

Item available for public inspection in the Clerk's office during regular business hours (Monday - Friday, 9 AM - 5 PM)

January 17, 2023

Regular Meeting

**Item #7A - Winter Seasonal
Outlook Presentation**

(Regular Agenda)

Clerk of the Board

**Power Point Presentation by Chris
Smallcomb, National Weather
Service (NWS) Reno**



**You know
winter is really
here when the
neighborhood
t-rex is covered
in snow.**

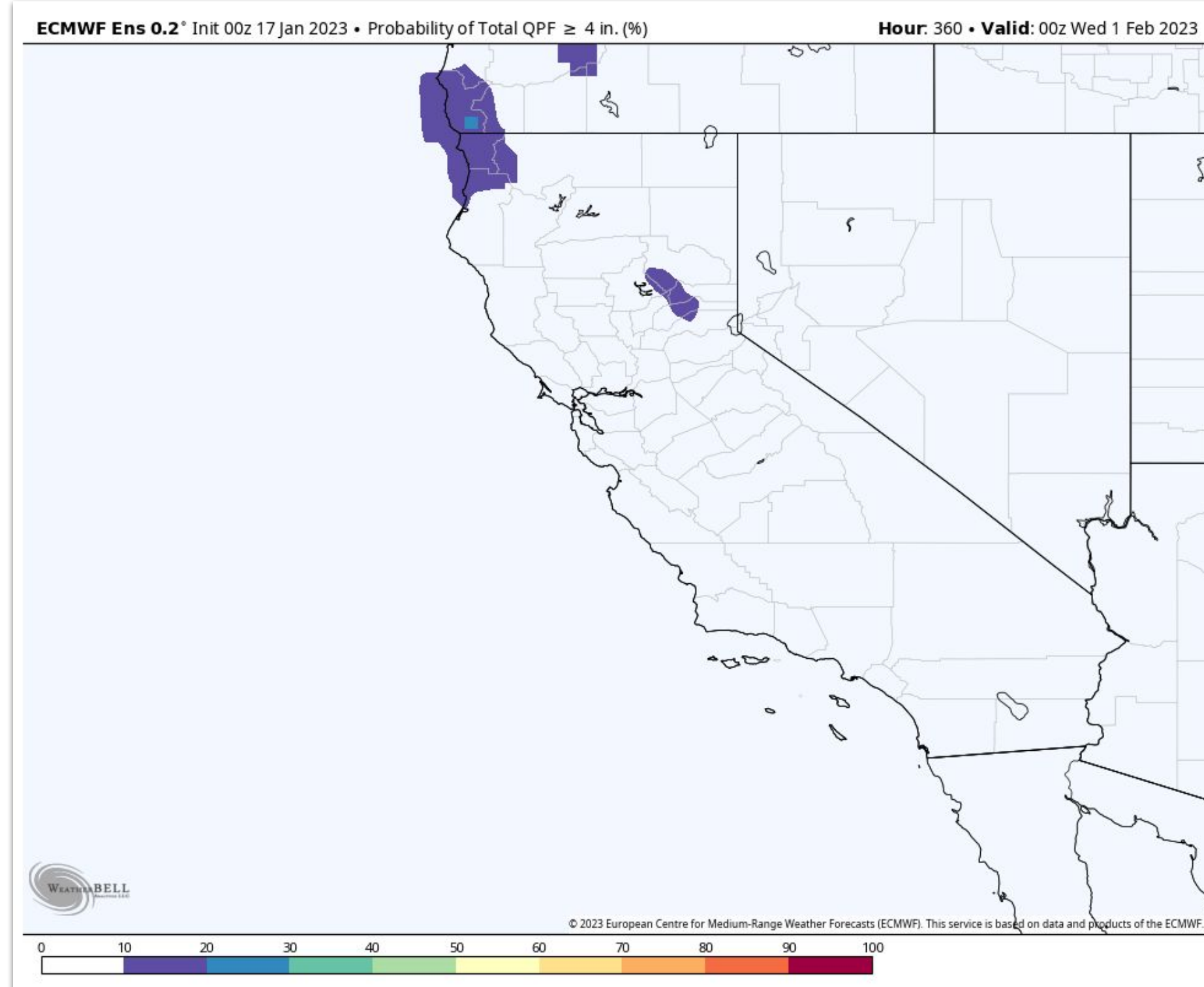
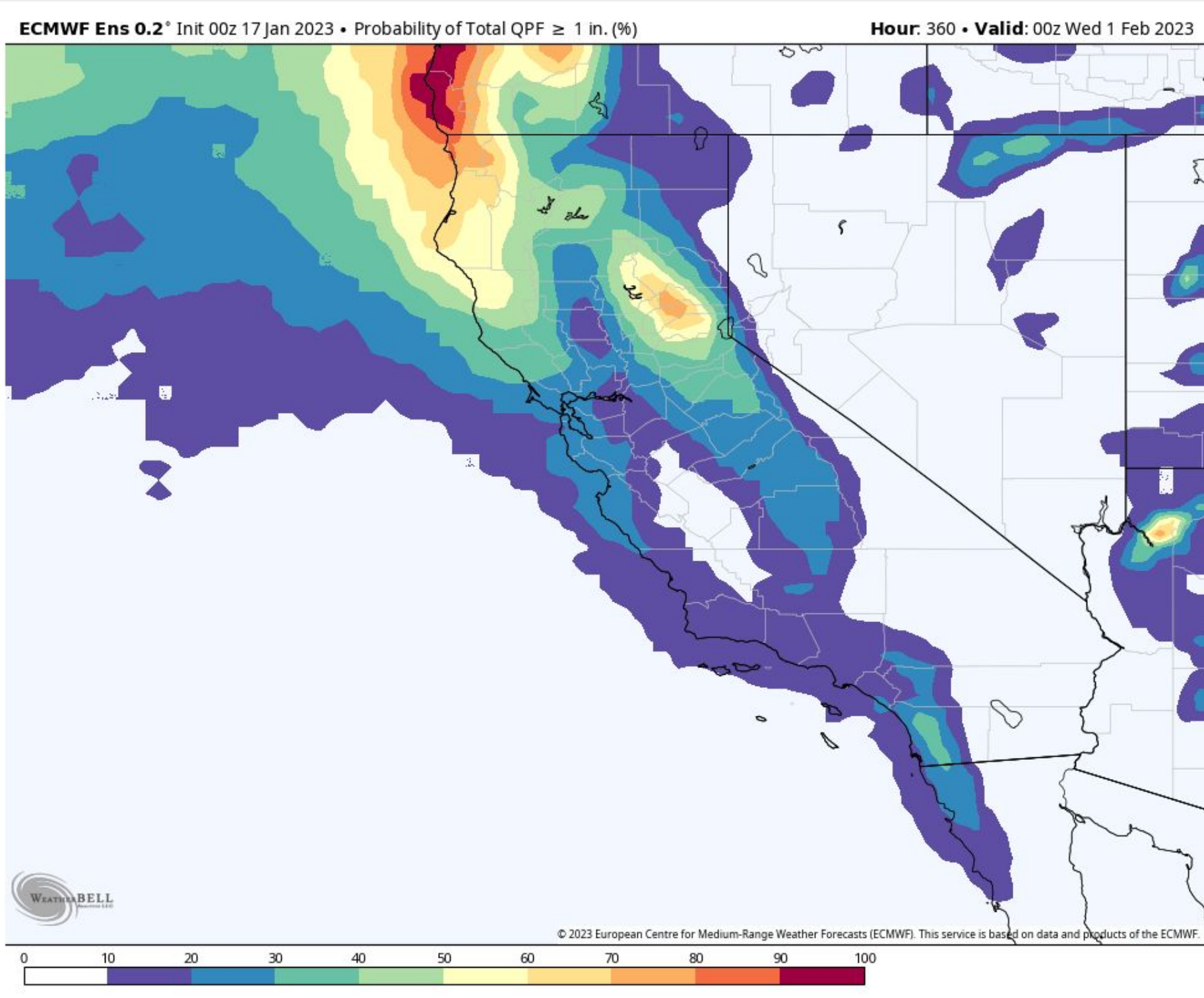


Weather Outlook



Precipitation Outlook for Next Two Weeks

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Reno, NV
Tuesday, January 17



Probability of 1" water equivalent through January 31st.

