

2024

## January

A New Year's Eve storm had just moved out of the region, allowing the new year to start fair. A quick-moving trough of low pressure moved through the region on the 3rd, bringing rain, mountain snow, thunderstorms, and wind, favoring the mountains of Riverside and San Diego Counties. Some places in the mountains of San Diego County received about 1.25 inches of rain, while Mt. San Jacinto recorded the greatest snowfall of six inches.

Cool and brisk weather followed for several days, including an inside slider that brought strong winds and light precipitation on the 7th, and again on the 11th. Many mountain locations clocked top gusts over 60 mph during both systems.

Fair and warmer weather came for about a day on the 16th through the 18th, when temperatures reached the upper 60s and 70s.

Troughs of low pressure driven by an active jet stream paraded through the region for much of the last two weeks of the month. Rain and mountain snow began falling on the 20th, and continued at times through the 23rd.



A large swath of southeastern San Diego was flooded on 22 January (imagery from NBC News, NBC 7/39, Tik Tok).



On the 22nd, a truly historic band of heavy convective rain struck San Diego from Coronado to Southcrest, Mountain View, Encanto, La Mesa and Spring Valley, heaviest along Chollas Creek. The resultant flooding was catastrophic. Daily rainfall along this stretch exceeded 4 inches in spots, most of that occurring in two to three hours. Rainfall return intervals (NOAA Atlas 14) indicate one-hour rainfall rates of 300 to 1,000 year return intervals as 2 to 3 inches fell in 1 hour between 9 am and 11 am. Nearly 200 swift water rescues were reported in San Diego city. 1,000 homes and businesses reported damage and up to 600 were classified as major damage. The San Diego River flooded much of Mission Valley and flash floods were also observed in Oceanside and Carlsbad.



The 2.73 inches in San Diego made the 22nd the fourth wettest day on record. Severe thunderstorm winds caused tree damage along this same corridor. Less extreme, yet significant rainfall and modest mountain snow occurred across the broader region.

Dry yet cool weather followed on the 24th through 26th as another inside slider passed through the region.

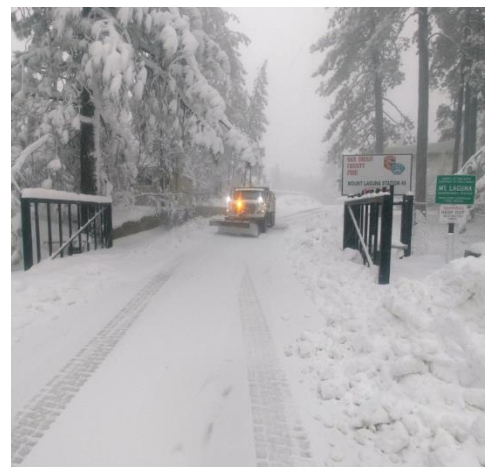
High pressure and offshore flow boosted temperatures into the 70s and 80s across much of the lowlands on the 27th. Top Santa Ana wind gusts in the foothills ranged from 60 to 70 mph. Dry weather finished the month, but it was not as warm or breezy.

## February

The month started very wet as an atmospheric river fueled a series of storms brought several days of precipitation to Southern California. On the 1st, heavy rain produced flooding in Seal and Huntington Beaches.

Additional storms produced widespread flooding from the 4th through the 8th across the region. Hard hit was Orange County, where 4 to 10 inches of rain fell. A whopping 10-15 inches of rain fell in the San Gabriel and Santa Ana Mountains. On the 5th, a swiftwater rescue was conducted near Cajon Wash, where a car drove through a flooded roadway and became submerged in floodwaters. Three occupants were trapped in a tree. Six others were rescued from the Santa Ana River bottom in Jurupa Valley. Mud and water covered roads near Gillman Springs. The San Diego River flooded through Mission Valley. Snowfall was generous, approaching 100 inches in Snow Valley, and most mountains above 6,000 feet elevation received 3 to 6 feet of snow. The snow level dropped below 4,000 feet. This wet period lifted a previously below normal precipitation season above normal for the season to date. By the end of the month, most stations had recorded at least the annual water year average, with seven months remaining.

After a very wet two weeks, a break in precipitation came from the 10th to the 19th as high pressure nestled over the region. Dry and warmer weather would prevail.



