Monthly Climate Report

NWS Reno NV

Issued: 12/6/2024

Weather Synopsis & Highlights:

November was about 2-5 degrees cooler than average across all of eastern CA-western NV (Figure 1). Precipitation varied widely across the region, with the orientation of the November 18-23 atmospheric river event bringing abundant precipitation to northeast CA/far northwest NV (which ended up with 200% to over 300% of average), but leaving a large portion of western NV including the main urban areas dry, with monthly totals 25% or less of average (Figure 2). The final storm of the month brought heavy mountain snow/valley rain favoring Mono County and southern Mineral County, resulting in monthly totals 150%-250% of average. The Tahoe basin ended with near-average precipitation for November.

Cool conditions continued into the first week of November, with a weaker weather system bringing areas of lighter rain and higher elevation snow mainly on the 2nd. Dry conditions with periods of valley inversions then prevailed through the 10th, with a brief warmup producing high temperatures into the mid-upper 60s for western NV on the 10th.

A more active weather pattern began over the region on the 11th, with a series of storm systems that produced periods of strong winds although rain and snow amounts were generally on the lighter side. The first storm on the 11th produced mainly 3-6” of snow for the Sierra, with less than 3” for the Tahoe basin. Wind gusts with this first storm were mainly 50-60 mph for parts of western NV, with Sierra ridge gusts up to 110 mph. These winds contributed to the rapid movement of the Callahan Fire south of Reno that destroyed one home and several outbuildings. The next storm on the 13th brought another round of 50-60 mph wind gusts to lower elevations, with up to 75 mph in wind prone areas of western NV and up to 100 mph for Sierra ridges. Precipitation was sparse with less than 2” of snow in the Sierra, while humidity was low from eastern Sierra slopes into western NV so Red Flag Warnings were in effect. The next storm on the 15th brought more light snow up to 3” in the Sierra, while the first measurable snow of the season reached the valleys around Reno during the early morning hours, producing amounts up to 1”, with some foothill areas receiving around 2”.

The first large atmospheric river event reached the Sierra and northeast CA from the 18th through 23rd with an unusually strong low pressure setting up off the Pacific Northwest coast (Figure 3). This storm produced prolonged periods of strong ridge top winds and gusty winds for lower elevations on the 20th and 22nd, with Red Flag Warnings again in effect due to low humidity combined with these winds. The strongest wind event occurred on the 22nd, with Sierra ridge gusts up to 145 mph and downslope gusts 60-80 mph into lower elevations, while a peak gust of 105 mph was reported at Walker Lake late in the evening Figure 4). Precipitation contrasted sharply across the region, with little to no rainfall for much of west central NV and southeast Mono County, while parts of northeast CA (western Lassen to central Plumas counties received 3-5” of liquid precipitation (Figure 5). The Sierra crest received liquid amounts of 1-3”, which fell as 10-18” of heavy wet snow above 7000 feet, but snow amounts dropped off to 1-3” at lake level in the Tahoe basin.

The next winter storm arrived on the 25th-26th, producing another round of heavy wet snow for the Sierra again mainly above 7000 feet, with the highest snow amounts in southern Mono County, almost one foot near US-395 at Toms Place and 30” at Mammoth Mountain. Lesser snowfall amounts of 4-12” fell around the Tahoe basin above 7000 feet, with 2” or less down to lake level.

After this storm exited on the evening of the 26th, the remainder of November brought dry conditions with light winds. This led to valley inversions with cold morning temperatures and areas of dense freezing fog, especially across northeast CA and northwest NV near and north of Pyramid Lake, where Freezing Fog Advisories were in effect for the final two days of the month.

Hydrology:

The late month atmospheric river led to some flooding concerns in Lassen and Plumas Counties, especially along the Susan River, but the lack of high intensity precipitation, and pulsing nature of the rainfall resulted in high flows, but kept the Susan River slightly below flood stage (Figure 6). No other flooding impacts have been reported, and farther south streamflow responses were limited, and well below flooding concerns. Cold November temperatures resulted in some ice impacting some streamflow gages. November monthly streamflows are near to below normal in most areas (Figure 7); the few areas that indicate above normal flows are due to reservoir management. Soil moisture conditions in the Truckee, Carson and Walker and Humboldt basis are below normal despite November gains (Figure 8). Cool November temperatures and near to above normal November mountain precipitation has helped initiate an above normal early season snowpack (Figure 9), but don’t get too excited, as it is still very early in the snow accumulation season and current snow only represents a small fraction of the typical seasonal peak. Water year to date observed streamflows are below to much below average for most of the area (Figure 10), while reservoir storage is near to above normal for late November (Figure 11)

Drought Update:

The latest US Drought monitor (Figure 12) removed abnormally dry conditions across the northern and western portion of the NWS Reno service area this month thanks largely to the atmospheric river from the 18th to 23rd. Farther south, drought conditions were degraded to moderate drought (D1) in southern Mono (White Mountains), and southern Mineral counties, which had increasing precipitation deficits over the 30+ days. The current water year precipitation is above average in northeast CA, northern Washoe, and Mono counties and below average water year precipitation over much of west central NV, which witnessed precipitation deficits increase in November due to several storms being rain-shadowed (Figure 13). Below average temperatures for November helped initiate an above average early season snowpack (Figure 9).

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
rev.climate@noaa.gov 775-673-8100
https://www.weather.gov/rev/

Photos:

Photo 1: Callahan Fire November 11th. Photo courtesy Truckee Meadows Fire Protection District via Facebook.

Photo 2: First snowfall of the 2024-25 winter season in the greater Reno area on the 15th. Photo courtesy of Debbie Clarkson on Facebook.

Photo 3: Wind damage in the Sparks area due to the strong winds on the 22nd. Photo courtesy of off-duty NWS Reno forecaster.

Photo 4: Strong winds in Mono County on the 22nd. Photo courtesy of an off-duty NWS Reno employee.

Photo 5: Wind Damage on the 22nd in Washoe County.

