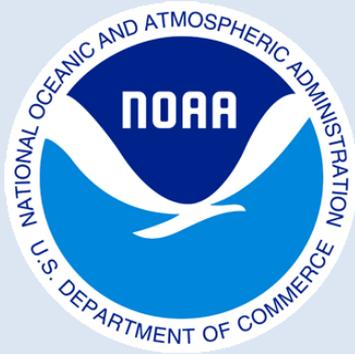


# NOAA Climate Science & Services

## Monthly Climate Update



**Jake Crouch**

Climate Scientist, NOAA's National Centers for Environmental Information

**Nina Oakley**

Assistant Research Climatologist and California Climate Specialist, Western Regional Climate Center

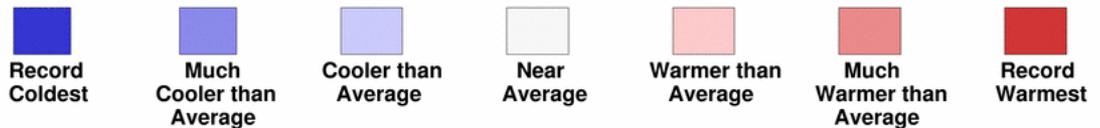
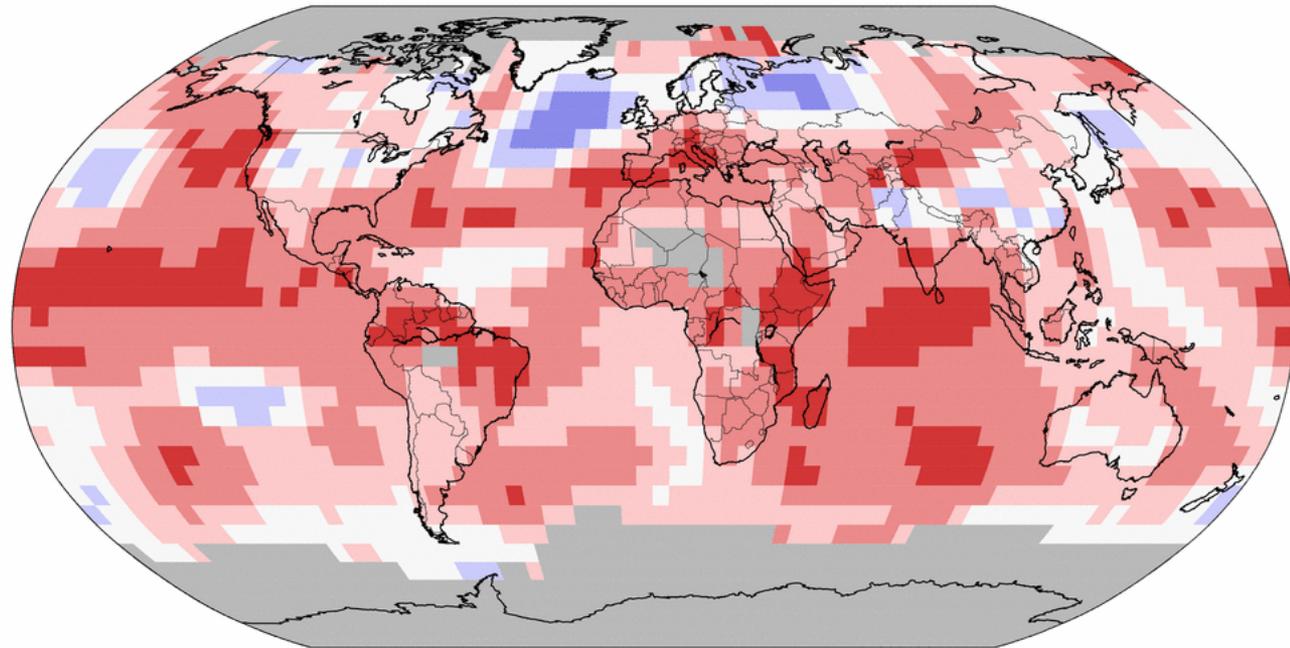
**Anthony Artusa**

Seasonal Forecaster, NOAA's Climate Prediction Center

# Global Temperature: July 2015

## Land and Ocean Temperature Percentiles July 2015

Data Source: GHCN-M version 3.3.0 & ERSST version 4.0.0



Mon Aug 17 06:23:58 EDT 2015

The global temperature record dates to 1880 (136 years)



# Global Temperature: Jan-Jul 2015

## January-July 2015 was record warm for the year-to-date

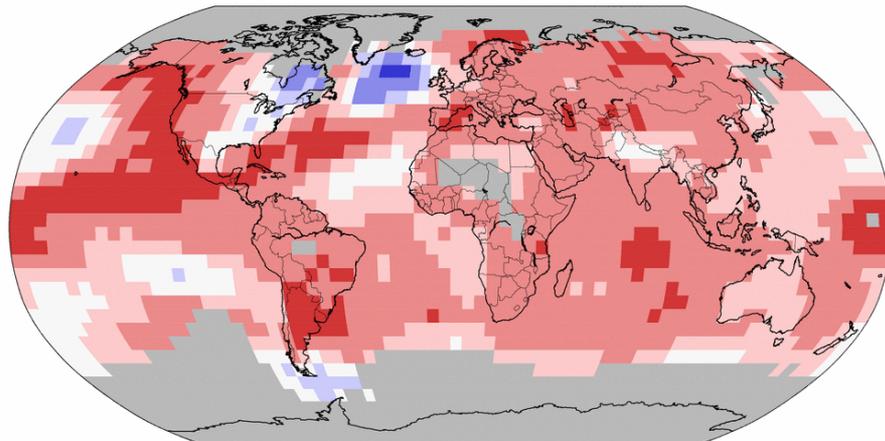
Global Temperature (record warm): +1.53°F