Storms on 1 February brought flooding to Seal Beach (below left, Brian Gray). Heavy snowfall piled up in the mountains on 5 February, like Mt. Laguna (below right, San Diego County Instagram).

The next storm arrived on the 20th and 21st, and brought heavy rain that favored the L.A. Basin, the Inland Empire and surrounding mountains. 3 to 5 inches of rain hit the mountain foothills, 1.5 to 2.5 inches in Orange County and the northern Inland Empire, and generally less than 1.5 inches elsewhere. Once again, there were areas of urban flooding in these heavier rain bands. 1 to 6 inches of snow fell at mountain communities, while a couple Big Bear area ski resorts reported 12 to 21 inches. The snow level was about 5,500 feet.

High pressure amplified to bring much warmer and above normal weather on the 23rd and 24th.

Another, much weaker shortwave brought rain to the region on the 26th and 27th. Mountains got the greatest precipitation of 0.50 to 1 inch, while the lowlands generally received less than 0.33 inch.

The leap year month ended on a dry and seasonal note.

## **March**

A strong jet stream drove an atmospheric river into northern California and weakened as it reached Southern California. It brought epic rain and snow to the northern part of the state and significant precipitation to the south. Most of the precipitation fell in the first two days of the month, but the four-day totals reached over 5 inches on the front range of the San Bernardino Mountains with other foothill and mountain areas across the region exceeding 2 inches. Many valleys received 1 to 2 inches, and coastal areas and some valleys received less than 1 inch. Highway 138 north of Crestline incurred some road damage. This system was also very windy, especially for the desert slopes of the mountains where gusts were clocked up to 97 mph south of Lucerne Valley.

The respite from precipitation lasted only two days as the next wave brought more rain and mountain snow on the 6th and 7th. Foothills as usual racked up the most, with 0.75 to 1.50 inches of precipitation. Huntington Beach got hit by a thunderstorm and got more than 1 inch. Adjacent valleys received 0.25 to 0.75 inch and much of the lowlands received less than 0.10 inch. This was a warmer storm and the ski resorts only managed a few inches of new snow. Thunderstorms in parts of Orange County and the Inland Empire dropped heavy rain and hail which led to localized flooding.

A very weak system brought a glancing blow to the region on the 11th and 12th, with less than 0.10 inch.

Right on its heels came a cold system developing over Canada and swinging southward on the 14th and 15th and sitting and wobbling over SoCal through the 18th. Moisture was limited with this cold system, but that meant snowfall was impressive on the 16th and 17th. The eastern part of the Big Bear area received 12-16 inches and Julian at 4,200 feet received 2 inches. Precipitation totals ranged from 0.75 to 1.40 inch in the mountains, with lowlands receiving less than 0.50 inch. Much of the Inland Empire received less than 0.10 inch. Widespread thunderstorms erupted on the 18th in eastern portions of Orange and San Diego Counties. Several storms kicked up wind gusts over 40 mph in the eastern valleys of San Diego County.

A few days of welcome dry weather followed, although some dense coastal fog was observed on the 19th through 21st.



This thunderstorm over Mission Viejo had some impressive definition and severe inclinations on 18 March (Michael Porter).

The jet stream brought another storm system on the 23rd and 24th. This system favored San Diego County, but thunderstorms occurred in the foothills and mountains on eastern edges of the Inland Empire. Precipitation totals of 1.50 to 2.75 inches (Cuyamaca) were measured in the mountains. Coasts and valleys received around 0.25 to 0.75 inch while the deserts got less than 0.15 inch.

A final cold and wet storm hit the region on the 30th and 31st. Lytle Creek topped the precipitation list with 4.67 inches and other foothill areas logged over 2 inches. Many coast and valley areas received 1 to 2

inches. The high desert managed 0.50 to 1 inch while the low desert got less than 0.25 inch. Green Valley Lake won the snowfall crown with 22 inches, while other mountain areas received 14 inches or less. Wynola got a trace at 3,700 feet elevation. There was flooding in many areas, assisted by embedded thunderstorms, in the San Diego metro, Orange County and the Inland Empire.



Snow piled up in aptly-named Snow Valley on the last couple days of March (Alex Tardy).

## April

With a cold storm system departing, April began in a cool way, but offshore flow and a high-pressure ridge boosted temperatures west of the mountains on the 2nd and 3rd.

