DECEMBER 2021 WEATHER SUMMARY
FOR THE CENTRAL CALIFORNIA INTERIOR

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Overall, December 2021 had near average temperatures with much above average precipitation. The first couple of days of this month were much warmer than average, including daytime high temperatures, and some daily records were broken at some San Joaquin Valley locations. However, this warmth was short-lived in these areas, due to the return of Tule fog and low stratus clouds. Periods of active weather occurred during the middle of the month, as well as during the 21st until the 30th, or just in time for the holidays and the typical busy travel times. At least several feet of snow accumulated in the Sierra Nevada throughout the month; in fact, a record high amount of 171 inches (over 14 feet) of snow fell at Tuolumne Meadows ranger station in Yosemite National Park over the course of this month and broke the old record was 143 inches set back in 1996. Cooler than average temperatures prevailed for the latter part of the month, especially during periods of precipitation or days with persistent cloud cover.

Table 1 – December 2021 Summary Statistics for 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	49.0	-0.2	46th warmest	2.60	+1.50	3rd highest
Fresno	48.1	+0.6	35th warmest	3.64	+1.85	12th highest
Hanford	46.8	+0.8	32nd warmest	3.36	+2.00	4th highest
Madera	46.2	-0.7	41st warmest	Missing	Missing	Missing
Merced	46.6	+0.6	38th warmest	3.80	+1.89	10th highest

Note: Precipitation was missing at Madera, due to technical issues with the ASOS during the 13th, 14th, and 16th; it is unknown if backup data will become available.

High pressure remained in control over the region to begin the first couple of days of the month. Maximum temperatures were around 10 to 15 degrees above seasonal averages on both the 1st and 2nd. Some patchy fog in the San Joaquin Valley developed in the mornings, as minimum temperatures cooled to their typical values for this time of year. Fog increased in coverage and

became dense by the night of the 3rd and continued until the morning of the 5th. Low clouds prevailed for a couple of days afterward, but with no dense fog, and eventually cleared by the afternoon of the 7th. Dense fog redeveloped in the San Joaquin Valley on the night of the 7th into the morning of the 8th but cleared by late morning. Central California remained free of precipitation until the 8th, except for occasional drizzle in the Central Valley due to the fog and low clouds.

Widespread precipitation arrived by the morning of the 9th, though amounts were relatively light towards Kern County, or up to around 0.50 inch (except for some isolated amounts around one inch). Several inches up to a foot of snow accumulated in the Sierra Nevada, mainly above 5,000 feet. Otherwise, around 0.50 to 1.25 inches of rain fell below 5,000 feet in the Sierra Nevada and into the adjacent foothills; locations in the San Joaquin Valley received up to 0.75 inch. Once the cold front passed into eastern Kern County, winds began to pick up by the afternoon and evening, with gusts around 40 to 50 mph.

There was a brief dry period during the 10th and 11th with cold overnight lows. Dense fog was localized in the San Joaquin Valley; otherwise, freezing overnight temperatures and near average daytime highs prevailed throughout much of this region. Low temperatures in the Kern County desert fell to around 20 degrees in the coldest spots on the mornings of the 10th and 11th.

A strong storm with abundant subtropical moisture brought precipitation to the area on the 12th until the 14th. This was a cold system that produced from around one foot up to four feet of snow at elevations above 5,000 feet in the Sierra Nevada during the period, as well as 2 to 4 inches of rainfall below elevations of 5,000 feet in the Sierra Nevada into the foothills, mainly towards Yosemite and south to Kings Canyon National Park. Otherwise, lesser amounts of precipitation were reported in locations to the south. Many locations in the San Joaquin Valley reported totals of around one to two inches of rainfall. In addition, gusty southerly winds developed in the West Side Hills, south end of the San Joaquin Valley and over the Grapevine during the 13th where observed gusts ranged from 35 to 55 mph. Gusty winds on the 14th shifted to the Kern County desert areas, where gusts around 45 to 60 mph were reported. By the morning of the 14th, snow levels rapidly fell to around 2,500 feet in Madera and Mariposa Counties. The colder air moved southward by the early afternoon into Kern County, and snow, though with little accumulation, fell at elevations down to around 3,000 feet, including towards Tehachapi and the Grapevine. The snow in Tehachapi prompted a road closure on Highway 58 during the afternoon of the 14th, and four inches was reported by the morning of the 15th. Otherwise, around one to two feet of snow fell above 5,000 feet in locations throughout Kern County, while up to a half inch of rain fell in the Kern County desert areas, mainly during the 14th.

