Colorado Climate Update

Russ Schumacher, state climatologist

Water Conditions Monitoring Committee

March 25, 2025

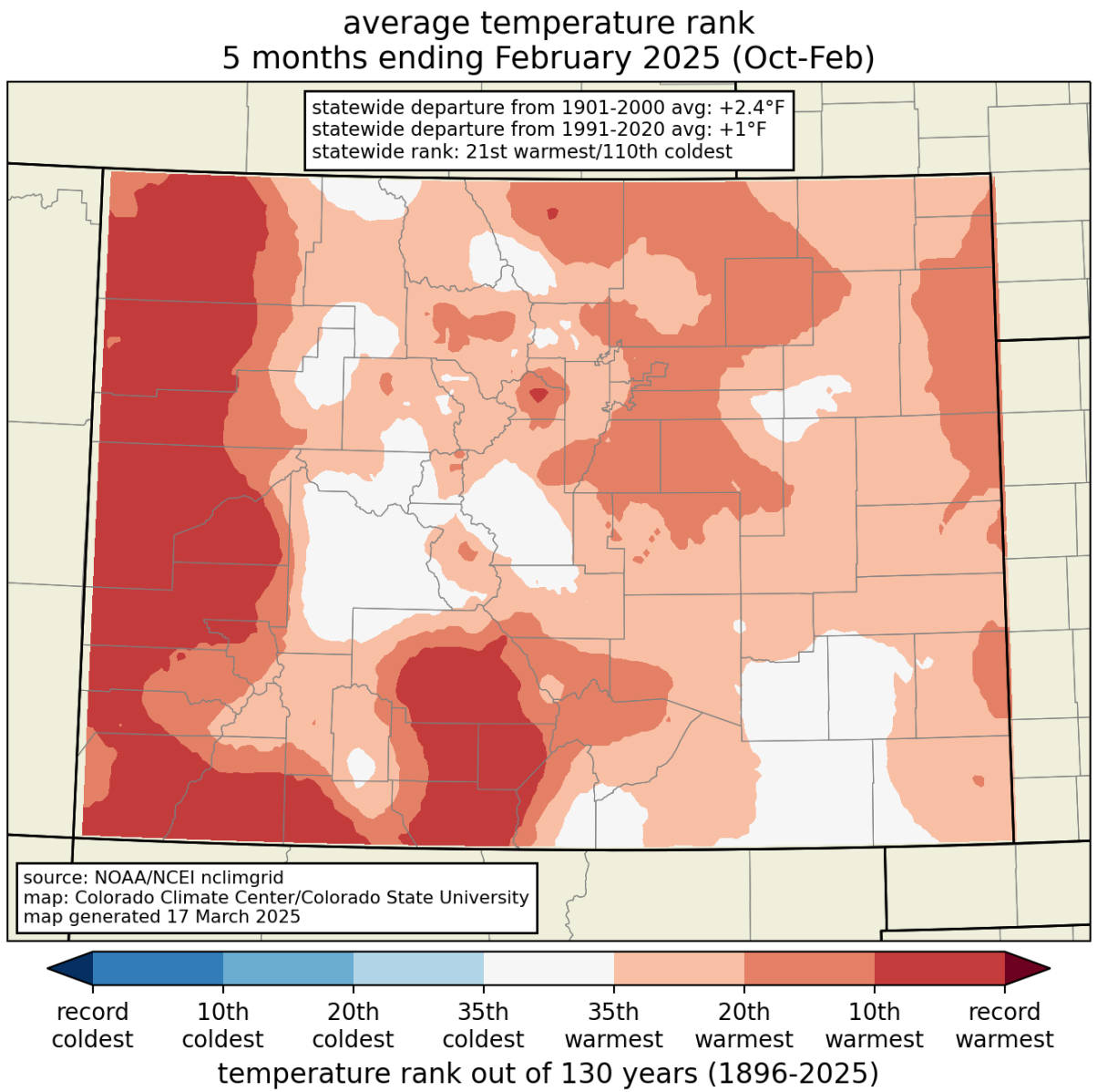