Figures:

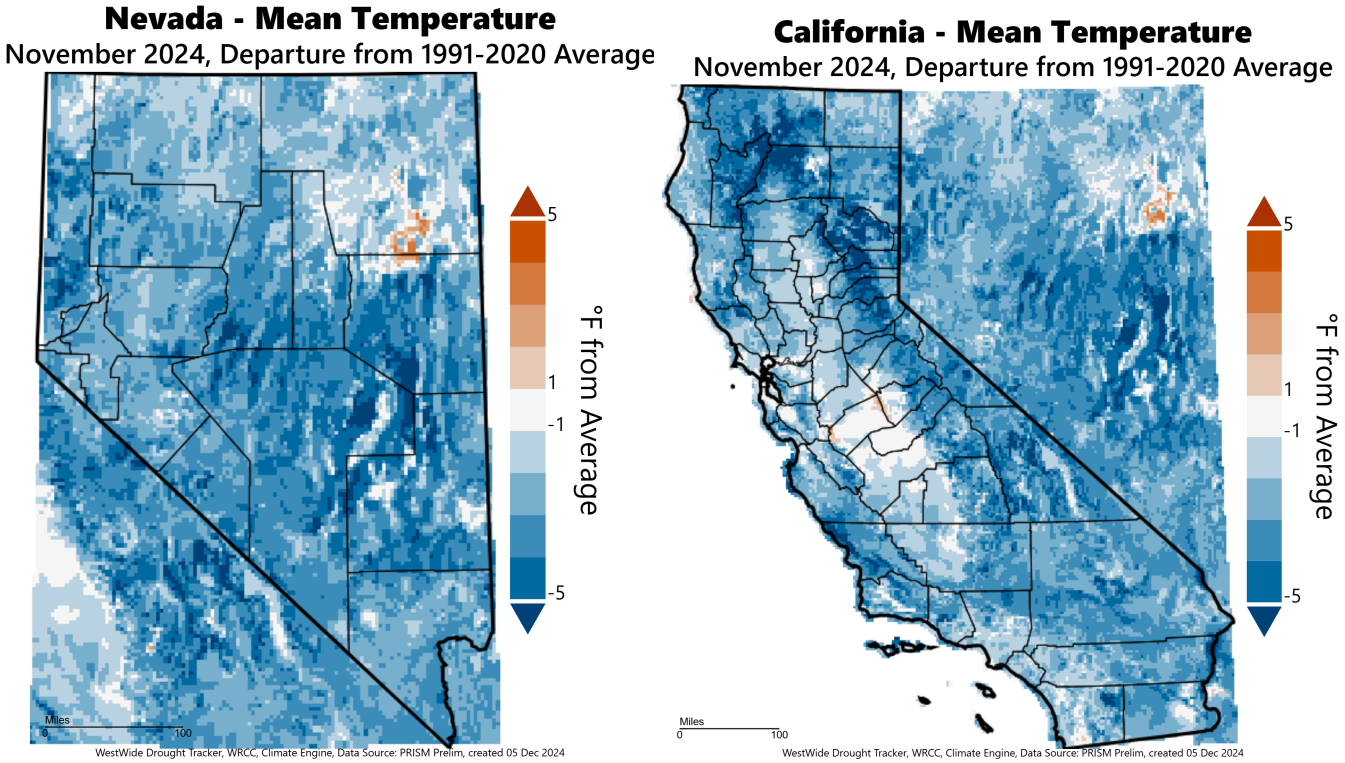

Figure 1: Nevada (left) and California (right) departure from normal temperatures for November 2024.(WWDT)

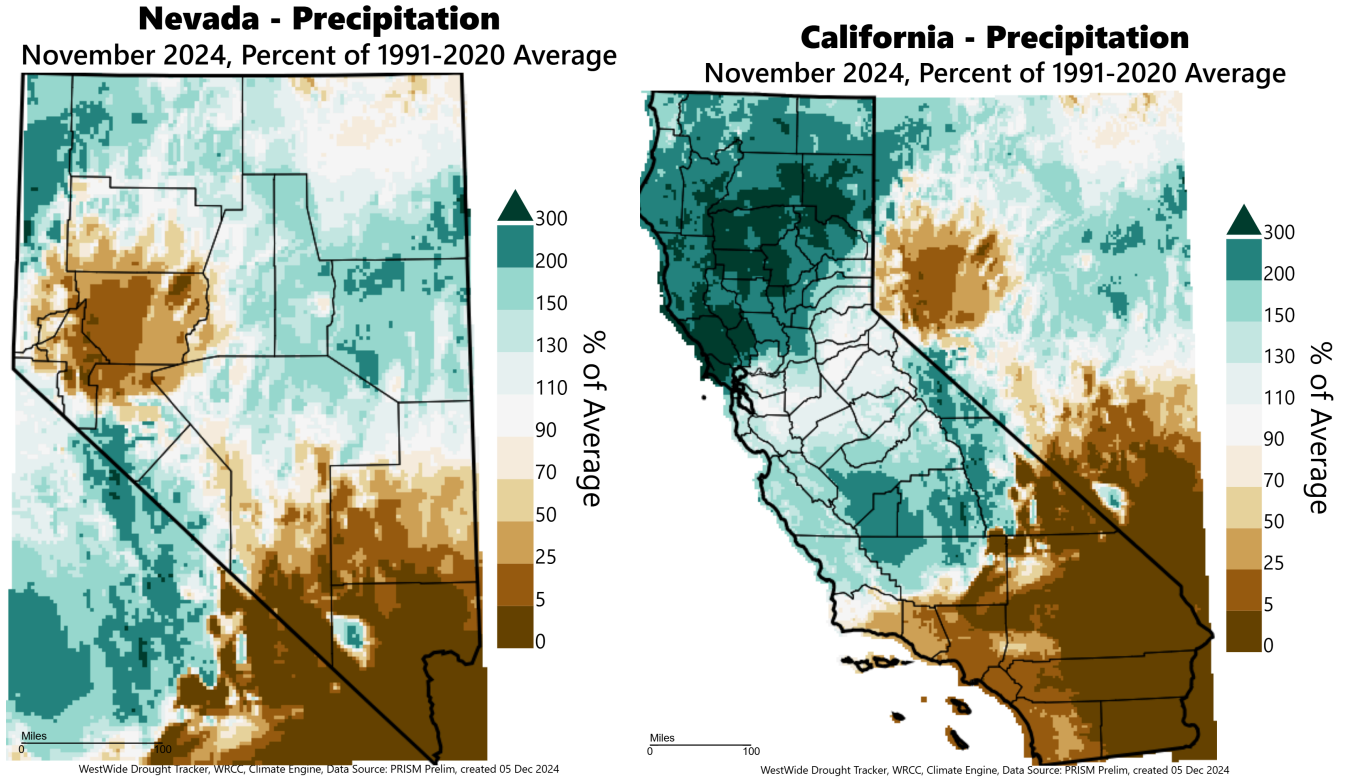

Figure 2: Nevada (left) and California (right) percent of normal precipitation for November 2024. (WWDT)

