

California Monthly Climate Summary
November 2015

Weather Highlights

November 2015 was a cool, dry month for California. According to the Western Region Climate Center's [California Climate Tracker](#), the monthly average temperature was 46.0°F which is 2.1°F lower than the long-term average. With a statewide average of 1.83 inches, precipitation was 65% of average. Statewide plots of precipitation and temperature for the past month are included at the end of the document.

November started off warmer than average with cool nights. The first storms of the month arrived in the first week with many parts of the state receiving precipitation. Highest amounts were in the northern part of the State. Precipitation that fell as snow melted away within a few days. After the warm weather to start the month, the second week brought cooler than average temperatures. The storm pattern continued with another storm bringing precipitation to the State. The cooler temperatures resulted in more snow falling in the mountain regions. The colder temperatures and precipitation continued in weeks three and four with storms interspersed with a few days of dry weather. The month closed out with freezing temperatures in the Central Valley and heavy rain on the North Coast.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 70 temperature records tied or broken and 15 precipitation records set for the month. Of the 70 temperature records set, 23 were for new high maximum temperatures and 32 were for new low minimum temperatures. Records were set on 20 days of the month with 11 of those days coming from the San Diego Forecast Area.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 229 stations recorded a minimum temperature below freezing while no stations reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC stations is also shown at the end of the summary.

Precipitation in November was below average in 8 of the 10 hydrologic regions. For the CDEC precipitation gages, the largest amount of precipitation recorded was at Gasquet Ranger Station in the North Coast Region with 9.32 inches. This is 66% of the average precipitation for this station for the month. At the other end of the spectrum, 5 stations recorded no precipitation for the month. For the CIMIS network, Carmel in Monterey County topped the precipitation charts with 5.67 inches for the month and 14 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care should be given to review precipitation data used from this network. The 8-Station

Index for northern California precipitation recorded 3.7 inches in November. On average, 6.3 inches of precipitation is recorded for the 8-Station index for the month. The San Joaquin 5-Station Index recorded 5.1 inches of precipitation for the month. On average, 4.7 inches of precipitation is recorded for the 5-Station Index for the month. The Tulare Basin 6-Station Index recorded 3.6 inches of precipitation for the month. On average, 3.1 inches of precipitation is recorded.

CoCoRaHS Update

California is in its 7th year with CoCoRaHS – the Community Collaborative Rain, Hail and Snow Network. This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns. A map from November 25, 2015 is shown at the end of the document. California has 1,381 volunteers signed up spanning 55 of California's 58 counties. The counties without volunteers are Alpine, Glenn, and Modoc. The counties with the most volunteers are San Diego County with 117 volunteers and Sonoma County with 118. For the month of November, 13,650 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in October was in Calaveras County on 11/27/2015 where 3.00 inches was recorded. There were 93 reports of snowfall recorded during the month with the largest snowfall of 12 inches recorded on 11/25/2015 in Placer County. There were 15 hail reports filed for the month spanning 9 counties. Stone sizes ranged from rice to 5/8". To join CoCoRaHS or find more information, please visit <http://www.cocorahs.org>.

Snowpack and Water Supply Conditions

Snow pillow reports have started for the 2016 water year. As of November 30, 2015, the northern region recorded 2 inches of snow water equivalent which is 6% of the April 1 average and 38% of average for the date. The central region recorded 3 inches of snow water equivalent which is 10% of the April 1 average and 59% of average for the date. The southern region recorded 3 inches of snow water equivalent which is 10% of the April 1 average and 71% of average for the date. The Water Supply Index (WSI) for WY2015 for the Sacramento Basin and the San Joaquin Basin are in the critical category. More information can be found at <http://cdec.water.ca.gov/watersupply.html>. A historical listing of water year categories for both basins can be found at <http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST>. A table showing end-of-November reservoir storage by hydrologic region is shown at the end of this document. For more information on water conditions in California, visit <http://www.water.ca.gov/waterconditions/>.

Drought Monitor and Seasonal Outlook

The maps for California for October 27, 2015 and November 24, 2015 are shown below. The Drought Monitor maps can be found on the National Drought Mitigation Center's (NDMC) website <http://drought.unl.edu/dm/>. These maps are largely a reflection of precipitation and soil moisture deficit estimates. As of the November 24th depiction, 44.84% of California is depicted in the D4 or exceptional drought category,

25.71% of California is depicted in the D3 or extreme drought category, and 21.71% of California is depicted in D2 or severe drought category, 5.07% of California is depicted in D1 or moderate drought, 2.53% depicted in abnormally dry or D0, and 0.14% with no drought depiction. Maps are updated weekly.

