MARCH 2012 WEATHER SUMMARY
FOR THE CENTRAL CALIFORNIA INTERIOR

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March began with below average temperatures due to a cold front that had passed through interior central California during the evening of February 29th. High pressure began to set up over California by the 2nd, with temperatures on March 3rd as much as 13 degrees warmer than on the 2nd.

As the upper-level ridge strengthened over the central California interior, patchy fog developed during the morning of March 4th. This was not unexpected, as climatologically, dense fog can occur as late as the 8th, and the storm at the end of February did bring some surface moisture to the central and southern San Joaquin Valley. Over the Southern Sierra Nevada, a weak offshore flow continued the warming trend across the region with temperatures well above normal.

A weak upper-level low developed off the coast of Baja California on March 4th, and spun some high clouds over central California overnight and into the next morning. Further north, an upper-level trough was approaching the Pacific Northwest coast, and reached California on the 6th. This system brought an unseasonably cold airmass to the central California interior as well as gusty winds, but little rain as a low in the eastern Pacific sheared much of the moisture away from the trough. Winds gusted to around 40 mph on the San Joaquin Valley floor in Merced County during the morning of March 6th, and to around 50 mph in the Diablo Range. A dust storm was reported by the California Highway Patrol on Interstate 5 near Buttonwillow, and trees were blown down in parts of the Valley. Winds gusted to 55-60 mph in the Kern County mountains and deserts during the day, and Meadows Field, in Bakersfield, had a gust to 41 mph during the early afternoon of the 6th.

The airmass that accompanied the storm was cold and dry. By the afternoon of March 6th, both temperatures and dewpoints in the central and southern San Joaquin Valley were down around 20 degrees from the previous afternoon, setting the stage for lows to fall below freezing once the wind subsided and clouds cleared.

High pressure ridging became the dominant weather feature during March 8th-10th and brought warm, dry conditions to the area; temperatures were at least several degrees above the seasonal average during much of this period.

The ridge somewhat weakened on March 11th through the 13th, as temperatures cooled down closer to seasonal averages. However, high pressure rebounded once again on March 14th and 15th, and temperatures returned to several degrees above average. This pattern basically remained dry and was similar to what occurred during much of the previous week in terms of temperatures.

On the 16th, an upper-level trough brought abundant moisture to the northern part of interior central California during the evening. By the 17th, the upper-level low was located along the central California coast and brought much convective activity to the area. Most of the rain fell during the morning hours on the 17th.

The "Saint Patrick's weekend" storm will be remembered for not only record-smashing rain, but also for a tornado that hit western Fresno County. The rain began during the evening of March 16th, and by daybreak the next morning the California Highway Patrol was reporting flooding in the south end of the San Joaquin Valley. As the cold front move through the Fresno-Clovis area around 2:30 AM, a burst of strong winds—later estimated at 55-60 mph—toppled trees and caused some structural damage.

Over two feet of snow had fallen at Tuolumne Meadows by 8:45 AM, and mud and debris flows were reported in the Southern Sierra Nevada foothills. Less than 45 minutes later, winds gusted to 72 mph at Indian Wells Canyon near the south end of the Sierra Nevada.

By midday, both Bakersfield and Fresno had surpassed their rainfall records for March 17th. Hail fell on parts of Kerman, Visalia and Tulare. Winds gusted to 55 mph at Sunflower Valley in northwestern Kern County, and to 40 mph at Buttonwillow.

At 3:30 PM, a tornado was photographed on the ground near Mountain View Road and State Route 33, west southwest of the town of Tranquility in western Fresno County. This tornado touched down in an open field, and fortunately caused no injuries or damage. This was the 85th tornado since 1950 for the seven counties of the central California interior, and the first since February 27, 2010, when a tornado touched down in southwestern Kern County.

By the time the storm had ended on March 18th, nearly 2.78 inches of rain had fallen at the Madera Municipal Airport, while Fresno had 1.78 inch and Bakersfield had 0.96 inch of rain. In the higher elevations of the Southern Sierra Nevada, new snow totals were up to 43 inches.

