



Monthly Climate Report

NWS Reno

Issued: 06/06/2023

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



Synopsis:

May began with one more touch of winter, with well below average temperatures and some snow for the eastern Sierra and even down to the Reno-Sparks area. Warmer conditions returned for the remainder of the month, with temperatures generally near to above normal. The mid-to-late May warm-up produced accelerated snowmelt with some flooding issues on some of the mainstem river basins, especially the Walker and Carson Rivers. Given the extremes this month, temperatures ended up within one to two degrees above or below average (Figure 1). Precipitation during the month was also a mixed bag across the region. Some areas in western NV and the Sierra experienced above to well average precipitation while some areas were below to well below average for the month (Figure 2). This was due to a persistent active pattern that brought an abundance of showers and thunderstorms through the majority of the month.

Weather Events:

A much colder air mass accompanied the start of May, with temperatures quickly dropping well below normal by the 2nd. Along with cooler temperatures, this pattern change brought plentiful rain and even snow showers across the region. Reno-Tahoe International Airport (KRNO) received 0.68 inches of liquid on the 2nd, which broke the record for daily precipitation that was previously set in 1905 with a total of 0.36 inches. As temperatures quickly dropped overnight on the 2nd, bands of snow showers led to measurable snow accumulations in parts of the Reno-Sparks area into the morning of the 3rd. An enhanced snow band over the North Valleys overnight on the 2nd produced isolated snow totals of up to 1 foot. Sierra locations received between 2-6 inches, with a few locations receiving up to 1 foot from heavier snow shower bands. Rain continued to fall across the region on the 3rd. The additional snow and rain accumulation on the 3rd totaled 0.39 inches of liquid at KRNO, which again broke the record for daily precipitation that was previously set in 1971 with a total of 0.34 inches. By the 3rd, the 2023 water year-to-date became the 2nd wettest at KRNO with 12.52 inches of liquid since October 1st, 2022. Unsettled weather continued through the end of the first week of May, with additional showers and thunderstorms across the area and continued below average temperatures. Another round of light snow brought a few more inches of snow to Sierra communities during the weekend of the 6th-7th.

Temperatures then began their upward climb through the second week of May as high pressure set up over the region. This warm-up continued into the 3rd week of May and peaked on the 19th and 20th, with KRNO reaching 90 degrees on both days. These were Reno's first 90-degree days of this year, with the high on the 20th setting a new record for that date.

Scattered showers and isolated thunderstorms occurred across the region on the 14th and 19th, then became more numerous on the weekend of the 20th-21st, with stronger storms producing heavy downpours, small hail, and gusty outflow winds. Rock and mudslides from storms on the 21st closed sections of US-395 south of

Bridgeport, CA-88 west of Woodfords, the Geiger Grade (NV-341), and NV-338 south of Yerington (Figure 3). After a few days of more isolated storm activity, more widespread coverage returned between the 24th-26th and again on the 30th-31st. These storms prompted multiple short-fuse Flash Flood Warnings, especially on the Tamarack, Dixie, and Beckwourth burn scars due to training storms with heavy rainfall rates (see Hydrology section below).

Hydrology:

As is expected with the warming spring temperatures, snowmelt continued to accelerate throughout the region; albeit at a slower rate during the first week of the month. During May, reporting SNOTEL stations in the eastern Sierra recorded up to 40" of total snow water equivalent (SWE) loss with many shallower sites (mostly outside of the Sierra) melting out during the month (Figure 4). However, many SNOTEL sites in higher accumulation areas still have considerable remaining SWE and will melt out much later than normal (Figure 5). Caution needs to be used this time of year when looking at SWE in terms of average to date as many sites have zero or near zero average SWE for this time of year making percentages of limited usefulness. Even with all the melt during May, the total current SWE within the Eastern Sierra watersheds (Tahoe, Truckee, Carson, and Walker) is still near the median seasonal peak (Figure 6). The Sierra Snowpack still retains a strong longitudinal gradient with the largest remaining snowpacks to the south. While all Sierra snowpacks are still well above normal for the end of May, the Walker is currently around 150% of the median seasonal peak and tied with 1995 for the largest snowpack for this date. Several Sierra mountain passes such as Tioga and Sonora remain closed as of May 31st, and current snow depth ranges from fully melted to as high as over 170 inches (Figure 7). The bottom line is that we still have a lot of snow to melt, especially into the Walker basin and other Mono County streams.

Snowmelt has led to flooding along the West Fork of the Carson and Walker Rivers, with the most prolonged flooding along the East Walker River and mainstem of the Walker. The West fork of the Carson experienced diurnal minor flooding for most of the second half of May. The East Walker below Bridgeport reservoir has been flooding most of the month (and off and on since mid-March), due to a combination of snowmelt and reservoir releases. Flooding along the mainstem of the Walker was initiated around May 19th and has continued through the remainder of the month and is expected to be prolonged. All major reservoirs recorded considerable gains in May despite active management for flood mitigation in the Carson and Walker systems, where high releases have helped maintain available reservoir space to mitigate flood impacts (Figure 8). Not surprisingly May streamflow along with water year observed flows are well above normal at most sites throughout the area (Figure 9). One exception is still below average water year flows to date along the Lower Humboldt at Imlay, where current high flows are slowly making up a prolonged deficit from zero flow through the winter and early spring.

With the spring thunderstorms also introduced other hydrologic hazards: flash flooding and aerial flooding. Due to an influx of anomalously high atmospheric moisture and light winds aloft, we had several days of thunderstorms across the entire NWS Reno service area with locally heavy rain during the last 7 to 10 days of May. This impacted several burn scars, prompting 6 flash flood warnings and 10 flood advisories (Figure 10). In some instances, already saturated soils led to rapid rises along local creeks and streams as well as rock and mudslides (Figure 11). As is the case with thunderstorms, rainfall totals varied from 0.10"-0.25" in southern Mono County, to locally heavier amounts of 0.5" to 2.5" in western NV, and between 1" to 3" in northeast CA and the eastern Sierra (Figure 12).