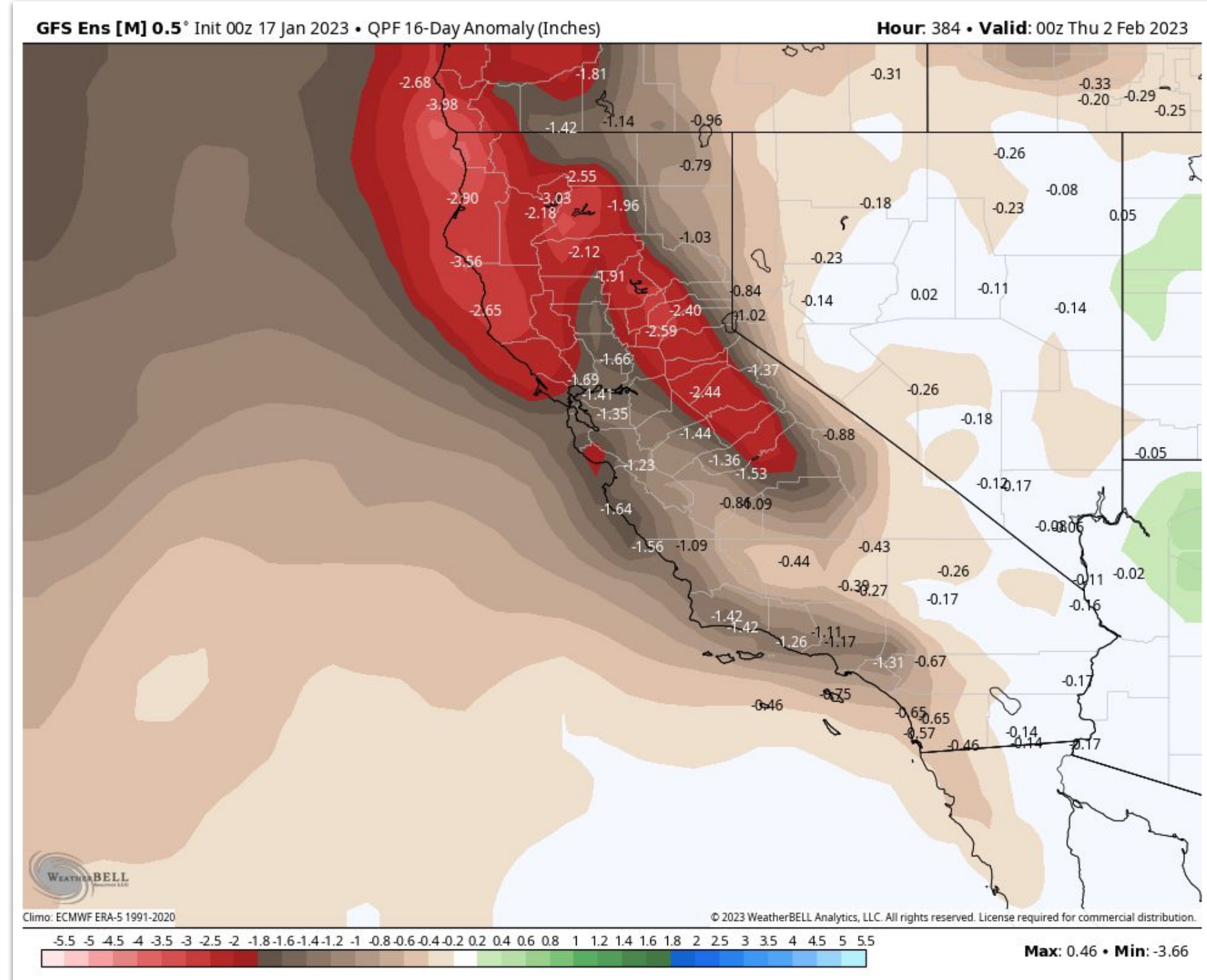
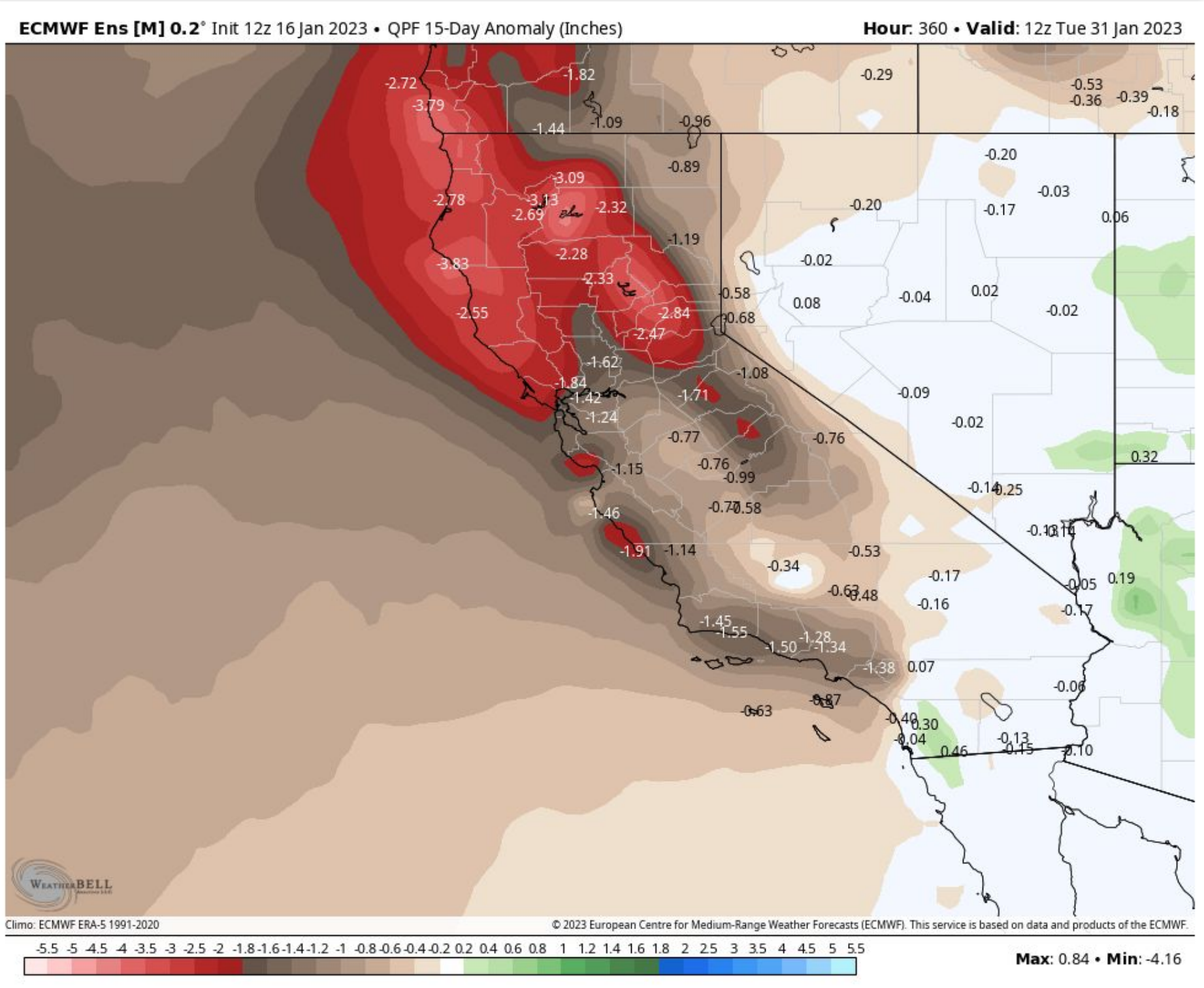
Probability of 4" water equivalent through January 31st.

Probabilistic outlooks from ECMWF Ensemble - cold, inslide slider storms likely at times, but the odds of large & wet Pacific storms are low.



Precipitation Outlook for Next Two Weeks

Weather Forecast Office
Reno, NV
Tuesday, January 17



Precipitation anomaly from ECMWF through January 31st

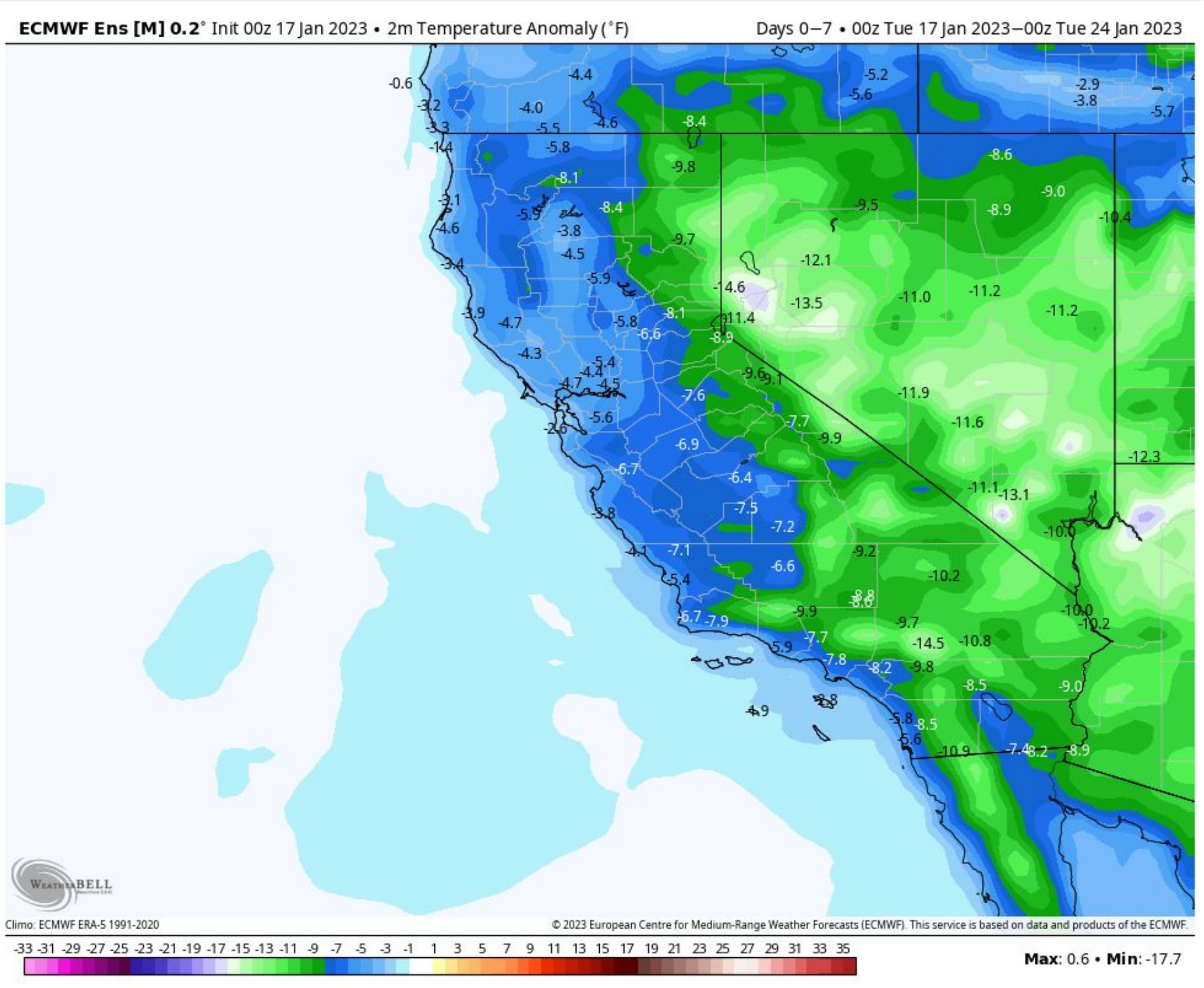
Precipitation anomaly from GFS through February 1st

Strong signal for below normal precipitation - low chances for big storms.

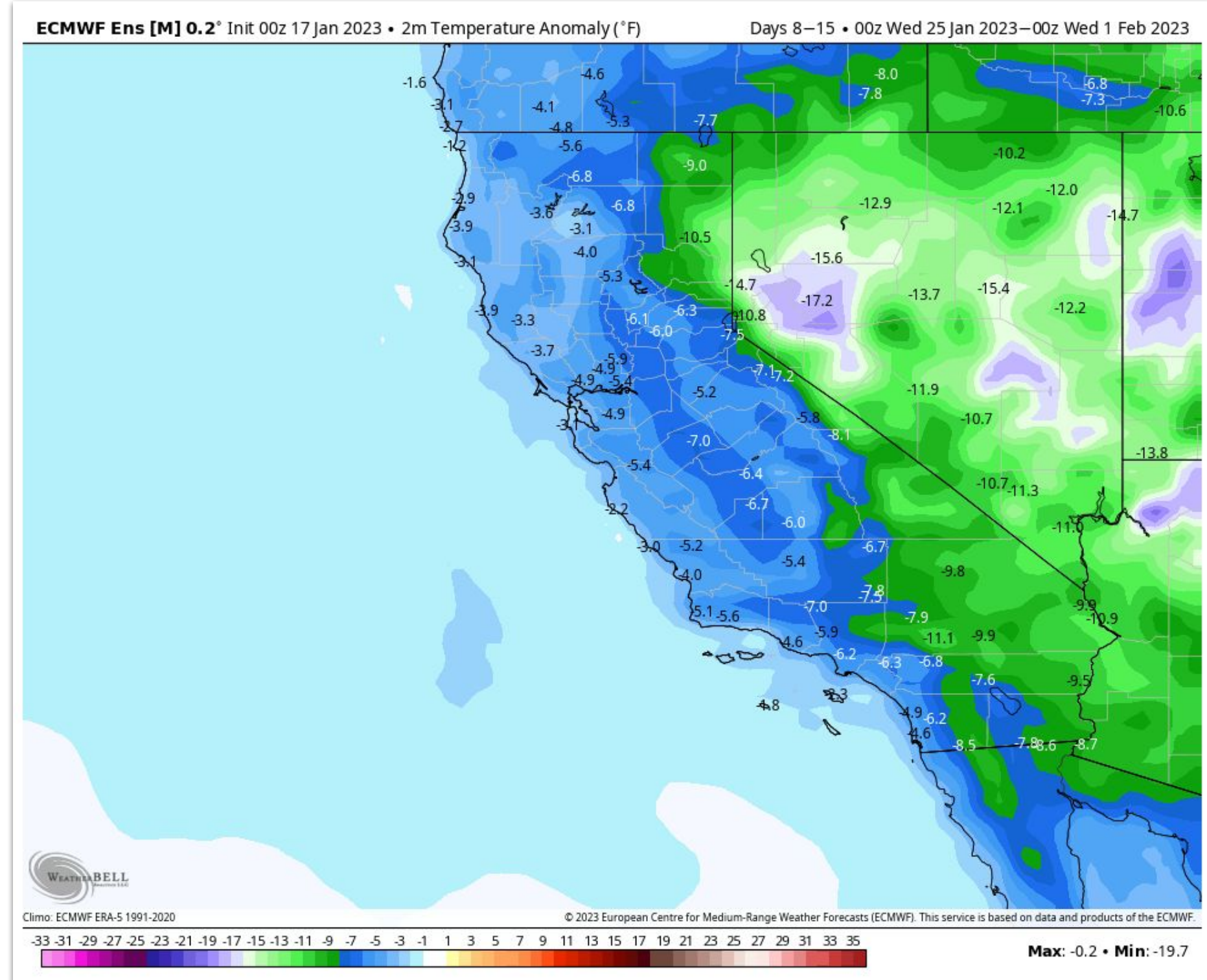


Temperature Outlook for Next Two Weeks

Weather Forecast Office
Reno, NV
Tuesday, January 17



Average temperature anomaly January 17-23



Average temperature anomaly January 24-31

ECMWF Ensemble - we're entering a decidedly cold pattern with fresh snow cover = frigid temps at times.



