

## Storm Data and Unusual Weather Phenomena - October 2010

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### CALIFORNIA, South Central

**KERN COUNTY --- 2.3 SSW GRAPE VINE [34.89, -118.94], 2.8 NW LEBEC [34.86, -118.91], 2.9 NE LEBEC [34.86, -118.84], 2.4 E GRAPE VINE [34.93, -118.88]**

10/01/10 12:33 PST	5K	Flood (due to Heavy Rain)
10/01/10 17:00 PST	0	Source: Law Enforcement

The Highway Patrol reported flooded lanes on I5 at Fort Tejon due to heavy rain and hail from thunderstorms.

**KERN COUNTY --- 1.4 SE MIRACLE HOT SPGS [35.57, -118.51], 2.0 ESE MIRACLE HOT SPGS [35.57, -118.50], 2.4 NE HAVILAH [35.55, -118.49], 1.9 NNE HAVILAH [35.55, -118.51]**

10/02/10 13:00 PST	10K	Flash Flood (due to Heavy Rain)
10/02/10 16:00 PST	0	Source: Law Enforcement

CHP reported debris and mud in roadway on Caliente Bodfish Rd just south of intersection with Saddle Springs Road.

**KERN COUNTY --- 2.3 E DEMOCRAT SPGS [35.53, -118.63], 1.8 NE DEMOCRAT SPGS [35.54, -118.64], 3.5 ENE DEMOCRAT SPGS [35.56, -118.62], 4.1 ENE DEMOCRAT SPGS [35.55, -118.60]**

10/02/10 13:49 PST	5K	Flood (due to Heavy Rain)
10/02/10 14:49 PST	0	Source: Law Enforcement

CHP reported large amount of rocks in road due to heavy rain CA HWY 178 just west of Old Kern Canyon road near Democrat Hot Springs.

**MARIPOSA COUNTY --- 1.3 WSW YOSEMITE VLG [37.74, -119.60], 3.4 NE FORESTA [37.73, -119.70], 4.3 W GLACIER PT [37.71, -119.65], 1.0 W CAMP CURRY [37.73, -119.59]**

10/02/10 15:00 PST	10K	Flood (due to Heavy Rain)
10/02/10 18:00 PST	0	Source: Park/Forest Service

Park official reported flooding between El Portal and Yosemite Valley. Some roads were temporarily closed due to flood debris.

**MADERA COUNTY --- 0.7 S COARSEGOLD [37.26, -119.70]**

10/03/10 23:15 PST	75K	Thunderstorm Wind (EG 55 kt)
10/03/10 23:20 PST	0	Source: Public

Tree down and roof damage to a house in Yosemite Lakes Park.

**MARIPOSA COUNTY --- 4.2 S USONA [37.39, -119.84]**

10/04/10 00:00 PST	0	Hail (1.25 in)
10/04/10 00:05 PST	0	Source: Public

Large hail to the size of half dollars reported at Woodland about 10 miles southeast of Mariposa.

**MARIPOSA COUNTY --- 1.3 WSW YOSEMITE VLG [37.74, -119.60], 3.4 WSW YOSEMITE VLG [37.73, -119.63], 2.7 W GLACIER PT [37.72, -119.62], 0.7 NNW CAMP CURRY [37.74, -119.57]**

10/04/10 06:30 PST	10K	Flood (due to Heavy Rain)
10/04/10 08:30 PST	0	Source: Park/Forest Service

Park official reported flooding and debris along the west side of Yosemite Valley.

**(CA-Z096) S SIERRA MTNS, (CA-Z097) TULARE CTY MTNS**

10/04/10 08:00 PST	0	Winter Storm
10/05/10 16:00 PST	0	

The warm, unstable airmass that arrived at the end of September remained over interior central California through the 3rd day of October. However, cooler air arrived as an upper level trough moved over the area on the 4th. The airmass remained moist and unstable until the 6th, and then began to dry out by the 8th due to high pressure over the central California interior. By the 10th, temperatures warmed to slightly above normal.