The next deep trough swooped into the region on the 4th and 5th, bringing some rain to the area, along with some snow to the mountains. Rainfall ranged from a few hundredths to around 0.50 inch from the coast to the valleys, all the way up to 1.11 inches in Pine Hills of San Diego County. Snowfall topped out at 9 inches at Palomar Mountain—Birch Hill, while Julian received 3 inches at merely 4,200 feet elevation. The San Bernardino Mountains received light



snow. Thunderstorms erupted in the south slopes of the San Gabriel Mountains and around Running Springs and Valley Center. This system also brought wind, especially to the desert slopes of the mountains on the 5th. 80-mph gusts were clocked at Burns Canyon and 70 mph at Cushenbury Springs. Victorville and Lucerne Valley had gusts to 68 mph. It was a very cold night on the 6th with temperatures falling into the 30s in many valleys, and into the 20s and even some teens in the mountains.



Some spring snowfall on the 5th extended the ski season at resorts around Big Bear (webcam image).

Several days of fair weather and a rebuilding marine layer followed under a weaker trough pattern. Warmer weather came from the 9th to the 11th, with temperatures rising just above normal.

The next trough barreled into Southern California on the 12th and 13th, bringing more wind and precipitation. A few top gusts in the desert foothills exceeded 50 mph. Rainfall on the 14th and 15th reached around 1.50 inches in the front range of the San Bernardino Mountains while lowlands generally received 0.10 to 0.50 inch. 3 inches of snow fell at Running Springs and vicinity, with lesser amounts elsewhere.

A weak ridge was followed by a weak trough for several days. The trough and cool ocean waters helped to build a robust marine layer, providing a lot of cloudiness west of the mountains.

A stronger trough by April standards came off the Pacific and brought another round of wind and rain to the region on the 24th and 25th, with a secondary wave of energy on the 26th and 27th, which brought additional strong winds. Both the high and low deserts got the brunt of the winds, with many areas recording gusts of 50 to 60 mph. Whitewater was the clear wind winner hitting 75 mph. Precipitation was very light, with the heaviest report of 0.24 inch at Cable Canyon, and most areas received less than 0.10 inch.

Fair weather with a rebuilding marine layer finished out this cooler-than-normal month.

## May

May started out in a weak trough pattern, with a healthy marine layer and cooler than normal weather for the first few days.

On the 5th, a deeper trough moved through California, producing gusty winds in the mountains and deserts. Strongest winds with gusts over 50 mph and up to 66 mph (at Silverwood Reservoir) were measured along ridges and into adjacent deserts. A deepened marine layer brought light rain to the lowlands, generally less than 0.10 inch. But in the foothills and front range of the mountains, the rain accumulated to 0.25 to 0.50 inch, and Panorama Point managed to squeeze out 0.67 inch.

A weak troughing pattern over the western U.S. persisted for the rest of the month. This brought generally cooler than normal weather. When it was weak, temperatures were around normal and the marine layer was of moderate depth. Coastal clouds extended into valleys most nights and mornings.

From the 15th to the 26th, a stronger trough pattern persisted, keeping the marine layer strong and deep and extending coastal clouds into valleys and even into foothills on many nights and mornings.

On the 15th, a moist and unstable air mass floated over a very stable marine layer. A modest intrusion of monsoon moisture led to a few thunderstorms erupting in the mountains around and north of Big Bear Lake and also the high desert west of Victorville. This was on the same day a deep marine layer produced drizzle west of the mountains.

Strong onshore winds developed in the mountains and deserts on the 20th, producing wind gusts up to around 60 mph through mountain gaps and on desert slopes of the mountains. Whitewater topped the list with a 61-mph gust. A very similar wind episode unfolded on the 23rd into the 24th.