Atmospheric Rivers - Winter's Moisture Tap

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Reno, NV
Tuesday, January 17

A strong AR transports an amount of water vapor roughly equivalent to 7.5–15 times the average flow of water at the mouth of the Mississippi River.

ARs are a primary feature in the entire global water cycle and are tied closely to both water supply and flood risks, particularly in the Western U.S.

On average, about 30-50% of annual precipitation on the West Coast occurs in just a few AR events and contributes to the water supply — and flooding risk.

ARs move with the weather and are present somewhere on Earth at any given time.

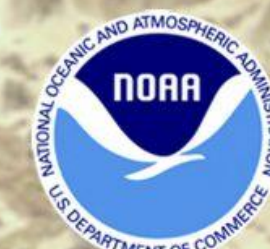
ARs are approximately 250–375 miles wide on average.

Scientists' improved understanding of ARs has come from roughly a decade of scientific studies that use observations from satellites, radar and aircraft as well as the latest numerical weather models. More studies are underway, including a 2015 scientific mission that added data from instruments aboard a NOAA ship.

WATER
VAPOR
COOLS

CALIFORNIA

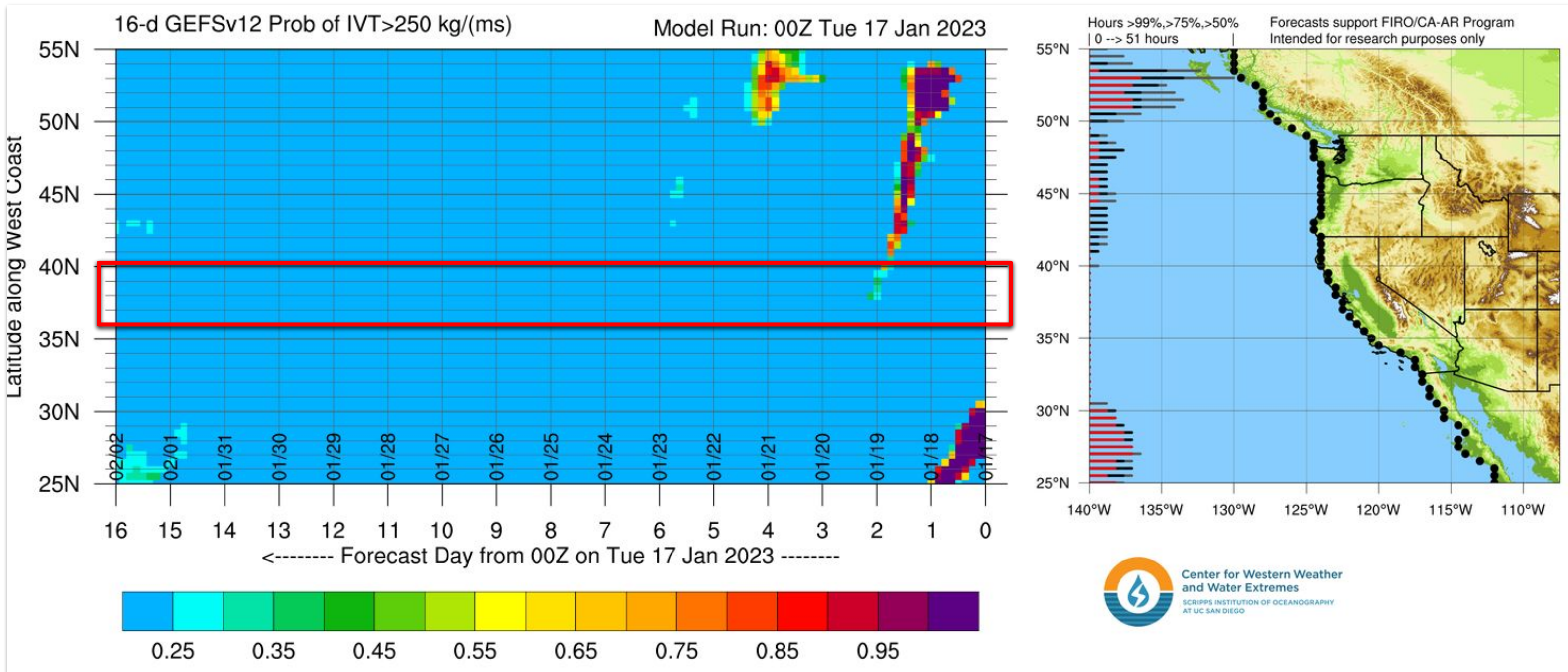
Image not to scale.





Storm Door Closes, At Least for the Big Stuff

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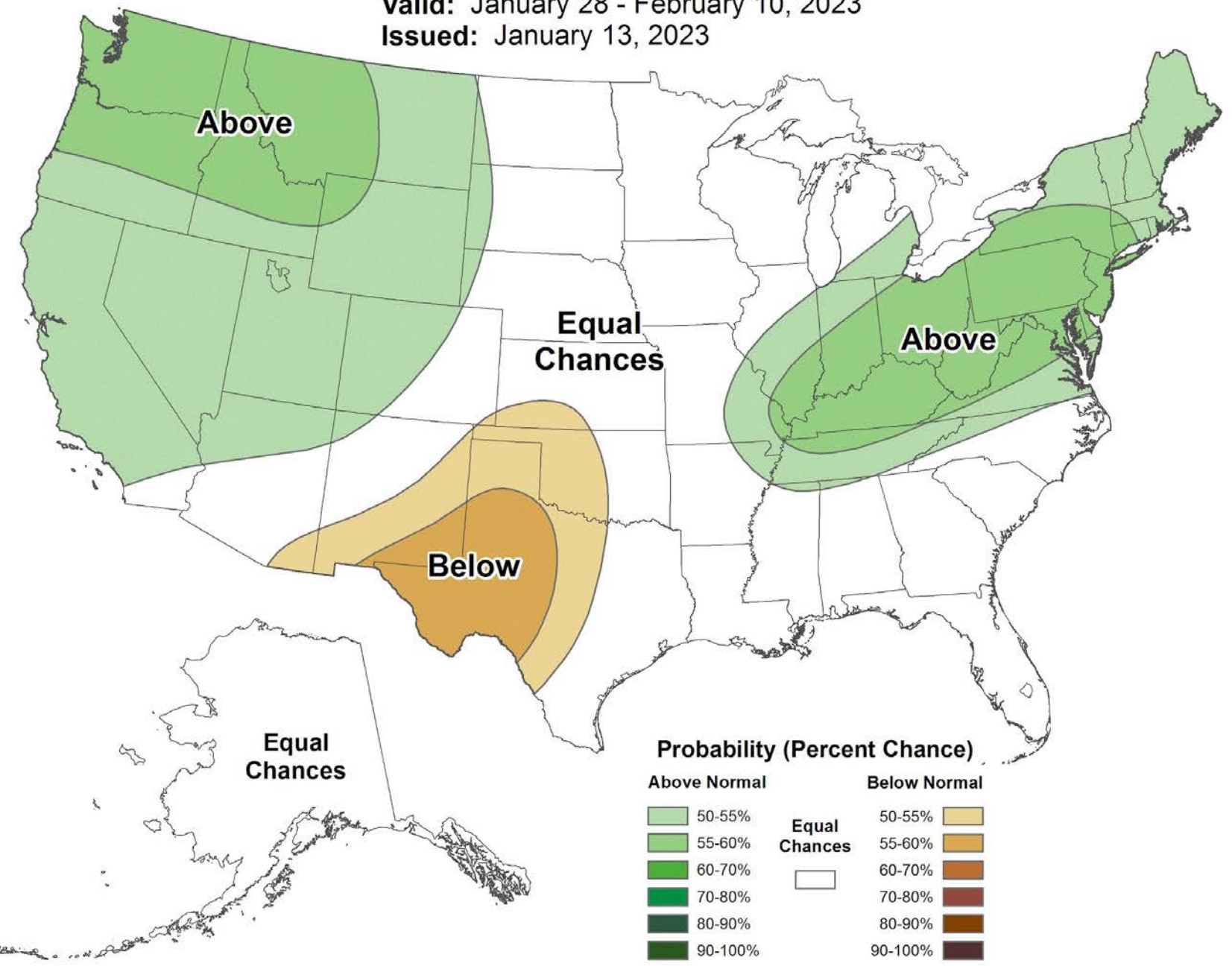


Atmospheric River Landfall Probability Chart

More confirmation - no substantive signals for large & wet Pacific storms for the next two weeks.