Land Temperature (record warm): +2.41°F

Ocean Temperature (record warm): +1.21°F

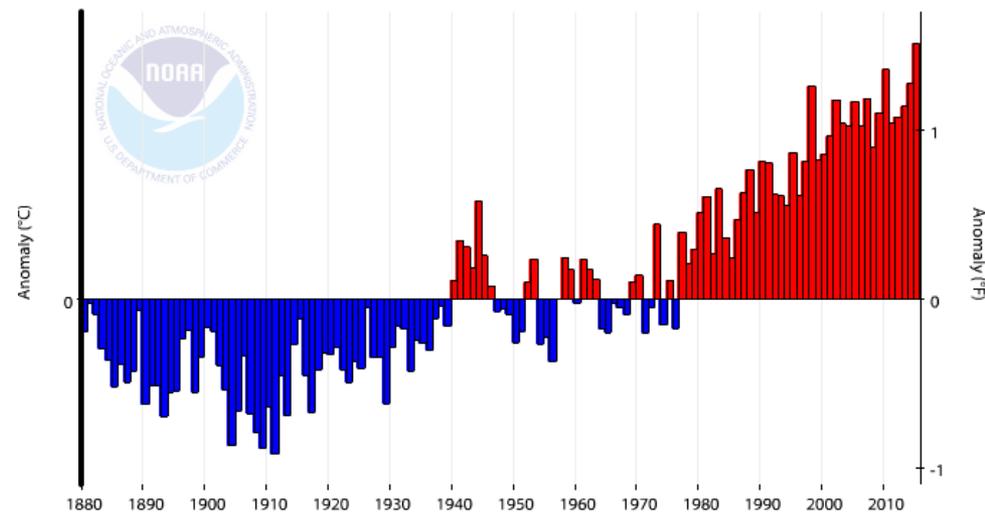
### Land and Ocean Temperature Percentiles January-July 2015

Data Source: GHCN-M version 3.3.0 & ERSST version 4.0.0



Mon Aug 17 06:23:58 EDT 2015

### Global Land and Ocean Temperature Departure from 20<sup>th</sup> Century Average, January-July

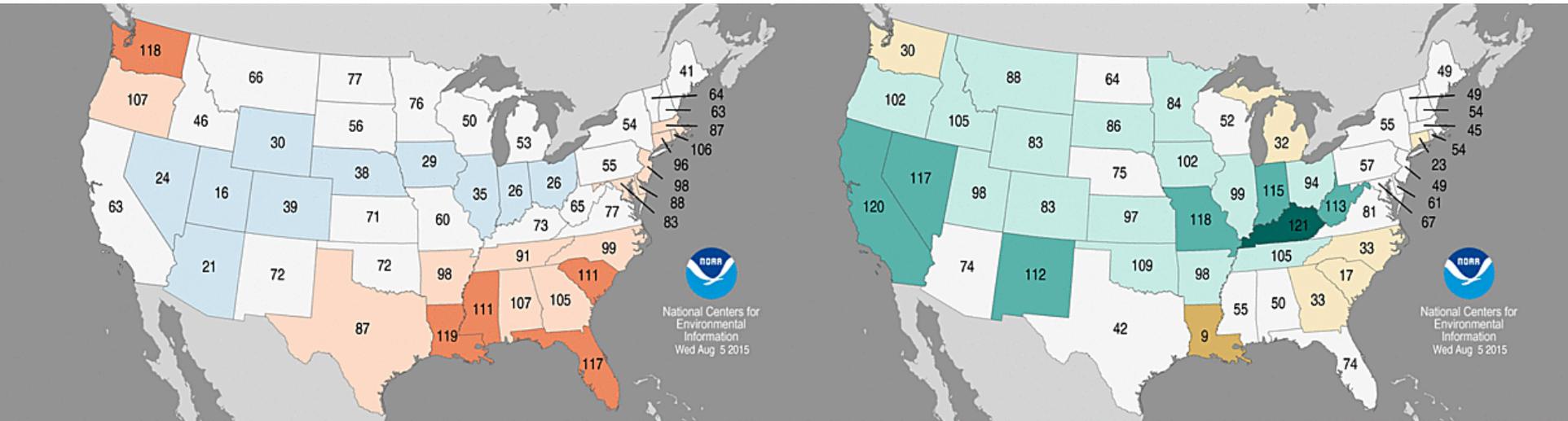


# Contiguous U.S. July 2015

**Temperature:** 73.9°F, +0.2°F, Ranked near middle value in 121-year record  
**Precipitation:** 3.16", +0.38", 14<sup>th</sup> wettest July on record

Statewide Temperature Ranks, July 2015  
 Period: 1895-2015 (121 years)

Statewide Precipitation Ranks, July 2015  
 Period: 1895-2015 (121 years)



- Cool across central US from Intermountain West to Ohio Valley
- Warm in the Southeast and Northwest
  - Record warm in Seattle, WA.

- Kentucky was record wet for July
- Above-average precipitation in the West did little to help long-term drought conditions
- Dry in the Northwest, Southeast, and parts of the Great Lakes