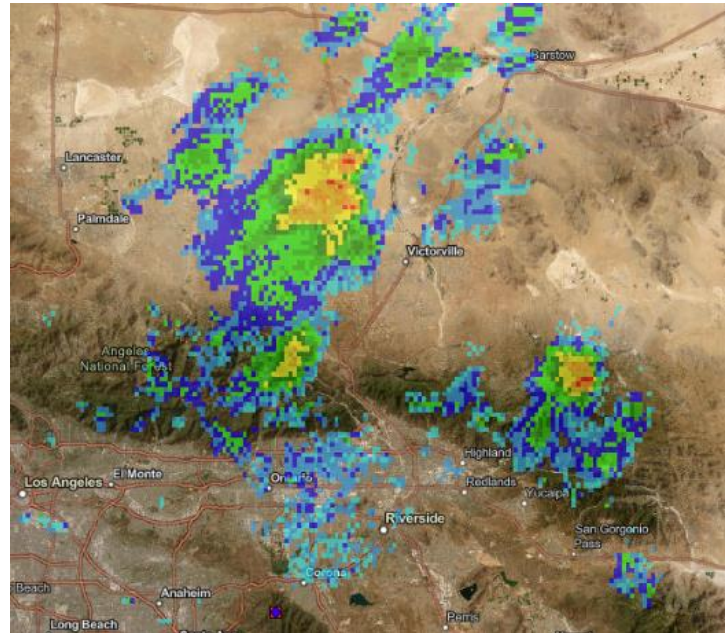
There was some measurable coastal drizzle that developed in a very deep marine layer on the 24th and 25th. The foothills again harvested more than their share, with Cable Canyon receiving 0.16 inch. Temperatures were well below normal.

Weaker low pressure allowed temperatures to rebound closer to normal at the end of the month.

## June

The weak trough pattern from May continued into June for the first few days, bringing weather on the cool side of seasonal.

A high-pressure ridge developed over California on the 4th and 5th, tamping down the marine layer and the coastal cloud coverage. It also boosted temperatures well above seasonal average, at least for inland areas. A stubborn marine layer kept coastal areas mostly cloudy, even during some of the afternoons. The inland heat helped dry out vegetation and led to several fires in the Inland Empire, near Julian, and even in the high desert near Hesperia.



A radar image in the late afternoon of 15 May shows thunderstorms north of Big Bear Lake and west of Victorville.

The second week of June featured a breakdown of that high pressure ridge, and a return of below normal temperatures and an enhanced marine layer.

Another trough amplified over the West Coast on the 17th and 18th and persisted through the 20th. The marine layer resurged and coastal clouds extended well inland.

High pressure gradually built from the 21st to 23rd, and prevailed through the 26th. This brought a significant warming trend, and the season's first legitimate heat wave just in time for the start of summer. On the 22nd, temperatures soared to 115 at Palm Springs, and 103 at Riverside. At 84 degrees, San Diego got its warmest day since October.

The ridge weakened only a little for the last few days of the month, ensuring temperatures stayed above normal.

## July

July featured a series of weak troughs and ridges that enhanced the marine layer or suppressed it. This pattern also brought temperatures below normal in the troughs and above normal during the ridges.

THE HIGH TEMPERATURE OF 124 AT PALM SPRINGS BREAKS THE ALL-TIME RECORD HIGH OF 123 DEGREES THAT WAS PREVIOUSLY SET ON JUNE 17 2021, JULY 28 AND 29 1995, AND AUGUST 1 1993.

THE HIGH TEMPERATURE OF 104 AT IDYLLWILD TIES THE ALL-TIME RECORD HIGH OF 104 DEGREES THAT WAS PREVIOUSLY SET ON JUNE 16 2021 AND SEPTEMBER 6 2020.

[The Record Report issued by NWS San Diego in the evening of 5 July explained the superlative nature of a couple records from Riverside County.](#)

brought some record high temperatures and record high minimum temperatures for the valleys, mountains and deserts through the 13th. The 5th was especially impressive as Palm Springs achieved their highest all-time record of 124 degrees. Idyllwild tied their all-time highest temperature at 104 degrees.

The stationary ridge relented for about a week through the 19th. Temperatures fell to normal or slightly below, and the marine layer rebounded to bring clouds and fog into some valleys. The ridge centered over the four corners region, providing the classic monsoon setup for Southern California. This brought thunderstorms to the mountains and deserts of Riverside and



The Great Fire erupted at the end of May just north of Julian. This image shows the green grasses (fine fuels) from winter rains rapidly curing with the onset of summer. Webcam photo SDG&E.



San Diego Counties. Mt. Laguna received 1.90 inch and Palm Desert got walloped with 1.34 inch. A light monsoon day followed on the 16th with isolated, light rainfall in the mountains and deserts.

