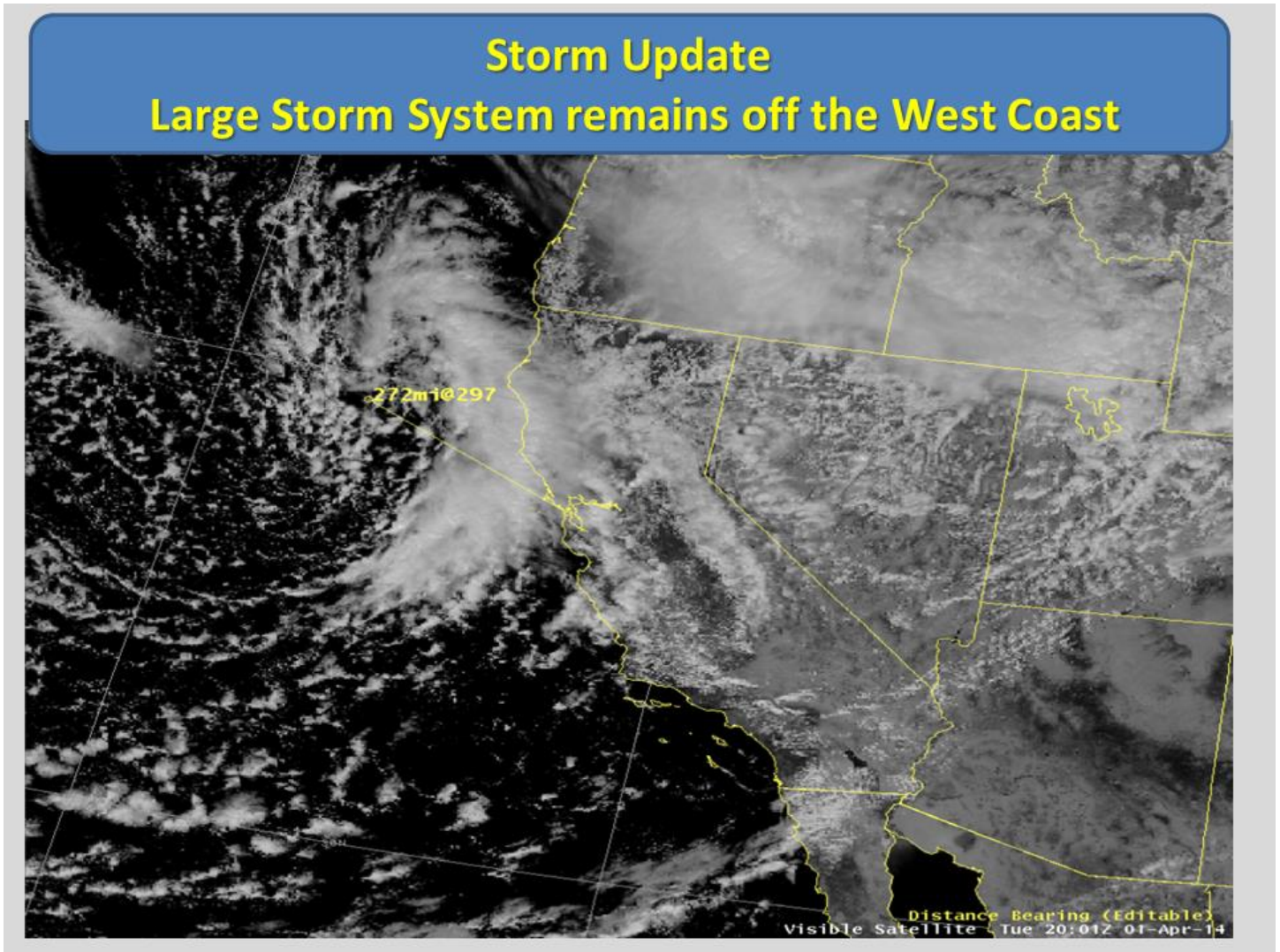


## April 2014 Regional Climate Summary

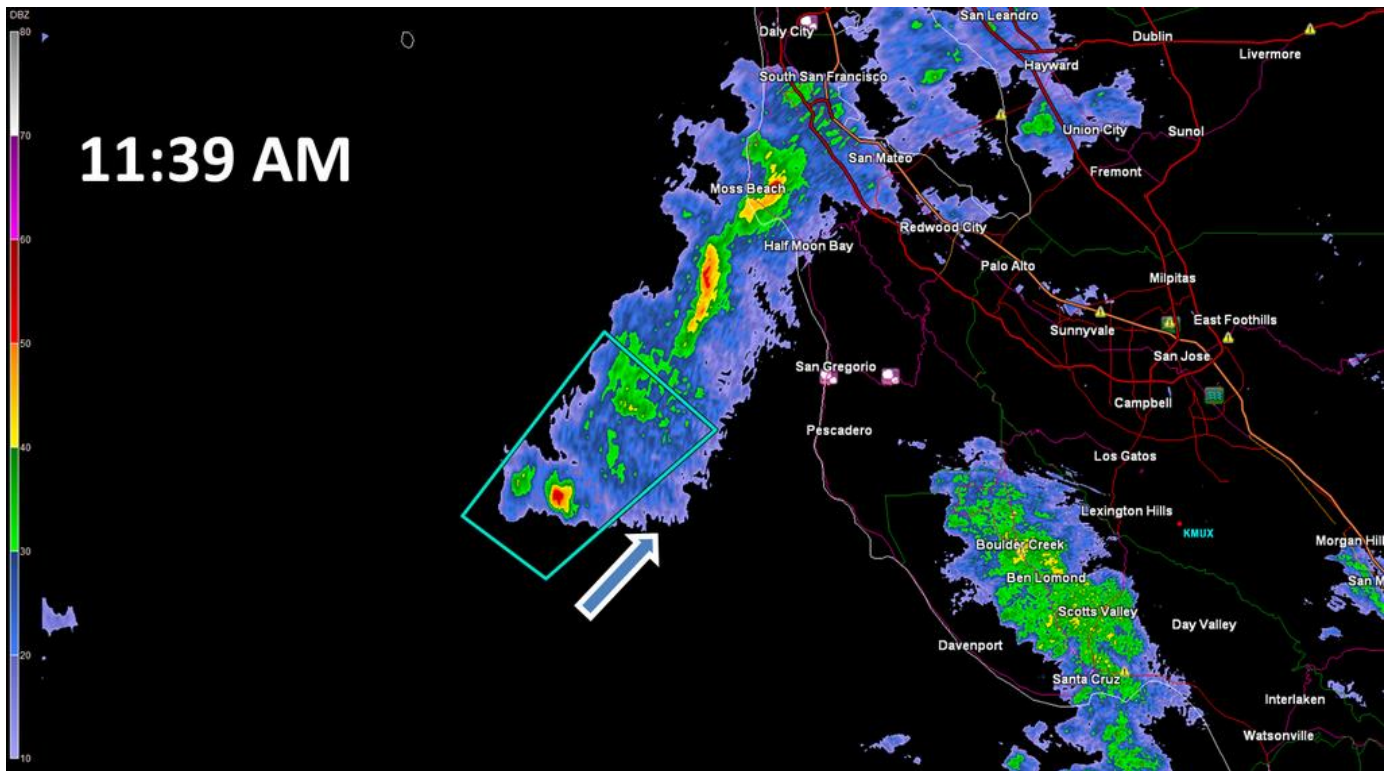
### For the San Francisco Bay Area and Monterey Bay Area

**April 2014 began wet and stormy and ended dry and very warm.** A cold storm system spread numerous showers and isolated thunderstorms across the region on Tuesday, April 1. There were several reports of thunder, heavy downpours, and small hail that day.



**Visible satellite image taken at 1 pm PDT on Tuesday April 1 showing a storm system centered offshore, about 270 miles west-northwest of San Francisco. Bands of showers can be seen spiraling inland across northern and central California.**

Radar indicated rotation within some of the storms that day, particularly over the coastal waters. Four special marine warnings were issued on the April 1 for portions of the coastal waters off San Mateo County south to Monterey County.



