

California Monthly Climate Summary
July 2013

Weather Highlights

July 2013 was another warm month for California. According to the Western Region Climate Center's [California Climate Tracker](#), the monthly average temperature was 74.9°F which is 2.1°F higher than the long-term average of 72.8°F. This was the 10th warmest July since 1895. With a statewide average of 0.18 inches, precipitation in July was 98% of average. This is the driest January to July on record with a total of 4.51 inches of precipitation. The mean for this period is 14.19 inches. The previous record low was in 1898 when 7.73 inches was recorded. Regional maximum and minimum temperature and precipitation plots for July and for the January through July time period are shown at the end of the document.

July started with a heat wave across the state. Several temperature records were set across the state with many areas topping 100°F. The heat finally broke at the end of the week due to a trough pushing its way onshore. Monsoon-based thunderstorms were active in the mountains and deserts. The second week saw continued above-normal temperatures for California until a low pressure system brought moisture and cooler weather in the middle of the week. Southern California saw some precipitation from this event. The third week saw a strong push of monsoonal moisture into the southern deserts and coastal regions with locally heavy rain. Some thunderstorms also popped up along the crest of the Sierra. The monsoonal moisture continued into the fourth week with some localized flooding in the high desert regions. The north stayed dry and warm. The month closed out with a low in the Pacific Northwest bringing cooler air to the northwest part of the state. Elsewhere temperatures were near normal.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 84 temperature records tied or broken and 18 precipitation records set for the month. Of the 84 temperature records set, 17 were for new high maximum temperatures and 39 were for new high minimum temperatures. Records were set over 21 days of the month. Ukiah tied some longstanding records at the beginning of the month. On July 2nd, Ukiah tied their 1924 high temperature record with a reading of 110°F. On the third, the 1931 reading of 112°F was tied. On the 4th, Ukiah recorded its first rainfall for this date with 0.03 inches. Meanwhile, in San Rafael, the high temperature reached 98°F which tied the 1905 record. On July 14th, Eureka tied the low temperature record with a reading of 47°F. This value was previously reached back in 1924 and 1887. Bakersfield recorded its first rainfall for July 26th with a trace of rain. Records for Bakersfield date back to 1889. Also on the 26th, downtown Los Angeles recorded 0.04 inches of rain which broke the old record of 0.02 set in 1906. Los Angeles Airport recorded 0.02 inches which broke the 1964 record of a trace. Long Beach recorded 0.04 inches which broke the old record of a trace set back in 1964.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 11 stations recorded a minimum temperature below freezing during the month while 116 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 July was dry in the north and wet in the south. For the CDEC precipitation gages, the largest amount of precipitation recorded for the month was at Bear Trap Meadow in the Tulare region with 3.37 inches. This is 3370% of the average precipitation for this station for the month. At the other end of the spectrum, 35 stations recorded no precipitation for the month. For the CIMIS network, Sisquoc in Santa Barbara County topped the precipitation charts with 2.31 inches for the month and 77 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 0 inches in July. On average, 0.2 inches of precipitation is recorded for the month. For the combined January to July total, the 8-Station Index is 11.3 inches which is the second lowest Jan-July total in the period of record which dates back to water year 1921. The lowest value was 11.18 inches set in 1924. Statewide, the average precipitation for the month was 71.7% 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

July 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 July 23, 2013 is shown at the end of the document. As of the end of July, California has 1041 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 July is Sonoma with 98 volunteers. San Diego County is close behind with 92 volunteers. For the month of July, 8,999 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in July was in Lassen County where 2.19 inches was recorded on 7/26/2013. There were no snowfall reports recorded and no total snow for June. One hail report was submitted in July in Kern County on 7/23/2013. The largest stone size reported was 3/8". To join CoCoRaHS or find more information, please visit <http://www.cocorahs.org>.