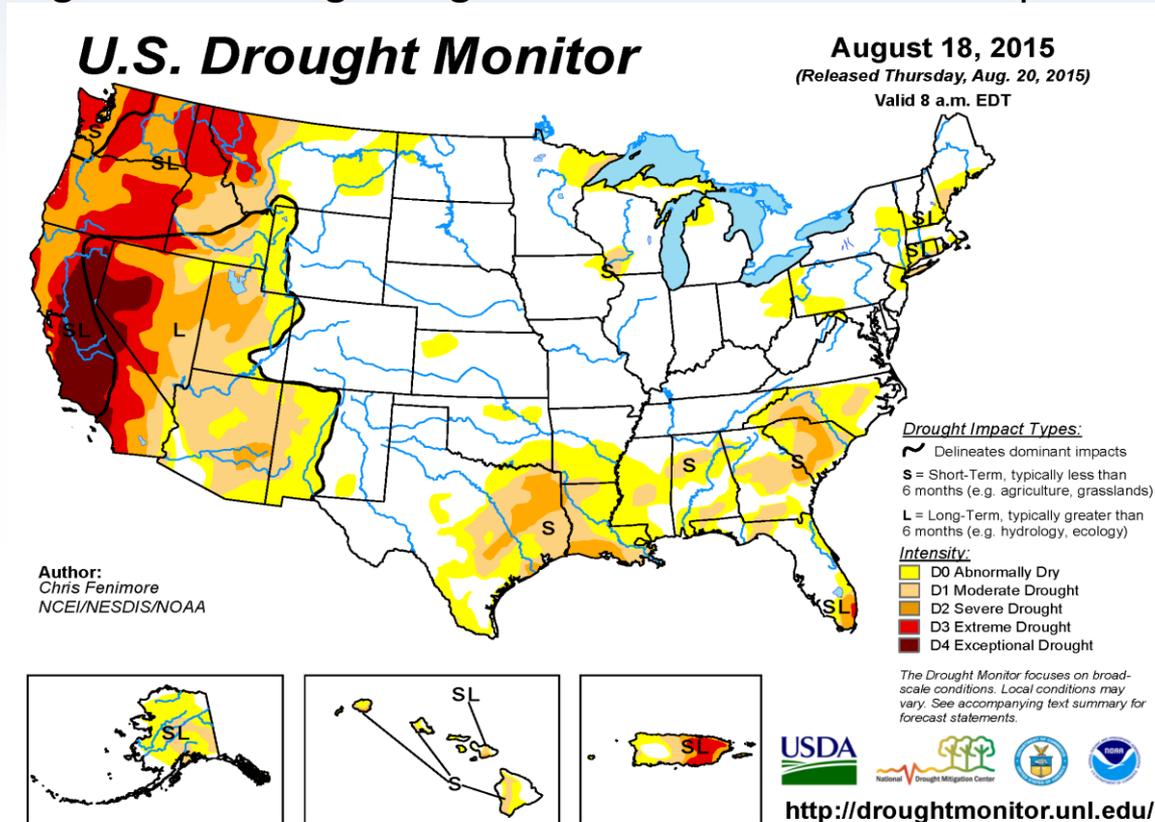


# Current U.S. Drought

## 29.3% of Contiguous U.S. in Drought

(↑ ~3.5 percentage points since early July)

- **Improvement:** Parts of the Southwest and Southeast.
- **Degradation:** The Northwest, Southeast, Southern Plains, and Lower Mississippi Valley.
- **Outside CONUS:** Significant drought degradation in Puerto Rico and parts of Alaska.



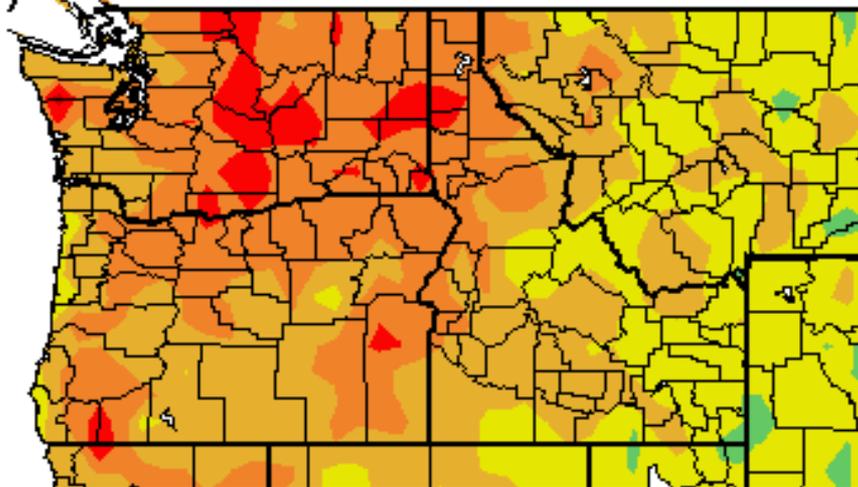
# Worsening Drought in Pacific Northwest

## 3 main factors:

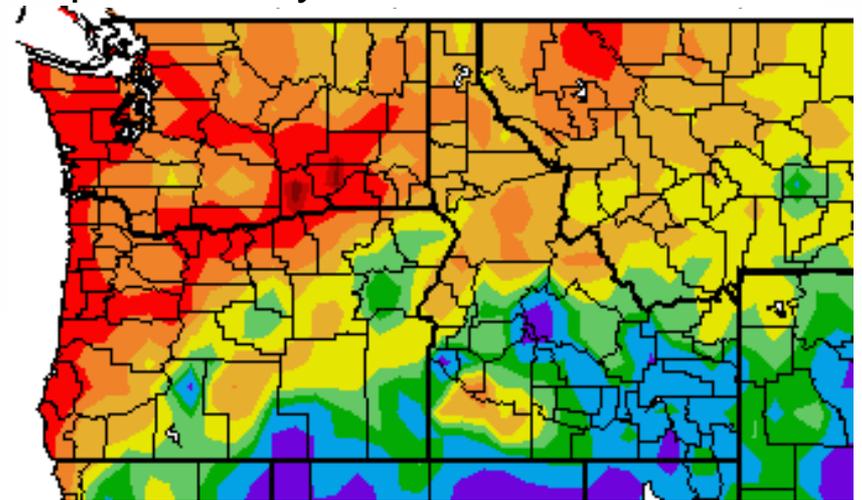
- 1) below normal winter/spring snowpack
- 2) above normal spring, summer temperatures
- 3) below normal spring, summer precipitation

- Major impacts on agriculture, fisheries, recreation; many large fires in OR, WA, ID, MT
- Water consumption and drought indicators in June were similar to what is typically seen in August