Most of the cold air behind the upper-level low arrived by the 18th. More convection developed over the San Joaquin Valley and nearby foothills. Numerous reports of pea-sized hail with about one inch of ground cover were received throughout the valley and caused some damage to crops,

especially those with blossoms. High temperatures in the central and southern San Joaquin Valley on March 18th were mostly in the 50s, well below the normals of md to upper 60s. Eight inches of snow fell at Camp Nelson, with the heavy snow knocking down trees and causing power outages. In addition, snow levels fell below 2,000 feet in the Sierra Nevada foothills, especially in heavier showers. On the evening of the 18th, the storm system began to exit the region.

The 19th was a transitional day while an upper level ridge moved toward the central coast and kept interior central California underneath a cool north-northwest flow aloft.

By the 20th, high pressure began to strengthen and allowed temperatures to recover; they rose to a few degrees above seasonal averages by the 21st. This pattern continued for the next couple of days until another low pressure system arrived on the 24th.

An upper-level low moved over interior central California on the 24th and 25th, bringing rain and mountain snow to much of the region during that weekend. Snow levels were much higher with this system than the one that moved through the area during the previous weekend; snow fell mainly above the pass levels in Kern County and remained above 5000 feet in most areas throughout the southern Sierra Nevada. Nearly a foot of new snow fell on the Southern Sierra Nevada, and rainfall amounts in the central and southern San Joaquin Valley were up to a quarter inch.

The next upper level low arrived to the region on the night of March 27th-28th after a brief dry period between storm systems. This storm stayed mainly over northern California, and brought only light precipitation to the region. A stronger storm arrived on the last day of the month, bringing heavier precipitation to the region. Rainfall amounts for March 31st-April 1st were between a quarter and a half inch of rain for the central San Joaquin Valley, and between a tenth and a quarter of an inch for the south Valley. The exception was the southwest part of the San Joaquin Valley, which was rain-shadowed and received only a few hundredths of an inch of rain. In the Southern Sierra Nevada, snowfall amounts over the high country generally were between 5 and 9 inches, although a couple of sites in Tulare County had around a foot of new snow. Gusty southeast winds developed ahead of the cold front, with gusts of 35 to 45 mph in the central and southern San Joaquin Valley, and 58 to 62 mph in the Kern County deserts. A large tree branch fell on an SUV in southwest Bakersfield.

The above-normal rainfall for March (except at Merced) helped put a dent in the rainfall deficit for the 2011-2012 season. When March began, Bakersfield was at 45.5 percent of normal, and Fresno was at 47.0 percent. At the end of March, Bakersfield had improved to 58.2 percent of normal, and Fresno was at 61.9 percent of normal.

(See the table on the next page.)

THE 2011-2012 RAIN SEASON THROUGH MARCH 31ST

/AMOUNTS IN INCHES/

SITE	MAR 2012	NRML MAR*	DEP	PCT NRML	SEASON 3/31	NORMAL 3/31*	DEP NRML	PCT
MERCED AIRPORT	2.02	2.07	-0.05	97.6	5.33	10.84	-5.51	49.2
MERCED CITY	1.89	2.07	-0.18	91.3	5.66	11.48	-5.82	49.3
MADERA AIRPORT	3.23	1.80	1.43	179.4	6.28	10.40	-4.12	60.4
FRESNO	2.43	2.03	0.40	119.7	6.13	9.91	-3.78	61.9
HANFORD AIRPORT	1.72	1.63	0.09	105.5	4.00	8.74	-4.74	45.8
HANFORD CITY	1.75	1.65	0.10	106.1	4.32	7.83	-3.51	55.2
BAKERSFIELD	1.27	1.21	0.06	105.0	3.31	5.69	-2.38	58.2

* NORMALS FOR BAKERSFIELD...FRESNO...HANFORD CITY AND MERCED CITY ARE FOR 1981-2010.
NORMALS FOR HANFORD...MADERA AND MERCED AIRPORTS ARE FOR 2001-2010.