# JANUARY 2010 WEATHER SUMMARY
# FOR THE CENTRAL CALIFORNIA INTERIOR

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January began with a weak upper-level ridge over the central California interior. The ridge kept a low-level inversion over the central and southern San Joaquin Valley, resulting in areas of Tule fog through the first four days of the month.

A weak upper-level disturbance that traversed the region New Year's Day provided enough lift to squeeze some very light rain out of the stratus; Fresno recorded a trace of rain to start the new year.

Another disturbance, moving through central California on January 4th-5th caused a brief break in the fog over the San Joaquin Valley, but the fog returned on the 6th, keeping Valley and lower foothills a few degrees below normal. High pressure remained over the area for much of the first half of this month keeping dry weather over the district, including fog and stratus over the San Joaquin Valley and warmer than normal temperatures in the foothills and mountains..

An upper-level trough moved through the northern half of California on the 12th-13th bringing some light precipitation to the much of the forecast area. After a three-day break, the most significant weather that has occurred in quite some time struck the central California interior.

By January 13th, the medium-range forecast models were becoming consistent in predicting a major precipitation event that would affect interior central California beginning the 17th and continuing for several days. A series of Special Weather Statements were issued to prepare emergency officials and the public on the upcoming change in the weather, followed by Winter Storm Watches for the Southern Sierra Nevada and the Tehachapi Mountains, beginning January 16th and upgraded to Warnings the next day.

Global composite satellite loops on January 17th showed a series of at least 5 distinct storms stretching roughly along the 40-degree latitude line from the California coast westward across the Pacific and into northeastern China. This line of storms had similarities to the storms of January-February 1998 that brought flooding to the central and southern San Joaquin Valley, but there were some significant differences.

While both events occurred during El Ninos, the 1998 event brought warm, subtropical moisture that eroded the mountain snowpack and appreciably added to the runoff. While the event of January 2010 was similarly moisture-laden, surges of cold air kept snow levels low, and snow even fell on the Southern Sierra Nevada foothills on January 21st-

22nd. In addition, the spacing between the storms in the recent event allowed for several-hour breaks between the first few storms, enabling the ground to absorb some of the moisture before the runoff from the next storm hit. This is not to say that was not some flooding in the central and southern San Joaquin Valley, but most was either due to clogged storm drains or occurred in normally flood-prone areas.

The first storm moved rapidly through central California during the afternoon and evening of January 17th. Despite its fast movement, the storm dropped around a half inch of rain over much of the central and southern San Joaquin Valley.

A stronger storm followed the next day, bringing severe weather to the central California interior. Strong winds over the Tehachapi Mountains ahead of the storm caused the first of two storm-related fatalities during the week-long event. At about 9:30 AM, winds toppled at tree near Pine Mountain Club, west of Frazier Park. The tree fell onto a house, killing the occupant. Later that day, a brief EF0 tornado—the first of the year for interior central California—was reported on the west side of Fresno at 3:23 PM during the afternoon of the Martin Luther King, Jr. holiday on the 18th. There was no damage reported with this tornado. The following write-up is from the tabular January climate summary for Bakersfield and Fresno.

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THE JANUARY 18TH FRESNO TORNADO

 THUNDERSTORMS OVER THE CENTRAL SAN JOAQUIN VALLEY DURING THE MID
 AFTERNOON OF JANUARY 18TH SPAWNED A BRIEF TORNADO 5 MILES SOUTHWEST
 OF THE CITY OF FRESNO. AT 1523 PST /2323Z/...A WEATHER SPOTTER
 REPORTED A TORNADO NORTH OF HIGHWAY 180. VIDEO OF THE TORNADO SHOWED
 A RAIN-WRAPPED FUNNEL EXTENDING FROM A ROTATING SUPERCELL...AND
 NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A VELOCITY COUPLET
 NEAR THE TIME AND LOCATION OF THE REPORT. THE TORNADO WAS RATED AT
 EF0 ON THE ENHANCED FUJITA SCALE.

 THIS TORNADO WAS THE FIRST TORNADO IN THE CENTRAL AND SOUTHERN SAN
 JOAQUIN VALLEY SINCE THE ATWATER TORNADO OF FEBRUARY 9TH 2009. THE
 LAST TORNADO IN FRESNO COUNTY WAS ON MAY 9TH 2005 NEAR THE CITY OF
 FOWLER.
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The third storm reached interior central California on the 19th, and an upper-level disturbance rotating around the low moved into southern California, bringing snow to the Tehachapi Mountains. Snow levels with this storm were lower than expected—down to around 4000 feet—indicating that the series of storms was entraining more cold air than indicated by the models. Runoff resulted in some road flooding, and creeks in rural areas ran high. The other storm-related fatality occurred that evening, when a man drove around barriers and past warning lights, in an attempt to cross a flooded road near the Merced County-Stanislaus County line. The road had been flooded by the Orestimba Creek, and the driver was swept away by the fast current.

Storm number 4 reached central California around midday of January 20th, and pushed across the region during the afternoon and evening hours. This storm dropped snow on the Grapevine and triggered isolated early evening thunderstorms. Also, strong winds

occurred in the valley. Bakersfield reported a wind gust around noon of 46 mph; Merced had a 48 mph sustained wind with a 61 mph wind gust around 2:00 PM that afternoon. There were numerous reports of wind damage, including downed trees and broken roof shingles, throughout the valley that week, especially on the 20th.

The last storm of the series arrived on the 21st, bringing very cold air to the region. Snow levels dropped to around 2200 feet, with snow falling in the towns of Mariposa and Oakhurst. Both the Grapevine and Tehachapi Pass were closed for several hours by the snow, hindering travel between the San Joaquin Valley and southern California. This was a very deep low pressure system, and all-time low pressure records were set in both Bakersfield and Fresno; both reported 28.94 inches of mercury.

The cold pool aloft moved over the area on the afternoon of January 22nd, triggering strong convective showers, one of which blanketed parts of the city of Clovis with about 2 inches of pea-size hail on the ground; a funnel cloud was reported near Clovis Ave and State Route 168 in Clovis.

By the time the last storm moved east of the region, the total rainfall amounts in the central and southern San Joaquin Valley mostly were between 1½ and 2½ inches, with a few locations approaching 3 inches. Snowfall amounts in the Southern Sierra Nevada and Tehachapi Mountains were measured in feet, with the heaviest snowfalls reaching over 9 feet of new snow.

High pressure briefly returned to the area on January 23th and 24th, but a series of troughs moved through the high, bringing light precipitation to the region both on the 23rd and again the next day. As the troughs moved through central California, they also pushed the upper-level ridge southward. This allowed a stronger trough to move into the northern half of the state on the 25th. As a result, rain fell as far south as Fresno during the day. The upper-level low responsible for spinning the troughs across interior central California dropped south parallel to the coast. The low was off Point Conception the morning of January 26th, drawing moisture into coastal California from the south. Rainfall spread eastward into Merced and western Fresno counties during the morning of the 26th, and across the region during the evening.

Another upper-level high returned to the area. producing some patchy fog on January 28th-29th, mainly near Hanford, before another weak low produced some rain over the San Joaquin Valley and Sierra foothills along with some light snow in the Sierra Nevada, mainly at and above 5000 feet, on the night of the 29th and the morning of the 30th. An upper-level ridge built into California during the day on the 30th, bringing dry weather to the region to close out the month.