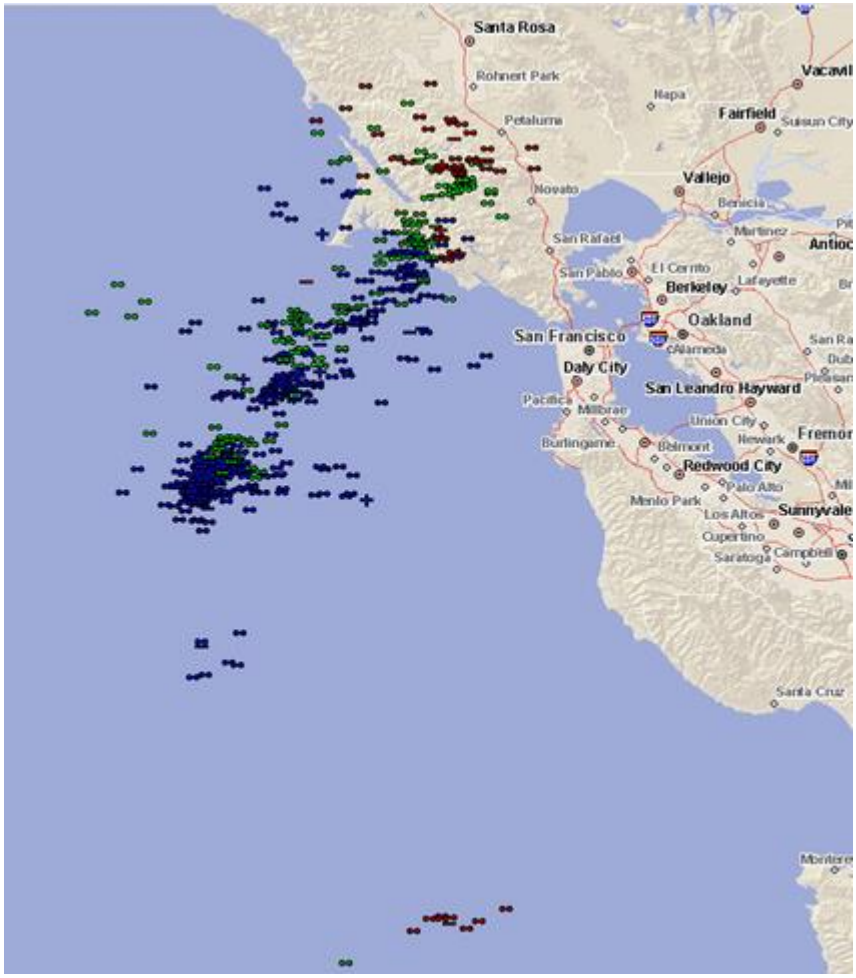
December 2014 Regional Climate Summary
For the San Francisco Bay Area and Monterey Bay Area

December 2014 was a wet and warm month. The first two-thirds of the month were stormy and wet, resulting in rainfall totals that were two to three times the December average. Three climate stations had their wettest December on record, while numerous other locations accumulated enough rainfall to rank December 2014 as one of their wettest. December 2014 was also the warmest December on record at more than a dozen climate stations across the San Francisco and Monterey Bay Areas, and one of the warmest on record at several others.

The first significant storm of December rolled through the area on December 2 and 3. Widespread rain began to move onshore during the early morning hours of Tuesday, December 2. The Tuesday morning commute in the San Francisco Bay Area was made difficult by minor urban flooding and strong winds. Downtown San Francisco picked up over an inch of rain by midday and by 1 pm San Francisco's year to date rain total (starting July 1, 2014) had reached 4.83", a total that was slightly **above** normal. The 1.61 inches of rain that fell in downtown San Francisco on December 2nd was the greatest calendar day rain total in the City since March 14, 2012. Southerly wind gusts of between 45 and 55 mph occurred in the hills on December 2. These winds downed trees and led to scattered power outages.

Thunderstorms began to move through the coastal waters during the evening of December 2. By 11:00 pm, a thunderstorm with heavy rain and small hail pushed onshore over Point Reyes. Nearly 300 lightning strikes were detected over the coastal waters and Marin County between 8:00 and 10:00 pm.



Graphic depicting lightning strikes during the evening of Tuesday, December 2. Graphic courtesy of WeatherBug

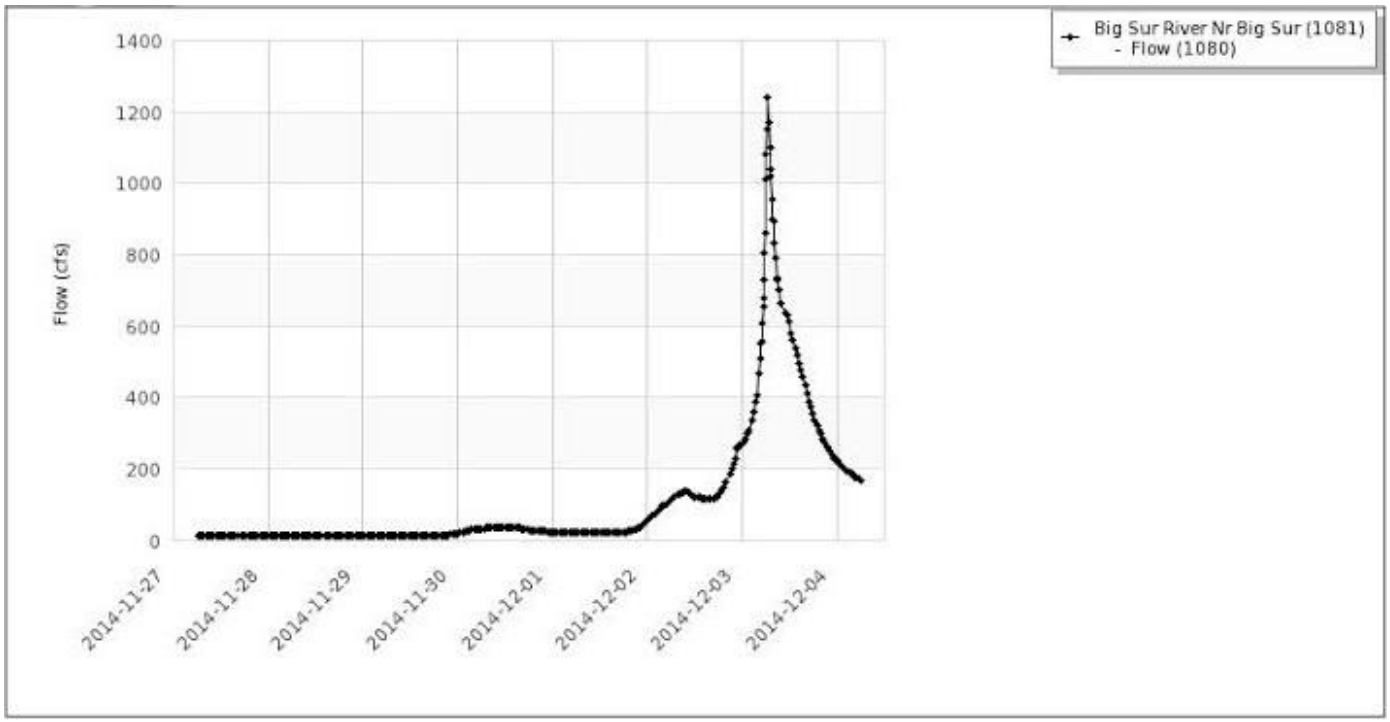
By the early morning hours of Wednesday, December 3, showers and isolated thunderstorms began pushing inland. Roadway flooding occurred in the San Francisco Bay Area during the Wednesday morning commute as strong showers and isolated thunderstorms continued to move through the area.