***Radar imagery of an intense storm cell off the coast of San Mateo County late on the morning of April 1. The polygon on this image shows the area included under a “Special Marine Warning.”***

The storm on April 1 was cold enough to produce snow at higher elevations. Snow was reported at 2800 feet in the hills above Big Sur. Three inches of snow fell at Lick Observatory atop Mount Hamilton (4200 feet), while four inches of snow accumulated at Chew’s Ridge at an elevation of 4700 feet in the Ventana Wilderness/Los Padres National Forest of Monterey County.

Rainfall totals on April 1 ranged from a quarter inch to an inch in most locations. Several of the more intense showers and thunderstorms produced small hail on April 1.



***Hailstones that fell in Napa during the late morning of April 1***



A weaker weather system moved through the area on April 4 and dropped as much as a half inch of rain on the North Bay. Rain totals tapered off farther to the south to as little as a few hundredths in the southernmost inland valleys.

Little or no rain fell across the region from April 5-24, which was one reason for a worsening drought classification across portions of our area by late in the month (see page 5). During this time, temperatures were above normal on most days. A deep marine layer developed for a few days near the middle of the month, resulting in widespread night and morning low clouds.



***View from the Lick Observatory atop Mount Hamilton (4200 feet) on the morning of April 13, showing widespread low clouds below the mountain, within a 3000-foot-deep marine layer.***

One more storm system moved through the area late in the month on Friday, April 25, and dropped moderate amounts of rain. Rain totals on the 25<sup>th</sup> were mostly between a quarter and a half inch, with some isolated locations in the North Bay picking up slightly more than an inch. An isolated thunderstorm moved through northern Sonoma County early that afternoon producing brief heavy rain and small hail in Healdsburg.

Rainfall totals for the month were close to normal at the majority of climate stations. But because much of April's rainfall was convective in nature, monthly precipitation totals varied considerably from as little as half of normal in some North Bay locations to as much as twice the April average at Antioch and Palo Alto.

By April 30, year-to-date rain totals for the rain year that began on July 1, 2013, were generally 40 to 55 percent of normal (PON), and as high 65 PON in the East Bay and 75 PON in the North Bay. These PON values had not changed significantly since the end of March.

**April Regional Precipitation Summary:**

| Location                       | April Rainfall | Normal Apr Rainfall | Percent of Normal |
|--------------------------------|----------------|---------------------|-------------------|
| <b>North Bay</b>               |                |                     |                   |
| Angwin                         | 2.03           | 2.34                | 87                |
| Calistoga                      | 1.12           | 2.39                | 47                |
| Cloverdale                     | 1.40           | 2.56                | 55                |
| Kentfield                      | 1.63           | 2.49                | 65                |
| Muir Woods                     | 2.88           | 2.24                | 129               |
| Napa                           | 2.88           | 1.59                | 181               |
| Napa Airport                   | 1.84           | 1.04                | 177               |
| Occidental                     | 1.82           | 3.58                | 51                |
| Petaluma Airport               | 1.61           | 1.63                | 99                |
| San Rafael                     | 1.67           | 1.91                | 87                |
| Sonoma County Airport          | 0.73           | 2.09                | 35                |
| <b>San Francisco Peninsula</b> |                |                     |                   |
| Half Moon Bay                  | 1.21           | 1.90                | 64                |
| Palo Alto                      | 1.98           | 0.98                | 202               |
| Redwood City                   | 0.84           | 1.16                | 72                |
| San Francisco Airport          | 1.61           | 1.29                | 125               |
| San Francisco Downtown         | 1.59           | 1.46                | 109               |
| Woodside                       | 1.27           | 1.85                | 69                |
| <b>East Bay</b>                |                |                     |                   |
| Antioch                        | 1.48           | 0.78                | 190               |
| Berkeley                       | 1.90           | 1.66                | 114               |
| Concord                        | 1.65           | 1.12                | 147               |
| Concord Airport                | 1.51           | 1.12                | 135               |
| Fremont                        | 0.91           | 1.16                | 78                |
| Hayward Airport                | 0.76           | 1.24                | 61                |
| Livermore                      | 0.98           | 1.01                | 97                |
| Livermore Airport              | 0.83           | 1.00                | 83                |
| Martinez                       | 2.12           | 1.21                | 175               |
| Mount Diablo Junction          | 2.82           | 1.63                | 173               |
| Newark                         | 1.34           | 1.02                | 131               |
| Oakland                        | 0.88           | 1.42                | 62                |
| Oakland Airport                | 1.60           | 1.34                | 119               |
| Richmond                       | 1.36           | 1.47                | 93                |

