DECEMBER 2015 WEATHER SUMMARY
FOR THE CENTRAL CALIFORNIA INTERIOR

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Benign weather with frosty, colder than average, mornings prevailed throughout the region for the first couple of days this month. Outside of the mountain areas, low temperatures ranged in the 20s in the Kern County desert to the lower to mid-30s in the San Joaquin Valley. Weak high pressure was in control, although a dry airmass continued to dominate over much of central California and inhibited the typical development of Tule Fog in the San Joaquin Valley. High temperatures were generally around average with sunny skies.

On the 3rd, temperatures warmed significantly due to warm southerly flow over the area. A weak low pressure system moved southeastward during the late afternoon and evening hours and brought very light precipitation. A cooler airmass prevailed on the following day, but low temperatures had actually risen due to increased cloud cover during the previous night. Some low clouds prevailed along the north and west facing slopes in the morning and afternoon hours of the 4th in parts of the southern Sierra Nevada and into the Kern County mountain areas, so daytime temperatures remained relatively cool in these areas.

Temperatures cooled back down on the 5th during the morning due to generally clear skies, as high pressure returned to the region. A few San Joaquin Valley locations observed patchy fog, although not dense. Daytime maximum temperatures rose significantly in areas where offshore, or southeasterly winds, prevailed, especially in Kern County. Some locations in the Tehachapi Mountains experienced breezy to locally windy conditions, where winds gusted to around 35 to 45 mph and locally stronger. The strongest winds were observed at the base of the Grapevine during the late morning and early afternoon hours; the strongest gust was 64 mph during that time. Locally gusty winds continued at times during the remainder of the afternoon and into the evening of the 5th in the Tehachapi Mountains. Elsewhere, there was little change in the weather and temperatures.

Another weak low pressure system moved over northern California on the 6th and brought mainly mid-level and high clouds to central California with generally calm winds; otherwise little or no changes in weather and temperatures occurred. Temperatures were generally well above average, with highs in the 60s in the San Joaquin Valley and Sierra Nevada foothills and into the 70s in the desert areas of eastern Kern County. Over the next few days, the temperatures continued well above average as high pressure dominated over the region with periods of high and mid-level cloudiness.

The next significant precipitation producer arrived on the 10th with showers and mountain snowfall during the morning and afternoon hours. The rain ended by the evening in Kings, Tulare, and Kern Counties before another round of rain arrived by the following morning. During the evening of the 10th, quite a few locations from Fresno County and northward briefly cleared out around sunset, and these locations observed dense fog until the predawn morning hours of the 11th when another round of showers and mountain snow arrived. During the 10th-11th, rainfall amounts ranged from a few hundredths of an inch in the southern end of the San Joaquin Valley up to around a half from Fresno County and northward. Sierra Nevada foothill rain amounts were around a half inch to around an inch, while several inches, and locally up to a foot, of snow fell in the Sierra Nevada mainly above 5000 feet.

Another low pressure system brought rain and mountain snow to the region on the 13th, mainly during the late morning into the afternoon. This system was colder than the previous one, so that snow levels were around 4000 feet, except locally around 3,500 feet in areas of heavier showers. Similar amounts of rain fell in the San Joaquin Valley, like the previous system, except the southern part of the San Joaquin Valley received a little more rain, or around a tenth to a quarter inch, with this system. Sierra Nevada snowfall was also around several inches and up to a foot above 5000 feet, although up to a few inches fell around 4000 feet due to the colder nature of this storm. The main frontal band moved southward through central California during the day and arrived in Kern County later in the afternoon. In addition, there were briefly heavy showers and isolated thunderstorms in parts of the San Joaquin Valley, including in Fresno and south towards Selma, shortly after sunset in the early evening hours of the 14th, as the air was sufficiently unstable due to a weak impulse embedded in the colder air behind the main frontal band of showers.

Colder than average temperatures prevailed behind this low pressure system during the next couple of days due to a cool northerly flow that brought freezing low temperatures to much of the lower elevations. In fact, the coldest temperatures so far during this cooler season occurred, including in much of the San Joaquin Valley, where temperatures fell into the mid to upper 20s in the rural areas and around freezing in the urban areas (such as Bakersfield and Fresno), on the mornings of the 14th and 15th before high pressure moved inland into California on the 16th. A slight warming trend occurred through the 18th with this ridge of high pressure before another low pressure system arrived. Fog in the San Joaquin Valley was generally localized during this period.