Northbound 101 off ramp to Stinson Beach in Marin County during the morning of December 3. Photo credit: CHP Marin

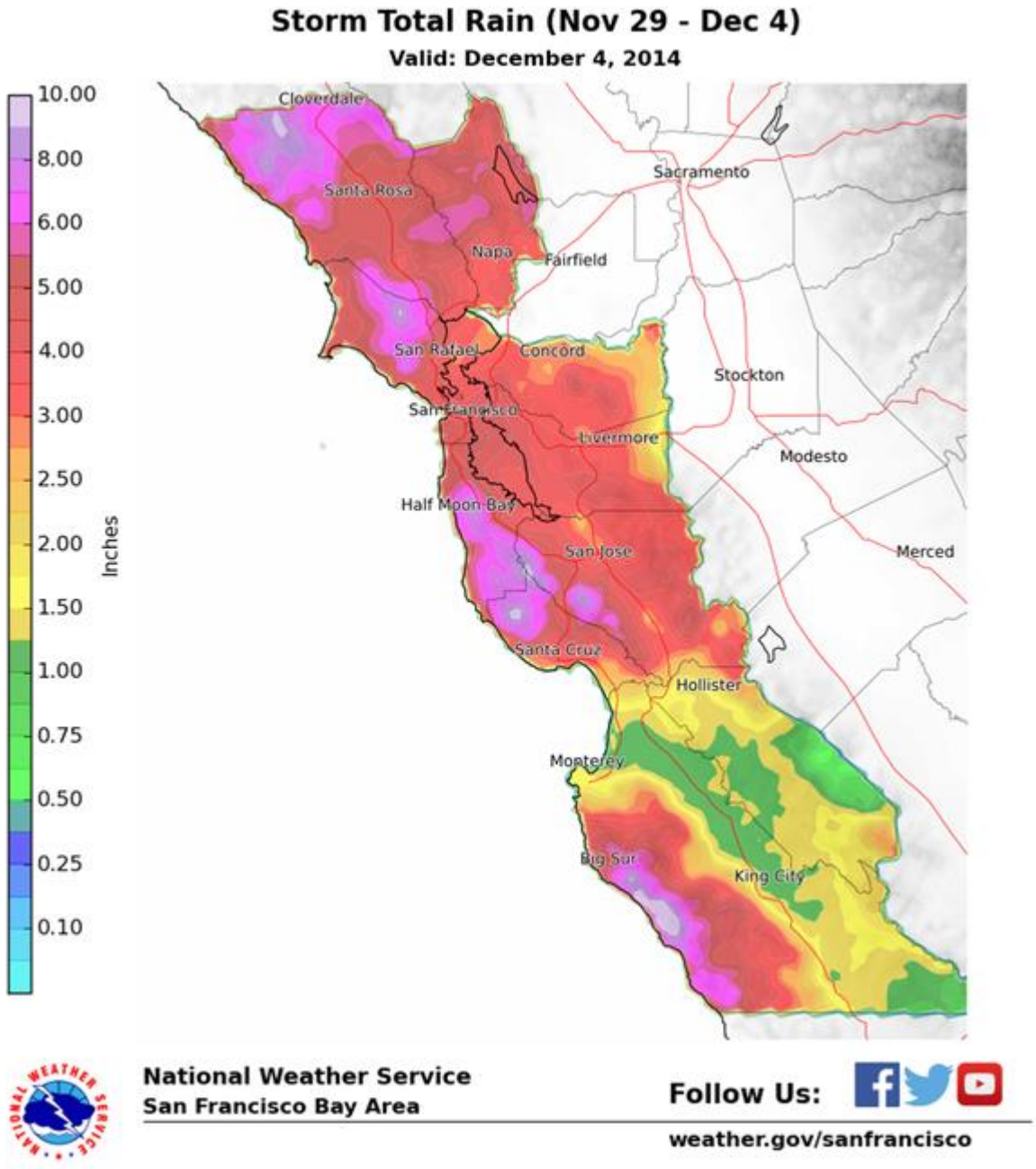
Roadway flooding in Petaluma on December 3. Photo credit: Beth Schlanker, Press-Democrat

At noon on December 3 the San Francisco Airport's 72 hour accumulated rainfall total stood at 3.71 inches, which was more than SFO's rainfall total during the entire 2013 calendar year (3.38").

Heavy rain shifted south into the Santa Lucia Mountains above Big Sur on the afternoon of December 3. At Anderson Peak, 3 inches of rain fell in only 2 hours (between 2:00 and 4:00 pm). Within that two hour window, a burst of very heavy rain dropped nearly an inch of rain in less than 30 minutes. Streams across the area rose rapidly, even with the dry antecedent conditions.



Graph showing a rapid rise in the flow on the Big Sur River during the afternoon of December 3

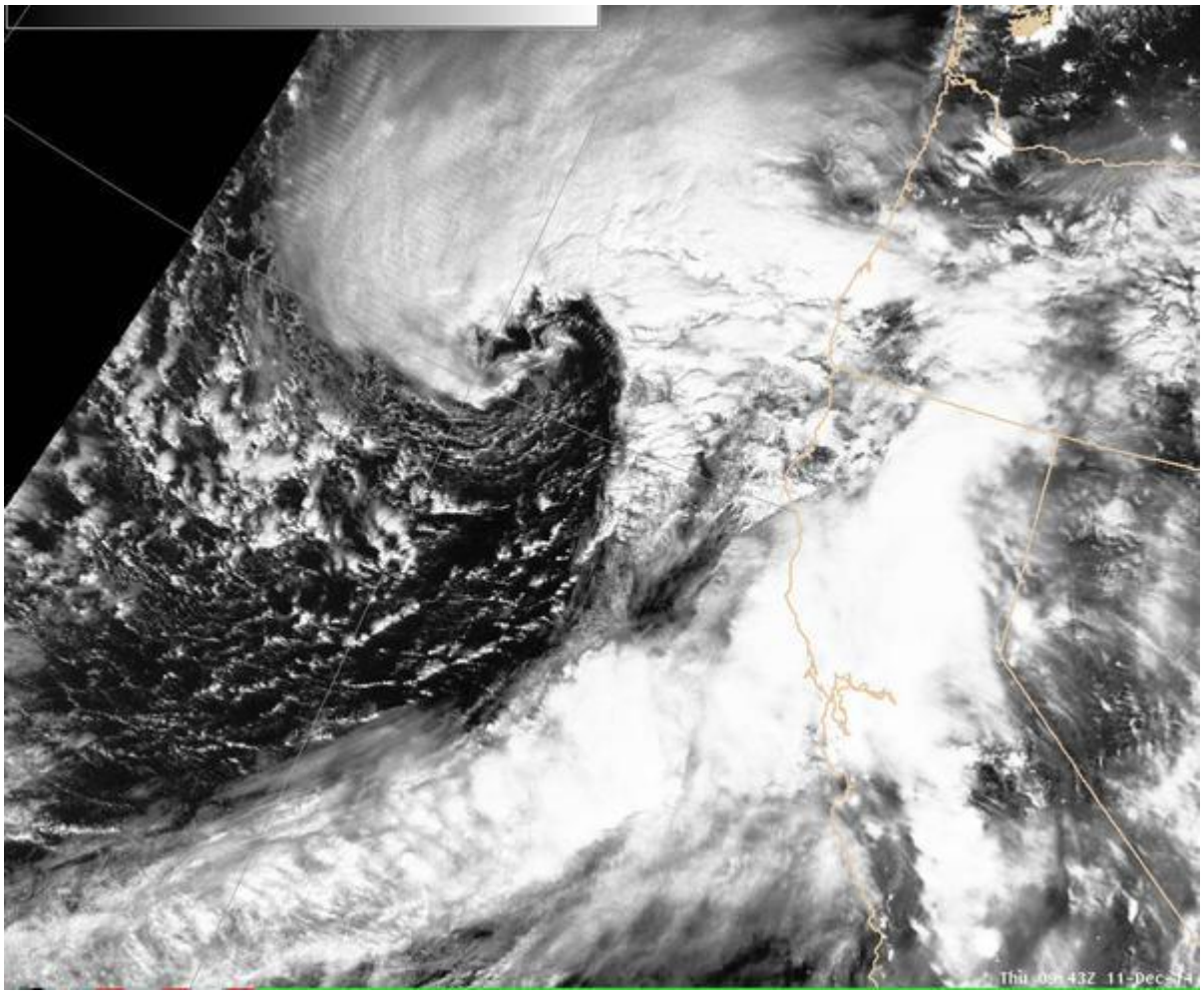


Graphic depicting rainfall totals from November 29-December 4. The maximum rainfall total during this six day period was 13.16 inches at Mining Ridge in western Monterey County.