Snowmelt Flooding Impacts:

- Walker River: Several homes were impacted in Mason Valley. Miller Lane closed from US 95A to Aiazzi Lane. East Walker Road is closed. Considerable impacts to agricultural areas and Walker River Recreation area. Mason Bridge was closed on June 2nd (Figure 13).
 - May 24: One-way traffic control on US 395 at Chris Flat Campground in Walker Canyon due to flooding along Grouse Creek. [Source](#)
 - May 23: SR-88 between SR-89 and Crystal Springs Campground one-way traffic control due to snowmelt undermining roadway. [Source + photo](#)
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Drought/Climate Update:

For the first time since February 4th, 2020, there is no drought (D1-D4) in the Reno HSA. Additionally, only 52% of the area remains under abnormally dry (D0) conditions (Figure 14). The two areas of drought improvement in May were in northern Lassen County and Pershing County. Both of these areas received between 1.5" to 3" of rain during the month, finally allowing for the removal of moderate drought. Water year precipitation to date remains well above average, with May precipitation making up some of the minor deficits in the inner basins such as Lovelock (Figure 15). Overall, all drought indicators such as soil moisture, river, and reservoir levels, SPI and SPEI, as well as current live and dead moisture all point to no drought.

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](#)

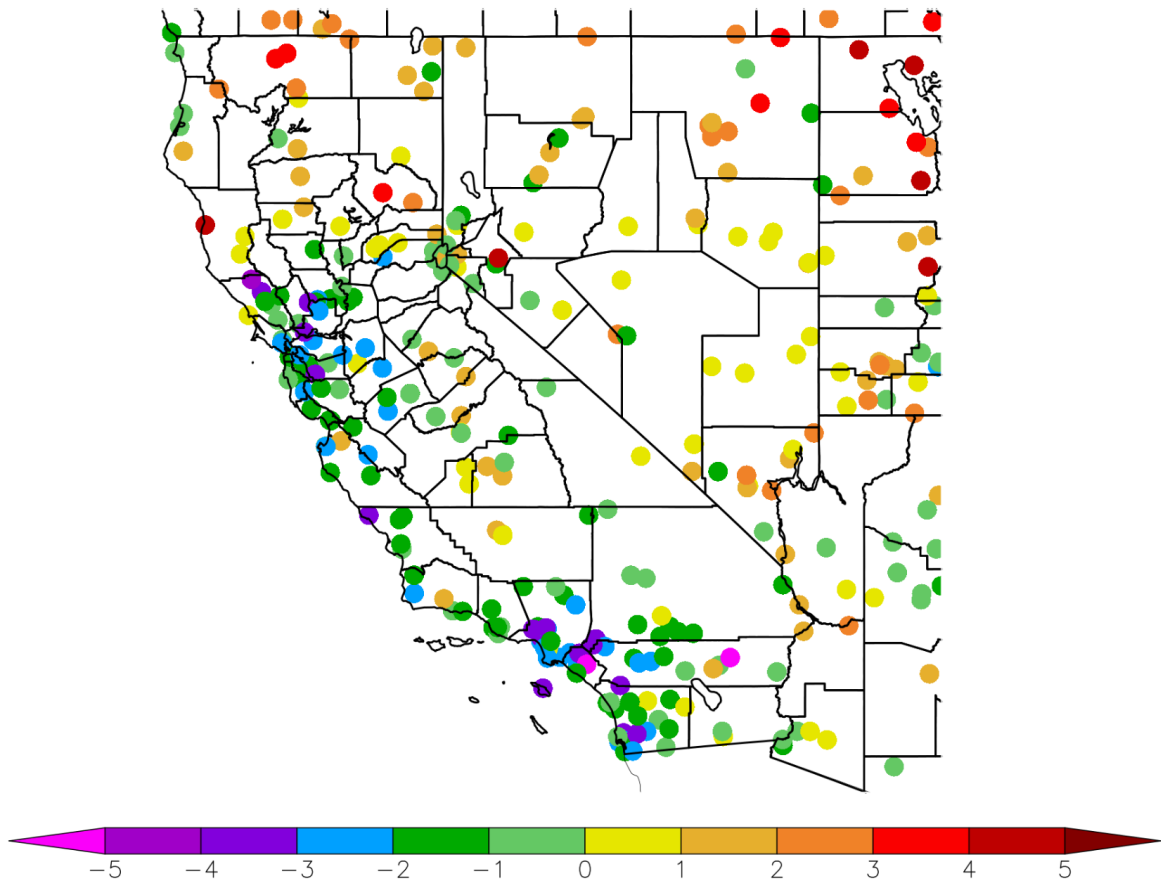
Contact NWS Reno Climate Team

rev.climate@noaa.gov 775-673-8100

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

Figures.