The U.S. Monthly Drought Outlook for December from NOAA depicts California in persisting drought conditions. This forecast is based primarily on climatology and forecast models. Maps and information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html. Updates are provided twice per month.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is currently in El Niño conditions. Equatorial sea surface temperature anomalies for the tropical Pacific have been positive with values of 3.0°C in the Niño 3.4 at the end of November. The September through November 3-month running mean of the Ocean Niño Index (ONI) is 2.0 which is now the 8th 3-month running mean value above the 0.5 threshold for an El Niño event using the Climate Prediction Center's recomputed ONI time series. Five consecutive ONI values need to be above the 0.5 threshold need to be observed for classification as an El Niño event. Most forecast models have the tropical sea surface remaining warm into the winter and subsequent spring. More information can be found at the Climate Prediction Center's web site:

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/

Updates are posted weekly. Outlook plots and discussions can be found at <http://www.wrcc.dri.edu/longrang/>. General weather information of interest can be found at <http://www.noaawatch.gov/>. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

November 2015 saw harvests finish and winter season planting begin. Rice harvest finished while winter wheat was planted. Winter grains emerged with the help of rainfall. Post-harvest orchard maintenance was carried out with pruning and groundwork for new orchards. Quinces were harvested as were navel oranges. Lemons, oranges, grapefruit, kiwi and persimmons were packed for export. Carrot fields were prepared for harvest while celery, kale, cabbage, broccoli, cauliflower and brussels sprout harvests continued. The month's rains benefitted low elevation pasture growth and reduced the need for supplemental feeding. For further crop information see <http://www.nass.usda.gov/index.asp>.

Other Climate Summaries

[California Climate Tracker](#) (Western Region Climate Center)

[Golden Gate Weather Service Climate Summary](#)

[NOAA Monthly State of the Climate Report](#)

Statewide Extremes (CDEC)

High Temperature – 94°F (Cahuilla, Colorado Desert)
 Low Temperature – -22°F (Casa Vieja Meadows, Tulare)
 High Precipitation – 9.32 inches Gasquet Ranger Station, North Coast)
 Low Precipitation – 0 inches (5 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 76.6°F (Seeley, Imperial County)
 Low Average Minimum Temperature – 17.4°F (Macdoel II, Siskiyou County)
 High Precipitation – 5.67 inches (Carmel, Monterey County)*
 Low Precipitation – 0 inches (14 stations)

*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	25	20.9	41.2	64.4
SF Bay	8	32.1	50.0	70.6
Central Coast	13	31.2	50.6	82.0
South Coast	50	34.0	54.4	84.8
Sacramento	79	19.6	40.7	65.0
San Joaquin	46	17.6	38.5	66.5
Tulare Lake	17	13.5	34.0	63.4
North Lahontan	26	3.4	30.0	55.6
South Lahontan	15	10.9	35.8	67.6
Colorado River Desert	8	32.1	57.7	89.1
Statewide Weighted Average	287	20.4	41.6	67.8

Statewide Precipitation Statistics

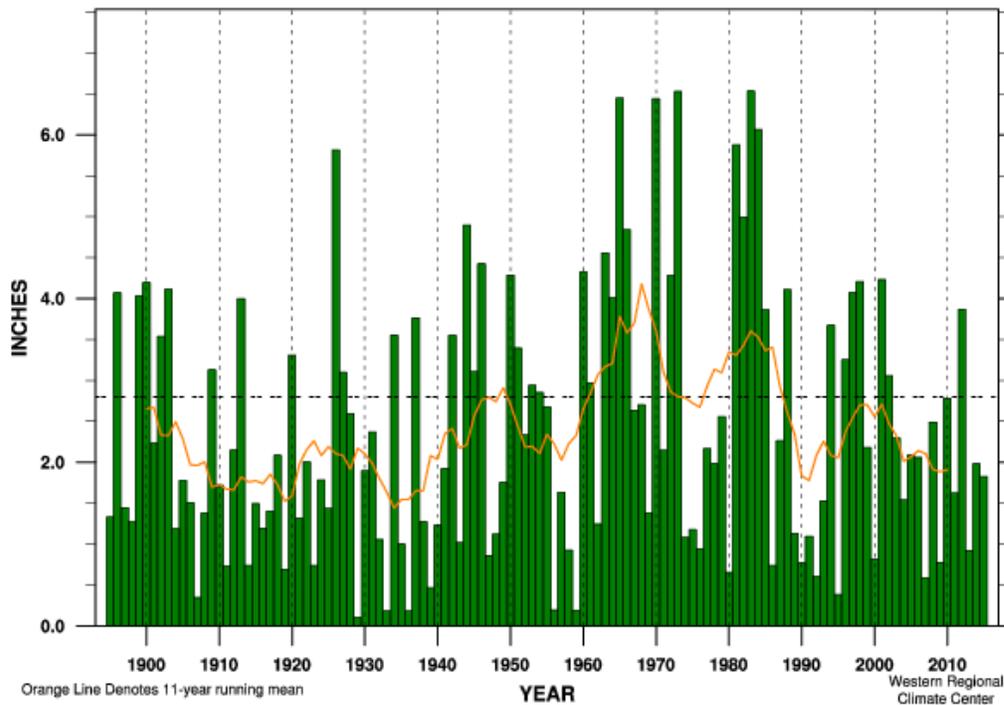
Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	Nov	Oct-Nov	Stations	Nov	Oct-Nov	Nov	Oct-Nov
North Coast	0.27	5	4	4	17	9	9	53.6%	45%
SF Bay	0.03	2	2	2	6	4	4	74.3%	54%
Central Coast	0.06	3	3	2	11	6	6	91.9%	72%
South Coast	0.06	3	3	3	14	12	12	42.4%	48%
Sacramento River	0.26	5	4	4	41	22	22	77.5%	72%
San Joaquin River	0.12	6	6	6	24	13	13	120%	109%
Tulare Lake	0.07	5	5	5	29	24	22	140%	157%
North Lahontan	0.04	3	3	3	13	8	8	79.9%	82%
South Lahontan	0.06	3	3	3	15	12	12	17.1%	224%
Colorado River	0.03	1	1	1	6	1	1	0%	38%
Statewide Weighted Average	1	36	34	34	176	111	109	95.6%	82%