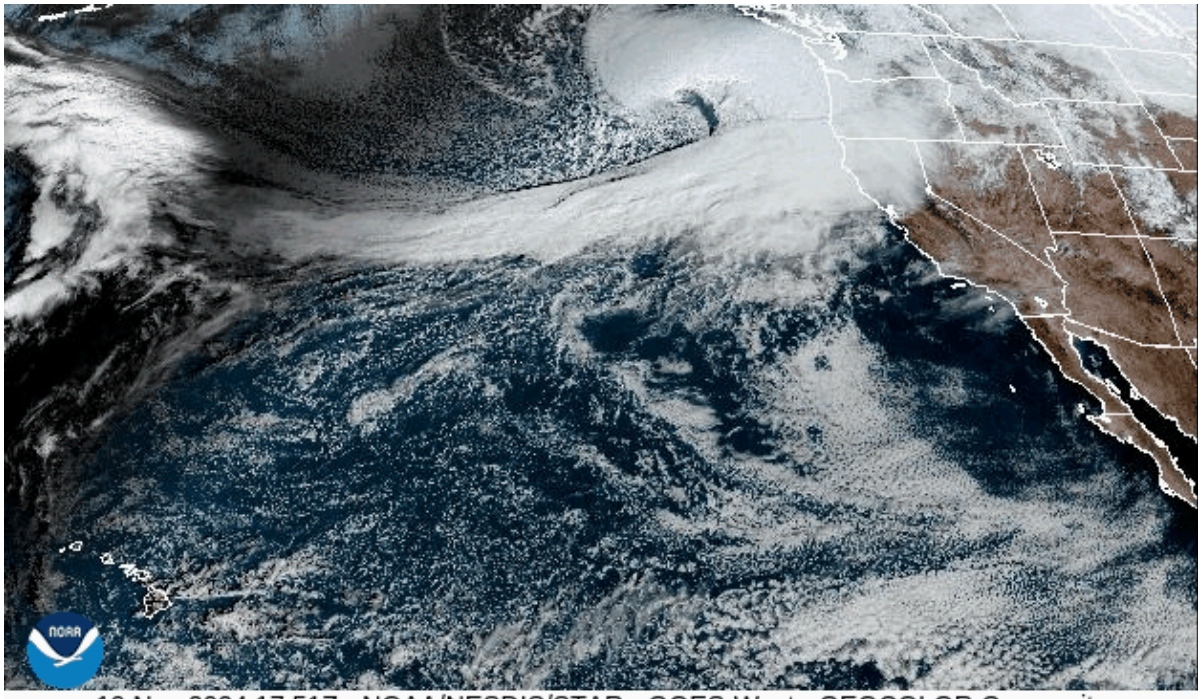

Figure 3: Very strong atmospheric river and “bomb cyclone”

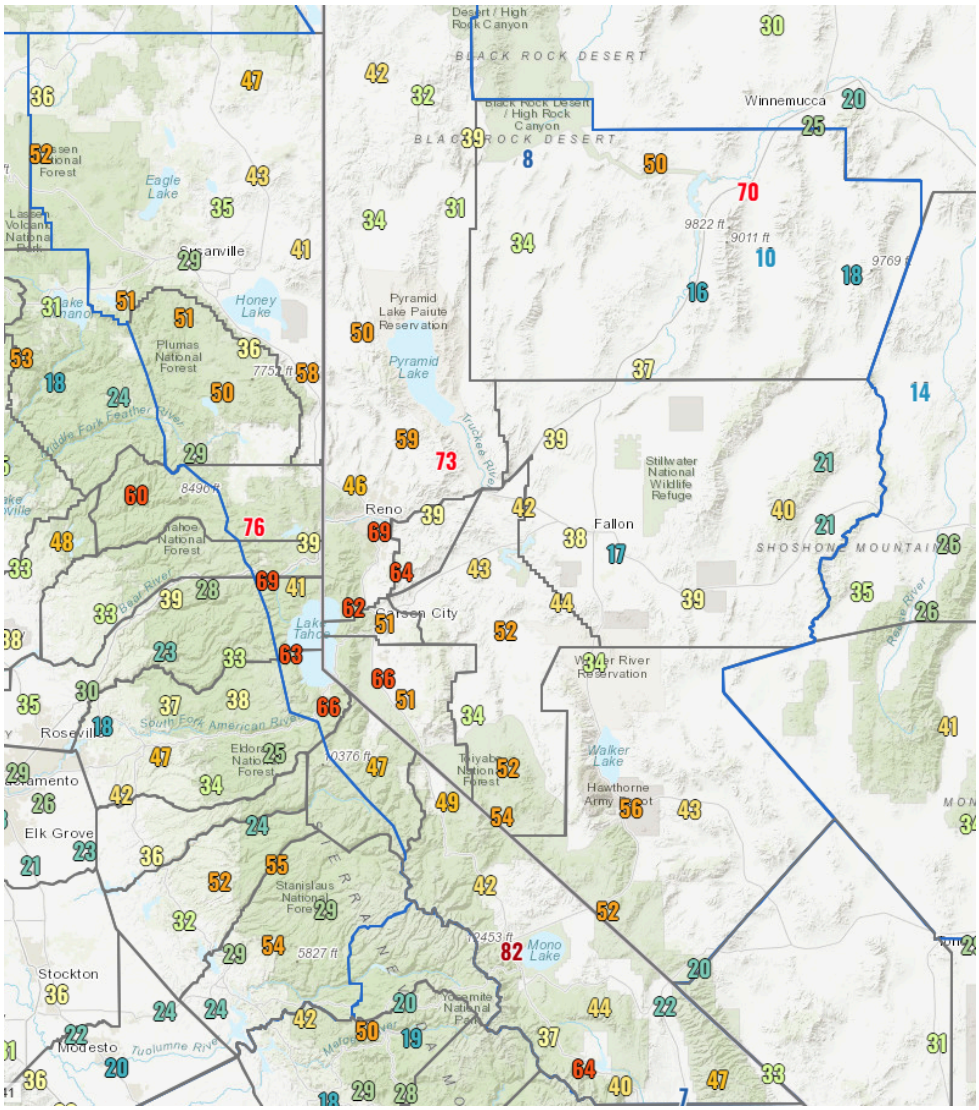

Figure 4: Wind reports from the 22nd.

