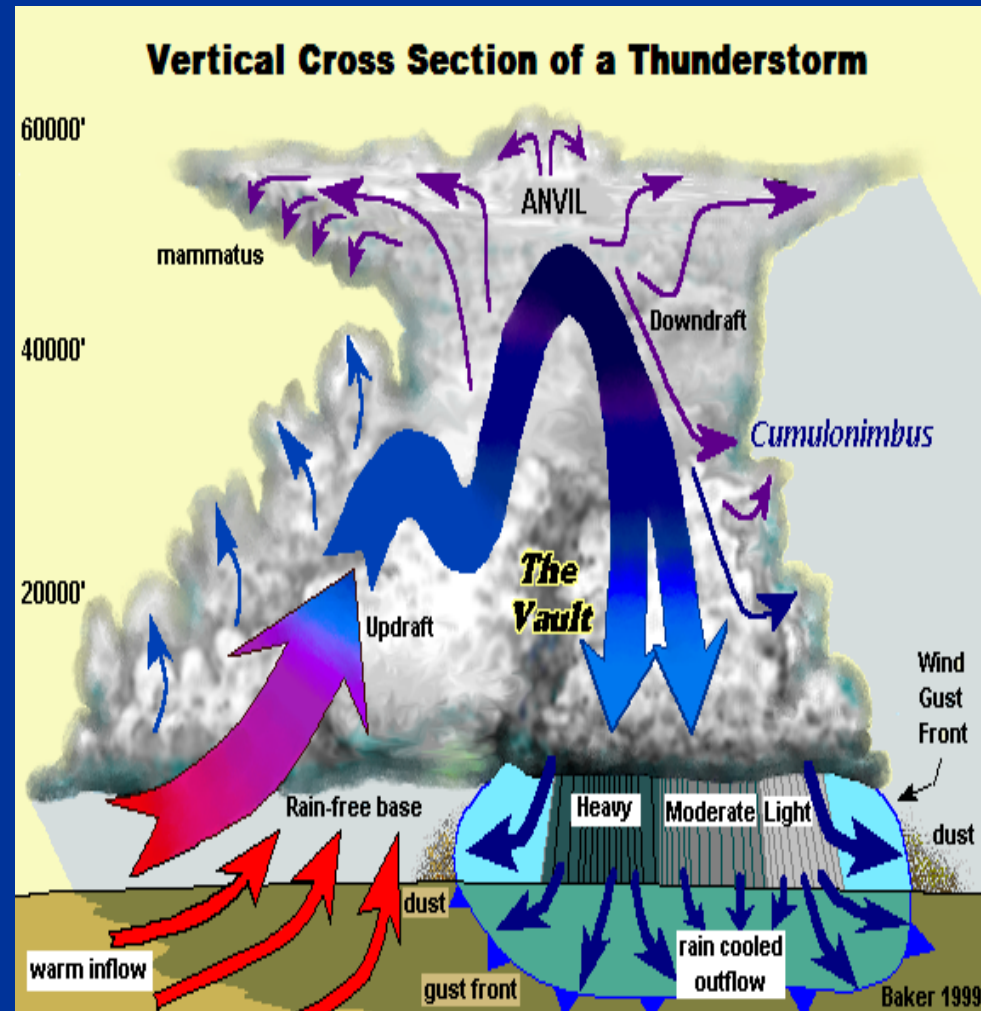
- Often those that escape initial attack and become the largest.
- Easier to predict direction of spread.
- Wind shift poses a problem.
- Smoke column bend over by wind.
- Spotting downwind.
- Flanks and heel generally safe.