On the night of the 15th into the afternoon of the 16th, another round of precipitation arrived. Mainly light amounts of rain fell in the San Joaquin Valley, or around 0.10 to 0.25 inch. Several

inches up to around one foot of snow accumulated in the highest elevations Sierra Nevada in Yosemite and southward to Sequoia National Park; otherwise, up to a few inches of snow accumulated above 6,000 feet in the Sierra Nevada as far south as Sequoia National Park.

By the evening of the 16th, low cloud cover redeveloped in the San Joaquin Valley, and locally dense fog was reported by the morning of the 17th. More widespread dense fog developed in the Central Valley by the following evening into the morning of the 18th. Otherwise, cooler than average temperatures prevailed with mainly clear skies.

On the night of the 18th into the morning of the 19th, freezing overnight temperatures returned to the San Joaquin Valley. However, some patchy dense fog developed during the morning hours. Low clouds persisted for the entire day of the 20th and brought near record low maximum temperatures to locations in the San Joaquin Valley as high temperatures failed to rise above the lower 40's.

An active weather pattern returned on the 21st and continued until the 30th with additional copious amounts of rain and mountain snow. The majority of the precipitation this month fell during this period, with a total of 1.50 to 2.50 inches of rain in much of the San Joaquin Valley, with higher amounts of rainfall reported in the Sierra Nevada and foothills at elevations up to 6,000 feet. A warmer system initially brought snow to around 8,000 feet on the 22nd and 23rd, and snow levels lowered with the passage of each subsequent system until the 29th. Snow fell at elevations around 2,000 feet in the mountain areas, including on Christmas Day and again on the 27th. By the end of the period, or on the 30th, snow levels had risen at bit, or to around 3,500 feet. Light snow and ice accumulated on Interstate 5 through the Grapevine on the 30th, and caused a road closure in both directions for about seven hours during the daytime hours. About three inches of snow was also reported in Tehachapi, though on the 29th. During the entire period, or the 21st until the 30th, an additional several feet of snow accumulated in the higher elevations of the Sierra Nevada, and some areas received up to ten feet.

Overall, the month was seasonably cool with well above average precipitation throughout the region, which brought some relief to the ongoing drought. To end the month, the weather finally became quiet, although dense fog developed in the San Joaquin Valley by the evening hours of the 30th and again on the night of the 31st.

Table 2 – Seasonal Precipitation for ASOS locations (ending on December 31st)						
Location	**Since Jan 1st (inches)**	**Departure From Average (inches)**	**Since Jul 1st (inches)**	**Departure From Average (inches)**	**Since Oct 1st (inches)**	**Departure From Normal (inches)**
Bakersfield	5.58	-0.78	3.55	+1.61	3.55	+1.66
Fresno	10.38	-0.61	5.21	+1.91	5.21	+1.99
Hanford	8.22	+0.09	4.60	+2.10	4.60	+2.16
Madera	Missing	Missing	Missing	Missing	Missing	Missing
Merced	10.51	-1.29	5.79	+2.17	5.79	+2.22

Table 3 – Warmest High Temperatures and Coolest Low Temperatures of the Month for ASOS locations				
Location	**High**	**Date(s)**	**Low**	**Date(s)**
Bakersfield	77	1st	34	19th
Fresno	73	1st & 2nd	33	19th
Hanford	74	1st	31	19th
Madera	73	1st & 2nd	29	19th
Merced	71	1st	29	19th

Daily Records Set During December 2021

Bakersfield –
15th: Record high daily precipitation of 0.97 inch set, which broke the old record of 0.30 inch set for the date in 1993.

Fresno –
15th: Record high daily precipitation of 1.03 inches set, which broke the old record of 0.84 inch set for the date in 1968.