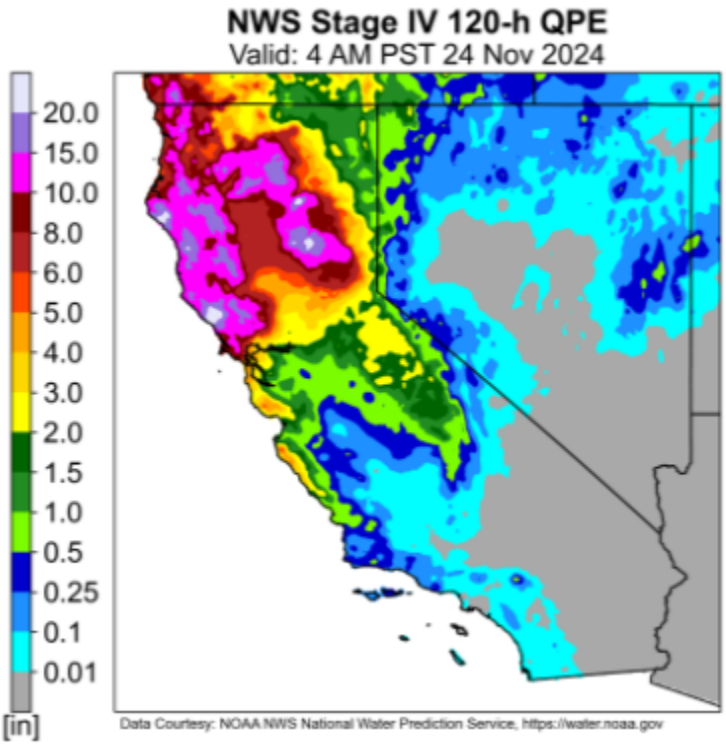

Figure 5. 120 hour Quantitative Precipitation Estimate (QPE) for the series of storms ending 4 am 11/24. Source: CW3E

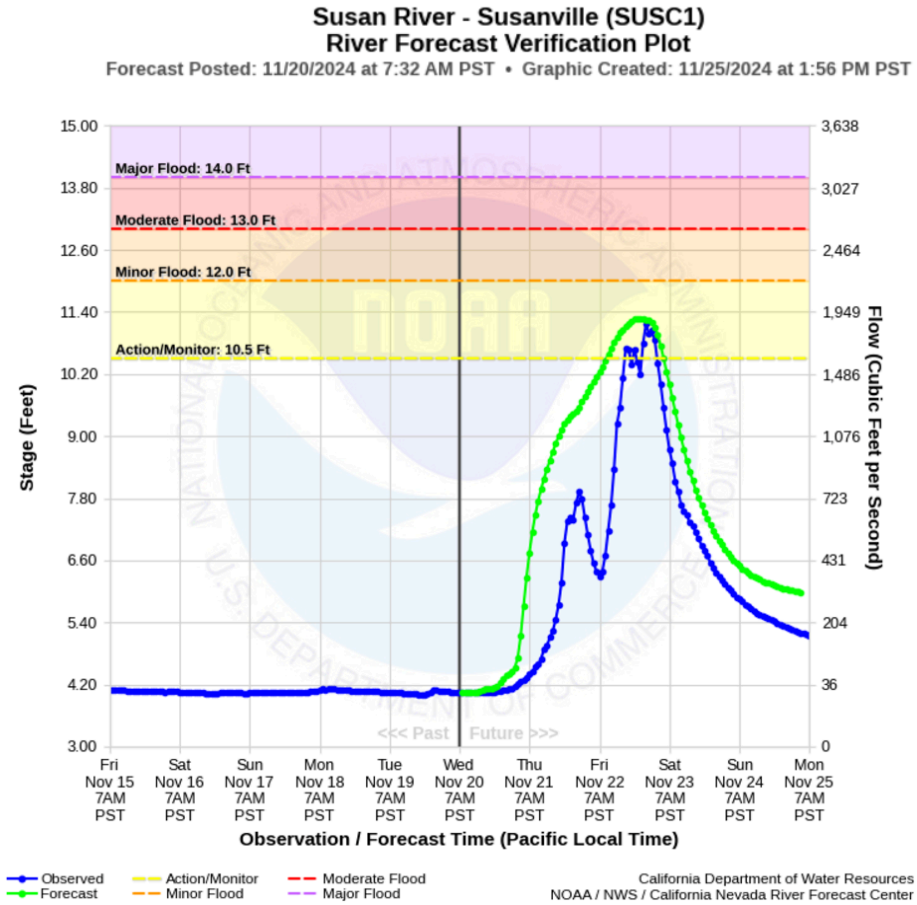

Figure 6: Susan River at Susanville forecast (in green) from 11/20/2024 and observed (in blue) hydrograph.

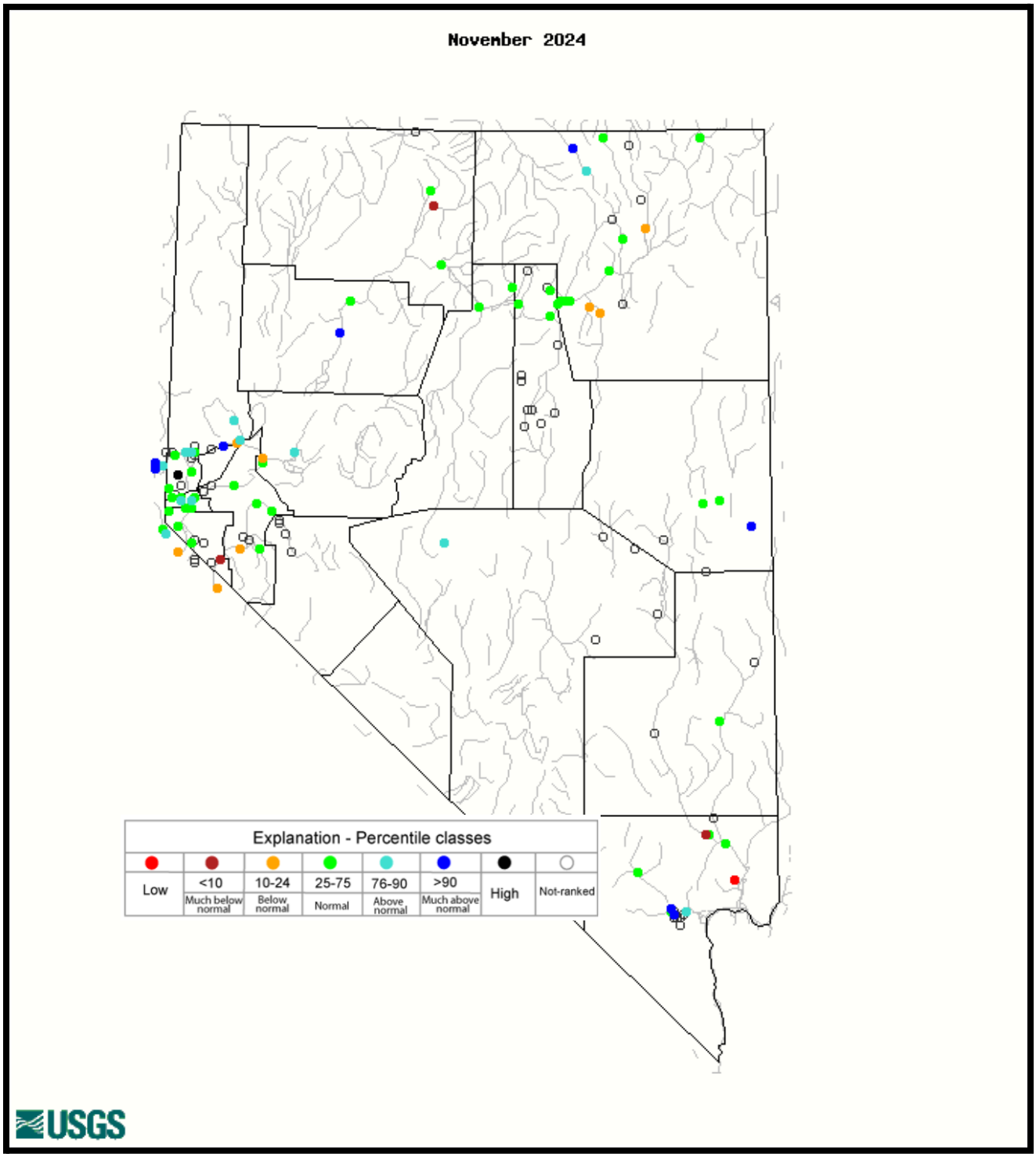

Figure 7: [USGS Monthly average streamflow] for November.

