JULY 2014 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 strong high pressure system over the southwestern United States. Fresno had triple-digit highs for the first six days of the month, and seven of the first nine days. (The high at Fresno on July 7th was 99 degrees, as was the high of the 10th). Bakersfield did run up a string of 10 consecutive days at or above 100 at the beginning of the month; if June 30th is counted, the string had 11 consecutive days.

The summer monsoon season began in early July, and surges of subtropical moisture flowed into the Sierra Nevada, Tehachapi Mountains, southeastern Kern County desert and the Indian Wells Valley. Up to a third of an inch of rain fell in the Sierra Nevada on July 7th, with around a tenth of an inch at Oakhurst and Running Ranch in the foothills. The flow aloft gradually shifted from southeast to southerly on July 10th, keeping most of the thunderstorms east and north of the region. This trend continued on the 11th, when there was no convection over either the mountains or the desert areas of NWS Hanford's warning and forecast area.

July 10th also saw an upper-level trough approach California, weakening the ridge of high pressure over the state. The marine layer deepened to over 2,600 feet at Fort Ord during the evening of the 10th, and marine air spilling through Cottonwood Pass generated gusts to 46 mph. Further north, gusts to 38 mph were reported near Pacheco Pass. This marine air filled the San Joaquin Valley and brought a cooling trend to the region. July 11th was the first day that the high temperature at either Bakersfield or Fresno was below normal, if only by a couple of degrees.

The cool-down only lasted a day, as high pressure built back into California. Temperatures warmed back to above normal by July 13th with some San Joaquin Valley sites reaching triple digits the 13th through the 15th. Monsoonal moisture began wrapping around the upper-level ridge on the 15th, with a thunderstorm over Tuolumne Meadows dropping over an inch of rain during the afternoon. The heavy rain caused a debris flow near Tioga Pass that briefly closed Highway 120. The next day, thunderstorms redeveloped during the afternoon hours. One thunderstorm moved along the eastern edge of the Rim Fire burn scar in Yosemite National Park during the afternoon of July 16th. White Wolf received 0.45 inch in one hour, a heavy enough rain rate to raise the risk of debris flows in the burn scar area.

During the 17th-18th there was a break from monsoonal thunderstorm activity as a dry westerly flow set up over the area. High temperatures reached around average in the region. Highs were in

the lower to mid-90s in the San Joaquin Valley during those days as cooler marine air remained over the area. The warmest temperatures were just above 100 degrees in the Kern County desert, including Inyokern and Ridgecrest.

The next surge of monsoonal moisture produced thunderstorms over the mountains and desert areas beginning July 19th. Debris clouds from these storms drifted over the San Joaquin Valley, bringing sprinkles and light rain to the Valley floor. Fresno received 0.01 inch of rain on the 19th, setting a record for rainfall. (The old record was a trace, set in 2012.) In the south end of the San Joaquin Valley, light rain continued overnight into the early morning hours of the 20th.

This surge brought thunderstorms to the Southern Sierra Nevada beginning July 19th. A strong storm moved through Yosemite National Park during the afternoon hours. Lightning from this storm knocked out power to Yosemite Valley for around 24 hours. Other significant thunderstorms brought locally heavy rain to the Yosemite National Park area on July 20th-21st. Hetch Hetchy received 1.31 inch of rain, and High Sierra had 1.11 inch. Again, this was close enough to the Rim Fire burn scar to raise the risk of flooding and debris flows, but fortunately none were reported. There was a minor debris flow at Tioga Pass, but this was quickly cleared.

An upper-level trough along the west coast deepened the marine layer, resulting in a push of marine air into the San Joaquin Valley beginning on July 22nd and continuing the next day. Highs only reached the upper-80s to mid-90s on the 23rd (Bakersfield Meadows Field Airport stayed below 90 degrees that day; the high reached only 89 degrees), and temperatures were several degrees below average over much of the region.

July 24th saw a third influx of moisture wrapping around the upper-level ridge and into central California. Thunderstorms from this moisture were believed to be the cause of four fires that were discovered in the high country (above 10,000 feet) in and near Sequoia and Kings Canyon National Parks. A lingering pool of marine air over the south end of the San Joaquin Valley kept temperatures below normal into the 24th. As the ridge strengthened, temperatures rose back into triple digits on the 25th and the 26th. The warming continued into the 27th as Fresno reached a high 108 on the 27th, tying with July 8th for the warmest day of the month. (Bakersfield's warmest day of July was the 8th, also with a high of 108).

A fourth push of monsoonal moisture began on July 26th, and brought yet another round of convection to California. Thunderstorms developed over the Sierra Nevada during the afternoon and evening hours of the 26th and 27th, and even earlier in the day on July 28th. Thick clouds brought drizzle or light rain to parts of the region. Bakersfield recorded a trace of rain, as did Naval Air Station Lemoore, and sprinkles were reported in Mojave, Tehachapi and in Tulare County between Visalia and Hanford.

Thunderstorm activity during the afternoon of July 29th was less intense than on the previous days, and was initially confined to the Sierra Nevada in Tulare and Fresno Counties before spreading up the crest into Madera County and the high country of Yosemite National Park. This proved only to be a brief lull in convective activity, as the overnight hours were more active.

Remnants of former East Pacific Hurricane Hernan drifted over central California during the night of July 29th-30th. The warm, moist tropical airmass initiated thunderstorms over the San Joaquin Valley during the predawn hours, with convection continuing through the afternoon. Although rainfall amounts on the Valley floor were light, there were numerous lightning strikes and there was a report of hail falling in northeast Visalia around midday.

The airmass streamed northeast across the region, into the foothills and higher elevations of the Southern Sierra Nevada. Thunderstorm activity continued through the afternoon and evening. Hail was reported at Wilsonia in Sequoia National Park and at the Dark Hole wildfire in Yosemite National Park. Devils Postpile received 0.98 inch of rain in two hours during the early afternoon hours, the largest rainfall amount reported.

The warm nature of the airmass kept overnight lows unseasonably warm. Bakersfield tied its record high minimum for July 30th, and set a new record on the 31st. In terms of high temperatures, July ended much above average throughout the central California interior as strong upper-level high pressure was in control.

Fresno and Bakersfield realized very low precipitation amounts for the month; however, this was typical as each location reached its normal amount for the month (0.01 inch for Fresno and a trace amount for Bakersfield). Bakersfield tied for the 9th warmest July on record with an average temperature of 87.3 degrees, and Fresno reached 5th warmest at 86.9 degrees. One interesting item of note is there were four days of trace amounts for Bakersfield; one or two days would be considered around average.

THE 10 WARMEST JULYS ON RECORD

	BAKERSFIELD	FRESNO
1.	89.7...1931	87.8...2006
2.	88.8...1908	87.6...1931
3.	88.3...1933	87.1...2013
4.	88.2...1970	87.0...1984
5.	87.9...2006	*86.9...2014*
6.	87.6...2013	86.8...2005
7.	87.6...2005	86.5...2003
8.	87.4...2003	86.5...1908
9.	*87.3...2014*	86.1...1906
10.	87.3...1910	86.0...1917