

California Monthly Climate Summary
September 2010

Weather Highlights

September 2010 ends water year 2010. It was a near-average temperature and a drier than average precipitation month for California. According to the Western Region Climate Center's [California Climate Tracker](#), the statewide monthly average temperature was 67.6°F which is 0.5°F higher than the long-term average. With a statewide average of 0.13 inches, precipitation for September was only 27% of the long term average. For the water year 8 of the months had below average precipitation and 6 months had below average temperatures. For the water year as a whole, precipitation was 106% of average and the temperature was 0.5°F below average. Water year plots are shown at the end of the document.

September 2010 started with hot temperatures across most of the state as a ridge of high pressure dominated the weather. The first hint of fall arrived in the second week as a cold front slipped across the state bringing rain from Sacramento north. Thunderstorms on the back side of the front led to localized flooding in Chico. By the end of the second week temperatures were near normal with clear skies. The North Coast was hit with another weather system in the third week while the rest of the continued a pattern of seasonal temperatures. Southern California remained dry. The last part of September brought a change of seasons and a surprise for the South part of the State. After a significantly cooler than average summer, Los Angeles saw the first part of fall bring an all time temperature record as another ridge of high pressure built into the region. See the records paragraph for more information on this event.

Preliminary records, reported on the National Weather Service Record Event Report, shows that statewide there were 161 temperature records tied or broken and 2 precipitation records tied or broken for the month. A plot of monthly temperature and precipitation record totals for the water year is shown at the end of the document. Of the 161 temperature records set in September, 100 were for new high maximum temperatures while 18 were for new low minimum temperatures. Records were set over 20 days of the month. The largest news of the month was the Los Angeles setting an all time maximum temperature record on the 27th. The downtown Los Angeles station reached 113°F topping the June 26, 1990 reading of 112°F. The 113°F topped the old September 27th record of 106°F set back in 1963. Thirteen other sites in the Los Angeles area also set new daily records on the 27th. The Furnace Creek observing site in Death Valley National Park also set a new maximum temperature record on the 27th. The 115°F reading topped out the 2003 record of 113°F. September also saw some long-standing records fall. Earlier in the month, Eureka tied a 1901 low temperature record of 44°F on the 6th. On the 28th, Santa Rosa topped a 1921 record of 102°F with a reading of 104°F. Fresno set a new high minimum temperature record at the Fresno Yosemite International Airport on the 29th with a reading of 72°F. This topped the old record of 69°F set back in 1967 and is the latest occurrence of a minimum temperature greater than 70°F. The previous latest occurrence was September 22, 1999.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 62 stations recorded a minimum temperature below freezing in September, while 117 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 and CIMIS networks is also shown at the end of the summary.

Precipitation in September was below average across the state. For the CDEC precipitation gages for September 2010, the largest amount of precipitation recorded was Eureka Woodley Island with 1.39 inches. This is 183% of the average precipitation for this station for September. At the other end of the spectrum, 45 stations reported zero inches of precipitation for the month. For the CIMIS network, Five Points in Fresno County topped the precipitation charts with 4.94 inches for the month and 82 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 0.29 inches in September with 5 days showing precipitation. On average, 0.9 inches of precipitation is recorded for the 8-Station index in September. Statewide, the average precipitation for September was 34% 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

September 2010 completes California's second 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 in participating states. As of the end of September 2010, California has 682 volunteers signed up spanning 52 of California's 58 counties. The county with the most volunteers at the end of September is Sonoma with 86 volunteers. For water year 2010, 102,864 reports were submitted. For the month of September, 7,583 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in September was in Del Norte County with 2.25inches recorded on 9/19/10. No hail reports were submitted for the month. To join CoCoRaHS or find more information, please visit <http://www.cocorahs.org>.