On the 19th, another storm brought rain and mountain snow for much of the day and into the evening. Quite a few locations received around a half inch to three quarters of an inch throughout the San Joaquin Valley and into the Sierra Nevada foothills, while the south end of the San Joaquin Valley received lesser amounts (up to a quarter inch). Snow levels were around 5000

feet with this system during much of the day and fell to around 4000 feet by late in the afternoon, Up to several inches fell in the Sierra Nevada, and around 3 inches of snow fell in the Tehachapi Mountains with this system. Once the rain tapered off later that evening, fog developed over much of the San Joaquin Valley. Dense fog became more widespread by the morning hours of the 20th, with visibility around 1/8th mile or less at times but dissipated by around noon.

On the 21st, another storm arrived and brought much heavier amounts of rain and higher elevation snow with snow levels around 7000-7500 feet. Most of the precipitation fell during the afternoon of the 21st at Yosemite National Park, and then the system progressed southward overnight into the 22nd. Rainfall amounts with this system were above an inch in parts of the San Joaquin Valley, especially from Fresno and northward and up to five to six inches at Yosemite National Park below the snow line. In addition, some locations in the Kern County mountain areas, such as Lake Isabella, received over 2 inches of rain during the 22nd; this was enough to trigger rock slides in the Kern River canyon and around Kernville (or north of Lake Isabella). This was the most rain that had fallen in quite some time, or since the previous summer, in these areas. In addition, winds howled through the passes and canyons into the Kern County desert; gusts reached as high as 90 mph at Mojave and toppled over 15 to 20 semi-trucks along Highway 58, according to local media reports. Many other wind-prone areas in eastern Kern County and the Sierra Nevada crest gusted well above 70 mph.

The next storm system arrived by Christmas Eve and brought additional showers and lower elevation snow to the Sierra Nevada and adjacent foothills. This system ushered in cold air into much of central California for the next several days.

A weak system passed over the region on the night of the 27th into the 28th but brought little or no precipitation. Cold air continued to bring frosty nights with low temperatures below freezing in the San Joaquin Valley as well as low temperatures in the teens and lower 20s in the Kern County desert until the end of the month. By the end of the month, quite a few Sierra Nevada locations had received enough snowpack to reach around, and in some cases even just above, average for this time of year.

December 2015 received above average precipitation in most of interior central California, except for the west side of the San Joaquin Valley from Fresno to Kern County and into eastern Kern County such as the Tehachapi Mountains and the nearby desert areas (see Fig 1). Overall, the month was mainly near to slightly below average in terms of temperature (see Fig 2). Finally, Table 1 shows the statistics for the Automated Surface Observation Stations throughout the central and southern San Joaquin Valley.

Table 1 - Dec 2015 Summary Statistics for ASOS locations

Location	Monthly Avg Temp	Departure From Normal	Total Monthly Precipitation	Departure From Normal
Bakersfield	47.8	0.0	0.58	-0.44
Fresno	45.8	-0.7	2.97	1.20
Hanford	44.6	0.1	1.34	-0.29
Madera	46.2	0.9	2.33	0.63
Merced	44.8	0.2	1.62	0.10

Fig 1 - Percent of normal precipitation for December 2015 (images courtesy of the Western Region Climate Center):

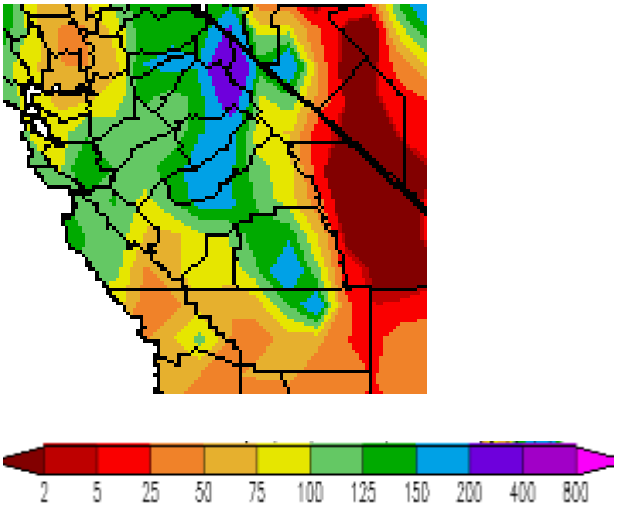

Fig 2 - Departure from average temperature for December 2015 (images courtesy of the Western Region Climate Center):