MARCH 2021 WEATHER SUMMARY
FOR THE CENTRAL CALIFORNIA INTERIOR

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Overall, March 2021 temperatures were near average to cooler than average, but below average precipitation accumulated this month. The month began with mainly benign weather with above average daytime highs. However, some gusty winds occurred at times along the west side of the San Joaquin Valley during the late nighttime hours of the 5th until the morning of the 6th. On the 10th and 11th, a cold storm brought snow down to around 2,500 feet and beneficial precipitation, including up to around one to two feet of snow in the higher elevations with several inches down to around 3,000 feet, along with isolated afternoon thunderstorms that produced small hail that accumulated up to an inch deep on the ground. Gusty westerly winds also accompanied this system in the mountains and desert. Another cold storm brought snow down to 2,500 feet, as well as showers and isolated thunderstorms with small hail, though with lesser amounts of hail accumulation on the ground, on the 15th. In the latter part of the month, a couple of systems brought gusty winds and light precipitation during the latter part of the month. Finally, at the end of the month, temperatures rose to around 10 to 15 degrees above average, or from the 27th until the 31st. Mornings were generally cool for much of the month, but no prolonged periods of widespread freezing temperatures were reported in the San Joaquin Valley.

Table 1 – March 2021 Summary Statistics – NWS Hanford, CA ASOS Sites

Location	Monthly Average Temp (deg F)	Departure from Average (deg F)	Temperature Rank	Total Monthly Precipitation (inches)	Departure from Normal (inches)	Precipitation Rank
Bakersfield	57.2	-0.4	58th warmest	0.77	-0.44	57th lowest
Fresno	56.3	-0.3	53rd warmest	1.33	-0.70	65th lowest
Hanford	54.1	-1.3	45th coolest	1.08	-0.55	58th lowest
Madera	52.7	-1.5	21st coolest	0.36	-1.44	11th lowest
Merced	52.1	-1.5	23rd coolest	1.05	-1.02	38th lowest

Table 2 – Number of Days with Freezing Low Temperatures (at or below 32 degrees Fahrenheit):

Location	March 2021	March Average	March Departure From Average	Seasonal Total	Seasonal Average (November 1-March 31st)	Seasonal Departure from Average
Bakersfield	0	0	0	2	12	-10
Fresno	0	0	0	0	14	-14
Hanford	0	1	-1	25	27	-2
Madera	1	1	0	24	25	-1
Merced	4	1	+3	29	25	+4

This month began with dry conditions and warmer than average temperatures, but with cool overnight lows. However, the weather was a bit unsettled in terms of winds towards Kern County. Some gusty southeast winds allowed temperatures to warm considerably on the 1st and 2nd in the south end of the San Joaquin Valley and over the Tehachapi Mountains. Gusts around 30 miles per hour were recorded in Bakersfield each day on the 1st and 2nd. An upper-level disturbance passed over Central California during the daytime hours of the 3rd, and temperatures lowered a bit. Daytime highs remained near average on the 3rd and warmed back up by a few degrees on the 4th. A return of much warmer than average temperatures occurred on the 5th, but was brief as another low-pressure system passed over the region. Periods of gusty winds occurred along the west side of the San Joaquin Valley on the night of the 5th until the morning of the 6th, as a low-pressure system passed. Gusts of 35 to 45 miles per hour were reported in these areas. Dry weather continued until the 8th, though with mainly seasonal temperatures.

On the 9th, a stronger low-pressure system began to bring precipitation to Central California. The colder air arrived that evening and into the 10th, so the airmass became more unstable with the development of moderate to heavy showers with isolated thunderstorms at times. The thunderstorms produced frequent lightning, gusty winds, and accumulating hail (generally around ¼ inch in diameter, with some isolated larger stones at around 1/2 inch). The hail accumulation on the ground was around one inch deep with some of the thunderstorm cells. Snow accumulations ranged from a couple of inches to just over one foot in the Sierra Nevada and foothills down to elevations around 2,500 feet, and the heaviest amounts occurred at elevations above 7,000 feet. Another several inches to near a foot accumulated in the higher elevations of the Sierra Nevada and portions of the Kern County mountains during much of the daytime hours of the 11th. Light snow fell below pass level, which caused CHP to pace traffic over the Grapevine during the afternoon hours of the 11th. Unsettled conditions continued until the 12th, while low clouds and showers lingered due to the gradual movement of the upper-level low, although the 10th was by far the most active day that week.

Dry and mild conditions prevailed for the 13th and 14th; however, another cold storm arrived during the overnight hours of the 14th into the 15th. Mainly light to moderate showers occurred in that period, though thunderstorms once developed on the afternoon of the 15th. Thunderstorms brought another round of small, mainly pea-sized hail. Both the Sierra Nevada and Kern County mountains experienced low elevation snow (with a dusting up to a couple of inches down to around 2,500 feet), and accumulations of around 4 to 8 inches in the higher elevations above 5,000 feet. In addition, very cool daytime temperatures prevailed throughout the region until the evening of the 15th and even a record low maximum temperature of only 51 degrees was recorded at Madera that day. Due to several inches of accumulating snowfall and cold temperatures leading to icy roads, Highway 58 and Interstate 5 over the Grapevine where closed overnight on the 15th through the early morning hours of the 16th. Rather chilly mornings followed on the 16th and 17th, with lows reaching around freezing in the coldest spots of the Central Valley.