Showers continued in Thursday, December 4, but gradually tapered off an ended by afternoon. More scattered showers then developed on Friday, December 5 and became locally heavy by late afternoon and evening with some isolated thunderstorms in the South and East Bay. Showers lingered into the morning hours of Saturday, December 6. Although scattered precipitation continued on the 5th and 6th, the air mass over the region was relatively warm. In fact, a record high temperature was set at the Oakland airport on the 5th, and three more record highs were tied in the Bay Area on the 6th. Record highs typically occur during sunny dry conditions, often with offshore flow. So, it was unusual to see record highs during days when precipitation fell.

A mild air mass remained over the area through December 8. On December 8 one more high temperature record occurred (at Oakland) and four other Bay Area locations were within one degree of their record highs.

Early in the second week of December a powerful storm developed over the eastern Pacific. This storm entrained a narrow plume of very moist air from the tropics (known as an “atmospheric river”) and moved into California on December 11, producing widespread heavy rainfall and in some cases record one-day rain totals. Flooding occurred in many low lying urban areas and some minor river and creek flooding occurred as well. Although the storm did not quite generate winds of the magnitude expected, locally strong and damaging winds did occur which led to power outages that affected nearly a half million PG&E customers.



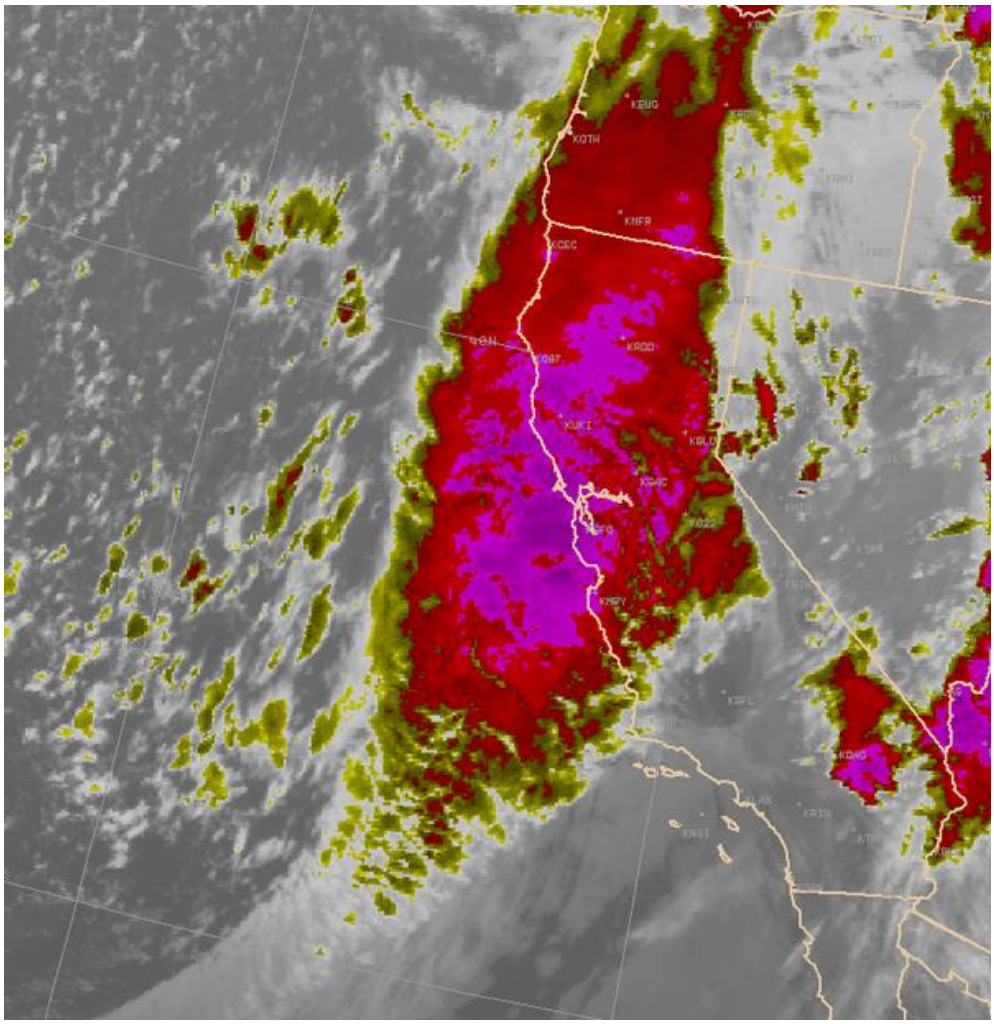
Satellite image of powerful Pacific storm as it began moving into Northern California during the pre-dawn hours of December 11

A more detailed review of the December 11, 2014 storm, including rainfall amounts, peak wind gusts, and storm reports, can be found at the following link:

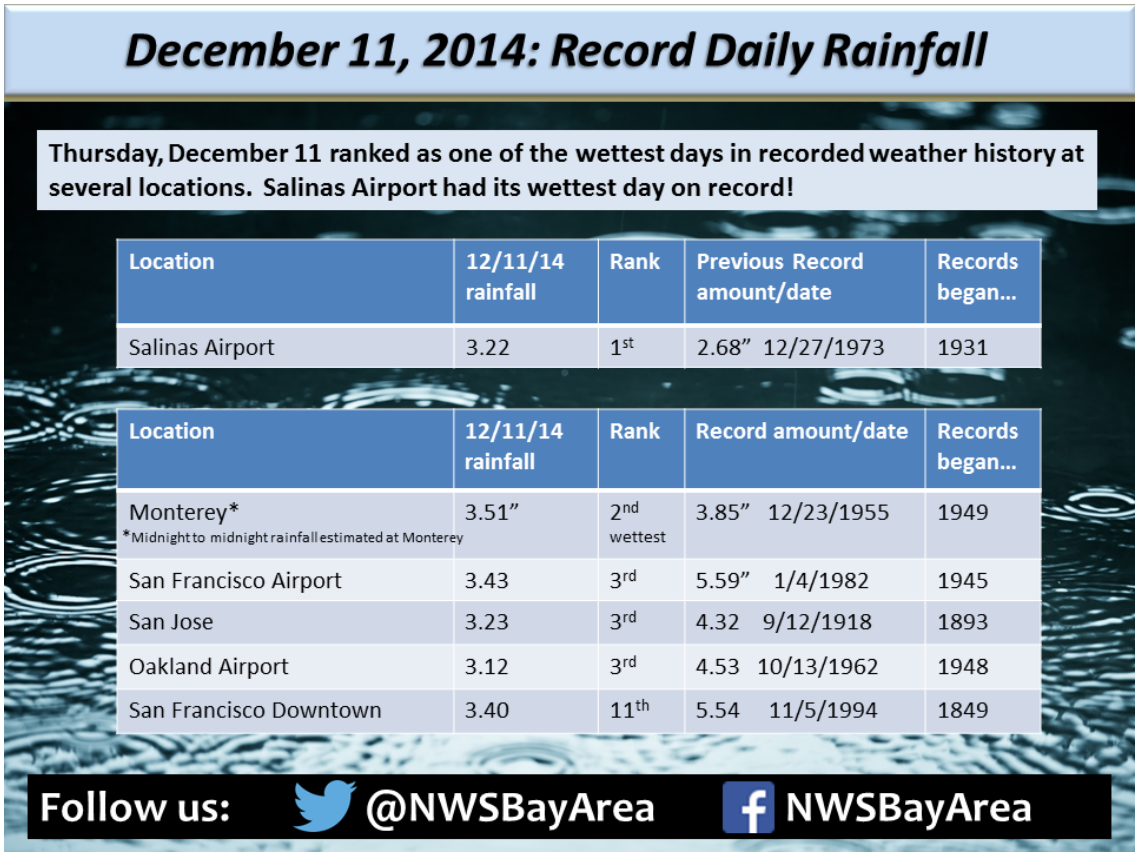
http://www.wrh.noaa.gov/mtr/stormSummary/RainWind_12_11_2014/rain_12_11_14.php