End-of-November Reservoir Storage by Hydrologic Region
Storage in Thousand Acre-Feet (taf)

End-of-Month Reservoir Storage	Number of Reservoirs	Average Storage (taf)	2015 Storage (taf)	% of Average
North Coast	6	1,892	697	37%
San Francisco Bay	17	399	389	97%
Central Coast	6	516	124	24%
South Coast	29	1,279	933	73%
Sacramento	43	9,478	5,575	59%
San Joaquin	34	6,276	2,708	43%
Tulare	6	647	265	41%
North Lahontan	5	459	46	10%
South Lahontan	8	267	212	79%
Total	154	21,217	10,951	52%

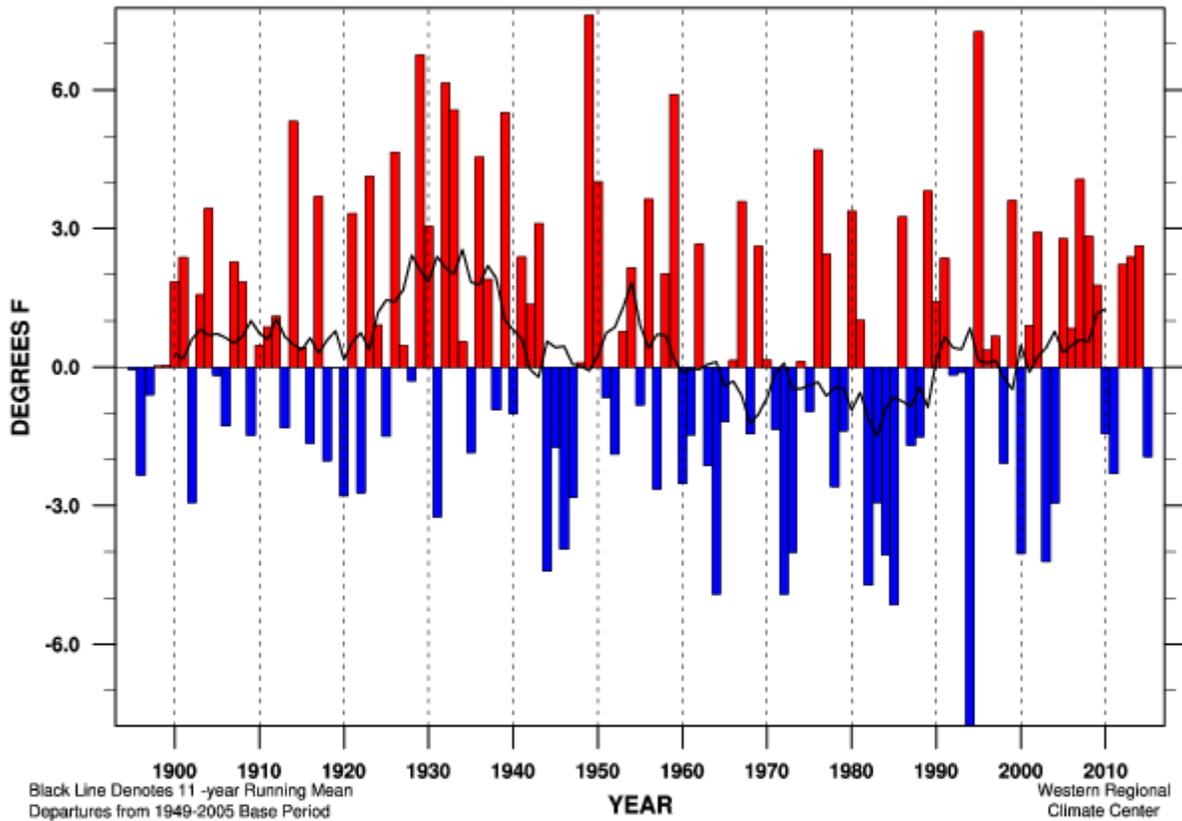
California Climate Tracker Images

California Statewide Precipitation November



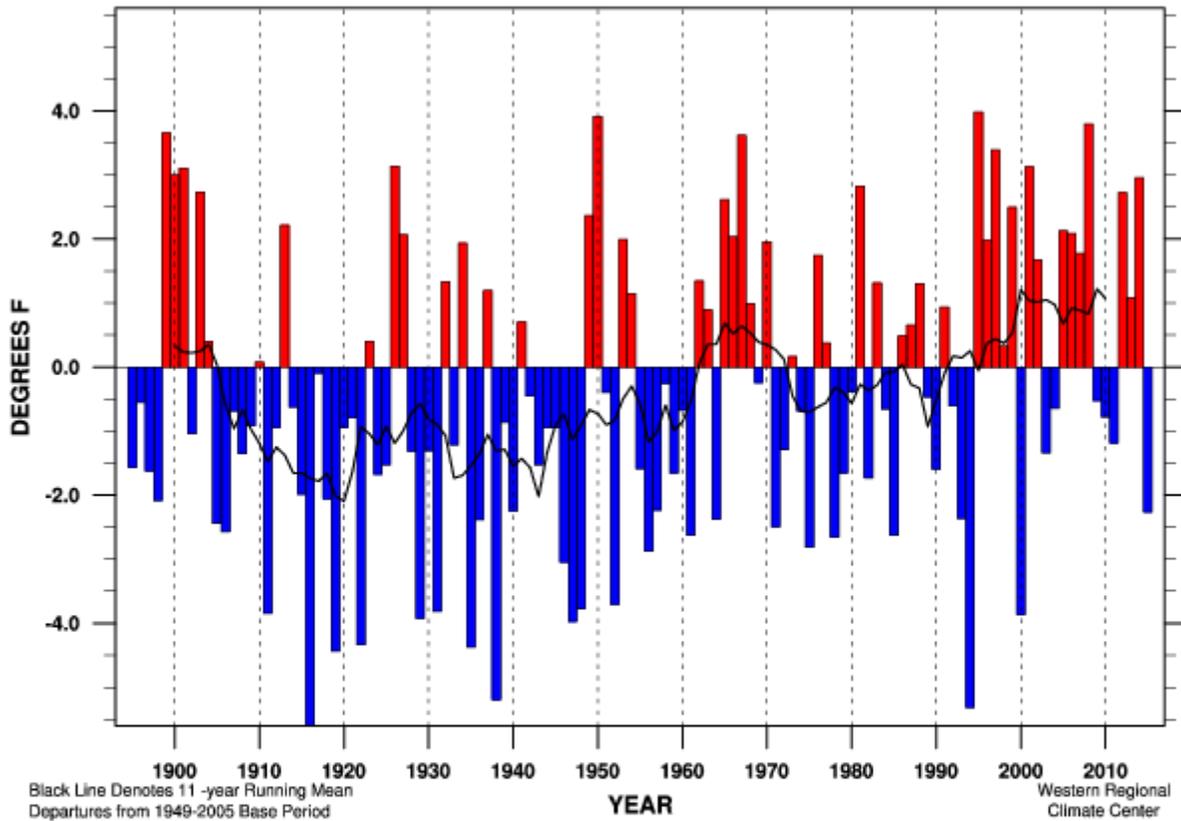
Linear Trend 1895-present	+ 0.44 ± 0.82 in.	(+ 15 ± 29%) per 100 yr	
Linear Trend 1949-present	- 1.42 ± 2.14 in.	(- 50 ± 76%) per 100 yr	
Linear Trend 1975-present	- 2.41 ± 4.30 in.	(- 86 ± 153%) per 100 yr	
Wettest Year	6.53 in. (233%)	in 1973	MEAN 2.80 in.
Driest Year	0.10 in. (3%)	in 1929	STDEV 1.78 in.
November 2015	1.83 in. (65%)		RANK 55 of 121

