MARCH 2017 WEATHER SUMMARY
FOR THE CENTRAL CALIFORNIA INTERIOR

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Quiet weather and mainly average temperatures was the general rule for the first four days of the month, except the first morning was cooler than average with low temperatures locally around freezing in the lower elevation areas, such as the San Joaquin Valley.

A low pressure system brought morning showers and Sierra Nevada snow on the 5th. Cold air aloft brought sufficient instability for the development of thunderstorms that produced small hail during the afternoon hours. The stronger thunderstorms produced pea-sized hail over an inch deep that covered the ground in a few locations in the San Joaquin Valley. Rainfall amounts were generally around a few hundredths to one quarter inch in the San Joaquin Valley and 0.50 to one inch in the Sierra Nevada below the snow line. Several inches to just above one foot of snow fell above 6,000 feet in the Sierra Nevada. Gusty winds, with gusts mainly around 40 to 45 mph, were reported near the passes and canyons in the mountain and desert areas of eastern Kern County, as well as the west side of the San Joaquin Valley during the evening hours. Colder air remained over much of central California during the following night and into the morning of the 6th, and quite a few locations once again reached the freezing mark in the San Joaquin Valley. Even Bakersfield and Fresno both reached a low temperature of 34 degrees that morning.

Temperatures remained cooler than average until the 7th, and a warming trend began thereafter as high pressure built over much of California. High temperatures rose to around 5 to 10 degrees above average, and low temperatures were around average during the next several days. Patchy dense fog, with visibility below one quarter mile, developed during the nights and mornings during the 11th and 12th in the San Joaquin Valley and in the Tehachapi Mountains. Dry conditions prevailed for the next several days, as the storm track remained well to the north. Dense fog usually becomes less common during March, as the number of foggy days on average is about one to two days for the entire month. However, this time, favorable conditions have set up due to a combination of high pressure with abundant surface moisture. In addition, rivers are flowing much higher than they did during the previous several years.

Warmer than average temperatures and dry conditions due to high pressure over the region continued until the 19th before an unsettled, cool weather pattern returned. Temperatures rose well into the 80s in many locations, except over the mountains, during the quiet weather period. A few locations in the southern San Joaquin Valley reached around 90 degrees on the 15th, including a daytime high of 90 degrees recorded in Bakersfield. Fog became less widespread in

the San Joaquin Valley due to the warming; however, patchy ground fog and haze managed to develop during mainly the morning hours.

The next low pressure system arrived on the night of the 20th and continued to bring impacts until the 22nd. On the 21st, scattered thunderstorms developed over the San Joaquin Valley, as well as the Sierra Nevada and into the foothills. A few strong thunderstorms produced gusty winds and hail. There was one thunderstorm that reportedly produced quarter-sized (one inch diameter) hail near Mariposa. In addition, a thunderstorm moved over Tulare and towards Lindsay that produced strong gusty winds during the early evening. This thunderstorm uprooted trees a golf course in Tulare due to strong downburst winds; wind speeds were estimated at around 60 mph. Some of the thunderstorms also produced brief heavy rainfall, such as one report in Visalia of about one half inch of rain in about 30 minutes. Rainfall reports were generally around a tenth to a quarter inch in the San Joaquin Valley, except were around 0.50 to 0.75 inch due to the stronger thunderstorms. In addition, several inches of snow had fallen above the 8,000 foot level. By the 22nd, the colder air had moved into the region, but the atmosphere remained sufficiently unstable for additional showers and thunderstorms in the San Joaquin Valley, especially during the afternoon and evening hours. During the evening, the southern end of the Valley and the Kern County mountain and desert areas observed much of the activity, including showers and thunderstorms. Rainfall reports generally were around a tenth of an inch to a quarter inch, except locally heavier due to the stronger storms. Another several inches of snow fell, although as low as around 6,500 to 7,000 feet.

