

California Monthly Climate Summary
December 2015

Weather Highlights

December 2015 was a cool, wet month for California. According to the Western Region Climate Center's [California Climate Tracker](#), the monthly average temperature was 40.5°F which is 1.3°F lower than the long-term average. With a statewide average of 4.38 inches, precipitation was 111% of average. Statewide plots of precipitation and temperature for the past month and for the calendar year are included at the end of the document.

December started off colder than average. The first storms of the month arrived in the first week with the northern parts of the state receiving the bulk of the precipitation. Precipitation that fell as snow was heavy in places with upwards of 3 feet deposited in some places. Persistent low pressure in the western US led to some locally heavy rains in the northwestern region of the State. Precipitation did make it to the rest of the state over the course of the week with cooler temperatures also in play. In week three the state saw the coldest temperatures of the season with the mountain regions dropping below zero. The rainfall pattern of more in the north with a focus on the North Coast continued. The month closed out with continued cooler temperatures and precipitation focused more on the northern half of the state.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 36 temperature records tied or broken and 7 precipitation records set for the month. Of the 36 temperature records set, 16 were for new high maximum temperatures and 11 were for new low minimum temperatures. Records were set on 19 days of the month with 9 of those days coming from the San Diego Forecast Area. For the year, there were 1511 temperature records set and 233 precipitation records set. Monthly distributions of the calendar year records are shown at the end of the document.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 228 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 December was above average. For the CDEC precipitation gages, the largest amount of precipitation recorded was at Gasquet Ranger Station in the North Coast Region with 36.72 inches. This is 224% of the average precipitation for this station for the month. At the other end of the spectrum, 4 stations recorded no precipitation for the month. For the CIMIS network, Kesterson in Merced County topped the precipitation charts with 9.77 inches for the month and 12 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 11.8 inches in December. On average, 8.4 inches of precipitation is recorded for the 8-Station index for the month. The San Joaquin 5-Station Index recorded 8.8 inches of precipitation for the month. On average, 6.2 inches of precipitation is recorded for the 5-Station Index for the month. The Tulare Basin 6-Station Index recorded 4.8 inches of precipitation for the month. On average, 4.4 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 December 14, 2015 is shown at the end of the document. California has 1,402 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 118 volunteers and Sonoma County with 118. For the month of December, 15,567 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA for the month was in Del Norte County on 12/13/2015 where 7.78 inches was recorded. There were 252 reports of snowfall recorded during the month with the largest snowfall of 22 inches recorded on 12/22/2015 in Placer County. There were 15 hail reports filed for the month spanning 10 counties. Stone sizes ranged from rice to 1/4". 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 December 31, 2015, the northern region recorded 11 inches of snow water equivalent which is 38% of the April 1 average and 106% of average for the date. The central region recorded 12 inches of snow water equivalent which is 42% of the April 1 average and 117% of average for the date. The southern region recorded 7 inches of snow water equivalent which is 27% of the April 1 average and 84% of average for the date. The Water Supply Index (WSI) forecast for WY2016 for the Sacramento Basin is dry while the San Joaquin Basin forecast is 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/cqi-progs/iodir/WSIHIST>. A table showing end-of-December 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 November 24, 2015 and December 29, 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 December 29th

depiction, 44.84% of California is depicted in the D4 or exceptional drought category, 24.23% of California is depicted in the D3 or extreme drought category, and 18.48% of California is depicted in D2 or severe drought category, 9.78% of California is depicted in D1 or moderate drought, and 2.67% depicted in abnormally dry or D0. Maps are updated weekly.

The U.S. Monthly Drought Outlook for December from NOAA depicts California in persisting drought conditions with some improvement. 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 begun cooling with values of 2.7°C in the Niño 3.4 at the end of December. The October through December 3-month running mean of the Ocean Niño Index (ONI) is 2.2 which is now the 9th 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

December 2015 saw harvests finish and winter season fieldwork continue. Cotton fields were plowed under and winter forage crops prepared. Some fieldwork was limited by wet conditions. Post-harvest orchard maintenance was carried out with pruning and groundwork for new orchards. Many crops continued to be packed and shipped. Carrot harvest began. 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 – 93°F (Beverly Hills, South Coast)

Low Temperature – -16°F (Charlotte Lake, Tulare)

High Precipitation – 36.72 inches Gasquet Ranger Station, North Coast)

Low Precipitation – 0 inches (4 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 70.2°F (Santa Paula, Ventura County)

Low Average Minimum Temperature – 17.2°F (Owens Lake South, Inyo County)