Other notable December 11 storm facts include:

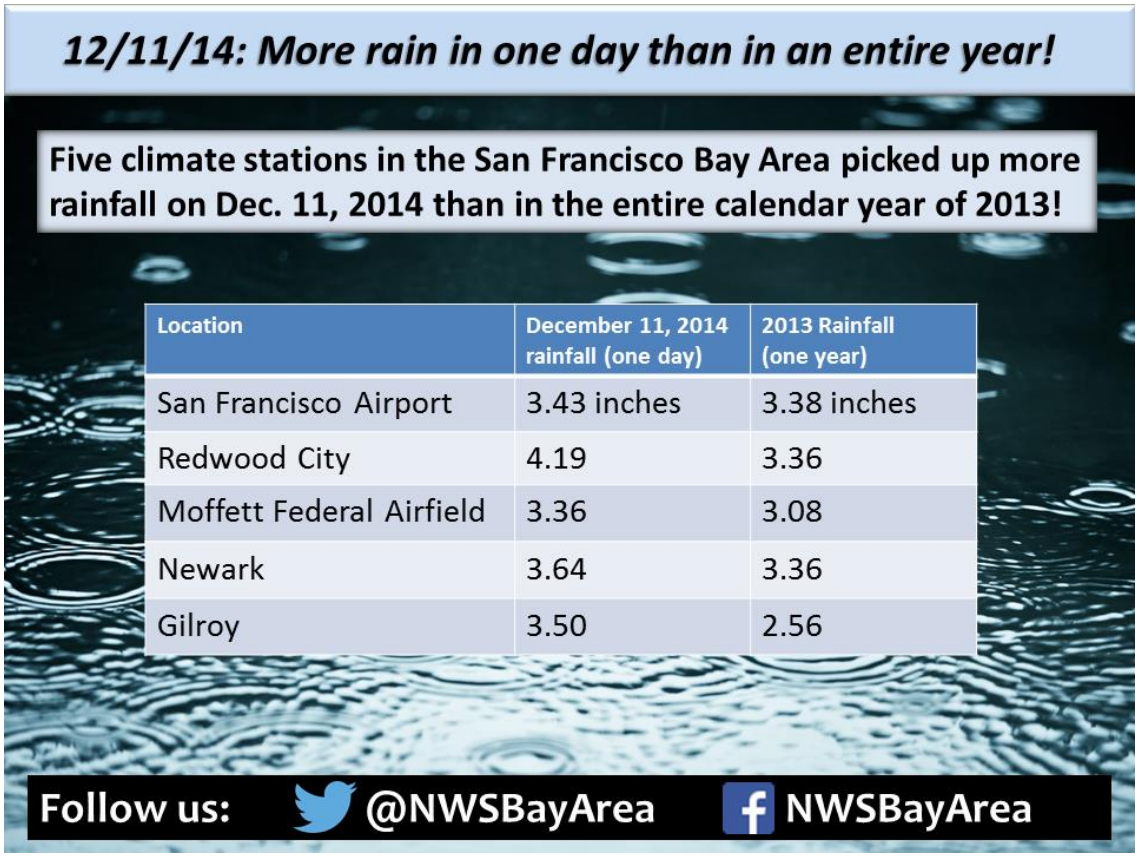
- Salinas Airport picked up 3.22 inches of rain on December 11. This was the greatest calendar day rainfall ever recorded at this location. In addition, climate stations in Monterey, San Jose, San Francisco Airport, and Oakland Airport had calendar day rainfall totals that ranked as one of the top three wettest days. Downtown San Francisco recorded its 11th wettest calendar day rain total. For details, see the graphic on the next page.
- Five climate stations picked up more rainfall on December 11 than they did during all of 2013. (2013 was the driest calendar year on record across the region). For details, see the graphic on the next page.
- A peak wind gust of 83 mph was recorded at Lick Observatory atop Mount Hamilton (4200 feet) at approximately 7:30 am on December 11.
- Heavy rain on December 11 resulted in minor flooding along the lower Russian River on the following day. The Russian River at Guerneville crested one foot above flood stage during the late afternoon hours of December 12.
- Rockslides/landslides resulted in the closure of highway 1 near Muir Beach and also along the Big Sur Coast from Bixby Bridge to Piedras Blancas.



Infrared satellite image taken at 7:30 pm on the evening of December 11. The frontal system had become nearly stationary at this time, resulting in a prolonged period of moderate to heavy rain.



Graphic showing record (or near record) calendar day rainfall on December 11.



Graphic showing how December 11 rainfall surpassed rain totals for the entire year of 2013 at some climate stations in the San Francisco Bay Area.

Photos from the December 11 storm

Flooding at the Ashby Avenue underpass near I-80 in Berkeley. Photo: Paul Chinn, San Francisco Chronicle

Flooded Safeway parking lot in Healdsburg. Photo: Alvin Jornada, San Francisco Chronicle

Emergency responders work to rescue an 11 year old boy pinned under a fallen cypress tree at Gateway School in Santa Cruz. Photo: Santa Cruz Police Dept.

Flooding along Rainsville Road and Stony Point Road in Petaluma. Photo: Ramin Rahimian, San Francisco Chronicle

Kayaker in a flooded section of Healdsburg. Photo: The Press Democrat

Large oak tree uprooted in San Jose. Photo: Michael Macor, San Francisco Chronicle.

Flooding along Magnolia Avenue in Petaluma. Photo: Beth Schlanker, Press Democrat

Fallen tree on Parker Street in Berkeley. Photo: Terry Sylvester, San Francisco Chronicle

Road bed of Highway 1 washed out near Muir Beach.