Avg. Temperature Departure from Normal  
past 90 days: 5/18/2015 – 8/15/2015

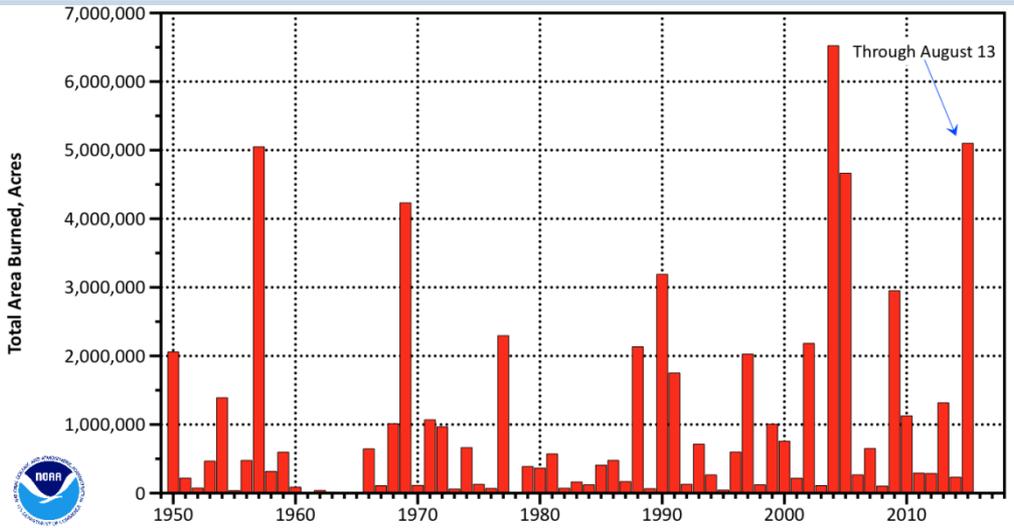


Precipitation Percent of Normal  
past 90 days: 5/18/2015 – 8/15/2015



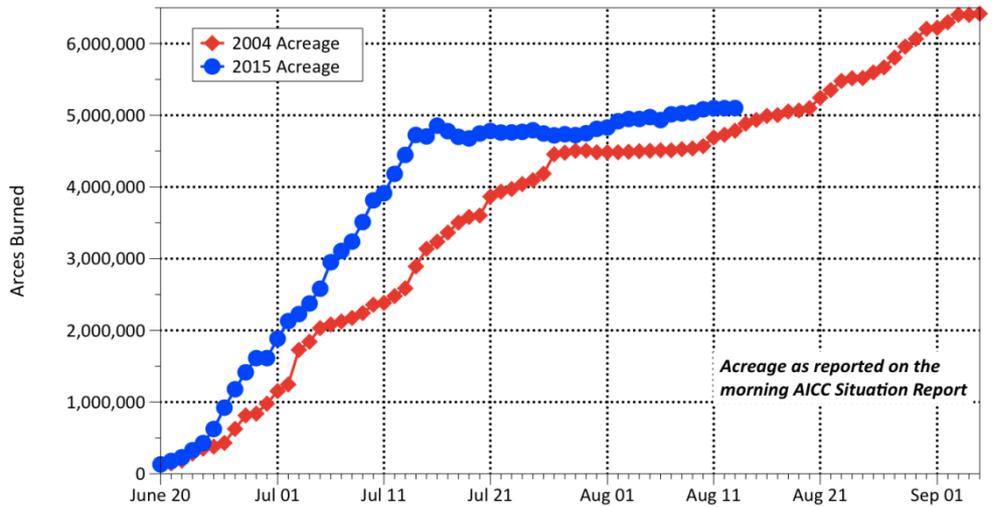
# AK Wildfire Acreage Season Total 1950-2015

# Alaska Wildfires



- Alaska acreage burned in 2015 2nd highest on record
- Warm, dry spring with early snowmelt
- Below normal snowpack in southwest likely contributor to large tundra fires
- Mid-late June dry lightning sparked many fires in Interior
- August halt in fire growth as temperatures cool and rainfall increases

# AK Wildfire Cumulative Acreage 2004 vs. 2015



Source: Rick Thoman, NWS AK Region and Alaska Interagency Coordination Center



# California Wildfires

- Persistent drought stressed vegetation, primed CA landscape for fire
- Many low pressure systems moved across CA this summer producing lightning and high winds, “red flag” conditions
- Jan 1-Aug 8, USFS and CALFIRE have responded to 5656 fires with 260,310 acres burned; CA and nation at Preparedness Level 5 (highest)

## Aug 17 Large Wildfires



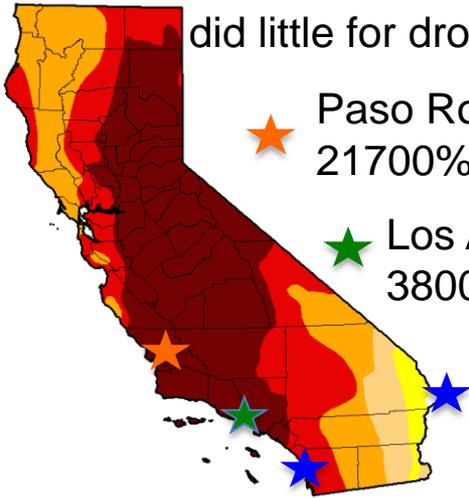
Firefighting plane discharging fire retardant chemical to put out a fire in Rancho San Diego, CA, 2015.

©iStockPhoto

[http://activefiremaps.fs.fed.us/lg\\_fire2.php](http://activefiremaps.fs.fed.us/lg_fire2.php)



# Areas of record July rainfall in SoCal did little for drought amelioration



- ★ Paso Robles: 2.17 in  
21700% of normal (0 in)
- ★ Los Angeles: 0.38 in  
3800% of normal (0.01 in)
- ★ San Diego: 1.71 in  
5700% of normal (0.03 in)

