

Fire Weather: useful websites and tools



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Weather and Prescribed Fire

- Weather is the most dynamic factor that affects fire behavior
 - Most difficult to predict

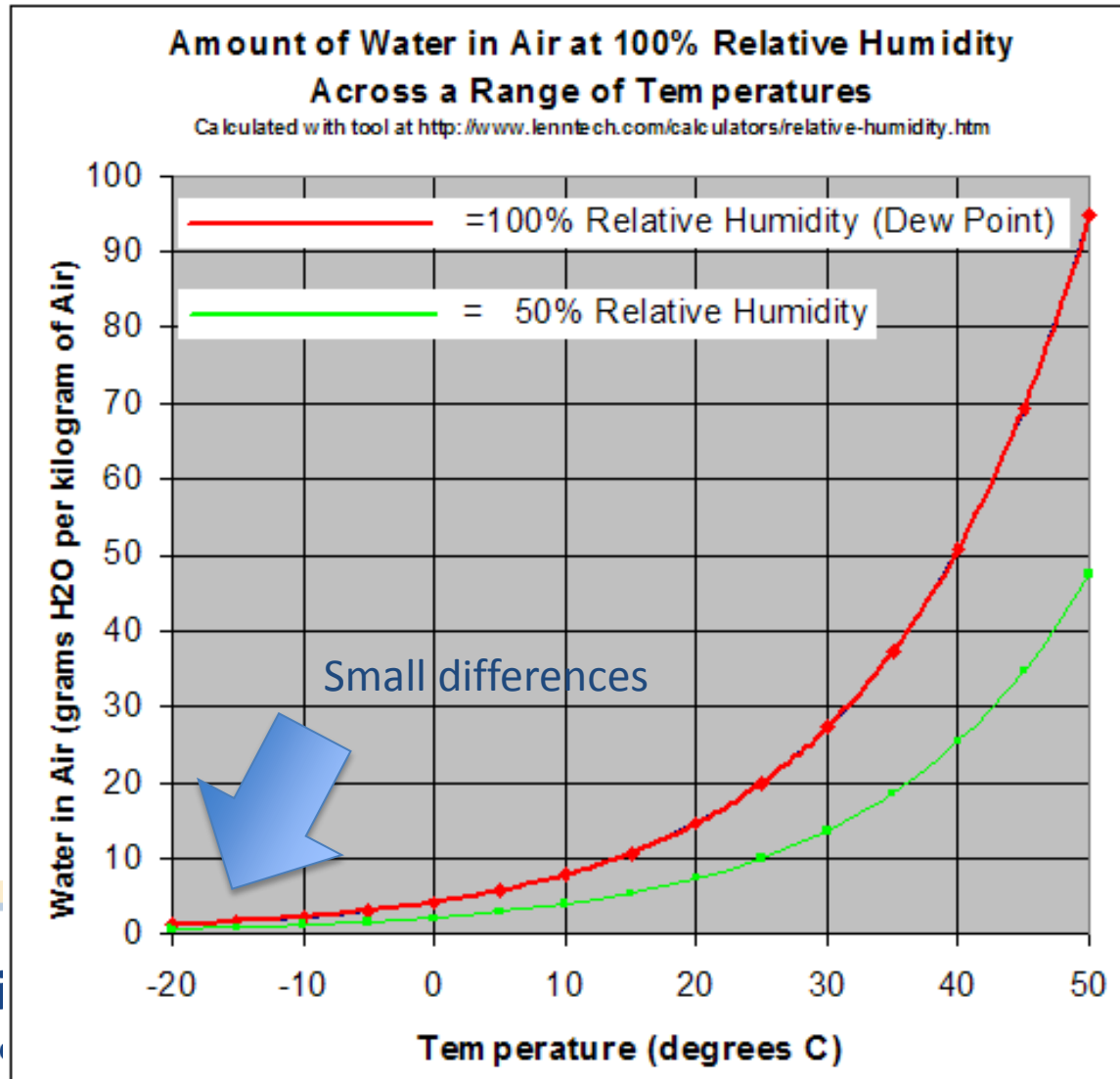


Air Temperature

In fire agencies, they refer to this as dry bulb temperature.