High Precipitation – 9.77 inches (Kesterson, Merced County)*

Low Precipitation – 0 inches (12 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)

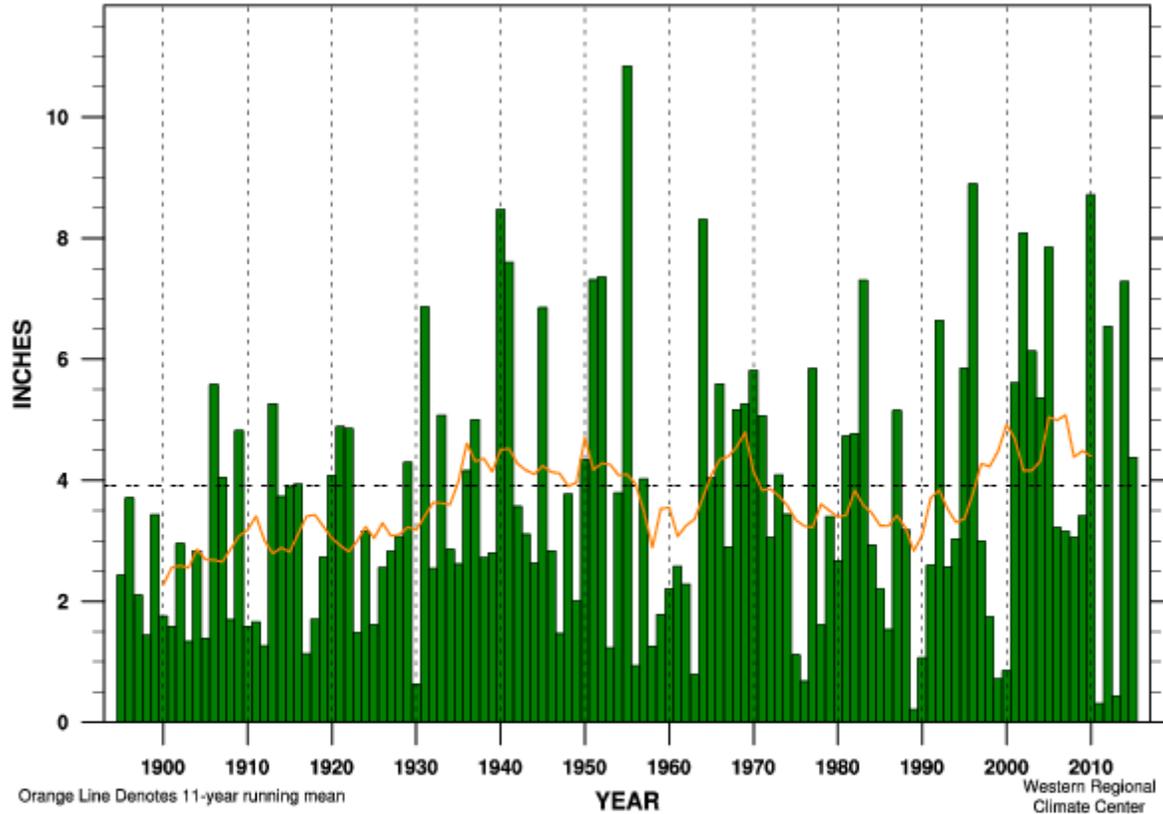
Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	22	21.7	37.1	55.0
SF Bay	8	30.9	45.3	61.5
Central Coast	12	27.6	44.7	70.9
South Coast	52	29.2	49.0	80.2
Sacramento	77	18.8	36.5	56.0
San Joaquin	43	13.7	32.9	59.0
Tulare Lake	19	8.1	29.9	57.9
North Lahontan	6	1.0	28.7	54.0
South Lahontan	15	7.3	31.6	61.3
Colorado River Desert	8	28.0	51.1	77.8
Statewide Weighted Average	262	18.6	37.1	59.6

**End-of-December 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	1,993	778	39%
San Francisco Bay	17	423	406	96%
Central Coast	6	535	118	22%
South Coast	29	1,308	972	74%
Sacramento	43	9,826	6,097	62%
San Joaquin	34	6,501	2,932	45%
Tulare	6	684	292	43%
North Lahontan	5	473	51	11%
South Lahontan	8	265	225	85%
Total	154	22,012	11,875	54%