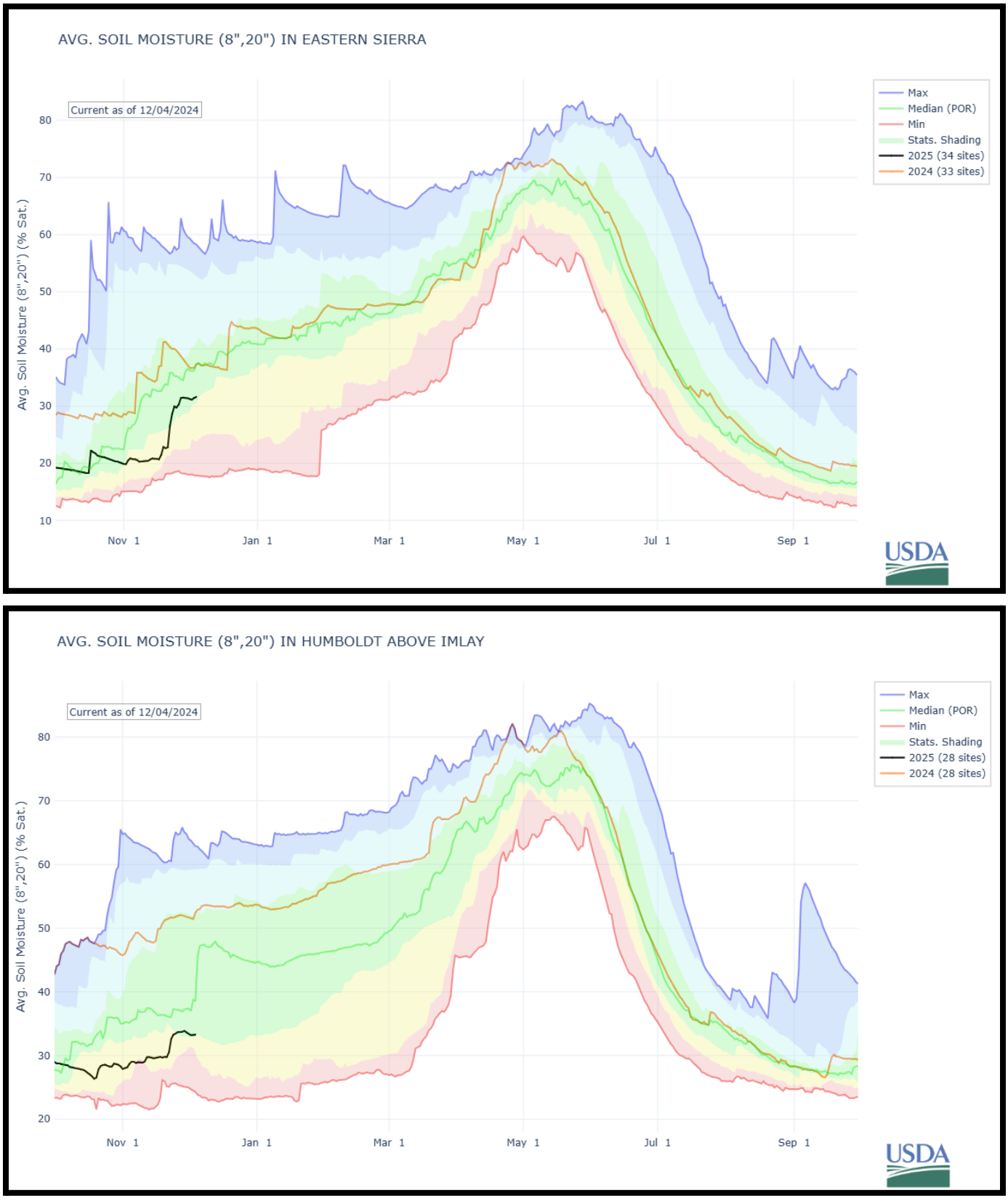

Figure 8: NRCS SNOTEL soil moisture for the combined Tahoe, Truckee, Carson and Walker basins (upper), and Humboldt basin (lower) indicated in black for the first two months of water year 2025. Water year 2024 is plotted in orange for additional perspective.

