

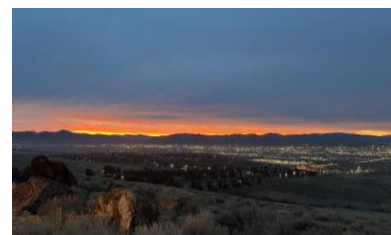


Monthly Climate Report

NWS Reno

Issued: 02/05/2024 (updated Drought Monitor 02/07/2024)

Includes previous Drought update (DGT) and Hydro Report (E5)



Synopsis:

More active weather returned in January 2024 as a series of winter storms with varying intensities moved across the eastern Sierra and western NV. The initial storm moved through on the 2nd and 3rd, with additional storms about every 3-4 days through most of the month. The most impactful snow events occurred on the 6th and 10th, producing icy and hazardous travel conditions even into western NV. The most impactful wind event occurred on the 13th, with gusts up to 90 mph in wind prone foothill areas of far western NV. Temperatures were generally near to below average for the first half of the month, with the coldest days on the 7th, 8th and 11th. Milder conditions returned for the second half of January, with peak warming on the final 5 days of the month. Record highs were set at Reno on the 28th-29th, with the warmest day reaching 69 degrees. This warming overcame the cool start as overall mean temperatures ended up about 1-3 degrees above average for most lower elevations, with the higher end of this range over west central NV. For the eastern Sierra, temperatures were nearer to the January averages (Figure 1). Precipitation was near to slightly below average across most of the Sierra and west central NV due to the combined effects of several weak to moderate storm systems, but no major winter storms occurred. However, along the lee side of the Sierra from southern Lassen County and far western NV (including Reno-Carson City) southward to eastern Mono County, precipitation deficits were larger--less than 50% of average with some areas receiving less than 25% of average. (Figure 2).

The storms helped to prevent the Sierra snowpack deficit from getting dramatically worse, but did not keep up with normal January gains, and some shallow low elevation snow was lost due to melting during the late month warm spell. At month's end, the basin averages were only near 50% of average--a stark contrast to the same date a year ago, when Sierra snowpack basin averages were about 180-255% of average.

Weather Events:

The first weather system of the year on the 2nd-3rd brought 2-6" of snow to the lower elevations of the Tahoe basin, about 1" to lower elevations of northeast CA, and up to 12" near the Sierra crest west of Tahoe, with locally higher amounts near 18" for southern Mono County. While the snow bypassed the main far western NV cities, portions of west central NV received snow accumulations of 1-2".

A stronger storm moved through the region on the weekend of January 6-7. This storm produced 5-10" of snow in the Tahoe basin, with 10-18" near the Sierra crest. The first snow of the season finally reached the valley floors around Reno-Carson City on the afternoon of the 6th, with a band of heavy snow producing snowfall rates up to 2"/hour. This snowfall of about 1-4" was followed by a rapid clearing with temperatures plunging well below freezing, resulting in icy road conditions through the morning of the 7th across far western NV (Photo 1). During the afternoon into the early evening hours, US-395 was shut down in both directions due to multiple accidents and stranded vehicles. Strong winds preceded this snow event with peak gusts of 50-60 mph across western NV, and 65-80 mph in wind prone areas. Sierra ridge gusts were as high as 100-140 mph.

The biggest snow producer of the month for lower elevations was the storm that arrived during the late afternoon and evening of the 10th, with an intense snow band producing snowfall rates of 3-4"/hour at times. A large portion of western NV received 6-12" (Photo 2), with portions of Lyon County from Fernley to Silver Springs receiving up to 18" (Photo 3), due to further snow enhancement and lake-effect from Pyramid Lake. In the Sierra, snowfall amounts were similar to western NV, with 5-10" around the Tahoe basin and 10-20" in most higher elevations. Peak wind gusts were generally 40-50 mph in lower elevations, with 55-65 mph gusts in wind prone areas and 90-110 mph gusts for Sierra ridges. This widespread snow led to a chilly day on the 11th, with highs remaining below freezing across nearly all of western NV and continued icy travel conditions.

The next storm on the 13th was most notable for producing strong winds. Gusts of 70-90 mph were reported in many wind prone sites across western NV and eastern CA, with gusts 50-65 mph in lower elevations. There were also several reports of wind damage (snapped power poles, trees) through the greater Reno-Carson City-Minden and difficult travel through Washoe Valley (Photos 4 and 5). Snowfall was lighter with higher snow levels compared to the previous two storms. Totals in the Tahoe basin and Mono County were generally less than 6", with up to 12" near the Sierra crest. An even weaker storm on the 17th brought modest snowfall totals of 4" or less in the Tahoe basin, with up to 8" near the crest.

A pair of milder storms with atmospheric river moisture pushed across the Sierra from the 20th-22nd. The first storm brought 4-8" of snow above 6500 feet, with less than 3" for lower elevations of the Tahoe basin. The second storm brought an additional 6-12" of snow near the Sierra crest with 3-6" down to near 6500 feet in the Tahoe basin on the 22nd. Light rain spread across the lower elevations of western NV, with amounts generally between 0.10-0.25".

A few weaker weather systems brought limited precipitation to parts of northeast CA and northwest NV on the 24th, 26th and 27th. The month then closed out with a warm and dry pattern, as temperatures rose well into the 60s for lower elevations and mid 50s to near 60 for Sierra communities.

Hydrology:

No flooding occurred in January, thanks to no major storms. Area rivers and streams are generally flowing near to above normal (figure 3). Mountain soil moisture is above normal, which will aid in spring runoff efficiency (Figure 4). Mountain snowpacks remain well below average for the Sierra, but much more favorable for northern and northeastern Nevada (Figure 5). While January was a better month than December for the mountain snowpack, it was still fairly lackluster in the Sierra, where it did not manage to keep up with normal monthly gains (Figure 6). While early February storms give hope for some recovery in the Sierra snowpack, the odds of achieving a normal spring peak snowpack are roughly 20% (Figure 7). Water supply forecasts for the April-July period are generally below average for the eastern Sierra, and above average for the Humboldt (Figure 8). While these forecasts have considerable skill by early February, there is a significant range of potential outcomes driven mostly by the uncertainty in late winter and early spring weather. Major reservoir systems in the region are above normal and still benefiting from carryover storage along with decent winter flows (Figure 9).

