MAY 2011 WEATHER SUMMARY
FOR THE CENTRAL CALIFORNIA INTERIOR

By Gary Sanger, Climate Services Focal Point
And Brian Ochs, Assistant Climate Focal Point
WFO San Joaquin Valley-Hanford

The month began with cooler than normal low temperatures in the wake of a fairly strong trough of low pressure that brought rather cool air to the region. Morning lows dropped to as low the upper 30s in parts of the San Joaquin Valley. However, daytime temperatures quickly rebounded as an upper-level ridge of high pressure began building into the state; afternoon highs in the central and southern San Joaquin Valley warm to near normal (around 80 degrees).

The ridge continued to strengthen during the first several days of May. On the 2nd and 3rd, temperatures warmed several degrees, with central and southern San Joaquin Valley highs reaching the mid to upper 80s. May 4th saw both Bakersfield and Fresno reach a high of 90 degrees, the first 90-degree day for either city in 2011. The next day saw San Joaquin Valley highs reach the mid 90s, as the ridge continued to strengthen ahead of an approaching upper-level trough. The ridge began weakening on the 6th, bringing a modest cooling trend; much stronger cooling arrived the next day as the trough began moving into California.

Winds began increasing during the afternoon of May 7th over the Kern County mountains and deserts, and a few gusts on the 8th exceeded 60 mph as mountain waves briefly touched down on the higher elevations of the Piutes and Tehachapi Mountains. The central and southern San Joaquin Valley saw temperatures fall around 11 degrees from May 6th to the 7th, and as much as 13 degrees on the next day as temperatures fell to well below normal.

As the trough began to move inland on the 9th, thunderstorms with small hail, brief heavy rain, and gusty winds to around 50 mph developed over the southern Sierra Nevada. The airmass over the San Joaquin Valley was forecast to be unstable during the afternoon of May 9th, and this proved to be true as the thunderstorms that formed over the southern Sierra Nevada moved southwest into the central and southern San Joaquin Valley. By 5 PM, thunderstorms were moving quickly south through the Fresno/Clovis metropolitan area, and also along the west side of the Valley—including the Interstate 5 corridor—from Coalinga south. The storms on the east side of the Valley continued moving south across Tulare County before weakening. Hail up to ¾-inch in diameter was reported, and wind gusts to around 50 mph toppled trees in Fresno and Tulare Counties.

The city of Fresno saw rapid temperature changes as the thunderstorms moved through. Ahead of the storms, the temperature at Fresno-Yosemite International Airport rose from 64 degrees at 2:53 PM to 75 degrees at 3:50 PM, and then dropped to 67 degrees 3 minutes later. By 4:53 PM, the temperature had fallen another 9 degrees, to 58, before bottoming out at 55 degrees an hour later.

Temperatures remained rather cool on the morning of the 10th. However, another ridge of high pressure began to develop over the area, although it was not as strong as the previous one. Nevertheless, temperatures began to rebound back to around normal values by the 11th and into the mid to upper 80s on the 12th and 13th.

The next upper-level trough began moving into California on May 14th, bringing colder air and abundant mid and high clouds. Temperatures in the central and southern San Joaquin Valley only reached the mid 60s to mid 70s, down as much as 22 degrees from the 13th. During the morning of the 14th, a thin layer of cirrostratus covered the San Joaquin Valley. The layer of ice crystals aloft produced a prominent halo around the Sun that was visible from parts of the Valley.

The upper-level trough remained over the central California interior from May 15th through the 18th. Upper-level disturbances brought periods of showers to the region, as well as scattered thunderstorms during the afternoon of the 15th. Three funnel clouds were seen over the central San Joaquin Valley on May 15th (one in the morning near the foothills east of Fresno, and two in the afternoon near Kerman), and another funnel was observed on the 18th near Arvin in Kern County.

Temperatures were well below normal during this period as an unseasonably cold airmass settled over the region. Fresno set a record low maximum temperature on May 16th, and tied its record low maximum temperature the next day. On May 18th, Bakersfield tied its record low maximum temperature. The 0.30 inch of rain that fell on Fresno from May 15th-17th was 76.9 percent of the normal rainfall for the entire month of May (0.39 inch).

The storm moved east of California on May 19th. Circulation around the low kept some clouds near the Southern Sierra Nevada crest with spotty showers over the high country. Otherwise, skies over the central California interior were mostly clear and temperatures on the 19th were up 7-10 degrees from the previous day. Temperatures continued to warm the next day, finally returning to near normal as a short-lived upper-level high-pressure ridge moved over California.

The next upper-level trough approached California on May 21st. Temperatures on the 21st were similar to those of the previous day, then cooled as much as 6 degrees on May 22nd. The trough brought isolated showers to the Southern Sierra Nevada on the 21st, but mid-level west winds—moving around the base of a short-wave dropping through the trough—kept convection east of the Hanford warning/forecast area on the 22nd. The aforementioned short-wave also deepened the marine layer along the coast. Marine air spilling through Pacheco Pass during the evening of May 22nd generated gusts to around 45 mph through the pass.

A stronger Pacific storm approached California on May 25th. A series of upper-level short waves rotating around a low off the California coast brought periods of gusty winds to interior central California. Temperatures on the 25th warmed ahead of the first cold front, with the central and southern San Joaquin Valley saw highs in the upper 70s and 80s.

The winds increased over the Kern County mountains and deserts beginning the afternoon of May 26th. Wind gusts to around 45 mph were reported during the afternoon and evening of the 26th, then increased to as high as 78 mph during the afternoon of the 27th as winds funneled

through the Tehachapi Pass into the Mojave Desert. The winds abated some that evening, but gusts between 45-50 mph were common over the desert. May 28th saw a strong cold front move through the region during the afternoon and evening, bringing gusty winds to the San Joaquin Valley as well as to the mountains and deserts. Gusts up to 80 mph were reported in the Mojave Desert, and some wind damage was reported in the San Joaquin Valley—mainly to trees.

An upper-level disturbance moved onshore behind the cold front. As the disturbance tracked east over the San Joaquin Valley from the central California coast, it triggered showers over the central California interior, with the strongest activity over Kern and Tulare Counties. Snowfalls of up to 7 inches were reported over the Southern Sierra Nevada and Tehachapi Mountains, with 4 inches falling as far south as Bear Valley Springs. Bakersfield received 0.11 inch of rain during the early morning hours of May 29th, accounting for nearly half of the total rainfall for the month of 0.23 inch and bringing the month's total almost to the normal for May of 0.24 inch. Rainfall tapered off to the north, with Fresno receiving only 0.01 inch from the storm. For the month, Fresno recorded 0.35 inch of rain, just 0.04 inch below the normal value of 0.39 inch.

May ended with a weak high pressure moving over the state. The high brought dry weather, lighter winds and warmer temperatures, although temperatures did remain below normal.

For the month, Bakersfield had an average temperature of 66.3 degrees. This tied with May 1942 for the 16th coldest May on record. Fresno had an average temperature of 65.1 degrees, tying with May 1957 for its 22nd coldest May on record.