Large uprooted tree at Serramonte Ridge Apartments in Daly City. Photo: Evan Sernoffsky, San Francisco Chronicle

Russian River crests one foot above flood stage in Guerneville on December 12. Photo: Paul Chinn, San Francisco Chronicle

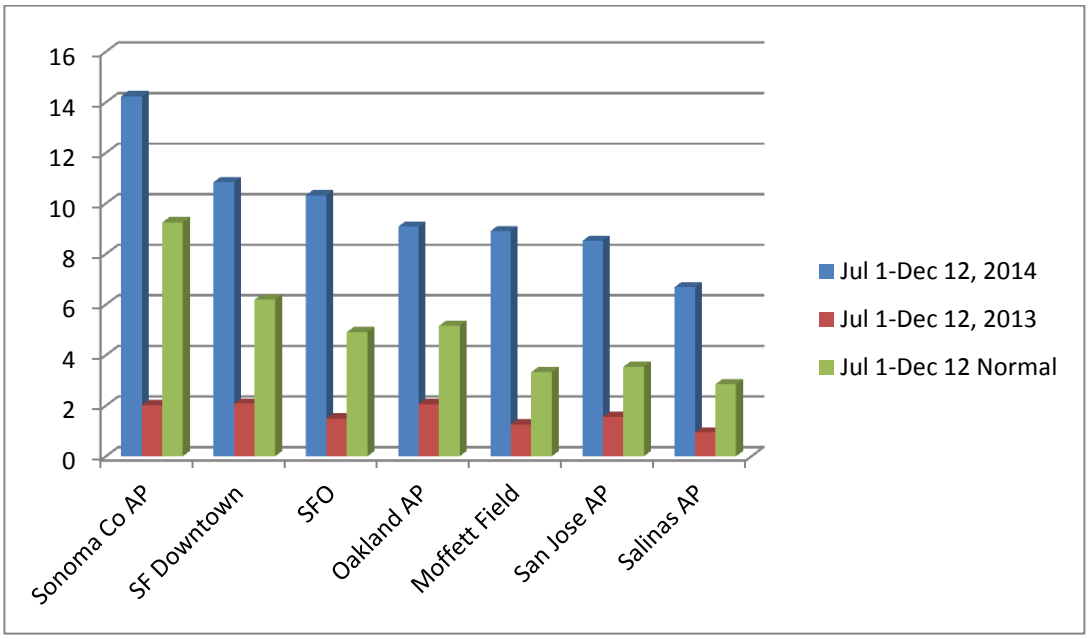
A whirlpool develops near a storm drain in a flooded section of Windsor. Photo: Press Democrat

Flooding on Hartnell Road near Salinas. Photo: Leigh Cooper, The Salinas Californian

Scattered showers continued into Friday, December 12. One shower off Point Reyes produced a waterspout.

Waterspout off Point Reyes on December 12.

As of December 12, year-to-date rainfall totals (for the rain year beginning July 1) were well ahead of totals from a year ago and also well above normal:



Year-to-date rainfall comparison as of December 12

	Jul 1-Dec 12, 2014	2014 PON	Jul 1-Dec 12, 2013	2013 PON	Jul 1-Dec 12 Normal
Sonoma County Airport	14.24	154%	2.02	22%	9.25
San Francisco Downtown	10.84	175%	2.08	34%	6.19
San Francisco Airport	10.32	210%	1.49	30%	4.91
Oakland Airport	9.08	176%	2.07	40%	5.16
Moffett Field	8.90	267%	1.26	38%	3.33
San Jose Airport	8.52	241%	1.56	44%	3.54
Salinas Airport	6.69	235%	0.94	33%	2.85

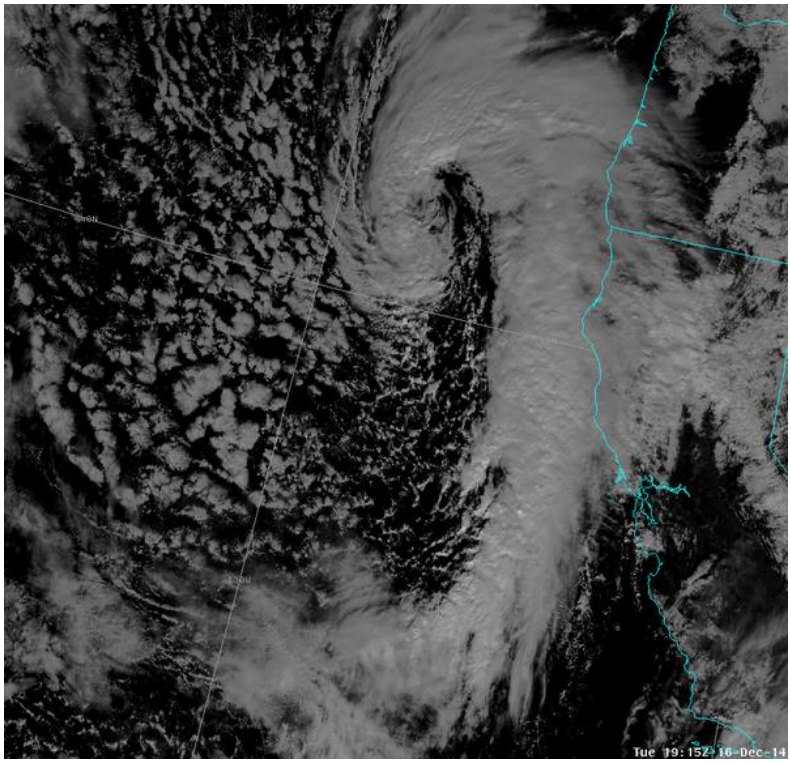
Detail of data presented in the graph above

A very active weather pattern continued through the entire middle third of December. During the afternoon hours of Monday, December 15, a line of intense showers and thunderstorms moved across the Monterey Peninsula. Very heavy rain rates were observed. Pebble Beach and Carmel picked up 0.65” and 0.80” of rain respectively during only one hour that afternoon. These sustained downpours resulted in local flooding on the Monterey Peninsula.

Flooding in Pebble Beach on December 15. Photo: Vern Fisher.

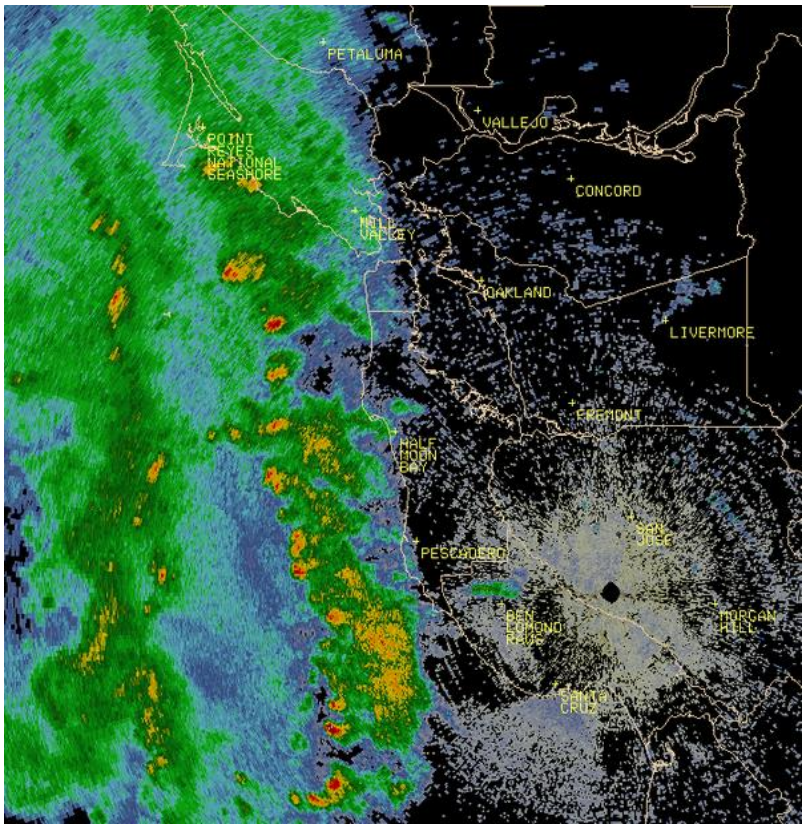
By midafternoon on the 15th heavy rain developed across the North Bay, resulting in flooding on small streams and creeks in Southern Napa County, Southern Sonoma County, and Marin County.

