JULY 2012 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 over California, keeping temperatures a few degrees below normal. The trough began lifting northward as the upper-level ridge over much of the nation built westward into southern California. Monsoonal moisture wrapping around the ridge triggered afternoon thunderstorms over the eastern Kern County deserts on July 4th, initially near Edwards AFB and Boron but pushing north into the Sierra Nevada in Kern and southern Tulare Counties. The thunderstorms were mostly dry; Edwards AFB and the North Edwards Auxiliary field both reported traces, and the Walker Pass East RAWS had 0.02 inch for the only measurable rain from the storms.

Although temperatures warmed to a few degrees above normal on Independence Day, an upper-level trough passing north of the central California interior that night deepened the marine layer along the coast to around 2500 feet. This allowed marine air to spill through the Pacheco Pass into the San Joaquin Valley. Winds gusted to around 30 mph near Los Banos, and temperatures across the central and southern San Joaquin Valley fell back to near normal.

There was little change in the weather from the 5th to the 6th, but the ridge began building back into California on July 7th. Temperatures rose to a couple of degrees above normal on the 7th, and continued to rise the next several days. Temperatures hit triple digits across much of the central and southern San Joaquin Valley on July 7th, and warmed to near-record values by July 11th and 12th. Fresno did tie its record high of 109 degrees (last set in 2002) on the 12th, and Bakersfield's low of 79 on the 12th missed its record high minimum (80, set in 1999) by one degree.

Monsoonal moisture wrapping around the edge of the ridge began moving into southern California on July 11th. A few thunderstorms developed over the Southern Sierra Nevada during the afternoons and evenings of the 12th and 13th, but rainfall amounts were light.

An upper-level trough moved into California on July 14th. The trough deepened the marine layer, which spilled into the San Joaquin Valley and ended the string of triple-digit days for most cities. Fresno had seven consecutive days above 100 degrees July 7th-13th), while Bakersfield had only had four consecutive triple digit days (July 10th-13th). The trough also brought a southwesterly flow aloft which kept thunderstorms on July 14th east of the central California interior.

The upper-level trough lingered over California for the next several days, keeping temperatures near normal on the 14th and 15th, then below normal July 16th through the 19th, as the trough deepened. The deepening trough increased the marine layer to a depth of over 4000 feet on the 16th. Marine air spilling through the Sacramento Delta and Pacheco Pass brought gusty winds to the region, and blowing dust reduced visibility to two miles or less at times on the San Joaquin Valley floor during the late afternoon and early evening.

July 18th saw an upper-level low over Point Conception. The cyclonic flow around the low drew tropical moisture from former Hurricane Fabio into Kern County from the south. Showers developed over the Tehachapi Mountains during the late afternoon, and sprinkles were reported over the south end of the San Joaquin Valley during the early evening hours. Showers increased in intensity overnight as they spread north, bringing Bakersfield back-to-back record rainfall amounts on the 18th and 19th. Fresno also tied its record rainfall on the 19th. However, July is the driest month of the year, and the old records for the 19th were a trace for both cities.

An upper-level ridge began building into California from the east on July 21st, bringing a short-lived return of triple-digit heat to the central and southern San Joaquin Valley. At the same time, an upper-level low was off the southern California coast. This pattern created a southerly flow aloft over the central California interior. Mid-level moisture caught in this flow brought a few showers and thunderstorms to the Southern Sierra Nevada on the 22nd.

By the evening of the 22nd, an upper-level low was moving through the Pacific Northwest. The interaction of the upper-level flows around the low to the north and the ridge to the southeast formed a convergence zone over Merced and Mariposa Counties that triggered isolated thunderstorms during the late night and early morning hours. One thunderstorm moved over the Merced Regional Airport, dropping 0.02 inch of rain late on the 22nd; this was the only measurable rain recorded at the airport during thr month.

There were isolated thunderstorms over the Southern Sierra Nevada on the 23rd, but these were the last for several days as the upper-level ridge weakened and the flow aloft became southwesterly. A weak push of marine air through the Sacramento Delta on July 24th lowered temperatures back to near-normal, and there was little change through the 29th.

July 30th saw the upper-level ridge over the Desert Southwest again building back into California. Monsoonal moisture began wrapping around the periphery of the ridge and spreading into southeastern California. Initially, this moisture stayed southeast of Kern County, but the moisture pushed northward across Inyo County on the 31st. This moisture triggered several thunderstorms over the county during the latter half of the day. An upper-level vorticity that became nearly stationary north of Las Vegas then pushed some of the thunderstorm southward toward Tulare and Kern Counties. A couple of thunderstorms reached the Sierra Nevada crest in Tulare County, and a few lightning strikes were recorded shortly before midnight. Further south, lightning from the thunderstorms was observed from Ridgecrest as the storms passed east of the

city. There were brief outflow winds that gusted to around 40 mph from the collapsing thunderstorms, and the China Lake Naval Weapons Test Center reported a trace of rain as a thunderstorm skirted the base just before midnight.

For the month of July, Fresno had 13 days with highs of 100 degrees or greater, and Bakersfield had 8 days with triple digit highs. The hottest day in July for Fresno was the 12th, with a high of 109 degrees. This matched June's hottest day of 109 on June 17th. The hottest day for Bakersfield during July was the 13th, with a high of 106 degrees. This was actually cooler than the warmest day in June at Meadows Field (108 on June 17th), which occurred three days before summer began.

THE 2012-2013 RAIN SEASON FOR SELECTED VALLEY SITES

/AMOUNTS IN INCHES/

SITE	JULY 2012	NRML JULY*	DEP	PCT NRML	SEASON 7/31	NORMAL 7/31*	DEP NRML	PCT
MERCED AIRPORT	0.02	0.01	0.01	200.0	0.02	0.01	0.01	200.0
MERCED CITY	0	0.01	-0.01	0	0	0.01	-0.01	0
MADERA AIRPORT	TRACE	0.02	-0.02	0	TRACE	0.02	-0.02	0
FRESNO	TRACE	0.01	-0.01	0	TRACE	0.01	-0.01	0
HANFORD AIRPORT	TRACE	0.02	-0.02	0	TRACE	0.02	-0.02	0
HANFORD CITY	TRACE	0.05	-0.05	0	TRACE	0.05	-0.05	0
BAKERSFIELD	0.02	TRACE	0.02	N/A	0.02	TRACE	0.02	N/A

* NORMALS FOR BAKERSFIELD...FRESNO...HANFORD CITY AND MERCED CITY ARE FOR 1981-2010.
NORMALS FOR HANFORD...MADERA AND MERCED AIRPORTS ARE FOR 2001-2010.