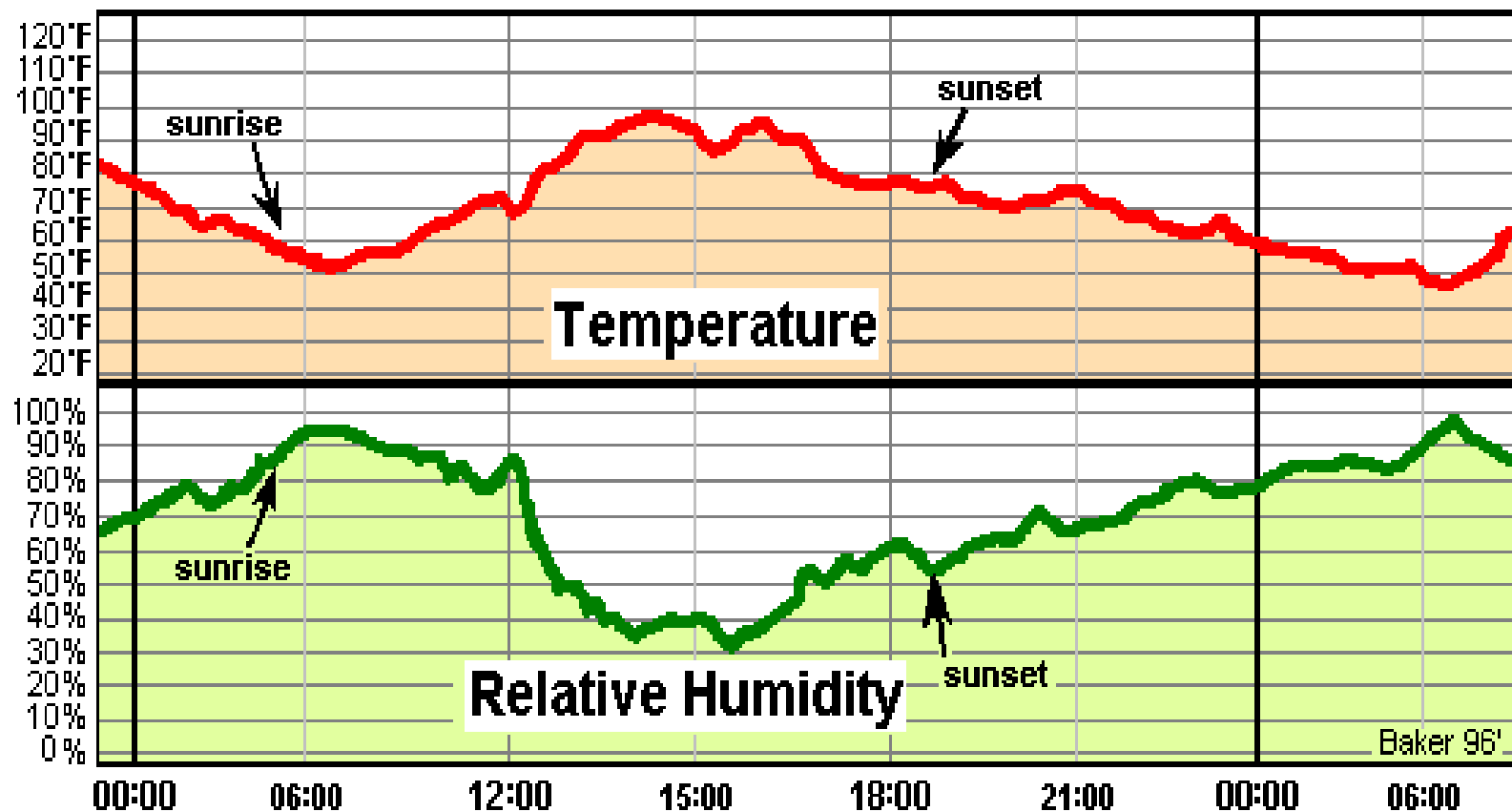
Relative humidity (RH): amount of moisture in the air divided by the amount the air could hold when saturated at the same (or “Relative”) air temperature; usually expressed in percent.



Thermograph

Daily Temperature and RH Relationship

Thermograph depicting 24 hours of temperature and relative humidity.



Note the diurnal relationship between temperature and relative humidity.