Very active weather resumed the following day on Tuesday, December 16. By late morning a line of heavy showers had developed over the coastal waters.



Visible satellite image taken at 11:15 am on Tuesday, December 16, showing a line of heavy showers offshore, approaching the northern and central California coast.

By 3 pm that afternoon, this line of showers began to push inland and several lightning strikes were detected offshore.



KMUX radar image at 3 pm on the afternoon of December 16, showing a line of intense showers and isolated thunderstorms beginning to move inland.

By early evening on the 16th a thunderstorm was reported near San Francisco, along with heavy rain and small hail. Radar indicated that some of the intense showers and thunderstorms over the coastal waters exhibited severe characteristics. Thirteen special marine warnings were issued for the coastal waters between Point Reyes and Point Piedras Blancas between 4 pm and 9 pm on the 16th. In addition, a severe thunderstorm warning was issued for the Watsonville and Moss Landing areas of Santa Cruz County that evening.

Rain continued off and on through December 17 and 18, albeit less widespread and intense compared to the previous two days.

The December 18 update of the Drought Monitor showed slight improvement for Northern California due to heavy rains over the preceding week. Most of the San Francisco Bay Area and much of the Monterey Bay Area were reduced from the D4 "exceptional" drought category to D3 "extreme" category. In early January, the climate.gov web site posted an article entitled "It Poured in California in December. Can We Stop Talking About the Drought?" This article explained why copious rainfall in December resulted in only marginal drought relief.

A cold front swept into the North Bay during the early morning hours of Friday, December 19, and by mid-morning rain totals across portions of the North Bay were already approaching 2 inches. Kentfield's rainfall total on the 19th was 2.63 inches and San Francisco's 1.24". Rain totals were much lower to the south of San Francisco. This was to be the final significant rain event of the month.

Stormy weather across the Eastern Pacific during the week of December 14-20 generated large ocean swell which resulted in large breaking waves along the Northern and Central California coast by late that week.

Large breaking waves off Carmel Point on Saturday, December 20. Photo: Steve Anderson

A ridge of high pressure developed over California during the weekend of December 20-21. The stable airmass under this ridge resulted in dense fog across portions of the Bay Area on the morning of Monday, December 22nd.

Only the higher points of San Francisco are visible on the morning of December 22 as dense fog develops near San Francisco Bay.

Temperatures climbed to record warm levels by Tuesday, December 23. But this warm-up was short-lived as a strong cold front moved in from the north on Christmas Eve. This cold front produced a brief burst of heavy rain in San Francisco during the early afternoon hours of the 24th, but less than a tenth of an inch of rain fell in the City and no location picked up more than a quarter of an inch. The main impact from this system was to usher in the first cold air mass of the month. The mornings of December 26 and 27 were cold, especially in the interior valleys where overnight lows dropped to around freezing. Temperatures dipped into the mid and upper 20s in the coldest inland valleys during the morning of December 27.

A cold and dry weather system originating in Western Canada dropped into the San Francisco Bay Area during the early morning hours of Tuesday December 30. This system produced no precipitation but did generate strong and damaging northerly winds. By early afternoon north winds were gusting to 40 mph at the Santa Rosa, Napa, and Oakland airports and 15,000 PG&E customers in the East Bay were already without power. By late that afternoon winds had gusted between 50 and 55 mph at the Napa Airport, at the Benicia Bridge, and at San Jose State University. 21,000 PG&E customers in San Jose were without power. Between 6 and 7 pm that evening wind gusts of up to 50 mph were reported at San Francisco Airport. In addition, widespread wind gusts in excess of 45 mph were reported in the hills that afternoon and evening, with some isolated locations in the East Bay Hills reporting peak gusts of 60 mph.

The December 30th windstorm resulted in numerous downed trees and power lines throughout the San Francisco Bay Area and south into Santa Cruz County. There were major delays on the BART system due to fallen trees and branches on the tracks. Several roadways were temporarily closed due to fallen trees. In all, over 250,000 PG&E customers were impacted by power outages on December 30.

A large redwood tree blown down onto a home in the northern portion of Napa on December 30. Photo by Napa Fire Department.

December Regional Precipitation Summary

Stormy weather during the first three weeks of December, including several periods of heavy rain, resulted in monthly rainfall totals that were well above normal. In fact, most climate stations received from two to three times their normal rainfall during December. A few locations accumulated more than 300% of average December rainfall, including Petaluma, Livermore, Newark, Moffett Field, Monterey Airport, and Salinas. December 2014 turned out to be the wettest December on record for three climate stations, including Petaluma Airport which has a 100-year rainfall climate record. Several other climate stations had one of their wettest Decembers on record. At nearly every location, the wettest December prior to this year was in 1955. Downtown San Francisco, which has the longest rainfall period of record at 165 years, registered its 5th wettest December. See tables below for details:

December 2014: Wettest December on Record				
Location	**Dec 2014 Rain Total**	**Average Dec Rain**	**Previous Record and Year**	**Years of Records**
Petaluma Airport	15.60 inches	4.94	15.48 in 1955	100
Newark	9.48	2.56	7.93 in 1955	72
Salinas	7.45	2.44	5.92 in 1996	56

December 2014: One of the Wettest on Record					
Location	**Dec 2014 Rain Total**	**Rank**	**Average Dec Rain**	**Record Dec Rain & Year**	**Years of Records**
Mount Diablo Junction	11.78 inches	2nd	4.39	15.38 in 1955	63
Monterey	9.73	2nd	3.41	9.79 in 1955	79
Moffett Federal Airfield	8.53	2nd	2.56	9.55 in 1955	66
Livermore	8.23	2nd	2.58	10.15 in 1955	111
San Jose	7.76	2nd	2.61	9.26 in 1955	120
Sonoma	13.50	3rd	6.21	16.87 in 1955	75
Mount Hamilton	10.92	3rd	4.15	21.55 in 1955	66
Martinez	10.74	3rd	3.71	12.90 in 1955	88
Redwood City	10.73	3rd	3.84	14.16 in 1955	95
San Francisco Airport	10.66	3rd	4.03	12.30 in 1955	70
Oakland Museum	10.49	3rd	4.48	11.87 in 2002	43
Oakland Airport	8.86	3rd	3.66	11.29 in 1955	53
San Rafael	17.17	4th	7.59	22.65 in 1955	68
Richmond	11.36	4th	4.61	15.40 in 2002	65
Half Moon Bay	10.80	4th	5.28	13.81 in 1955	74
Saint Helena	17.08	5th	7.12	24.32 in 1955	108
Napa	11.97	5th	5.23	16.13 in 1955	117
Berkeley	12.02	5th	5.04	15.04 in 1955	116
San Francisco Downtown	11.70	5th	4.56	15.16 in 1866	165
Salinas Airport	6.01	5th	1.93	8.96 in 1955	84
Gilroy	8.67	6th	3.70	10.26 in 1906	70
Kentfield	19.80	7th	9.91	32.87 in 1955	110
Angwin	17.37	7th	8.09	30.44 in 1955	72
Watsonville	10.14	7th	4.25	14.61 in 1944	101
King City	4.83	7th	1.98	7.69 in 1955	105
Pinnacles National Park	5.91	8th	2.78	9.84 in 1955	76

December 2014 was the **3rd wettest December** on record for **California Climate Division #4** and the wettest December since 1955 for this climate division. (California Climate Division #4 is defined in the temperature section that follows).

On December 31st, with the first six months of the rain year complete, year-to-date rainfall totals were running well ahead of normal across the region. December 31st year-to-date rain totals ranged from a low of about 125 percent of normal at some North Bay locations such as Occidental and Calistoga to more than 200 percent of normal at San Jose, Moffett Field, Newark, Salinas, and Monterey Airport.