The ridge rebounded from the 20th through the 25th, bringing more record temperatures inland. This heat wave featured more broken records on high minimum temperatures than high maxima. These included low temperatures in the 60s and 70s in the higher mountains and 90s in the low deserts. This also brought another monsoon push from the 23rd to the 25th. Several mountain gauges captured brief, heavy rainfall each afternoon, up to 1 inch in Live Oak Canyon and Mt. Laguna.

Finally, a more serious trough of low pressure swept away the oppressive heat from the 26th to the end of the month.

July finished as the hottest month on record for Palm Springs. The average temperature was exactly 100.0 degrees F, smashing the previous record of 98.5 degrees set only last year in July 2023. The average maximum temperature was also highest on record, at 114.9 degrees, eclipsing the old July record of 113.6, also in July 2023.

## August

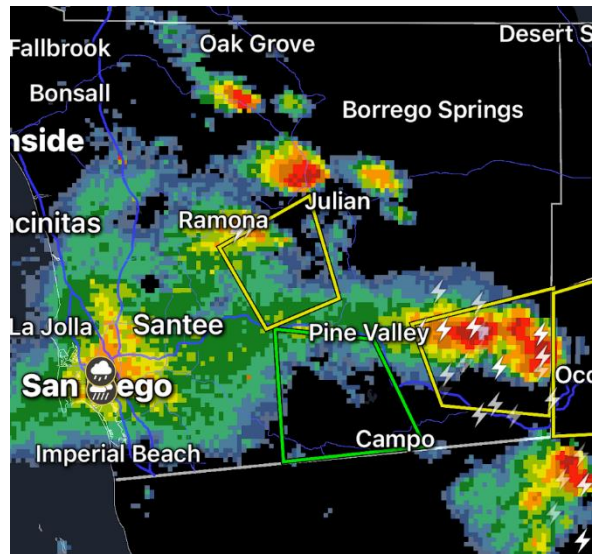
The reprieve from record summer heat in late July didn't last long. A strong upper high over the Southwest strengthened and expanded into Southern California. The result was a three-week period of hot summer weather and above normal temperatures.

The Nixon fire got started near Aguanga at the end of July, but the August heat in southern Riverside County helped it to grow and spread. Eventually, it was contained on the 7th.

The first two days of the month also brought thunderstorms to the mountains, especially those in San Diego County. Up to 0.44 inch was recorded at Cameron on the 1st. Heavier thunderstorms followed on the 2nd, with the San Bernardino



This impressive thunderstorm over the Anza Borrego Desert was seen from Rancho Bernardo on 25 July. Alex Tardy.



Numerous thunderstorms erupted in San Diego County on 1 August, including some severe and flooding storms. Some storms moved west and faded, but not before bringing rare August rain to parts of the San Diego metro area.





Dramatic thunderstorm clouds were captured on camera near Warner Springs on 11 August. Photo John Pederson.

Mountains harvesting the most. 1.02 inches fell at Converse. The high desert also got in on some storm action.

The monsoon took a break for several days, but came back with a vengeance on the 11th. The mountains and deserts in San Diego County took the brunt of this monsoon episode, and Ranchita topped the rainfall list with 1.43 inches. Many other areas in those mountains received over 1 inch. Agua Caliente Springs received 0.85 inch in a short time. Some of those storms drifted westward into the San Diego metro area, weakening as they went. They were still enough to record a few hundredths of an inch in the Ramona area, as well as 0.01 or a trace as far west as urban San Diego. Several flash floods resulted from these storms in the mountains and deserts.

A weak trough brought slightly cooler, but still hot weather from the 12th through the 18th. On the 16th, a lone thunderstorm hit the Anza Borrego Desert in the evening. From the 19th to the 22nd, more inland heat plagued the region.

A stronger trough moved through California on the 23rd through the 25th. This brought unseasonably cool weather, which included some low minimum and low maximum temperature records. Thermal reported a record low of 57 degrees on the morning of the 24th. Highs that day were only in the low to mid 80s in the Inland Empire and only in the 60s in the mountains.

Tepid high pressure aloft finished out the month. Overall, thunderstorms occurred on relatively few days during what is normally the peak of the monsoon season.

