

California Monthly Climate Summary
January 2016

Weather Highlights

January 2016 was a warmer-than-average and wetter-than average month for California. According to the Western Region Climate Center's [California Climate Tracker](#), the monthly average temperature was 43.2°F which is 1.8°F higher than the long-term average. With a statewide average of 6.4 inches, precipitation was 147% of average. Statewide plots of precipitation and temperature for the past month are included at the end of the document.

January started off colder than average. The first storms of 2016 arrived in the first week with precipitation reaching most of the State. Temperatures warmed in the second week and heavy rain fell in places along the coast and the west slope of the Sierras. The best snowpack accumulation continued to be in the northern part of the State. In week three, precipitation was confined to the northern part of the State with continued near or above average temperatures. This pattern remained in place for the rest of the month.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 12 temperature records tied or broken and 18 precipitation records set for the month. Of the 12 temperature records set, 5 were for new high minimum temperatures. Records were set on 9 days of the month with 4 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, 224 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 January was above average. For the CDEC precipitation gages, the largest amount of precipitation recorded was at Strawberry Valley in the Sacramento Region with 26.9 inches. This is 169% of the average precipitation for this station for the month. At the other end of the spectrum, China Lake recorded no precipitation for the month. For the CIMIS network, De Laveaga in Santa Cruz County topped the precipitation charts with 12.92 inches for the month and 8 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 16.1 inches in December. On average, 9 inches of precipitation is recorded for the 8-Station index for the month. The San Joaquin 5-Station Index recorded 10.0 inches of precipitation for the month. On average, 7.5 inches of precipitation is recorded for the 5-Station Index for the month. The Tulare Basin 6-Station Index

recorded 8.6 inches of precipitation for the month. On average, 5.5 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 January 20, 2016 is shown at the end of the document. California has 1,438 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 122 volunteers and Sonoma County with 118. For the month of January, 16,559 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA for the month was in Butte County on 1/18/2016 where 5.85 inches was recorded. There were 149 reports of snowfall recorded during the month with the largest snowfall of 18 inches recorded on 1/15/2016 in Placer County. There were 13 hail reports filed for the month spanning 9 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 January 31, 2016, the northern region recorded 23 inches of snow water equivalent which is 77% of the April 1 average and 122% of average for the date. The central region recorded 21 inches of snow water equivalent which is 72% of the April 1 average and 116% of average for the date. The southern region recorded 15 inches of snow water equivalent which is 54% of the April 1 average and 93% 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 below normal 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-January 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 December 29, 2015 and January 26, 2016 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 January 26th depiction, 40.21% of California is depicted in the D4 or exceptional drought category, 23.75% of California is depicted in the D3 or extreme drought category, 22.17% of California is depicted in D2 or severe drought category, 9.22% of California is depicted in D1 or moderate drought, and 4.65% depicted in abnormally dry or D0. Maps are updated weekly.

The U.S. Monthly Drought Outlook for February 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 2.5°C in the Niño 3.4 at the end of January. The November through January 3-month running mean of the Ocean Niño Index (ONI) is 2.3 which is now the 10th 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 temperatures cooling into the spring and summer. 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

January 2016 saw winter crops develop and fieldwork continue. Wheat, oat and alfalfa fields benefitted from the rain. Orchards were pruned and treated with fungicides. Harvests of leafy vegetables continued with the wet weather hampering some efforts. Lower elevation pasture growth benefitted from the rains. Bees were shipped and placed in orchards in preparation for bloom periods. 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 – 84°F (Bishop, South Lahontan)

Low Temperature – -22°F (Casa Vieja Meadows, Tulare)

High Precipitation – 26.9 inches Strawberry Valley, Sacramento)

Low Precipitation – 0 inches (China Lake Armitage, South Lahontan)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 70°F (Meloland, Imperial County)

Low Average Minimum Temperature – 17.1°F (Big Bear Lake, San Bernardino County)