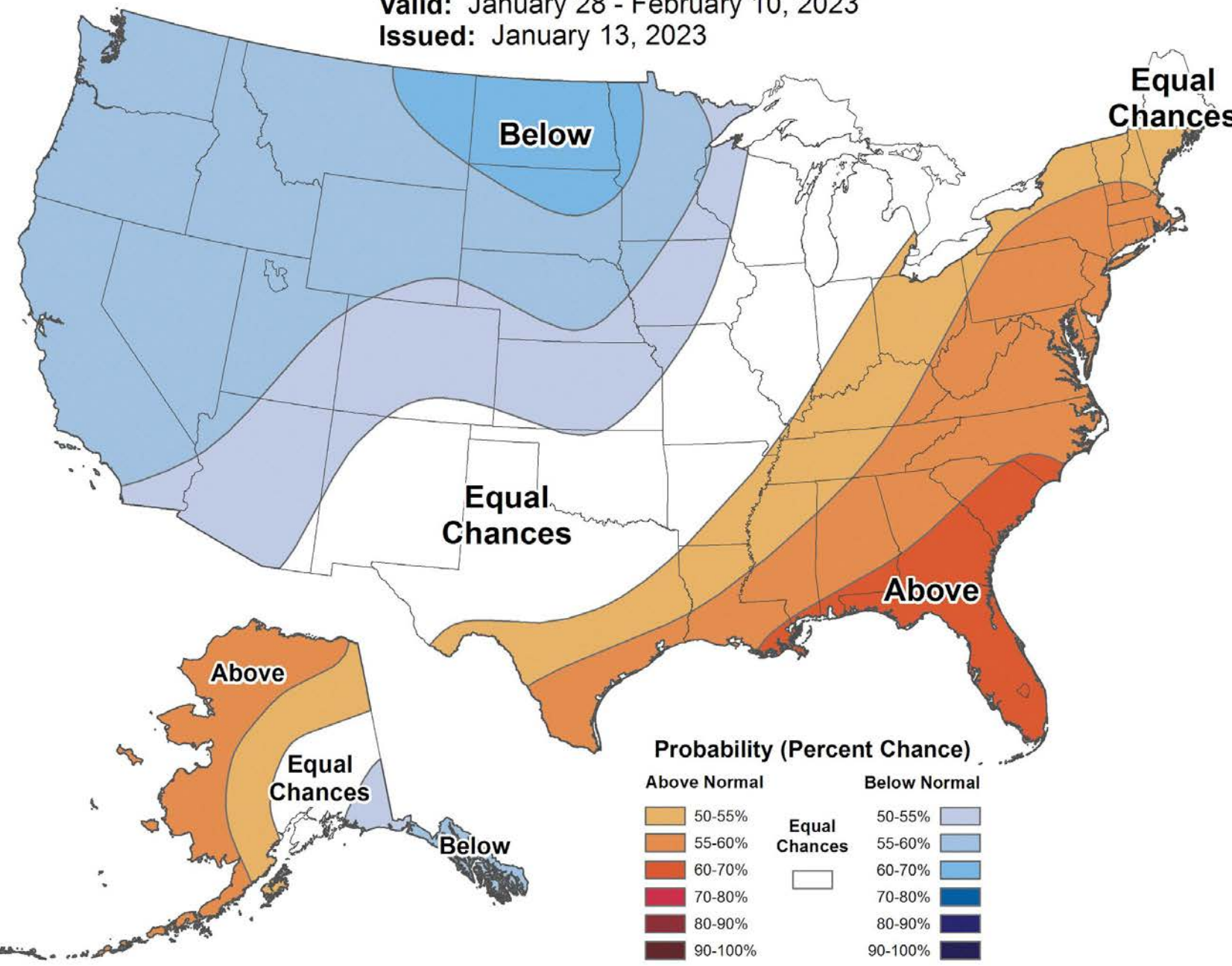
Weeks 3-4 Precipitation Outlook

Valid: January 28 - February 10, 2023
Issued: January 13, 2023

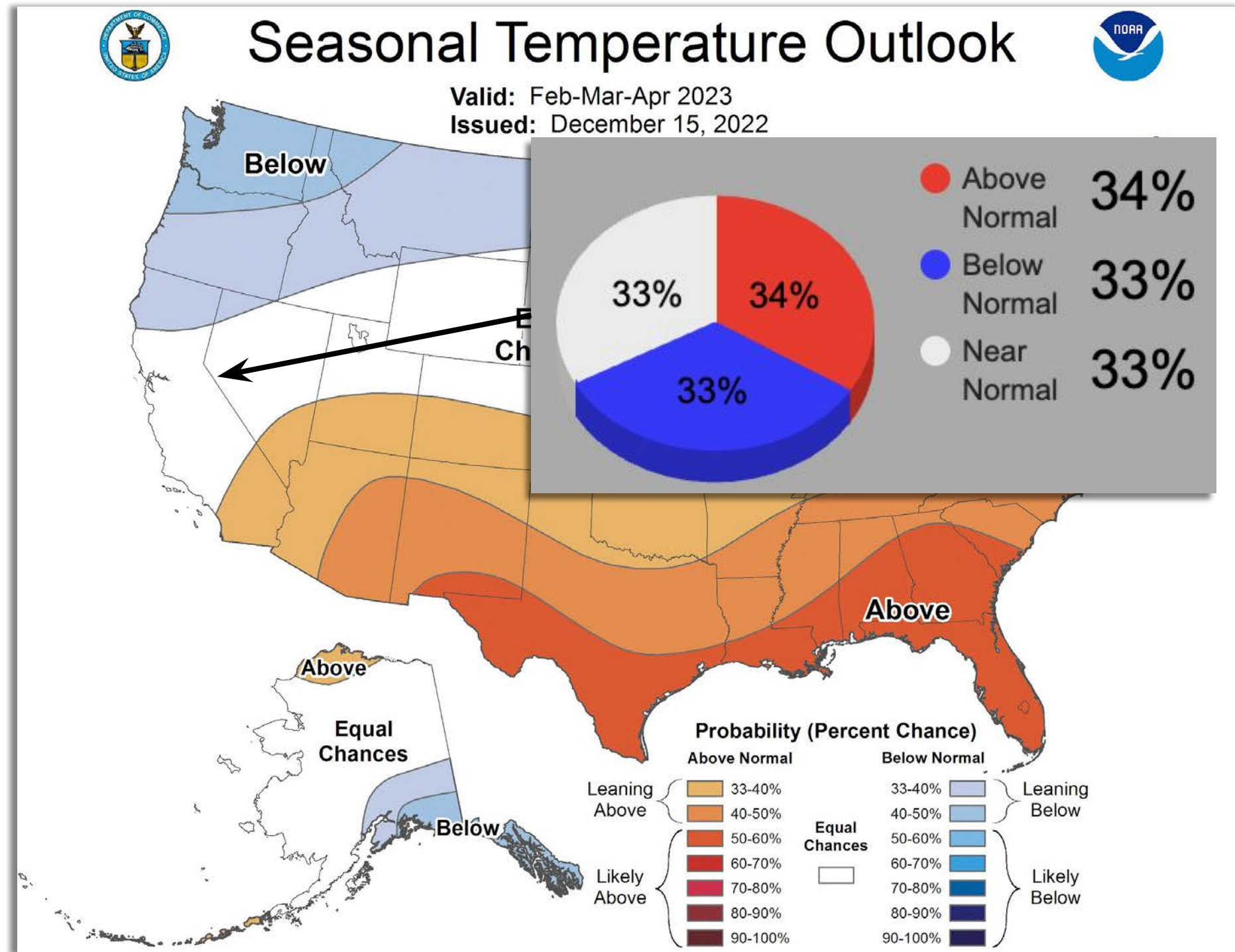
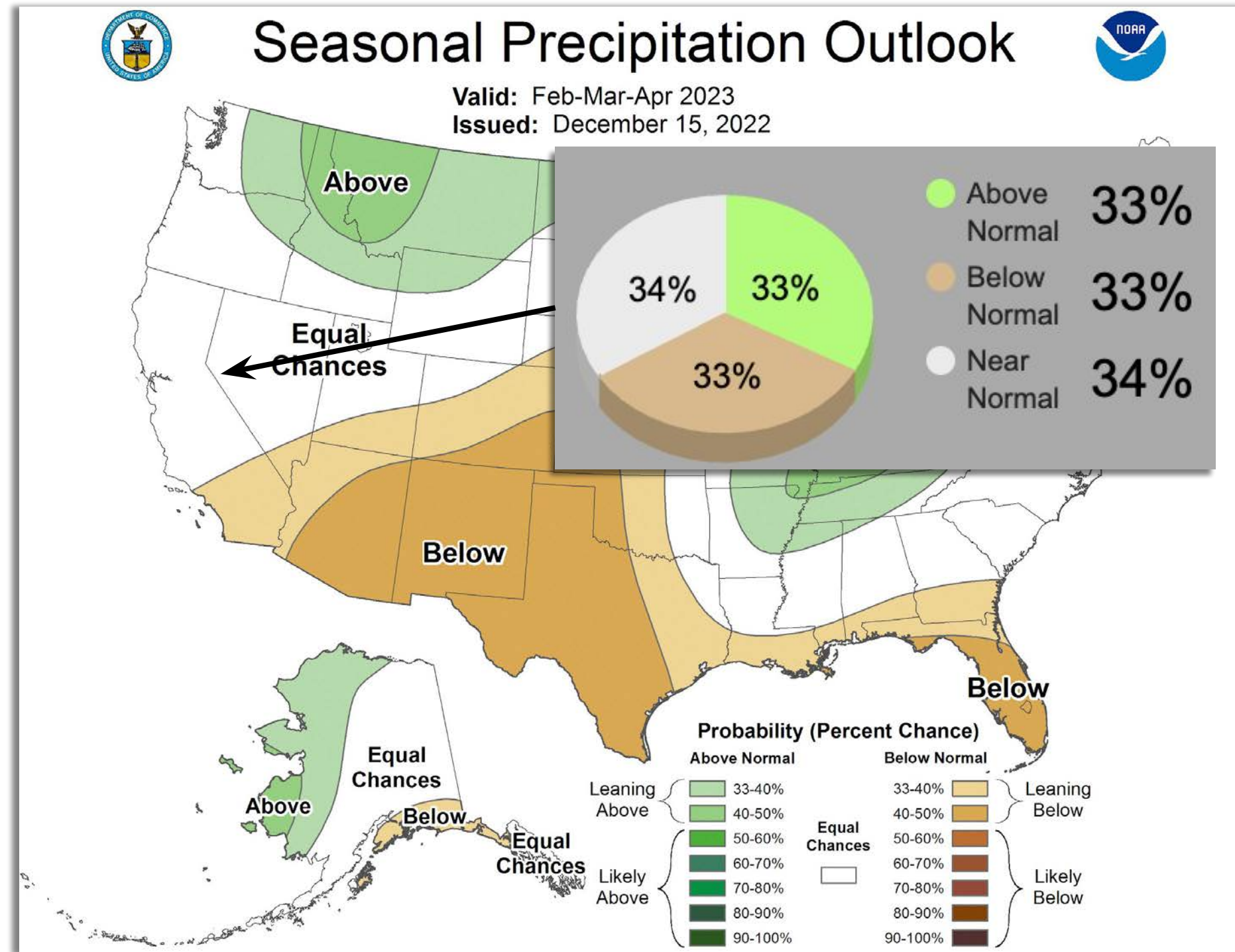