Hanford –
2nd: Record high maximum temperature of 73 degrees set, which broke the old record of 72 degrees last set for the date in 1940.

15th: Record high daily precipitation of 0.87 inch set, which broke the old record of 0.49 inch set for the date in 1936.

Madera – No daily records reached.

Merced –
1st: Record high maximum temperature of 71 degrees tied and last occurred on this date in 2014.

Fig 1 – Departure from Average Temperature for December 2021

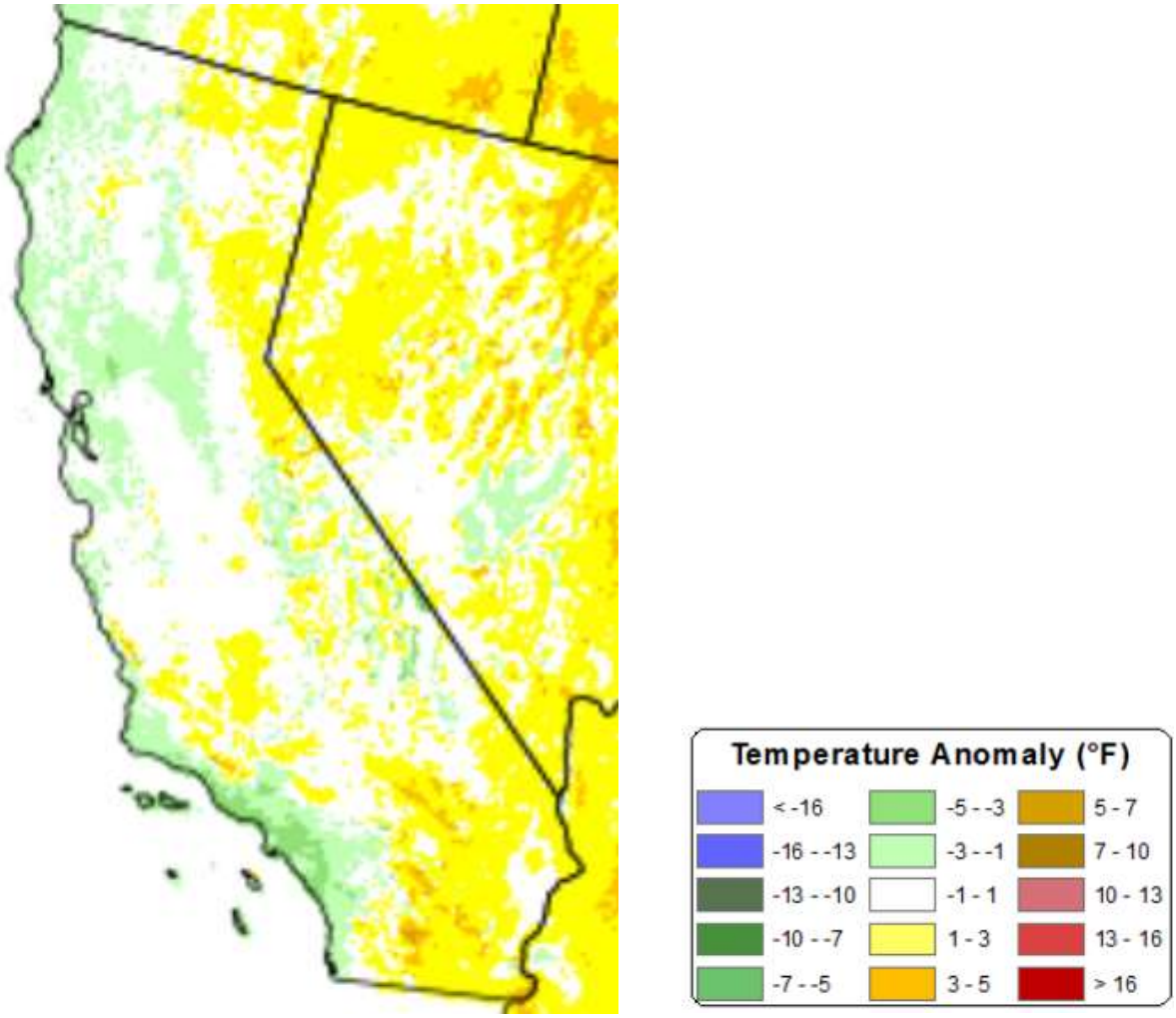
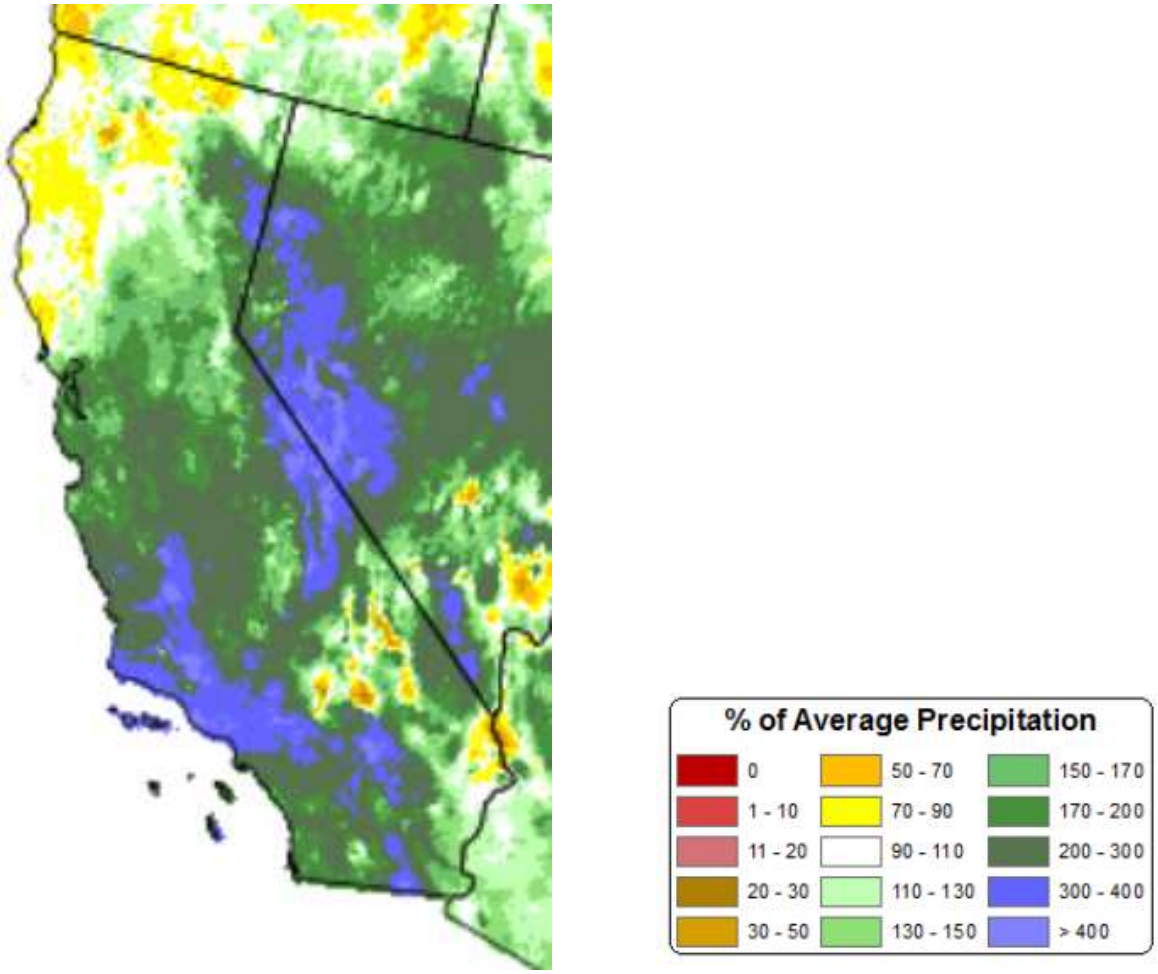


Fig 2 – Percent of Average Precipitation for December 2021



*Images above (i.e., Figures 1-2) courtesy of PRISM Climate Group at Oregon State University