

California Monthly Climate Summary
September 2011

Weather Highlights

September 2011 was a warmer and drier than average month for California. According to the Western Region Climate Center's [California Climate Tracker](#), the monthly average temperature was 69.7°F which is 2.5°F higher than the long-term average of 67.2°F. A copy of the California Climate Tracker Temperature plot for average temperature is copied at the end of this document. With a statewide average of 0.11 inches, precipitation in September was only 22.8% of average.

September started with a weak low pressure system in the Eastern Pacific and west coast which brought marine conditions to coastal communities and higher temperatures inland. Towards the end of the week high pressure built in causing temperatures to jump up. The second week was dry and hot as the high pressure system continued to strengthen. Towards the end of the week the high pressure system moved off to the west in retrograde motion bringing a trough back over California. Thunderstorms accompanied the change raising fire weather concerns. The third week was active as the low pressure system moved south pumping up moisture from the Gulf of California. This produced some locally significant precipitation in the mountains and desert regions. As the week ended the low pressure system exited the region and high pressure returned to the State. A weak disturbance crossing Southern California in the fourth week brought scattered thunderstorms to the mountain areas into the Southern Sierra Nevada. The month ended with a significant change as a low pressure system brought much cooler weather to the north and central parts of the State. Up to a half inch of rainfall fell on the North Coast and thunderstorms dropped smaller amounts across other portions of the State including the San Joaquin Valley and Delta regions.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 45 temperature records tied or broken and 6 precipitation records tied or broken for the month. Of the 45 temperature records set, 18 were for new high maximum temperatures and 17 were for new high minimum temperatures. Records were set over 19 days of the month. In addition, a new wind gust record was set in Bishop California for the month of September. On September 20th a wind gust of 59 miles per hour was recorded at the airport. This breaks the old September wind gust record of 53 miles per hour set on 9/29/1982. Wind records date back to 1975. Palm Springs and Thermal set new precipitation records on the 13th with values of 0.48 inches and 0.42 inches respectively. The old records of 0.35 and 0.10 inches respectively were set back in 1959. San Diego tied a 1933 low maximum temperature record with a reading of 66°F on the 16th. For water year 2011, there were 867 temperature records and 209 precipitation records set. A plot of the monthly distribution of records is shown at the end of the summary.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 27 stations recorded a minimum temperature below freezing in

August while 83 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 September was below average for all regions except the Colorado River Desert region. For the CDEC precipitation gages for September 2011, the largest amount of precipitation recorded was at Yosemite Headquarters in the San Joaquin region with 2.31 inches. This is 373% of the average precipitation for this station for September. At the other end of the spectrum, 28 stations recorded no precipitation for the month. For the CIMIS network, Sisquoc in Santa Barbara County topped the precipitation charts with 6.28 inches for the month and 54 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 0.48 inches in September. On average, 0.9 inches of precipitation is recorded for the 8-Station index in September. Statewide, the average precipitation for September was 36% 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 2011 completes California's third 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. A map from September 12, 2011 is shown at the end of the document. As of the end of September 2011, California has 799 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 September is Sonoma with 89 volunteers. For the month of September, 8,504 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in September was in Shasta County where 2.85 inches was recorded on 9/12/11. Three hail reports were recorded in 3 Counties in September. The largest reported hail stones were 3/4" sized. To join CoCoRaHS or find more information, please visit <http://www.cocorahs.org>.

Snowpack and Water Supply Conditions

The end-of-August Water Supply Index forecast for WY 2011 is 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. 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 August 30, 2011 and September 27, 2011 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 27th depiction, California is depicted as drought free except for portions of the desert regions which are categorized as abnormally dry. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for October through December from NOAA depicts California continuing to be drought free. This forecast is based primarily on climatology and forecast models. 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 produces some drought monitoring tools for California. 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. 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 a 12-month and 24 month period. The Five Station Index is also drought free for both periods. All reservoirs have above average storage for this time of year.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) has transitioned back toward La Niña conditions. Equatorial sea surface temperature anomalies for the tropical Pacific have been mostly negative with values of -0.8°C in the Niño 3.4 at the end of September. The July through September 3-month running mean of the Ocean Niño Index (ONI) is -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 and 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 either continuing in ENSO neutral conditions or returning to La Niña conditions by the end 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 equal chances of above or below normal temperatures for the State except for the extreme southeastern part of the state which is forecast to have above normal temperatures. For precipitation, equal chances of