Drought Update:

The current 2023-24 water year remains drier and warmer than average across the region (Figure10). As of the end of January, much of western NV has only received 25-50% of average precipitation while northern Washoe and Pershing counties currently stand at roughly 70-90% of average precipitation. A majority of the region is also experiencing temperatures upwards of 2 to 5 degrees above average for the water year.

The combination of above average temperatures and below average precipitation has led to our continued “snow drought” in the Sierra explained in the hydrology section above. Despite the dry water year, other long-term drought indicators such as water storage, soil moisture, and stream flows are still in good shape. After accounting for all of these factors, the drought monitor (Figure 11) has an added area of Abnormally Dry (D0) conditions to much of the region.

Additional Information on Drought and Climate:

[Report Drought conditions here](#)

[Nevada statewide Drought update](#)

[NV Living with Drought](#)

[Drought Monitor](#)

[New Drought.gov](#)

[California Nevada Drought Early Warning System](#)

[NOAA CPC Drought page](#)

[CNAP Drought tracker](#)

[California Nevada River Forecast Center](#)

[WRCC Drought Tracker](#)

[WRCC Enso page](#)

[WRCC Monthly Climate Summaries](#)

[Evaporative Demand Drought Index](#)

[US Seasonal Drought Outlook](#)

Contact NWS Reno Climate Team

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<https://www.weather.gov/rev/>

Photos:



Photo 1: Reno experienced a quick 1-2" of snow during the evening of the 6th, leading to several accidents and stranded cars. Both I-80 and US-395 closed in Reno for around 6 hours. Photo courtesy of NDOT.



Photo 2: An intense band of snow moved through western NV during the 10th to 11th, producing upwards of a foot of snow throughout the greater Reno-Carson City-Minden area. Photo courtesy of NWS Reno.



Photo 3: One of many snow reports on the 10th during the heavy snow event in western NV. This was in Dayton, NV, which recorded over a foot. Photo courtesy of Petra Lopez on Facebook.



Photo 4. Several reports of downed trees and snapped power poles in Carson City during the high wind event on January 13th. Photo courtesy of Candida Webb on Facebook.



Photo 5: Overturned semi-truck on US-395 in Washoe Valley. Wind gusts upwards of 89 mph were recorded in Washoe Valley on the 13th. Photo courtesy of Katie Mortensen on Facebook.

Figures:

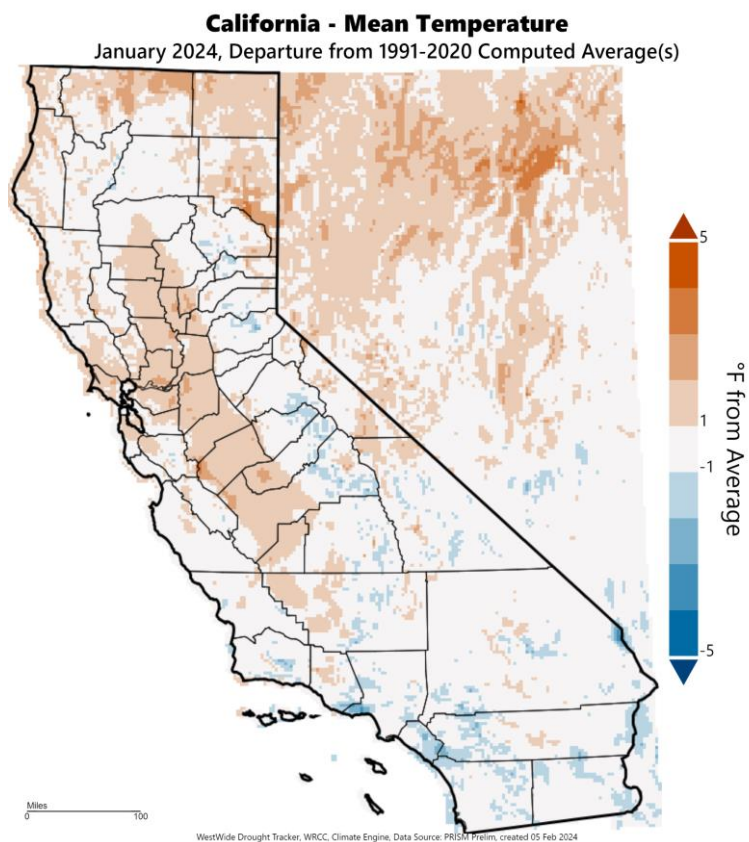
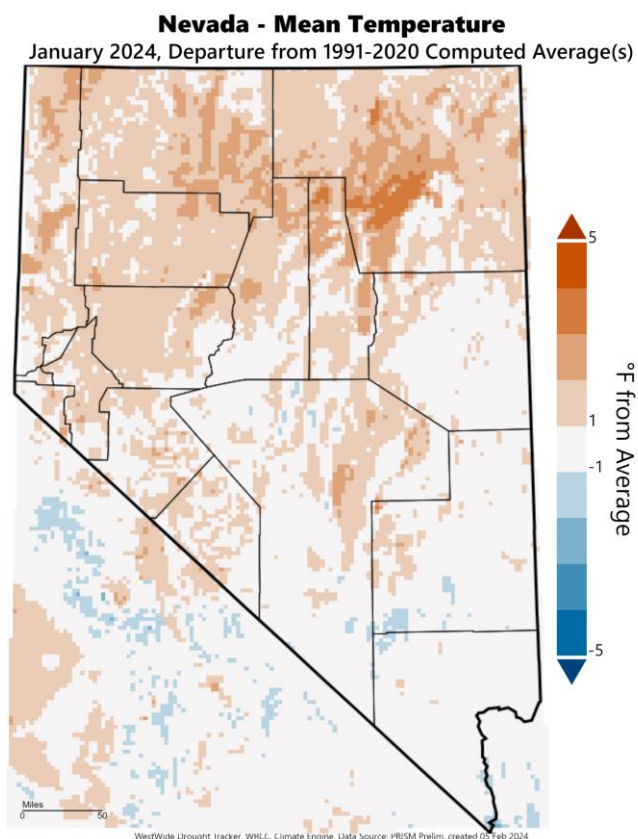