Departure from Normal Temperature (F) 5/1/2023 – 5/31/2023

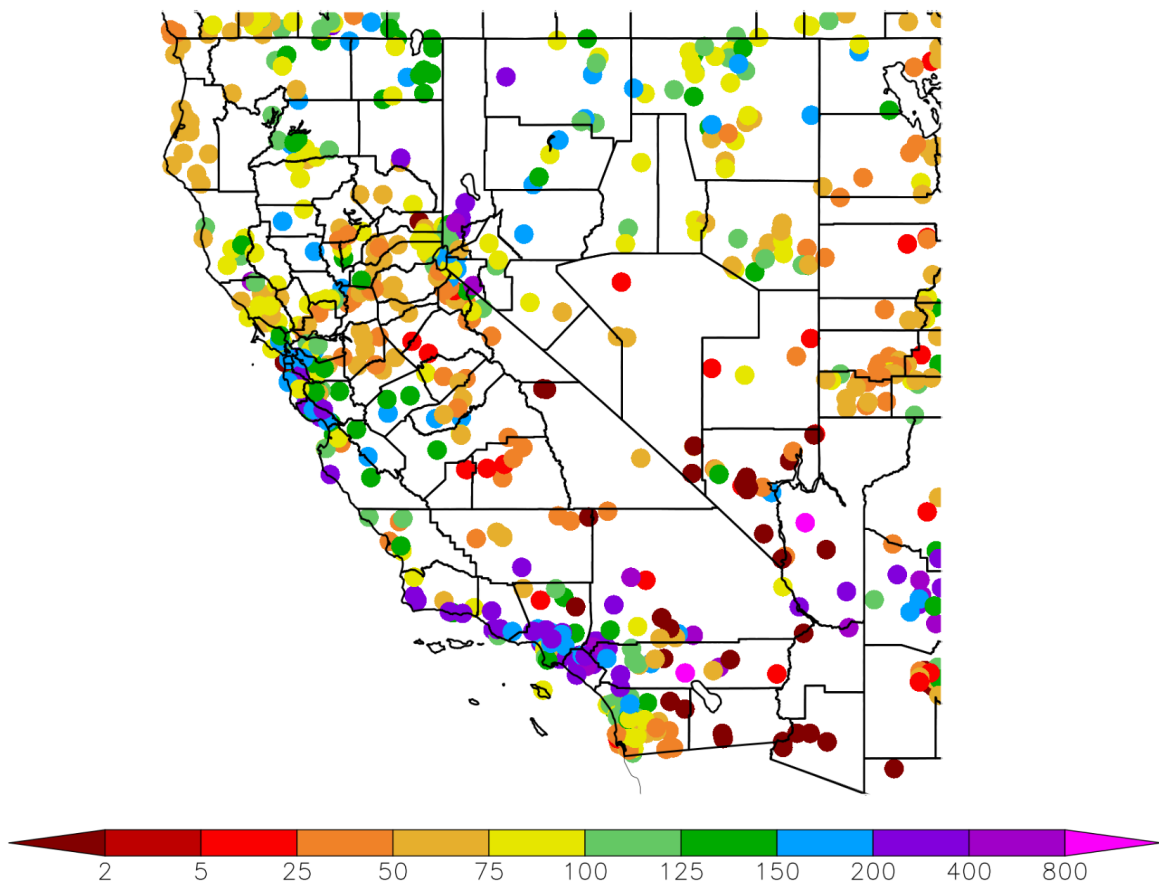


Generated 6/4/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

Figure 1. Departure from normal temperatures for May 2023. Data courtesy of the High Plain Regional Climate Center ([HPRCC](#)).

Percent of Normal Precipitation (%) 5/1/2023 – 5/31/2023



Generated 6/4/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

Figure 2. Percent of average precipitation for May 2023. Data courtesy of the High Plain Regional Climate Center ([HPRCC](#)).



Figure 3. Eroded shoulders along NV-338. Photo credit: [NDOT](#)

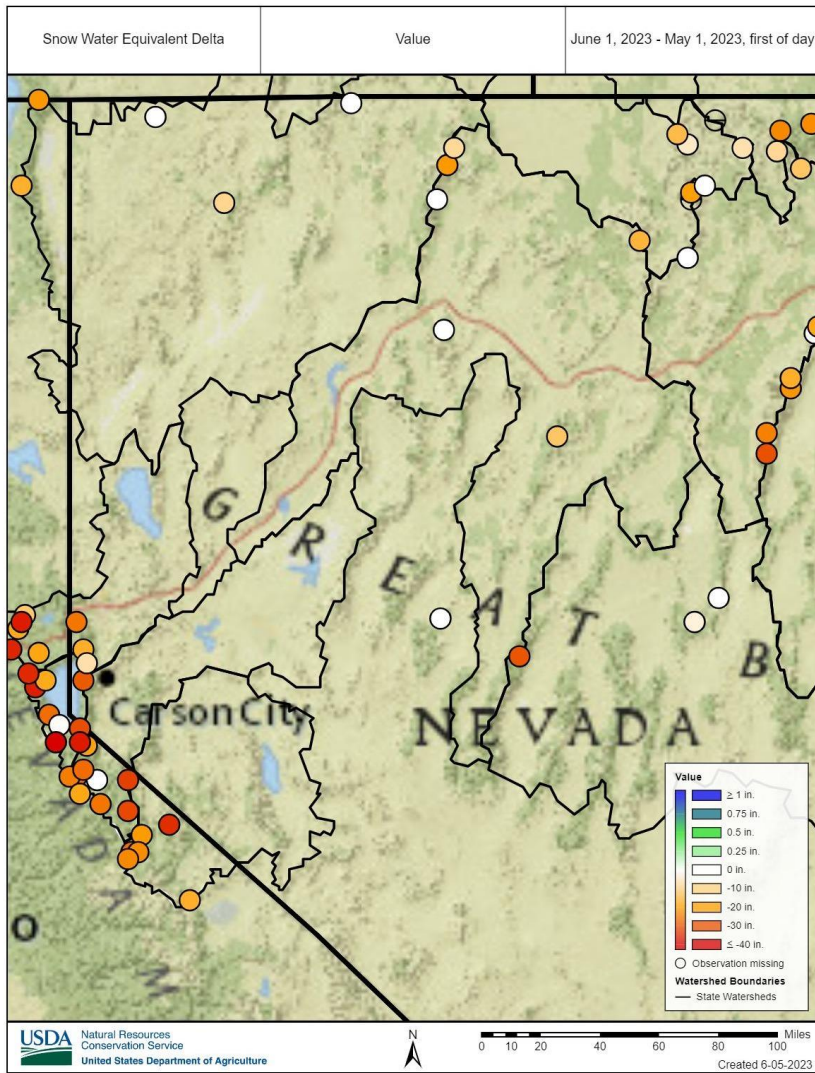


Figure 4. Total change in Snow Water Equivalent during May 2023. Map courtesy of the [NRCS](#).