California Statewide Maximum Temperature Departure November



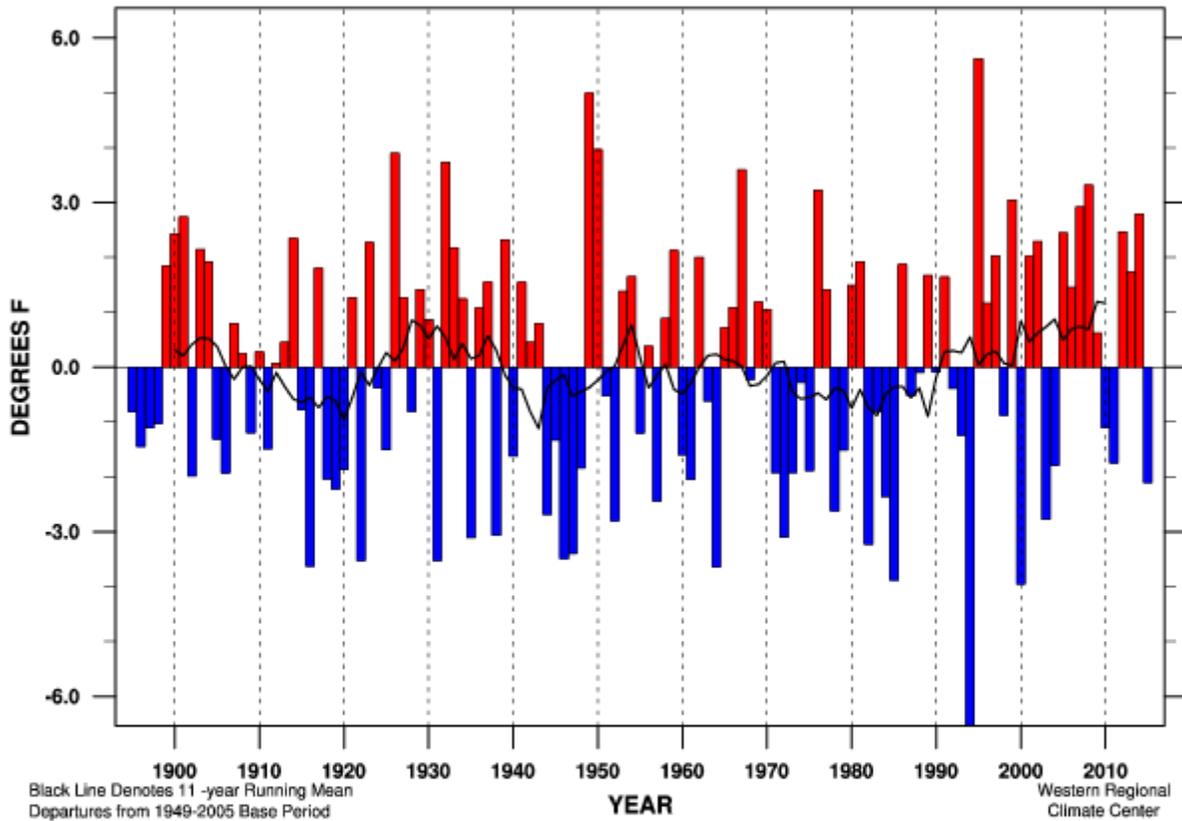
Linear Trend 1895-present	- 0.71 ± 1.53 °F/100yr	
Linear Trend 1949-present	- 0.45 ± 4.01 °F/100yr	
Linear Trend 1975-present	+ 3.12 ± 8.56 °F/100yr	
Warmest Year	67.2 °F (+ 7.6 °F) in 1949	MEAN 59.6 °F
Coldest Year	51.8 °F (- 7.8 °F) in 1994	STDEV 3.26 °F
November	2015 57.6 °F (- 1.9 °F)	RANK 27 of 121