Snowpack and Water Supply Conditions

At the end of July the Northern, Central and Southern region snowpack held 0 inches of snow water equivalent (SWE) as measured by the automated snow pillows. The last nonzero reading for the regional snow pillow report was on 5/28/2013. The Water Supply Index (WSI) for WY2012 for the Sacramento Basin fell into the below normal category and the San Joaquin fell into the dry category. The median forecast for the WSI for the Sacramento Basin is dry and critical for the San Joaquin Basin. Further 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 June 25, 2013 and July 30, 2013 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 July 30th depiction, 93.86% of California is depicted in the D2 or severe drought category, 4.37% of California is depicted in the D1 or moderate drought category. An additional 1.77% of the state is depicted as D0 or abnormally dry. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for August through October from NOAA depicts California in persisting or developing 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-month reservoir storage by hydrologic region is shown at the end of this document. Statewide, reservoir storage at the end of July was 79% of average. At the end of July 2012, storage was 98% of average.

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 near normal with values of -0.2°C in the Niño 3.4 at the end of July. The May through July 3-month running mean of the Ocean Niño Index (ONI) is -0.2. This is the third consecutive three-month value of -0.2. 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 remaining near neutral conditions for the rest 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 (August through October) from NOAA indicates a higher probability of above normal temperatures the entire state. For precipitation, equal chances of above or below normal conditions apply across the state. 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

July 2013 saw further crop development and harvest. Rice fields continued to develop with conditions rated 92% good to excellent. Almost a quarter of the crop has headed. Cotton progressed well due to the warm temperatures. Over three-fourths of the crop had set bolls and 90% was rated good to excellent. Alfalfa continued to be cut and baled. Corn for silage was harvested. Apple, pear, grape, peaches, nectarines, plums, lemons, grapefruit and champagne grapes were harvested during the month. Kiwi, pomegranates, and prunes continued to develop. Avocado trees were monitored for heat stress. Nut trees were sprayed for pests while shaking began in some almond orchards. Curly top virus has had an impact on processing tomatoes. Winter carrot planting continued while onions, bell pepper, chili pepper, cantaloupe, watermelon, honeydew, squash, and other vegetables were harvested. Range conditions deteriorated in the warm weather and were reported to be in fair to very poor condition. Supplemental feeding continued. 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 – 117°F (Buttercup, Colorado River Desert)
Low Temperature – 11°F (Casa Vieja Meadows, Tulare)
High Precipitation – 3.37 inches (Bear Trap Meadow, Tulare)
Low Precipitation – 0 inches (35 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 107.3°F (Salton Sea East, Imperial County)
Low Average Minimum Temperature – 44.9°F (Alturas, Modoc County)
High Precipitation – 2.31 inches (Sisquoc, Santa Barbara County)*
Low Precipitation – 0 inches (77 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	Jul	Oct-Jul	Stations	Jul	Oct-Jul	Jul	Oct-Jul
North Coast	0.27	5	2	2	17	2	2	0.0%	86%
SF Bay	0.03	2	2	2	6	4	2	0.0%	83%
Central Coast	0.06	3	3	2	11	4	2	32.2%	50%
South Coast	0.06	3	1	1	14	1	1	250%	65%
Sacramento River	0.26	5	5	5	41	19	12	9.9%	88%
San Joaquin River	0.12	6	5	5	24	12	10	0.0%	75%
Tulare Lake	0.07	5	5	5	28	12	14	281%	61%
North Lahontan	0.04	3	2	2	13	4	4	166%	66%
South Lahontan	0.06	3	2	2	15	11	11	322%	42%
Colorado River	0.03	1	1	1	6	4	4	221%	70%
Statewide Weighted Average	1	36	28	27	175	73	62	71.7%	76%