Figure 1: Nevada (left) and California (right) departure from normal temperatures for January 2024. Data courtesy of WestWide Drought Tracker. ([VWDT](https://www.wwdt.org/))

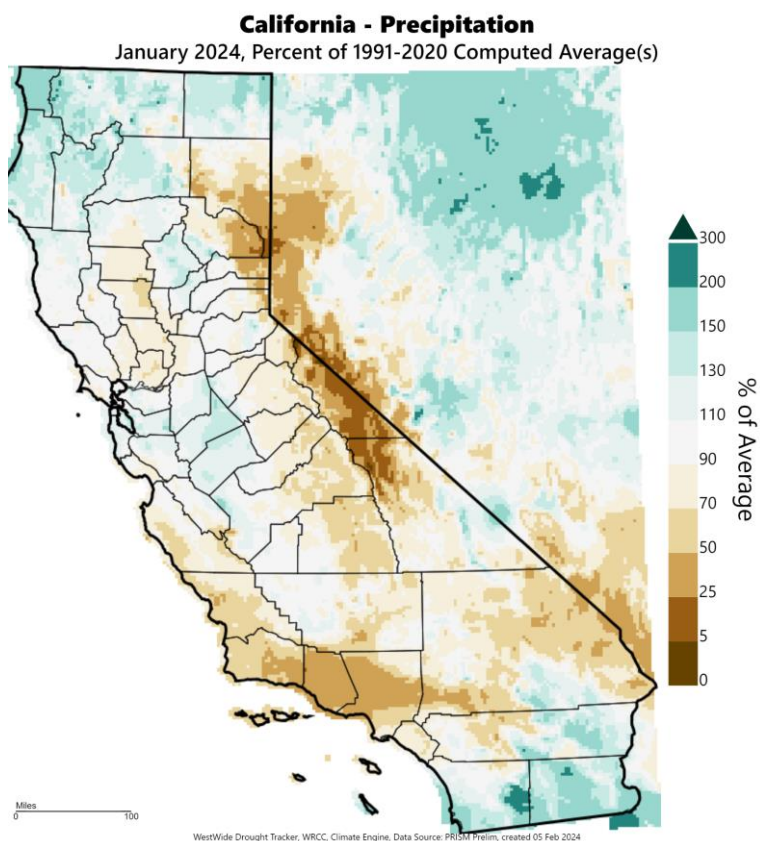
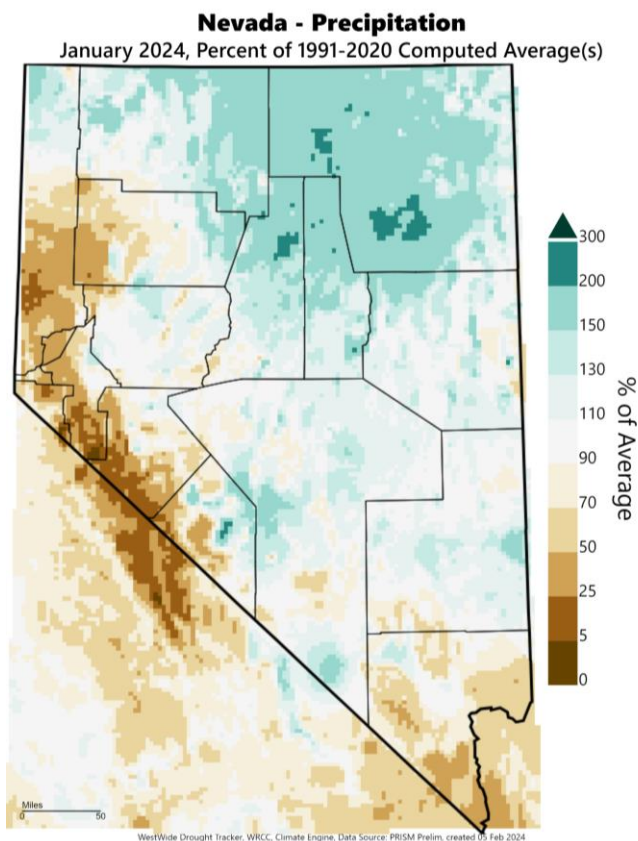


Figure 2: Nevada (left) and California (right) percent of normal precipitation for December 2023. Data courtesy of WestWide Drought Tracker. ([WWDT](#))