Source: USDM Aug 11 2015

# CA Reservoir Storage, Million Acre-Feet, 1977 and 2010-15

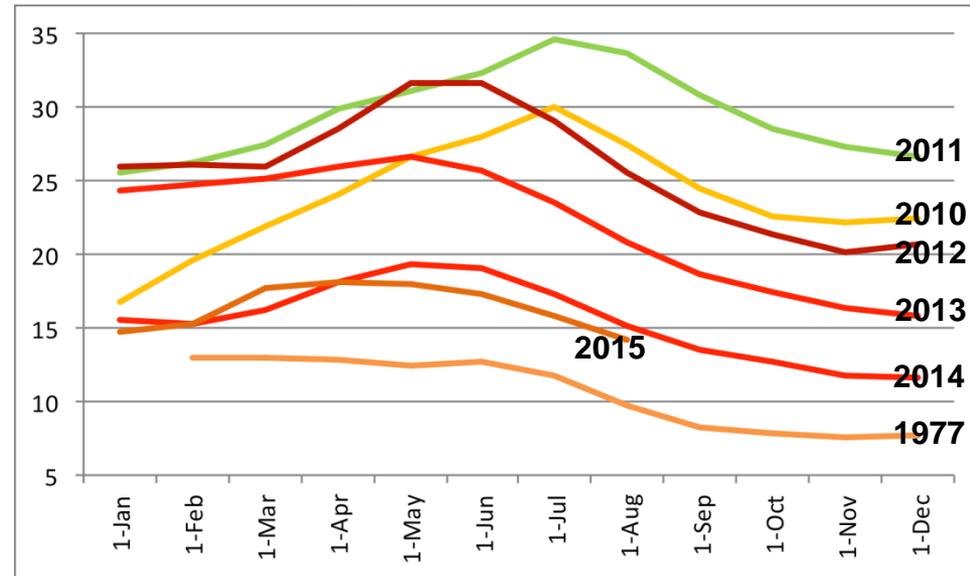
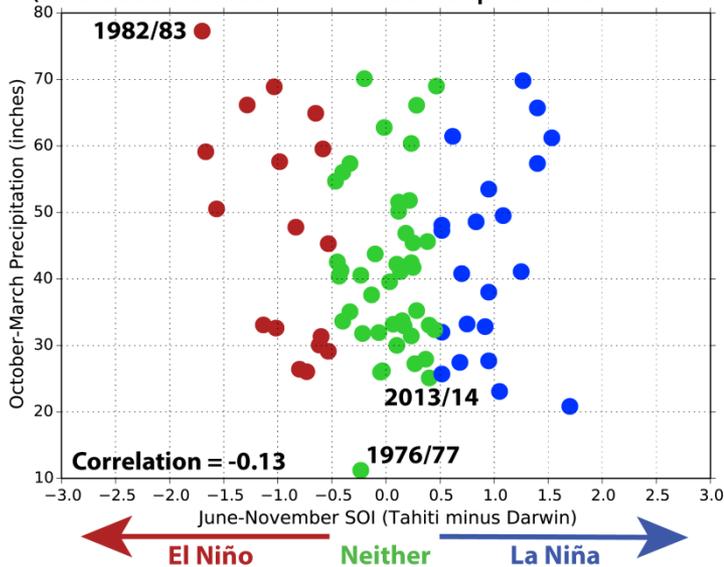


Image: Brad Rippey, USDA; Data source: CA Dept of Water Resources

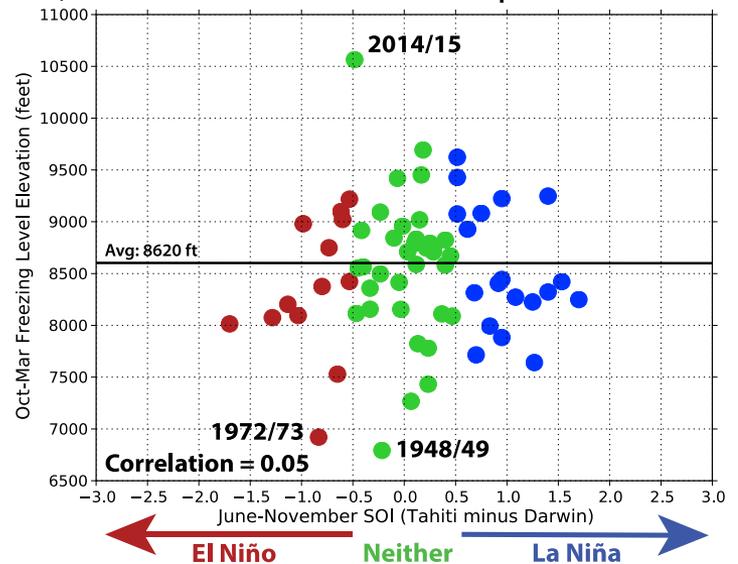
# CA 8-Station Index Oct-Mar Precipitation 1933/34-2013/14

(versus Southern Oscillation Index for prior June-November)