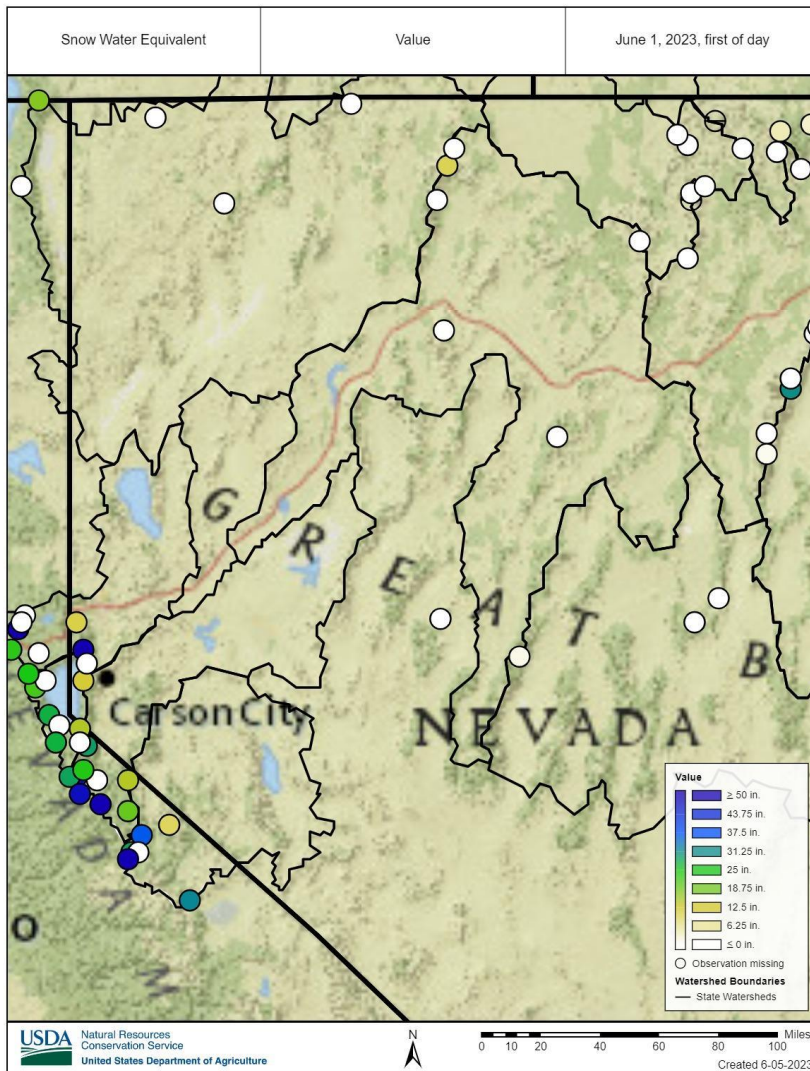


Figure 5. Inches of Snow Water Equivalent as of June 1st. Data courtesy of the [NRCS](#).