## September

The Labor Day weekend is usually the hottest holiday in Southern California, but this year it wasn't too bad. The inevitable early September heat wave this year waited until the day after the holiday and started on the 3rd. Ultimately, the hot spell continued through the



The view of the Airport Fire's smoke plume from the Inland Empire in early September. Alex Tardy.

9th, breaking daily temperature records.

The heat and dry vegetation helped three fire starts to grow into major wildfires. The Line Fire started in the foothills near Highland and marched uphill toward Running Springs. The Bridge Fire started near Mt. Baldy Village and shot over the ridge into Wrightwood and Pinon Hills. The Airport Fire started in Trabuco Canyon and quickly spread east, closing the Ortega Highway and almost reaching Lake Elsinore.

Many daily high temperature records fell each day during this torrid stretch, including just as many high minimum temperature records. It was reminiscent of September heat waves in 2020 and 2022.

On the 7th and 8th, thunderstorms erupted across valleys and mountains, including quite a few severe and flooding storms in the Inland Empire. The Elsinore Convergence Zone lit up, producing a few severe storms with damaging wind gusts of 50-70 mph, which caused property damage and felled several trees. There was some light rainfall on the Line Fire.

A trough of low pressure was strengthening to the north and after many days of forecasting and promising cooler weather, relief from the heat finally came. And did it ever. High temperature records now became low temperature records, mostly low maximum temperature records on the 15th through the 17th. Highs were only in the 50s in the mountains, 70s in the Inland Empire, and eventually only 80s in the low desert. Some mountain valleys had frost on a couple of those nights.

This also brought a resurgence of the marine layer and its cloud cover, fully covering the coastal basin for several consecutive nights.

After several short waves of low pressure, an especially deep one tracked right through Southern California on the 19th and 20th. This brought enough moisture for widespread showers and thunderstorms in the Inland Empire and neighboring mountains. Fawnskin reported the most rainfall with 0.71 inch, while many other gauges around Big Bear recorded over one-half inch. 0.51 inch at Elder Gulch fell in less than one hour. The cold core of the storm brought accumulating graupel and small hail, painting a wintery patina to the tops of the mountains. A few funnel clouds were observed south of Rancho Mirage.

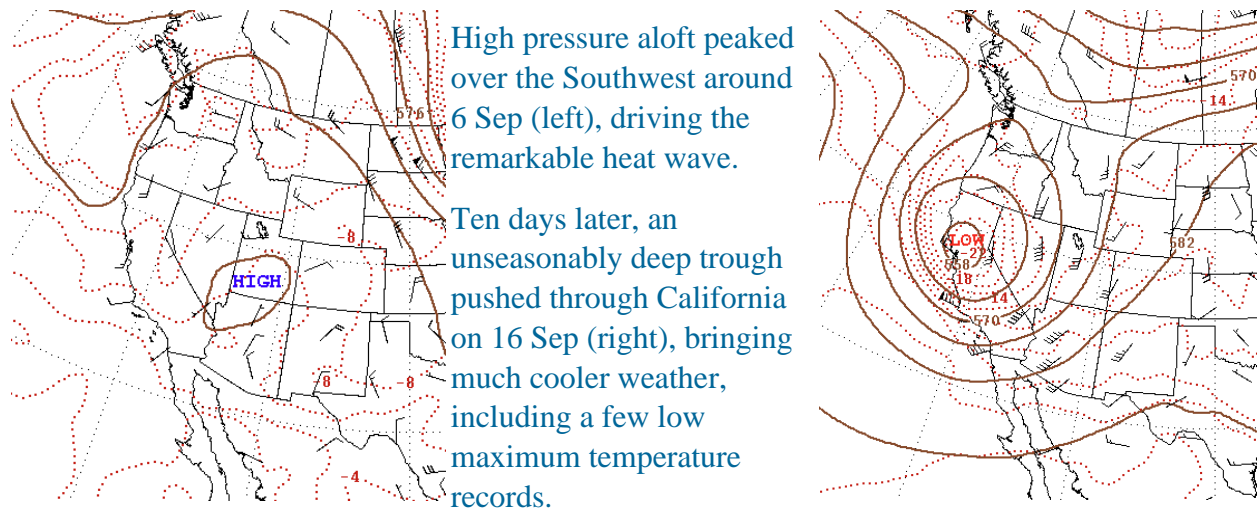


Some crazy storms on 20 Sep brought measurable hail and graupel to the mountains like San Geronio Peak (above, [bensweather.com](https://www.bensweather.com)) and a couple funnel clouds in the hills south of Rancho Mirage (right, [social media](#)).