Critical Winds

Thunderstorm Winds

- **Thunderstorm Winds**

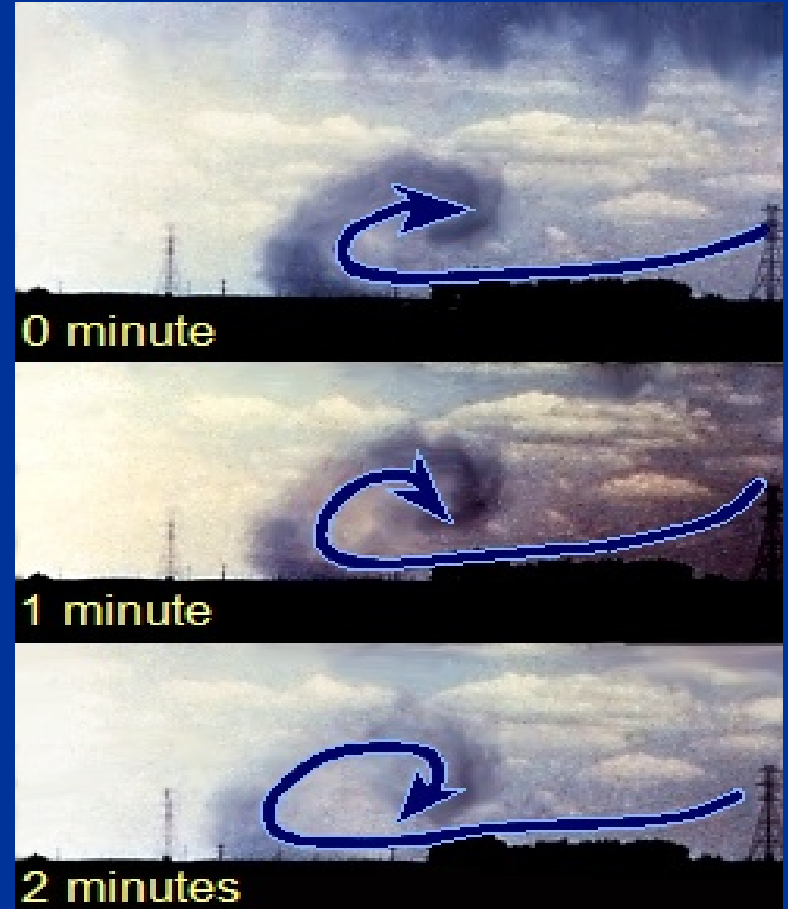
- Indrafts and downdrafts can change both direction and speed suddenly.
- Result in sudden changes in rate and direction of fire as well as intensity.
- Indraft speeds range from 10 to 20 mph and gusty.
- Downdrafts speeds range from 25 to 35 mph with gusts over 60 mph.



Critical Winds - *continue*

Thunderstorm Winds

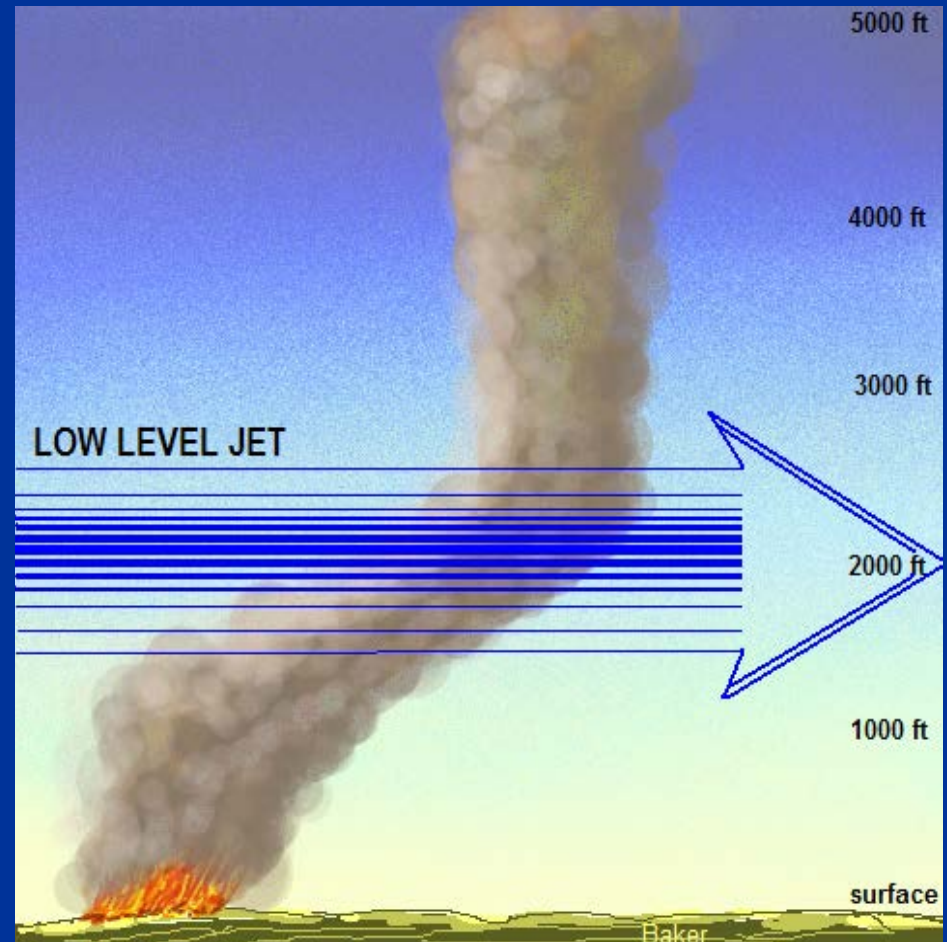
- **Gust Front**
 - Leading edge of the downdraft.
 - Boundary between two dissimilar air masses, similar to a cold front.
 - Most of the time, marked by a wind shift, decrease in temperature and increase in RH.