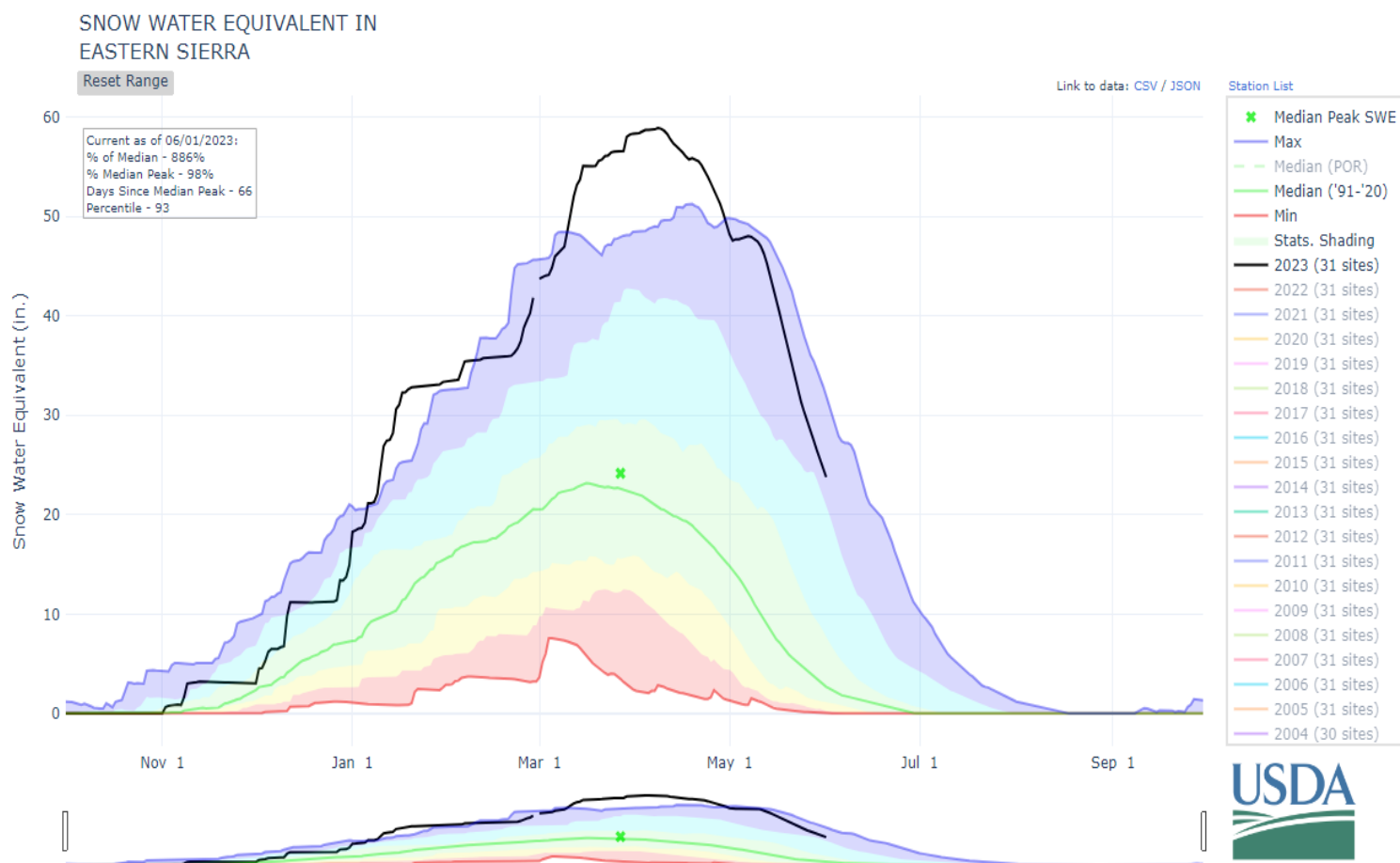


Figure 6. Snow water equivalent for Eastern Sierra watersheds (Tahoe, Truckee, Carson and Walker). Black line represents the water year 2022-2023. As of June 1st, this area was 876% of median and 97% of the median peak. Data courtesy of the [NRCS](#).

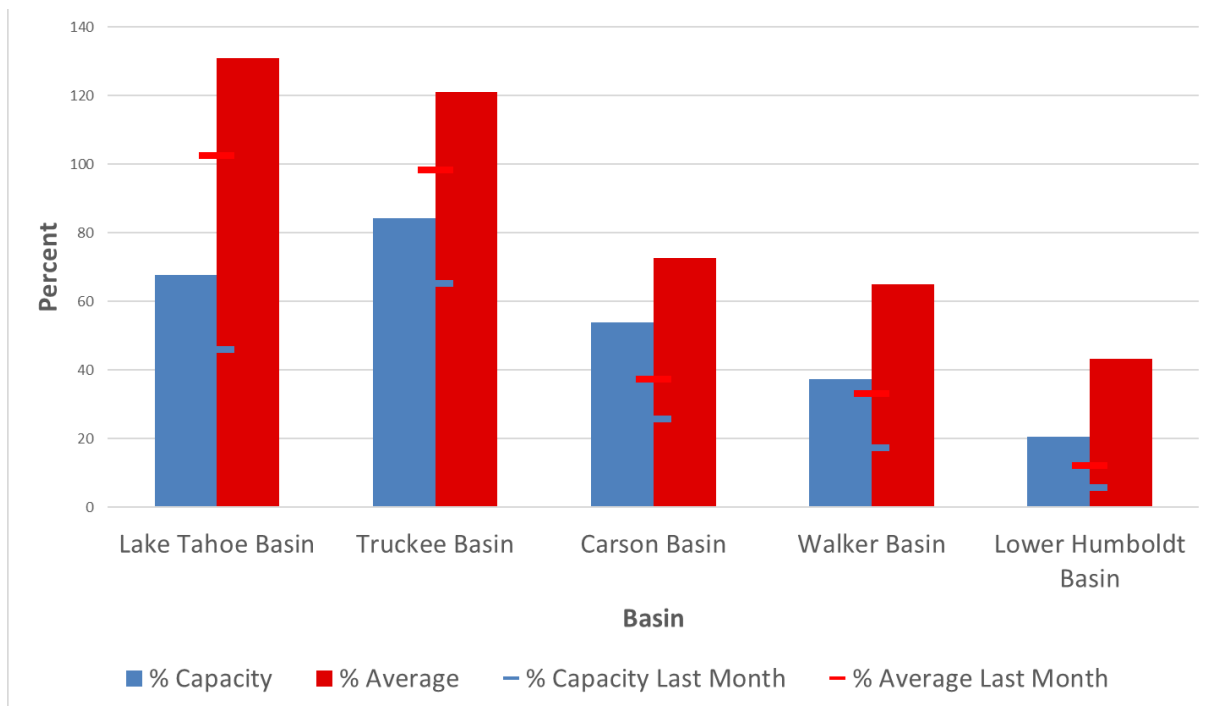


Figure 8. End of May reservoir storage relative to % of capacity and average.