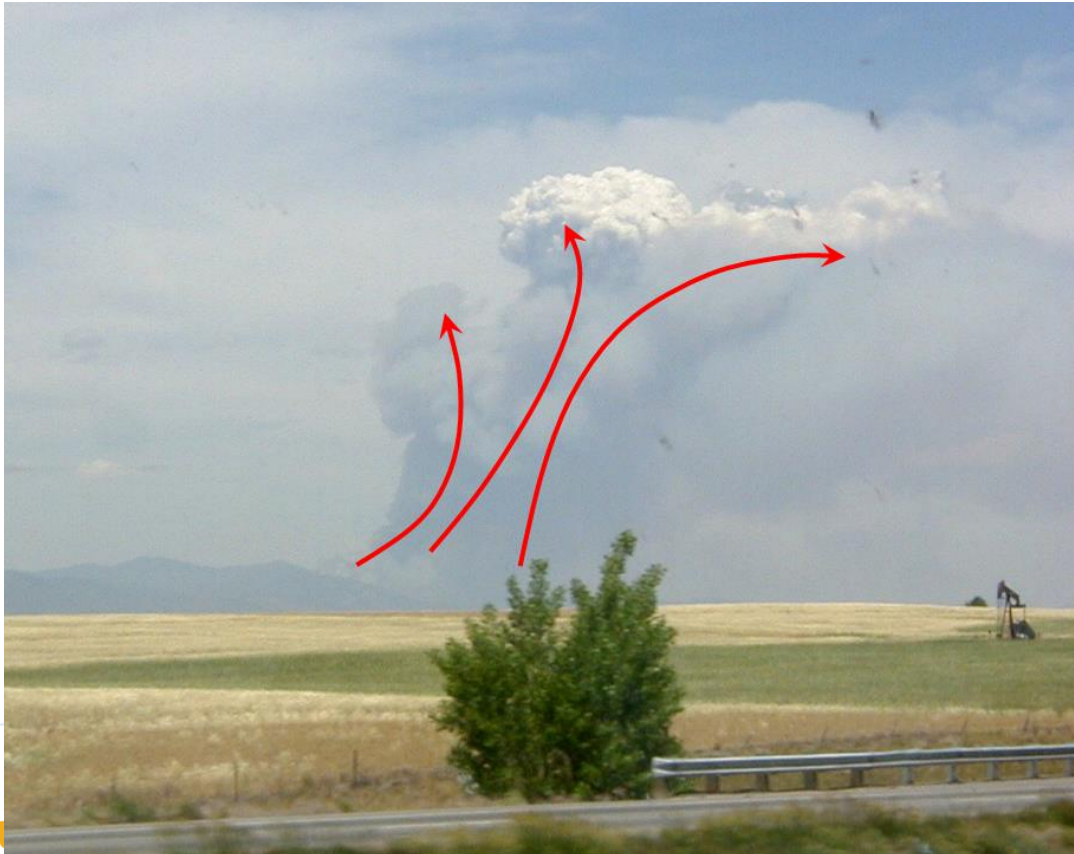
Moisture

- Fine Fuels
 - gain and lose moisture quickly
 - Example: 1 hr fuels (time-lag-class) is how long it takes for that fuel class to equilibrate to the RH
 - react rapidly to moisture
- Heavy Fuels
 - gain and lose moisture slowly
 - react slowly to moisture
- Precipitation Duration vs. Amount
 - Duration has greater impact on fuel moisture than amount



