

California Monthly Climate Summary
March 2012

Weather Highlights

March 2012 was a cool and mostly wet month for California. According to the Western Region Climate Center's [California Climate Tracker](#), the monthly average temperature was 47.2°F which is 0.7°F lower than the long-term average of 46.5°F. With a statewide average of 4.71 inches, precipitation in February was only 151% of average. Regional maximum and minimum temperature and precipitation plots for the October through March time period are shown at the end of the document. This is the bulk of the precipitation season for California. Water year 2012 has been near normal for temperature but below normal for precipitation. The March monthly plot for precipitation is also shown to illustrate which regions really gained ground in March.

March started with a bang in California with stormy weather affecting a good portion of the State in the first week. Snow levels were as low as 2,500 feet in the foothills of the Sierra Nevada Mountains and winds gusted up to 60 mph in the Central Valley. Mountain snowfall totals ranged from two to three feet in the northern Sierra to less than a foot in the southern Sierra. The second week of March started out sunny and warm as a high pressure built in following the storm to start the month. A cold front pushed through in the middle of the week with strong, gusty winds following in its wake. By the end of the week the sunshine returned with temperatures reaching the 80s in the southern part of the State. Storms moved back into California for the third week as a broad area of low pressure sat offshore. The heaviest precipitation was in the northern and central Sierra. March closed out with more storminess that covered the entire State with some heavy rains hitting southern California.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 48 temperature records tied or broken and 20 precipitation records set or tied for the month. Of the 48 temperature records set, 19 were for new high maximum temperatures and 14 were for new low minimum temperatures. Records were set over 18 days of the month. Santa Cruz set a new high temperature on March 4th with a reading of 83°F breaking the 1937 record of 79°F. Laguna Beach set a new high minimum temperature record on the 5th with a reading of 60°F. The old record of 57°F was set in 1943. Crescent City set 3 new daily precipitation records with 1.22 inches on the 20th, 1.91 inches on the 21st, and 2.81 inches on the 29th. The old records were 1.17 inches set in 2005, 1.49 inches set in 1995, and 1.92 inches set in 1983 respectively.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 198 stations recorded a minimum temperature below freezing in March while zero 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 March ranged from dry in the south to wet in the north. For the CDEC precipitation gages for March 2012, the largest amount of precipitation recorded was at Gasquet Ranger Station in the North Coast region with 27.89 inches. This is 252% of the average precipitation for this station for March. At the other end of the spectrum, four stations recorded no precipitation for the month. For the CIMIS network, Oakville in Napa County topped the precipitation charts with 11.76 inches for the month and 7 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 15.6 inches in March. On average, 6.9 inches of precipitation is recorded for the 8-Station index for the month. Statewide, the average precipitation for the month was 164% of the long-term average based on the California Data Exchange Center (CDEC) gages. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

CoCoRaHS Update

March 2011 continues California's fourth 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 March 17, 2012 is shown at the end of the document. As of the end of March, California has 861 volunteers signed up spanning 53 of California's 58 counties. The counties without volunteers are Alpine, Colusa, Glenn, Modoc, and Tuolumne. The county with the most volunteers at the end of March is Sonoma with 93 volunteers. For the month of March, 10,972 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in March was in Humboldt County where 7.50 inches was recorded on 03/30/2012. There were 172 snowfall reports recorded with the largest being 26 inches in Placer County. The largest total depth of snow reported in March was 114 inches in Placer County. Thirty-four hail reports were submitted in March from 15 counties. The largest stone size reported was 1/4" sized. For more information on CoCoRaHS, please visit <http://www.cocorahs.org>.

Snowpack and Water Supply Conditions

The automated snow sensor network in California showed a statewide average of 16 inches of snow water equivalent for the first of April. This is 55% of average for the date. April 1 is considered to be the peak of the snowpack building period and beginning of the melt period. The Water Supply Index for WY 2011 was wet for the Sacramento Basin and wet for the San Joaquin Basin. Water year 2010 resulted in a below normal category for the Sacramento Basin and above normal category for the San Joaquin Basin for the Water Supply Index (WSI). The median forecast for the WSI for WY2012 predicts the Sacramento Basin will fall into the dry category and the

San Joaquin will fall into the critically dry category. Water supply information for California can be found at http://cdec.water.ca.gov/water_supply.html. A historical listing of water year categories for both basins can be found at <http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST>.

Drought Monitor and Seasonal Outlook

The maps for California for February 28, 2012 and March 27, 2012 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 March 27th depiction, 46.25% of California is depicted in the D2 or severe drought category, 43.36% of California is depicted in the D1 or moderate drought category. An additional 8.17% of the state is depicted as D0 or abnormally dry. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for April through June from NOAA depicts California in persisting drought throughout most of the state with the north having a chance for 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.

The California Nevada River Forecast Center developed some drought monitoring tools for California that are now available on CDEC and are automatically updated. These tools look at the frequency associated with precipitation deficits for the Northern Sierra Eight Station Index and the San Joaquin Five Station Index. Another tool looks at the frequency of end-of-month storage for select reservoirs in California. The frequencies of the observations are related to the Drought Monitor's drought categories D0 through D4. The links can be found on the State Climatologist web page and are repeated here:

<http://cdec.water.ca.gov/cdecapp/drought/getres.action> (California Reservoirs – Drought Status)
<http://cdec.water.ca.gov/cdecapp/drought/get8SI.action> (Sacramento River Drought Status)
<http://cdec.water.ca.gov/cdecapp/drought/get5SI.action> (San Joaquin River Status)