above or below normal conditions are forecast for the entire state with the exceptions of the extreme northwestern part of the state (above average) and southeast desert (below average) region. 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 2011 saw the harvesting process continue for some crops while other crops continued to develop. Cotton development continued with bolls setting and opening during the month. Producers were preparing fields for defoliation by the end of the month. Sunflower fields began to be harvested while black-eye beans were maturing. Alfalfa was undergoing its sixth cutting with some areas irrigating for a potential seventh before the season ends. The table grape harvest continued while wine and raisin grape harvest began. Prune and peach harvests wound down while pomegranates increased in color. Apple, harvest continued as pear harvests neared completion. Olives and kiwis continued to develop. Almond harvest was in full swing while walnut orchards were prepared for harvest. Pistachios began to be harvested as well. Vegetable harvest continued with bell peppers, carrots, squash, tomatoes, green beans, sweet corn, cucumbers, and onions being picked and packed. Range conditions continued their summer deterioration but were reported to be in good condition for this time of year. Supplemental feeding began to increase. The high temperatures depressed milk production in the San Joaquin Valley. 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 – 116°F (Buttercup, Colorado River Desert)

Low Temperature – 11°F (Casa Vieja Meadows, Tulare)

High Precipitation – 2.31 inches (Yosemite Headquarters, San Joaquin)

Low Precipitation – 0.0 inches (28 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 104°F (UC Andrade, Imperial County)

Low Average Minimum Temperature – 38°F (Tulelake FS, Siskiyou County)

High Precipitation – 6.28 inches (Sisquoc, Santa Barbara County)*

Low Precipitation – 0 inches (54 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	5	5	15	12	10	17.3%	118%
SF Bay	0.03	3	2	1	6	2	1	4.8%	122%
Central Coast	0.06	5	4	4	10	6	5	5.9%	145%
South Coast	0.06	5	5	5	14	12	11	35.2%	141%
Sacramento River	0.26	10	9	8	42	33	27	25.2%	132%
San Joaquin River	0.12	7	7	7	26	18	17	60.5%	144%
Tulare Lake	0.07	5	5	5	27	23	22	60.6%	152%
North Lahontan	0.04	6	6	5	13	8	7	64.3%	137%
South Lahontan	0.06	5	4	3	14	4	3	80.2%	189%
Colorado River	0.03	2	2	2	6	5	5	116.1%	110%
Statewide Weighted Average	1	53	49	45	173	123	108	36.2%	135%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	25	41.6	66.4	94.8
SF Bay	8	48.9	71.4	92.5
Central Coast	11	45.9	69.3	97.6
South Coast	46	50.2	71.4	99.4
Sacramento	78	44.4	68.4	94.0
San Joaquin	39	44.2	64.7	87.1
Tulare Lake	18	38.7	58.2	79.3
North Lahontan	20	37.4	56.0	74.9
South Lahontan	16	41.8	61.8	83.1
Colorado River Desert	8	62.0	85.5	109.0
Statewide Weighted Average	269	43.9	66.7	91.9

U.S. Drought Monitor

California

August 30, 2011
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	92.14	7.86	0.00	0.00	0.00	0.00
Last Week (08/23/2011 map)	92.12	7.88	0.00	0.00	0.00	0.00
3 Months Ago (05/31/2011 map)	99.99	0.01	0.00	0.00	0.00	0.00
Start of Calendar Year (12/28/2010 map)	98.62	1.38	0.00	0.00	0.00	0.00
Start of Water Year (09/28/2010 map)	85.44	14.56	8.08	0.24	0.00	0.00
One Year Ago (08/24/2010 map)	85.44	14.56	8.08	0.24	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.



Released Thursday, September 1, 2011
Eric Luebehusen, USDA

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

U.S. Drought Monitor

California

September 27, 2011
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	89.14	10.86	0.00	0.00	0.00	0.00
Last Week (09/20/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00
3 Months Ago (06/28/2011 map)	87.71	12.29	0.00	0.00	0.00	0.00
Start of Calendar Year (12/28/2010 map)	98.62	1.38	0.00	0.00	0.00	0.00
Start of Water Year (09/28/2010 map)	85.44	14.56	8.08	0.24	0.00	0.00
One Year Ago (09/21/2010 map)	85.44	14.56	8.08	0.24	0.00	0.00