# Lake Tahoe Oct-Mar Freezing Level 1948/49-2014/15

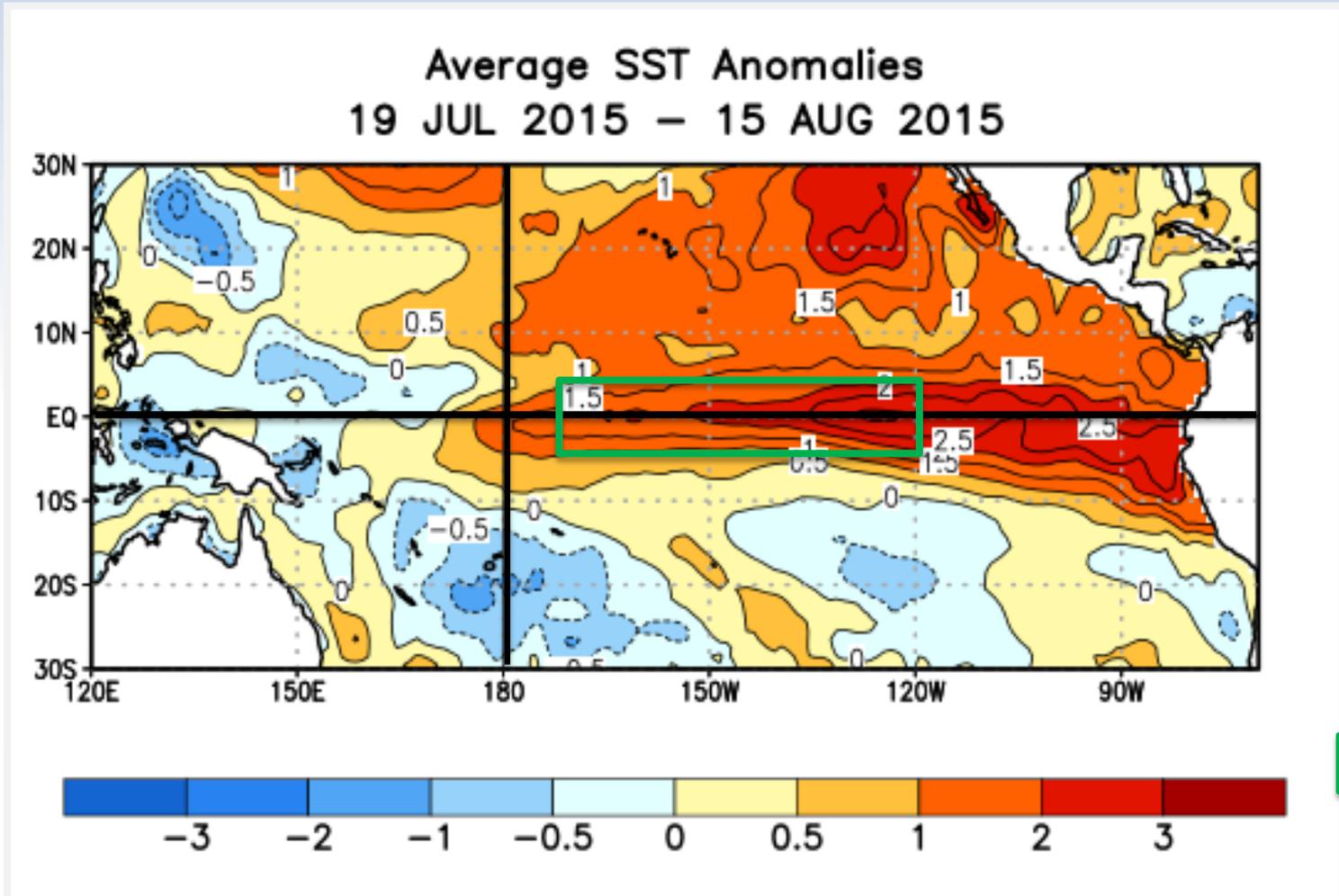
(versus Southern Oscillation Index for prior June-November)