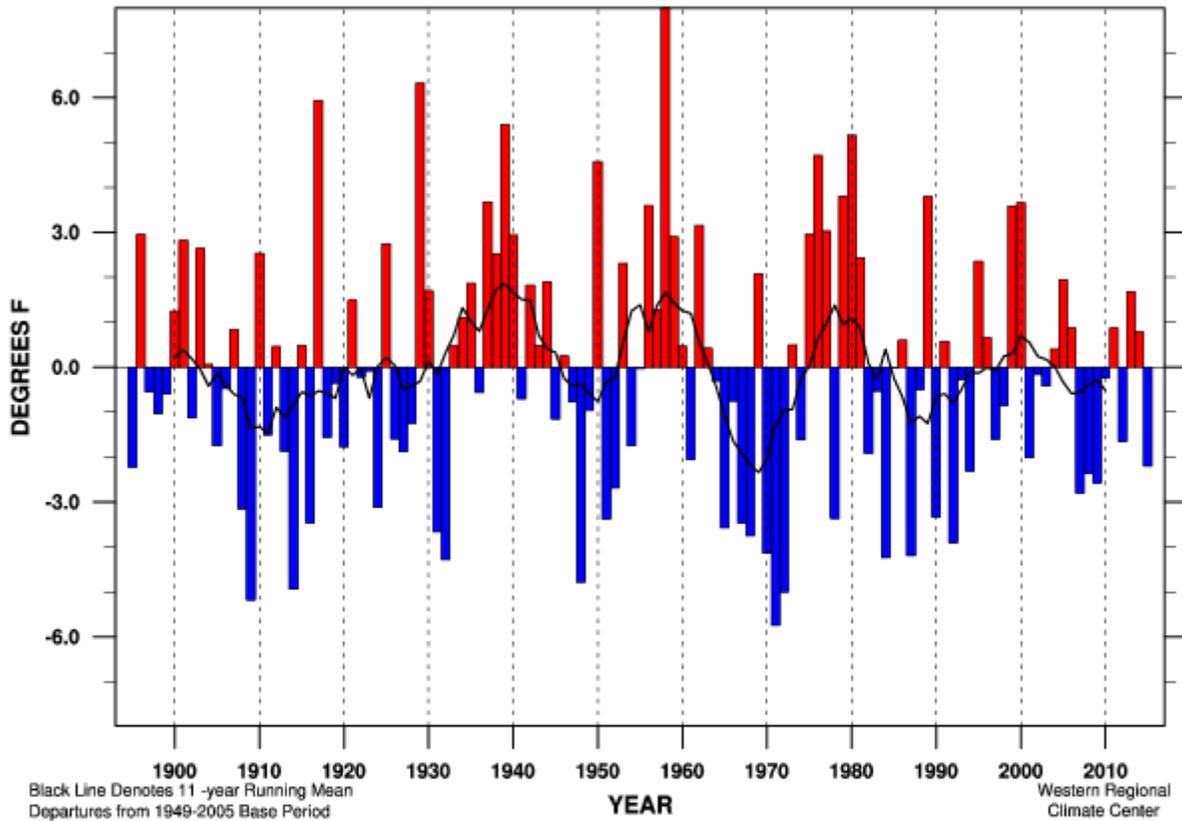
California Climate Tracker Images

California Statewide Precipitation December



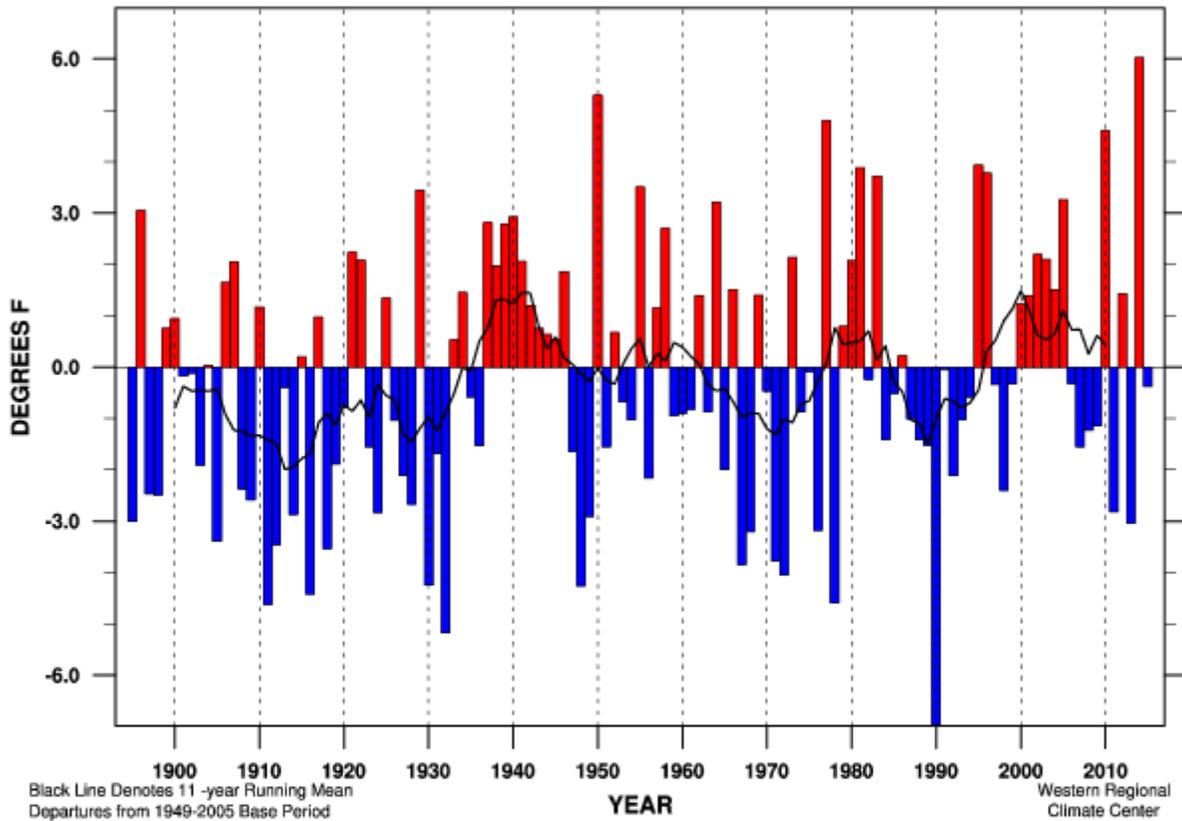
Linear Trend 1895-present	+ 1.24 ± 1.10 in.	(+ 31 ± 28%) per 100 yr	
Linear Trend 1949-present	+ 0.69 ± 3.14 in.	(+ 17 ± 80%) per 100 yr	
Linear Trend 1975-present	+ 4.87 ± 6.59 in.	(+124 ± 168%) per 100 yr	
Wettest Year	10.85 in. (277%) in 1955	MEAN	3.91in.
Driest Year	0.22 in. (5%) in 1989	STDEV	2.45 in.