On the 18th and 19th, temperatures moderated, and daytime highs generally reached above average, while mornings were generally milder with some increased cloud cover that heralded the arrival of yet another low-pressure system. This system arrived on the night of the 19th and light precipitation, mainly in the form of higher elevation snow flurries and light rain showers in the San Joaquin Valley, until the 20th. Some low clouds also developed over the western and northwestern facing Kern County mountain slopes and into the southern Sierra Nevada foothills and brought periods of drizzle and reduced visibility at times. Otherwise, much cooler temperatures resulted from the passage of this low-pressure system, and highs returned to several degrees below seasonal averages. Chilly nights also returned to much of Central California as skies cleared by the morning of the 21st.

A brief quiet weather period occurred on the 22nd, before an inside-slider trough moved over Nevada and eventually southeastward into Arizona. During the afternoon and evening of the 23rd until the early morning of the 24th, this trough produced gusty northeast (also known as Mono type winds that were similar to what occurred earlier this year, or mid-January) winds over the higher elevations of the Sierra Nevada from Yosemite to Tulare County and into the Kern County mountain and desert regions. Gusts reached around 50 to 65 miles per hour in these locations, except for some stronger isolated gusts at times. Strong wind gusts between 40 to 55 mph were also observed along the West Side Hills, Merced County, as well as the western third of the San Joaquin Valley during the 23rd. In addition, cooler than normal temperatures, or by around 5-8 degrees, were observed on the 24th. Chilly mornings also returned to locations once the winds decreased, including on both the 24th and 25th.

On the 26th, gusty winds developed in the Kern County desert areas and the eastern slopes of the adjacent mountain areas as yet another inside-slider trough passed over Nevada. Gusts reached

around 60 miles per hour that afternoon and evening at the typical windiest locations. Seasonal temperatures returned, and a warming trend followed until the 28th. Highs reached around 10 degrees above average by the 27th.

The warmest temperatures of the year so far occurred on the 28th, except these highs were soon exceeded on the 31st as a strong ridge of high pressure persisted, though with a temporary weakening on the 29th and 30th when slightly lower temperatures occurred. Highs reached into the lower 80s on the 28th and the mid to upper 80s on the 31st at the warmest locations in the San Joaquin Valley and Kern County desert.

Table 3 – Seasonal Precipitation for ASOS locations (ending on March 31st)

Location	Since Jan 1st (inches)	Departure from Normal (inches)	Since Jul 1st (inches)*	Departure from Normal (inches)	Since Oct 1st (inches)**	Departure from Normal (inches)
Bakersfield	1.84	-1.77	2.58	-3.11	2.58	-2.99
Fresno	5.02	-1.23	6.44	-3.47	6.44	-3.28
Hanford	3.46	-1.94	4.13	-4.61	4.13	-4.40
Madera (+)	Missing	Missing	Missing	Missing	Missing	Missing
Merced	4.69	-2.33	6.97	-3.87	6.97	-3.56

* Rain Year 2020-2021 (July 1st-date)
** Water Year 2020-2021 (October 1st-date)
+ Missing precipitation during January 2021

Table 4 – Warmest High Temperatures and Coolest Low Temperatures of the Month for ASOS locations

Location	High	Date(s)	Low	Date(s)
Bakersfield	88	31st	40	3rd, 17th
Fresno	84	31st	38	16th
Hanford	85	31st	34	2nd, 16th
Madera	83	31st	32	24th
Merced	83	31st	30	16th, 24th

Daily Records Set During March 2021

Bakersfield – No daily records set.

Fresno – No daily records set.

Hanford – No daily records set.

Madera – No daily records set.

Merced – 15th: Record low maximum temperature of 51 degrees reached, which broke the old record of 53 degrees, which was last set for the date in 1958.

