AUGUST 2007 WEATHER SUMMARY

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A strong ridge of high pressure aloft over California and the Desert Southwest kept temperatures well above normal the first 4 days of the month. An upper-level low-pressure trough dropping out of the Gulf of Alaska weakened the ridge, cooling temperatures to near normal on the 5th, with much stronger cooling the next day as the surface flow turned onshore and a deep layer of marine air flooded the San Joaquin Valley. At one point on the 6th, profilers at Chowchilla and Lost Hills indicated that the marine air pool over the central and southern San Joaquin Valley was in excess of 5000 feet deep. High temperatures cooled 12 degrees from August 5th to the 6th at both Fresno and Bakersfield, with little change on the 7th. The low-pressure trough lifted to the northeast on the 8th as the upper-level ridge expanded back into California. The marine air pool moderated from the north beginning on August 8th, with Fresno warming 5 degrees. The remnant marine air remained trapped in the south end of the San Joaquin Valley, and Bakersfield only warmed 3 degrees from the 7th to the 8th, and again to the 9th; Bakersfield warmed from 92 to 96 on August 10th as the last of the marine air mixed out, finally warming back to normal.

Temperatures continued to warm through the middle of August, with Fresno hitting triple digits on the 15th. However, an upper-level trough developed off the Pacific Northwest, and the interaction of the trough and the high-pressure ridge over the southwestern U.S. resulted in a strong southwest flow aloft over the central California interior. This flow brought smoke from the Zaca wildfire (in eastern Santa Barbara County) into the Hanford warning/forecast area, with the thickest smoke over the southern half of the region. As a result, Bakersfield experienced significant cooling, with high temperatures on August 15th and 16th only reaching 87 degrees, 8 degrees below normal.

High pressure built back into California for the last 10 days of the month, bringing a return of triple-digit heat to the central and southern San Joaquin Valley. Mid-level moisture from the remnants of Hurricane Dean was caught in the circulation around the upper-level ridge, bringing scattered thunderstorms to the Southern Sierra Nevada and the Tehachapi Mountains. Some of this tropical moisture moved over the central and southern San Joaquin Valley during the early morning of August 26th, triggering nocturnal thunderstorms along a line from western Kern County northeast through Hanford, Visalia and Tulare, to Sanger in east-central Fresno County and Coarsegold and North Fork in eastern Madera County. Strong thunderstorms developed in the Sierra Nevada in Madera County during the afternoon of the 26th, and again on the 28th. These storms were slow moving, and radar indicated the potential for locally heavy rainfall, prompting Flash Flood Warnings for parts of Madera and Mariposa Counties near the thunderstorms.

Temperatures warmed to near-record levels the last few days of the month as the upper-level ridge continued to strengthen. The combination of the heat and the increase in humidity from the tropical moisture raised heat indexes to dangerous levels in the afternoons, prompting the issuance of a Heat Advisory for the central and southern San Joaquin Valley and the adjacent foothills for the last two days of the month and the beginning of September.