Events for the first week of this month included several incidents of roadway flooding in Kern County, and several days of thunderstorms in the San Joaquin Valley. On the 2nd, the California Highway Patrol reported of large rocks that created hazardous conditions on Highway 178 in the Kern River Canyon near Bodfish; in fact a Flash Flood Warning had been issued around 2:15 that

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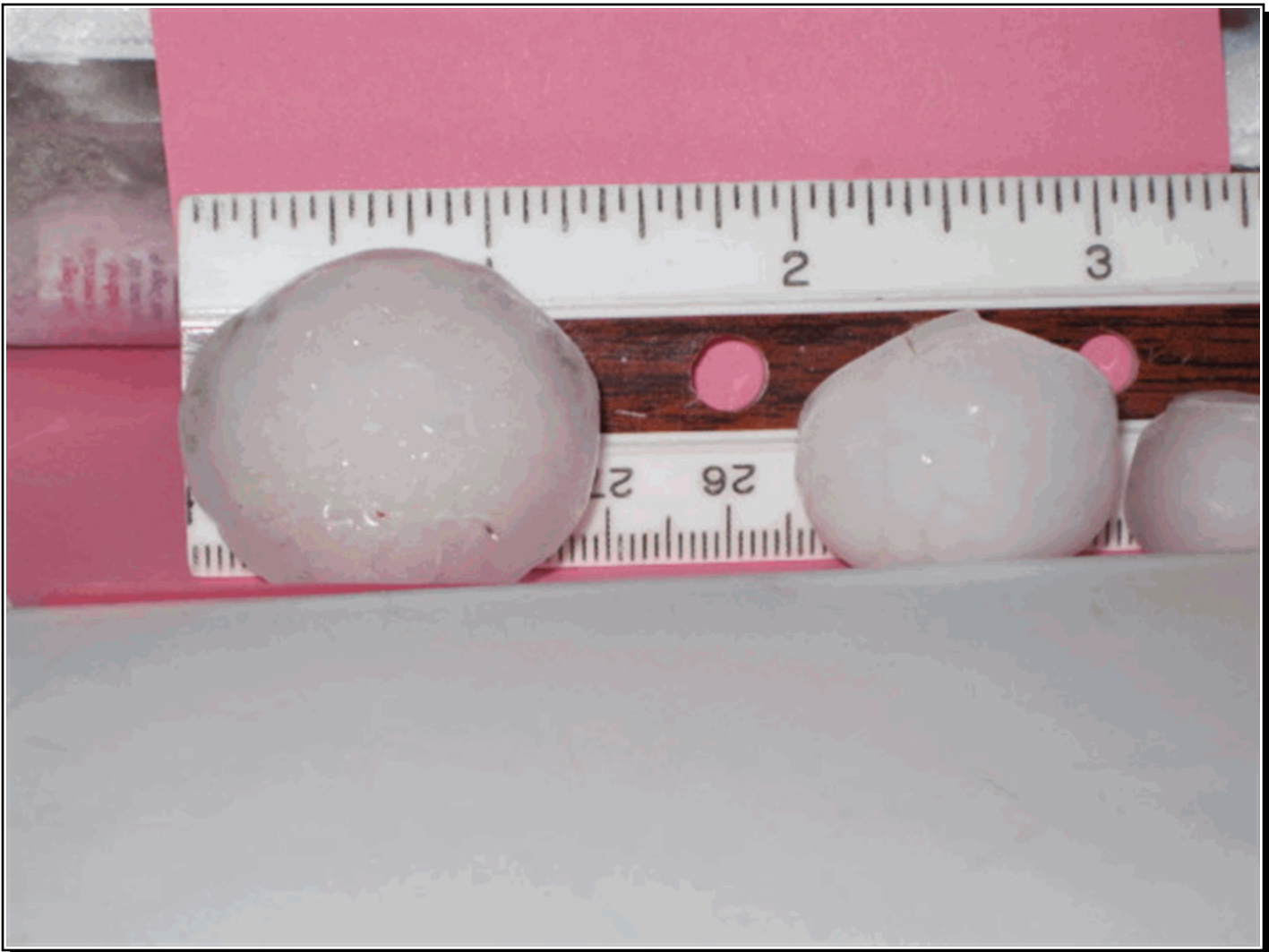
afternoon due to slow moving thunderstorms in the area. Some strong thunderstorms developed near and west of Frazier Park around noon of October 2nd; Pine Mountain Club reported hail around one-half inch in diameter (smaller than dime size). During that evening, thunderstorms developed over Yosemite National Park, with some heavy rain over the area that caused nuisance flooding.

