

California Monthly Climate Summary
March 2014

Weather Highlights

March 2014 was a warm and average precipitation month for California. According to the Western Region Climate Center's [California Climate Tracker](#), the monthly average temperature was 52.1°F which is 4.2°F higher than the long-term average of 47.9°F. With a statewide average of 3.09 inches, precipitation in March was 99% of average.

March started with a quiet weather pattern with warm weather across the state. During the first week a low pressure system moved in bringing moderate rain to the State followed by stronger system that brought heavier rain, especially to Southern California. The second week saw precipitation limited to the northern part of the State while warm dry conditions returned to Southern California. A Santa Ana wind event developed in the latter part of the second week for Southern California. The third week saw another Santa Ana episode hit Southern California while northern California saw drier and milder conditions. The month closed out with a weather disturbance that brought thunderstorms to parts of the Central Valley and rain and snow to the northern parts of the State.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 93 temperature records tied or broken and 5 precipitation records set for the month. Of the 93 temperature records set, 28 were for new high maximum temperatures and 65 were for new high minimum temperatures. Records were set over 19 days of the month.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 127 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 above average in the north to below average in the southern part of the State. For the CDEC precipitation gages for March 2014, the largest amount of precipitation recorded was at Gasquet Ranger Station in the North Coast region with 17.19 inches. This is 155% of the average precipitation for this station for March. At the other end of the spectrum, China Lake Armitage in the South Lohantan, and Imperial Valley in the Colorado River Desert each recorded 0.01 inch of precipitation for the month. For the CIMIS network, Camino in El Dorado County topped the precipitation charts with 5.79 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 9.9 inches in March. Sixteen days recorded precipitation in the region. On average, 6.9 inches of precipitation is recorded for the 8-Station index for the month. The San Joaquin 5-Station Index recorded 4.7 inches for March. On average, 6.1 inches of precipitation is recorded for the 5-Station Index.

CoCoRaHS Update

March 2013 continues California's fifth 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 6, 2014 is shown at the end of the document. As of the end of March, California has 1127 volunteers signed up spanning 54 of California's 58 counties. The counties without volunteers are Alpine, Colusa, Glenn, and Modoc. The counties with the most volunteers at the end of March are San Diego and Sonoma with 102 and 101 volunteers respectively. For the month of March, 13,425 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in March was in Humboldt County where 6.33 inches was recorded on 3/29/2014. There were 51 snowfall reports recorded with the largest being 24 inches in Placer County. The largest total depth of snow reported in March was 48 inches in Placer County. Eight hail reports were submitted in March in Humboldt (3), Los Angeles (1), Monterey (1), Sacramento (1), Shasta (1), and Tehama (1) Counties. The largest stone size reported was 3/8" sized. To join CoCoRaHS or find more information, please visit <http://www.cocorahs.org>.

Snowpack and Water Supply Conditions

April 1st is the traditional peak of the snowpack accumulation in the Sierra Nevada. At the end of March the Northern region snowpack held 7 inches of snow water equivalent (SWE) which is 24% of the April 1st average. The Central region SWE was reported to be 12 inches which is 40% of the April 1st average. The Southern region SWE was reported to be 8 inches which is 31% of the April 1st average. The Water Supply Index (WSI) for WY2013 for the Sacramento Basin fell into the dry category and the San Joaquin fell into the critical category. The median forecast for the WSI for both the Sacramento and San Joaquin Basins this year is the critical category. More information 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 25, 2014 and March 25, 2014 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 25th depiction,

23.42% of California is depicted in the D4 or exceptional drought category, 48.36% of California is depicted in the D3 or extreme drought category, 23.43% of California is depicted in D2 or severe drought category, 4.59% of California is depicted in D1 or moderate drought category. An additional 0.2% 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 the state. 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.

For more information on water conditions in California, visit <http://www.water.ca.gov/waterconditions/>. A table showing end-of-March reservoir storage by hydrologic region is shown at the end of this document.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is currently in neutral conditions. Equatorial sea surface temperature anomalies for the tropical Pacific have been trending positively with values of 0.1°C in the Niño 3.4 at the end of March. The January through March 3-month running mean of the Ocean Niño Index (ONI) is -0.6. 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 transitioning to El Niño conditions by the latter part of the calendar year. 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 a higher probability for above normal temperatures for the State. For precipitation, a higher probability of below normal conditions is forecast. 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 2014 saw field preparations and some crop development. Alfalfa was cut and baled. Wheat and oats headed out during the month and dry land grains showed some improvement. Bud break occurred for some early grape varieties while buds were forming on olive trees. Blooms were decreasing on apricot, cherry, nectarine, peach, and plum trees with fruit development and leafing out occurring. Blueberries continued to bloom and push new growth. Fungicides were applied to orchards and vineyards to prevent powdery mildew. Almond trees were experiencing some nut drop. Strawberries continued to develop and tomato seedlings were planted. 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 – 97°F (Beverly Hills, South Coast)

