JUNE 2008 WEATHER SUMMARY

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June saw the fourth consecutive month of below-normal rainfall in the central California interior, as neither Fresno nor Bakersfield had any rain. While dry Junes are not uncommon (this was Bakersfield's 72nd dry June, and Fresno's 50th), the prospect of a dry June coming on the heels of the driest March-May on record for Bakersfield, and the 4th driest for Fresno, was a factor in Governor Schwarzenegger declaring a drought for the state on June 4th. In addition to the agricultural and hydrological impacts of the dry weather, the fire danger due to dried brush and other vegetation was high, and thunderstorms that moved through the state during the latter half of the month triggered numerous wildfires.

Bakersfield ended the 2007-2008 rain season (which runs from July 1st to June 30th) with a season total of only 2.38 inches, or 36.7 % of the normal of 6.49 inches. The past season was the 2nd driest on record, surpassed only by the 1933-34 season which saw only 2.21 inches. Fresno fared much better, due to an unseasonably wet December through February, but the rains ended abruptly in late February and the season ended with 8.40 inches. This was 74.8 % of Fresno's normal of 11.23 inches.

June began with temperatures only slightly below normal for the first three days of the month. The first in a series of upper-level troughs of low pressure moved into California on the first day of the month. Along the coast, the marine layer deepened, reaching a depth in excess of 3500 feet. As cold marine air spilled through the Sacramento delta and the Pacheco Pass, high temperatures in the central and southern San Joaquin Valley got no warmer than the mid 80s, where they would remain the next two days.

The second trough reached the central California interior on the 3rd-4th. The dry cold front associated with the trough brought gusty winds to the Kern County deserts on June 3rd, and several degrees cooling to the entire region on the 4th. Winds gusted 45-50 mph in the Indian Wells Valley, and to nearly 70 mph at Mojave. In the San Joaquin Valley, winds gusted to 35 mph at Meadows Field, Bakersfield, with similar readings across the Valley floor. This trough was stronger than its predecessor, and the push of cold air that moved into the region dropped high temperatures from the mid 80s on the 3rd to the upper 70s to around 80 the next day.

Temperatures returned to near normal over the next few days. A weak system brought gusty winds to the west side of the San Joaquin Valley on June 7th, with a few gusts reaching 35 mph. Another cold front moved through central California on June 10th. Winds gusted to 40 mph at Fresno-Yosemite International Airport and the Merced Municipal Airport, and gusts to around 45 mph were reported in the Kern County mountains and deserts. Temperatures dropped as much as 7 degrees in the cold air behind the front, but as with the earlier system, the cooling was short-lived.

High pressure built into California during the middle of the month, pushing temperatures several degrees above normal. Fresno had a high of 103 degrees on June 13th, for its first triple-digit temperature since May 19th. Bakersfield only hit 99 on the 13th, but had a high of 101 the next day, for the first triple-digit reading at Meadows Field since May 17th. Temperatures remained above normal for the next several days, culminating in record highs of 110 degrees at both Bakersfield and Fresno on June 21st.

By June 19th, the central California interior was under an upper-level ridge centered over the Desert Southwest, held in place by a blocking trough over eastern North America. In the Pacific Northwest, an upper-level low was forming west of the Queen Charlotte Islands (the chain of islands extending from north of Vancouver Island toward the Alaskan Panhandle). An upper-level trough developing from the low would prove to have a major impact on California's weather the next few days.

The upper-level ridge moved inland on June 20th as the upper-level trough deepened over the east Pacific. A disturbance moving up the leading edge of the trough triggered thunderstorms west of the central California coast during the morning of the 20th. In the warm, unstable airmass, thunderstorms developed near the Southern Sierra Nevada crest, but moved north and east of the Sierra, spreading into Inyo and Mono Counties.

The strong warming on the 21st increased the instability of the airmass over the region, triggering another round of thunderstorms that moved across northern and central California during the day and into the night of the 21st-22nd. Lightning strikes from these mostly dry thunderstorms triggered numerous wildfires across the state. A few showers and thunderstorms did produce measurable rain, including one storm that dropped a tenth of an inch of rain on Giant Forest. One shower that developed over the central San Joaquin Valley moved over the northern part of the city of Fresno, but stayed north of Fresno-Yosemite International Airport. As a result, Fresno's record of a dry June 21st—the only day with zero precipitation—remained intact for the 131st year of records. Scattered showers developed over the central San Joaquin Valley in Merced and Madera Counties. A rain gage near Los Banos measured 0.02 inch, the only measurable rain in the central Valley; none of the ASOS's in the central Valley—Fresno, Madera or Merced—reported any precipitation from these showers.

The trough that triggered the thunderstorms on the 20th and 21st moved through California on the 22nd, allowing an upper-level ridge to build into the region. The ridge strengthened the inversion over the central California interior, and smoke from the wildfires in the Sierra Nevada and along the coast was trapped in the region

On June 25th, another upper-level trough developed in the east Pacific. Over California, the upper-level ridge continued to keep the strong inversion in place, and air quality deteriorated. The smoke did reduce the amount of solar heating across the central California interior. Temperatures did not warm as much as would have been expected in clear air, and although a few showers developed over the Southern Sierra Nevada, no lightning was observed.

The trough brought some cooling to the region, with temperatures falling back to near normal, and also allowed the marine layer along the coast to deepen to 2400 feet during the late evening of the 25th, with marine air spilling through the Pacheco Pass and triggering gusts to 38 mph over the San Luis Reservoir. The closed upper-level low formed in the base of the trough, west of Point Conception, on June 26th. North of the low, a west-east oriented ridge of high pressure pushed into Oregon and northern California. A well-defined boundary developed along the southern edge of the ridge, triggering thunderstorms that moved west over the Sierra Nevada and the northern San Joaquin Valley in the flow around the ridge. This was the last thunderstorm activity over the Southern Sierra Nevada, as the circulation around the closed off-shore low combined with the flow around the upper level ridge over the Desert Southwest to produce a south to southwest flow aloft over the central California interior the last few days of the month. This flow pushed any developing thunderstorms north and east of the Southern Sierra Nevada crest.

Smoke from the wildfires in the Southern Sierra Nevada and near the coast settled over the San Joaquin Valley, resulting in degraded air quality and the issuance of an Air Stagnation Advisory by the San Joaquin Valley Air Pollution Control District. The smoke had little impact on temperatures, which warmed to slightly above normal on June 27th with little change through the end of the month.

LISTED BELOW ARE RAINFALL TOTALS FOR SELECTED CITIES IN THE CENTRAL AND SOUTHERN SAN JOAQUIN VALLEY. PLEASE NOTE THAT THE RAINFALL TOTALS FOR HANFORD, MERCED AND VISALIA WERE RECORDED AT THE OFFICIAL CLIMATOLOGICAL STATIONS FOR THOSE CITIES, AND MAY DIFFER FROM AIRPORT READINGS.

CITY	2007-08 RAINFALL IN INCHES	NORMAL RAINFALL IN INCHES	DEPARTURE FM NORMAL IN INCHES	PERCENT OF NORMAL
COALINGA	7.20	8.30	-1.10	86.7
MERCED	10.06	12.50	-2.44	80.5
LINDSAY	9.85	12.57	-2.72	78.4
FRESNO	8.40	11.23	-2.83	74.8
LOS BANOS	7.02	9.95	-2.93	70.6
HANFORD	5.75	8.58	-2.83	67.0
VISALIA	6.66	11.03	-4.37	60.4
DELANO	4.14	7.55	-3.41	54.8
BAKERSFIELD	2.38	6.49	-4.11	36.7