December 2014 Rainfall compared to Normal

Location	December Rainfall	Normal Dec Rain	Percent of Normal
North Bay			
Angwin	17.37	8.09	215
Calistoga	15.33	7.88	195
Cloverdale	16.65	8.45	197
Kentfield	19.80	9.91	200
Muir Woods	14.79	7.40	200
Napa	11.97	5.23	229
Napa Airport	10.14	3.79	268
Occidental	19.99	11.57	173
Petaluma Airport	15.60	4.94	316
Saint Helena	17.08	7.12	240
San Rafael	17.17	7.59	226
Sonoma County Airport	14.49	7.03	206
Sonoma	13.50	6.21	217
San Francisco Peninsula			
Half Moon Bay	10.80	5.28	205
Palo Alto	7.29	2.95	247
Redwood City	10.73	3.84	279
San Francisco Airport	10.66	4.03	265
San Francisco Downtown	11.70	4.56	257
Woodside	11.80	5.47	216
East Bay			
Berkeley	12.02	5.04	238
Concord Airport	7.86	3.14	250
Fremont	8.10	2.82	287
Hayward Airport	7.78	3.12	249
Livermore	8.23	2.58	319
Livermore Airport	8.12	2.68	303
Martinez	10.74	3.71	289
Mount Diablo Junction	11.78	4.39	268
Newark	9.48	2.56	370
Oakland	10.49	4.48	234
Oakland Airport	8.86	3.66	242
Richmond	11.36	4.61	246
South Bay and Santa Cruz County			
Ben Lomond	20.09	9.88	203
Gilroy	8.67	3.70	234
Los Gatos	10.85	4.01	271
Moffett Federal Airfield	8.53	2.56	333
Mount Hamilton	10.92	4.15	263
San Jose	7.76	2.61	297
Santa Cruz	11.49	5.68	202
Watsonville	10.14	4.25	239
Watsonville Airport	9.43	4.20	225

Monterey and San Benito Counties	December Rainfall	Normal Dec Rain	Percent of Normal
Carmel Valley	6.86	3.01	228
Hollister	5.13	2.13	241
King City	4.83	1.98	244
Monterey	9.73	3.41	285
Monterey Airport	8.90	2.34	380
Pinnacles National Park	5.91	2.78	213
Salinas	7.45	2.44	305
Salinas Airport	6.01	1.93	311

December Regional Temperature Summary

Most of the focus during December was on rainfall, and much less attention was paid to the fact that December was a very warm month compared to normal. In fact, December 2014 turned out to be the warmest December on record at 14 climate stations in the San Francisco and Monterey Bay Areas. Average December temperatures at another 14 climate stations ranked as one of the top 5 warmest, including downtown San Francisco having its second warmest December. See tables on the next page for details.

Overnight lows, in particular, were much warmer than normal in December. Average lows were anywhere from 5 to 10 degrees warmer than normal – a very significant departure. Warm nights were due to continued warmer-than-normal sea surface temperatures as well as significant cloud cover during the first three weeks of the month which helped hold nighttime temps up. If it hadn't been for the cold snap during the final week of December, average lows would have departed from the norm even more dramatically. As it was, average lows for December were the warmest on record for most climate stations, including Downtown San Francisco.

Average December high temperatures were almost universally warmer than normal, but departures from normal were less significant compared to average lows. Average highs were slightly cooler than normal at a few locations, but warm nighttime temperatures resulted in a warmer than normal month as a whole even at these locations.

According to the National Climatic Data Center (NCDC), the average December temperature for California Climate Division #4 was 52.3 degrees F, which is 4.9 degrees above normal. December 2014 tied December 1958 as the warmest December on record for this climate division. CA Climate Division #4 includes nearly the entire San Francisco Bay Area (excluding eastern Napa County) as well as Santa Cruz and Monterey Counties, and most of San Benito County (see map below).

California Climate Divisions

December 2014: Warmest December on Record			
Location	**December '14 Average Temperature***	**Previous Record and Year**	**Years of Records**
Oakland Museum	57.3 deg F	55.5 in 1981	44
San Francisco Airport	56.8	55.2 in 1928	70
Salinas Airport	56.5	55.0 in 1940	82
San Rafael	56.0	55.4 in 1958	65
Half Moon Bay	55.4	54.9 in 1958	74
Watsonville	55.3	54.7 in 1958	101
Oakland Airport	55.0	54.0 in 1977	51
Newark	54.9	54.4 in 1983	72
Redwood City	54.3	53.5 in 1983	84
Napa	53.9	53.7 in 1995	116
Kentfield	53.6	53.1 in 1996	110
Ben Lomond	53.5	53.1 in 1977	78
Saint Helena	52.9	52.7 in 1958	106
Sonoma	52.6	52.5 in 1977	66

***Average Temperature = (Average High Temp + Average Low Temp) / 2**

December 2014: One of the Warmest on Record				
Location	**Dec '14 Average Temp**	**Rank**	**Record and Year**	**Years of Records**
Cloverdale	52.4 deg F	2nd warmest	54.9 in 1958	59
Petaluma Airport	53.5	2nd	58.8 in 1929	100
San Francisco Downtown	56.3	2nd	57.5 in 1958	140
Berkeley	55.0	2nd	55.7 in 1958	116
Livermore	52.8	2nd	53.0 in 1958	112
Richmond	55.1	2nd	55.8 in 1958	65
Gilroy	53.9	2nd	54.0 in 1977	58
Moffett Federal Airfield	55.4	2nd	55.9 in 1969	67
San Jose	54.4	2nd	55.7 in 1958	115
Los Gatos	53.6	3rd	56.4 in 1958	121
King City	53.8	3rd	54.3 in 1950	82
Monterey	55.0	4th	57.5 in 1958	68
Salinas	54.7	4th	56.3 in 1958	56
Santa Cruz	53.8	5th	55.7 in 1958	122

December 2014 Average Temperatures compared to Normal

Location	Average High	Normal High	Departure from Normal	Average Low	Normal Low	Departure from Normal
North Bay						
Angwin	53.1	52.8	0.3	43.4	38.9	4.5
Calistoga	57.1	58.5	-1.4	45.5	36.4	9.1
Cloverdale	59.9	57.2	2.7	44.8	38.6	6.2
Kentfield	58.8	54.8	4.0	48.4	41.3	7.1
Napa	60.7	57.1	3.6	47.0	39.6	7.4
Napa Airport	59.4	55.6	3.8	44.3	36.0	8.3
Occidental	55.7	53.9	1.8	45.9	40.6	5.3
Petaluma Airport	60.1	57.0	3.1	46.9	38.5	8.4
Saint Helena	58.8	57.4	1.4	47.0	38.1	8.9
San Rafael	61.9	54.3	7.6	50.0	41.8	8.2
Sonoma County Airport	59.9	56.3	3.6	45.7	36.5	9.2
Sonoma	58.9	56.2	2.7	46.2	37.6	8.6
San Francisco Peninsula						
Half Moon Bay	62.0	59.0	3.0	48.7	41.9	6.8
Redwood City	61.6	58.1	3.5	47.0	40.3	6.7
San Francisco Airport	61.9	56.6	5.3	51.7	44.6	7.1
San Francisco Downtown	60.6	57.1	3.5	52.0	46.1	5.9
Woodside	63.8	60.3	3.5	46.0	36.4	9.6
East Bay						
Berkeley	61.6	58.6	3.0	48.3	42.6	5.7
Concord Airport	61.5	55.6	5.9	47.6	39.8	7.8
Fremont	62.3	57.8	4.5	48.8	42.5	6.3
Hayward Airport	63.1	57.5	5.6	49.6	42.6	7.0
Livermore	60.1	56.4	3.7	45.5	39.1	6.4
Livermore Airport	62.5	56.2	6.3	47.4	37.7	9.7
Martinez	59.9	55.6	4.3	M	35.5	M
Mount Diablo Junction	55.4	55.2	0.2	44.2	39.8	4.4
Newark	61.1	58.0	3.1	48.6	42.3	6.3
Oakland	64.0	58.3	5.7	50.5	44.7	5.8
Oakland Airport	61.1	56.4	4.7	48.9	41.5	7.4
Richmond	60.2	57.7	2.5	49.9	43.6	6.3
South Bay and Santa Cruz County						
Ben Lomond	62.0	60.5	1.5	45.0	36.5	8.5
Gilroy	62.5	60.5	2.0	45.3	37.4	7.9
Los Gatos	60.5	57.2	3.3	46.6	39.1	7.5
Moffett Federal Airfield	61.9	58.9	3.0	48.9	42.9	6.0
Mount Hamilton	47.1	48.1	-1.0	39.2	37.8	1.4
San Jose	60.9	58.0	2.9	47.8	41.9	5.9
Santa Cruz	59.7	61.9	-2.2	47.9	41.2	6.7
Watsonville	63.2	60.8	2.4	47.3	39.4	7.9
Watsonville Airport	63.3	60.0	3.3	48.2	39.7	8.5

