

## Storm Data and Unusual Weather Phenomena - December 2009

| Location  | Date/Time          | Deaths & Injuries | Property & Crop Dmg | Event Type and Details    |
|---|--------------------|-------------------|---------------------|---------------------------|
| <b>CALIFORNIA, South Central</b>  |                    |                   |                     |                           |
| <b>(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</b>   |                    |                   |                     |                           |
|   | 12/03/09 00:00 PST |                   | 0                   | Frost/Freeze              |
|   | 12/03/09 08:00 PST |                   | 0                   |                           |
| High pressure in early December brought early morning frost to much of the San Joaquin Valley on December 3rd.  |                    |                   |                     |                           |
| <b>(CA-Z098) INDIAN WELLS VLY, (CA-Z099) SE KERN CTY DESERT</b>   |                    |                   |                     |                           |
|   | 12/06/09 15:00 PST |                   | 3K                  | Strong Wind (MAX 40 kt)   |
|   | 12/08/09 00:00 PST |                   | 0                   |                           |
| <b>(CA-Z093) S SIERRA FOOTHILLS</b>   |                    |                   |                     |                           |
|   | 12/07/09 04:00 PST |                   | 0                   | Winter Weather            |
|   | 12/07/09 19:54 PST |                   | 0                   |                           |
| <b>(CA-Z095) KERN CTY MTNS, (CA-Z096) S SIERRA MTNS, (CA-Z097) TULARE CTY MTNS</b>  |                    |                   |                     |                           |
|   | 12/07/09 04:00 PST |                   | 0                   | Winter Storm              |
|   | 12/08/09 00:00 PST |                   | 0                   |                           |
| <b>(CA-Z099) SE KERN CTY DESERT</b>   |                    |                   |                     |                           |
|   | 12/07/09 18:17 PST |                   | 1M                  | High Wind (MAX 70 kt)     |
|   | 12/08/09 00:00 PST |                   | 0                   |                           |
| <b>(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</b>   |                    |                   |                     |                           |
|   | 12/08/09 00:00 PST |                   | 0                   | Frost/Freeze              |
|   | 12/09/09 09:00 PST |                   | 0                   |                           |
| <p>A strong area of low pressure brought a wide swath of precipitation into the Central California Interior. The precipitation arrived during the early morning hours of December 7th. Up to a half inch of rain fell on the San Joaquin Valley floor; a few flurries were mixed with the rain, but did not stick to the ground. Due to the very cold nature of the airmass behind the cold front, snow levels plummeted. A few inches of snow was reported in Oakhurst and Springville, at elevations between 2200 and 2400 feet. Yosemite Valley received 8 inches of new snow, and a foot of snow fell on the Grapevine, closing Interstate 5 through Tejon Pass. Highway 58, through the Tehachapi Pass at a similar elevation, also was closed by the snow.</p> <p>Strong wind gusts developed over the Kern County desert portion of the Mojave Desert behind the cold front, and gusts approaching 80 mph were recorded during the evening of the 7th. At the Mojave Spaceport, severe wind gusts up to 80 mph caused extensive property damage at a festival. Local officials were able to evacuate attendees 36 minutes before the severe wind hit the area. Thankfully there were no injuries or fatalities reported. Several large temporary structures failed at the Mojave Spaceport. Local officials estimated the property damage around 1 million dollars. After the peak winds occurred, winds continued to gust over 60 mph for about 3 hours.</p> <p>A short-wave ridge moved over the state on December 8th, bringing clear skies and light winds. Moring low temperatures in the central and southern San Joaquin Valley fell into the lower to mid 20s at the coldest locations during the early morning hours of the 8th, and only a few places had lows near 32 degrees. Similar lows were reported the following morning, and central and south Valley highs struggled to reach 50 on both December 8th and 9th.</p> |                    |                   |                     |                           |
| <b>KERN COUNTY --- 0.6 NNE WIBLE ORCHARD [35.34, -119.02], 0.3 NNE WIBLE ORCHARD [35.33, -119.02], 0.5 NE WIBLE ORCHARD [35.33, -119.01], 0.7 NE WIBLE ORCHARD [35.34, -119.01]</b>   |                    |                   |                     |                           |
|   | 12/10/09 22:58 PST |                   | 25K                 | Flood (due to Heavy Rain) |
|   | 12/11/09 00:15 PST |                   | 0                   | Source: Law Enforcement   |
| The California Highway Patrol reported 2 vehicles were stuck in flood waters and the intersection of Southgate Drive and South M Street.  |                    |                   |                     |                           |
| <b>FRESNO COUNTY --- 2.2 SE (FCH) CHANDLER AF [36.71, -119.79], 2.1 NW CALWA [36.70, -119.78], 2.5 NNW CALWA [36.71, -119.76], 2.7 E (FCH) CHANDLER AF [36.72, -119.77]</b>   |                    |                   |                     |                           |
|   | 12/11/09 04:28 PST |                   | 0                   | Flood (due to Heavy Rain) |
|   | 12/11/09 07:45 PST |                   | 0                   | Source: Law Enforcement   |
| California Highway Patrol reported water up to 1 and a half feet deep at the intersection of CA-99 and Jenson Avenue.   |                    |                   |                     |                           |

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| <b>KERN COUNTY --- 4.0 W HAVILAH [35.51, -118.59]</b> |                    |                   |                     |                                |
|   | 12/11/09 10:00 PST |                   | 2K                  | Heavy Rain                     |
|   | 12/11/09 12:00 PST |                   | 0                   | Source: Department of Highways |

