

Storm Data and Unusual Weather Phenomena - January 2007

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

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

01/01/07 18:00 PST	0	Dense Fog
01/02/07 11:00 PST	0	

High pressure aloft built over California, in the wake of a storm system that moved through the region in late December. The stable airmass allowed areas of dense fog to develop over the Central and Southern San Joaquin Valley from the evening of the 1st through the morning of the 2nd, lowering visibility to less than 1/4 mile.

E CENTRAL S.J. VALLEY (CA-Z090)

01/03/07 22:00 PST	0	Heavy Snow
01/05/07 09:00 PST	0	

INDIAN WELLS VLY (CA-Z098)

01/03/07 22:00 PST	1K	High Wind (MAX 63 kt)
01/05/07 09:00 PST	0	

KERN CTY MTNS (CA-Z095), SE KERN CTY DESERT (CA-Z099)

01/03/07 22:00 PST	2K	Strong Wind (MAX 41 kt)
01/05/07 09:00 PST	0	

S SIERRA MTNS (CA-Z096)

01/03/07 22:00 PST	0	Winter Storm
01/05/07 09:00 PST	0	

A Pacific storm system moved across California on the 4th, bringing as much as 23 inches (Ostrander Lake, elevation 8200 feet msl) of new snow to the high country of the Southern Sierra Nevada. Strong northeast winds developed behind the storm over the Kern County mountains and deserts on the morning of the 5th, with gusts as high as 72 mph.

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01/06/07 04:00 PST	0	Frost/Freeze
01/10/07 09:00 PST	0	

A cold airmass moved into the San Joaquin Valley in the wake of a Pacific storm system on the 5th. Temperatures in the Central and Southern San Joaquin Valley fell below freezing on the mornings of the 6th through 10th.

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

01/11/07 22:00 PST	0.25M	Frost/Freeze
01/24/07 10:00 PST	0.71B	

A relatively dry north-to-south cold-frontal passage resulted in an intrusion of very cold arctic air into Central California on the morning of Thursday, January 11th. The temperature at 500mb in the low pressure center was as low as -42C over Oregon on the 11th but the air over Central California eventually lowered to -36C by the 12th. With such a cold air pool aloft, continued cold air advection from the northerly flow kept particularly dry, frigid air in the Central and Southern San Joaquin Valley (and much of the state) from late on the 11th through the 18th of the month with little moderation. Furthermore, high pressure did not build quickly behind the frontal passage aloft but rather the cold-core low lingered. This resulted in continued upper air mixing and did not set strong low-level temperature inversions utilized by growers for freeze mitigation efforts. The low pressure aloft remained an influence for the mornings of the 12th, 13th, and 14th. For the agricultural districts, minimum temperatures in the Valley dropped to 15-17 degrees F. in the very coldest locations. Within the agricultural citrus belts, minimum temperatures ranged consistently from 19 to 24 degrees. Not only were the typical temperature inversions not readily available for freeze mitigation due to mixing from the upper low pressure aloft, but the air in the lower levels of the Central and South San Joaquin Valley remained abnormally dry for a longer period of time. The frontal passage was dry and minimal moisture persisted on the Valley floor from the much below normal winter precipitation (only December had close to seasonal rainfall with October, November, and January relatively dry). No moderation of the lower atmosphere occurred over time due to persistent low dew points (minimal surface moisture evaporation for fog formation). With no typical moderation over time by increased dew points or fog, the coldest morning within a 5-day period from the 12th through the 16th varied by location across the Valley rather than time. Fresno had its coldest morning on the 13th with a low of 23 degree F., Bakersfield dropped to 23F on the 14th, and Merced and Hanford had their lowest minimums of 19F on the 15th. Temperature durations of 14 hours below 32F, 12 hours below 28F, and even 6-10 hours below 26F on several mornings resulted in devastating damage to area citrus. Preliminary estimates of crop losses were between 50% and 70% of fruit remaining on trees (an estimated 30% of the crop had been harvested prior to the freeze.) Crop damage was estimated at almost \$1.3 billion of California's annual \$32 billion agricultural production with nearly \$709 million in the Interior Central California ag area. The January 2007 Freeze for Central California comes in another 8-year interval behind the

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citrus-devastating freezes of December 1990 and December 1998. The December 1990 Freeze undoubtedly was the most devastating of these economic disasters due to the loss of citrus trees and not just total loss of the fruit. The dollar-loss for the January 2007 Freeze, being unadjusted for inflation, will be higher than the December 1998 Freeze (by about \$100 million). However, the length of the coldest days in the 1998 event along with its earlier occurrence in the year makes it arguably the second worst among these events. As summarized by a grower, the December 1998 freeze took 85% of the fruit with 85% of the fruit still unharvested on the trees. The January 2007 freeze took 70% of approximately 70% of the fruit unharvested.

Much below normal minimum temperatures also resulted in numerous instances of frozen pipes, damage to water delivery systems, and subsequent further loss to nurseries and growers depending on water for assistance in the freeze fight. At least two municipalities, Earlimart (Tulare County) and Frazier Park (Kern County), had some short-term unavailability of drinking water due to minor damage from the freezing cold. Although temperatures began to show some moderation by the morning of the 17th, nights with sub-freezing temperatures continued across the agricultural areas through the morning of the 24th. Fresno (Fresno County) had 19 consecutive days with minimum temperatures of 32 degrees or lower, only 1 day less than the all-time record. One Kern County citrus grower commented toward the end of the event that his crews had been in a frost-fight mode for over 40 days (given some mid-month frost concerns in December). Due to the loss of the citrus crop, the large, unmeasurable effect of the January 2007 Freeze is the economic loss to tens of thousands of workers out of jobs in the Central and South San Joaquin Valley besides the loss to production agriculture. The impact to the Valley economy is in the billions of dollars. One fatality occurred in Bakersfield (Kern County) by the morning of the 17th despite many cities opening warming shelters for the homeless...see other another January 2007 Stormdata episode for details.

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01/11/07 22:00 PST	1	0	Cold/Wind Chill
01/24/07 10:00 PST		0	

An intrusion of very cold arctic air into Central California began on the morning of the 11th and continued until the 24th. Minimum temperatures in the Central and Southern San Joaquin Valley plunged into the mid teens in the very coldest locations. Warming shelters were opened in many cities to protect the homeless from the cold. A woman in Bakersfield (Kern County) died of hypothermia while sleeping in an alley on the 17th.

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

01/28/07 06:00 PST		0	Heavy Snow
01/28/07 12:00 PST		0	

An upper level low-pressure center that moved down the west coast produced a moist southerly flow across the Central California Interior. 5-8 inches of snow fell on the Southern Sierra Nevada and Tehachapi Mountains on the morning of the 28th.