December	2015	4.38 in. (111%)	RANK 85 of 121

California Statewide Maximum Temperature Departure December



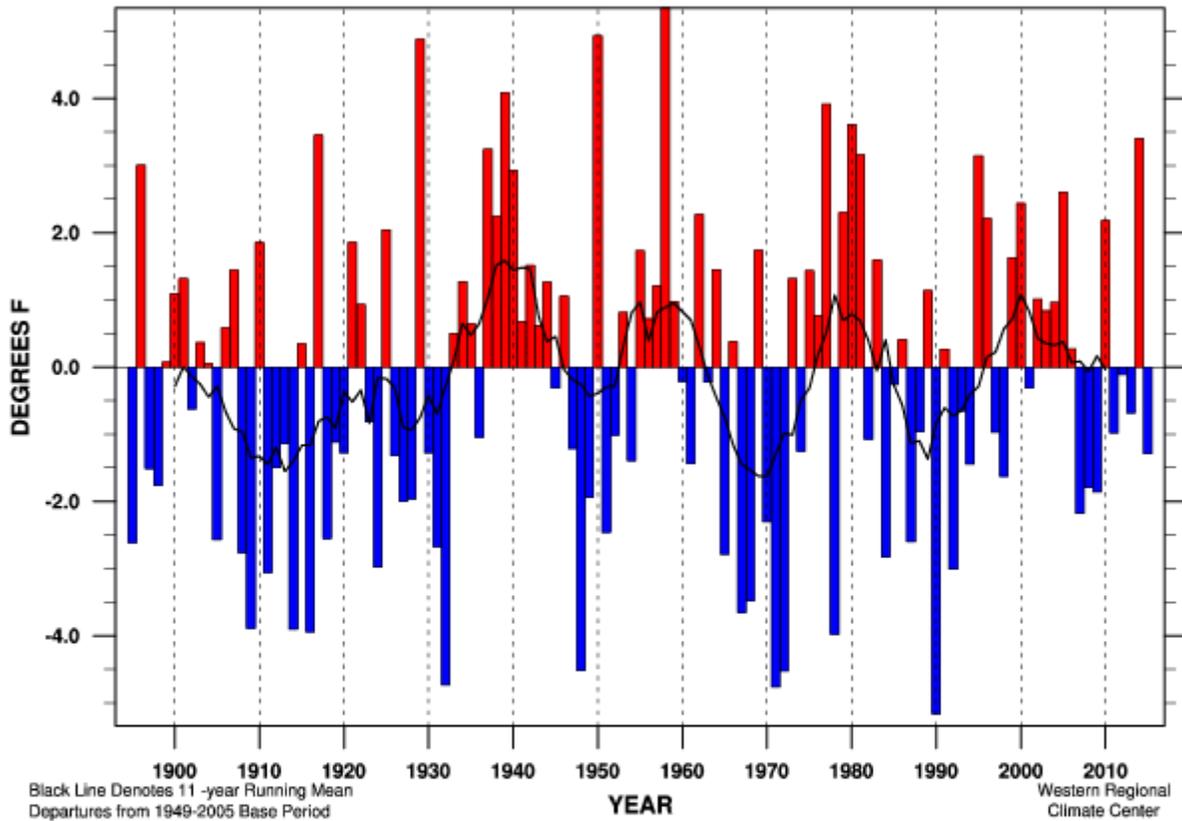
Linear Trend 1895-present	- 0.14 ± 1.41°F/100yr	
Linear Trend 1949-present	- 1.13 ± 3.59°F/100yr	
Linear Trend 1975-present	- 4.80 ± 6.72°F/100yr	
Warmest Year	60.1°F (+ 8.0°F) in 1958	MEAN 52.1°F
Coldest Year	46.4°F (- 5.7°F) in 1971	STDEV 2.97°F
December	2015 49.9°F (- 2.2°F)	RANK 27 of 121