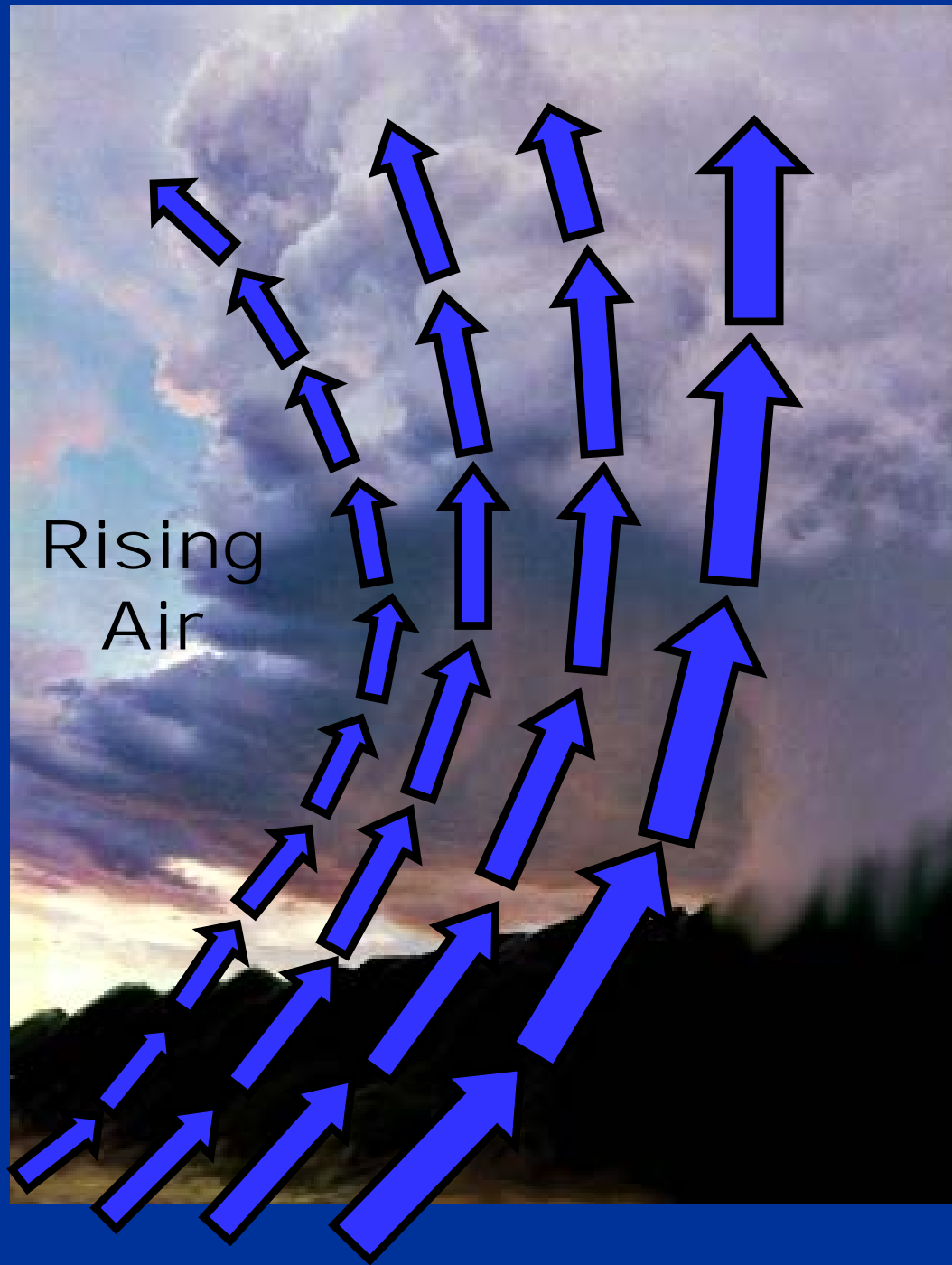


Critical Winds - *continued*

Low-Level Jets

- **Spotting downwind**
 - A jet stream 100 feet to several thousand feet above ground.
 - Develop ahead of cold fronts or troughs.
 - Wind speeds of 25 to 35 mph.
 - Can significantly increase rates of spread.





Unstable atmosphere

- Promotes the formation and growth of vertically developed clouds, thunderstorms and tall smoke columns.



An unstable atmosphere is most often associated with a critical or extreme wildland fire behavior

Atmosphere Stability

- Very unstable air can cause extreme fire behavior and can be a very dangerous time to implement a prescribed burn.
- A prescribed burn **NEEDS** some instability. The prescription should be designed to account for any problems caused by the instability.

Predict Weather and Fire Intensity



Prediction 1

- Overcast
- 45 F
- RH = 45%
- 5 mph wind

Predict Weather and Fire Intensity



Prediction 2

- Clear sky
- 101 F
- RH = 20%
- 15 mph wind

Weather can be Friend or Foe

**The more you understand, the better
your success with prescribed burning**

Fire Weather Forecast is Critical for Prescribed Burning



Purpose of Fire Weather Forecast

- Predicts fire behavior for the safety of firefighter/prescribed burn managers and other people that may be threatened by wildfires.
- Allows a burn manager to predict the success of the burn to meet their objectives.