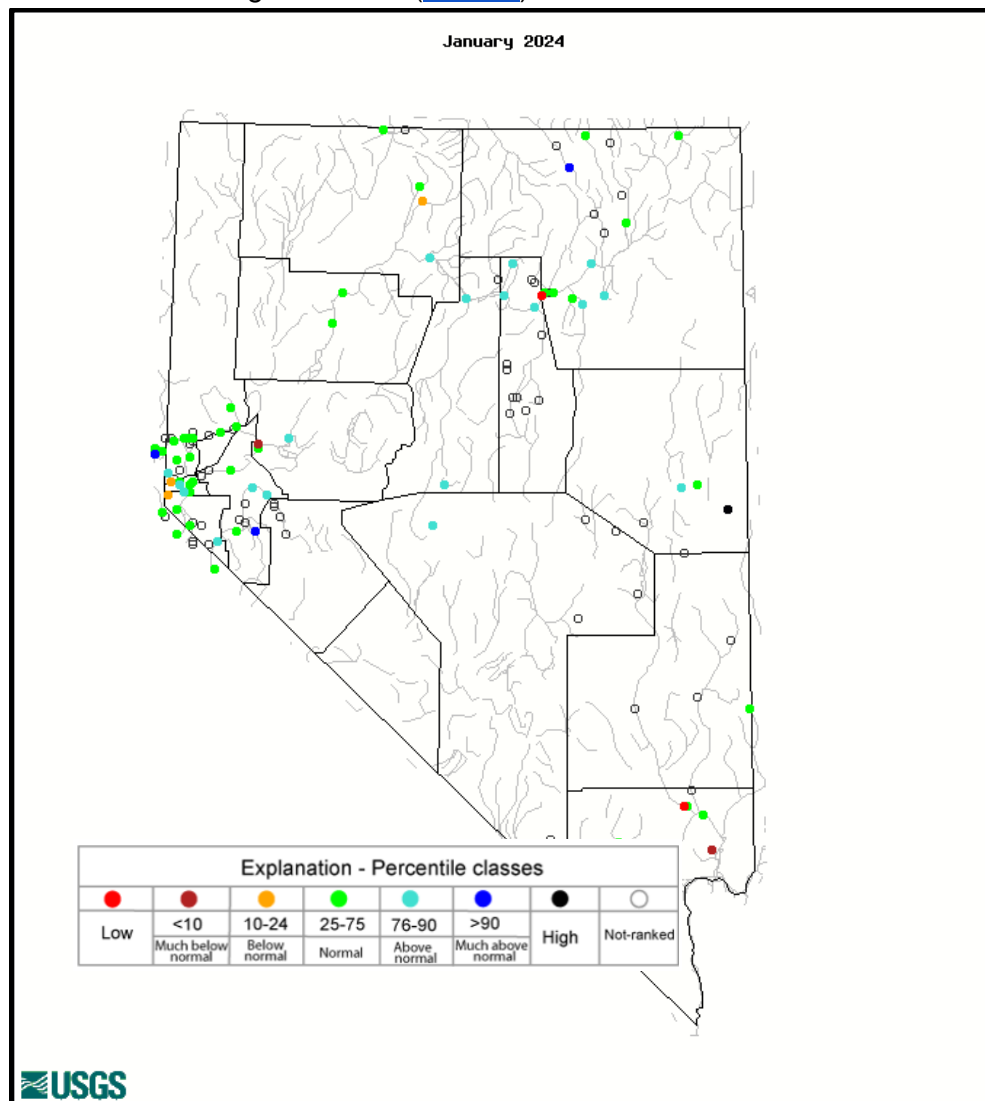


Figure 3: December [Monthly USGS streamflow](#) Note, the only red dot in western NV is the Truckee Canal which is closed for construction.

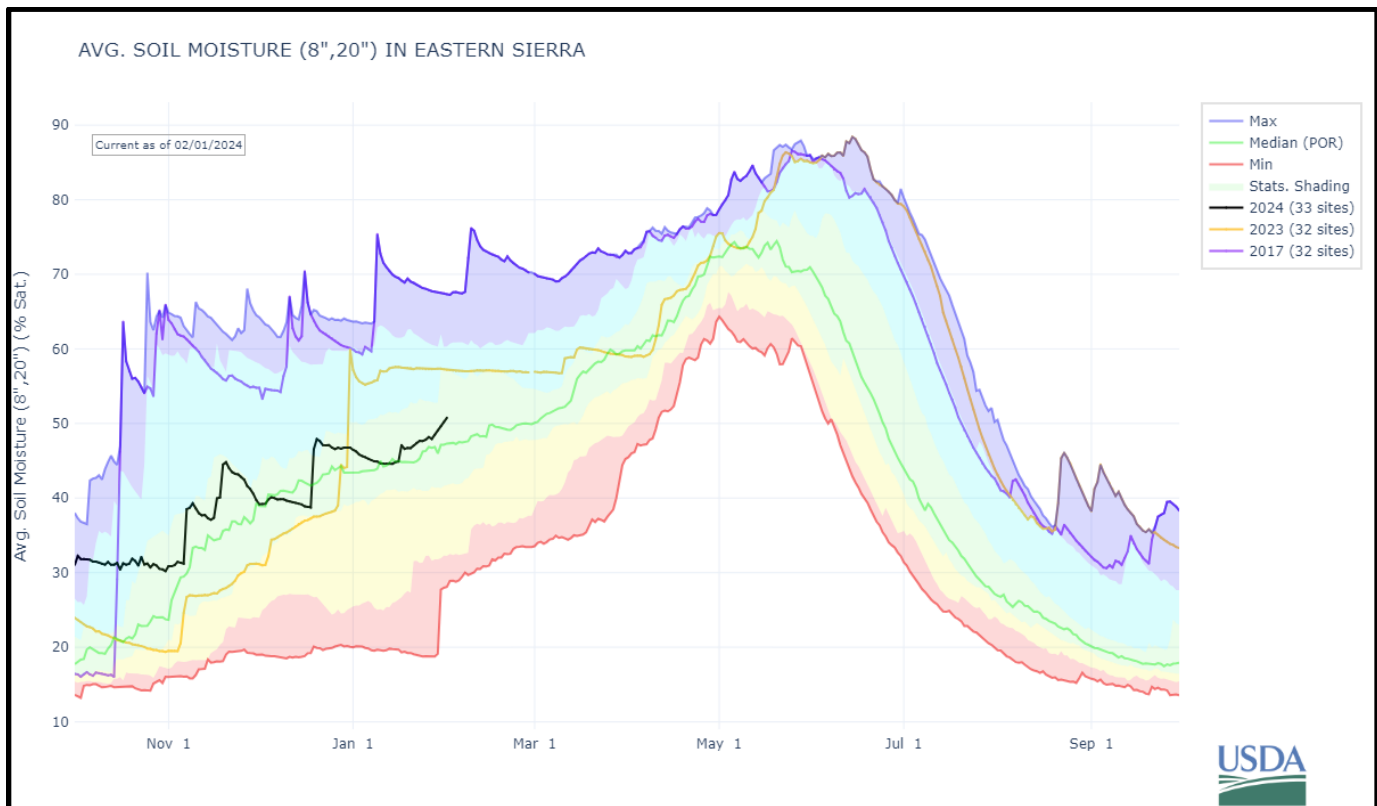


Figure 4: [NRCS SNOTEL soil moisture](#) for the combined Tahoe, Truckee, Carson and Walker basins indicated in dark black for water year 2024. Water years 2023 and 2017 are plotted in orange and purple for additional perspective.