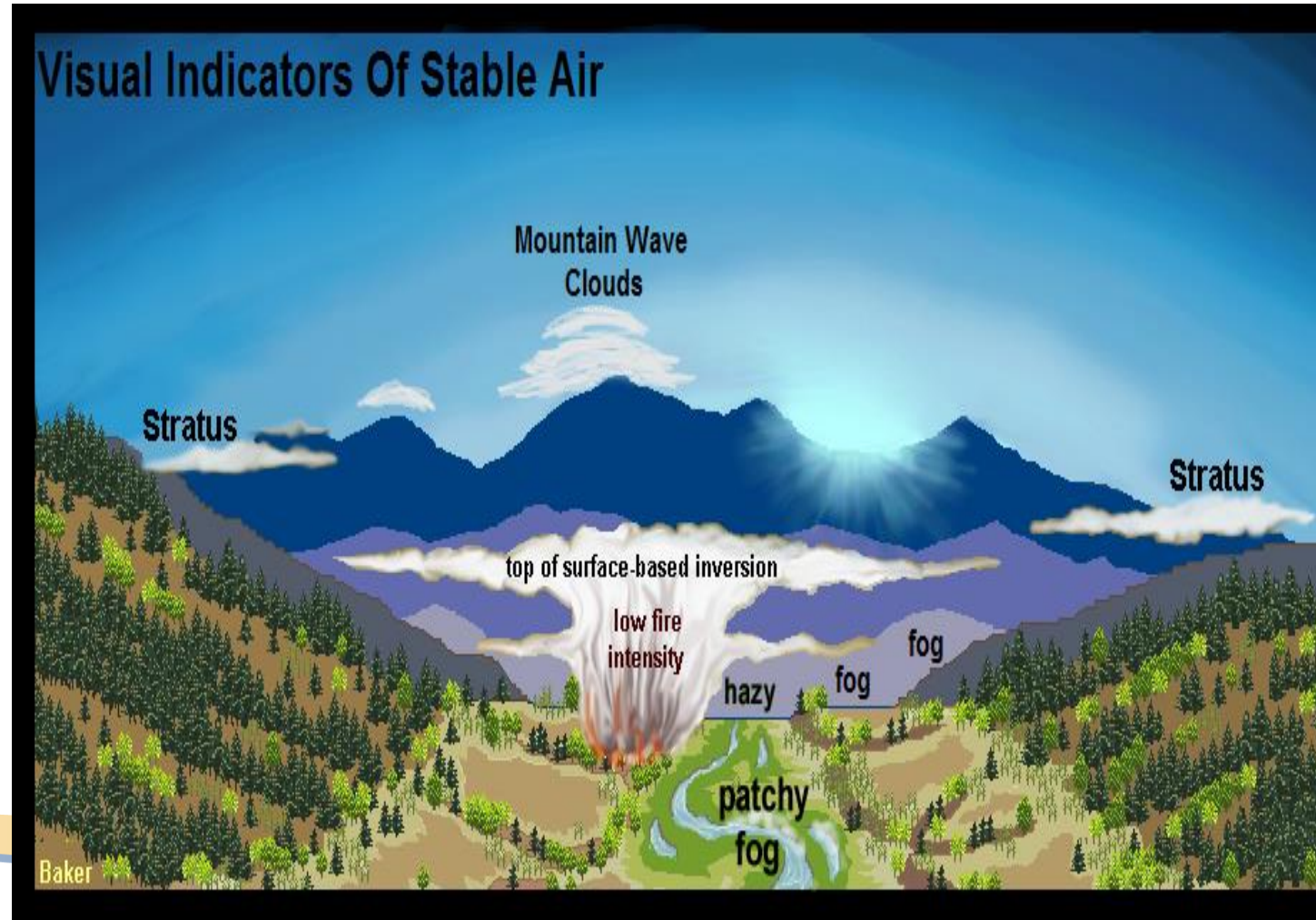
Atmospheric Stability

How vertical motion in the atmosphere is ENHANCED or SUPPRESSED.



Stable Atmosphere

- **Visual Indicators**
 - Clouds form in layers
 - Smoke drifts apart after limited rise
 - Poor visibility due to smoke or haze
 - Fog layers
 - Steady winds