A brief break from active weather occurred during the 23rd before another cold front accompanied with showers and mountain snow arrived by the 24th. Precipitation amounts by the morning of the 25th were around a few hundredths to half of an inch in the San Joaquin Valley and into the adjacent Sierra Nevada foothills. Rain below the snow line in the Sierra Nevada was around 1.00 to 1.50 inches, mainly in Fresno County and northward. Locations to the south received anywhere from a few hundredths of an inch to around 0.80 inch. Snow fell mainly above 6,000 feet, and amounts were mainly several inches. One location near the Sierra Nevada crest, Tuolumne Meadows in Yosemite National Park, received 11 inches of snow.

Another low pressure system impacted the area's weather during the 26th and 27th. Some light showers, or up to around a tenth of an inch, fell over the San Joaquin Valley during the evening of the 26th, and up to a few inches of snow fell in the Sierra Nevada above 8,000 feet. Precipitation was around 0.50 inch or less in the Sierra Nevada. However, the main impact was on the 27th when the low pressure system left much cooler air and windy conditions. Winds gusted to near 60 mph in Mojave and Edwards AFB in eastern Kern County, while gusts of around 40 mph were reported along the west side of the San Joaquin Valley.

On the 28th and the 29th, quiet weather returned with mainly near average temperatures. However, a low pressure system once again brought strong, gusty winds and a few light showers to the region by the morning of the 30th. Some isolated locations received around a tenth of an inch of precipitation in the San Joaquin Valley, as well as some locations in the Sierra Nevada. Otherwise, the strong winds were the significant weather element for that day, as gusts to 50-60 mph occurred in quite a few locations in the Kern County desert near the passes and canyons. Some ridge tops in the southern Sierra Nevada reported gusts above 90 mph, as an area of strong winds due to the jet stream passed over this area. Many San Joaquin Valley locations reported wind gusts above 40 mph; in fact, peak gusts in both Fresno and Bakersfield reached just above 40 mph. There were numerous reports of downed trees and power lines that resulted in power outages in Fresno and Reedley. In addition, blowing dust was reported in parts of the southern San Joaquin Valley where the topsoil became sufficiently dry, and some locations in the Kern County desert also reported blowing dust.

The last day of the month was cooler than average behind the low pressure system, but characterized with generally quiet weather.

In summary, above average temperatures and below average precipitation occurred this month (see also Figures 1-2). This was the first month of below average precipitation since the autumn months of 2016.

Table 1 - March 2017 Summary Statistics for ASOS locations

Location	Monthly Average Temp (deg F)	Departure From Average (deg F)	Total Monthly Precipitation (inches)	Departure From Normal (inches)
Bakersfield	59.9	+2.3	0.16	-1.05
Fresno	58.8	+2.2	1.08	-0.95
Hanford	57.1	+1.7	0.52	-1.11
Madera	57.2	+2.9	0.61	-1.19
Merced	55.5	+1.9	1.29	-0.78

Number of Days with Minimum Temperature of 32 Degrees or Lower

Bakersfield – 0 (Average: 1 day)
Fresno – 1 (Average: 2 days)

Temperature/Precipitation Rankings for March

Bakersfield – 21st warmest March on record; 10th driest March on record
Fresno – 19th warmest March on record; 54th driest March on record