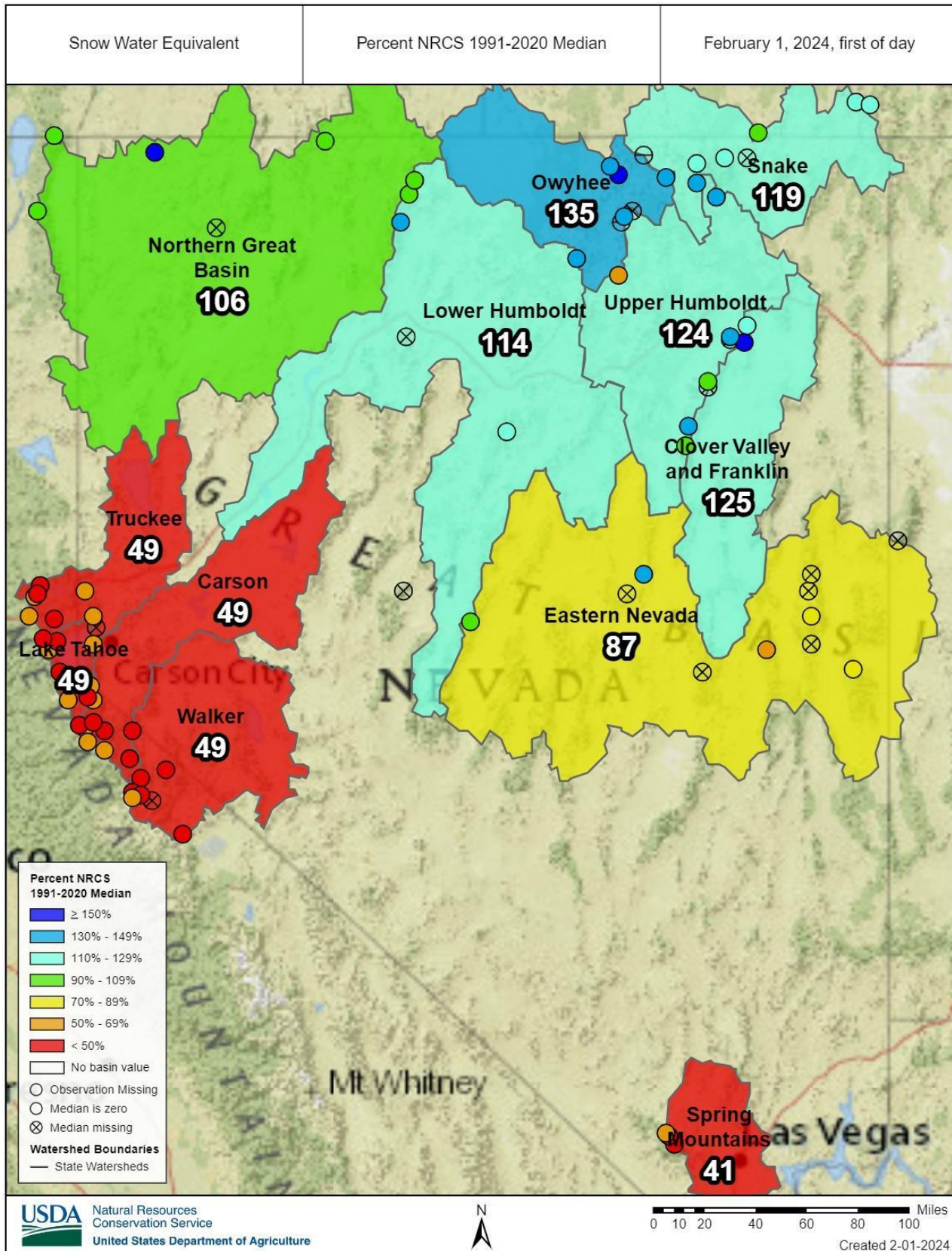


Figure 5: [NRCS SNOTEL basin snow water equivalent](#) as percent of median for 02/01/24.