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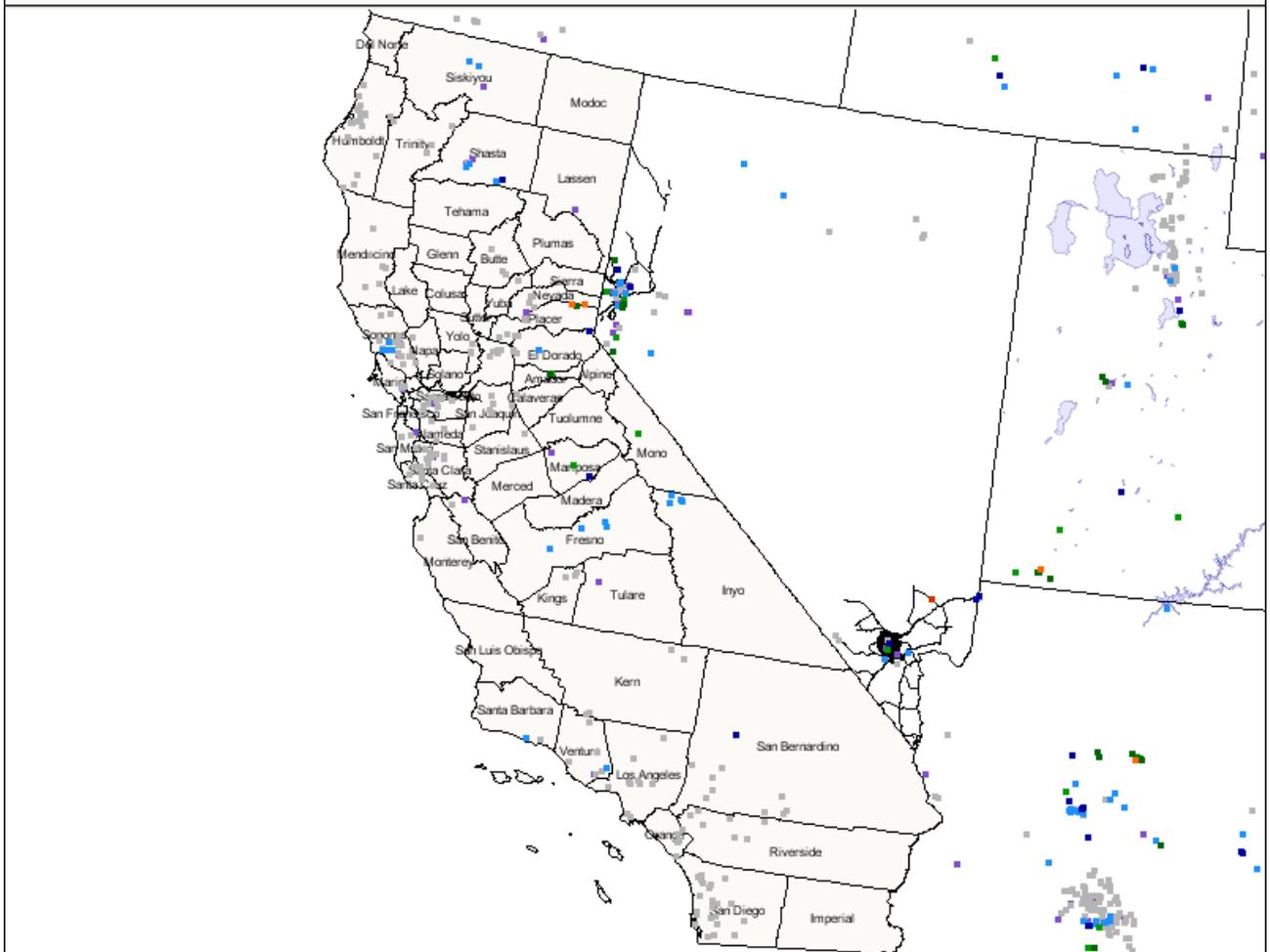
Released Thursday, September 29, 2011
Michael Brewer, National Climatic Data Center, NOAA