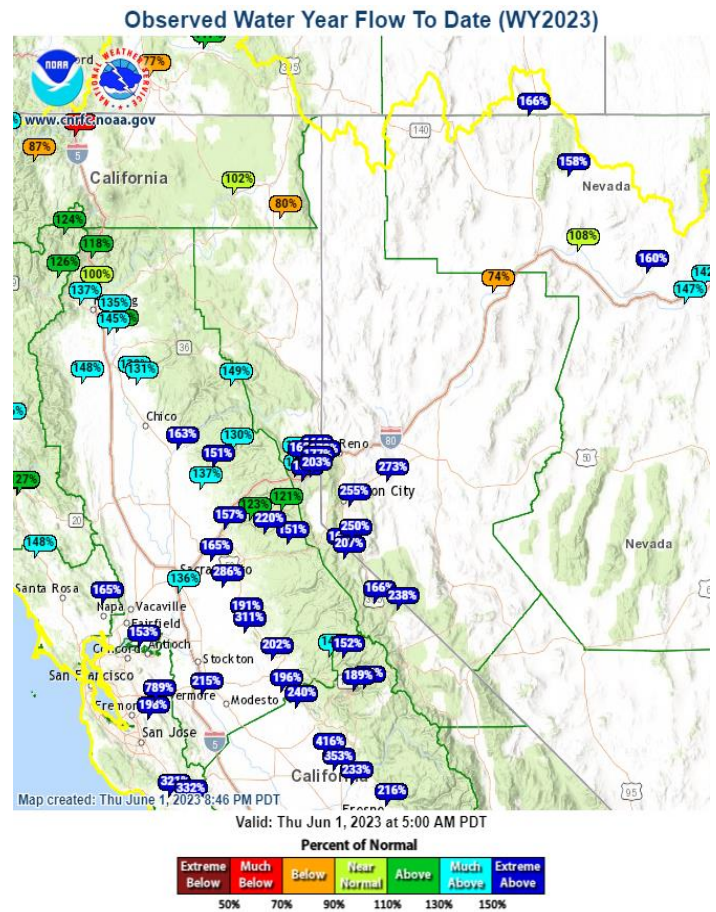
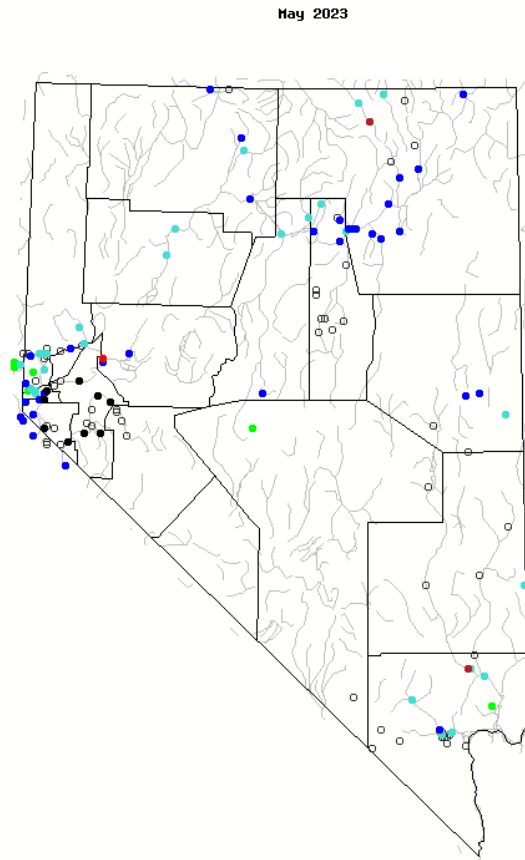
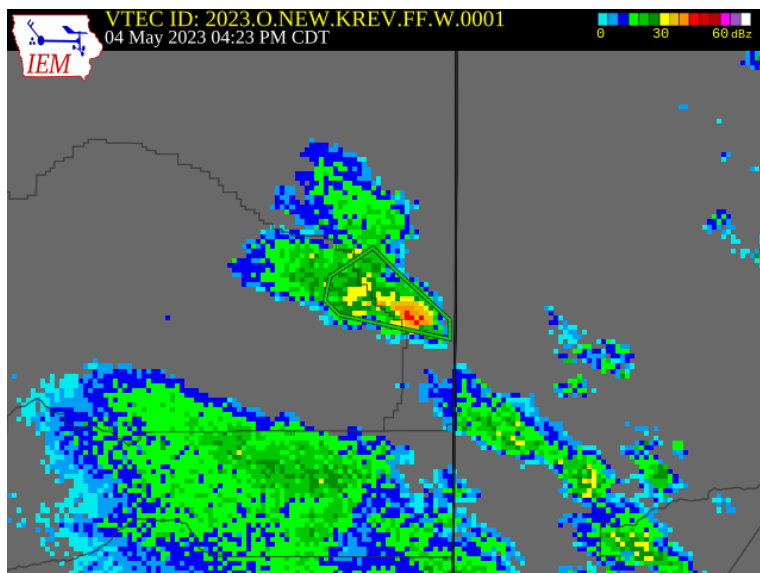
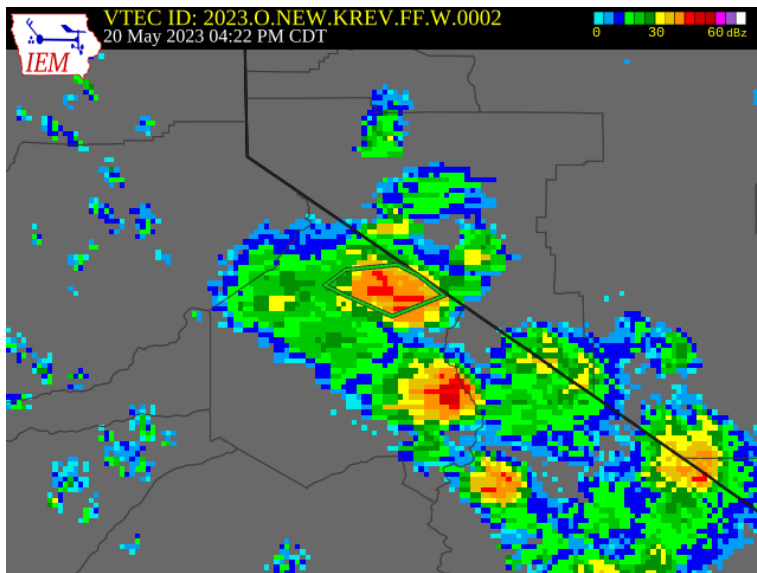


Figure 9: May monthly [USGS streamflow](#) on the left, and [CNRFC water year observed flow to date](#) on right.