Fire Weather Forecast

- Need an understanding of the important weather elements that are available.
- Know where to find a forecast.
 - Long-term general forecast prior to burn date.
 - Fire weather and point forecast one to two days prior to burn date.
 - Fire weather forecast on burn date.
 - Spot forecast for the burn location.

Types of Fire Weather Forecasts

- General Forecast
 - Temperature, rainfall, weather map.
- Point forecast – general forecast for a smaller area (within 3 miles of a selected point).
- Fire Weather Forecast – Watches/Red Flag warnings.
- Spot Forecasts – Telephone call to National Weather Service or web submitted for your exact location.

General Forecast

- Daily and weekly forecast
- www.weather.com
- Local TV news/weather
- Local radio weather
- Many different web based weather sites.

Why General Forecasts May Not Fit Your Site

- They tend to average conditions over a large area.
- Area issued for a predetermined time period.
- May not stress important elements.
- May not fit local topography.

Point Forecast

- Applicable to your location (within a 3 mile area).
- Daily and weekly forecast.
- Temperature, rainfall probabilities, wind, speed and direction.
- Other weather conditions at nearest reporting station.
- www.srh.noaa.gov

Weather Forecast Sites

- There are many weather forecast sites on the internet.
- For prescribed burning, a site with access to a point forecast, a spot forecast, and a fire weather forecast is ideal.

Weather Forecast Site

- www.srh.noaa.gov (one stop shop).
 - General weather forecast
 - Point weather forecast
 - Spot forecast
 - Fire weather forecast
 - Weather map
 - Radar map
 - Hourly weather forecasts
 - And lots of other weather information

Click on Your Area

www.weather.gov/srh/

Apps Imported Netflix Enterprise Software In Fire Southeastern Touring Participant Log In | N Login - Paymode-X college s

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH

Local forecast by "City, St" or ZIP code
Enter location ...
[Location Help](#)

Isolated severe storms across portions of the U.S.
A series of weather systems will bring scattered showers and thunderstorms to eastern Virginia to southern New England, southwestern Texas, the Central Plains, and the Pacific Northwest to the Intermountain West. There is an elevated fire threat in the southwest. [Read More >](#)

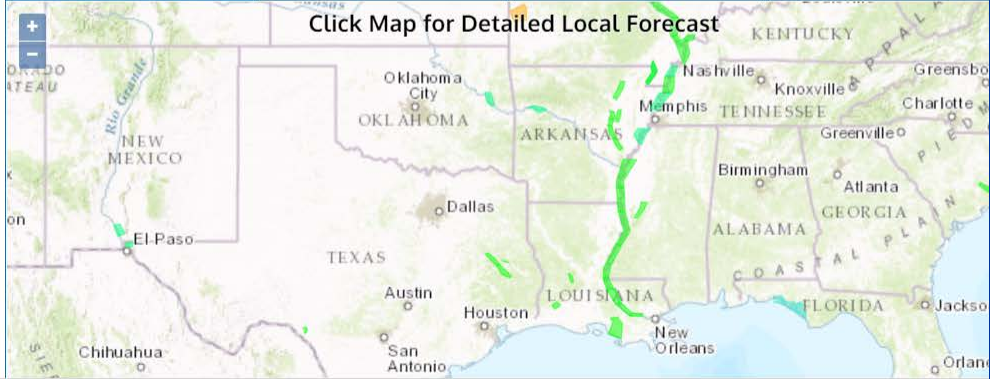
Home
[Weather.gov](#) > Southern Region Headquarters

Southern Region Headquarters

Local Forecast Offices A-L Local Forecast Offices M-Z River Forecast Centers Center Weather Service Units Regional HQ

Current Hazards Weather Forecast Offices River Forecast Centers Center Weather Service Units

Click Map for Detailed Local Forecast



Prescribed Burning....p...

NWS San Angelo, TX

Point Forecast: 17 Miles SSE Sonora TX
30.33N -100.53W (Elev. 2198 ft)

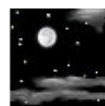
Cell Phone Weather Link: www.srh.noaa.gov/wml
En Español

Last Update: 10:33 pm CST Dec 14, 2006

Forecast Valid: 12am CST Dec 15, 2006-6pm CST Dec 21, 2006

Forecast at a Glance

Overnight

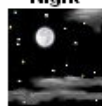


Mostly
Clear
Lo 40°F

Friday



Becoming
Sunny
Hi 74°F

Friday
Night

Mostly
Clear
Lo 44°F

Saturday



Becoming
Sunny
Hi 75°F

Saturday
Night

Increasing
Clouds
Lo 53°F

Sunday



Decreasing
Clouds
Hi 74°F

Sunday
Night

Mostly
Cloudy
Lo 55°F

Monday



Slight Chc
Tstms
Hi 69°F

Monday
Night

Partly
Cloudy
Lo 45°F

Detailed 7-day Forecast

Overnight: Mostly clear, with a low around 40. Calm wind.