California Statewide Minimum Temperature Departure November

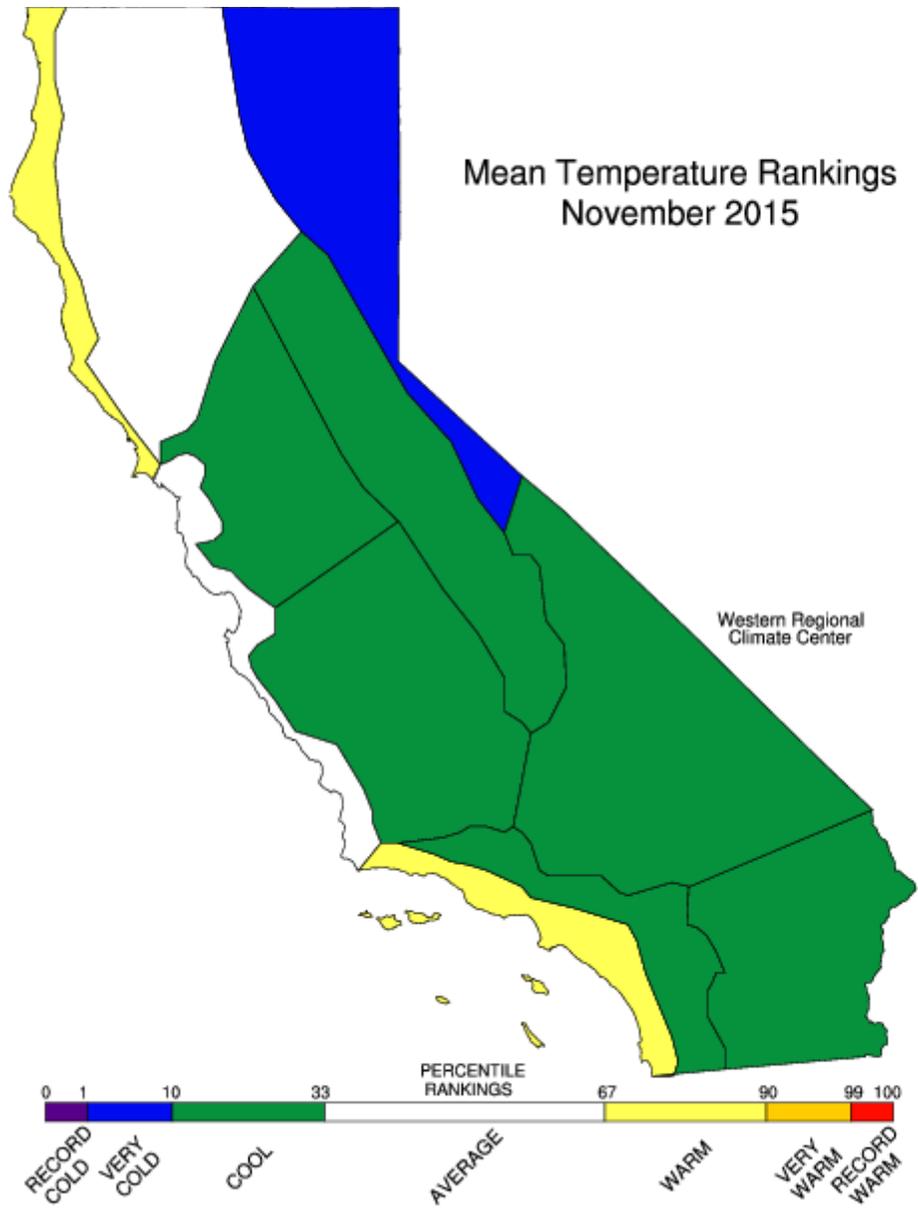


Linear Trend 1895-present	+ 1.44 ± 1.14 °F/100yr	
Linear Trend 1949-present	+ 1.53 ± 2.72 °F/100yr	
Linear Trend 1975-present	+ 4.57 ± 5.81 °F/100yr	