Showers and thunderstorms redeveloped during the afternoon and evening of the 3rd.

On the night of the 3rd, and into the early morning hours of the 4th, quite a few thunderstorms developed over the Hanford and Visalia areas, and spread northward into Fresno, Madera, and Mariposa. Lightning was quite frequent with these storms, and large hail about the size of halfdollars (1.25 inches) was reported near Mariposa around 1:00 AM on the 4th.

As for October 5th, there were quite a few showers, including snow showers in the higher elevations of the Southern Sierra Nevada, mainly above 7,500 feet. The snow accumulated up to 8 inches at Tioga Pass and 7 inches at Bishop Pass in the Southern Sierra Nevada, bringing a dangerous early season snowstorm to the popular hiking areas.

The storm that produced these showers subsequently moved into Arizona, triggering numerous thunderstorms. The storm also spawned eight tornadoes in northern Arizona, including near Flagstaff, during the early morning hours of the 6th; a new record for the most tornadoes in one day for Arizona.



*Photo credit Cindy Casey. Local resident measured large hail between 1.25 to 1.5 inches in diameter in the town of Mariposa on October 4th.*

KERN COUNTY --- 3.1 NW FORD CITY [35.18, -119.51], 4.0 NW FELLOWS [35.16, -119.56], 3.7 SSE DERBY ACRES [35.20, -119.57], 3.7 ESE DERBY ACRES [35.22, -119.54]

10/06/10 16:24 PST

10K

Flood (due to Heavy Rain)

10/06/10 18:24 PST

0

Source: Law Enforcement

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CHP reports water over the road at CA Highway 33 and Midway Road in Fellows.

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**KERN COUNTY --- 0.4 S FORD CITY [35.14, -119.47], 0.1 NW FORD CITY [35.15, -119.47], 0.8 ESE FORD CITY [35.15, -119.46], 0.8 SSE FORD CITY [35.14, -119.46]**

	10/06/10 16:30 PST		0.10M	Flash Flood (due to Heavy Rain)
	10/06/10 18:30 PST		0	Source: Trained Spotter

Sandy Creek flooded and caused a debris flow into the Taft Hills Shopping Plaza. Several businesses were inundated with water, rocks and mud and had to shut down for several hours.

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**KERN COUNTY --- 9.9 WNW MC KITTRICK [35.36, -119.79]**

	10/06/10 18:13 PST		0	Heavy Rain
	10/06/10 18:13 PST		0	Source: Mesonet

Twizzleman weather station near CA Highway 58 measured 1.22 inches of rainfall.

The stormy pattern from early October continued into the 6th and 7th of the month with more flooding and storms around the interior of Central California.

On October 6th, the showers continued over the Sierra and much of the San Joaquin Valley, including the west side. Flooding was reported on Highway 33 near Taft due to numerous showers and thunderstorms during the late afternoon and early evening hours, as moisture remained quite abundant and wrapped around an upper level low centered near the coast of central California. By the 7th, the low had ejected eastward toward the northern Rockies, and finally shut off the moisture over the over as an upper-level high pressure ridge began to approach from the Pacific Ocean.

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**KERN COUNTY --- 2.4 WSW METTLER [35.06, -119.01]**

	10/17/10 14:20 PST		25K	Thunderstorm Wind (EG 55 kt)
	10/17/10 14:25 PST		0	Source: Law Enforcement

The California Highway Patrol reported trees and power lines blown down in the vicinity of David Road and CA Highway 99 due to a severe thunderstorm.

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**KERN COUNTY --- 12.7 W FRAZIER PARK [34.85, -119.17]**

	10/17/10 15:15 PST		0	Hail (1.00 in)
	10/17/10 15:20 PST		0	Source: Trained Spotter

The fire department reported 1 inch hail, which is the size of quarters, in the town of Lebec.

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**KERN COUNTY --- 0.9 SE FORD CITY [35.14, -119.46], 1.2 E TAFT [35.13, -119.46], 1.4 NNW SOUTH TAFT [35.15, -119.44], 0.6 NE FORD CITY [35.16, -119.46], 0.7 SSW FORD CITY [35.14, -119.47]**

	10/17/10 15:45 PST		5K	Flood (due to Heavy Rain)
	10/17/10 17:45 PST		0	Source: Trained Spotter

Heavy rainfall from thunderstorms caused street flooding in the town of Taft.