Low Temperature – -1°F (Charlotte Lake, Tulare)

High Precipitation – 17.19 inches (Gasquet Ranger Station, North Coast)

Low Precipitation – 0.01 inches (China Lake Armitage (SL) and Imperial Valley (CRD))

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 83.5⁰F (UC Andrade, Imperial County)

Low Average Minimum Temperature – 24.3⁰F (Big Bear Lake, San Bernardino County)

High Precipitation – 5.79 inches (Camino, El Dorado County)*

Low Precipitation – 0 inches (12 stations)

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

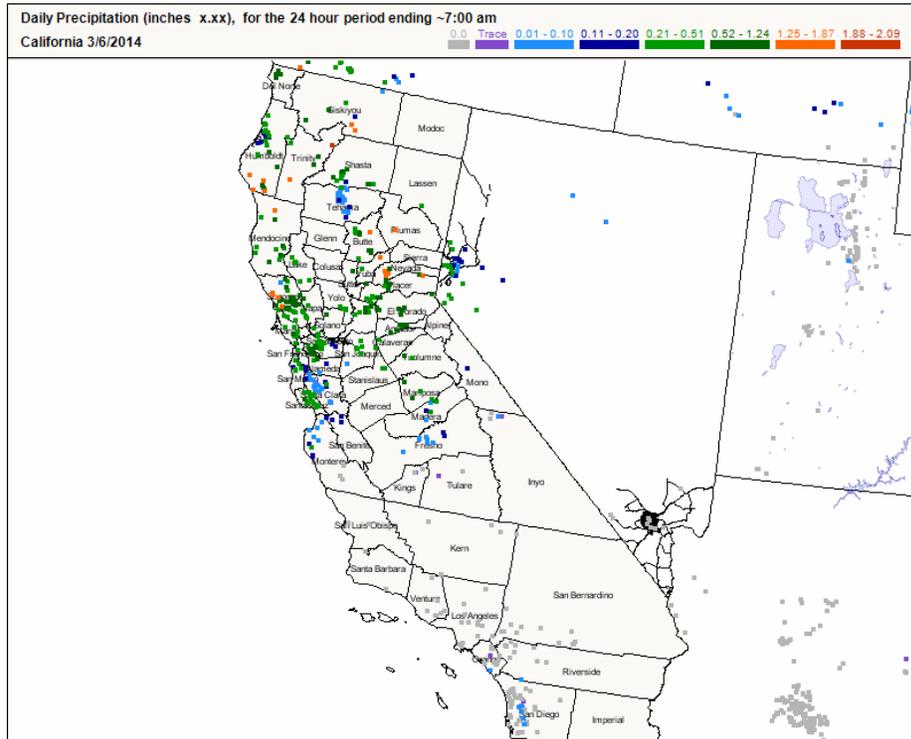
Statewide Mean Temperature Data by Hydrologic Region (degrees F)

| Hydrologic Region | No. Stations | Minimum | Average | Maximum |
|----------------------------|---------------------|----------------|----------------|----------------|
| North Coast | 20 | 29.4 | 46.2 | 72.1 |
| SF Bay | 9 | 38.1 | 54.4 | 76.0 |
| Central Coast | 10 | 35.7 | 54.6 | 83.6 |
| South Coast | 39 | 40.2 | 57.6 | 85.2 |
| Sacramento | 73 | 28.6 | 46.2 | 72.1 |
| San Joaquin | 46 | 26.5 | 44.5 | 69.9 |
| Tulare Lake | 15 | 23.7 | 40.9 | 64.1 |
| North Lahontan | 25 | 17.6 | 35.9 | 59.1 |
| South Lahontan | 12 | 22.3 | 41.4 | 66.6 |
| Colorado River Desert | 6 | 44.5 | 66.3 | 88.3 |
| Statewide Weighted Average | 255 | 29.3 | 47.0 | 72.5 |