Warmest Year	40.6 °F (+ 4.0 °F) in 1995	MEAN 36.6 °F
Coldest Year	31.0 °F (- 5.6 °F) in 1916	STDEV 2.17 °F
November	2015 34.4 °F (- 2.3 °F)	RANK 26 of 121

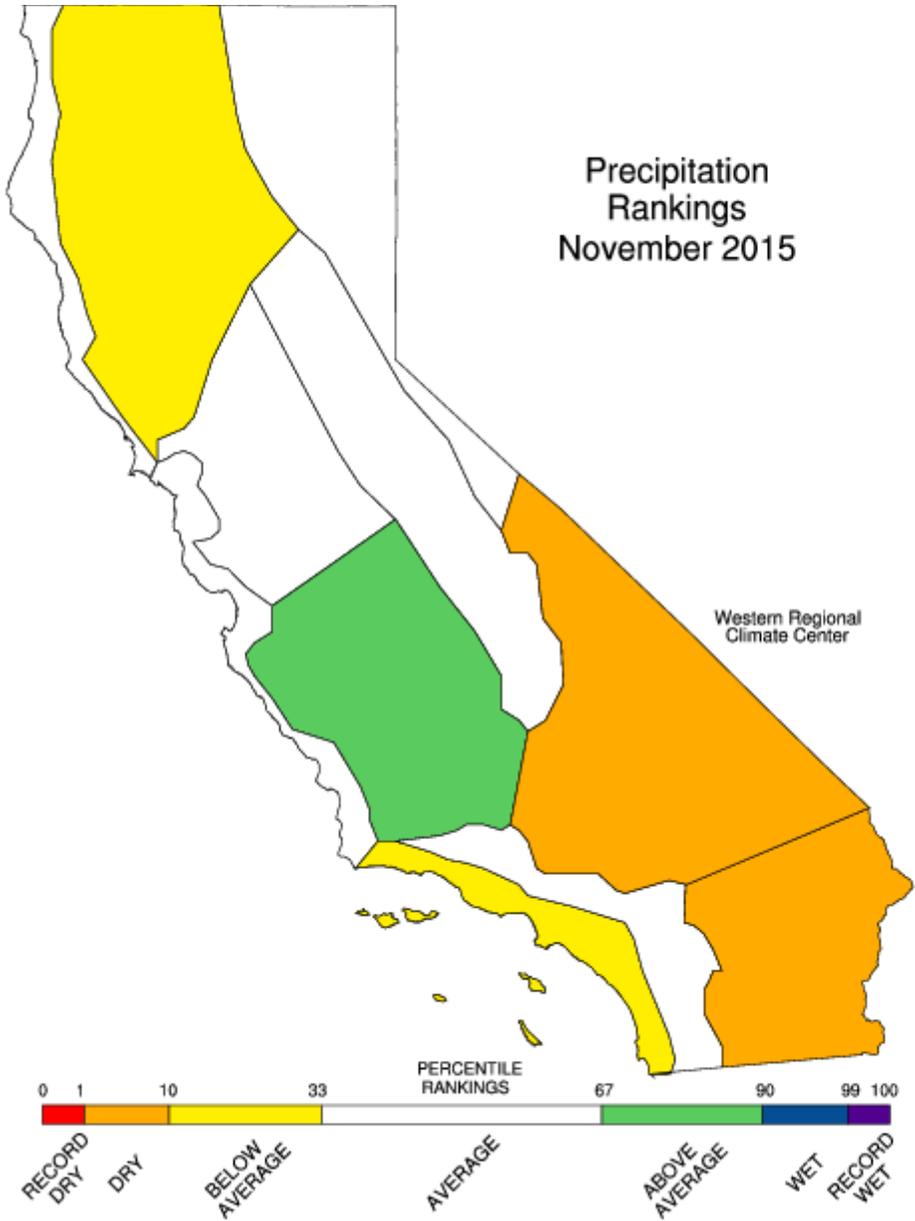
California Statewide Mean Temperature Departure November