High Precipitation – 12.92 inches (De Laveaga, Santa Cruz County)*

Low Precipitation – 0 inches (8 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	24	20.0	40.3	60.2
SF Bay	7	31.0	47.2	61.3
Central Coast	12	29.9	48.0	67.8
South Coast	48	32.3	49.4	72.9
Sacramento	78	20.5	39.0	59.4
San Joaquin	44	18.4	36.9	59.7
Tulare Lake	17	13.0	34.7	60.2
North Lahontan	25	1.0	29.3	49.9
South Lahontan	16	8.4	32.8	59.4
Colorado River Desert	8	32.0	52.7	77.3
Statewide Weighted Average	279	20.0	39.8	61.2

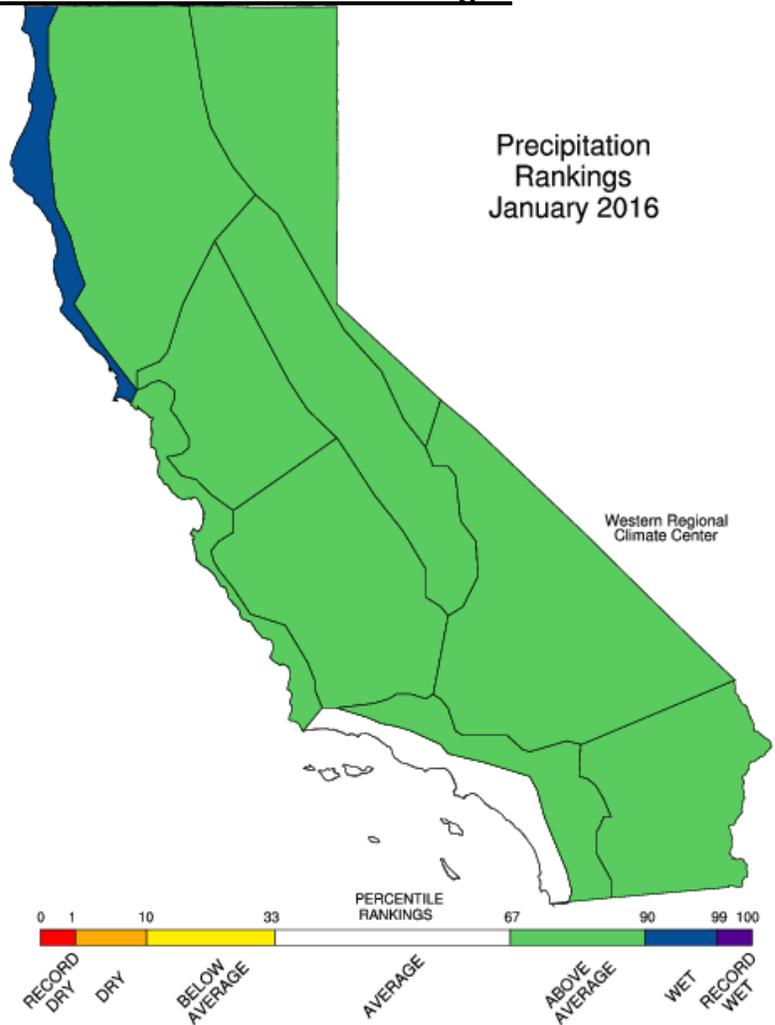
Statewide Precipitation Statistics

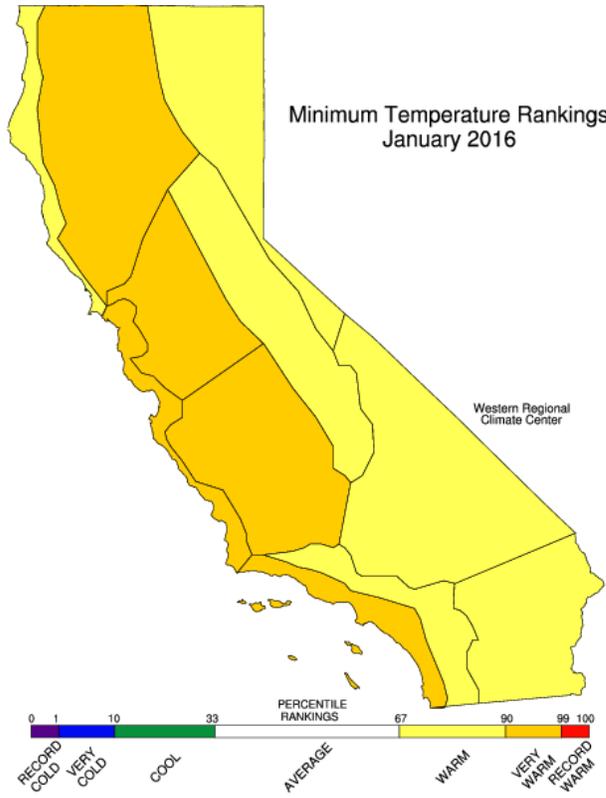