Stable Atmosphere

Visual Indicator Examples

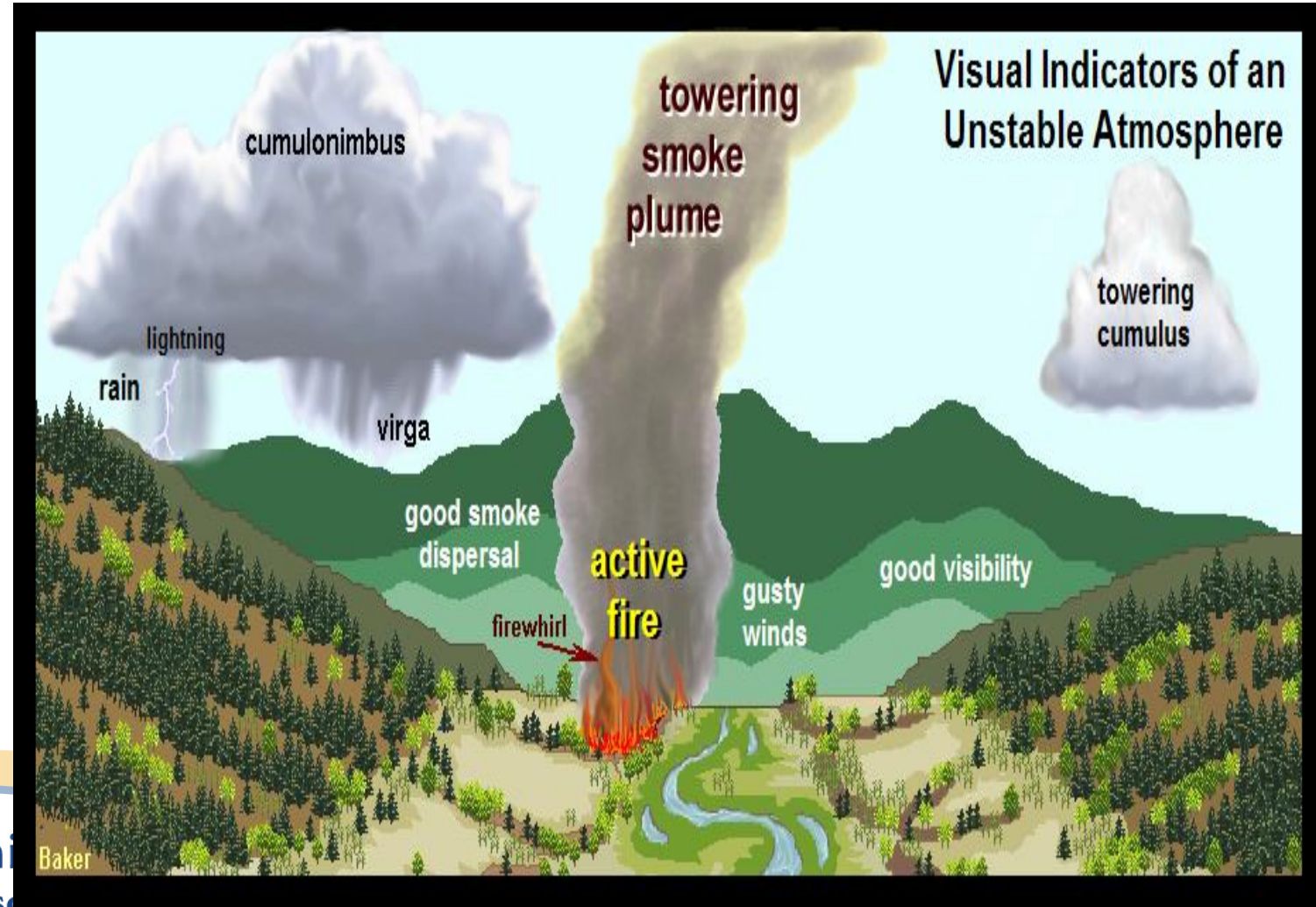


Unstable Atmosphere

Visual Indicators

- **Visual Indicators**

- Clouds grow vertically and smoke rises to great heights
- Cumulus clouds
- Good visibility
- Gusty winds
- Dust devils and firewhirls