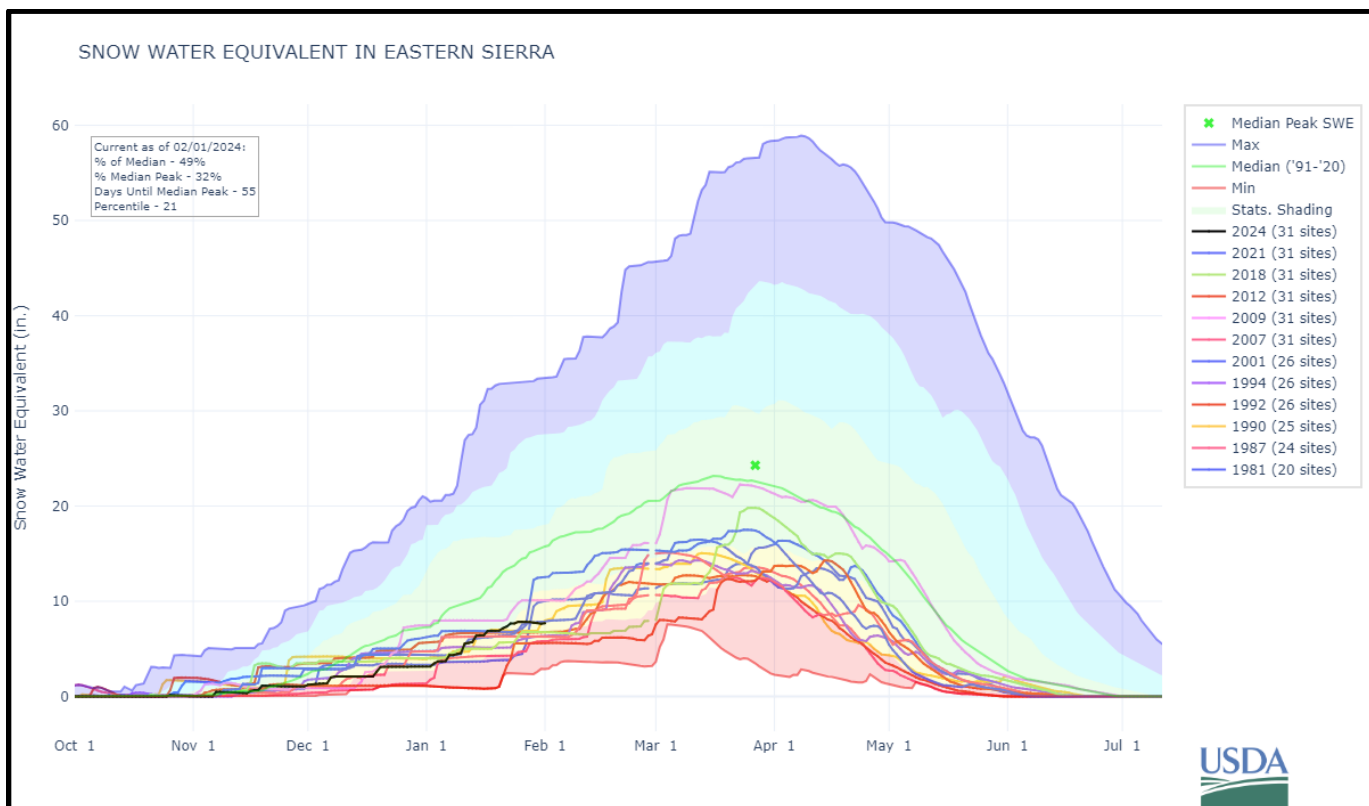


Figure 6: [NRCS SNOTEL snow water equivalent \(SWE\)](#) for the combined Tahoe, Truckee, Carson and Walker basins indicated in black for water year 2024. Previous water years with similar low end of January snowpack are plotted for additional perspective.

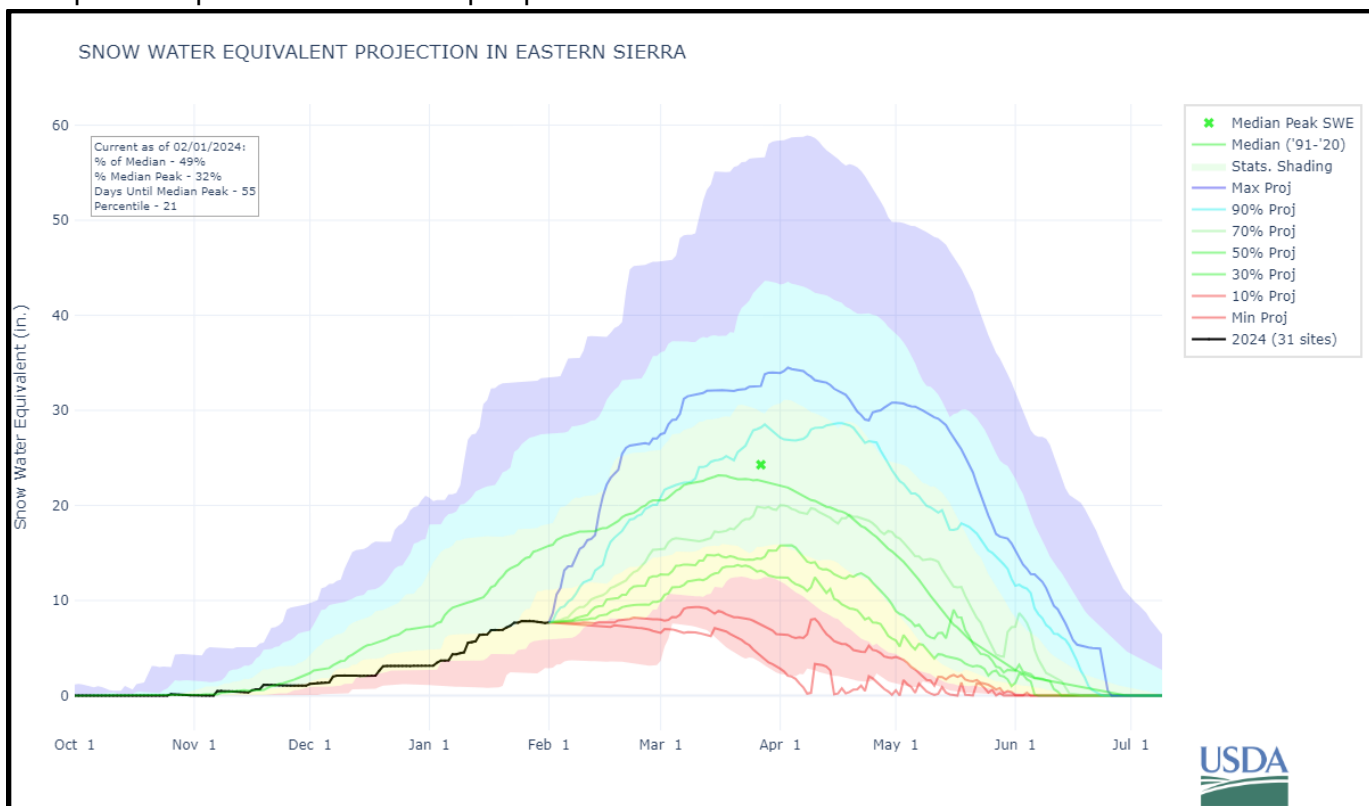


Figure 7. [NRCS SNOTEL snow water equivalent \(SWE\)](#) for the combined Tahoe, Truckee, Carson and Walker basins indicated in black for water year 2024, with the range of past observed SWE changes from early February on, indicating approximately a 20% chance of catching up to the median peak SWE.