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

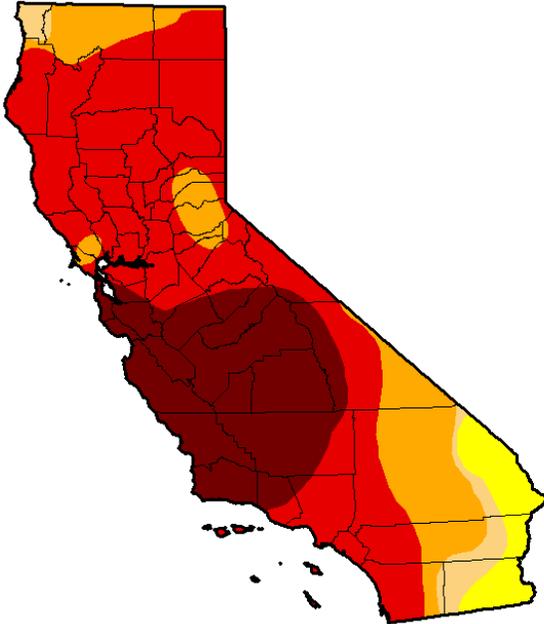
| End-of-March Reservoir Storage | Number of Reservoirs | Average Storage (taf) | 2014 Storage (taf) | % of Average |
|--------------------------------|----------------------|-----------------------|--------------------|--------------|
| North Coast | 6 | 2359 | 1,626 | 69% |
| San Francisco Bay | 17 | 526 | 436 | 83% |
| Central Coast | 6 | 701 | 209 | 30% |
| South Coast | 29 | 1,509 | 1,142 | 76% |
| Sacramento | 43 | 12,243 | 8,811 | 72% |
| San Joaquin | 34 | 7,537 | 5,009 | 66% |
| Tulare | 6 | 915 | 405 | 44% |
| North Lahontan | 5 | 547 | 282 | 52% |
| South Lahontan | 8 | 267 | 244 | 91% |
| Total | 154 | 26,607 | 18,168 | 68% |

CoCoRaHS Map



United States Drought Monitor

U.S. Drought Monitor California



February 25, 2014
(Released Thursday, Feb. 27, 2014)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|--|------|--------|-------|-------|-------|-------|
| Current | 0.00 | 100.00 | 94.56 | 90.82 | 73.83 | 26.21 |
| Last Week 2/18/2014 | 0.00 | 100.00 | 94.54 | 90.82 | 68.30 | 14.62 |
| 3 Months Ago 11/26/2013 | 2.61 | 97.39 | 94.15 | 82.53 | 27.59 | 0.00 |
| Start of Calendar Year 12/1/2013 | 2.61 | 97.39 | 94.25 | 87.53 | 27.59 | 0.00 |
| Start of Water Year 10/1/2013 | 2.63 | 97.37 | 95.95 | 84.12 | 11.36 | 0.00 |
| One Year Ago 2/26/2013 | 0.02 | 99.98 | 47.13 | 26.96 | 0.00 | 0.00 |

Intensity:

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

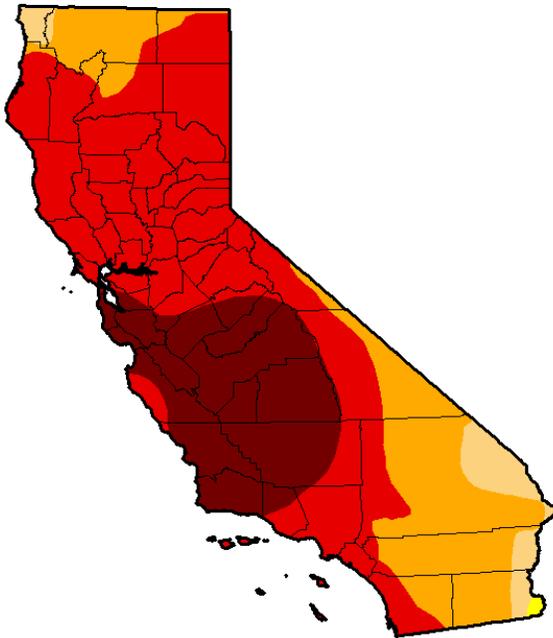
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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

U.S. Drought Monitor California



March 25, 2014
(Released Thursday, Mar. 27, 2014)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|--|------|--------|-------|-------|-------|-------|
| Current | 0.00 | 100.00 | 99.80 | 95.21 | 71.78 | 23.42 |
| Last Week 3/18/2014 | 0.01 | 99.99 | 99.80 | 93.08 | 71.78 | 22.37 |
| 3 Months Ago 12/24/2013 | 2.61 | 97.39 | 94.25 | 84.88 | 27.59 | 0.00 |
| Start of Calendar Year 12/1/2013 | 2.61 | 97.39 | 94.25 | 87.53 | 27.59 | 0.00 |
| Start of Water Year 10/1/2013 | 2.63 | 97.37 | 95.95 | 84.12 | 11.36 | 0.00 |
| One Year Ago 3/26/2013 | 0.00 | 100.00 | 48.38 | 24.22 | 0.00 | 0.00 |

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.

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