Friday: Partly sunny, then gradually becoming sunny, with a high near 74. Calm wind becoming south southwest between 5 and 10 mph.

Friday Night: Mostly clear, with a low around 44. South wind around 5 mph becoming calm.

Saturday: Mostly cloudy through mid morning, then gradual clearing, with a high near 75. South wind between 5 and 15 mph.

Saturday Night: Increasing clouds, with a low around 53. South southeast wind between 5 and 10 mph.

Sunday: Cloudy, then gradually becoming partly sunny, with a high near 74. South southeast wind between 10 and 15 mph.

Current Conditions

[Move Down]

Sonora Municipal Airport

Last Update on Dec 14, 11:05 pm CST

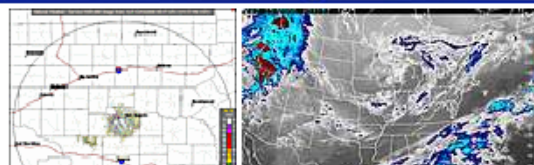
Fair

37°F
(3°C)

Humidity:	52 %
Wind Speed:	N 3 MPH
Barometer:	30.06"
Dewpoint:	21°F (-6°C)
Visibility:	10.00 mi.

[More Local Wx:](#) [2 Day History:](#)

Radars and Satellite Images



National Weather Service • Since 1870

Purpose of Spot Forecasts

- Site specific forecasts that are issued to fit time, topography, and weather of a specific location.

When to Request a Spot Forecast

- The general forecast does not fit your situation.
- Indicators suggest possible severe burning conditions.
- Control is not expected soon.
- Red flag warnings are posted for the fire area.
- There is or has been erratic fire behavior.
- The fire is moving into heavier fuels.

How to Obtain a Spot Forecast by Telephone

- Take a representative weather observation.
- Contact the nearest National Weather Service office.
- Ask to speak to a fire weather forecaster.
- Provide forecaster with your current weather conditions.
- Request specific information (wind speed, direction, possible shift, RH forecast, etc.).

ClickHere
and then
online
spot
request.

Address http://www.srh.noaa.gov/sjt/index.php

Google Go Bookmarks PageRank 17 blocked Check Look for Map

San Angelo, TX

SR News SRH Home Organization Search Enter Search Here Search

Local weather forecast by "City, St" or Zip Code

City, St Go

Current Hazards

West Central Texas National

Current Conditions

Observations
Satellite Images
Rivers & Lakes AHPS
Precip Estimate
Hydrology

Radar Imagery

Abilene / Lite
San Angelo / Lite
Nationwide

Forecasts

West Central Texas
Aviation
Fire Weather

Climate

Local
National
More...

Tropical Weather

Southern Region
Hurricane Center

Winter Season Outlook

Multimedia Weather Briefing

Graphiccasts

Click on map for Point Forecast ([What is a Point Forecast?](#))

Click on the map below for the latest forecast.

Last map update: Mon, Dec. 18, 2006 at 11:04:21 am CST

En Español

Read watches, warnings & advisories.

Zoom Out

- Winter Weather Advisory
- Winter Storm Watch
- Special Weather Statement
- Short Term Forecast
- Hazardous Weather Outlook

Servicio Nacional de Meteorología En Español

Drought Information

Winter Weather Safety

http://www.srh.noaa.gov/sjt/html/firewx/firewx.html

start 2 Internet Explorer Jamaica 2006 Sandals Solitaire Microsoft PowerPoint ... nws phone

On-line Spot Forecast Request

Click



http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=sjt

Go Bookmarks PageRank 17 blocked Check AutoLink AutoFill

[Back to NWS San Angelo Fire Weather Page](#)

SAN ANGELO SPOT FORECASTS

for
Monday
Dec 18 2006
[CALENDAR](#)

[Submit a new Spot Request](#)

NWS/NOAA/DOC - 11:07 am CST 12/18/06

Pending Question Complete

Name	Ignition Time	Status
No Entries		

Internet Explorer 2 Jamaica 2006 Sandals Solitaire Microsoft PowerPoint nws phone numbers

Include Current On-site Weather

So that the forecaster can adapt the broad scale forecast to the specific site.










Fire Weather Forecast

- Weather variables that you need to predict fire and smoke behavior.
- Specific to your area, but not your exact location.