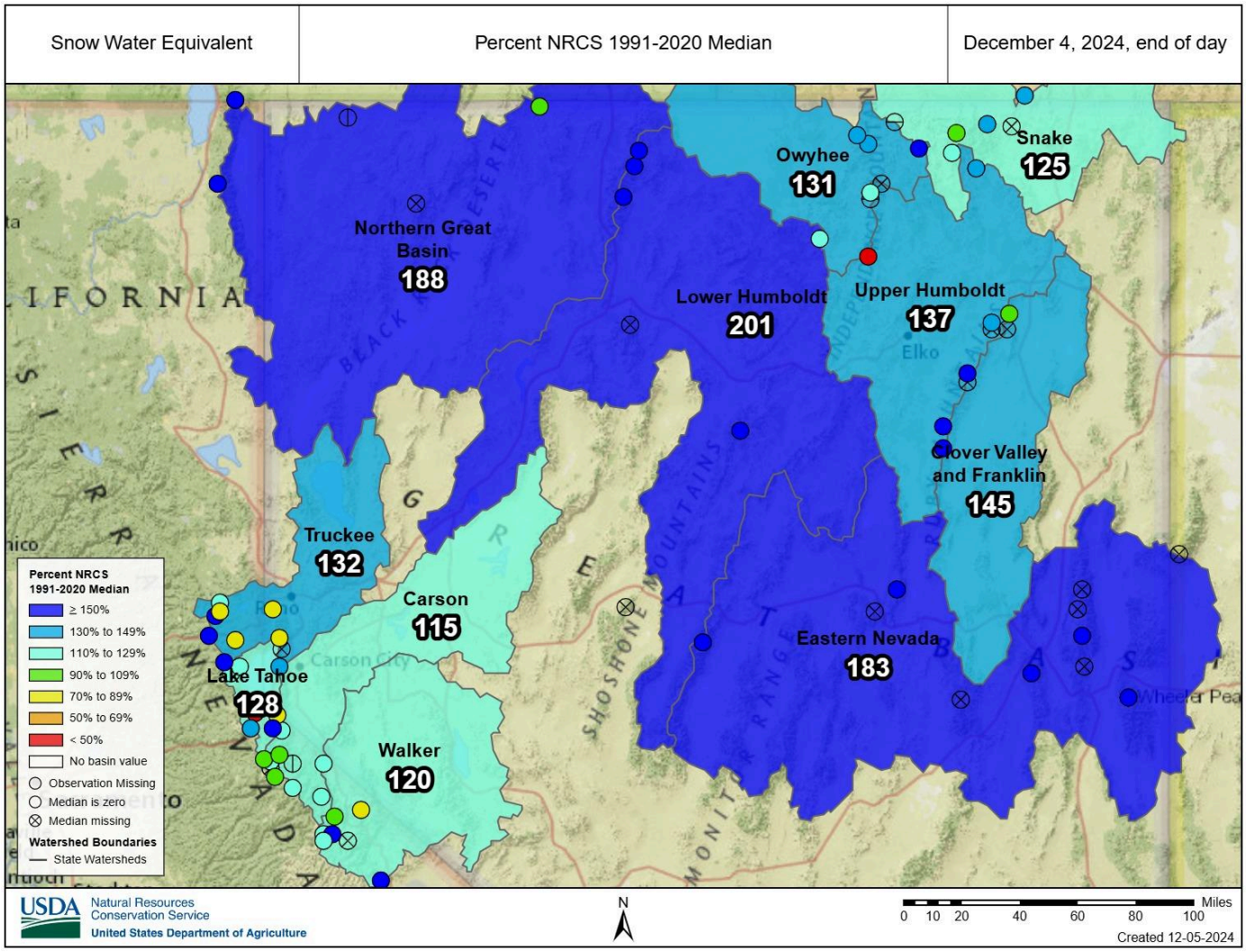

Figure 9. NRCS % of median snow water equivalent for early December. Note that snowpack is typically very limited at this time of year, and only about 15% of the normal spring time peak accumulation.