Weeks 3-4 Temperature Outlook

Valid: January 28 - February 10, 2023
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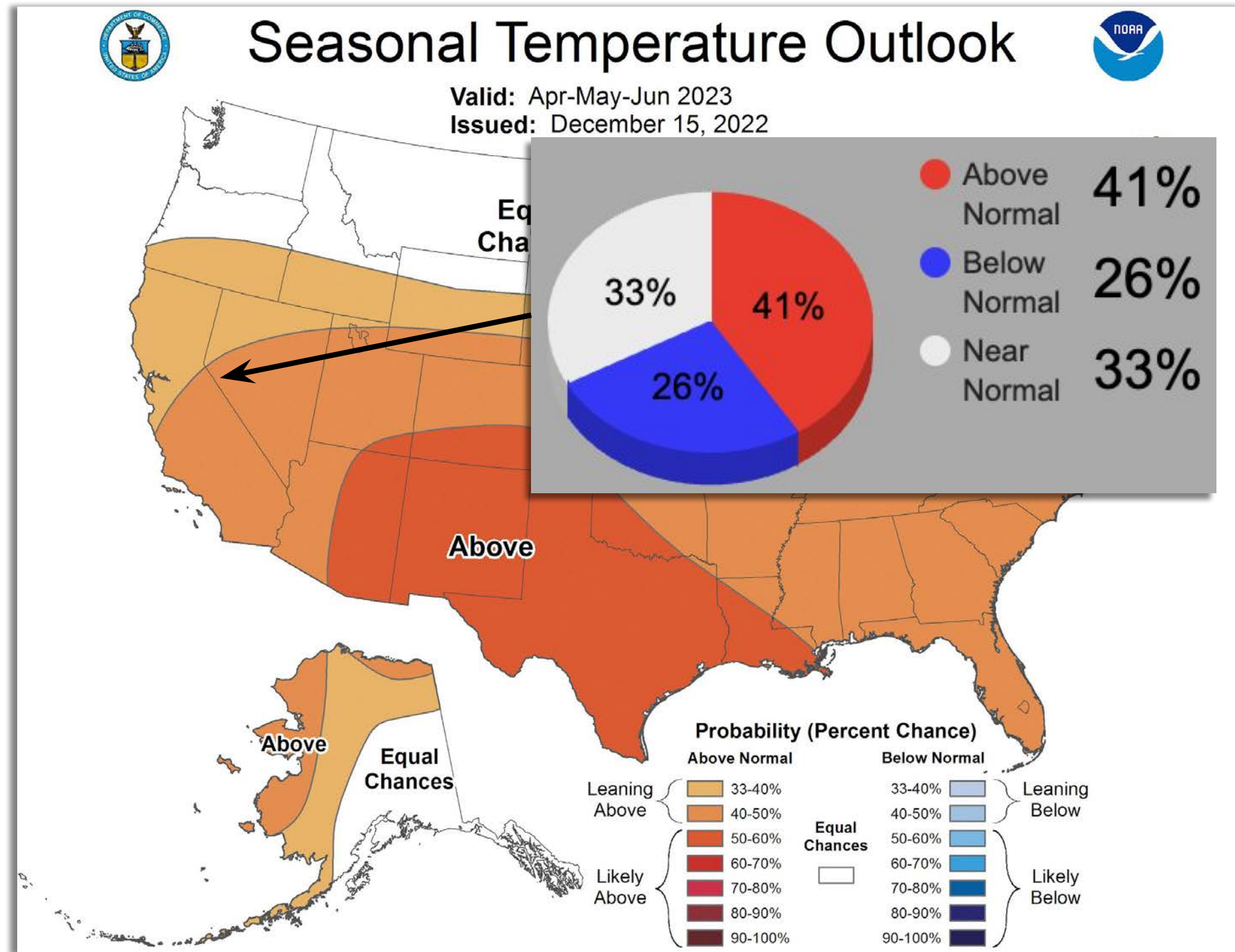
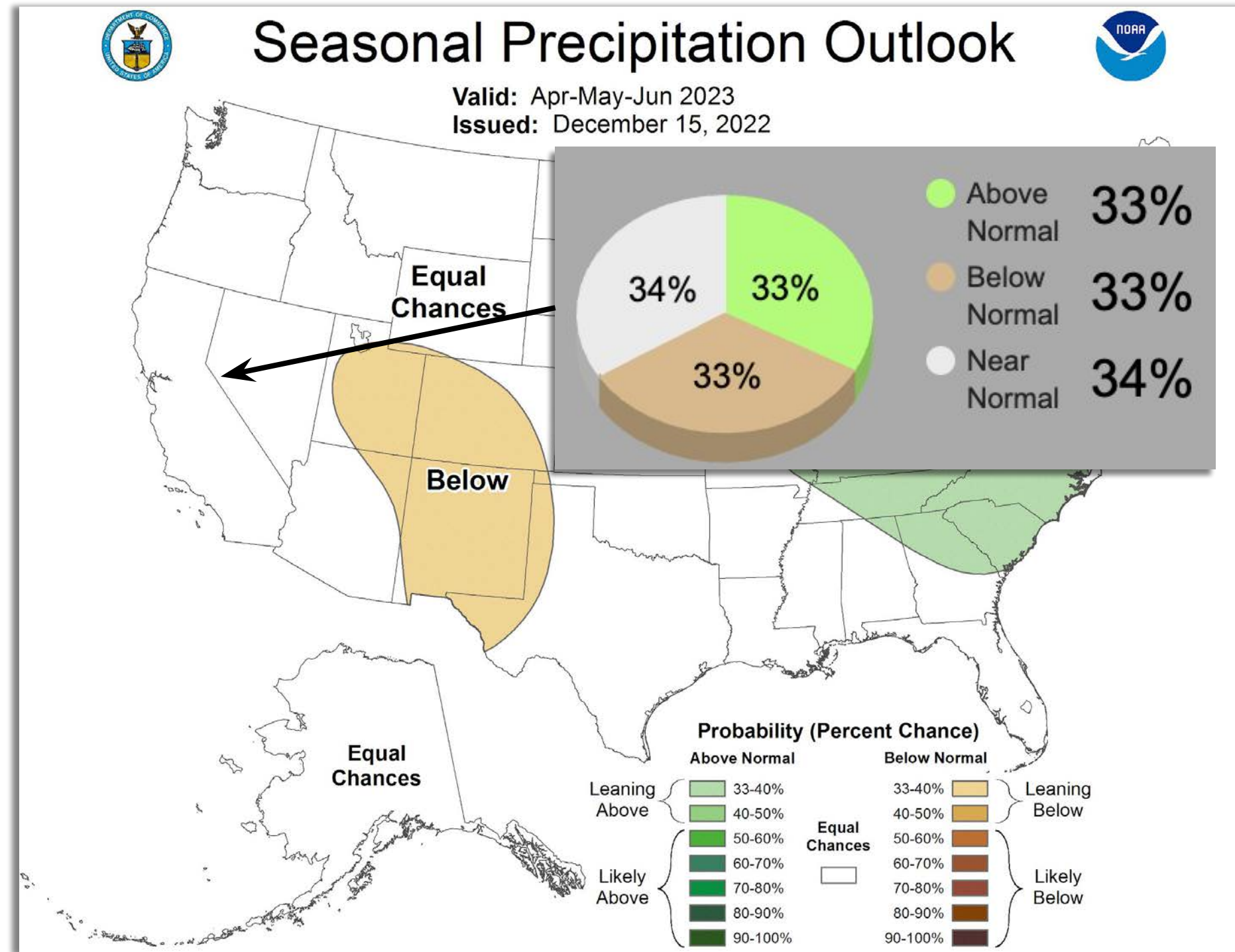


Big picture pattern favoring cooler than normal temperatures with storms remaining possible. No screaming signals for large storms or super wet pattern at this point.



Any scenario possible on precip - Leaning toward a typical La Niña pattern.

No favored scenario on temps - warm and cold periods likely, but no screaming signals for either.



Any scenario possible on precip - No big signals. Quick hitting spring storms possible.

Favoring near to above normal temps - this would trend us toward earlier than normal melt.



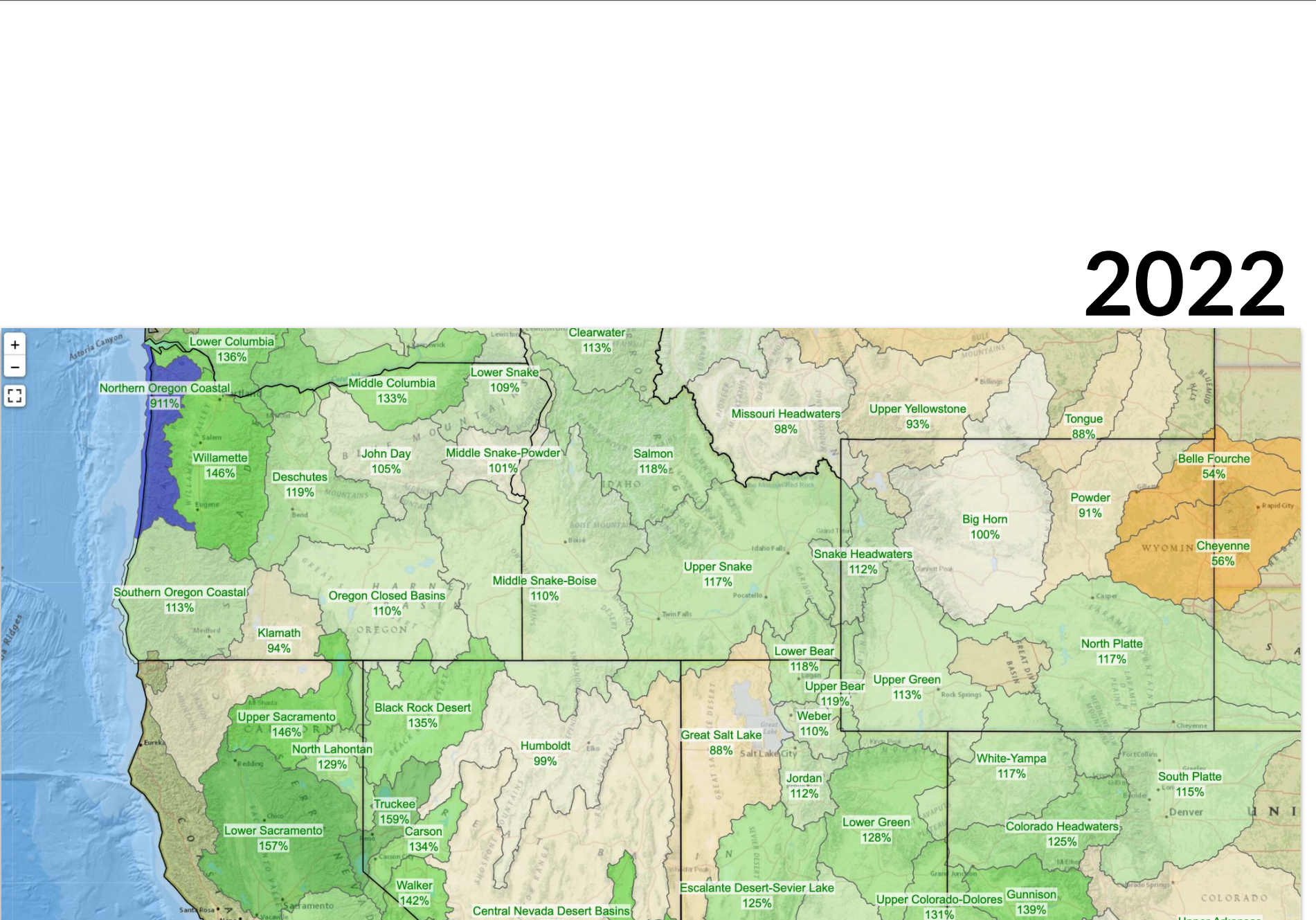
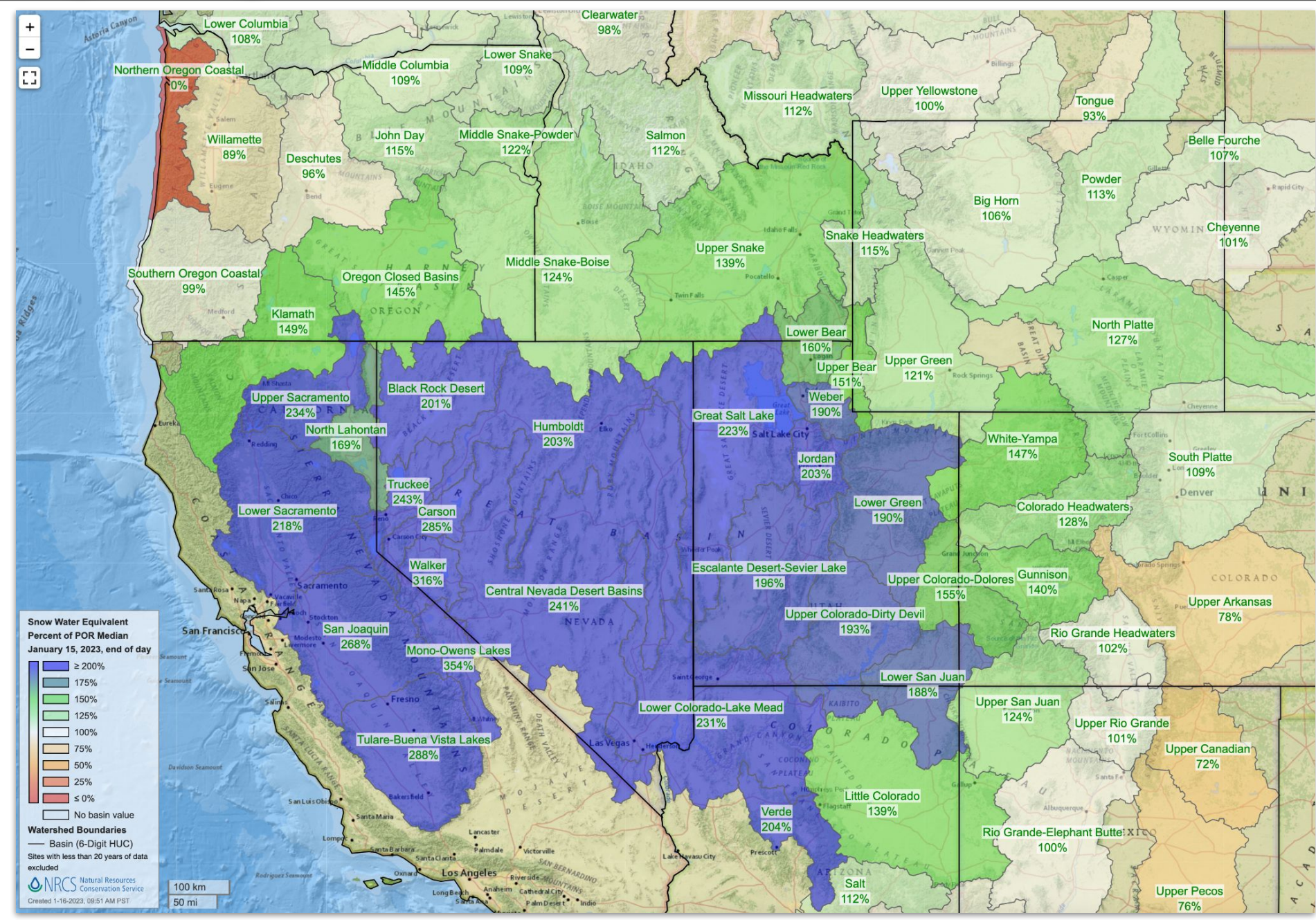
Snowpack Status and Water Outlook