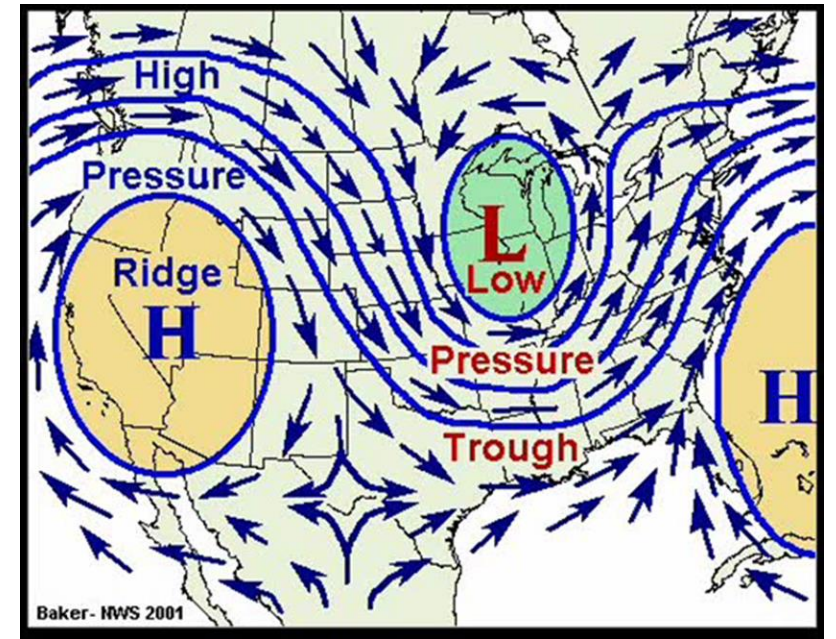
Unstable Atmosphere

Visual Indicator Examples



Winds

- Wind impacts the fire environment by:
 - Increasing the supply of oxygen to the fire.
 - Determining the direction of fire spread.
 - Increasing drying of the fuels.
 - Carrying sparks and firebrands ahead of the main fire causing new spot fires.
 - Preheating of fuels ahead of the fire: bending flame



Predictive Services



- Monitors, analyzes, and predicts precipitation, wind, and RH as it relates to fire growth or resource safety:
 - Fire weather
 - Fire danger
 - Interagency fire management resource impact!