Figure 1 – Departure from Average Temperature for March 2017

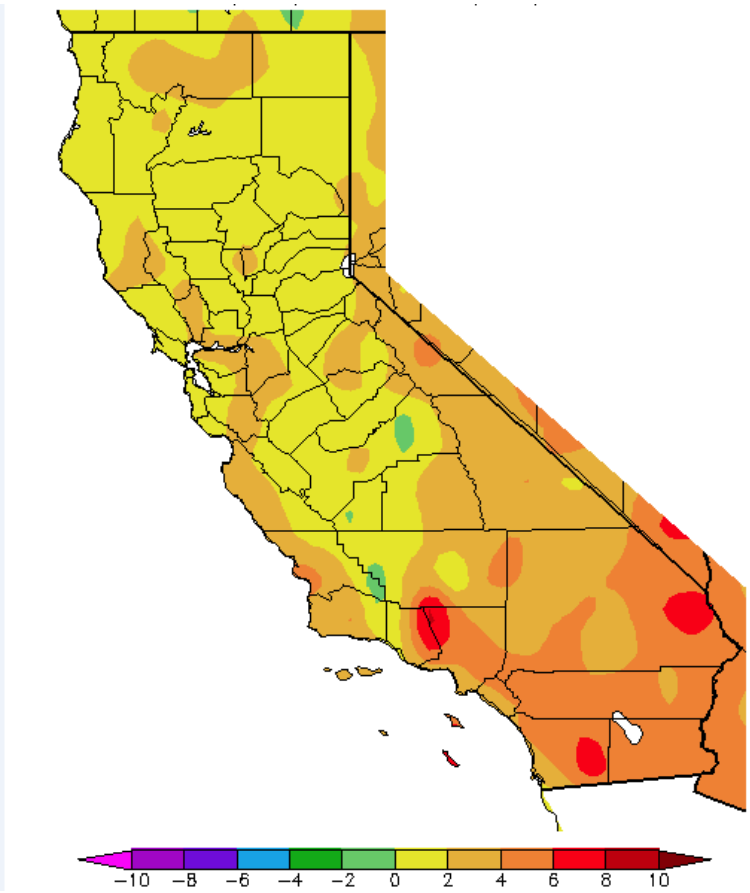
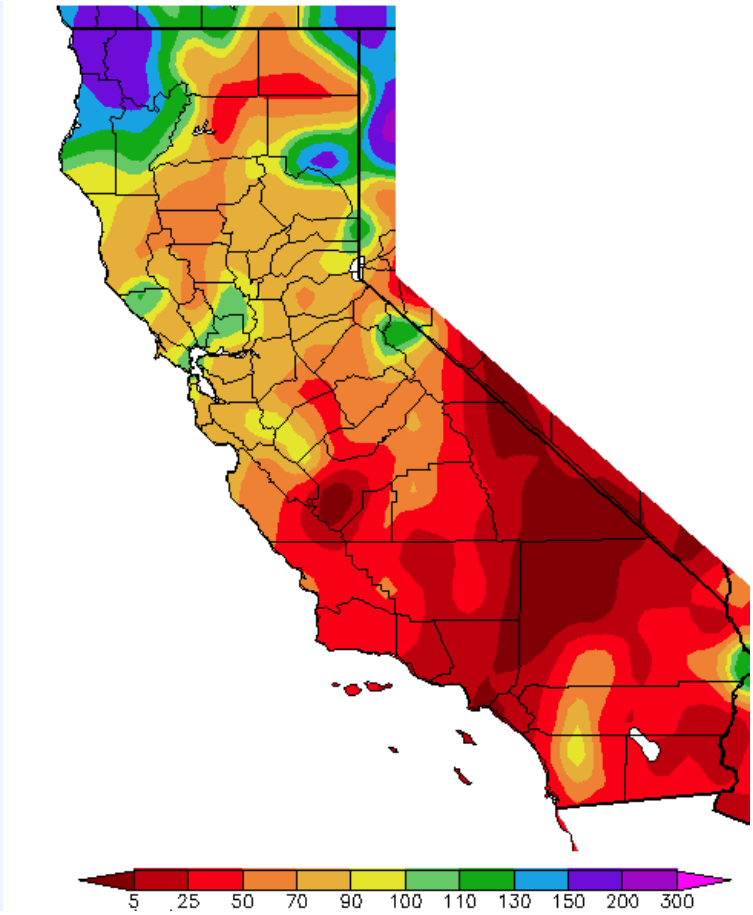


Figure 2 – Percent of Average Precipitation for March 2017



*Images above (i.e., Figures 1-2) courtesy of Western Region Climate Center