Snowpack Doing Well for Many in the West!

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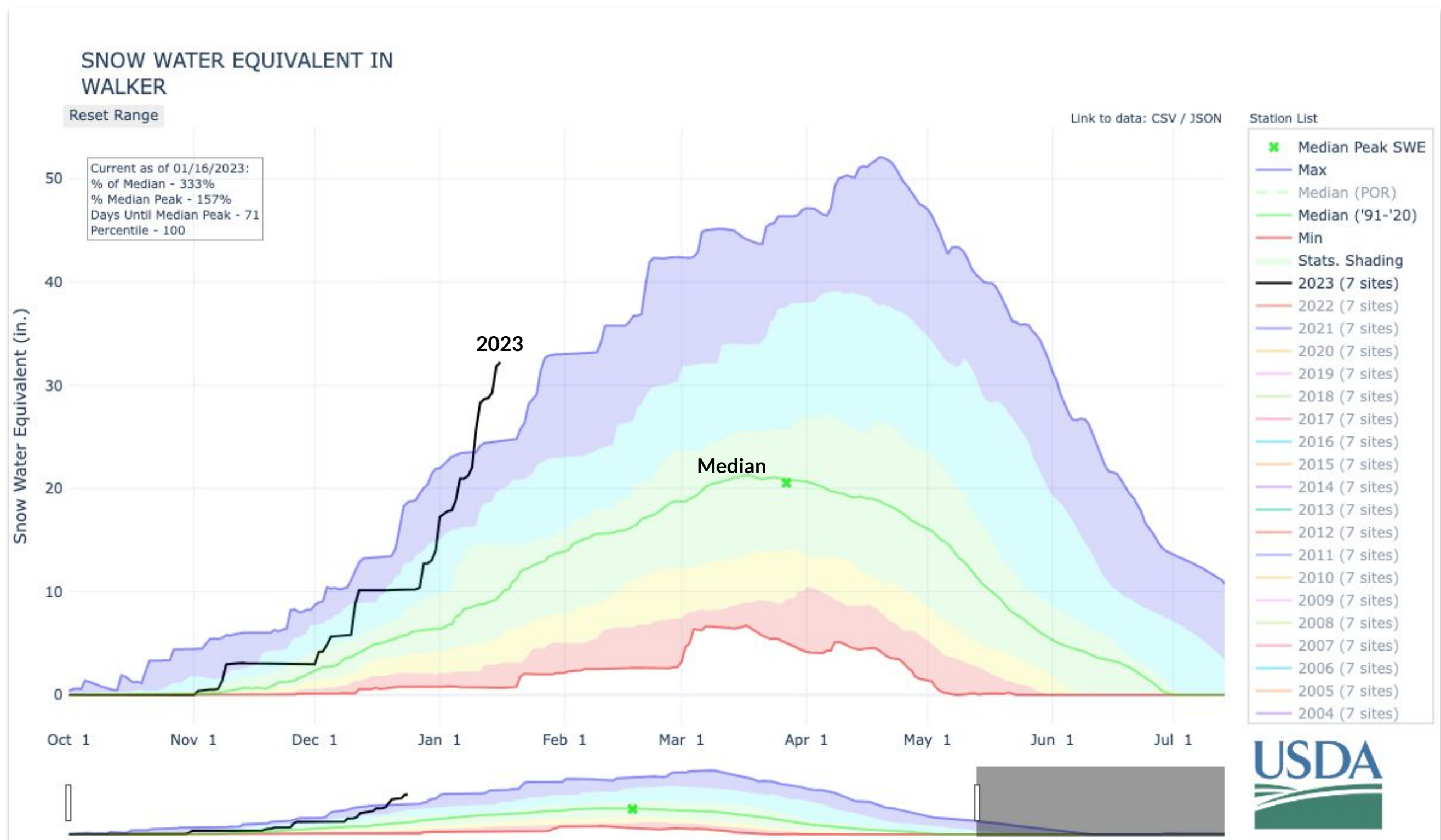
2022



2023



Walker River Snowpack - Just Wow!

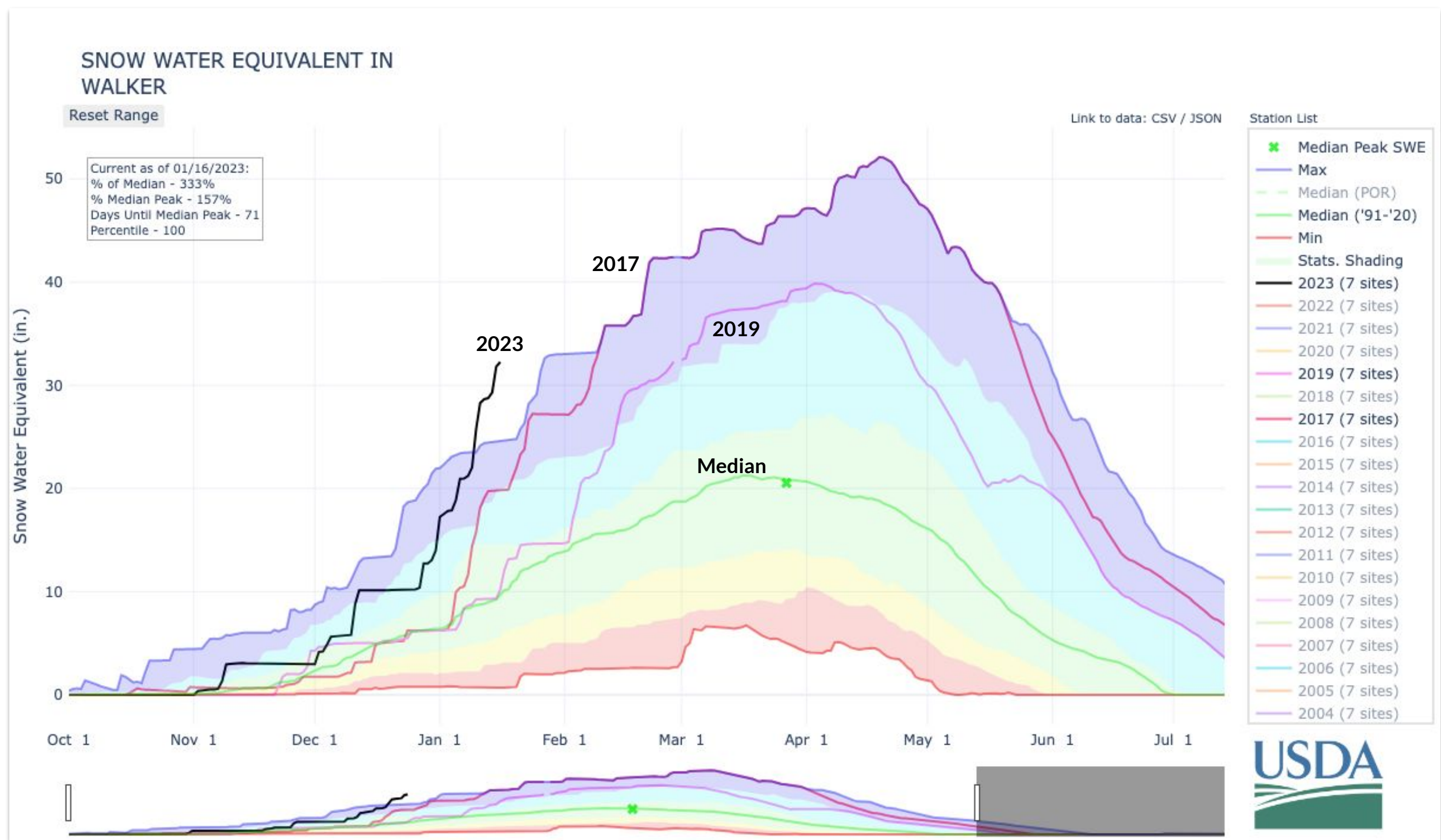


Walker River snowpack is ALREADY WELL ABOVE the median peak that occurs in March!