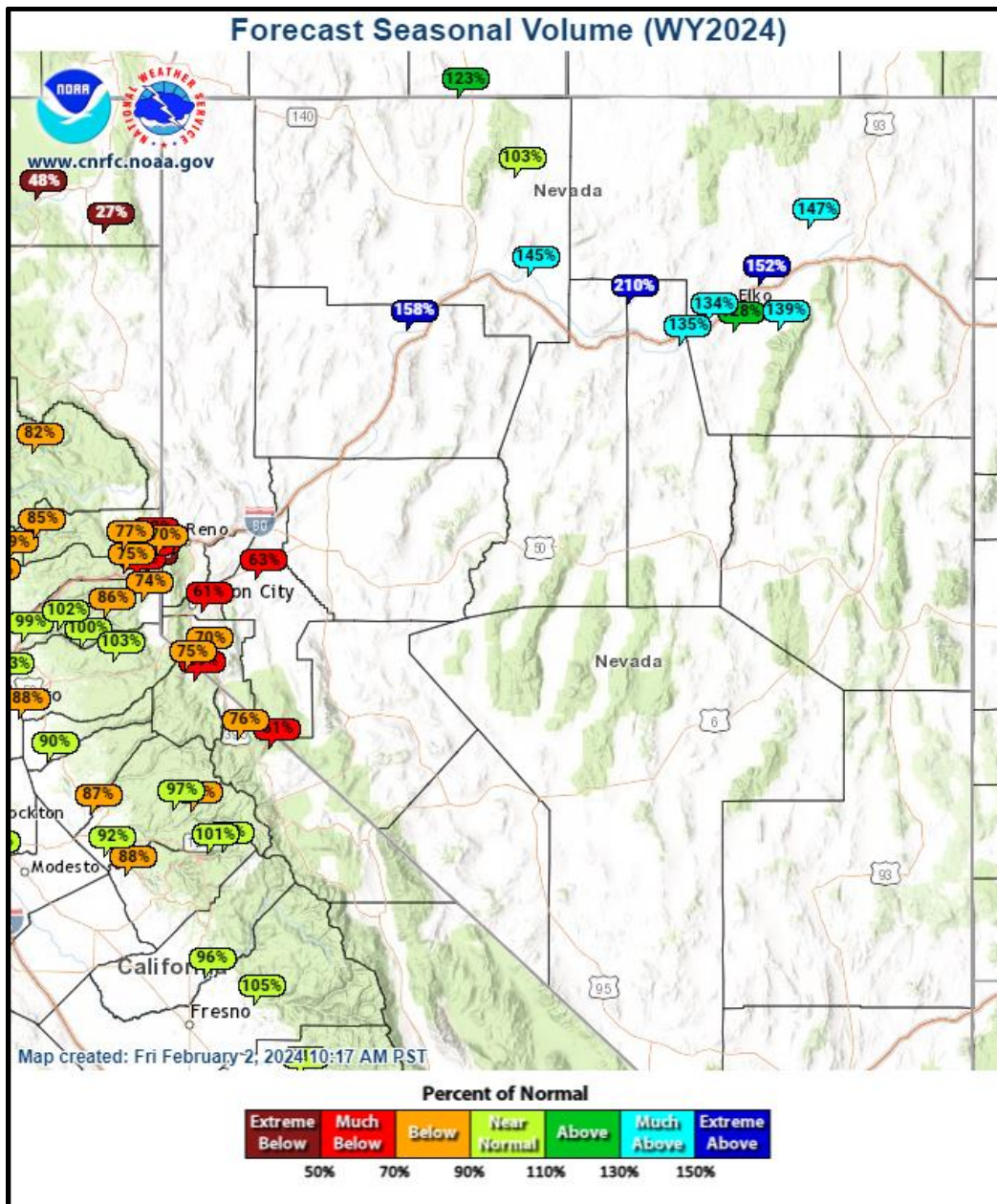


Figure 8. [CNRFC](https://www.cnrfc.noaa.gov) median April-July forecasts. While water supply forecasts have considerable skill by early February, a wide range of outcomes are still possible, driven primarily by late winter and early spring weather. Visit the [CNRFC page](https://www.cnrfc.noaa.gov) to view the probabilistic forecasts.

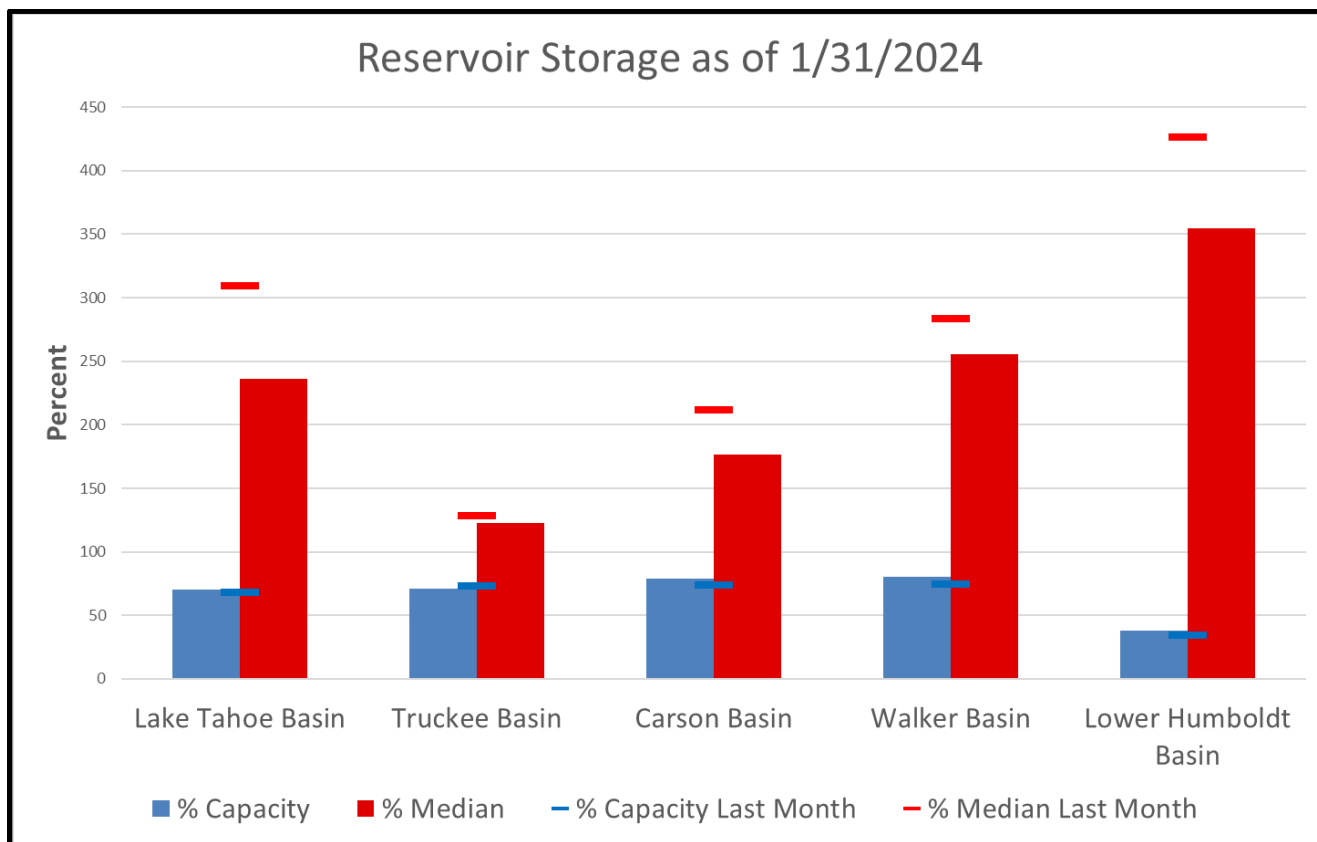


Figure 9: End of month reservoir storage relative to capacity and **median*** for this month and last month. (*note reference was recently update to NRCS 1991-2020 median values)