California Statewide Minimum Temperature Departure December



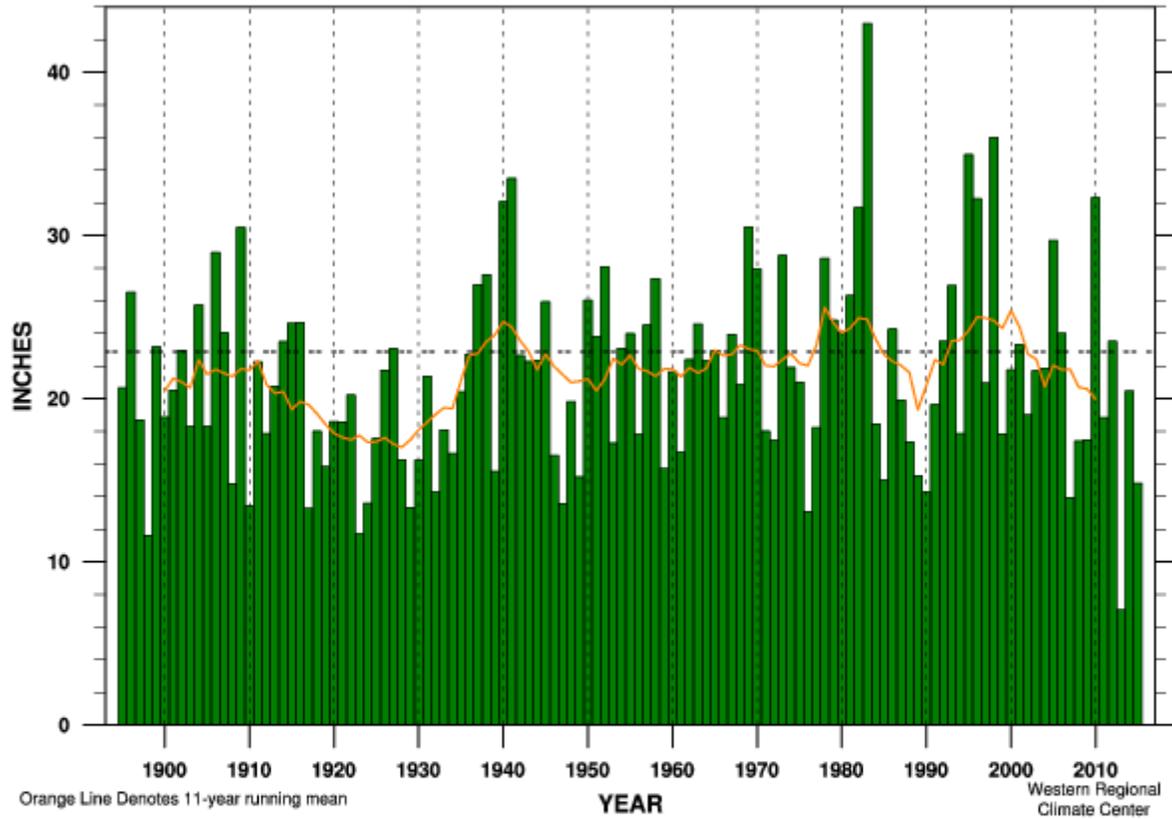
Linear Trend 1895-present	+ 1.15 ± 1.27 °F/100yr	
Linear Trend 1949-present	+ 1.11 ± 3.28 °F/100yr	
Linear Trend 1975-present	+ 2.39 ± 7.25 °F/100yr	
Warmest Year	37.6 °F (+ 6.0 °F) in 2014	MEAN 31.5 °F
Coldest Year	24.5 °F (- 7.0 °F) in 1990	STDEV 2.52 °F
December	2015 31.2 °F (- 0.4 °F)	RANK 61 of 121