Click on Location of Your Ranch

forecast.weather.gov/MapClick.php?lon=-94.74693671800193&lat=31.431403250987927#.WS4-HGgrLb0

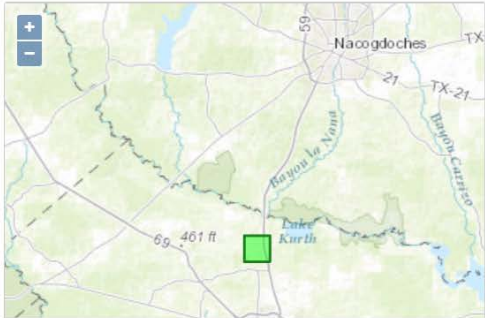
7 Miles N Lufkin TX

Tonight	Wednesday	Wednesday Night	Thursday	Thursday Night	Friday	Friday Night	Saturday	Saturday Night
 20%	 30%	 30%	 60%	 30%	 40%	 30%	 40%	 40%
Slight Chance T-storms and Areas Fog	Chance T-storms	Chance T-storms	T-storms Likely	Chance T-storms	Chance T-storms	Chance T-storms	Chance T-storms	Chance T-storms
Low: 67 °F	High: 84 °F	Low: 70 °F	High: 83 °F	Low: 70 °F	High: 84 °F	Low: 70 °F	High: 84 °F	Low: 71 °F

Detailed Forecast

Tonight	A 20 percent chance of showers and thunderstorms. Areas of fog after 1am. Otherwise, mostly cloudy, with a low around 67. Southeast wind around 5 mph becoming calm.
Wednesday	A 30 percent chance of showers and thunderstorms, mainly after 1pm. Partly sunny, with a high near 84. East wind around 5 mph.
Wednesday Night	A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 70. East wind around 5 mph becoming calm after midnight.
Thursday	Showers and thunderstorms likely. Cloudy, with a high near 83. Southeast wind around 5 mph. Chance of precipitation is 60%.
Thursday Night	A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 70. Southeast wind around 5 mph.
Friday	A 40 percent chance of showers and thunderstorms. Mostly cloudy, with a high near 84.

Topographic
Click Map For Forecast



Prescribed Burning....p... ^ Show all x

Click on Fire Weather

The screenshot shows a web browser window displaying the National Weather Service website. A yellow arrow points from the text 'Click on Fire Weather' to the 'Fire Weather' link in the 'FORECAST' dropdown menu. The website header includes the NWS logo and navigation links: HOME, FORECAST, PAST WEATHER, SAFETY, INFORMATION, EDUCATION, NEWS, SEARCH, and ABOUT. The 'FORECAST' dropdown menu is open, showing options: Local, Graphical, Aviation, Marine, Rivers and Lakes, Hurricanes, Severe Weather, Fire Weather, Sun/Moon, Long Range Forecasts, and Climate Prediction. The 'Severe Weather' option is highlighted. The main content area features a headline: 'Isolated severe storms across portions of the U.S.' with a sub-headline: 'A series of weather systems will bring scattered showers and thunderstorms to eastern Virginia to southern New England, southwestern Texas, the Central Plains, and the Pacific Northwest to the Intermountain West. There is an elevated fire risk in the southwest. [Read More >](#)'. The footer includes the current location: 'Nacogdoches, A L Mangham Jr. Regional Airport (KOC)' with coordinates 'Lat: 31.58°N Lon: 94.72°W Elev: 354ft.' and a 'More Information: [Local Forecast Office](#)' link.

forecast.weather.gov/MapClick.php?lon=-94.7367&lat=31.530805486356357#.WS5LPmgrLb2

Apps Imported Netflix Enterprise Software In Fire Southeastern Touring Participant Log In | Ne Login - Paymode-X college station cars & F150 Other bookmarks

Notice of NWS' New Version of Forecast
A new version of Forecast is coming soon!
[Click here to visit the new site for details.](#)

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local
Graphical
Aviation
Marine
Rivers and Lakes
Hurricanes
Severe Weather
Fire Weather
Sun/Moon
Long Range Forecasts
Climate Prediction

Isolated severe storms across portions of the U.S.
A series of weather systems will bring scattered showers and thunderstorms to eastern Virginia to southern New England, southwestern Texas, the Central Plains, and the Pacific Northwest to the Intermountain West. There is an elevated fire risk in the southwest. [Read More >](#)

Current conditions for Nacogdoches, A L Mangham Jr. Regional Airport (KOC)
Lat: 31.58°N Lon: 94.72°W Elev: 354ft.

Fair Humidity 88%
Wind SE 6 mph

More Information:
[Local Forecast Office](#)

www.weather.gov/forecastmaps

Prescribed Burning....p... Show all

Click on your ranch

www.srh.noaa.gov/ridge2/fire/

Apps Imported Netflix Enterprise Software In Fire Southeastern Touring Participant Log In | Ne Login - Paymode-X college station cars & F150 Other bookmarks

National Weather Service Fire Weather

NWS Home NWS News NWS Offices Search for: NOAA Go

Fire Weather News

In October, 2016, the NWS no longer had the Google Maps license that allowed us to display the map interface that originally was on this site. In order to comply with the requirement that we remove that particular map display, we substituted another, which is the display currently on this site. Most products that you were used to seeing on the old map are on the new map as well, but how to get to them is different. We have received lots of feedback and we want you to know that we have contacted our web developers to make modifications to this map so that it is easier to navigate and more user friendly. We will also put out a new "how to use this site" page soon. We apologize for having to change the map and we apologize for any frustration this may have caused. Rest assured, we have heard you loud and clear and we are working to improve this site.
Thank you – National Weather Service Fire Weather Team

Open full-screen/mobile version of the map.

