

NOVEMBER WEATHER SUMMARY

By Gary Sanger
Climate Services Focal Point
WFO San Joaquin Valley-Hanford

In the wake of the severe weather outbreak that hit the central and southern San Joaquin Valley on October 29th, there were pools of standing water in areas that received the heaviest rains. With an upper-level ridge providing a stable environment, and moisture from these pools recharging the boundary layer, patchy fog formed during the overnight and early morning hours. During the first few days of November, the densest fog developed in the Merced-Atwater and the Lemoore-Visalia-Selma areas. Shortly after sunrise on November 3rd, one dense fog patch drifted over the 99 Freeway with tragic results. A series of accidents, involving a total of 86 vehicles, resulted in two deaths and 41 injuries.

The upper-level ridge remained over California through the first week of the month, allowing temperatures to warm to several degrees above normal, with central and southern San Joaquin highs in the mid 70s to lower 80s. An upper-level trough reached the state late on November 8th, weakening the ridge and setting the stage for precipitation to reach the region over the Veterans Day weekend.

The first storm moved through the region on the 9th. Although only a few showers developed, they produced locally heavy rainfall near Lemoore. This storm was followed two days later by a second system, which brought more widespread precipitation to the region.

The storm brought as much as a quarter of an inch of rain to the Valley floor (with the highest amounts in Merced County, tapering off to a few hundredths in Kern County), with higher amounts in the foothills. Snowfall over the higher elevations of the Southern Sierra Nevada was spotty, with only a few locations reporting measurable snow.

Weak high pressure aloft moved into California behind the trough, resulting in more patchy fog development in the central and southern San Joaquin Valley. Locally dense fog developed on the morning of November 12th, with visibilities of 200-300 feet reported on the west side of Hanford. Even thicker fog developed on the 19th, with visibilities down to 100 feet in a few spots. The upper-level ridge also brought another round of warming to the region. Valley high temperatures on November 15th soared to as much as 10-15 degrees above normal.

A dry cold front trough dropped through California November 21st, ahead of an upper-level trough that arrived the next day. A very cold airmass moved into internal central California during the 21st-22nd, bringing the first hard freeze of the season to the Kern County deserts (the low bottomed out at 23 degrees at Edwards Air Force Base), and patchy frost to the San Joaquin Valley floor.

The upper-level trough dropped into the Great Basin early on November 23rd, while a surface high pressure moved into southern Idaho. This resulted in a northeast flow over the Southern Sierra Nevada, both aloft and at the surface. Strong winds developed over the Sierra crest near Yosemite National Park, with gusts at Tioga Pass reaching 74 mph. This “Mono wind” event toppled numerous trees in Yosemite National Park.

Another very dry airmass moved into the region behind the trough, with relative humidities over the mountains and deserts dropping into the teens, and, in some locations, single digits. High clouds associated with an upper-level trough spread into the region beginning the night of November 24th-25th, bringing mid-level moisture to the region and allowing mountain humidities to recover a bit. The base of the trough pinched off, forming a closed low west of Baja California. The circulation around this low drew a fetch of tropical moisture northward into California beginning the night of November 27th-28th, initially in the form of bands of high clouds. Deeper tropical moisture moved into southern California on the night of November 29th, and into Kern County the morning of the 30th. This moisture brought measurable rain to the Kern County mountains and deserts—with amounts ranging from a couple of hundredths to over half an inch (0.53 inch at Edwards AFB)—and even to the far south end of the San Joaquin Valley, where Arvin recorded 0.12 inch of rain. However, Bakersfield only received a trace of rain, and it remained dry further north in the San Joaquin Valley and the Sierra foothills. Lodgepole recorded 0.01 inch of rain, the farthest north that precipitation was reported in the higher elevations of the Southern Sierra Nevada. Due to the tropical nature of the moisture, snow levels remained high and no snowfalls were noted by either spotters or cooperative observers.