California Statewide Mean Temperature Departure December



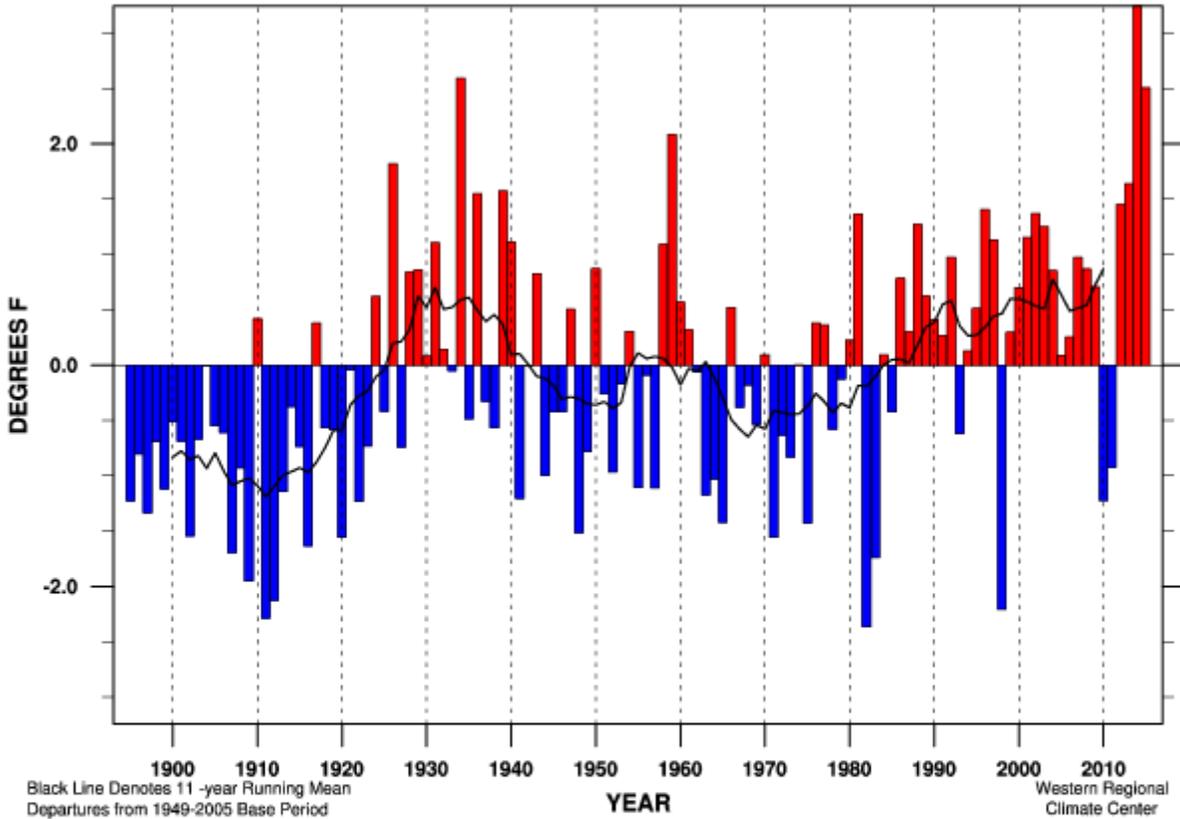
Linear Trend 1895-present	+ 0.50 ± 1.18 °F/100yr	
Linear Trend 1949-present	+ 0.00 ± 2.96 °F/100yr	
Linear Trend 1975-present	- 1.20 ± 5.83 °F/100yr	
Warmest Year	47.2 °F (+ 5.3 °F) in 1958	MEAN 41.8 °F
Coldest Year	36.7 °F (- 5.2 °F) in 1990	STDEV 2.40 °F
December	2015 40.5 °F (- 1.3 °F)	RANK 39 of 121