NWS Enhanced Data Display v4.5.10

A Product of the Charleston, WV Weather Ready Nation Pilot Project

64°F Search Map...

Hazard Watch - Refreshing in: 15 seconds.

Filter by: Group Fire Group

NWS Chat States Counties Storm Reports Save/Share Like 3K

Prescribed Burning....p... Show all

Fire weather narrative and predictions

The screenshot displays the National Weather Service Fire Weather website. The browser's address bar shows the URL www.srh.noaa.gov/ridge2/fire/. The website header includes the NOAA logo, the text "National Weather Service Fire Weather", and a search bar. A left-hand navigation menu lists various fire weather topics: Current Hazards, Fire Situation, Forecasts, Current Conditions, Outlooks, Drought/Precip, Fuels, Air Quality, Admin, GACCs, Other Agencies, and Safety Information. The main content area features a "Fire Weather News" section with a notice about the removal of the Google Maps interface in October 2016. Below this is a link to the "full-screen/mobile version of the map". The "NWS Fire Weather -- Zone Forecast" section includes tabs for "Fire Zone Forecast", "Hourly Graph", "Tabular", "Tabular Advanced", and "Request Spot". The "Fire Zone Forecast" tab is active, showing a "Routine Fire Wx Fcst (With/Without 6-10 Day Outlook)" for "Nacogdoches" issued by "NWS Shreveport, LA". It includes links for "Home", "Oldest Version", "Previous Version", "Current Version", "All", "Graphics & Text", "Product List", and "Glossary On". The "Product Version" is set to "2017-05-30 21:07:13". The forecast text includes "053", "FNUS54 KSHV 302107", and "FWFSHV". The bottom of the page shows a "Prescribed Burning....p..." link and a "Show all" button.

www.srh.noaa.gov/ridge2/fire/

Apps Imported Netflix Enterprise Software In Fire Southeastern Touring Participant Log In | N Login - Paymode-X college station cars & F150 Other bookmarks

National Weather Service
Fire Weather

NWS Home NWS News NWS Offices Search for: NOAA Go

Fire Weather News

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Open full-screen/mobile version of the map.

NWS Fire Weather -- Zone Forecast

Fire Zone Forecast Hourly Graph Tabular Tabular Advanced Request Spot

Routine Fire Wx Fcst (With/Without 6-10 Day Outlook)
Nacogdoches
Issued by NWS Shreveport, LA

[Home](#) | [Oldest Version](#) | [Previous Version](#) | [Current Version](#) | [All](#) | [Graphics & Text](#)
[Product List](#) | [Glossary On](#)

Product Version: 2017-05-30 21:07:13 Select

053
FNUS54 KSHV 302107
FWFSHV

Fire Weather Planning Forecast for Southwest Arkansas...

Prescribed Burning....p... Show all

Hourly predictions and other fire weather information

www.srh.noaa.gov/ridge2/fire/

Apps Imported Netflix Enterprise Software In Fire Southeastern Touring Participant Log In Login - Paymode-X college station cars & F150 Other bookmarks

NWS Home NWS News NWS Offices Search for: NOAA

Fire Weather News

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Open full-screen/mobile version of the map.

NWS Fire Weather – Zone Forecast

Fire Zone Forecast Hourly Graph Tabular Tabular Advanced Request Spot

Point Forecast: 9 Miles SW Nacogdoches TX
31.52N 94.76W (Elev. 220 ft)

Hourly Weather Forecast Graph

Heat Index

Wed, May 31 2017 Thu, Jun 1 2017

1am 4am 7am 10am 1pm 4pm 7pm 10pm 1am 4am 7am 10am

Today's Outlook Tomorrow's Outlook Day 3-8 Outlook

Prescribed Burning....p... Show all

Fire Weather Forecast

- Assist the manager with the implementation of the burn.
- Provide data to cancel the burn if the weather is not within the burn prescription.
- Provide data to verify that the weather is within the burn prescription.

Forecasted Fire Weather Elements

- Temperature
- Relative Humidity
- Wind Speed
- Chance of Thunderstorms
- Red Flag Conditions
- Smoke Dispersion Elements
- Lightening Potential
- Drought indexes
- and other weather elements

TXZ076>078-161100-
CROCKETT-SCHLEICHER-SUTTON-
INCLUDING THE CITIES OF...OZONA...ELDORADO...SONORA
455 AM CST FRI DEC 15 2006

	TODAY	TONIGHT	SAT
CLOUD COVER	MCLEAR	MCLEAR	MCLEAR
PRECIP TYPE	NONE	NONE	NONE
CHANCE PRECIP (%)	0	0	0
TEMP	75	45	77
RH %	17	100	31
20FTWND-AM (MPH)	LGT/VAR		S 7 G16
20FTWND-PM (MPH)	S 7	LGT/VAR	S 9 G18
MIXING HGT (FT-AGL)	5060	90	6950
TRANSPORT WND (MPH)	SW 10	S 8	S 21

.FORECAST FOR DAYS 3 THROUGH 7...