COLORADO CLIMATE CENTER

ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY

Water Year 2025 so far

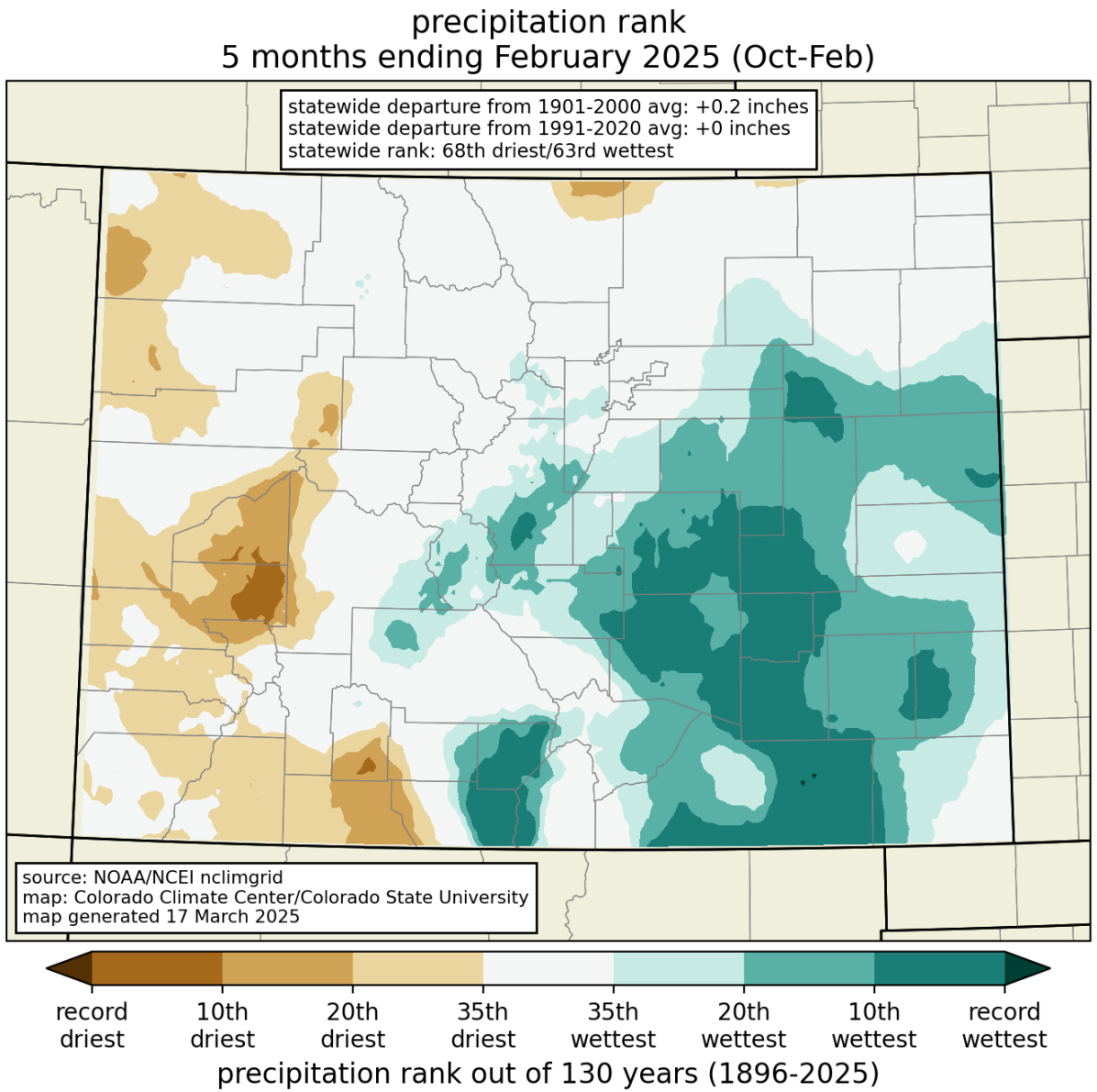
temperature, precipitation, etc.