<http://droughtmonitor.unl.edu>

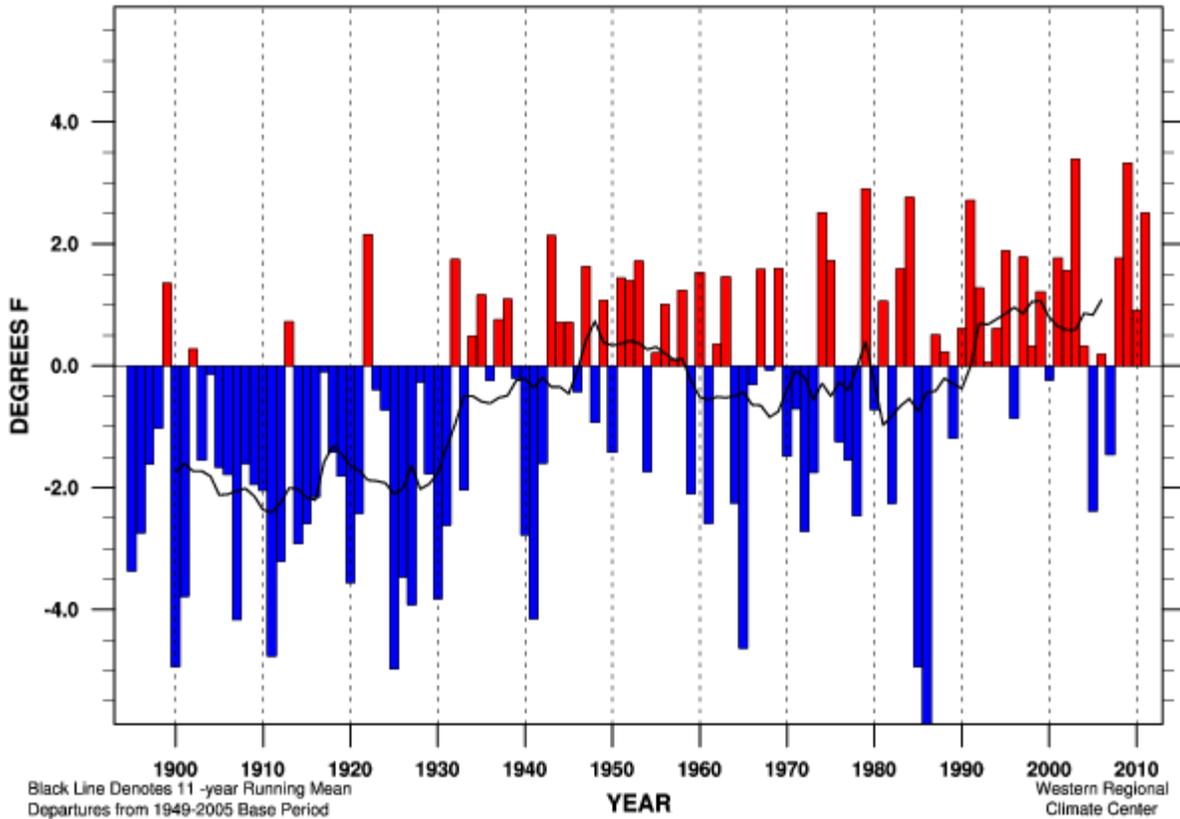
Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am

California 9/12/2011

0.0 Trace 0.01 - 0.06 0.07 - 0.12 0.13 - 0.29 0.30 - 0.70 0.71 - 1.05 1.06 - 1.16

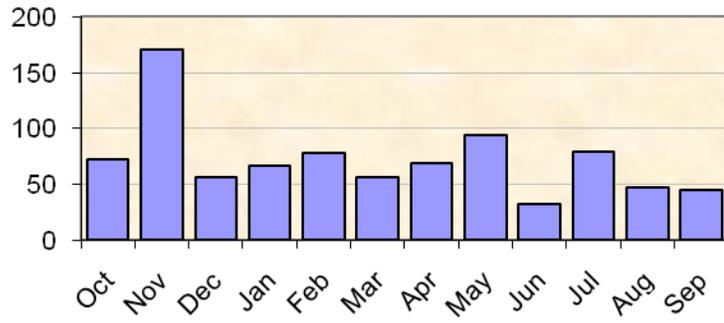


California Statewide Mean Temperature Departure September



Linear Trend 1895-present	+ 2.68 ± 1.03 °F/100yr	
Linear Trend 1949-present	+ 1.94 ± 2.73 °F/100yr	
Linear Trend 1975-present	+ 5.69 ± 6.38 °F/100yr	
Warmest Year	70.5 °F (+ 3.4 °F) in 2003	MEAN 67.1 °F
Coldest Year	61.3 °F (- 5.9 °F) in 1986	STDEV 1.98 °F
September	2011 69.7 °F (+ 2.5 °F)	RANK 111 of 117

**Temperature Records by Month for
Water Year 2010**



**Precipitation Records by Month for
Water Year 2010**