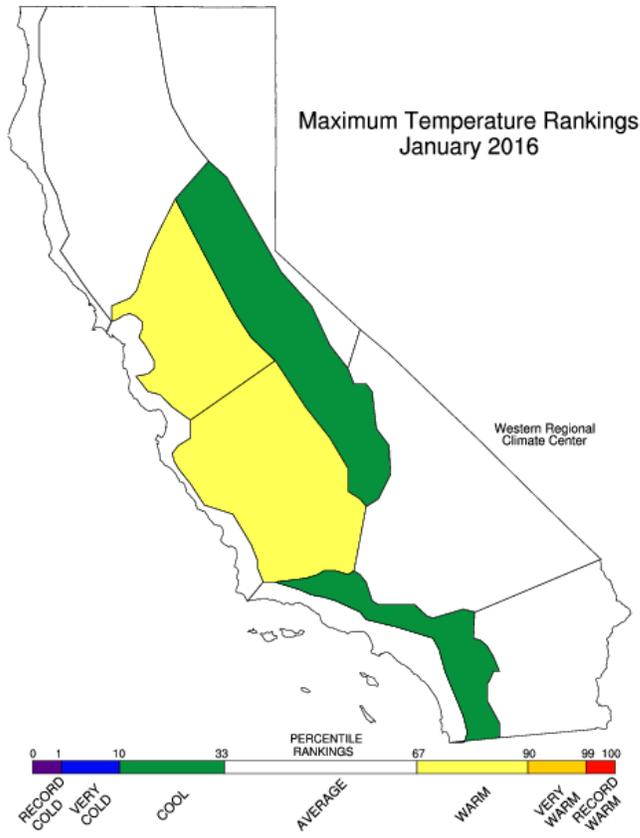
Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	Jan	Oct-Jan	Stations	Jan	Oct-Jan	Jan	Oct-Jan
North Coast	0.27	5	5	5	17	13	12	146%	121%
SF Bay	0.03	2	2	2	6	5	5	156%	112%
Central Coast	0.06	3	3	3	11	9	9	155%	106%
South Coast	0.06	3	3	3	14	13	13	118%	75%
Sacramento River	0.26	5	5	5	41	33	32	152%	117%
San Joaquin River	0.12	6	6	6	24	20	18	160%	136%
Tulare Lake	0.07	5	5	5	29	28	28	152%	141%
North Lahontan	0.04	3	3	3	13	12	12	115%	114%
South Lahontan	0.06	3	3	3	15	10	10	97.6%	94%
Colorado River	0.03	1	1	1	6	5	5	170%	95%
Statewide Weighted Average	1	36	36	36	176	148	144	146%	116%