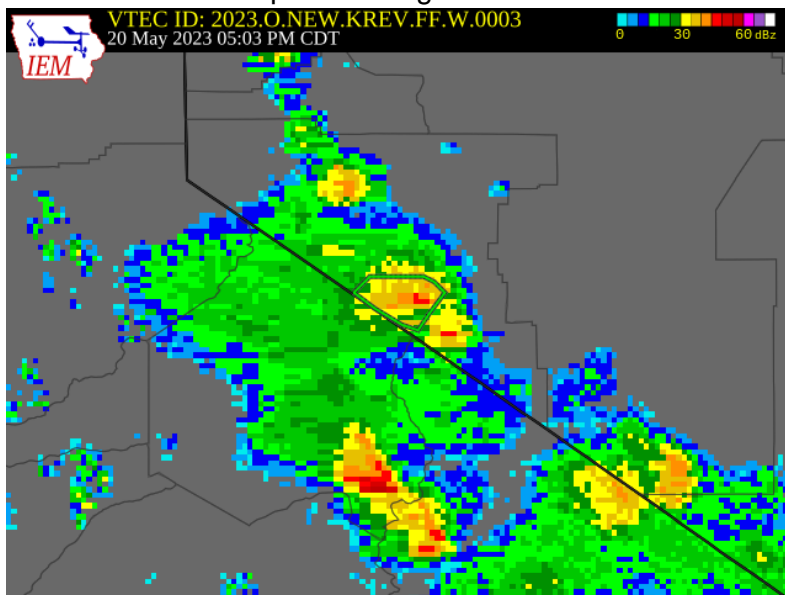
Short-Fuse Flash Flood Warnings in May



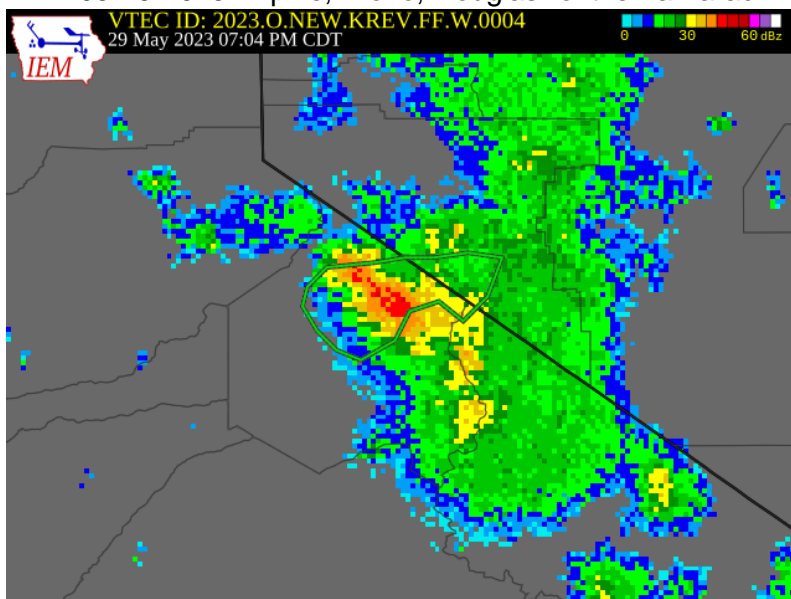
FFW 05-04-2023: Lassen, Plumas for Beckwourth Burn Scar



FFW 05-20-2023: Alpine & Douglas for the Tamarack Burn Scar



FFW 05-29-2023: Alpine, Mono, Douglas for the Tamarack Burn Scar



FFW 05-31-2023: Alpine, Mono, Douglas for the Tamarack Burn Scar

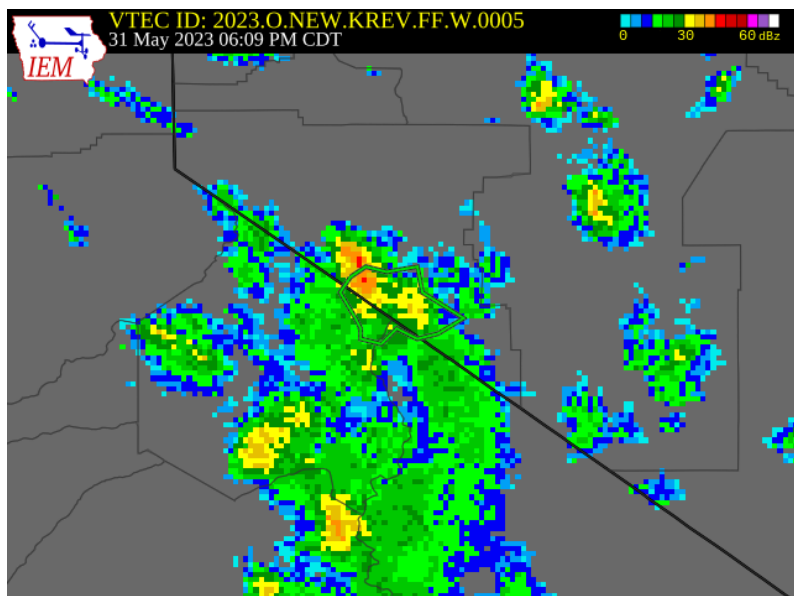


Figure 10. Flash flood warnings issued during May due to locally heavy rainfall on burn scars.



Figure 11. Elevated streamflow along Virginia Creek near US-395 and Point Ranch Road south of Bridgeport due to thunderstorms in the area. *Photo credit: WRID*

