

## Storm Data and Unusual Weather Phenomena - February 2013

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### CALIFORNIA, South Central

(CA-Z089) W CENTRAL S.J. VALLEY, (CA-Z090) E CENTRAL S.J. VALLEY, (CA-Z091) SW S.J. VALLEY, (CA-Z092) SE S.J. VALLEY

02/01/13 04:00 PST	0	Dense Fog
02/05/13 10:00 PST	0	

February began with the central and southern San Joaquin Valley under an upper-level ridge. The stable airmass under the ridge created favorable conditions for late-night and morning fog formation over the central and southern San Joaquin Valley for the first four days of the month. Dense fog was widespread across the valley during this timeframe.

(CA-Z089) W CENTRAL S.J. VALLEY, (CA-Z090) E CENTRAL S.J. VALLEY, (CA-Z091) SW S.J. VALLEY, (CA-Z092) SE S.J. VALLEY

02/07/13 05:00 PST	0	Dense Fog
02/07/13 10:00 PST	0	

(CA-Z095) KERN CTY MTNS, (CA-Z096) S SIERRA MTNS, (CA-Z097) TULARE CTY MTNS

02/08/13 08:00 PST	0	Winter Weather
02/08/13 20:00 PST	0	

(CA-Z089) W CENTRAL S.J. VALLEY, (CA-Z090) E CENTRAL S.J. VALLEY, (CA-Z091) SW S.J. VALLEY, (CA-Z092) SE S.J. VALLEY

02/10/13 05:00 PST	0	Frost/Freeze
02/12/13 05:00 PST	0	

An upper-level short-wave moved through the Pacific Northwest and northern California on February 5th. The short-wave brought breezy conditions to the region and generated enough mixing to keep fog development from becoming as widespread as on the previous days.

High temperatures had been near normal under the ridge, except for above-normal temperatures on the 1st, but the short-wave brought a push of cold air into the central California interior. The high at Fresno on February 6th was 52 degrees, 12 degrees cooler than the previous day. The high at Bakersfield on the 6th of 61 degrees was down 10 degrees from the 5th.

The upper-level ridge rebounded on February 6th, with some San Joaquin Valley fog redevelopment. The ridge was short-lived, however, giving way to the first Pacific storm of the month the next day.

Precipitation associated with this storm reached the central California interior during the afternoon of February 7th, spreading south during the evening hours. This was a cold system, and snow levels fell to 2500-3000 feet on the 8th. By midday on the 8th, a few mountain roads were closed due to snow and ice. That afternoon, ice pellets or small hail fell on Visalia and near Tipton. Interstate 5 over the Grapevine was closed by late afternoon due to snow, but reopened by late evening. Shortly after midnight, Highway 33 was closed due to snow and ice, and did not reopen until the late morning of February 9th. There were several reports of snow accumulations of 3-7 inches in the Southern Sierra Nevada, and 1-3 inches in the Tehachapi Mountains. Below the snow line, rainfall amounts in the mountains and foothills ranged from a few hundredths to around an inch, and on the San Joaquin Valley floor, the Visalia Municipal Airport had the highest rainfall with 0.66 inch, while rain-shadowed Los Banos only received 0.01 inch.

The storm brought more cold air into the region. Lows in the central and southern San Joaquin Valley on the morning of February 9th were in the upper 20s to mid 30s, and with even lower minimum temperatures forecast the next two nights, a Freeze Warning was in place for the San Joaquin Valley for the mornings of the 10th and 11th.

Only a few central and southern San Joaquin Valley sites dropped below 28 degrees on the morning of February 10th, and the majority of these were on the west side of the Valley. Stratus formed along the lower elevations of the Southern Sierra Nevada on the 9th, and a light easterly wind pushed the stratus over parts of the San Joaquin Valley overnight. This inhibited radiational cooling over the eastern San Joaquin Valley, resulting in stronger cooling on the west side where skies remained mostly clear. Skies were clearer on the early morning of February 11th, but dewpoints were higher due to evaporation of standing water on the San Joaquin Valley floor. The higher dewpoints capped the cooling during the night of the 10th-11th, and only a few sites in the central and southern San Joaquin Valley fell to 28 degrees or lower.

Aloft, the ridge became tilted, nosing into the Pacific Northwest. At the same time, the upper-level trough extended southwest from a low over southern Minnesota to Utah and eastern Nevada. This set up a northeasterly flow over the Southern Sierra Nevada. At the surface, the combination of high pressure centered over southeastern Idaho and low pressure over the lower Colorado River generated an offshore flow across California. Although this had been expected to trigger downslope winds through the west-facing canyons of the Southern Sierra Nevada, the upper-level jet stayed north of the region. Winds remained mostly light with a few strong gusts confined to the crest.

The upper-level ridge began to build into California on February 11th. Temperatures warmed to near normal on the 11th, then continued

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to warm above normal the next few days. A few patches of fog formed around sunrise in the central and southern San Joaquin Valley, but they were relatively shallow and short lived.