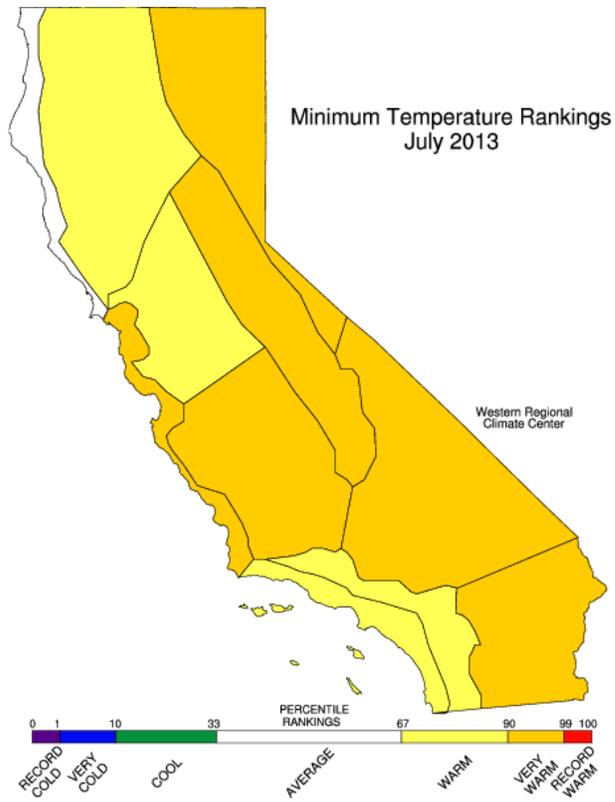
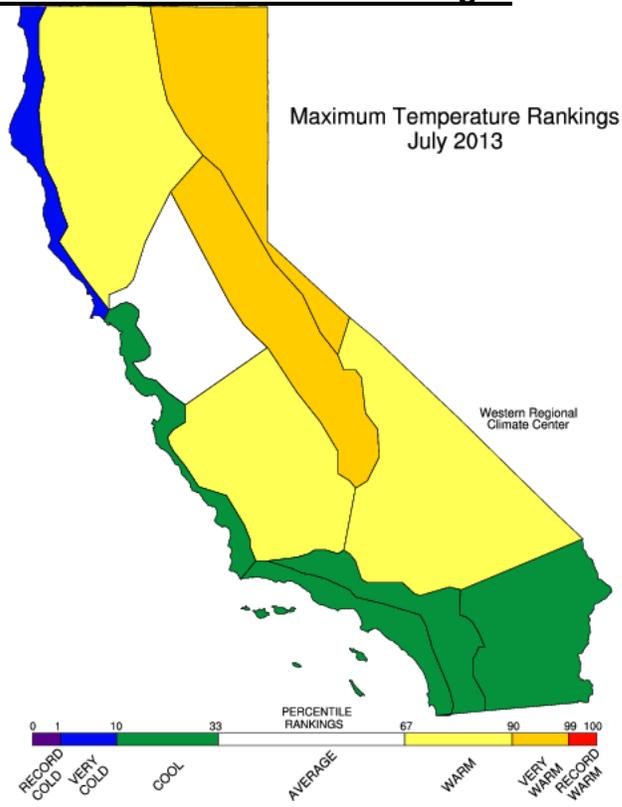
Statewide Mean Temperature Data by Hydrologic Region (degrees F)

