JULY 2010 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

July began with a weak upper-level trough of low pressure over California. As a result, the first day of the month saw temperatures across the central and southern San Joaquin Valley a couple of degrees below normal, with slightly cooler temperatures the next day.

The trough began to lift northeast out of California on July 3rd, but a northwest flow aloft down the back side of the trough brought gusty winds to the Tehachapi Mountains and the Kern County desert area around Mojave. Winds in those areas gusted to 45 to 55 mph during the early morning of the 3rd. As the trough moved out of central California, an upper-level ridge began building into the state. This allowed temperatures to warm a couple of degrees, although central and southern San Joaquin Valley highs continued slightly below normal.

By the 5th of the month, temperatures reached a few degrees above normal as the upper-level ridge continued over the area. Another weak trough moved into the area and brought several degrees of cooling during the 6th and 7th. The most significant cooling occurred around Merced and Los Banos, as marine air spilled into the San Joaquin Valley through of the Sacramento River Delta region. The trough also triggered a thunderstorm over Tuolumne Meadows in Yosemite National Park during the late afternoon of July 6th.

Temperatures remained seasonably warm on July 8th and 9th. An upper-level ridge of high pressure returned to the region by the 10th, allowing temperatures to warm by several degrees across the Hanford warning/forecast area. In addition, a southeasterly to southerly flow at the mid-levels brought in moisture to the area with mid-level cloud cover over much of the district during the 10th and 11th. Moisture and instability were sufficient for some showers and thunderstorms to hit even the San Joaquin Valley during the daytime on the 11th. Both the Fresno and Bakersfield ASOS locations reported a trace of rainfall; however, locations throughout much of Kern County and southern Tulare County received measureable rainfall, as did southwestern Fresno County. Lindsay reported the highest amount for the San Joaquin Valley floor, with 0.08 inch. Coalinga recorded 0.04 inch, and the Fire Station at Meadows Field reported 0.01 inch. A thunderstorm was observed near Taft during the late morning of July 11th, and a Mesonet station near Buttonwillow reported 0.07 inch of rain. Conditions remained unstable over the Southern Sierra Nevada on the 12th. A thunderstorm dropped hail on the Tioga and Mono Passes in Yosemite National Park, but only a trace of rain was reported from this storm. Further south in the Southern Sierra Nevada, Lodgepole recorded 0.02 inch of rain, Grant Grove had 0.01 inch, and Glennville reported a trace of rain. In the Kern County desert, Edwards AFB reported at trace of rain, as did the ASOS at the North Base auxiliary field.

A dry southwesterly flow aloft pushed most of the moisture east of the area by July 12th, and convective activity became confined to mainly the crest of the Sierra Nevada as the moisture decreased a little each day until the 14th. Another marine push of air occurred during the

afternoon of the 12th; again, the effects were most noticeable over Merced County.

The upper-level ridge, along with the flow shifting to southeasterly aloft, returned on the 15th. Warming temperatures and mid-level moisture returned to the district beginning on the 15th. Fresno reached a high temperature of 107 degrees on the 16th, and the low at Meadows Field (Bakersfield) that morning was 81 degrees; this tied the record high minimum temperature for the date at Bakersfield, last set in 2005. Scattered thunderstorms developed over the mountains, and a couple of storms even drifted into the southeastern San Joaquin Valley, bringing a few sprinkles to parts of the Valley floor.

In the Southern Sierra Nevada, showers and thunderstorms brought a 2-day total of 0.38 inch of rain (from the 15th through the 16th) to Lodgepole in Sequoia National Park. 0.04 inch of rain fell at Mountain Mesa on the south shore of Lake Isabella on July 15th, and hail was reported covering the ground near Florence Lake on the 16th.

A strong thunderstorm developed over northwestern San Bernardino County during the afternoon of July 15th. As the thunderstorm collapsed, outflow winds as high as 60 mph roared through the southeastern Kern County desert, affecting Edwards AFB, Boron and Rosamond. Power lines were knocked down, and roof damage was reported at the Base. Outflow winds generated secondary showers and thunderstorms over the Kern County deserts during the evening of the 15th. The National Test Pilots School in Mojave reported 0.70 inch of rain in only a 6-hour period. Edwards AFB and Randsburg reported storm totals around two-tenths of an inch of rain.

Afternoon thunderstorms continued over the Southern Sierra Nevada daily through July 18th. One thunderstorm moved over the Ansel Adams Wilderness Area in eastern Madera and Mariposa Counties during the evening of July 17th. Although National Weather Service Doppler Radar estimated the rain rate at up to 4 inches per hour, no flash flooding was reported.

An upper-level trough moving into the Pacific Northwest and northern California weakened the ridge and brought a drying southwest flow aloft to the state. Temperatures began slowly cooling, although Fresno remained in triple digits through July 20th, and Bakersfield through the 21st.

An upper-level ridge over the southwestern United States began building westward into California on July 23rd. With high pressure strengthening over the state, both Bakersfield and Fresno again warmed to 100 degrees. As the ridge expanded westward, monsoonal moisture began wrapping around the ridge, pushing northwest from Arizona into southeastern California. An isolated thunderstorm formed over the Southern Sierra Nevada between Mount Whitney and Kings Canyon on the 23rd, with only some high-based cumulus developing elsewhere along the Sierra Nevada crest. Conditions over the high country were more unstable the next day, with a few afternoon thunderstorms over the high country of the Southern Sierra Nevada.

A weak low developed off the California coast on July 24th. The flow around the low brought mid-level clouds into the central California interior during the morning of the 25th. The airmass was very unstable, and light showers developed over parts of the central San Joaquin Valley; the Merced Municipal Airport recorded a trace of rain about an hour after sunrise. Heavier showers

and thunderstorms developed over the Southern Sierra Nevada, with Tuolumne Meadows in Yosemite National Park reporting a 24-hour rainfall total of 0.87 inch; although some of the moisture was from the thunderstorms that occurred during the previous afternoon. An upper-level disturbance rotating around the low moved through the region during the evening of the 25th, enhancing thunderstorm activity along the Southern Sierra Nevada. This activity continued overnight before finally ending during the morning of July 26th.

The flow turned onshore the next few days, bringing cooler air to the central and southern San Joaquin Valley and the Southern Sierra Nevada foothills. The high temperature at the Merced Municipal Airport on July 25th was 95 degrees. The next day, the high was only 88, and even a degree cooler on the 27th. As the cool air filled the lower elevations of the San Joaquin Valley, July 27th through the 29th saw Yosemite Valley (elevation: 4000 feet) reporting warmer high temperatures than Bakersfield or Fresno.

An upper-level high-pressure ridge began building back into California on July 29th, bringing warmer temperatures. Fresno saw a return of triple-digit heat on the 30th, with a high of 100 degrees. In the south end of the San Joaquin Valley, the trapped remnant of the marine air kept Bakersfield in the mid 90s (the high was 96), but still warmer than the previous day. As for the last day of the month, there were no significant changes in temperatures or weather across the central California interior as the upper level pattern remained unchanged.