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<b>(CA-Z089) W CENTRAL S.J. VALLEY, (CA-Z091) SW S.J. VALLEY, (CA-Z095) KERN CTY MTNS, (CA-Z099) SE KERN CTY DESERT</b>				
	02/18/13 13:00 PST		12K	Strong Wind (MAX 48 kt)
	02/20/13 21:00 PST		0	

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<b>(CA-Z093) S SIERRA FOOTHILLS, (CA-Z095) KERN CTY MTNS, (CA-Z096) S SIERRA MTNS, (CA-Z097) TULARE CTY MTNS</b>				
	02/19/13 12:00 PST		0	Winter Storm
	02/20/13 10:00 PST		0	

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<b>(CA-Z094) TULARE CTY FOOTHILLS</b>				
	02/19/13 12:00 PST		0	Winter Weather
	02/20/13 04:00 PST		0	

The upper-level continued to strengthen through February 16th, with temperatures warming to several degrees above normal. Fresno had its first 70-degree day of the year on the 15th, with a high of 73 degrees. The last time Fresno saw 70s was November 21st, 2012, when the high was 71 degrees. Bakersfield reach 76 degrees on February 15th, and both cities had highs of 73 degrees the next day.

The upper-level ridge began to weaken on February 17th as a potent Pacific storm dropped out of the Gulf of Alaska as approached the coast. This storm reached the central California interior by midday of the 19th, and moved through the region during the afternoon and evening hours. Ahead of the storm, strong winds developed in the Indian Wells Valley with a gust to 46 mph recorded in Ridgecrest. As the cold front moved through, the focus of the strong winds shifted south into the southeastern Kern County desert. Winds gusted to 45-50 mph near Mojave, and to as high as 58 mph at Rosamond. However, the winds were sporadic and the strongest gusts were rare.

The storm brought locally heavy rain to the region, accounting for over half the monthly total for several locations. The snow level was very low, around 1500 feet (but locally dropping to around 1000 feet in heavy snow showers). Snow showers continued overnight over the Southern Sierra Nevada, and a few flurries were reported in downtown Fresno around midnight of February 19th- 20th. Highway 58 through the Tehachapi Pass was closed beginning the evening of the 19th, and Interstate 5 over the Grapevine was closed the following morning due to snow and ice.

In the Southern Sierra Nevada, up to 10 inches of new snow fell, with even more snow—up to 22 inches (at Bear Valley Springs)—in the Tehachapi Mountains as upslope snow showers continued into February 20th. Isolated heavy showers developed along the cold front over the central and southern San Joaquin Valley during the late afternoon and evening of February 19th.

Pea-size hail was reported from these storms, including one report from a few miles north of Hanford.

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*Very heavy snow fell in the Kern County Mountains on the 20th of February. This is a photo of 4 foot snow drifts sent in by Deborah Muzio in Bear Valley Springs, CA, in Kern County.*

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(CA-Z089) W CENTRAL S.J. VALLEY, (CA-Z090) E CENTRAL S.J. VALLEY, (CA-Z091) SW S.J. VALLEY, (CA-Z092) SE S.J. VALLEY

02/21/13 02:00 PST	0	Frost/Freeze
02/25/13 08:00 PST	0	

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(CA-Z095) KERN CTY MTNS, (CA-Z098) INDIAN WELLS VLY, (CA-Z099) SE KERN CTY DESERT

02/23/13 03:00 PST	9K	Strong Wind (MAX 49 kt)
02/23/13 19:00 PST	0	

The storm moved east of California on February 21st, but was followed by a dry system two days later. This storm brought wind gusts of 45-55 mph to the Kern County mountains and deserts. A big rig was blown over on Highway 14 in the Kern County desert. This storm also brought a push of unseasonably cold air into the central and southern San Joaquin Valley. Temperatures fell below freezing on the mornings of February 24th and 25th at several Valley locations.

An upper-level disturbance dropped into the Great Basin during the night of February 25th-26th. A mid-level jet around the edge of this disturbance brought winds that funneled through the passes and canyons of the Tehachapi Mountains. This generated gusts of 45-50 mph from below the Tehachapi Pass to the Mojave area shortly after midnight. The disturbance moved east of the Great Basin, causing the winds to rapidly subside between 3:30 and 4 AM on the 26th.

High pressure built back into California the last two days of the month, with temperatures warming above normal.

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Although February normally is one of the wettest months of the year, rainfall in February 2013 was well below normal. Only 0.60 inch of rain fell at Meadows Field, Bakersfield, or 48.4 percent of the normal for the month (1.24 inch). Although more rain (0.89 inch) was recorded at Fresno-Yosemite International Airport, the normal at Fresno for February is also higher. Fresno only received 43.8 percent of its normal for the month of 2.03 inches.

For the rain season, which began on July 1st, 2012, Bakersfield had a total of 2.22 inches, or 49.6 percent of the normal value of 4.48 inches. Fresno fared a little better, with a season-through-February 28th total of 4.86 inches. This was 61.7 percent of the normal value of 7.88 inches.

Both Bakersfield and Fresno had mean monthly temperatures slightly below normal. Bakersfield had an average temperature of 51.3 degrees, 1.3 degree below normal. Fresno was slightly cooler, with a mean temperature of 51.0 degrees; this was 0.5 degree below normal. Both cities had above-normal mean high temperatures, but these were more than offset by colder than normal mean low temperatures.