Caltrans reported a rockslide caused by heavy rain on CA-178 in the Kern Canyon east of Bakersfield. Rainfall at the time was estimated by radar around one inch.

|   |                    |  |   |              |
|---|--------------------|--|---|--------------|
| <b>(CA-Z096) S SIERRA MTNS, (CA-Z097) TULARE CTY MTNS</b> |                    |  |   |              |
|   | 12/12/09 12:00 PST |  | 0 | Winter Storm |
|   | 12/13/09 16:00 PST |  | 0 |              |

A strong low pressure trough approached the California coast during the night of December 9th-10th. High clouds ahead of the trough helped moderate overnight lows, preventing a third night of a widespread freeze. Then rain came to the San Joaquin Valley with snow in the mountains. The greatest snow accumulations were above the 7000 feet elevation on Dec 11th through the 13th, due to a series of low pressure systems associated with the general trough pattern. Snowfall amounts from the 12th through the morning of the 13th averaged around 3 feet above 7000 feet with locally higher amounts to nearly 5 feet. Temperatures warmed on the 11th as a subtropical feed that moved over the area, bringing plenty of moisture. The warm, moist airmass also triggered isolated thunderstorms over the central and southern San Joaquin Valley. There was heavy rain in the mountains up to around the 7000-foot elevation on the 11th and 12th, prior to changing to snow during the night of the 12th. The snow continued through the day on the 13th, with snow levels dropping to around 5000 feet as cooler air filtered into the region.

|   |                    |  |   |           |
|---|--------------------|--|---|-----------|
| <b>(CA-Z093) S SIERRA FOOTHILLS, (CA-Z094) TULARE CTY FOOTHILLS</b> |                    |  |   |           |
|   | 12/17/09 20:15 PST |  | 0 | Dense Fog |
|   | 12/18/09 12:00 PST |  | 0 |           |

Heavy Tule fog returned to the central and southern San Joaquin Valley on December 14th, and increased in coverage each day through the 17th. The fog lifted into a stratus deck during the afternoon of the 17th and persisted through the afternoon of the 19th, as a ridge of high pressure became established over the area. The CHP Report that the stratus deck had penetrated the lower foothill elevations causing visibilities near zero in dense fog, especially in the Fresno County foothills. The stratus started eroding from the southern San Joaquin during the late morning of the 19th, then kept clearing toward the central part of the valley by the afternoon. Some patchy fog was observed on the night on the 19th-20th, and again on the night of the 20th-21st.

|  |                    |  |   |                 |
|--|--------------------|--|---|-----------------|
| <b>FRESNO COUNTY --- 4.4 WSW DUNLAP [36.70, -119.19]</b> |                    |  |   |                 |
|  | 12/21/09 23:38 PST |  | 0 | Heavy Rain      |
|  | 12/21/09 23:38 PST |  | 0 | Source: Mesonet |

Seven-tenths of an inch of rainfall occurred in just one hour near Dunlap in Fresno County.

|                                     |                    |  |   |                       |
|-------------------------------------|--------------------|--|---|-----------------------|
| <b>(CA-Z099) SE KERN CTY DESERT</b> |                    |  |   |                       |
|                                     | 12/22/09 08:30 PST |  | 0 | High Wind (MAX 51 kt) |
|                                     | 12/22/09 19:45 PST |  | 0 |                       |

|   |                    |  |    |                         |
|---|--------------------|--|----|-------------------------|
| <b>(CA-Z089) W CENTRAL S.J. VALLEY, (CA-Z090) E CENTRAL S.J. VALLEY, (CA-Z091) SW S.J. VALLEY</b> |                    |  |    |                         |
|   | 12/22/09 12:00 PST |  | 3K | Strong Wind (MAX 39 kt) |
|   | 12/22/09 18:00 PST |  | 0  |                         |

|   |                    |  |   |              |
|---|--------------------|--|---|--------------|
| <b>(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</b> |                    |  |   |              |
|   | 12/24/09 01:00 PST |  | 0 | Frost/Freeze |
|   | 12/24/09 08:00 PST |  | 0 |              |

Tule fog returned to the central and southern San Joaquin Valley on December 14th, and increased in coverage each day through the 17th. The fog lifted into a stratus deck during the afternoon of the 17th and persisted through the afternoon of the 19th, as a ridge of high pressure became established over the area. The stratus started eroding from the southern San Joaquin during the late morning of the 19th, then kept clearing toward the central part of the valley by the afternoon. Some patchy fog was observed on the night on the 19th-20th, and again on the night of the 20th-21st. Rain returned to the valley with snow in the higher elevations of the Sierra Nevada (started at around 9000 feet) on the 21st as another trough of low pressure that over the area. By the morning of the 22nd, the cold air behind the low pressure center moved over the area, causing gusty winds even over the San Joaquin Valley, and snow levels lowered dramatically (below 2500 feet by the late morning). Interstate 5 over the Grapevine was closed during the morning of the 22nd due to snow. Winds gusted to 40 mph at Fresno Yosemite International Airport on the 22nd and to 46 mph at the Madera Municipal Airport. Winds gusted as high as 78 mph in the Kern County deserts, and a few dead trees were toppled near Tehachapi by gusts in the 40-45 mph range.

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|----------|-----------|----------------------|------------------------|------------------------|
|----------|-----------|----------------------|------------------------|------------------------|

The cold air remained trapped in the San Joaquin Valley after the storm moved east of the region. Freezing temperatures were reported on the morning of December 24th, with lows in the rural areas dropping into the mid 20s. Clouds ahead of the next storm moved into the region Christmas Day, limiting the extent of the freezing temperatures and heralding the arrival of more precipitation to the region.