For March, the Eight Station Index is in the 39th percentile for the 12-month period and the Five Station Index is in the 19th percentile for the 12-month period. For the reservoirs, only San Luis is in the D1 category, Friant, Comanche, Casitas and Berryessa are in the D0 category and the other reservoirs in the report are in drought free conditions.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is currently transitioning to neutral conditions. Equatorial sea surface temperature anomalies for the tropical Pacific have moved towards positive values, but the Niño 3.4 region was still negative with a reading of -0.4°C in at the end of March. The January through March 3-month running mean of the Ocean Niño Index (ONI) is -0.7. This is the sixth consecutive 3-month period with a value below the threshold of -0.5 for conditions to be classified as a La Niña event. Five consecutive ONI values need to be below the threshold of -0.5 for

conditions to be classified as a La Niña event (five consecutive values 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 returning to ENSO neutral conditions during by the end of April 2012. 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. The latest three month outlook (April through June) from NOAA indicates equal chances of above or below normal temperatures for the State with the exception of the southeastern deserts which have a higher probability of above normal conditions. For precipitation, a higher probability of below normal conditions is forecast for most of the state with the exception of the coastal regions which have equal chances of above or below normal precipitation. 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

March 2012 saw significant improvement in conditions in part of the State due to the abundant precipitation. In some places the precipitation delayed planting. Dryland grains showed good growth and fair to excellent condition in the parts of the State that received rain. Orchard blooms of plums, peaches, apricots, nectarines, and cherries occurred in March. Pruning in grape and kiwi vineyards was completed. In Tulare County vegetable fields were planted and in some cases tented under plastic. Asparagus, broccoli, and spinach were harvested. Non-irrigated pasture and rangeland improved where precipitation fell. Supplemental feeding continued. Bees actively worked the orchards and blueberry fields. For further crop information see <http://www.nass.usda.gov/index.asp>.

Other Climate Summaries

[California Climate Tracker](#) (new product of Western Region Climate Center)

[Golden Gate Weather Service Climate Summary](#)

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

Statewide Extremes (CDEC)

High Temperature – 95°F (Beverly Hills, South Coast)

Low Temperature – -11°F (Cottonwood Lakes, South Lahontan)

High Precipitation – 27.89 inches (Gasquet Ranger Station, North Coast)

Low Precipitation – 0.0 inches (4 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 82.5°F (Seeley, Imperial County)

Low Average Minimum Temperature – 22.5°F (Big Bear Lake, San Bernardino County)

High Precipitation – 11.76 inches (Oakville, Napa County)*

Low Precipitation – 0 inches (7 stations)

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

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	Mar	Oct-Mar	Stations	Mar	Oct-Mar	Mar	Oct-Mar
North Coast	0.27	5	5	5	17	15	14	228%	87%
SF Bay	0.03	2	2	2	6	3	3	234%	79%
Central Coast	0.06	3	3	3	11	8	8	130%	60%
South Coast	0.06	3	3	3	14	13	11	82.8%	58%
Sacramento River	0.26	5	5	5	41	37	37	197%	73%
San Joaquin River	0.12	6	6	6	24	22	21	127%	58%
Tulare Lake	0.07	5	5	5	28	28	27	114%	63%
North Lahontan	0.04	3	3	3	13	10	9	121%	59%
South Lahontan	0.06	3	3	3	15	13	13	53.5%	44%
Colorado River	0.03	1	1	1	6	6	5	19%	39%
Statewide Weighted Average	1	36	36	36	175	155	148	164%	69.5%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	24	21.7	39.5	68.3
SF Bay	10	32.1	47.1	69.9
Central Coast	9	27.8	48.7	80.1
South Coast	43	31.8	52.3	82.7
Sacramento	71	20.3	41.0	68.3
San Joaquin	36	15.9	40.1	67.4
Tulare Lake	12	12.4	39.8	64.9
North Lahontan	26	4.3	33.0	56.9
South Lahontan	11	12.4	41.5	67.7
Colorado River Desert	7	37.4	62.6	88.1
Statewide Weighted Average	249	20.5	42.1	69.7

U.S. Drought Monitor

California

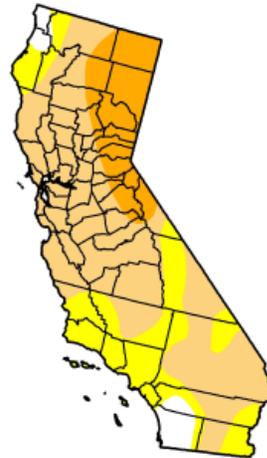
February 28, 2012
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.39	95.61	72.09	16.02	0.00	0.00
Last Week (02/21/2012 map)	4.77	95.23	67.76	5.06	0.00	0.00
3 Months Ago (11/29/2011 map)	88.32	11.68	0.00	0.00	0.00	0.00
Start of Calendar Year (12/27/2011 map)	33.91	66.09	5.41	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00
One Year Ago (02/22/2011 map)	99.94	0.06	0.00	0.00	0.00	0.00

Intensity:

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



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

<http://droughtmonitor.unl.edu>



Released Thursday, March 1, 2012
Mark Svoboda, National Drought Mitigation Center

U.S. Drought Monitor

California

March 27, 2012
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2.22	97.78	89.61	46.25	0.00	0.00
Last Week (03/20/2012 map)	2.22	97.78	89.61	40.14	0.00	0.00
3 Months Ago (12/27/2011 map)	33.91	66.09	5.41	0.00	0.00	0.00
Start of Calendar Year (12/27/2011 map)	33.91	66.09	5.41	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00
One Year Ago (03/22/2011 map)	96.87	3.13	0.00	0.00	0.00	0.00

Intensity:

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



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<http://droughtmonitor.unl.edu>



Released Thursday, March 29, 2012
Eric Luebehusen, USDA