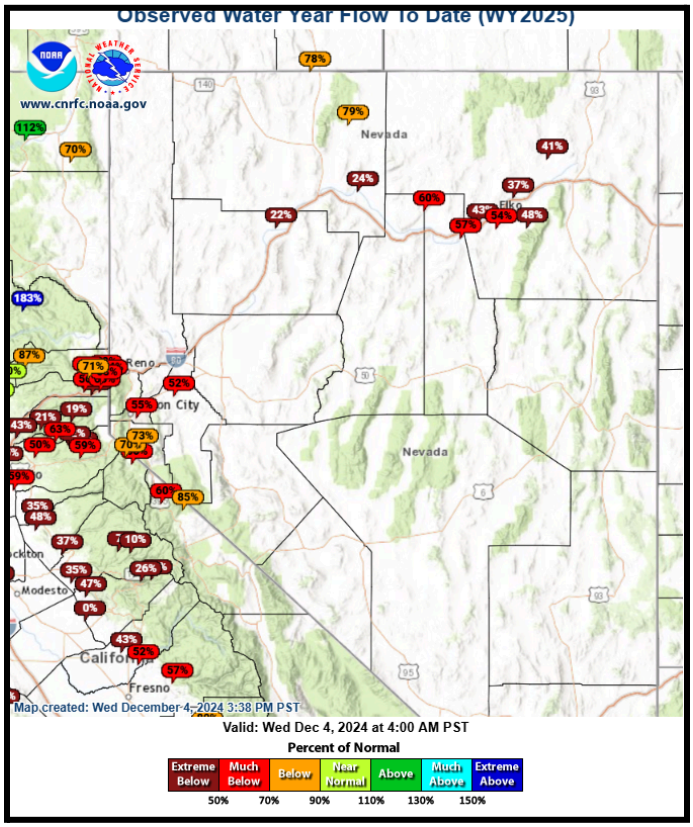

Figure 10. CNRFC Water year 2025 observed flow to date

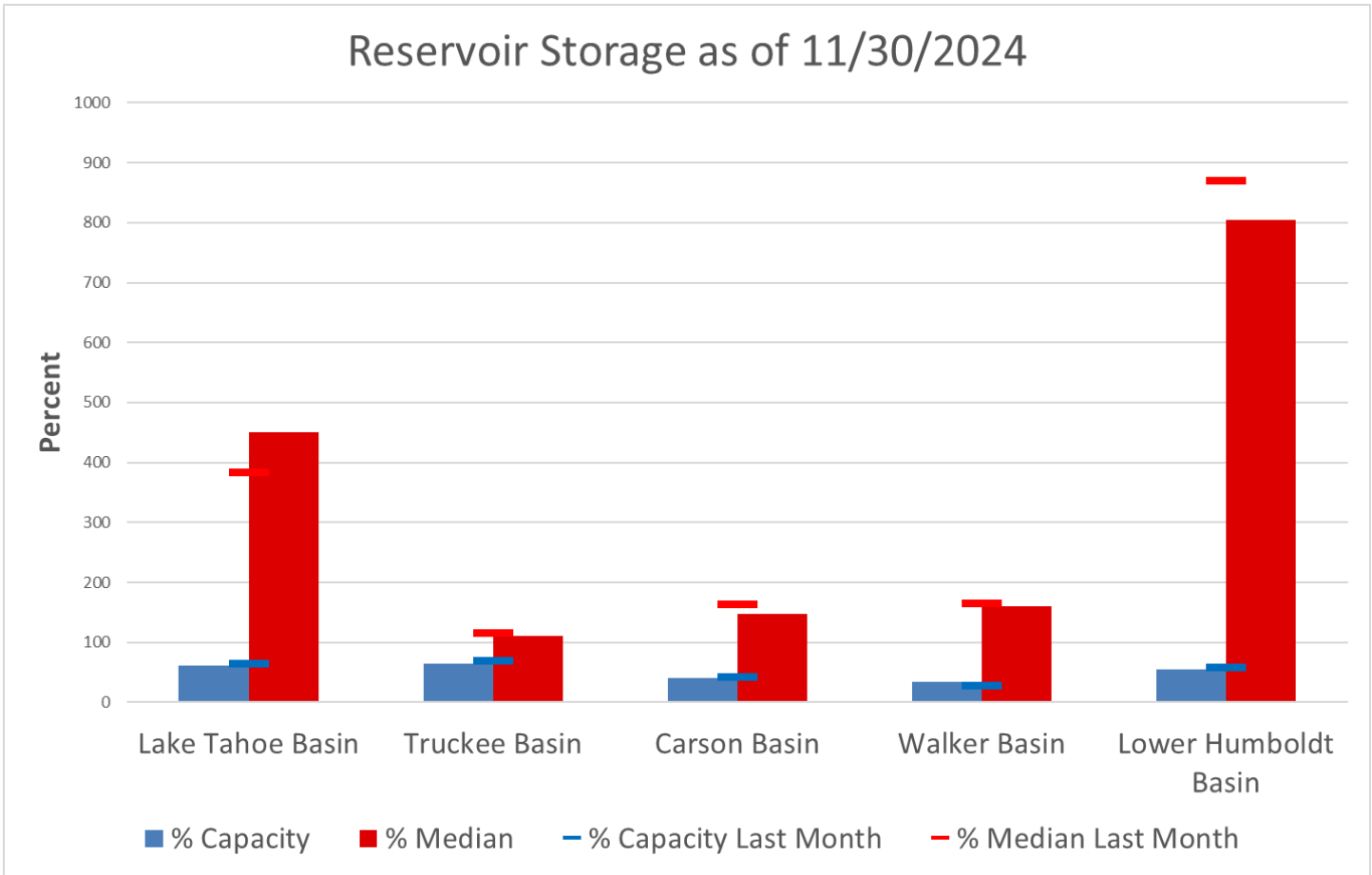

Figure 11. End of November reservoir storage relative to capacity and **median*** for this month and last month. (*note reference was recently update to NRCS 1991-2020 median values)

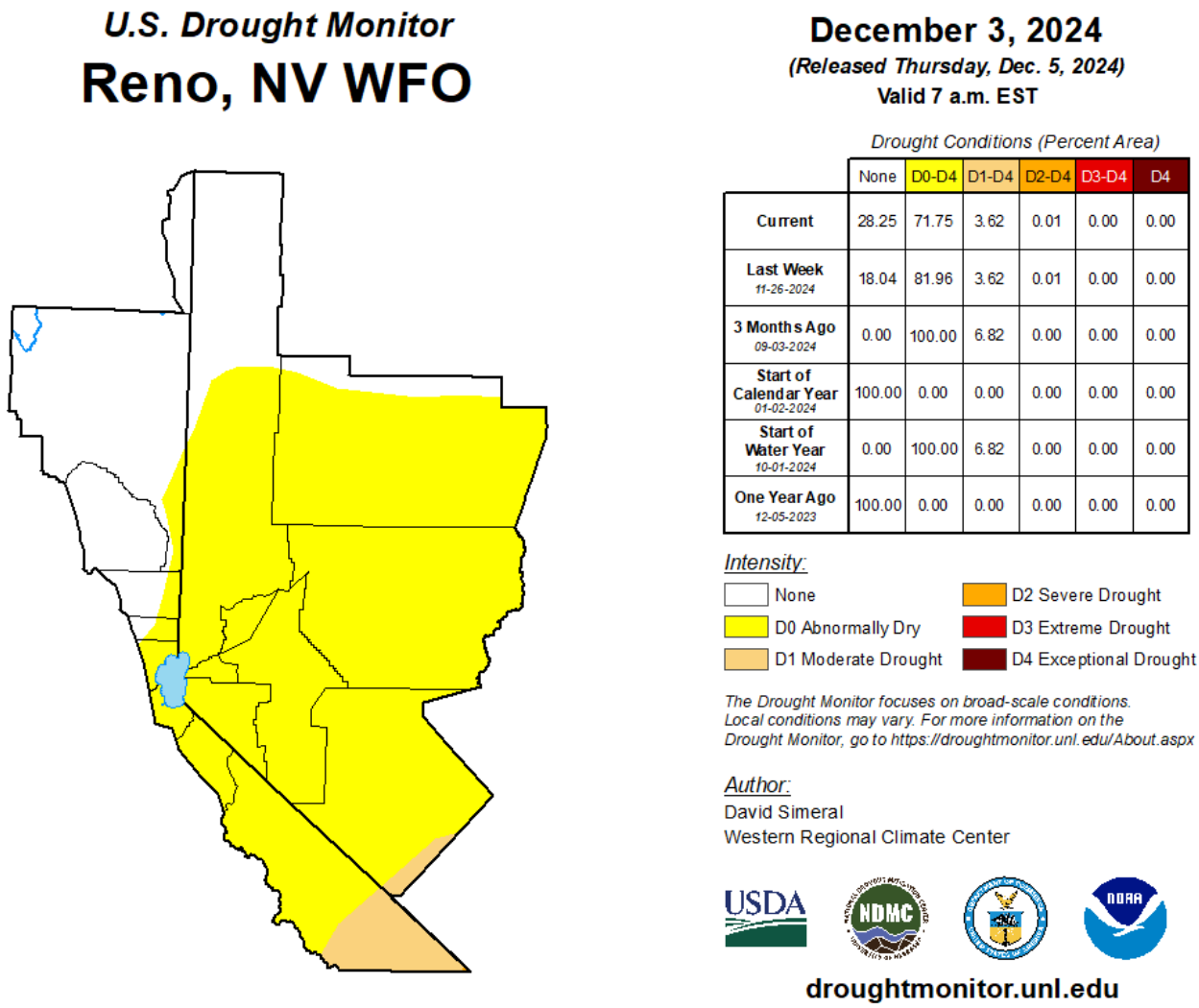

Figure 12: Early December Drought Monitor Status. Check for updates at: Drought Monitor.