Rainfall in the Inland Empire reached as high as one third inch. Some showers migrated to the coast, where San Diego received 0.02 inch, the first measurable rainfall since May. Brown Field managed 0.10 inch.

The weather quickly returned to behaving itself as the moisture departed and weak high pressure returned on the 21st and 22nd. This stagnant weather pattern brought a healthy marine layer that extended clouds into the valleys on the 24th and 25th. But it was still hot far inland as temperatures in the low deserts exceeded 110 degrees.



Higher pressure aloft brought a modest warming trend and a receding marine layer to finish off the month. Temperatures swung well above normal, especially inland where readings exceeded 100 at some inland valleys and around 115 in the low desert.

## October

October started out hot under a strong high-pressure ridge over California. The first ten days of the month featured daily record maximum and record high minimum temperatures. At the same time, a shallow marine layer kept the coast cool with occasional fog. Temperatures in the low desert reached 117 degrees on the 1st and the Inland Empire touched an impressive 110 degrees on the 2nd. That 117-degree reading was at Palm Springs, and became the highest recorded temperature for October in the United States.

The strong ridge persisted overhead, but finally relented as a low-pressure trough put a dent in the ridge on the 11th and 12th. This brought down inland temperatures and helped the marine layer rebound.

The weak trough hung around for a few days before a stronger trough brought cooler inland weather and some onshore winds on the 16th and 17th. This system brought light rain, less than 0.10 inch, from the coast to the mountains, heaviest in San Diego County.

This was followed by some locally strong offshore winds on the 18th. Several foothill locations in the San Bernardino and Santa Ana Mountains clocked gusts over 60 mph. A weaker offshore flow continued through the 20th.





This view from the upper slopes of a Big Bear area ski resorts confirmed the first measurable snowfall of the season in the mountains, which fell on 28 October (webcam image).

Mountains harvested one third to 1 inch of rain, largely a result of a convective wave of heavy rain. Valleys received up to one third inch, but Orange County missed out on the rain. The high desert got their first rain of the season, albeit just a few hundredths.

The month finished up cool and dry in the wake of the trough.

## November

Unlike September and October, November started out cool under a trough pattern over the West.

A shortwave trough on the 2nd and 3rd brought showers to the region, especially to San Diego County's mountains and southwest corner. Pine Hills recorded the greatest amount of 0.40 inch and National City recorded 0.26 inch. One tenth inch or less was measured in Orange County and in other mountain foothills.

The trough pattern migrated east, allowing offshore flow to develop over Southern California on the 4th. Additional interior troughs dropped southward into Arizona over the next several days, reinforcing the offshore flow and occasional Santa Ana Winds through the 9th. Notable wind gusts over 50 mph were reported on 6th and 7th across foothills and into adjacent valleys. The highest gust was 75 mph at Fremont Canyon on the 6th. These winds from the interior dropped humidity into the single digits across much of the region. A few small wildfires erupted in these dry, windy conditions, but were quickly contained.

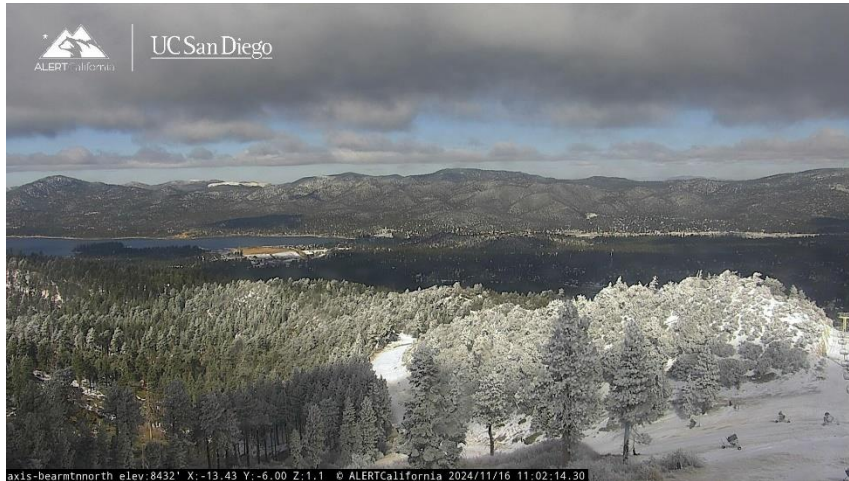
For the next week, several troughs clipped the region, bringing cool weather and occasional strong westerly winds in the mountains and deserts.