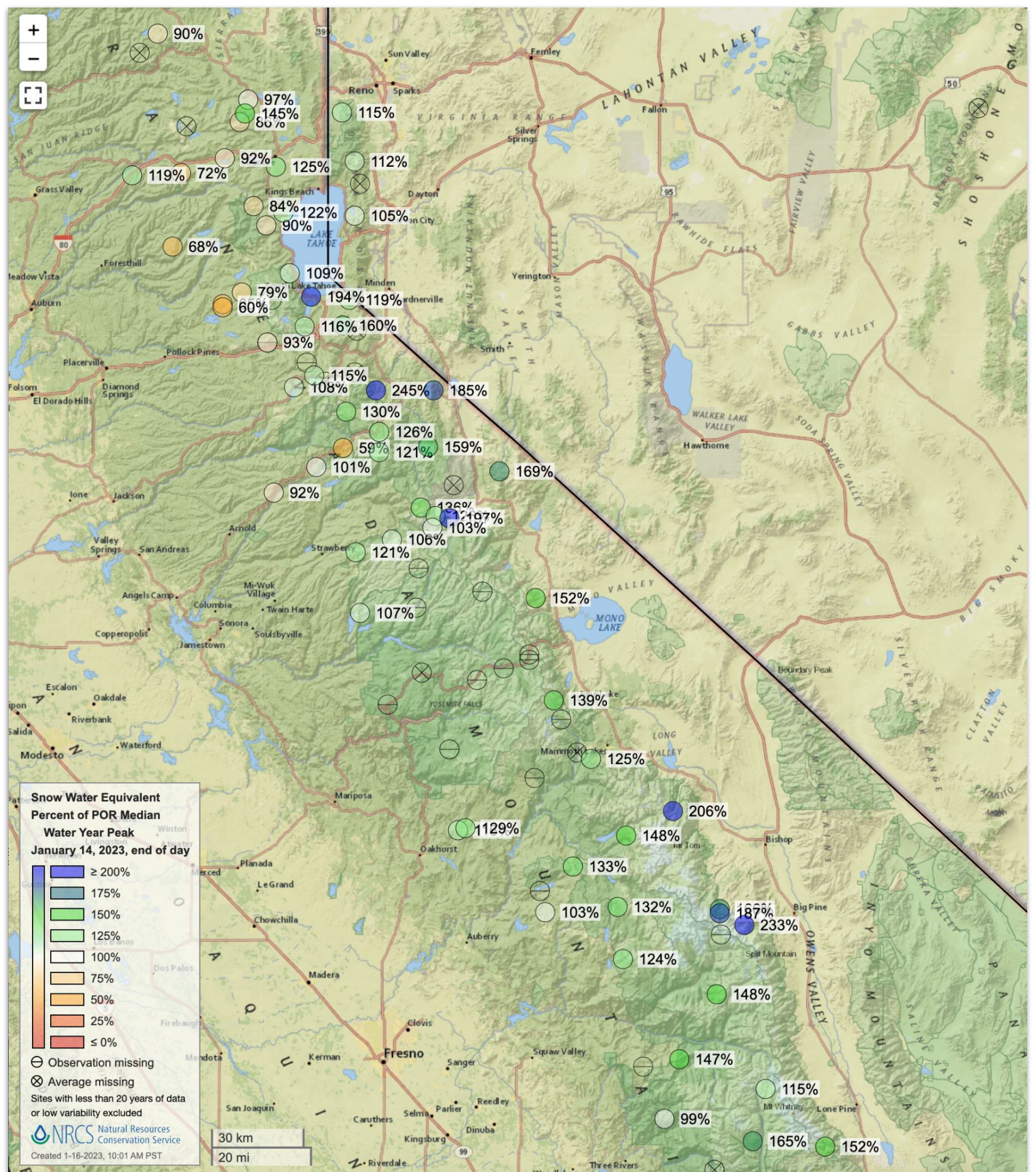
Record territory since January 10th



Walker River Snowpack - Compare to Big Years

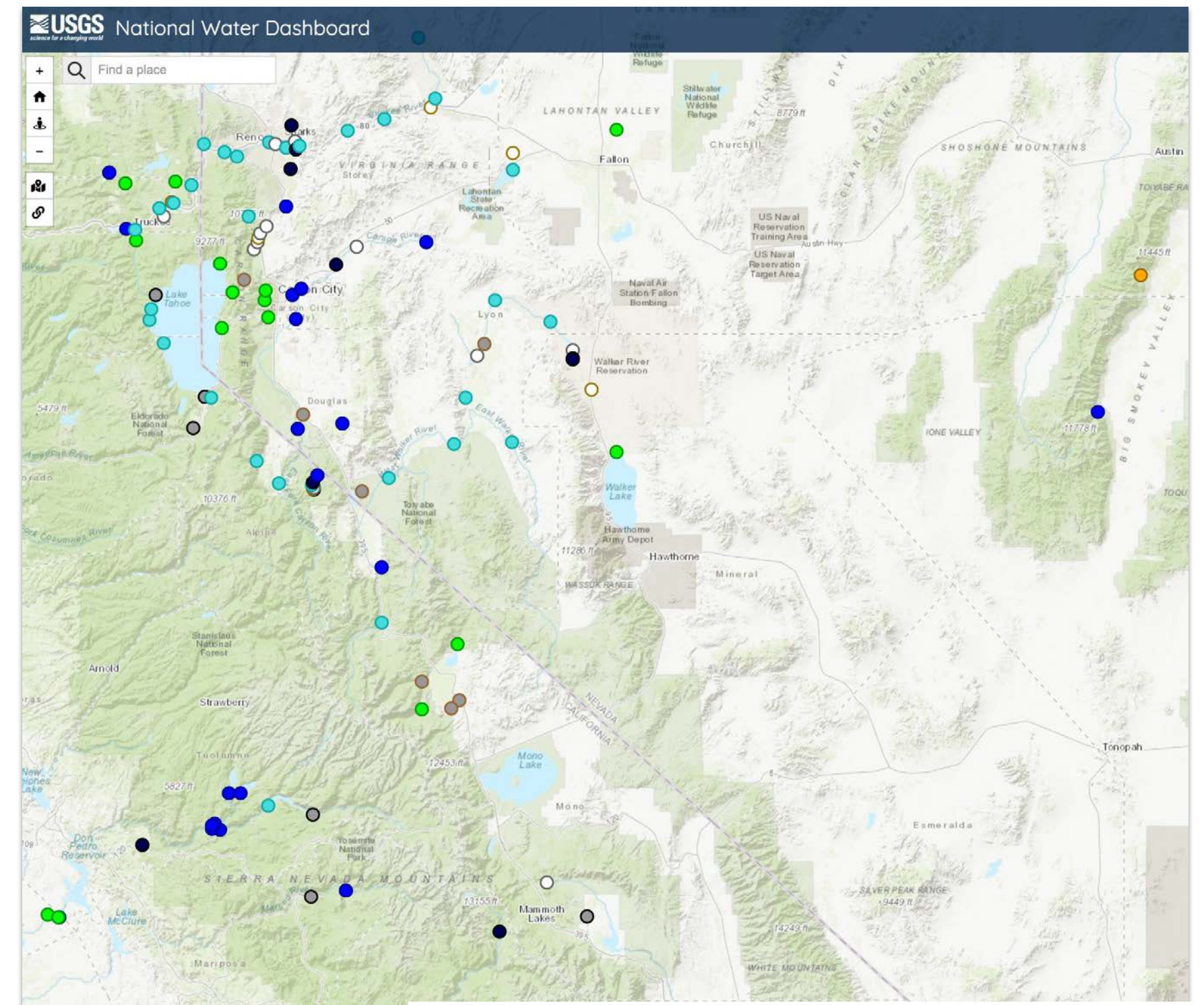
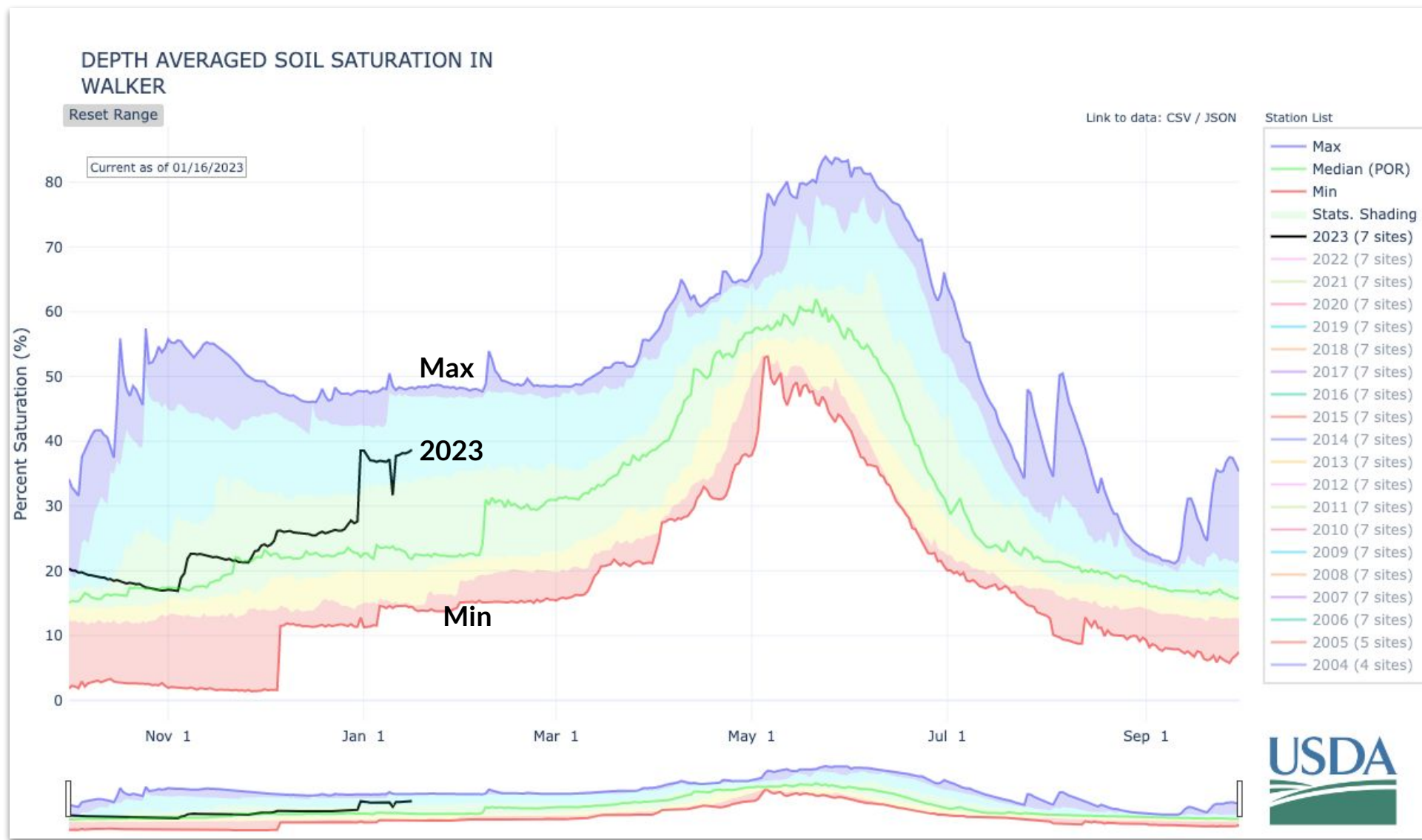


2017 is still the standard bearer for massive snowpacks, but if we stay active into March then 2023 will give it a run for its money...



SNOTEL sites with green or blue dots are already above their median water year peaks that typically occur in late March or early April!

Map: Percent of median water year peak, so anything above 100% is already exceeding that peak.