National Weather Service: weather.gov

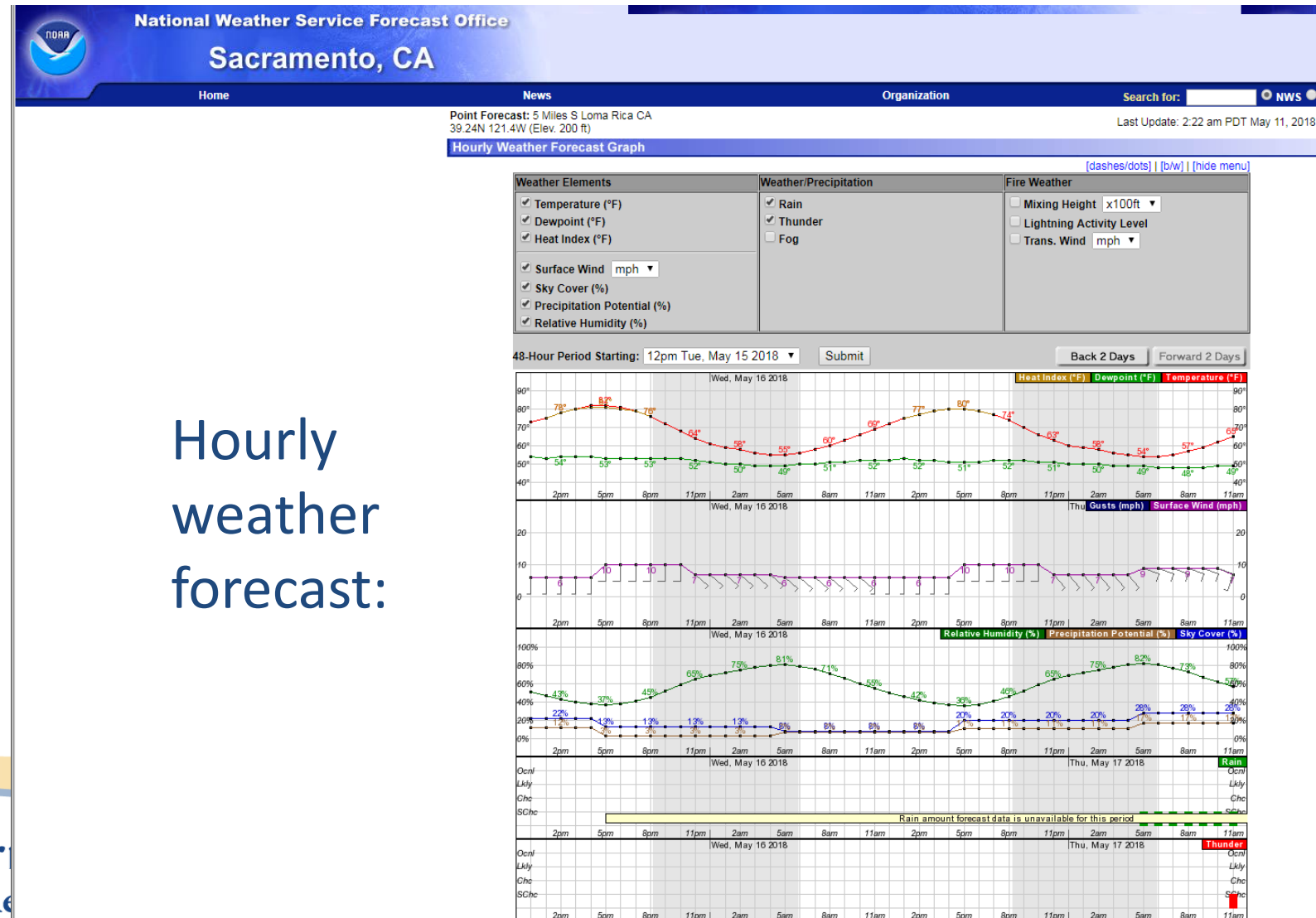
- National Weather Service

Products produced:

- for fire weather zones
- by meteorologists
- Geared toward tactical planning



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Hourly
weather
forecast:

Test Discussions: allow you to get into the head of the forecaster.

- Gauge confidence
- Convey threats
- Understand forecast challenges and significant trends

National Weather Service Weather Forecast Office
Sacramento, CA

Home Site Map News Organization Search for: NWS All NOAA Go

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

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Area Forecast Discussion

Issued by NWS Sacramento, CA

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943
FXUS66 KSTO 111120
AFDSTO

[Area Forecast Discussion](#)
National Weather Service Sacramento [CA](#)
420 AM PDT Fri May 11 2018

.SYNOPSIS...
Period of windy conditions today. Temperatures remaining slightly above [normal](#). Showers and [thunderstorm](#) chances mountains through the middle of next week.

&&

.Discussion...
Upper low now centered over northeast Oregon will drop southeast into the Great [Basin](#) today. Surface high pressure pushing in behind over the Pacific Northwest will create a tight northerly [gradient](#) over the north state which when combined with [upper level](#) northerly [flow](#) will bring breezy north winds. Northerly winds already starting to pick up over the northern Sacramento valley with current wind speeds in the mid teens. Winds are expected to pick up above wind advisory criteria throughout the Sacramento valley by late morning as surface gradients increase to above 12 [mb](#) from Sacramento to Medford. [Shortwave](#) dropping down backside of low may bring a few showers over the northern Sierra. Cooler air will filter into the area bringing a decrease in daytime highs today but maximum temperatures should remain a bit above [normal](#). Winds will stay breezy during the evening hours but will be on the decrease.

Upper low remains over the Great [Basin](#) through early next week. Shortwaves rotating around the low will bring a threat of showers over the Sierra Cascade range Saturday. [Stability](#) progs indicate enough [instability](#) for a slight threat of thunderstorms as well. Only minor changes are expected in the weather pattern Sunday and Monday with upper low expected to only move slightly. This should [mean](#) only slight changes with high temperatures and afternoon/evening Sierra [crest thunderstorm](#) threat Saturday through Monday.

&&

.EXTENDED DISCUSSION (Tuesday THROUGH Friday)
An [upper level](#) low centered over the Great [Basin](#) weakens, and exits the area on Tuesday, only to be replaced by a Pacific upper low. Afternoon/evening thunderstorms are expected to continue over the mountains and foothills at least through Friday, and



96 hr Air Quality Forecast: CA Air Resources Board

ARB's Meteorology Program

Search ARB

UP LINKS

- Reducing Air Pollution - ARB Programs
- Smoke Management Program
- Meteorology Program

PROGRAM LINKS

Agricultural Burning

- Burn Forecast
- Historical Air Basin Burn Decisions
- Sacramento Valley Allocation
- Ag Rx Burn Report Form

Data and Current Observations

- Aircraft Soundings
- Frequently Asked Questions
- Meteorological Database
- Real-Time Air Quality and Meteorological Data
- Walnut Grove Tower

Prescribed Burning

- PFIRS
- CB3 Form

Specialized Forecasts

- Diesel PM Study

RESOURCES

- Contact Us
- Join Any Smoke Management Email List(s)
- RSS / Newsfeed

ARB's Meteorology Program

This page last reviewed April 4, 2018

Welcome to the ARB's Meteorology Section web page. The Meteorology Section provides forecasting services in support of the State's agricultural and prescribed burning program. ARB meteorologists issue daily agricultural burning control notices specifying the burn/no burn status for 11 of the State's 15 air basins, and coordinate with air quality staff from the other 4 basins. The Meteorology Section also provides meteorological and climatological services to other ARB programs.