.SATURDAY NIGHT...PARTLY CLOUDY. LOWS IN THE LOWER 50S. SOUTHEAST WINDS UP TO 10 MPH.

.SUNDAY...PARTLY SUNNY. HIGHS IN THE MID 70S. SOUTH WINDS 5 TO 15 MPH.

.SUNDAY NIGHT...MOSTLY CLOUDY. LOWS AROUND 50. SOUTH WINDS UP TO 5 MPH.

Purpose of the Red Flag Warning or Fire Weather Watch

- To alert fire managers of critical fire weather conditions that will increase fire danger in a significant way.

Red Flag Criteria

- Dry lightning.
- Unusually low relative humidity and unstable air.
- Strong and shifting winds with a dry cold front .
- The weather values that trigger a Red Flag event vary by regions across the state.

Keetch/Byram Drought Index

- *Is a measure of the relative dryness of an area.
- *It depicts the degree of drought on a scale that ranges from 0 to 800.
- *It assumes vegetation on an area will be at its wilting point when the index is 800.
- *When KBDI exceeds 400 consumption of the duff layer is likely.
- *KBDI is a drought index – not necessarily a fire behavior index.
- *Even when the KBDI is high, it is possible to conduct safe prescribed burns.

Palmer Drought Severity Index

- *Uses temperature and rainfall information in a formula to determine dryness.
- *Effective in determining long term drought (over several months) and is not as good with short-term forecasts (over several weeks).
- *PDSI uses 0 value as normal, and a drought is shown in terms of minus numbers (i.e., -2 is moderate drought, -3 severe drought, and -4 is extreme drought).
- *PDSI can also express rain using a corresponding level reflected by + values.

Haines Index

- *The Haines Index reflects the atmospheric stability and dispersion. (For the technically minded, the index reflects the temperature difference between heights where the air pressure is 850 and 700 hectopascals; and also the dew point depression at the 850 hectopascal height. Each of these are scored from 1 to 3, and the two are added together, thus the range of 2 to 6 for the Haines Index).
- *Values range from 2 to 6, which show the potential for large plume-driven fire growth.
- *Index 2 or 3 – very low potential.
- *Index 4 – low potential.
- *Index 5 - moderate potential.
- *Index 6 – high potential .

Lightning Activity Level=LAL

- Refers to the forecasted lightning activity level for a specific forecast.
- The values range from 1 to 6. 1 meaning no activity and 6 is a dry lightning outbreak.

Weather Forecast

- Print out every weather forecast that you get prior to a prescribed burn.
- If your local or regional NOAA weather station will provide you with a spot forecast, take advantage of their expertise.
- Don't forget to take actual weather observations on-site.

Collecting Weather Data on Site



Problems With Weather Forecast

- Predicting future weather.
- Predicting from available resources.
 - Satellite
 - Weather Stations
- Predictions are rarely exact.
- We need to know what the weather conditions are on-site and at burn time.

Need for Weather Observation with Request

- Forecaster can adapt the broad scales forecast to the specific site.
 - Better data
 - More confidence

When/How Often to take Observations

- Hottest/Driest and Coolest/Moistest Periods.
- Once every hour if weather changes are expected.

Where to Take Observations

- Small Fires – a representative location.
- Large Fires – problem areas.

Weather Observer Should Monitor

- Thunderstorms buildups.
- Approaching cold fronts.
- Inversions.
- Stability/instability.
- Wind shifts.
- Relative humidity.
- Cloud cover.

A collection of items is laid out on a light-colored, textured surface. On the left is a red first aid kit with a white label. Next to it is a white envelope with text. In the center is a ruler. To the right of the ruler is a flashlight and a black case. A red box with the text "Burn Boss Handbook" is overlaid on the image.

Belt Weather Kit

Fire Weather Equipment

- Sling Psychrometer
 - Wet bulb thermometer
 - Dry bulb thermometer
- Bottle of water
- Wind Speed Indicator
- Notebook
- Pencil
- Compass or GPS Unit
- Burn Boss Handbook & Journal



Weather Instrument

1. Temperature
2. Wind Chill
3. Relative Humidity
4. Dew Point
5. Heat Index
6. Wind Speed (current, max, avg.)

Weather

- A knowledge of weather and where to find forecasted weather information is critical information for a prescribed burn manager.
- Be sure and document all the weather information that you obtain.
- Don't be afraid to call the weather forecasters in the NOAA office.