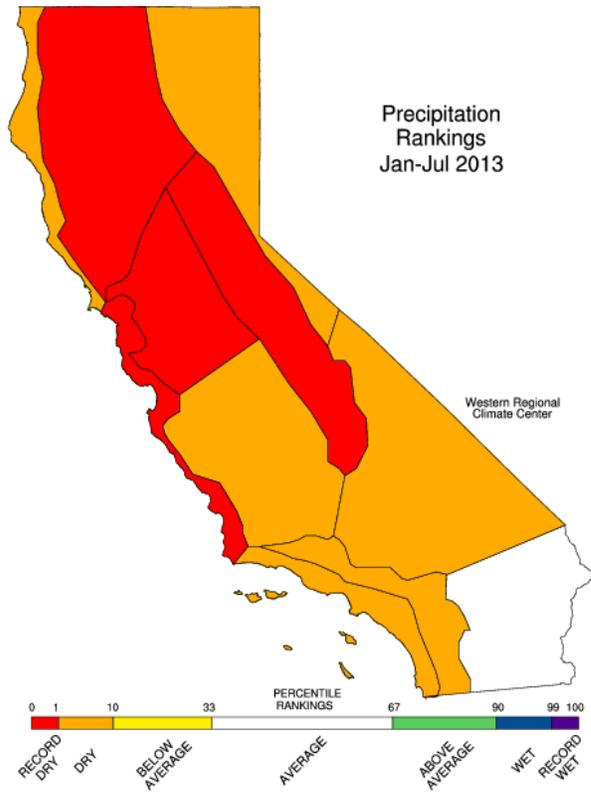
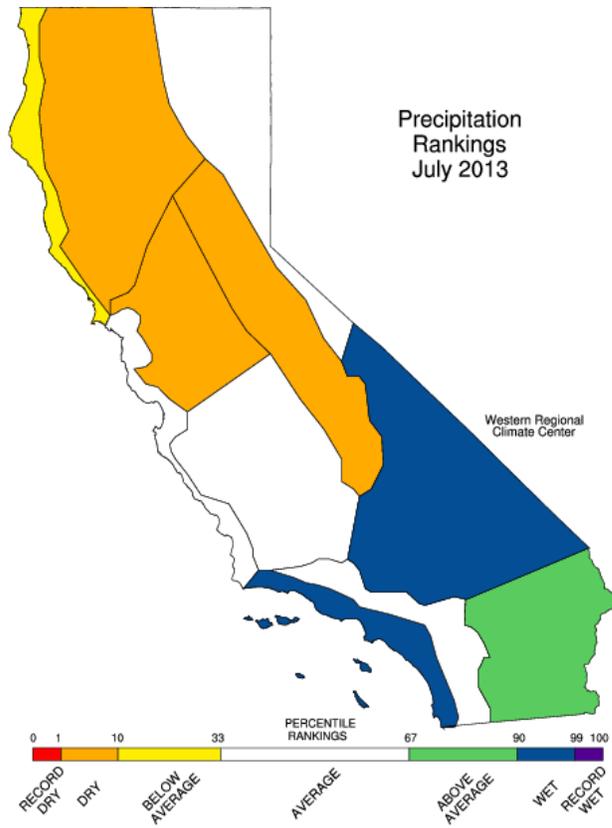
Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	20	49.1	71.2	98.1
SF Bay	9	51.0	70.3	96.3
Central Coast	10	48.5	72.2	100.5
South Coast	37	55.6	74.7	98.0
Sacramento	76	51.1	74.7	101.1
San Joaquin	45	50.6	71.5	94.6
Tulare Lake	20	45.9	66.5	87.8
North Lahontan	23	42.2	62.8	85.7
South Lahontan	15	48.5	68.5	90.5
Colorado River Desert	6	70.7	92.3	112.7
Statewide Weighted Average	261	50.3	72.2	97.3