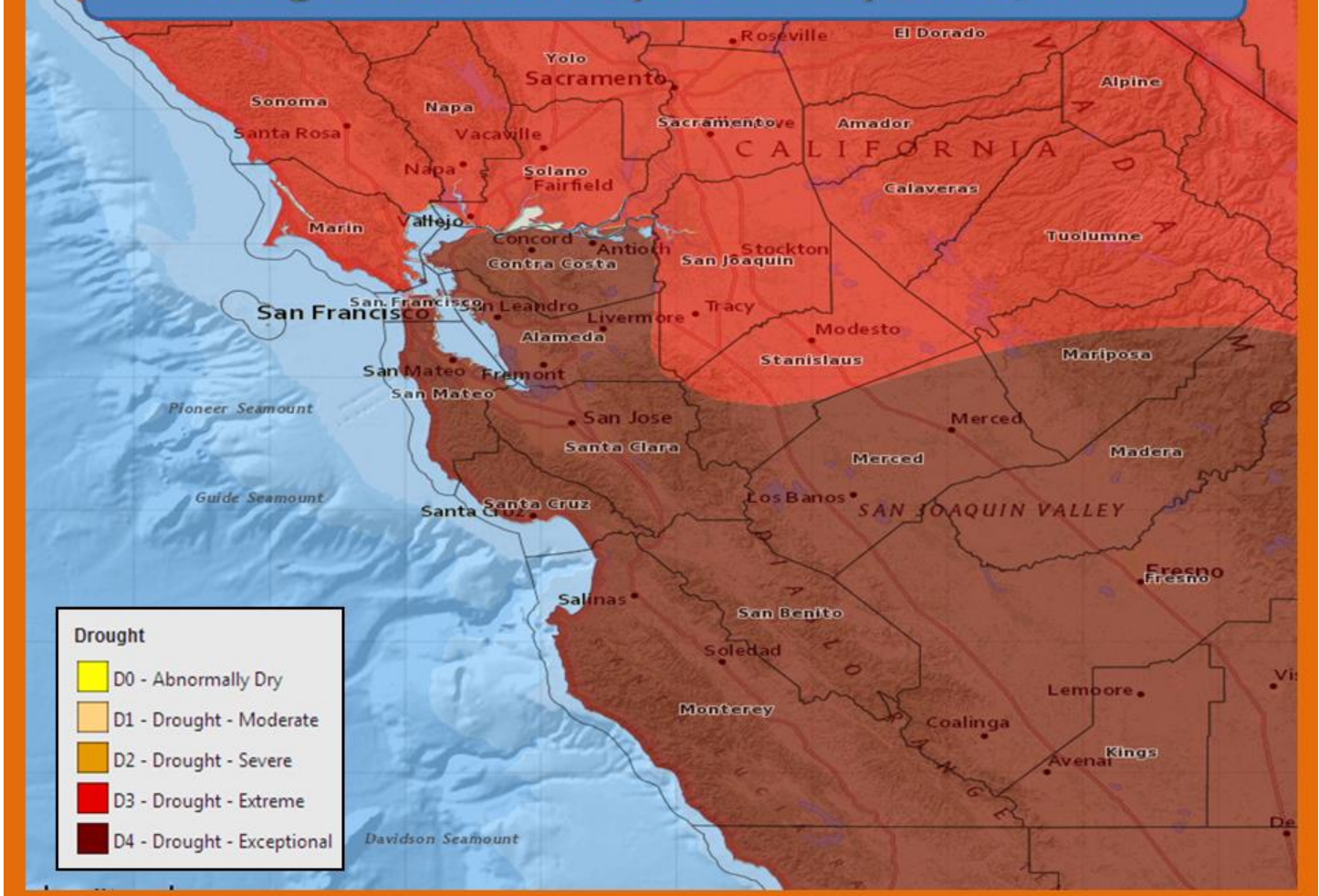
|  |      |      |     |
|--|------|------|-----|
| <b>South Bay &amp; Santa Cruz County</b> |      |      |     |
| Ben Lomond                               | 1.67 | 3.24 | 52  |
| Gilroy                                   | 2.19 | 1.25 | 175 |
| Los Gatos                                | 0.92 | 1.40 | 66  |
| Moffett Federal Airfield                 | 0.86 | 0.98 | 88  |
| Mount Hamilton                           | 1.70 | 1.99 | 85  |
| San Jose                                 | 0.64 | 1.18 | 54  |
| Santa Cruz                               | 1.21 | 1.97 | 61  |
| Watsonville                              | 1.66 | 1.69 | 98  |
| Watsonville Airport                      | 1.10 | 1.17 | 94  |
| <b>Monterey and San Benito Counties</b>  |      |      |     |
| Carmel Valley                            | 1.55 | 1.38 | 112 |
| Hollister                                | 1.14 | 0.97 | 118 |
| King City                                | 1.07 | 0.78 | 137 |
| Monterey                                 | 1.05 | 1.49 | 70  |
| Monterey Airport                         | 1.10 | 1.12 | 98  |
| Pinnacles National Park                  | 1.48 | 1.19 | 124 |
| Salinas                                  | 0.92 | 1.03 | 89  |
| Salinas Airport                          | 0.92 | 0.93 | 99  |