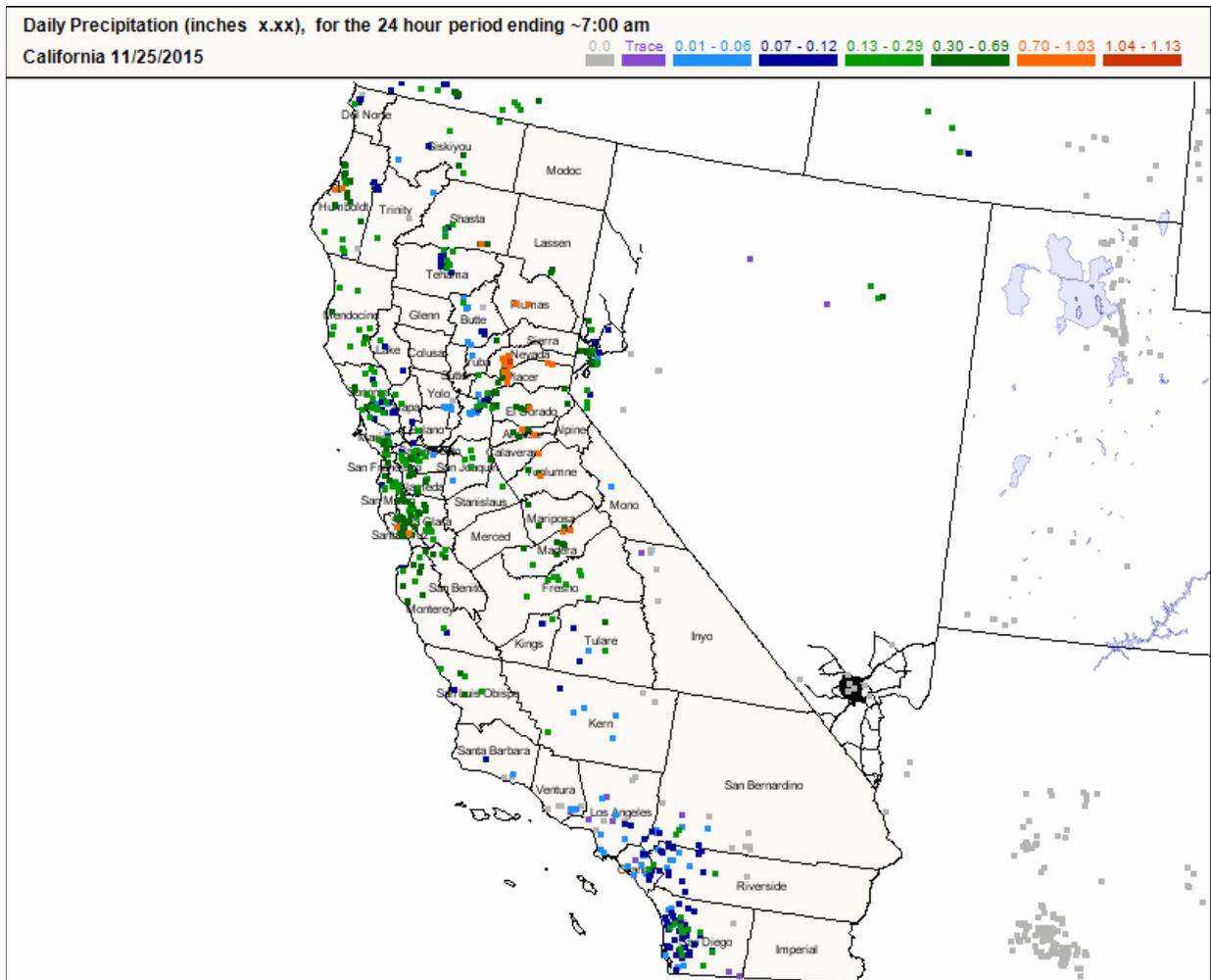
Linear Trend 1895-present	+ 0.36 ± 1.15 °F/100yr	
Linear Trend 1949-present	+ 0.53 ± 3.03 °F/100yr	
Linear Trend 1975-present	+ 3.84 ± 6.65 °F/100yr	
Warmest Year	53.7 °F (+ 5.6 °F) in 1995	MEAN 48.1 °F
Coldest Year	41.6 °F (- 6.5 °F) in 1994	STDEV 2.41 °F
November	2015 46.0 °F (- 2.1 °F)	RANK 21 of 121