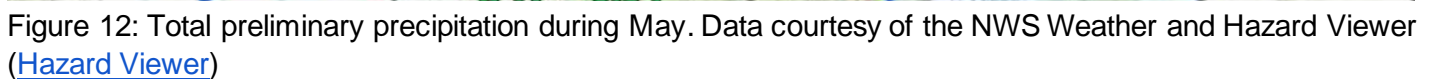
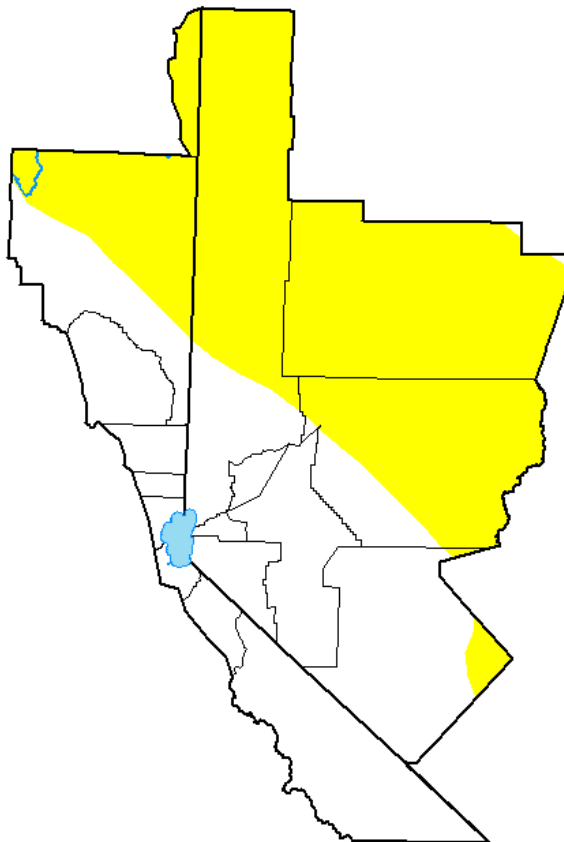




Figure 13. Flooding along the Walker River from the Mason Bridge. *Photo credit: NV Energy*

U.S. Drought Monitor Reno, NV WFO

May 30, 2023
(Released Thursday, Jun. 1, 2023)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	48.27	51.73	0.00	0.00	0.00	0.00
Last Week 05-23-2023	48.20	51.80	0.00	0.00	0.00	0.00
3 Months Ago 02-28-2023	3.61	96.39	69.01	40.75	0.00	0.00
Start of Calendar Year 01-03-2023	0.00	100.00	100.00	60.41	16.14	0.00
Start of Water Year 09-27-2022	0.00	100.00	100.00	100.00	19.04	0.00
One Year Ago 05-31-2022	0.00	100.00	100.00	100.00	16.37	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>

Author:

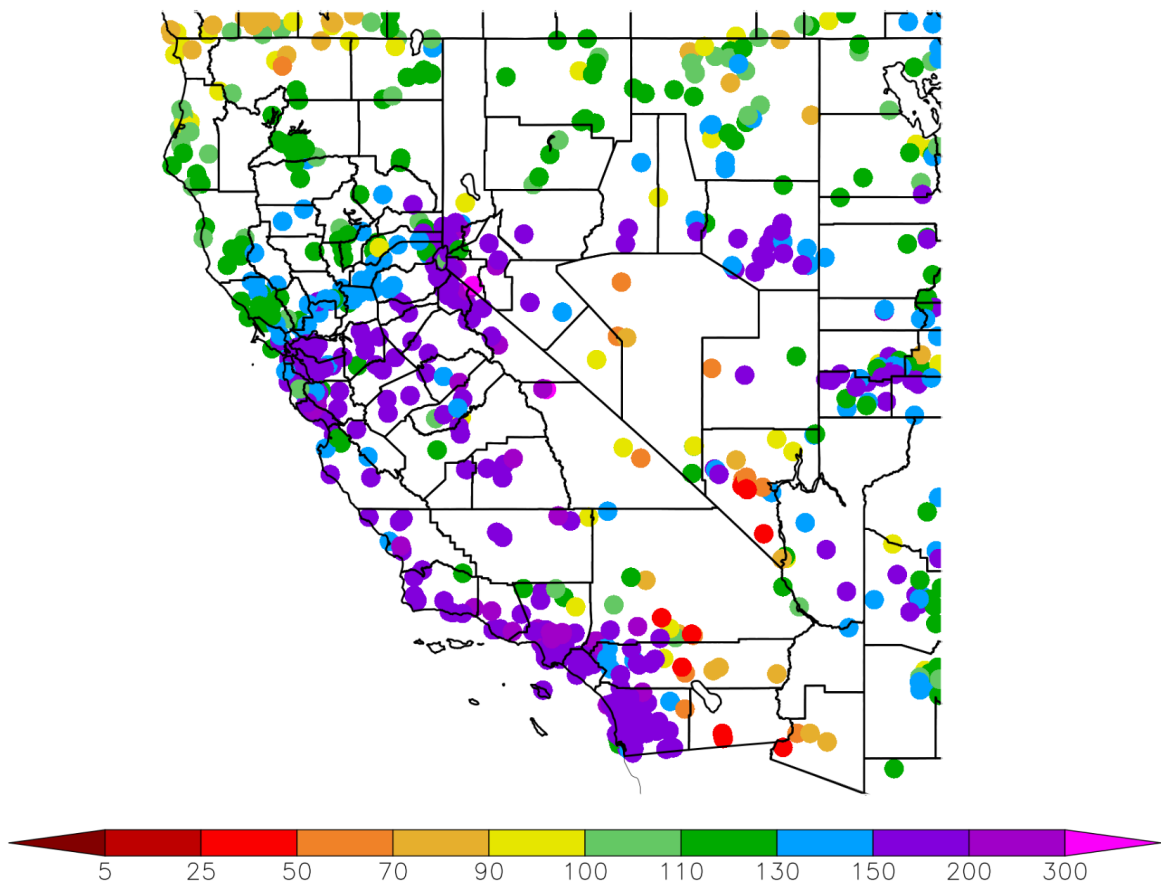
Richard Heim
NCEI/NOAA



droughtmonitor.unl.edu

Figure 14. End of May Drought Monitor Status for NWS Reno Service area. Map courtesy of [Drought Monitor](https://droughtmonitor.unl.edu).

Percent of Normal Precipitation (%)
10/1/2022 – 6/3/2023



Generated 6/4/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

Figure 15. Percent of normal precipitation for water year to date. A majority of our region is between 100% to over 300% at the end of May. Data courtesy of the High Plain Regional Climate Center ([HPRCC](#)).