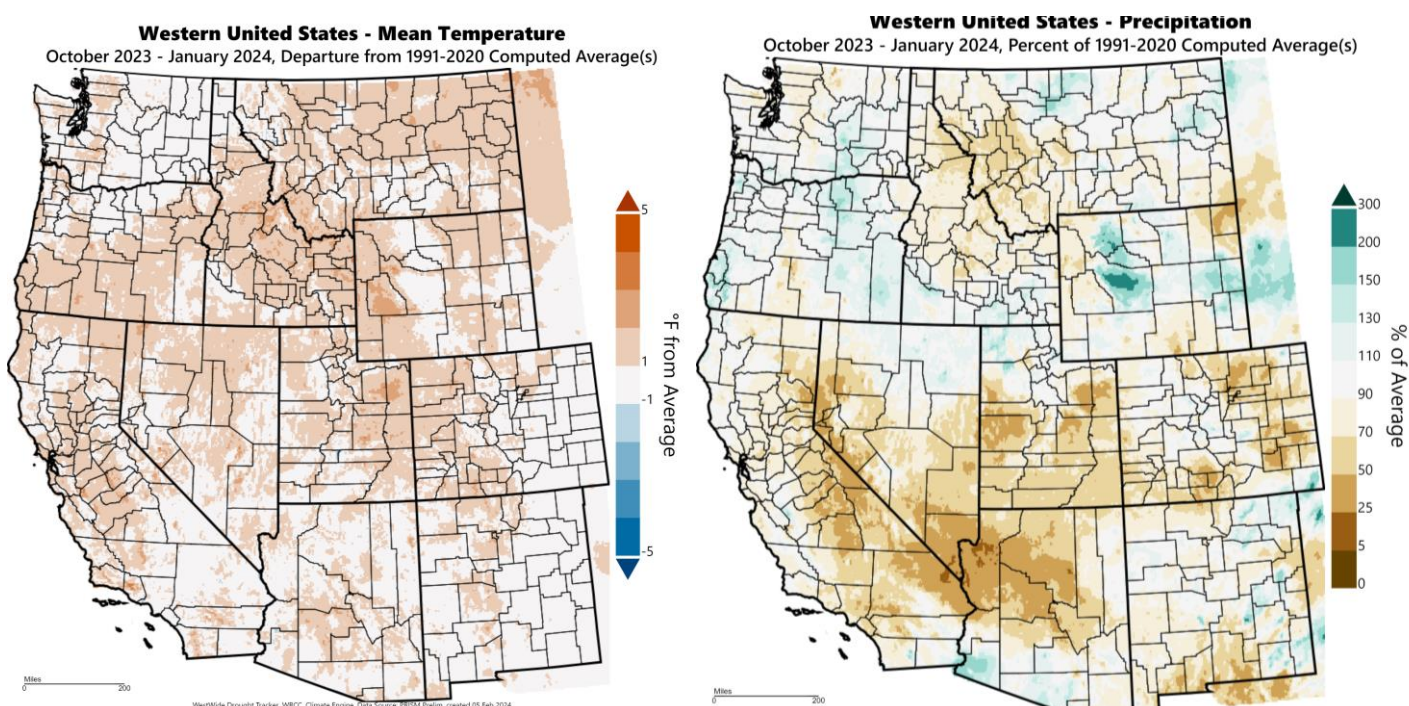
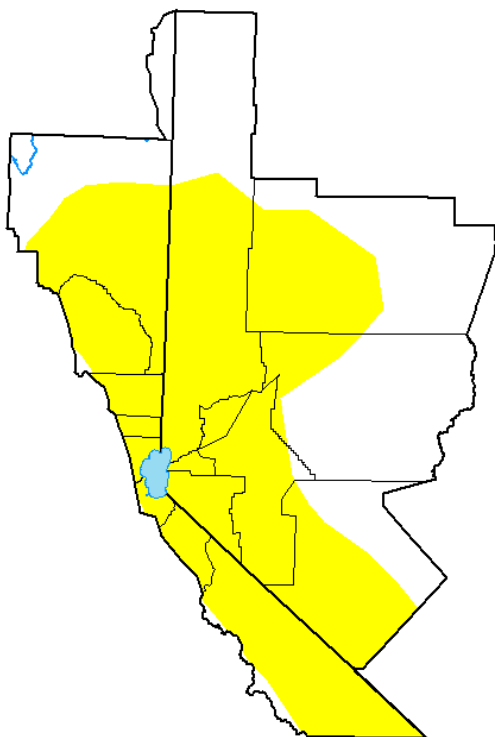


Figure 10: Current 2023-24' water year to date departure from normal temperature (left) and percent of normal precipitation (right). Data courtesy of WestWide Drought Tracker. ([WWDT](https://www.westwidetracker.com/))

U.S. Drought Monitor Reno, NV WFO



January 30, 2024
(Released Thursday, Feb. 1, 2024)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	40.21	59.79	0.00	0.00	0.00	0.00
Last Week 01-23-2024	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago 10-31-2023	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 01-02-2024	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 09-26-2023	100.00	0.00	0.00	0.00	0.00	0.00
One Year Ago 01-31-2023	0.00	100.00	100.00	40.59	16.02	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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droughtmonitor.unl.edu

Figure 11: End of January Drought Monitor Status. Abnormally Dry (D0) added to much of the NWS Reno Service area. ([Drought Monitor](https://droughtmonitor.unl.edu)).