Figure 1 – Departure from Average Temperature for March 2021

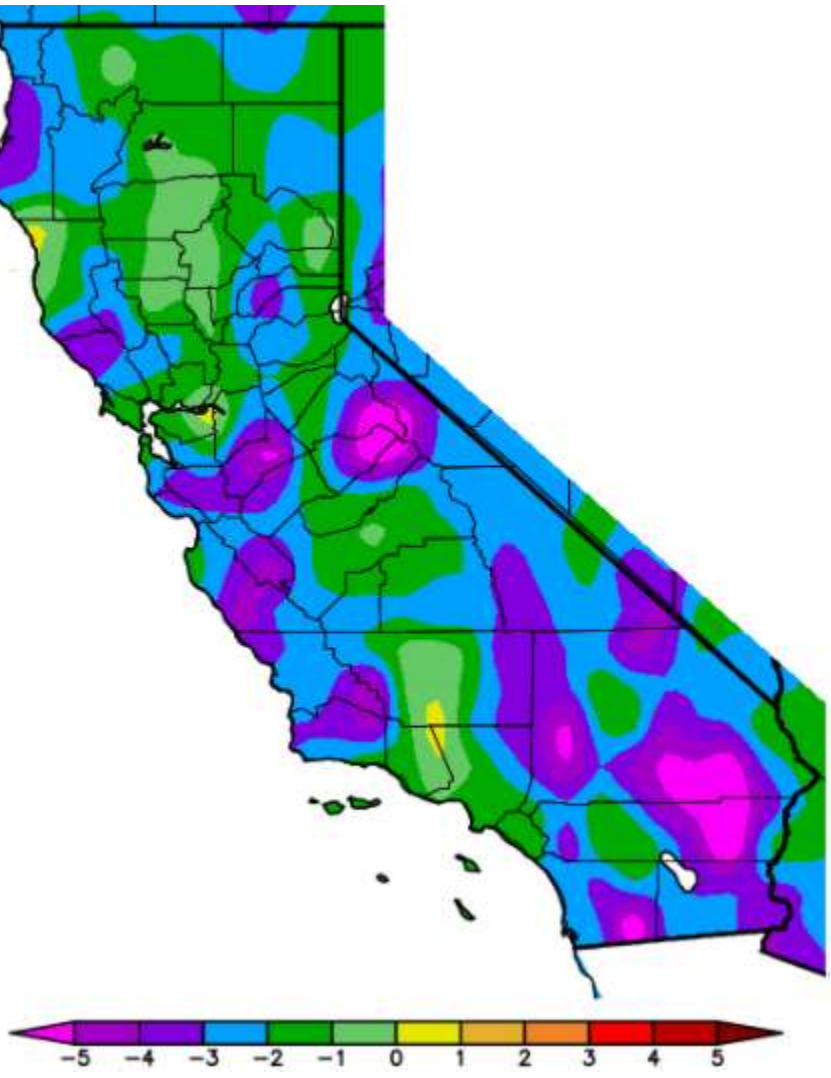
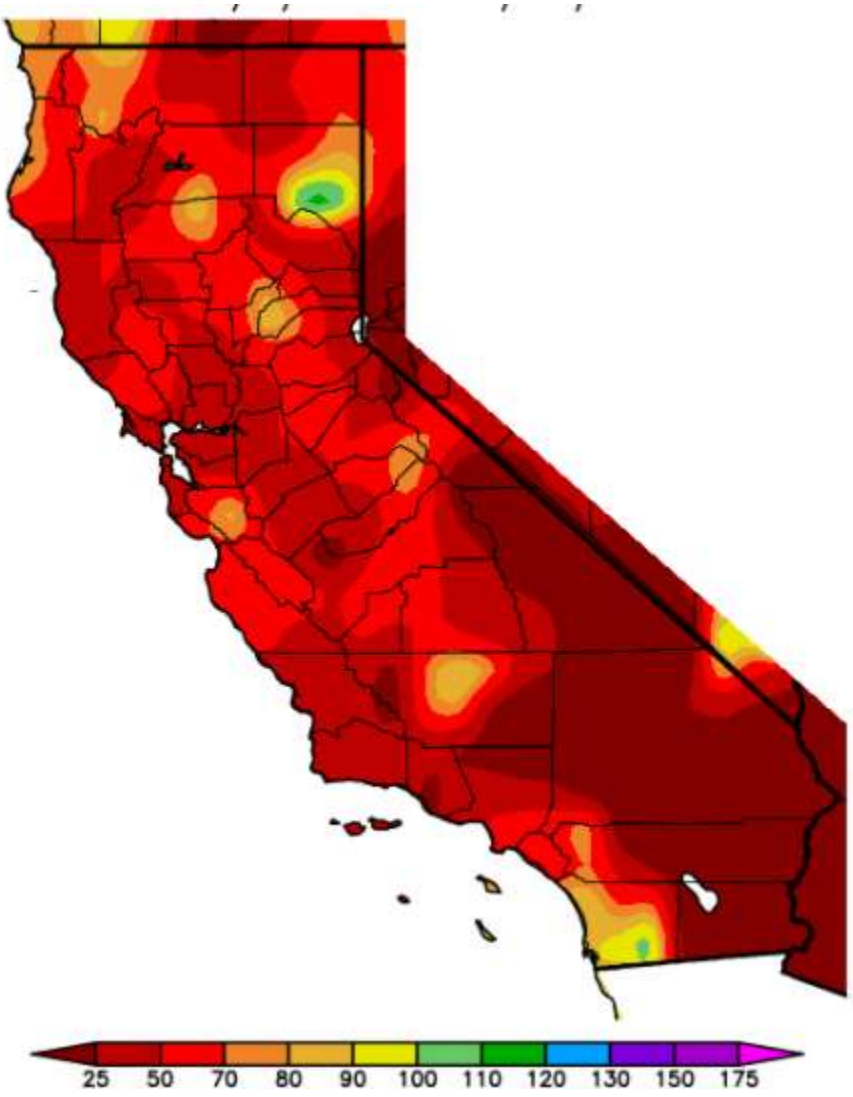


Figure 2 – Percent of Average Precipitation for March 2021



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