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

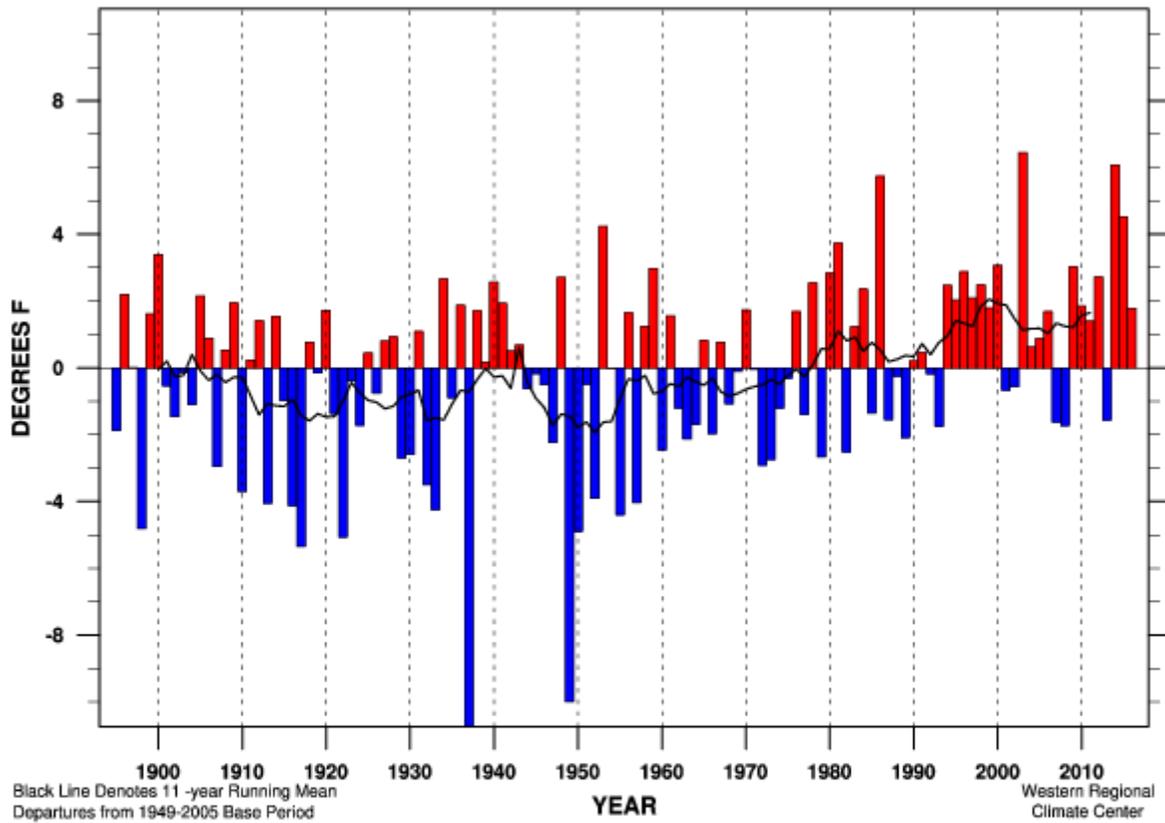
End-of-Month Reservoir Storage	Number of Reservoirs	Average Storage (taf)	2016 Storage (taf)	% of Average
North Coast	6	2,114	1,084	51%
San Francisco Bay	17	466	462	99%
Central Coast	6	597	140	23%
South Coast	29	1,375	1,104	74%
Sacramento	43	10,538	8,559	81%
San Joaquin	34	6,933	3,602	52%
Tulare	6	763	351	46%
North Lahontan	5	503	61	12%
South Lahontan	8	267	235	88%
Total	154	23,558	15,512	66%