Snowpack and Water Supply Conditions

The final water supply index for 2010 shows the Sacramento Basin in the Below Normal category and the San Joaquin Basin in the Above Normal category. Water year 2009 resulted in a Dry category for the Sacramento Basin and Below Normal for the San Joaquin Basin. 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's depiction by the Drought Monitor for August 31, 2010, September 28, 2010 and September 29, 2009 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 September 28, 2010 depiction, California is depicted in either D0 (abnormally dry), or D1 (moderate drought) conditions. Drought conditions are now limited to the northeast corner of the state and along the California Nevada border. Drought free area in California was 85.4% for the depiction on September 28th. This is a marked change from a year ago when there was no drought free area in the state and 45.8% of the state was considered to be in D2 (severe drought) conditions. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for October through December from NOAA depicts California with improvement, some improvement, or persisting drought conditions in the remaining drought areas as depicted by the Drought Monitor. This forecast is based on climatology and La Nina conditions present in the tropical Pacific. Updates are provided twice per month. Maps and information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html.

The California Nevada River Forecast Center has produced some drought monitoring tools for California. These tools look at the frequency associated with precipitation deficits for the Northern California 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. These tools can be found at <http://www.cnrfc.noaa.gov/climate.php>. For September, the Eight Station Index is in drought free conditions for both the 12-month period and for the 24 month period. The Five Station Index is drought free for both periods as well. The reservoir product has not been updated since July.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is being classified as La Niña conditions. Equatorial sea surface temperature anomalies for the tropical Pacific continued to cool through September. The end of September Niño 3.4 sea surface temperature anomaly was -1.5°C. The July through September 3-month running mean of the Ocean Niño Index (ONI) is -1.0°C which is the second ONI value for this episode to qualify for a La Niña event. Three more consecutive values below the -0.5°C threshold are needed for an episode to qualify as a La Niña event. Most forecast models have the tropical sea surface temperatures continuing to cool and La Nina conditions to persist through the first part of 2011. 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 (October through December) from NOAA indicates a higher probability of below normal temperatures for the coastal regions of the State and equal chances elsewhere. For precipitation, the

State has a higher probability of below normal precipitation for the southern third of the state. The remainder of the state has equal chances of above or below normal precipitation with the exception of the northern extreme of the state which has a higher probability of above-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

September 2010 saw harvests swing into full gear across the state. During the month, rice headed, fields were drained and early crops were harvested. Alfalfa continued to be cut and baled. Bean harvests continued as did sunflowers. Peaches, pears, plums, nectarines, prunes and apples all moved to harvest. Valencia Oranges saw some re-greening which slowed harvest for quality issues. Pomegranates showed good size and color and fruit in olive orchards continued to mature in size with a heavy set reported. Almond harvest began while walnut and pistachio orchards continued to develop. A wide range of vegetable crops were harvested while preparations were underway for the winter crop planting. Lower summer temperatures impacted bell pepper yields by up to 60%. Range conditions continued to degrade due to the time of year, but conditions are significantly better than the previous year. The hot weather necessitated cooling methods being employed on cows at dairies. Bees were located in sunflower, melon, and vegetable 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 – 119°F (Buttercup, Colorado River Desert)

Low Temperature – 18°F (Charlotte Lake, Tulare Basin)

High Precipitation – 1.39 inches (Eureka Woodley Island, North Coast)

Low Precipitation – 0 inches (45 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 105⁰F (UC Andrade, Imperial County)

Low Average Minimum Temperature – 34.6⁰F (Alturas, Modoc County)