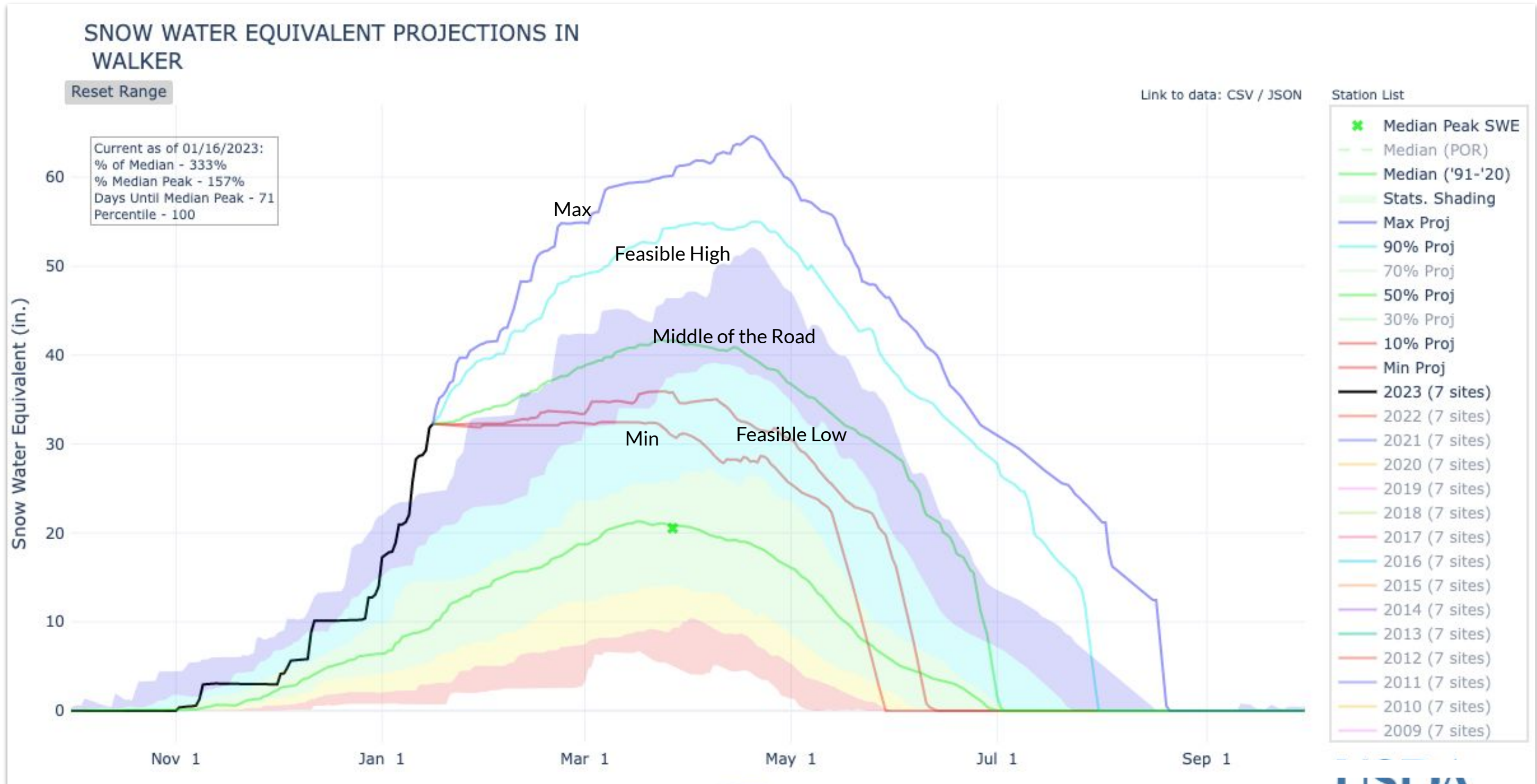


Well above normal soil moisture & above normal streamflows:

- Great for runoff efficiency in Spring-Summer.
- But primes us for flooding with major AR storms through February or March.

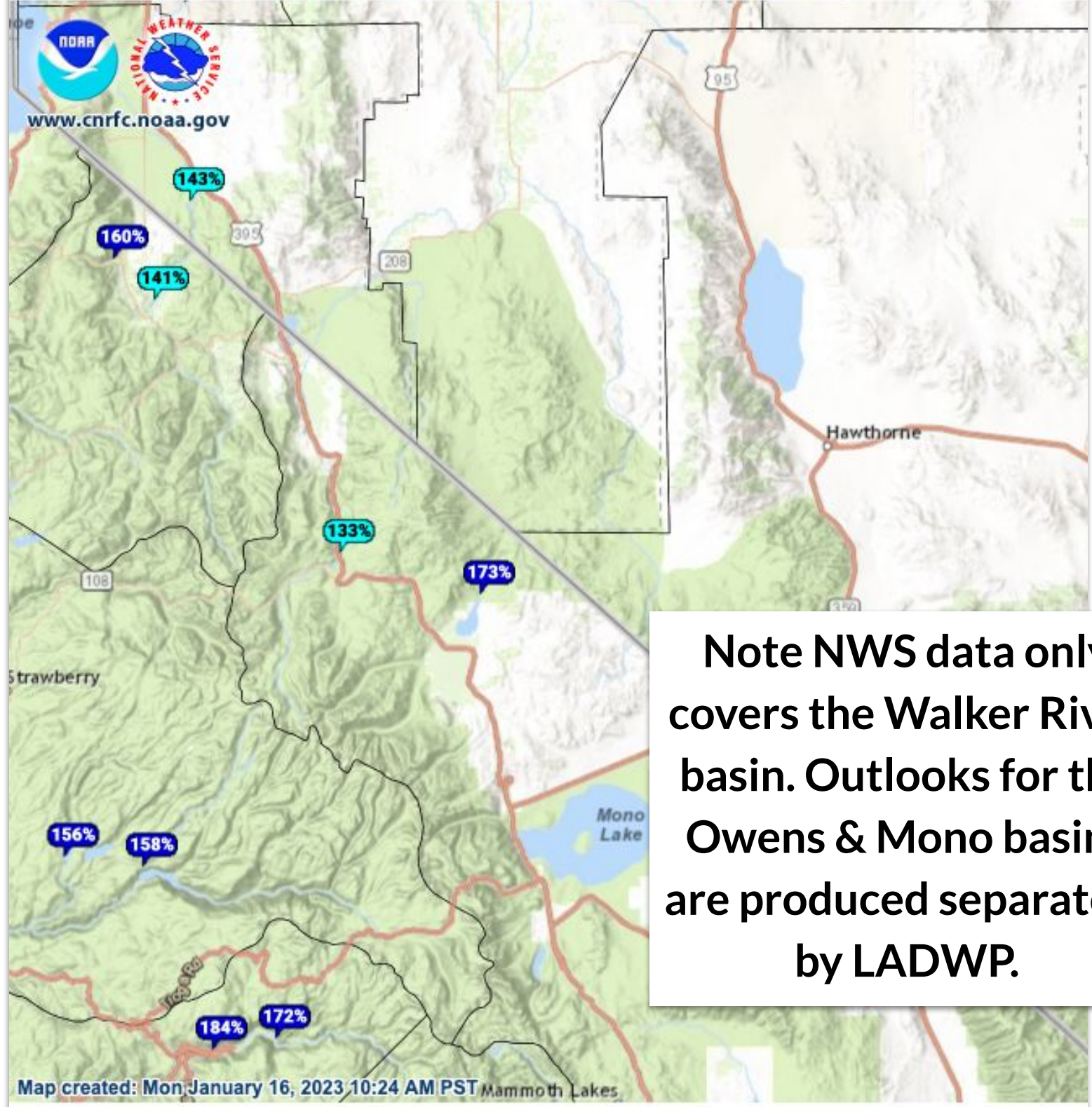


Snowpack Projection - Using Historical Data

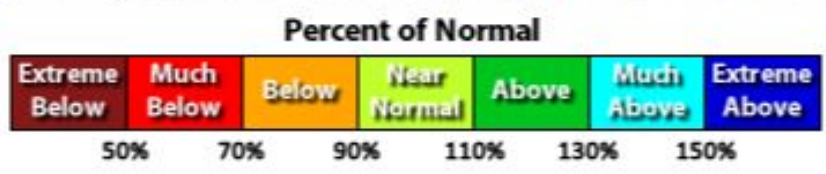


We're so far ahead of normal - even if the atmosphere shut down again, we'd have a well above normal snowpack year.

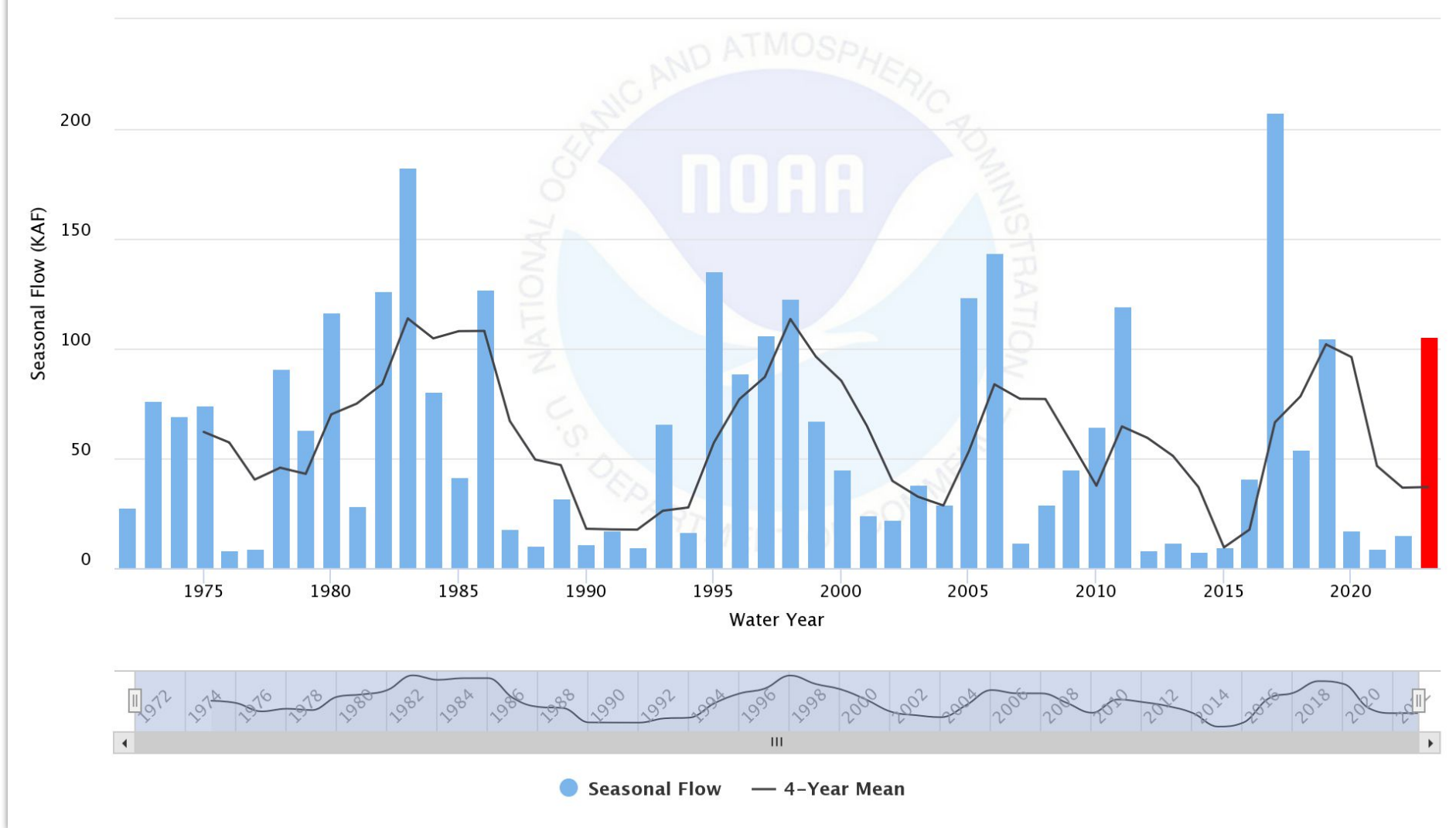
Forecast Seasonal Volume (WY2023)



Note NWS data only covers the Walker River basin. Outlooks for the Owens & Mono basins are produced separately by LADWP.



Seasonal (Apr-Jul) Historical Flow for BPRC1



East Walker April-July Flows: Historical vs Predicted

This year - a 2019+



Summary of Key Points

Weather Forecast Office
Reno, NV
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- **Storm door closes to large storms next two weeks. = inside slider pattern, cold NE winds. February & March are anyone's guess.**
- **Snowpack is so far ahead of normal - we're already way above median peaks that usually occur in March-April.**
- **Water supply outlook is looking quite good, even if we have prolonged drier than normal periods.**
- **Risk of flooding from warm AR's remains elevated, given deep wet snowpack and saturated soils and above normal streamflows.**
- **Spring snowmelt flood risk is still TBD, but of course something we will need to keep an eye on with large snowpack thus far.**



That's a Wrap - Questions/Comments?

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