California Climate Tracker Images



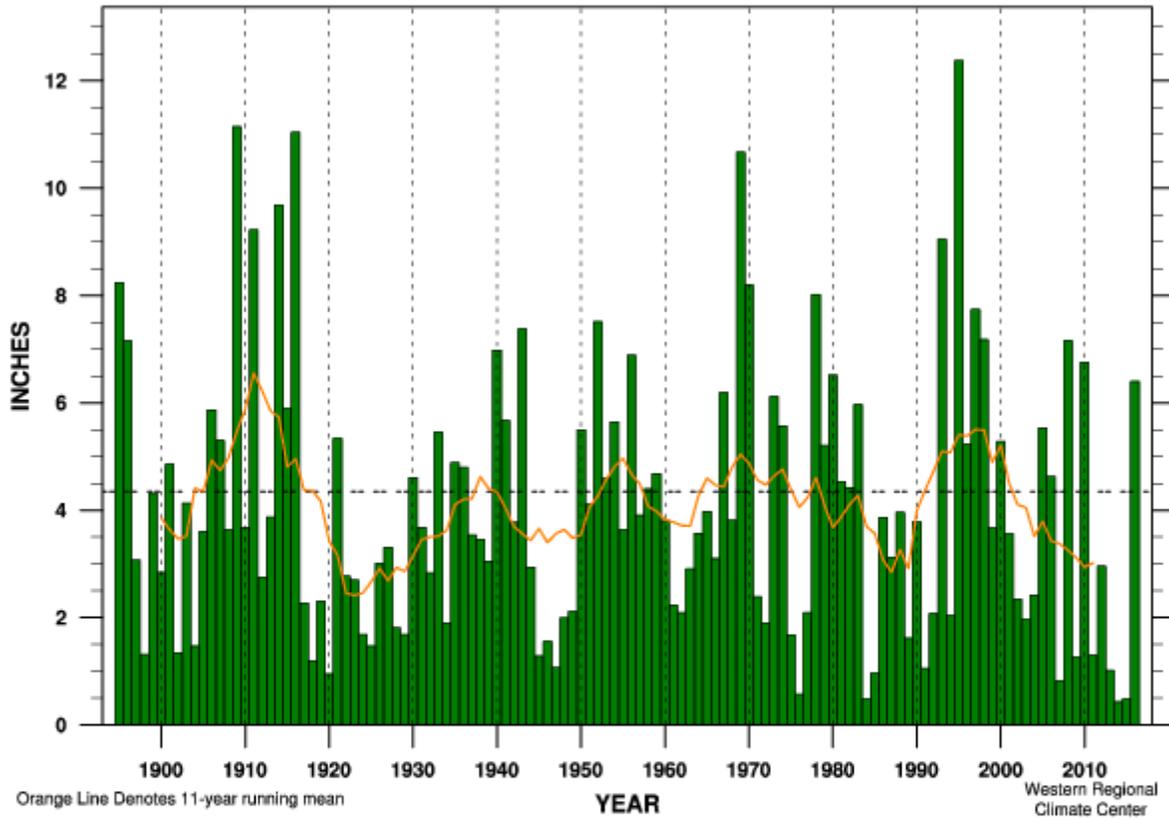


California Statewide Mean Temperature Departure January



Linear Trend 1895-present	+ 2.16 ± 1.34 °F/100yr	
Linear Trend 1949-present	+ 6.43 ± 3.09 °F/100yr	
Linear Trend 1975-present	+ 4.61 ± 5.86 °F/100yr	
Warmest Year	47.9 °F (+ 6.4 °F) in 2003	MEAN 41.4 °F
Coldest Year	30.7 °F (-10.7 °F) in 1937	STDEV 2.77 °F
January	2016 43.2 °F (+ 1.8 °F)	RANK 93 of 122