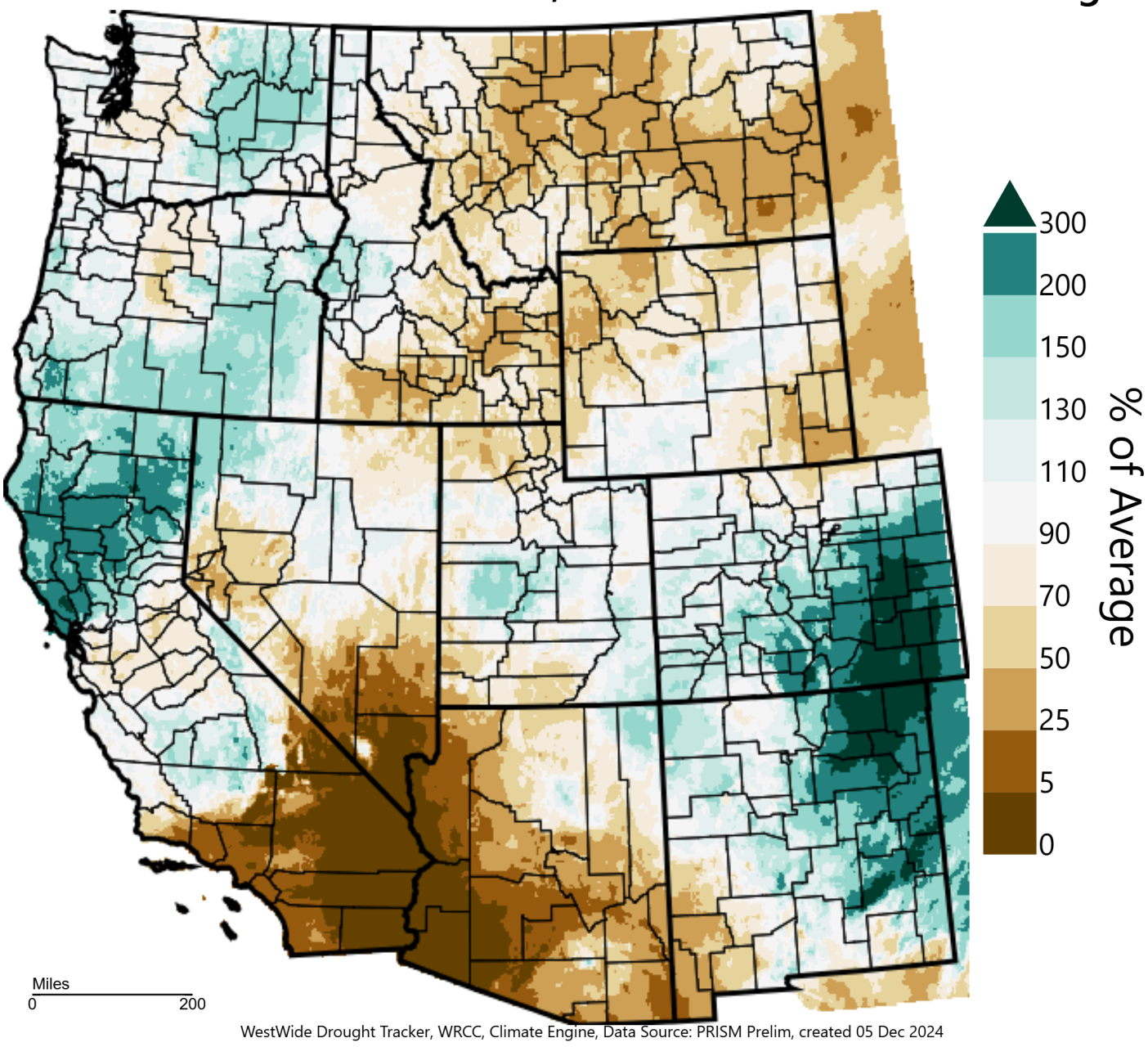

Figure 13: Water year to date precipitation. Courtesy of West Wide Drought Tracker. (WWDT)

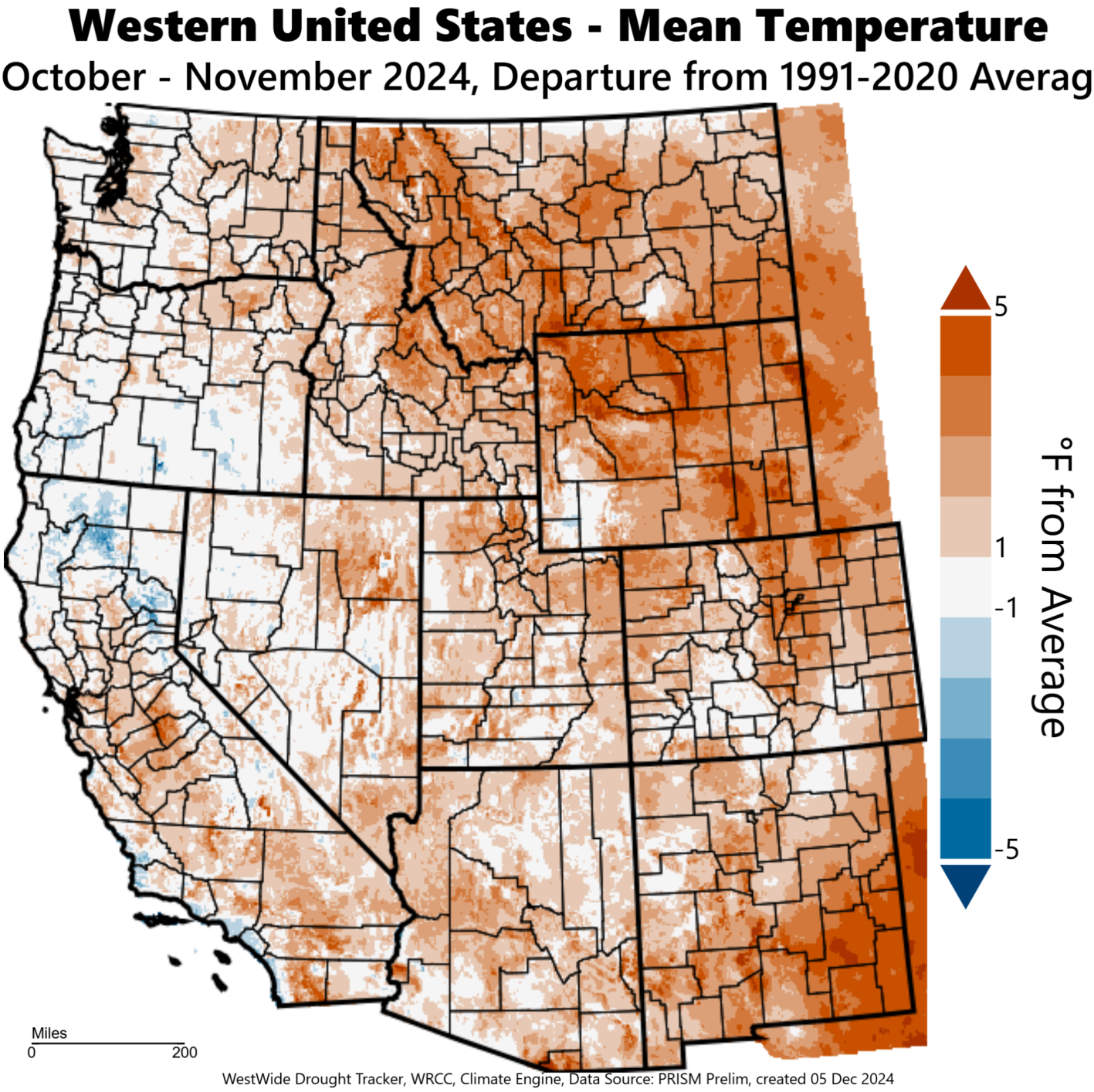

Figure 14: Water year to date temperatures. Courtesy of West Wide Drought Tracker. (WWDT)