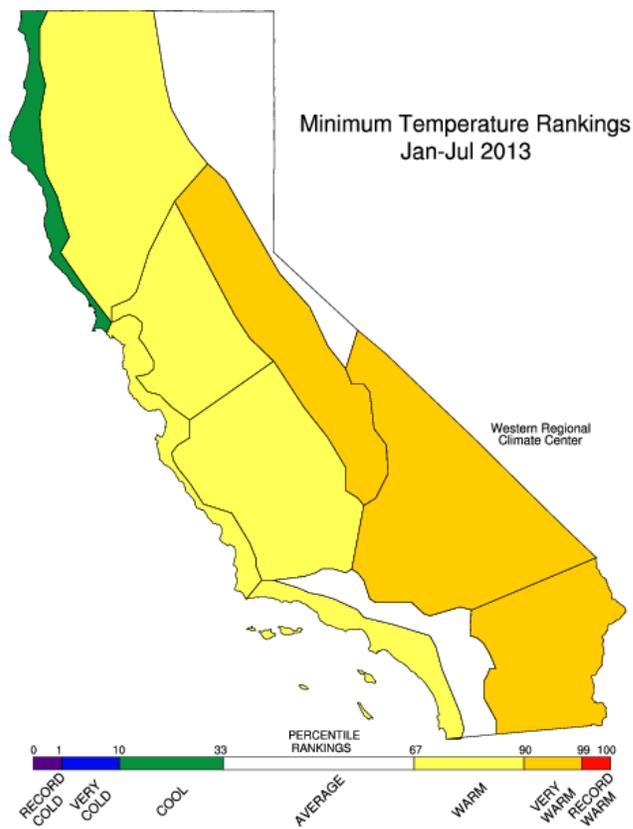
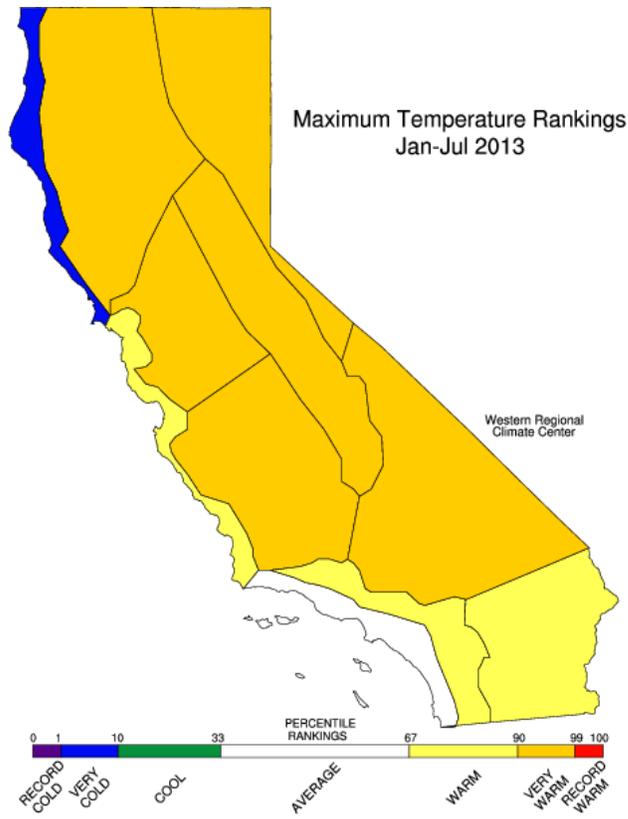
End-of-May Reservoir Storage by Hydrologic Region
Storage in Thousand Acre-Feet (taf)

End-of-July Reservoir Storage	Number of Reservoirs	Average Storage (taf)	2013 Storage (taf)	% of Average
North Coast	6	2,335	1,902	81%
San Francisco Bay	17	469	419	89%
Central Coast	6	622	358	58%
South Coast	29	1,420	1,202	85%
Sacramento	43	11,809	9,853	83%
San Joaquin	34	7,552	5,832	77%
Tulare	6	1,053	438	42%
North Lahontan	5	649	520	80%
South Lahontan	8	306	256	84%
Total	154	26,219	20,783	79%

California Climate Tracker Images







U.S. Drought Monitor

California

June 25, 2013
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	98.21	92.61	0.00	0.00
Last Week (06/18/2013 map)	0.00	100.00	98.21	67.07	0.00	0.00
3 Months Ago (03/26/2013 map)	0.00	100.00	48.38	24.22	0.00	0.00
Start of Calendar Year (01/01/2013 map)	31.75	68.25	55.32	22.50	0.00	0.00
Start of Water Year (09/25/2012 map)	11.95	88.05	69.41	22.27	1.14	0.00
One Year Ago (06/19/2012 map)	15.89	84.11	59.51	22.60	0.00	0.00



Intensity:



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

July 30, 2013
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	98.23	93.86	0.00	0.00
Last Week (07/23/2013 map)	0.00	100.00	98.23	93.96	0.00	0.00
3 Months Ago (04/30/2013 map)	0.00	100.00	64.30	32.82	0.00	0.00
Start of Calendar Year (01/01/2013 map)	31.75	68.25	55.32	22.50	0.00	0.00
Start of Water Year (09/25/2012 map)	11.95	88.05	69.41	22.27	1.14	0.00
One Year Ago (07/24/2012 map)	11.64	88.36	63.80	26.85	0.29	0.00



Intensity:



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



Released Thursday, August 1, 2013
Brian Fuchs, National Drought Mitigation Center

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