SEPTEMBER 2013 WEATHER SUMMARY
FOR THE CENTRAL CALIFORNIA INTERIOR

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September began much as August both began and ended, with the central California interior between two weather systems. An upper-level trough was over the Pacific Northwest, and an upper-level ridge was over the Desert Southwest and northern Mexico. The circulation around these features combined to keep a southwesterly flow aloft over central California. Temperatures started out several degrees above normal, but fell to near normal by the 3rd and remained near to slightly above average for the next several days.

Thunderstorms remained east and southeast of the central California for the first day of the month. Moisture from Tropical Storm Kiko moved into the central California on September 2nd, and a strong thunderstorm over the Los Angeles-San Bernardino County line moved into southeastern Kern County near Boron. This moisture continued to stream into the southern half of the state on the 3rd, bringing showers and thunderstorms to the mountains and deserts, and even sprinkles and light rain to the southern half of the San Joaquin Valley.

The next day, a severe thunderstorm moved into southern California near Boron, part of a line of thunderstorms over western San Bernardino and northeastern Los Angeles Counties. Strong outflow winds from dying thunderstorms moved through the Kern County deserts. A gust to around 50 mph triggered a dust storm north of Edwards Air Force Base with visibilities falling to 50 feet.

Thunderstorms continued to develop over Inyo and San Bernardino Counties, and areas to the south, on September 5th through the 7th, but these storms remained east of Kern and Tulare Counties. High pressure built into the central California interior on September 7th, bringing significantly warmer temperatures. Bakersfield had a high of 105 degrees on the 7th, a full 13 degrees warmer than the previous day. Fresno reached 102 degrees, up 7 degrees from the 6th.

The high pressure was very short lived, as low pressure off the southern California coast merged with a low-pressure trough over the Pacific Northwest. This deepened the trough southwest through the Great Basin and across Southern California. Along the edge of the trough, a north to northeast flow developed over interior central California.

Thunderstorms began encroaching on the mountains of Tulare County during the afternoon of September 8th, with a strong storm forming over the Whittier Hills and other storms near

Blackrock and Casa Viejo Meadows. With a prevailing northerly flow aloft, these thunderstorms, as well as those over southwestern Inyo County, drifted south into Kern County as far as the Piutes and the El Paso Mountains. At the same time, outflow winds from drying thunderstorms over northwestern San Bernardino County triggered thunderstorms near the Kern County line, with a strong storm developing near Randsburg in the early evening.

Thunderstorms developed over the Piutes during the afternoon of September 9th, and moved southward into the Kern County deserts in the persistent northerly flow aloft. A strong storm developed near California City during the late afternoon, and this storm—and others—pushed south toward Rosamond and Edwards Air Force Base. By sunset, convective activity had ended over Kern County. September 10th saw afternoon thunderstorm activity confined to the higher elevations of the Southern Sierra Nevada, with storms from Yosemite National Park south to the Walker Pass in Kern County. One storm produced locally heavy rain in Tulare County, with the Blackrock RAWS recording a storm total of 0.66 inch and the fire crew fighting the Angora wildfire reporting a brief heavy rain. The thunderstorms had little movement, and consequently did not drift into either the Piutes or the Kern County deserts. Thunderstorm activity ended by 7 PM PDT, even earlier than on the previous day.

September 11th saw the coastal marine layer deepen and spill through Pacheco Pass and Sunflower Valley into the San Joaquin Valley. Winds gusted to 40 mph at times, and where the marine air was present, temperatures were as much as 15 degrees below the previous day. Fresno only reached a high of 91 degrees, 10 degrees cooler than the previous day and snapping a 4-day streak of triple-digit highs. Bakersfield was 9 degrees cooler on the 11th, and the highs at both cities were a degree below normal.

Above the marine layer, an unstable airmass persisted over the high country of the Southern Sierra Nevada. Isolated thunderstorms developed in the afternoon from Yosemite National Park south to Tulare County, but strong storms never developed and activity ended well before sunset.

The upper-level low over the Great Basin slowly moved eastward the next couple of days. This kept some subtropical moisture over Nevada and eastern California, and isolated thunderstorms over western Nevada drifted south into the Southern Sierra Nevada. In the San Joaquin Valley, the pooled marine layer kept high temperatures near normal on September 12th, but temperatures began to warm on the 13th as the marine air mixed out.

