MAY 2009 WEATHER SUMMARY
FOR INTERIOR CENTRAL CALIFORNIA

By Gary Sanger, Climate Services Focal Point
And Brian Ochs, Assistant Climate Focal Point

May began with a strong upper-level trough moving into California, bringing locally heavy showers to the region. The trough tapped into a deep fetch of subtropical moisture, resulting in high snow levels—above 9000 feet for much of the event, and ultimately no lower than 8200 feet.. Fresno received 0.40 inch of rain on May 1st, more than the normal of 0.39 inch for the entire month. Bakersfield received nearly as much, with the rain gauge at Meadows Field measuring 0.35 inch; the normal for the month of May at Bakersfield is 0.24 inch. In the Southern Sierra Nevada, Yosemite Valley received just over 2 inches of rain, and over 1.8 inch of rain fell as far south as Lodgepole in Sequoia National Park. In the high country of the Southern Sierra Nevada, snow did fall, with up to 15 inches at Upper Burnt Corral (9,700 feet). The rain tapered off on May 2nd, as a weak short-wave move through the region behind the main trough, and only a few showers lingered into the 3rd.

Another trough moved into central California on May 5th, bringing only light precipitation to the Southern Sierra Nevada. This trough did, however, tighten surface pressure gradients across the region, producing gusts to 52 mph at River Kern and sustained winds of 32 mph at Edwards AFB.

Temperatures slowly warmed through May 6th, then the central and southern San Joaquin Valley cooled a few degrees on the 7th as a push of marine air filled the Valley. This pool of marine air rapidly mixed out, and Fresno had a high of 90 degrees on May 9th. Temperatures then leveled off for a couple of days, before the next low-pressure system brought cooling to interior central California on the 12th. This low-pressure trough also brought strong winds to the Kern County desert, with gusts to 47 mph at Edwards AFB during the afternoon of May 12th, and gusts as high as 73 mph at Mojave that evening.

Weak high pressure over the state brought another slow warming trend to the region. Fresno again reached 90 on May 15th, but Bakersfield still had not reached 90 by that point. Things changed abruptly the next day, as the ridge strengthened over the state and temperatures jumped as much as 10 degrees. Bakersfield went from a high of 88 on May 15th to 99 the next day, and topped out at a record-setting 105 degrees on May 17th. Fresno was even warmer, reaching 106, as did Naval Air Station, Lemoore. Castle Airport in Merced County reached 108 degrees, and Coalinga sizzled at 110 degrees.

While high pressure was strengthening over the West Coast, an upper-level low off Baja California began spinning subtropical moisture into California from the southeast. A few thunderstorms developed over the Southern Sierra Nevada on the 17th, but convection was widespread across the region the next day. By the afternoon of May 18th, thunderstorms had developed over the Kern County desert near Edwards Air Force Base, and over extreme southeastern San Luis Obispo County. The latter storm drifted north

into the far western portion of Kern County. Four Severe Thunderstorm Warnings were issued during the afternoon; two verified, including the storm near Edwards Air Force Base. There was a lull in the activity around sunset, then an upper-level disturbance moved northwest along the Southern Sierra Nevada, triggering another round of thunderstorms. The strongest storms were over the mountains of Madera and Mariposa Counties, and as these thunderstorms collapsed, outflow winds caused more storms to develop. Ultimately, the thunderstorms propagated westward into Merced County before finally ending late in the evening. Rainfall from these storms mostly was under a tenth of an inch, although Yosemite Valley recorded 0.33 inch, with a quarter inch of rain falling in one hour.

A low-pressure trough approached the Pacific Northwest on May 19th, pushing the ridge center across the Four-Corners and into the Oklahoma panhandle. Central and southern San Joaquin Valley high temperatures were only in the 90s on May 19th, and cooled further, to around 90, the next day.

The trough moved inland on May 20th, bringing as much as 5 degrees cooling to the region. A nearly zonal flow set up over the eastern Pacific into California with a slow cooling trend through the 25th as pushes of marine air entered the San Joaquin Valley, and convection over the Southern Sierra Nevada as the westerly flow provided orographic lift over the slopes.

An upper-level ridge built into California beginning May 27th, bringing another warming trend to interior central California. Fresno warmed to 99 degrees on the 27th, and reached 102 the next day. A weak low off Baja California spun mid-level moisture into California from the south, and the combination of heat and moisture triggered strong thunderstorms over the Southern Sierra Nevada and the Tehachapi Mountains each afternoon and evening, beginning on May 27th and continuing through the end of the month. Hail up to 1.5 inch in diameter fell near the town of Orange Cove on the evening of the 28th, and as thunderstorms over the Sierra Nevada, and over San Luis Obispo County, collapsed, outflow winds pushed across the San Joaquin Valley, triggering thunderstorms over the eastern and central Valley. Two of the storms merged into a strong system that produced gusty winds that toppled numerous trees on the Valley floor, as well as 1-inch hail near Visalia. Strong winds also triggered a gust-front tornado (gustnado) that damaged a mobile home park in Orosi.

Convection was weaker on May 29th, as thunderstorms developed earlier and several of the storms were pushed north of the region by a more southeasterly flow aloft. However, this southeast flow also carried thunderstorms from northeastern Los Angeles and northwestern San Bernardino Counties into southeastern Kern County near Rosamond, Edwards AFB, and Boron. One thunderstorm collapsed as it passed west of Edwards AFB in the early afternoon, generating outflow winds that were measured at a peak of 62 knots (71 mph).

The upper-level low that brought the moisture into California tracked inland over southern California into western Arizona on May 30th. This reduced the amount of

available moisture and placed the favorable orographics on the east side of the Sierra Nevada, confining thunderstorms mostly to the high country. The low had moved sufficiently inland on the 31st that the southwesterly synoptic flow became the dominant upper-level wind. This caused the thunderstorms that formed over the high country of the Southern Sierra Nevada to be confined to near the crest, except for one storm that developed over the Piutes by mid-afternoon; this storm weakened as it moved east toward the Indian Wells Valley.

Although both Bakersfield and Fresno had above normal rainfall for May 2009, this was due solely to thunderstorm activity over the San Joaquin Valley. Fresno had only two days in May with measurable rain; Bakersfield had a single day.

May also was unseasonably warm. Fresno tied for its third warmest May on record, with an average temperature of 75.3 degrees. Bakersfield had its seventh warmest May on record, with an average temperature of 76.4 degrees. Both cities had two days with high temperatures in the triple digits.