High Precipitation – 4.94 inches (Five Points, Fresno County)*

Low Precipitation – 0 inches (82 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	Sep	Oct-Sep	Stations	Sep	Oct-Sep	Sep	Oct-Sep
North Coast	0.27	5	3	2	19	8	5	87.9%	100%
SF Bay	0.03	2	2	2	6	3	3	0.5%	116%
Central Coast	0.06	3	3	3	11	3	3	0.0%	120%
South Coast	0.06	3	2	2	15	7	7	3.6%	107%
Sacramento River	0.26	5	4	4	43	10	9	34.9%	102%
San Joaquin River	0.12	6	5	4	25	9	7	0.0%	118%
Tulare Lake	0.07	5	3	3	28	12	11	0.0%	114%
North Lahontan	0.04	3	3	3	14	9	6	17.8%	94%
South Lahontan	0.06	3	3	3	15	7	7	0.3%	133%
Colorado River	0.03	1	1	1	6	1	1	16.7%	146%
Statewide Weighted Average	1	36	29	27	182	69	59	34.27%	109%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	32	41.1	62.6	92.1
SF Bay	19	48.7	67.3	90.4
Central Coast	35	47.2	64.5	87.7
South Coast	64	48.3	70.8	99.4
Sacramento	89	42.3	65.5	94.2
San Joaquin	72	44.4	66.3	90.4
Tulare Lake	18	34.8	59.4	85.1
North Lahontan	29	31.4	54.7	79.1
South Lahontan	20	41.5	65.6	88.3
Colorado River Desert	22	64.6	85.6	105.4
Statewide Weighted Average	400	42.7	64.9	91.7

U.S. Drought Monitor

California

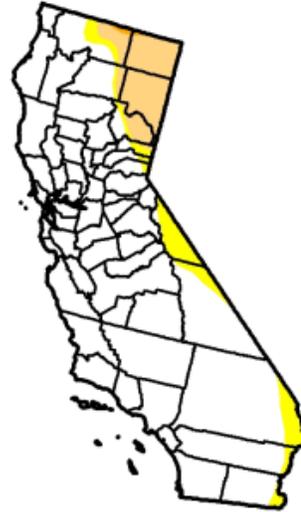
August 31, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	85.4	14.6	8.1	0.2	0.0	0.0
Last Week (08/24/2010 map)	85.4	14.6	8.1	0.2	0.0	0.0
3 Months Ago (06/08/2010 map)	88.0	12.0	8.1	6.0	0.0	0.0
Start of Calendar Year (01/05/2010 map)	6.6	93.4	72.8	9.0	0.0	0.0
Start of Water Year (10/06/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0
One Year Ago (09/01/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0

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://drought.unl.edu/dm>



Released Thursday, September 2, 2010
Author: Brad Rippey, U.S. Department of Agriculture
September 28, 2010
Valid 7 a.m. EST

U.S. Drought Monitor

California

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	85.4	14.6	8.1	0.2	0.0	0.0
Last Week (09/21/2010 map)	85.4	14.6	8.1	0.2	0.0	0.0
3 Months Ago (07/06/2010 map)	88.0	12.0	8.1	0.2	0.0	0.0
Start of Calendar Year (01/05/2010 map)	6.6	93.4	72.8	9.0	0.0	0.0
Start of Water Year (10/06/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0
One Year Ago (09/29/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0

Intensity:

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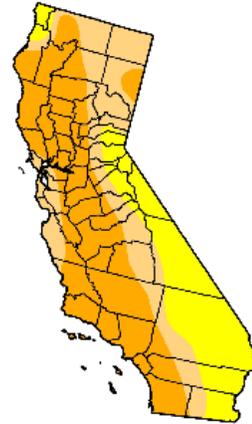
Released Thursday, September 30, 2010
Author: R. Heim/L. Lov-Brotak, NCDC/NOAA

U.S. Drought Monitor

California

September 29, 2009
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.0	100.0	73.4	45.8	0.0	0.0
Last Week (09/22/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0
3 Months Ago (07/07/2009 map)	2.5	97.5	72.8	44.3	0.0	0.0
Start of Calendar Year (01/06/2009 map)	1.7	98.3	88.2	41.3	2.8	0.0
Start of Water Year (10/07/2008 map)	0.0	100.0	95.9	55.0	0.0	0.0
One Year Ago (09/30/2008 map)	0.0	100.0	95.9	55.2	2.1	0.0



Intensity:

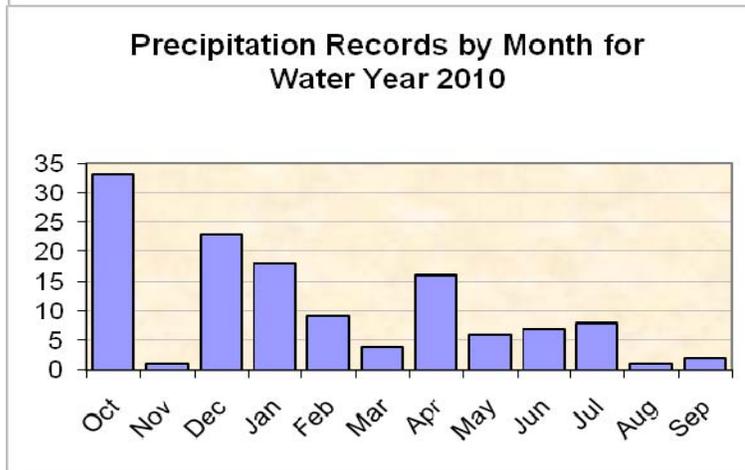
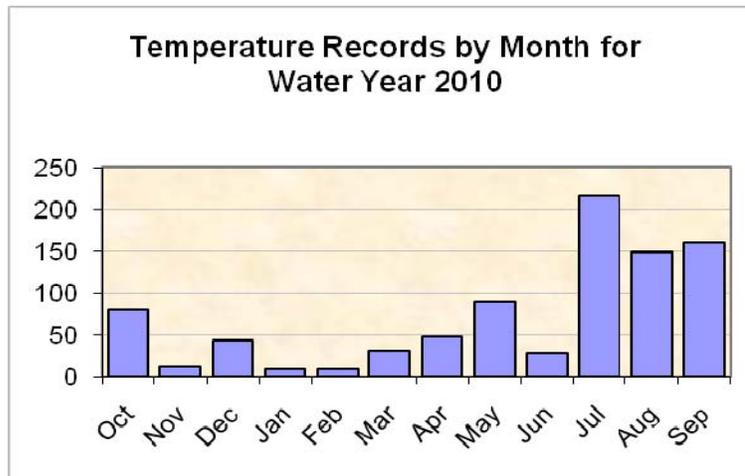
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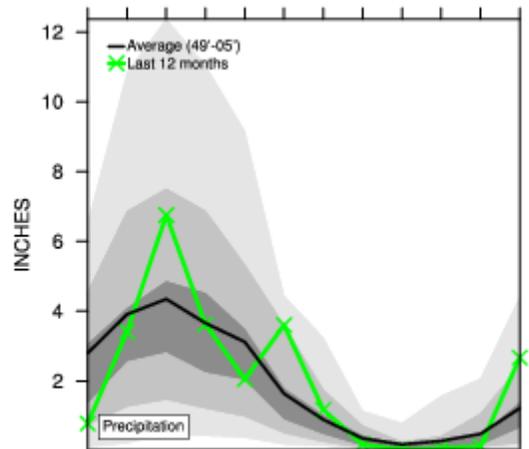
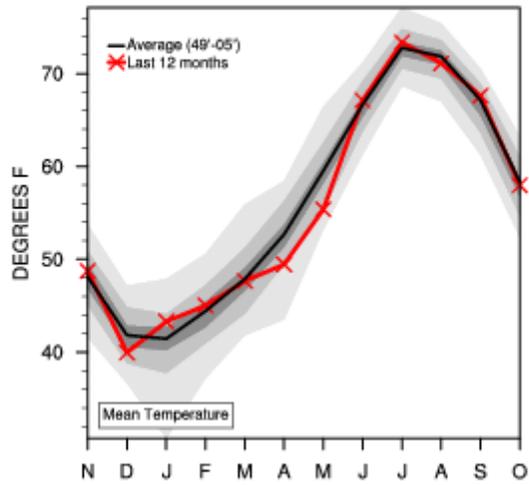
<http://drought.unl.edu/dm>



Released Thursday, October 1, 2009
Author: D. Miskus, JAWF/CPC/NOAA



California Statewide Last 12 Months



dark shading - 33-66 percentile
 medium shading - 10-90 percentile
 light shading - extremes

Western Regional
 Climate Center