Although rainfall in April was near normal for most of the region, the April 24 update of the Drought Monitor showed worsening drought conditions across portions of the region. The reasons for the changes included lack of significant rainfall since the 1<sup>st</sup> of the month and worsening impacts reported on a variety of categories that go into determining drought classification including reservoir levels, agriculture aspects, public water supply and quality, and ground water levels. The primary changes in the April 24 Drought Monitor update included:

- Return of all of Monterey County into the D4 classification (Exceptional Drought)
- Expansion of D4 (Exceptional Drought) to encompass Alameda and Contra Costa Counties.

With the April 24 Drought Monitor update, a full 77% of the state of California was now classified at least D3 (extreme) or higher and 25% of the state was now classified as D4 (exceptional – the highest level of drought classification). One year ago at the same time, 0% of the state was D3 or higher.

## Drought Monitor Update – April 24, 2014



### *April 24<sup>th</sup> issuance of the Drought Monitor*

Temperatures moved sharply higher during the final two days of April as an upper level high pressure ridge intensified along the West Coast. In addition, light offshore flow developed by the morning of Tuesday April 29 and continued into the 30<sup>th</sup>. This offshore flow allowed warm and dry air to reach all the way to the coast. On April 29, the temperature in downtown San Francisco surpassed the 80 degree mark for the first time since last October. The 2 pm temperature in San Francisco on April 29 was 86 degrees F, which matched the temperature in Death Valley and was warmer than the 2 pm temperature in both Las Vegas and Phoenix. Some of the warmest high temperatures on Wednesday April 30 were recorded at coastal locations when temperatures reached or surpassed 90 degrees in both San Francisco and Monterey. The high temperature of 92 at the Monterey Airport on April 30 was a full 30 degrees warmer than normal for the date. Five daily high temperature records were set or tied on the 29<sup>th</sup> and 30<sup>th</sup>.

The very warm and dry conditions late in the month rapidly dried out fuels and increased fire danger across the region. By the end of April, CalFire reported that since January 1 they had responded to over 1100 wildfires across the state, which was 600 more than average.

The heat on April 29 and 30 helped push average temperatures for the month above normal across the entire region.