Monterey and San Benito Counties	Average High	Normal High	Departure from Normal	Average Low	Normal Low	Departure from Normal
Carmel Valley	62.9	61.6	1.3	43.2	38.6	4.6
Hollister	60.5	59.9	0.6	45.1	37.7	7.4
King City	62.5	62.6	-0.1	45.1	36.9	8.2
Monterey	60.9	57.8	3.1	49.0	43.8	5.2
Monterey Airport	62.5	60.5	2.0	48.1	42.3	5.8
Pinnacles National Park	60.9	61.4	-0.5	41.4	32.1	9.3
Salinas	63.2	62.3	0.9	46.1	39.6	6.5
Salinas Airport	64.2	61.1	3.1	48.8	40.8	8.0

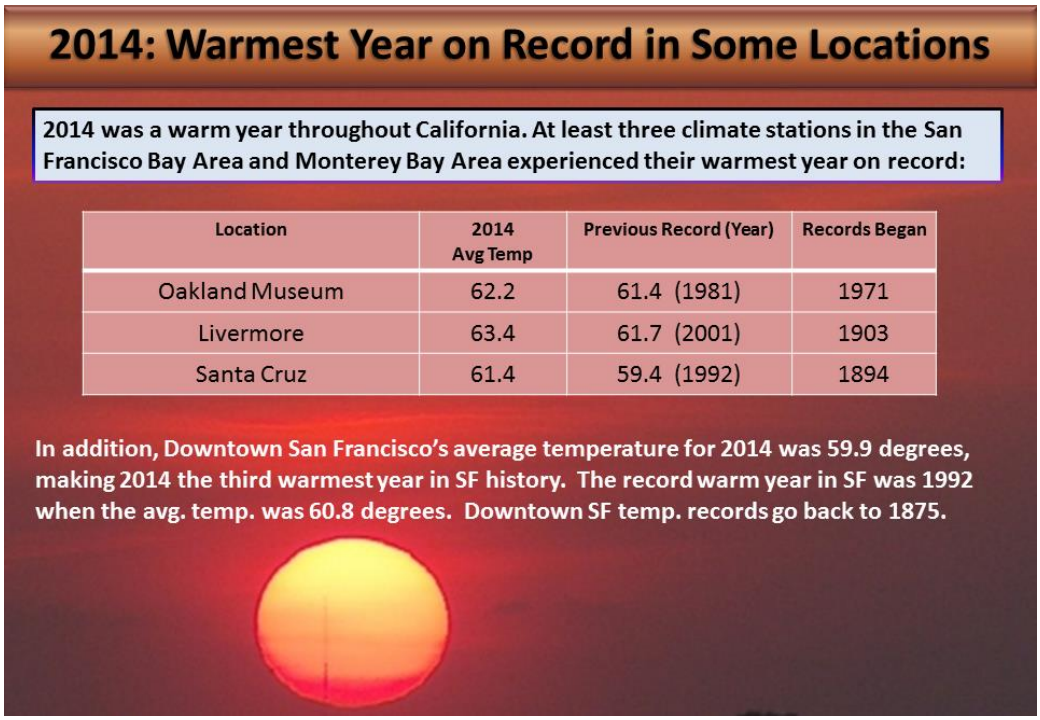
2014: Warmest Year on Record

According to data compiled by both NOAA and NASA, 2014 was the warmest year on earth in recorded history (since 1880). 2014 surpassed 2010 as the warmest year, and the 10 warmest years globally have all occurred since 1997. Details can be found here: http://www.ncdc.noaa.gov/sotc/summary-info/global/2014/12

California also experienced its warmest year on record. According to the National Climatic Data Center (NCDC), the average statewide temperature during 2014 was 61.5 degrees F, and was 4.1 degrees above the 20th century average of 57.4 degrees. The previous record warmest year in California was 1934 with an average temperature of 59.7 degrees. Thus, 2014 broke the previous record by nearly 2 full degrees.

Closer to home, 2014 was also the warmest year on record for California Climate Division #4, with an average annual temperature of 61.8 degrees F, 4.6 deg above the 20th century average of 57.2 degrees.

Preliminary data indicate that 2014 was the warmest year on record for at least three individual climate stations (Oakland Museum, Livermore, and Santa Cruz). Downtown San Francisco had its third warmest year on record. See the graphic below for full details:



Miscellaneous December Climate Information:

Daily High Temperature Records for December 2014			
Date	**Location**	**Record Max Temp**	**Previous Record and Year**
12/05	Oakland Airport	67	65 in 2012
12/06	San Francisco Airport	67	67 in 1979
12/06	Oakland Airport	66	66 in 1979
12/06	Oakland Museum	71	71 in 1979
12/08	Oakland Museum	74	68 in 1988
12/23	San Rafael	67	66 in 2004
12/23	San Francisco Downtown	68	68 in 1999
12/23	San Francisco Airport	68	64 in 2004
12/23	Richmond	65	65 in 1977
12/23	Oakland Museum	71	67 in 2013
12/23	Oakland Airport	65	65 in 2004
12/23	Moffett Federal Airfield	69	68 in 1977
12/23	San Jose	68	67 in 1964

Monthly Ranks for Downtown San Francisco		
Average High Temperature	60.6 degrees	10th warmest out of 140 years
Average Low Temperature	52.0 degrees	Warmest out of 140 years
Average Temperature	56.3 degrees	2nd warmest out of 140 years
Precipitation	11.70 inches	5th wettest out of 165 years

Monthly Extremes for Select Locations			
Location	Max Temp: Warmest Day(s)	Min Temp: Coolest Day(s)	Precipitation: Wettest Day(s)
Sonoma County Airport	12/22	12/27, 12/29	12/11
	70 degrees	30 degrees	4.66 inches
San Francisco	12/08, 12/23	12/27, 12/28, 12/30, 12/31	12/11
	68 degrees	45 degrees	3.40 inches
Livermore Airport	12/08	12/27	12/11
	72 degrees	33 degrees	2.56 inches
San Jose	12/08	12/27	12/11
	71 degrees	33 degrees	3.23 inches
Salinas Airport	12/23	12/31	12/11
	74 degrees	34 degrees	3.22 inches

Note: Climatological data included in this document is preliminary. For official certified climatological data please contact the National Climatic Data Center at 828-271-4800 or http://www.ncdc.noaa.gov.
Official values as determined at the above web site may take several months for authentication and publication.