Precipitation Rankings November 2015

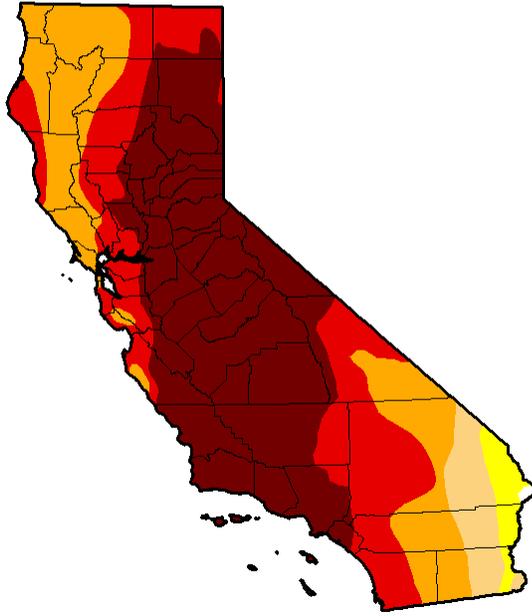


CoCoRaHS Map



United States Drought Monitor

U.S. Drought Monitor California



October 27, 2015

(Released Thursday, Oct. 29, 2015)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.14	99.86	97.33	92.27	71.08	46.00
Last Week 10/20/2015	0.14	99.86	97.33	92.27	71.08	46.00
3 Months Ago 7/28/2015	0.14	99.86	97.35	94.59	71.08	46.00
Start of Calendar Year 1/20/2014	0.00	100.00	98.12	94.34	77.94	32.21
Start of Water Year 9/29/2015	0.14	99.86	97.33	92.36	71.08	46.00
One Year Ago 10/29/2014	0.00	100.00	100.00	95.04	81.92	58.41

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

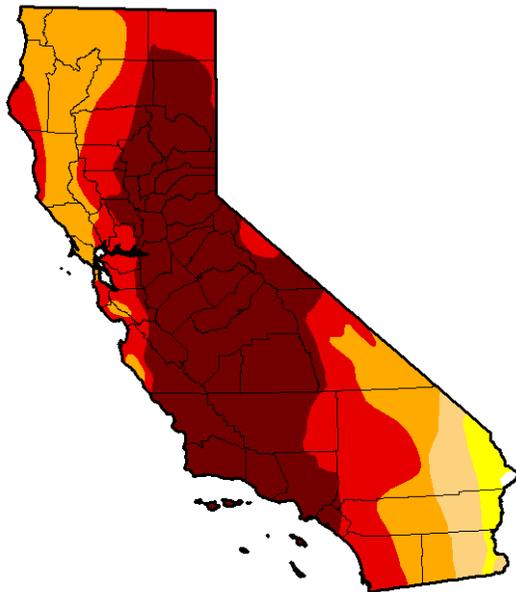
Brad Rippey

U.S. Department of Agriculture



<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor California



November 24, 2015

(Released Wednesday, Nov. 25, 2015)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.14	99.86	97.33	92.26	70.55	44.84
Last Week 11/17/2015	0.14	99.86	97.33	92.26	70.55	44.84
3 Months Ago 8/25/2015	0.14	99.86	97.35	92.36	71.08	46.00
Start of Calendar Year 1/20/2014	0.00	100.00	98.12	94.34	77.94	32.21
Start of Water Year 9/29/2015	0.14	99.86	97.33	92.36	71.08	46.00
One Year Ago 11/25/2014	0.00	100.00	99.72	94.42	79.69	55.08

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Richard Heim

NCEI/NOAA



<http://droughtmonitor.unl.edu/>