### April Regional Temperature Summary

| Location                               | Average High | Normal High | Departure from Normal | Average Low | Normal Low | Departure from Normal |
|--|--------------|-------------|-----------------------|-------------|------------|-----------------------|
| <b>North Bay</b>                       |              |             |                       |             |            |                       |
| Angwin                                 | 70.4         | 66.6        | 3.8                   | 45.2        | 42.8       | 2.4                   |
| Calistoga                              | 71.1         | 72.4        | -1.3                  | 46.1        | 41.9       | 4.2                   |
| Cloverdale                             | 77.2         | 72.6        | 4.6                   | 46.3        | 45.6       | 0.7                   |
| Kentfield                              | 72.2         | 68.4        | 3.8                   | 46.8        | 46.0       | 0.8                   |
| Napa                                   | 75.2         | 71.2        | 4.0                   | 47.1        | 45.2       | 1.9                   |
| Napa Airport                           | 69.1         | 68.1        | 1.0                   | 44.3        | 41.5       | 2.8                   |
| Petaluma Airport                       | 70.7         | 68.7        | 2.0                   | 45.5        | 43.8       | 1.7                   |
| San Rafael                             | 72.5         | 66.5        | 6.0                   | 49.0        | 47.3       | 1.7                   |
| Sonoma County Airport                  | 72.1         | 68.8        | 3.3                   | 44.9        | 42.4       | 2.5                   |
| <b>San Francisco Peninsula</b>         |              |             |                       |             |            |                       |
| Half Moon Bay                          | 62.8         | 60.5        | 2.3                   | 45.8        | 43.3       | 2.5                   |
| Palo Alto                              | 71.7         | 69.7        | 2.0                   | 47.6        | 44.7       | 2.9                   |
| Redwood City                           | 71.9         | 69.0        | 2.9                   | 47.9        | 46.3       | 1.6                   |
| San Francisco Airport                  | 69.0         | 64.7        | 4.3                   | 52.0        | 49.1       | 2.9                   |
| San Francisco Downtown                 | 64.8         | 63.1        | 1.7                   | 51.0        | 49.2       | 1.8                   |
| Woodside                               | 75.3         | 73.0        | 2.3                   | 43.7        | 42.5       | 1.2                   |
| <b>East Bay</b>                        |              |             |                       |             |            |                       |
| Antioch                                | 74.4         | 71.4        | 3.0                   | 51.4        | 48.2       | 3.2                   |
| Berkeley                               | 67.7         | 66.8        | 0.9                   | 48.1        | 46.5       | 1.6                   |
| Concord                                | 74.0         | 71.5        | 2.5                   | 50.7        | 48.9       | 1.8                   |
| Concord Airport                        | 73.3         | 69.8        | 3.5                   | 48.9        | 47.4       | 1.5                   |
| Fremont                                | 71.1         | 69.0        | 2.1                   | 49.0        | 48.5       | 0.5                   |
| Hayward Airport                        | 67.0         | 66.1        | 0.9                   | 48.6        | 49.3       | -0.7                  |
| Livermore                              | 74.8         | 70.7        | 4.1                   | 46.8        | 46.0       | 0.8                   |
| Livermore Airport                      | 74.8         | 68.6        | 6.2                   | 47.6        | 44.7       | 2.9                   |
| Martinez                               | 72.2         | 71.9        | 0.3                   | 44.6        | 42.7       | 1.9                   |
| Mount Diablo Junction                  | 64.7         | 64.4        | 0.3                   | 46.8        | 43.7       | 3.1                   |
| Newark                                 | 68.5         | 67.4        | 1.1                   | 50.8        | 50.1       | 0.7                   |
| Oakland                                | 69.3         | 66.3        | 3.0                   | 51.0        | 50.0       | 1.0                   |
| Oakland Airport                        | 68.2         | 66.5        | 1.7                   | 50.5        | 48.3       | 2.2                   |
| Richmond                               | 68.0         | 66.5        | 1.5                   | 50.5        | 49.2       | 1.3                   |
| <b>South Bay and Santa Cruz County</b> |              |             |                       |             |            |                       |
| Gilroy                                 | 74.5         | 73.0        | 1.5                   | 44.6        | 45.1       | -0.5                  |
| Los Gatos                              | 74.3         | 70.0        | 4.3                   | 45.6        | 44.6       | 1.0                   |
| Moffett Federal Airfield               | 70.9         | 68.7        | 2.2                   | 51.6        | 49.4       | 2.2                   |
| Mount Hamilton                         | 58.6         | 54.9        | 3.7                   | 45.1        | 40.8       | 4.3                   |
| San Jose                               | 72.5         | 69.3        | 3.2                   | 50.0        | 48.6       | 1.4                   |
| Santa Cruz                             | 72.8         | 69.5        | 3.3                   | 46.8        | 46.0       | 0.8                   |
| Watsonville                            | 68.9         | 67.6        | 1.3                   | 47.0        | 45.5       | 1.5                   |
| Watsonville Airport                    | 68.0         | 66.5        | 1.5                   | 47.2        | 44.5       | 2.7                   |