For information on the agricultural burn forecast for your area, click on the map below.



Mountain Counties

As per Title 17 Section 80110, the ARB shall specify each day of the year as a permissive burn day, or a no-burn day for each air basin or other specified area. Also, the ARB may declare a marginal burn day if meteorological conditions approach the criteria contained in Title 17.

Permissive Burn

Any day on which agricultural burning, including prescribed burning, is not prohibited by the state board and burning is authorized by the district consistent with these Guidelines.

Marginal Burn

A day when limited amounts of agricultural burning, including prescribed burning, for individual projects in specific areas for limited times is not prohibited by the state board and burning is authorized by the district consistent with these Guidelines.

No Burn

Any day on which agricultural burning, including prescribed burning, is prohibited by the state board or the air district in which the burning will occur.

The Meteorology Section manager is Pingkuan Di "Ping" (916) 322-6040.
The Modeling and Meteorology Branch manager is John DaMassa (916) 324-7167.

For questions or comments regarding this page, please contact Air Pollution Meteorologist forecaster at (916) 322-6014.

PFIRS - Prescribed Fire Information Reporting System

Secure | https://ssl.arb.ca.gov/pfirs/cb3/cb3.php?id=4

www.terrific.com | Humboldt Tuna Club | Gratis AIS-volgsyste... | Windy, Windy, Windy | BUOY 46022 (STOR) | Map Results | Wind

PFIRS Prescribed Fire Information Reporting System

Front Page ARB Products Local Agencies Support

Controlled Burn Notices (CB3s) Username: Password: Log In

Page is updated by 3 p.m. each day

Entire State North Coast NE Plateau Sac Valley Mtn Counties San Joaquin Lake Tahoe Lake County Bay Area NC Coast SC Coast Great Basin Mojave Desert Salton Sea South Coast San Diego


The notices on this page do not necessarily reflect the burn status of your local area. You must contact your local fire permit official (local air district or fire agency) for final authorization to burn.

Fire Weather Links: California | Oregon | Nevada | Arizona

Mountain Counties

Basin	24-hr Decision Fri May 11	48-hr Forecast Sat May 12	72-hr Outlook Sun May 13	96-hr Trend Mon May 14
Mountain Counties North (Plumas, Sierra, Nevada, Placer, El Dorado)	Burn (Good)	Favorable (High Confidence)	Favorable	Favorable
Mountain Counties South (Amador, Calaveras, Tuolumne, Mariposa)	Burn (Good)	Favorable (High Confidence)	Favorable	Favorable

Air Basin Map



Notes and Instructions

El Dorado County Burn Line:

- Mtn Counties: (530) 621-5897 or (866) 621-5897
- Lake Tahoe: (530) 621-5842 or (888) 332-2876

Placer County Burn Line: (530) 889-6868

Northern Sierra Burn Lines:

- Western Nevada County: (530) 274-7928
- Eastern Nevada County: (530) 582-1027
- Western Sierra County: (530) 289-3662
- Eastern Sierra County: (530) 994-3561
- Quincy Area: (530) 283-3602
- Greenville: (530) 284-6520
- Chester: (530) 258-2588
- Portola: (530) 832-4528

Amador County Burn Line: (209) 223-6246

Calaveras County Burn Line:

- All: (209) 754-6500
- Copperopolis: (209) 785-7664

Mariposa County Burn Line: (209) 966-2220 or 1-888-777-0377

Tuolumne County Burn Line: (209) 533-5598

District Contact Information

Mountain Counties North

El Dorado County AQMD
Phone: (530) 621-7501
Fax: (530) 295-2774
Website

Placer County APCD
Phone: (530) 745-2330
Fax: (530) 745-2373
Website

Northern Sierra AQMD
Phone: (530) 274-9360
Fax: (530) 274-7546
Website

Mountain Counties South

Amador County APCD
Phone: (209) 257-0112
Fax: (209) 257-0116
Website

Calaveras County APCD
Phone: (209) 754-6504
Fax: (209) 754-6521
Website

Mariposa County APCD
Phone: (209) 966-2220
Fax: (209) 966-8248
Website

Tuolumne County APCD
Phone: (209) 533-5693
Fax: (209) 533-5520
Website

Questions?



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