California Statewide Precipitation Jan-Dec



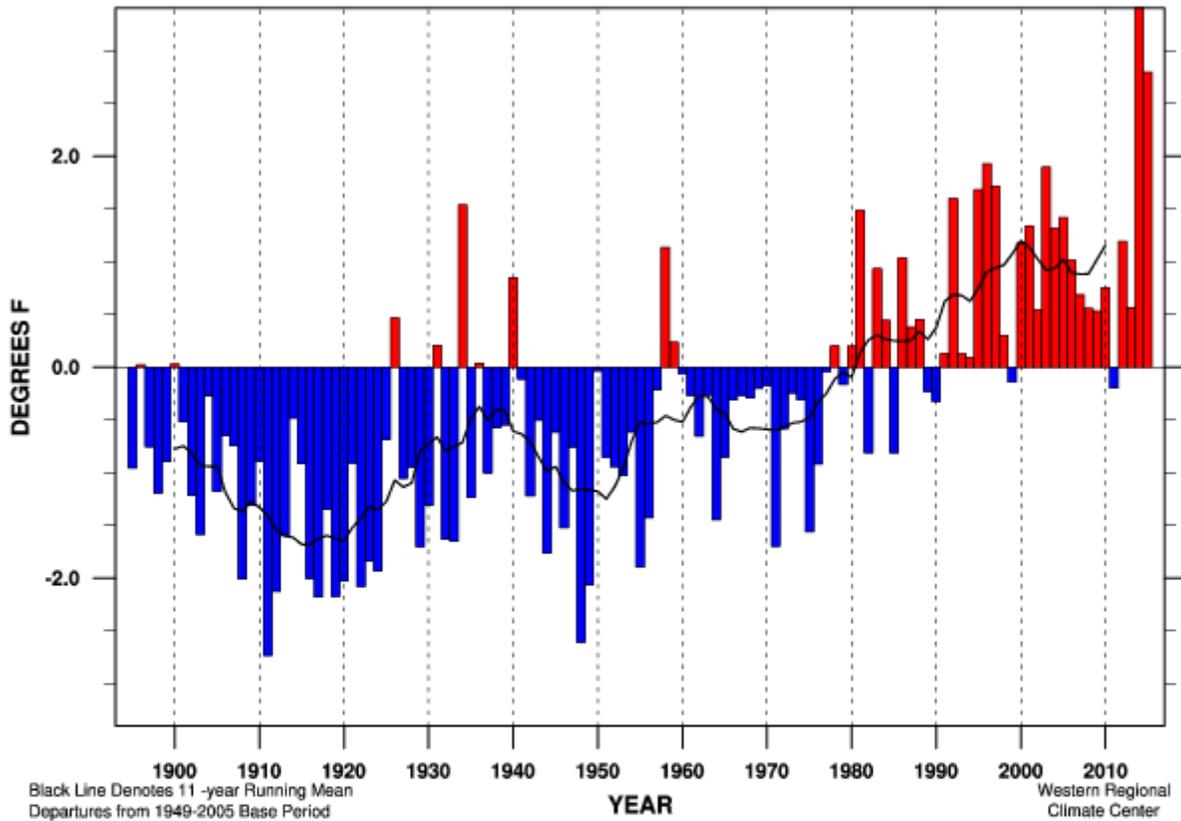
Linear Trend 1895-present	+ 2.08 ± 2.95 in.	(+ 9 ± 12%) per 100 yr	
Linear Trend 1949-present	- 2.15 ± 7.76 in.	(- 9 ± 33%) per 100 yr	
Linear Trend 1975-present	- 9.93 ± 18.88 in.	(- 43 ± 82%) per 100 yr	
Wettest Year	43.00 in. (187%)	in 1983	MEAN 22.88 in.
Driest Year	7.04 in. (30%)	in 2013	STDEV 5.87 in.
Jan-Dec	2015	14.83 in. (64%)	RANK 14 of 121

California Statewide Maximum Temperature Departure Jan-Dec



Linear Trend 1895-present	+ 1.25 ± 0.51°F/100yr	
Linear Trend 1949-present	+ 2.17 ± 1.27°F/100yr	
Linear Trend 1975-present	+ 4.13 ± 2.77°F/100yr	
Warmest Year	72.2 °F (+ 3.2 °F) in 2014	MEAN 69.0 °F
Coldest Year	66.6 °F (- 2.4 °F) in 1982	STDEV 0.95 °F
Jan-Dec	2015 71.5 °F (+ 2.5 °F)	RANK 119 of 121