wtcc.dri.edu/enso

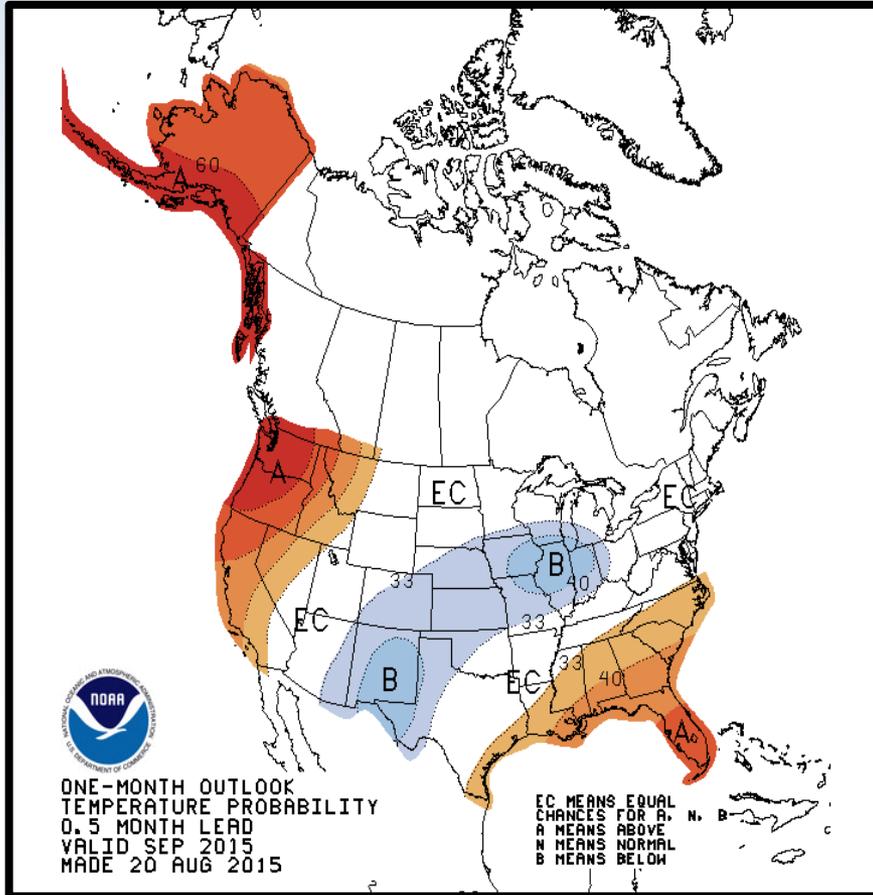


# Sea Surface Temperatures and ENSO

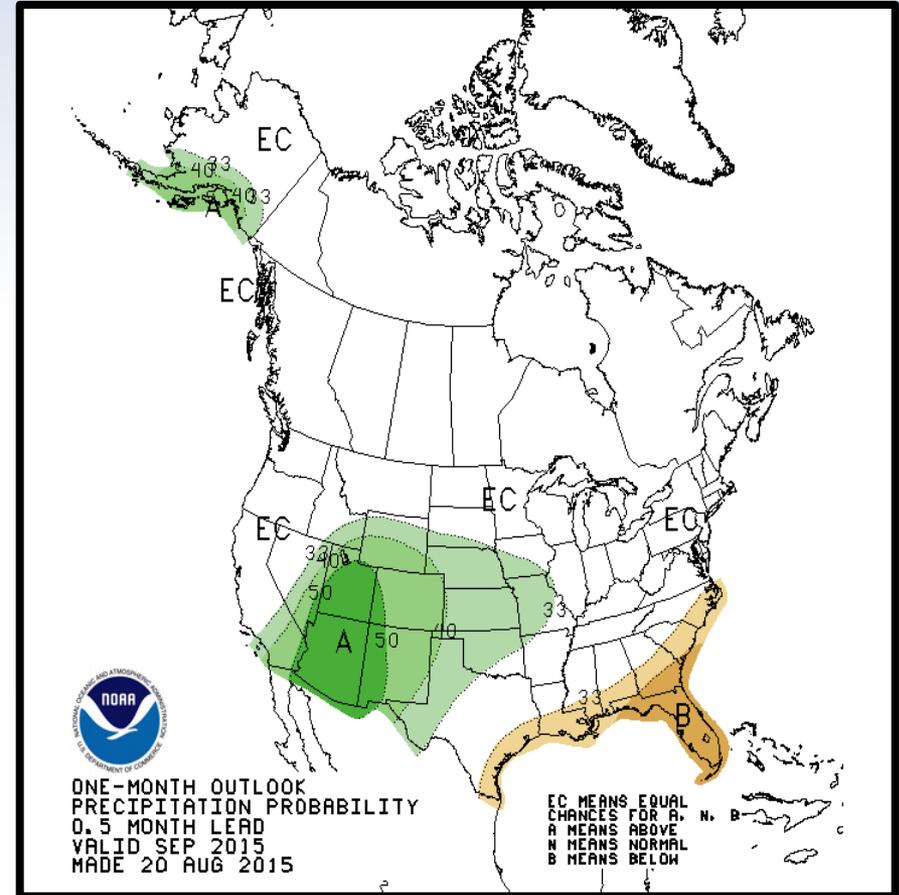


# Monthly Forecast (September)

## September Average Temperature Probability

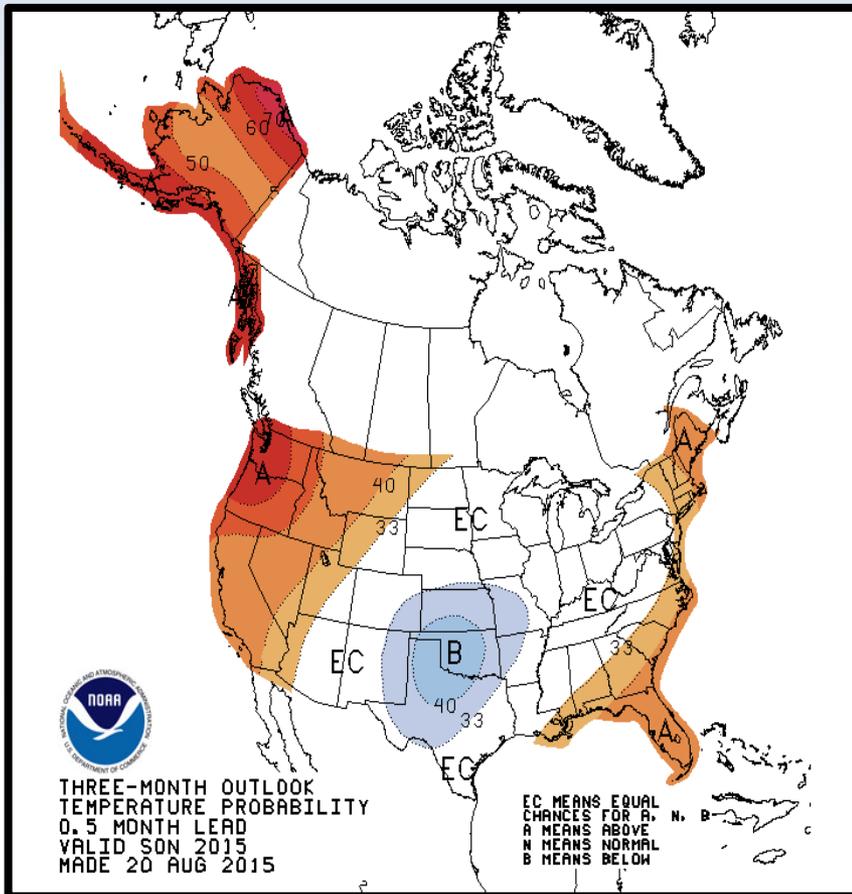


## September Total Precipitation Probability

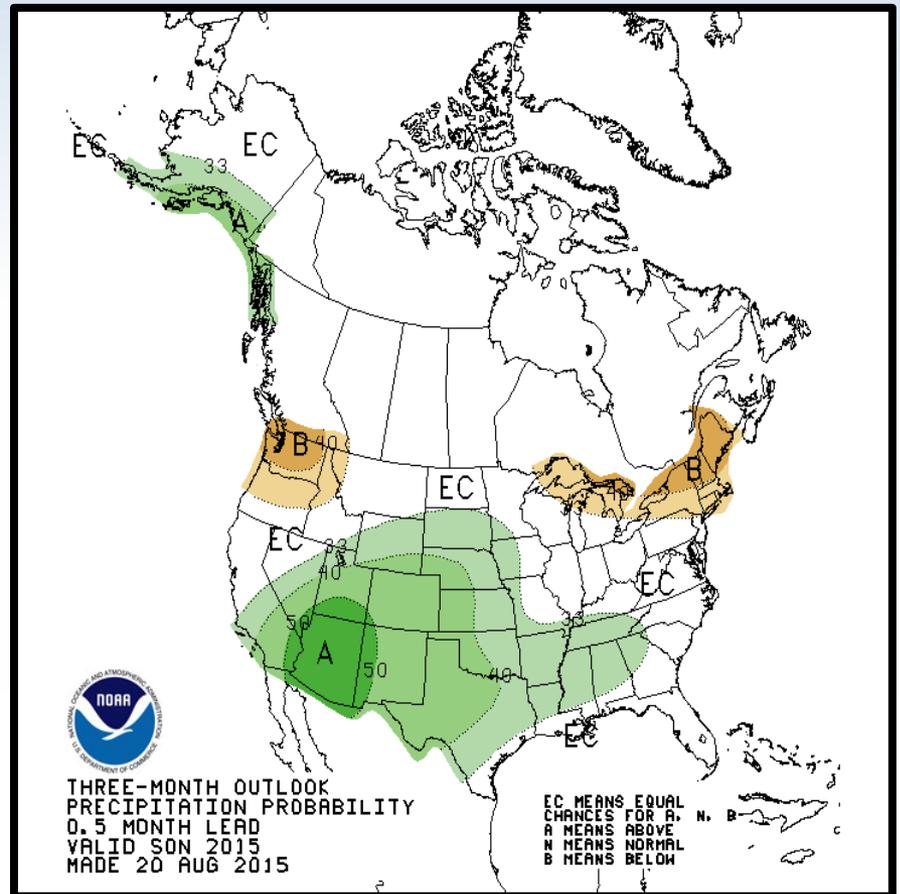


# Seasonal Forecast (Sept-Oct-Nov)

## Sept-Oct-Nov Average Temperature Probability



## Sept-Oct-Nov Total Precipitation Probability



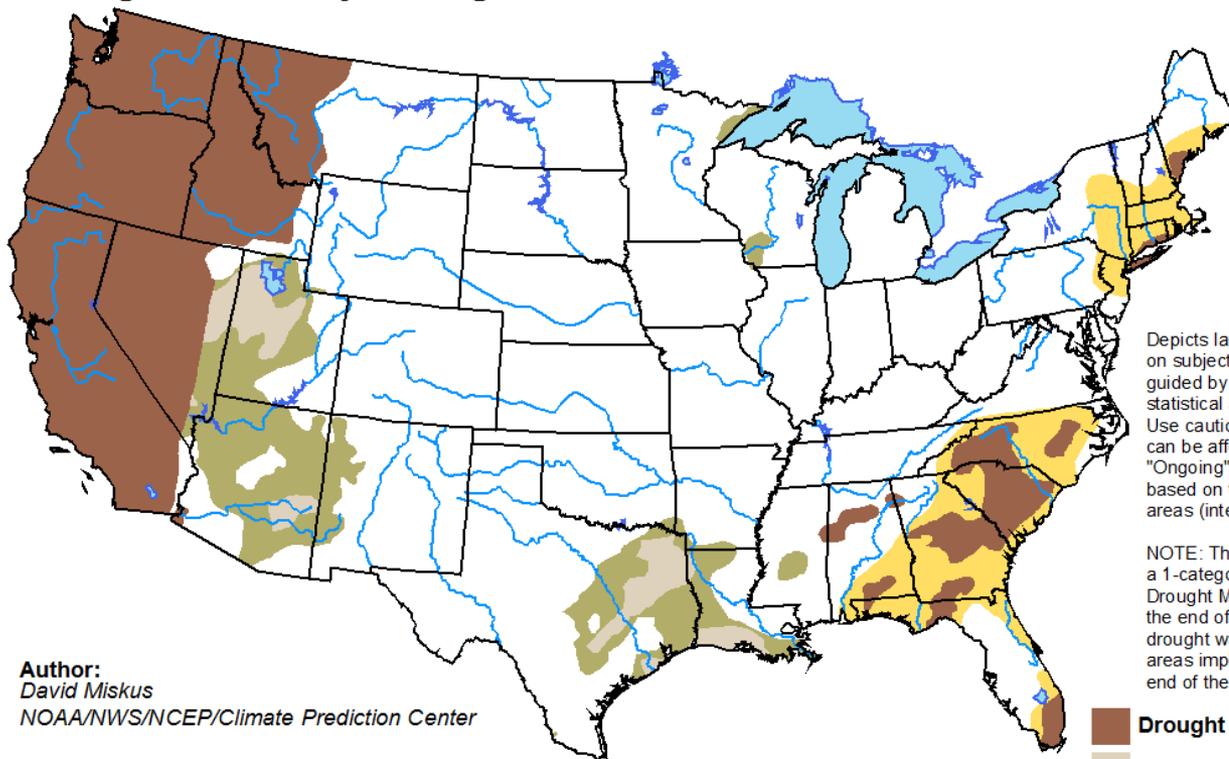
# U.S. Drought Outlook

Drought Tendency During the Valid Period

August 20 – November 30, 2015; Released August 20, 2015

## U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for August 20 - November 30, 2015  
Released August 20, 2015

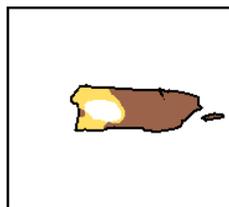
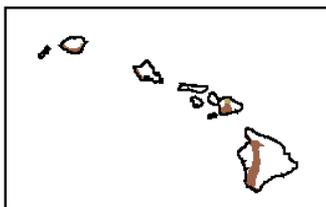
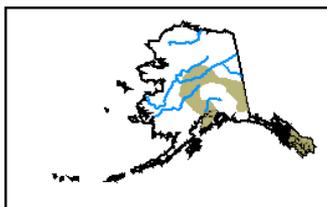


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:  
David Miskus  
NOAA/NWS/NCEP/Climate Prediction Center

-  Drought persists/intensifies
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely



<http://go.usa.gov/hHTe>



# For More Information



## TODAY'S PRESENTATION:

- <http://www.ncdc.noaa.gov/sotc/briefings>

## NOAA's National Centers for Environmental Information:

[www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)

- Monthly climate reports (U.S. & Global): [www.ncdc.noaa.gov/sotc/](http://www.ncdc.noaa.gov/sotc/)
- Dates for upcoming reports: <http://www.ncdc.noaa.gov/monitoring-references/dyk/monthly-releases>

NOAA's Climate Prediction Center: [www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

Western Regional Climate Center: <http://www.wrcc.dri.edu/>

U.S. Drought Monitor: <http://drought.gov>

Climate Portal: [www.climate.gov](http://www.climate.gov)

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