| <b>Monterey and San Benito Counties</b> |      |      |     |      |      |     |
|---|------|------|-----|------|------|-----|
| Carmel Valley                           | 71.6 | 69.4 | 2.2 | 43.9 | 43.4 | 0.5 |
| Hollister                               | 72.3 | 70.3 | 2.0 | 46.6 | 44.3 | 2.3 |
| King City                               | 76.9 | 74.5 | 2.4 | 46.0 | 43.5 | 2.5 |
| Monterey                                | 65.1 | 62.1 | 3.0 | 47.9 | 46.2 | 1.7 |
| Monterey Airport                        | 65.0 | 61.4 | 3.6 | 49.7 | 46.9 | 2.8 |
| Pinnacles National Park                 | 75.2 | 71.8 | 3.4 | 41.0 | 39.1 | 1.9 |
| Salinas                                 | 69.8 | 66.6 | 3.2 | 47.0 | 44.6 | 2.4 |
| Salinas Airport                         | 69.4 | 67.1 | 2.3 | 49.0 | 46.3 | 2.7 |

| <b>Daily High Temperature Records for April 2014</b> |                       |                        |                                 |
|--|-----------------------|------------------------|---------------------------------|
| <b>Date</b>  | <b>Location</b>       | <b>Record Max Temp</b> | <b>Previous Record and Year</b> |
| 4/29   | San Rafael            | 89                     | 89 in 2013                      |
| 4/30   | San Francisco Airport | 90                     | 90 in 1996                      |
| 4/30   | Salinas Airport       | 93                     | 93 in 1996                      |
| 4/30   | King City             | 97                     | 96 in 1996                      |
| 4/30   | Richmond              | 90                     | 86 in 1996                      |



**Miscellaneous April Climate Information:**

| Monthly Ranks for Downtown San Francisco |          |   |
|--|----------|---|
| Average High Temperature                 | 64.8 deg | 25 <sup>th</sup> warmest April out of 140 years |
| Average Low Temperature                  | 51.0 deg | 25 <sup>th</sup> warmest April out of 140 years |
| Precipitation                            | 1.59 in  | 53 <sup>rd</sup> wettest April out of 165 years |

| Monthly Extremes for Select Locations |                             |                             |                                  |
|---------------------------------------|-----------------------------|-----------------------------|----------------------------------|
| Location                              | Max Temp:<br>Warmest Day(s) | Min Temp:<br>Coolest Day(s) | Precipitation:<br>Wettest Day(s) |
| Sonoma County Airport                 | 4/29                        | 4/05                        | 4/01                             |
|                                       | 92 degrees                  | 38 degrees                  | 0.48 inches                      |
| San Francisco                         | 4/30                        | 4/01, 4/02                  | 4/01                             |
|                                       | 90 degrees                  | 46 degrees                  | 0.89 inches                      |
| Livermore Airport                     | 4/30                        | 4/01, 4/02                  | 4/01                             |
|                                       | 92 degrees                  | 39 degrees                  | 0.38 inches                      |
| San Jose                              | 4/30                        | 4/01, 4/02, 4/03            | 4/01                             |
|                                       | 93 degrees                  | 43 degrees                  | 0.29 inches                      |
| Salinas Airport                       | 4/30                        | 4/03                        | 4/01                             |
|                                       | 93 degrees                  | 42 degrees                  | 0.30 inches                      |

**Other April 2014 Items:**

A powerful storm in the Gulf of Alaska during the middle of April generated a large northwest swell which arrived along the Northern and Central California coast during the early morning hours of Sunday, April 20 (Easter Sunday). Swell as large as 15 feet generated large breaking waves throughout the day on Easter Sunday.



***Two beachgoers temporarily stranded on a rocky outcropping near Asilomar State Beach on Easter Sunday as large waves roared into the surf zone. Photo credit: Larry Smith***