The one on the 15th brought precipitation, too. Foothills of the San Bernardino Mountains managed to wring out over 1 inch, with Panorama Point topping the list with 1.81 inches. All lowlands west of the mountains received from a few hundredths near the coast to 0.40 inch in northern San Diego County. Snow fell, with 1-4 inches reported in the San Bernardino Mountains.

High pressure aloft combined with weak offshore flow to bring a full week of spectacular and warm weather to the region through the 27th. The only blemish was some fog that plagued the coast at times.

On the 28th and 29th, a deeper low-pressure trough brought onshore winds and squeezed out some rain from the coast to the mountains. The foothills of the San Bernardino





Light snow was captured above Big Bear Lake on the morning of 16 November (UCSD webcam image).

The trough pattern continued to bring coastal low clouds and fog for several days before weak ridge pattern finally took hold. This brought dry and warmer weather through the 22nd, along with several episodes of offshore breezes.

Several atmospheric rivers pummeled Northern California with rain for the latter half of the month. On the 23rd and 24th, the southern fringes of one of

these atmospheric rivers grazed Southern California. This brought rain, particularly to the San Bernardino Mountains and the northern Inland Empire. 0.71 inch was the greatest amount received at Devore. All other areas received less than 0.40 inch (none in deserts).

The next trough on the 27th, also bringing moisture remnants of atmospheric river to the north, brought a very similar rainfall distribution. Only mountains, foothills and the northern Inland Empire received light rain. Glen Helen Park received the most at 0.39 inch.

The month finished out with dry and warmer weather under a weak high-pressure ridge.

## December

A longwave ridge set up over the western U.S. for the beginning of the month, but with very weak shortwave troughs swirling within it.

Offshore flow developed on the 5th and 6th and strengthened on the 9th through the 11th into moderate to strong Santa Ana Winds. Numerous foothill locations recorded northeast wind gusts over 60 mph. A handful exceeded 70 mph and Sill Hill (just west of Cuyamaca Peak) reached an exceptional 95 mph in the morning on the 10th.

Right behind this offshore flow, a rapid and compact low-pressure trough moved through California on the 12th and 13th, with a glancing blow to Southern California. Onshore winds were more impressive than rainfall, as a handful of mountain locations recorded gusts over 50 mph. Light rain fell only in the mountains and in San Diego County; all amounts were less than 0.15 inch.

The onshore/offshore oscillation really got going in the middle of the month. On the 17th and 18th, strong Santa Ana Winds hit the region and were slightly more widespread than in previous episodes. Many stations exceeded 50 mph, even in valleys. The top gust of 76 mph was measured at Arrowhead Springs during the night of the 17th. Several gusts in the valley below the Cajon Pass exceeded 60 mph. High pressure also built on these days, providing unseasonably warm weather that included lots of readings in the 80s from the 17th through the 20th.

Low pressure approached and onshore flow returned to bring a cooling trend from the 21st through the 25th. There was just enough energy and moisture this far south to extract some light rainfall on Christmas Eve. Amounts from the coast to the mountains only amounted to less than 0.10 inch, except for Running Springs, the top spot that reported 0.11 inch. Onshore winds through the San Gorgonio Pass reached 45 mph.

For the last half of the month coastal fog made its presence felt with an unusually healthy marine layer for this time of year. Any time the flow wasn't strongly offshore or onshore, there were many nights and mornings featuring dense fog near the coast. That's how the last few days of the month played out.

The first three months of the water year were exceptionally dry across the region. In San Diego, a total of 0.14 inch had fallen since 1 October, making this Fall the third driest in history (in 170 years).



Areas of dense fog were rather persistent in coastal areas and western valleys for many nights and mornings during the last half of the month, such as this fog on New Year's Eve in Escondido. Image HPWREN.

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Summaries were written by Miguel Miller, editor of the NWS San Diego's quarterly newsletter *Coast to Cactus Weather Examiner*.