An upper-level low pressure area brought precipitation and cooler temperatures to interior central California beginning October 16th. Temperatures dropped as much as 14 degrees from the 16th to the 17th, as a strong push of cold air moved into the San Joaquin Valley. The trough triggered thunderstorms across the region on October 17th, and one thunderstorm generated hail up to an inch in diameter, which is the size of quarters. Hail of this size can cause extensive property damage and be life threatening.

An upper-level disturbance moved across California on the 19th, triggering strong thunderstorms in the southern California deserts that approached severe criteria. A few of these thunderstorms moved west, into the Kern County desert near Boron, Edwards AFB and Randsburg.

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**(CA-Z095) KERN CTY MTNS, (CA-Z097) TULARE CTY MTNS, (CA-Z099) SE KERN CTY DESERT**

	10/23/10 05:35 PST		25K	High Wind (MAX 79 kt)
	10/25/10 17:55 PST		0	

There was a brief respite before the next upper-level low pressure trough reached California on October 24th. This system tapped into a deep fetch of tropical moisture that extended across much of the northern Pacific Ocean. As a result, snow levels were high and most of the precipitation that fell in the Southern Sierra Nevada was in the form of rain. The parent low stalled southwest of the Queen Charlotte Islands, keeping the trough from digging into the southern half of the San Joaquin Valley. As a result, there was a tight precipitation gradient from north to south, with 3-4 inches of rain falling on Yosemite National Park, but only a few hundredths falling in the south end of the San Joaquin Valley and around a half inch in the Tehachapi Mountains.

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Runoff from the heavy rain over Yosemite National Park caused the Merced River to rise. Fortunately the river did not flood, but it did crest at a stage of 9.51 feet at Pohono Bridge. This was only 6 inches below the flood stage at that point of 10.0 feet.

Despite the shortfall of rain over the Kern County mountains and deserts as the cold front moved through, the system generated very strong winds over the ridges and through and below the mountain passes of the Kern County mountains. There were two separate episodes of strong winds during the early morning of October 25th. The first, which began around 2:30 AM, saw gusts as high as 92 mph. The second episode, four hours later, saw gusts up to 65 mph. Trees were damaged in and near Tehachapi and Twin Oaks, and power lines were downed.

Another very cold airmass moved into interior central California with this trough. Low temperatures on October 26th for the central and southern San Joaquin Valley ranged from 40 to 50 degrees. Low temperatures for the Valley were even colder, by around 5 degrees, the next morning, ranging from 35 to 47 degrees. The 27th also saw a moderately strong offshore flow develop over southern California. East winds over the Tehachapi Mountains funneled through the Grapevine and Tehachapi Pass into the south end of the San Joaquin Valley. The winds warmed adiabatically as they descended to the Valley floor, resulting in Bakersfield reaching a high of 78 degrees.

Warming continued on October 28th and 29th, ahead of an upper-level trough digging down the eastern Pacific off the California coast. Fresno had a high of 78 degrees both days, while Bakersfield warmed to 82 degrees on the 28th, and was only a degree cooler the next day.

The trough moved onshore during the night of October 29th-30th, bring rain and snow (above 5500 feet) to interior central California. Snowfall in the Southern Sierra Nevada ranged from around an inch at Bald Mountain to 8 inches at Tamarack Summit. Up to two inches of snow fell near Pine Mountain Club in the San Emigdio (western Tehachapi) Mountains, and light snow fell in the hills above the Tehachapi Pass. Below the snow line (around 5500 feet), up to an inch of rain fell in the Southern Sierra Nevada and the foothills, except at the Lake Kaweah Pool, where 1.20 inch of rain was recorded. On the San Joaquin Valley floor, rainfall amounts were as high as 0.36 inch. (By coincidence, the amounts of rainfall at both Bakersfield and Fresno on October 30th were the same as the monthly totals for May, the last month prior to October in which measurable rain fell.) In addition, wind gusts up to 63 mph developed overnight not only over the mountains but also along the west side of the San Joaquin Valley.

October ended with the upper-level trough moving east of California, allowing an upper-level ridge to build into the state. With a stable airmass, breaks in the high clouds over the region on the 31st allowed patches of dense fog to develop on the San Joaquin Valley floor by daybreak, especially in the Merced area. Otherwise, October ended on a quiet weather note.