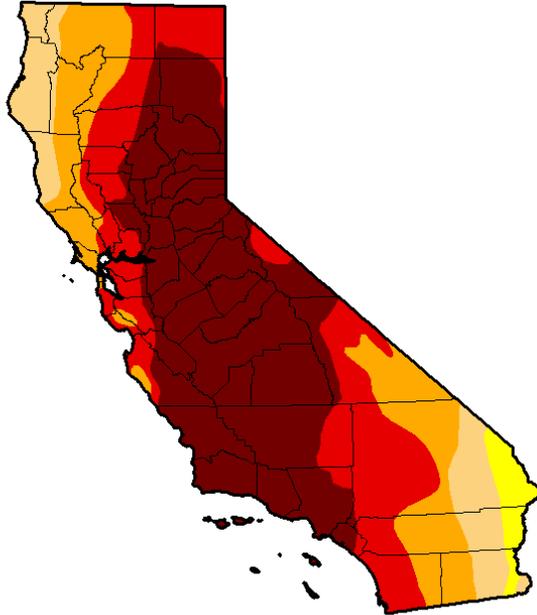
California Statewide Precipitation January



Linear Trend 1895-present	- 0.45 ± 1.28 in.	(- 10 ± 29%) per 100 yr	
Linear Trend 1949-present	- 1.83 ± 3.11 in.	(- 42 ± 71%) per 100 yr	
Linear Trend 1975-present	- 1.71 ± 7.14 in.	(- 39 ± 164%) per 100 yr	
Wettest Year	12.37 in. (284%)	in 1995	MEAN 4.35 in.
Driest Year	0.43 in. (9%)	in 2014	STDEV 2.47 in.
January	2016	6.40 in. (147%)	RANK 102 of 122

United States Drought Monitor

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 <i>12/22/2015</i>	0.00	100.00	97.33	90.63	69.09	44.84
3 Months Ago <i>9/29/2015</i>	0.14	99.86	97.33	92.36	71.08	46.00
Start of Calendar Year <i>1/2/2014</i>	0.00	100.00	98.12	94.34	77.94	32.21
Start of Water Year <i>9/29/2015</i>	0.14	99.86	97.33	92.36	71.08	46.00
One Year Ago <i>12/30/2014</i>	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

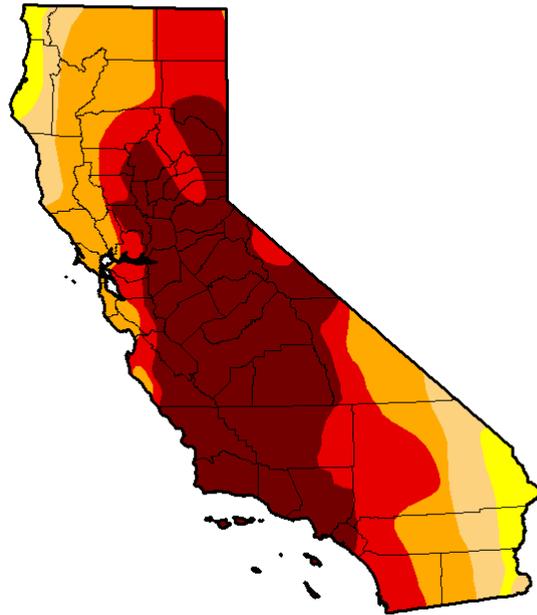
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Chris Fenimore
NOAA/NESDIS/NCEI



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

U.S. Drought Monitor California



January 26, 2016
(Released Thursday, Jan. 28, 2016)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	95.35	86.13	63.96	40.21
Last Week <i>1/19/2016</i>	0.00	100.00	97.17	86.13	68.15	42.66
3 Months Ago <i>10/27/2015</i>	0.14	99.86	97.33	92.27	71.08	46.00
Start of Calendar Year <i>1/2/2015</i>	0.00	100.00	97.33	87.55	69.07	44.84
Start of Water Year <i>9/29/2015</i>	0.14	99.86	97.33	92.36	71.08	46.00
One Year Ago <i>1/27/2015</i>	0.00	100.00	98.13	94.34	77.52	39.99

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:
Mark Svoboda
National Drought Mitigation Center



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