As the low moved into western Utah, it pulled most of the mid-level subtropical moisture east of the Southern Sierra Nevada. The few thunderstorms that did develop over the Sierra crest on September 14th did not form until late in the afternoon. Also as the low moved east, high pressure moved into California behind it. Temperatures warmed to well above normal, with central and

southern San Joaquin Valley highs in the mid 90s to around 100. Fresno tied its record high minimum temperature for September 14th of 72 degrees, last set in 1937.

A southwest flow aloft ahead of the next trough kept thunderstorms east of the Southern Sierra Nevada over the next few days. The trough also deepened the marine layer, bringing gusty winds through Pacheco Pass and cooler temperatures to the San Joaquin Valley. The high at Bakersfield on September 16th was only 89 degrees. This was the first time since June 24th that Bakersfield did not reach 90.

The marine layer along the coast rapidly deepened during the night of September 16th-17th as the trough moved over interior central California. Winds gusted to around 40 mph through the Pacheco Pass as more cool marine air spilled into the San Joaquin Valley. Winds increased over the Kern County mountains and deserts during the afternoon of the 17th as the northwest flow down the back side of the trough aligned with favorably oriented mountain passes and canyons.

The high at Fresno on September 17th was 88 degrees. This was the first time the high at Fresno was less than 90 degrees since June 24th. The low at Fresno the next day was 59 degrees, the first time since June 20th that the low was below 60 degrees.

Temperatures remained below normal through September 18th due to the marine air pooled over the San Joaquin Valley. This cool layer of air mixed out on the 19th, with temperatures warming to near or slightly above normal.

A Pacific storm dropped out of the Gulf of Alaska and reached California on September 21st. This storm brought light rain to the northern parts of the central California interior and dropped temperatures back several degrees below normal. Thunderstorms developed over the Southern Sierra Nevada during the afternoon, and spread westward to the Madera area. Winds gusted to 40 mph at the Madera Municipal Airport, and 0.27 inch of rain fell at the airport. By mid-afternoon, strong winds were generating areas of blowing dust on the San Joaquin Valley floor, as loose dirt became airborne. Visibilities on Highway 99 dropped to near zero just south of Pixley, and other areas of reduced visibility occurred across the central and southern San Joaquin Valley, including near the city of Tulare, along Highway 198 in Hanford and in downtown Fresno. Winds gusted to 48 mph at Lebec, and a tree was blown over in a shopping center in Lemoore during the evening. Fresno had a gust to 36 mph, breaking the previous record highest gust for September of 33 mph (set on September 9th 1991 and September 2nd 2003).

One thunderstorm dropped 1.75 inch of rain at Fish Camp, and just over an inch fell at Wawona. In the high country of Yosemite National Park, 4 inches of snow fell at the 9200-foot level of Tuolumne Meadows, and an estimated 3-5 inches of snow fell at 8600 feet.

As cold air moved into the San Joaquin Valley, temperatures at Fresno dropped 9 degrees from September 20th to the 21st, and another 8 degrees the next day. Temperatures rebounded the on the 23rd as a short-lived high-pressure ridge moved into California (the highs on September 21st and 23rd at Fresno were the same: 85 degrees).

Another low pressure system reached California on September 25th. This storm brought another push of cold air into the central California interior, and gusty winds to the mountains and deserts. Thunderstorms developed over the Southern Sierra Nevada late in the afternoon of the 26th, and the storms quickly moved south over the high country before weakening over Tulare County around sunset. Tuolumne Meadows reported 2 inches of new snow at 9200 feet from this storm.

A storm moving into the Pacific Northwest at the end of the month brought gusty winds to the higher elevations of the Southern Sierra Nevada on September 29th. Temperatures warmed ahead of the storm, rising to near normal on the 28th and continued to increase the next day. The cold front reached the central California interior at the end of the month, bringing gusty winds to the mountains and deserts of Kern County and dropping temperatures back to near or below normal.

Fresno ended September with an average temperature of 77.8 degrees, for its 13th warmest September on record. Conversely, Bakersfield ended the month slightly below normal. The last two Septembers had ranked in the top 10 warmest; September 2013 did not even make the 40 warmest Septembers. (The average temperature for Bakersfield of 76.9 degrees tied for the 48th warmest September with 1968.)