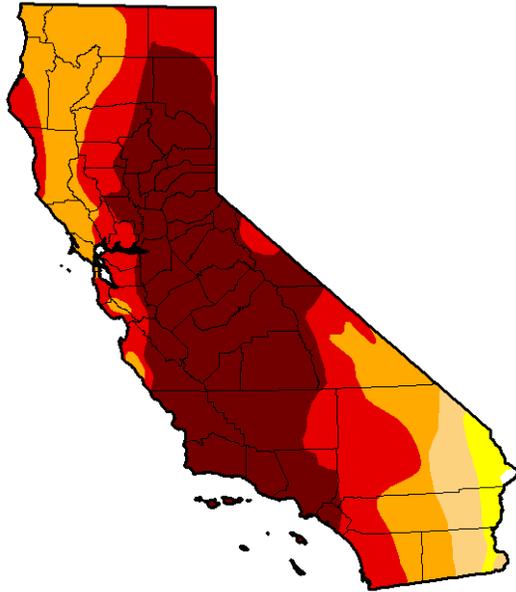
California Statewide Minimum Temperature Departure Jan-Dec



Linear Trend 1895-present	+ 2.17 ± 0.44 °F/100yr	
Linear Trend 1949-present	+ 3.82 ± 0.97 °F/100yr	
Linear Trend 1975-present	+ 4.65 ± 2.20 °F/100yr	
Warmest Year	46.5 °F (+ 3.4 °F) in 2014	MEAN 43.1 °F
Coldest Year	40.4 °F (- 2.7 °F) in 1911	STDEV 0.98 °F
Jan-Dec	2015 45.9 °F (+ 2.8 °F)	RANK 120 of 121

United States Drought Monitor

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 12/01/2014	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 11/29/2014	0.00	100.00	99.72	94.42	79.69	55.08

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

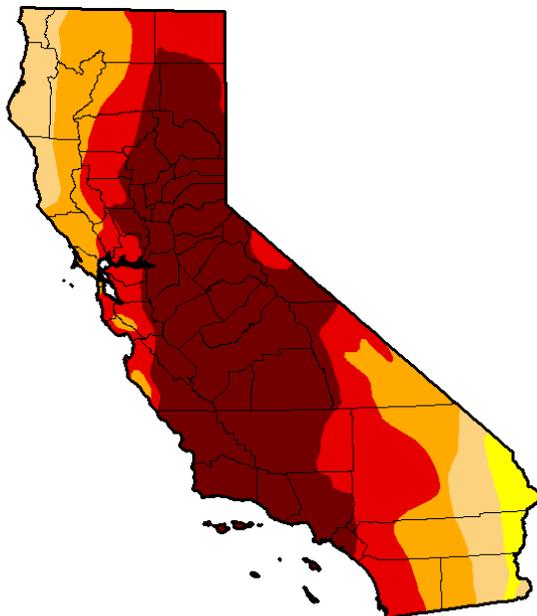
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
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NCEI/NOAA



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

U.S. Drought Monitor California



December 29, 2015

(Released Thursday, Dec. 31, 2015)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	97.33	87.55	69.07	44.84
Last Week 12/22/2015	0.00	100.00	97.33	90.63	69.09	44.84
3 Months Ago 9/29/2015	0.14	99.86	97.33	92.36	71.08	46.00
Start of Calendar Year 12/01/2014	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 12/02/2014	0.00	100.00	98.12	94.34	77.94	32.21

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

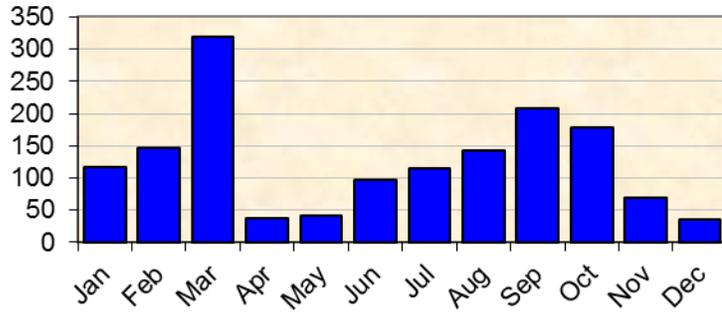
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
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NOAA/NESDIS/NCEI



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

**Temperature Records by Month for
Calendar Year 2015**



**Precipitation Records by Month for
Calendar Year 2015**

