JANUARY 2013 WEATHER SUMMARY
FOR THE CENTRAL CALIFORNIA INTERIOR

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January began with the central and southern San Joaquin Valley under a cold, dry airmass that moved into the region. An upper-level ridge over the east Pacific kept mostly clear skies over the central California interior, although an upper-level short-wave dropping into Nevada brought some high clouds over the region. This short-wave also brought gusty winds to the Kern County mountain areas, with gusts to around 50 mph recorded. Central and southern San Joaquin Valley lows for the morning of January 2nd fell into the mid to upper 20s in the coldest locations, and dense fog developed along the Highway 43 and 99 corridors from southern Fresno County to northern Kern County.

January 2nd saw an upper-level low drop south along the leading edge of the ridge. As the low moved to off Baja California, the ridge built into California. This created a stable airmass and resulted in the formation of dense fog in the central and southern San Joaquin Valley as well as patchy frost; the lows in the coldest parts of the central and southern San Joaquin Valley falling into the mid to upper 20s each day. Dense fog continued its reputation as the main winter weather hazard for the central and southern San Joaquin Valley, as a fatal collision occurred 3 miles southeast of Chowchilla in dense fog during the morning of January 4th. These conditions continued through the morning of the 5th, and then a strong upper-level low brought the first precipitation of the year that evening.

Heavy rain fell on the central San Joaquin Valley, with around an inch falling in parts of Merced and Madera Counties from the evening of January 5th into the 6th. Rainfall tapered off sharply to the south, with Bakersfield receiving only 0.15 inch. In the mountains and foothills, the snow level dropped to around 3500 feet, with snow falling as far south as the Grapevine. The system brought several inches of snow down to 5000 feet in the southern Sierra Nevada and up to a foot of snow at elevations above 7000 feet; a couple of spots had higher snowfalls, especially in the Yosemite National Park area. In the Tehachapi Mountains, 2.5 inches of snow fell at Bear Valley Springs.

The computer models had forecast a cold pool aloft to traverse the southern San Joaquin Valley during the afternoon of January 6th, but the pool tracked further south during the day and came inland over southern California, including southern Kern County. As a result, there was no convection over the central or southern San Joaquin Valley that afternoon.

The northwesterly flow aloft behind the storm kept upslope showers continuing over the Tehachapi Mountains into the morning hours of January 7th. An upper-level ridge built into the state the next day, bringing more patchy fog to the central and southern San Joaquin Valley.

A cold front moved into the central California interior during the late evening of January 9th. Gusts to around 35 mph accompanied the front as it moved through the central and southern San Joaquin Valley during the overnight hours. Gusty winds continued over the Kern County deserts through the day on the 10th, with gusts of 45-55 mph recorded from Ridgecrest and Inyokern south to Edwards AFB and Rosamond. This was a very cold system, with the snow level lowering to around 1500 feet during the night of the 9th-10th. The Grapevine was closed due to snow on the morning of January 10th. A few flurries were reported mixed with rain over the eastern edge of the San Joaquin Valley in Tulare County, including Porterville, during the evening of the 10th, but no measurable snow fell on the Valley floor.

The extremely cold airmass pooled over the central and southern San Joaquin Valley, and with no mechanism to mix it out, brought freezing temperatures to the region for over a week. The coldest parts of the Valley fell into the lower 20s nearly every night from January 12th through the 20th, threatening the citrus and other crops. Freeze warnings were issued for the San Joaquin Valley from the 10th until the 17th as low temperatures repeatedly dropped well into the 20s. Even temperatures in the Kern County desert fell to the single digits in the coldest locations during this period, especially on the 13th and 14th. Locations in the highest elevations of the southern Sierra Nevada dropped well below zero. In fact, Tuolumne Meadows had two consecutive mornings during the 12th and 13th when temperatures fell to just below 20 degrees below zero.

A dry northerly flow aloft prevailed from the 10th until the 18th as the upper-level ridge remained over the eastern Pacific off the west coast, and a cold high pressure center with Arctic characteristics lingered over the Great Basin. Temperatures did gradually rise by the end of this period, as the airmass slowly modified. High pressure over the Great Basin produced gusty winds over the Kern County mountains on January 17th. Winds gusted to 56 mph at the base of the Grapevine, and to 47 mph at Bear Valley Springs at 5150 feet.

Beginning on January 18th, the upper-level ridge shifted eastward over interior central California and continued into the weekend of the 19th-21st. Dense fog returned to the San Joaquin Valley during this time, while temperatures in the mountains and foothills rose to well above average.

From the 23rd until the 26th of the month, an unsettled pattern set up over the state. Temperatures were relatively mild during this time as a cutoff low moving southward along the California coast, while remaining offshore, brought some subtropical moisture to the region, especially over Kern County. More precipitation actually occurred over Kern County during this period than over central portions of the San Joaquin Valley, as the dynamics and moisture that rotated around

the upper low off the coast remained mostly over southern California. Gusty southerly winds developed over the Tehachapi Mountains during the early morning of January 24th. Gusts to 68 mph were recorded on Grapevine Peak, and to 56 mph at Bear Valley Springs. At the base of the Grapevine, gusts to around 45 mph were measured at the California Highway Patrol weigh station. Mostly cloudy conditions were otherwise prevalent, but did not prevent dense fog from forming during the mornings of January 25th and 26th.

By the 27th, the cutoff low was finally kicked inland from Baja California and allowed an upper-level trough to move inland over central California and bring cooler air from the Gulf of Alaska. During the afternoon, a convective cell developed over Shaver Lake because of an unstable cold pool of air aloft. This cell dropped ice pellets that briefly snarled traffic on State Route 168; about an inch of ice pellets accumulated on the ground. The trough also brought gusty winds to the Kern County desert from Cache Creek to the mouth of Jawbone Canyon and southwest to the Mojave area. Gusts to around 50 mph were reported during the afternoon of January 27th.

On the 28th, temperatures were below average due to the colder air from the aforementioned trough. High pressure began to build over the eastern Pacific, off the west coast, by the 29th and into the 30th. Daytime temperatures began to rise significantly on the 30th, and reach the mid-60s on the last day of the month.

January has ended with well below average precipitation in the central San Joaquin Valley, as Fresno only had 26.5 percent of normal (0.58 inch compared to the normal of 2.19 inches). Bakersfield actually had more rain in January than Fresno, thanks to the surge of subtropical moisture on the 24th-26th. For the month, Meadows Field had 0.83 inch of rain, or 71.6 percent of the normal of 1.16 inch. These locations were at 50 and 67.9 percent of average, respectively, for the current water year (since July 1st, 2012). The Sierra Nevada snowpack was near or just above average (according to USDA's western United States mountain snowpack maps) as of the beginning of this month but has likely fallen below average due to the relatively dry conditions that have occurred for much of January.

Temperatures were mainly near average due to a prolonged period of below average daily minimum temperatures combined with above average daily maximum temperatures. Fresno had an average temperature for January of 47.1 degrees, or 0.5 degrees above normal. The average temperature for Bakersfield was 46.7 degrees, or 1.1 degree below normal.