(Middle Boulder Creek, March 19)



Month	T Rank (of 130 years)	Above, below, or near 20th century avg?
Oct	2nd warmest	much above
Nov	45th coolest	near avg
Dec	3rd warmest	much above
Jan	24th coolest	below
Feb	35th warmest	above

Statewide: Tied for 21st warmest first 5 months of the water year



Month	P Rank (of 130 years)	Above, below, or near 20th century avg?
Oct	47th wettest	near average
Nov	5th wettest	much above
Dec	12th driest	below
Jan	34th driest	below
Feb	46th driest	near average

Statewide: tied for 68th driest/63rd wettest first five months of the water year

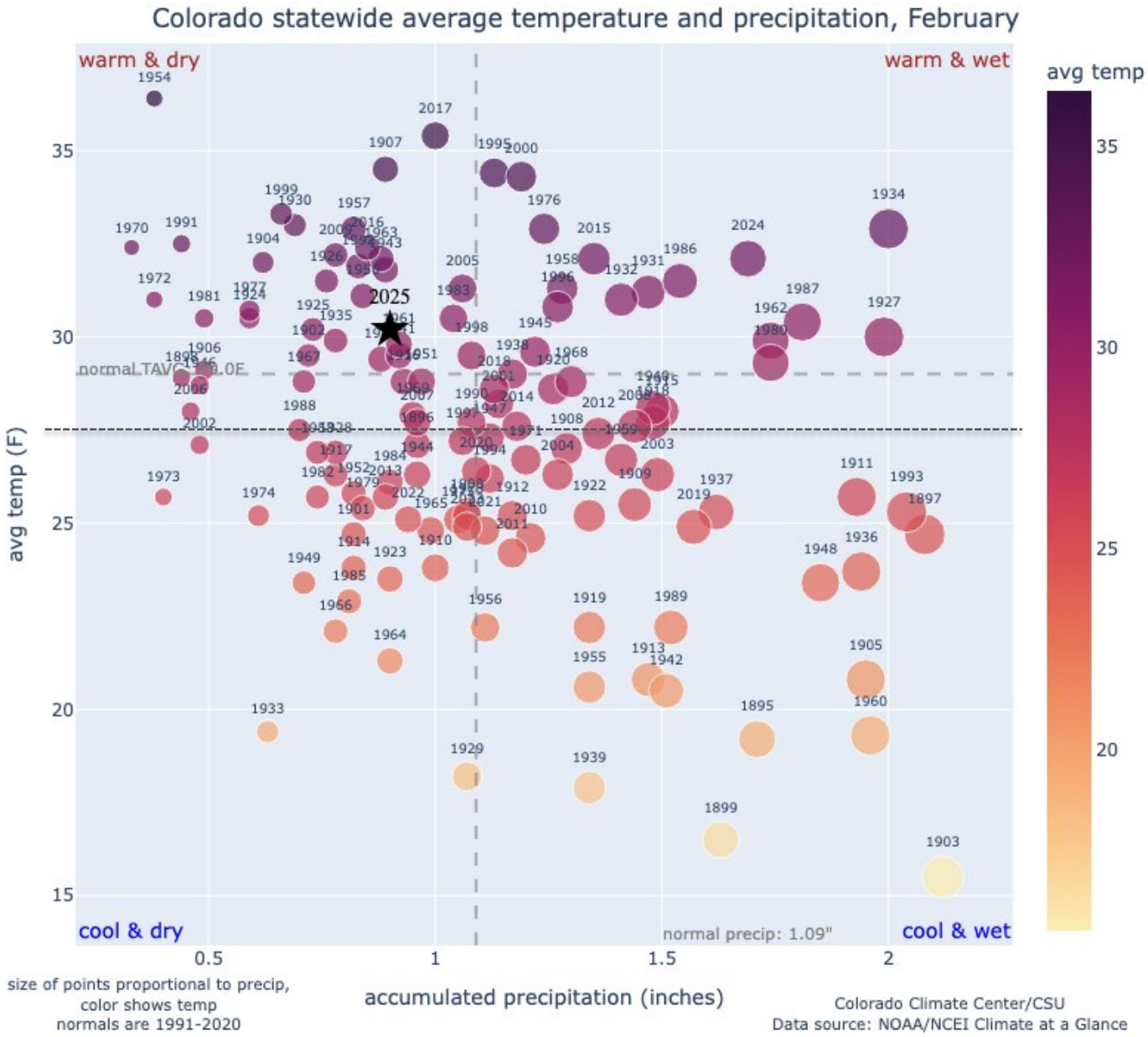
Warm & dry

Warm & wet

February 2025

1991-2020 avg temp →

1901-2000 avg temp →



February was warmer and a little drier than average

Cool & dry

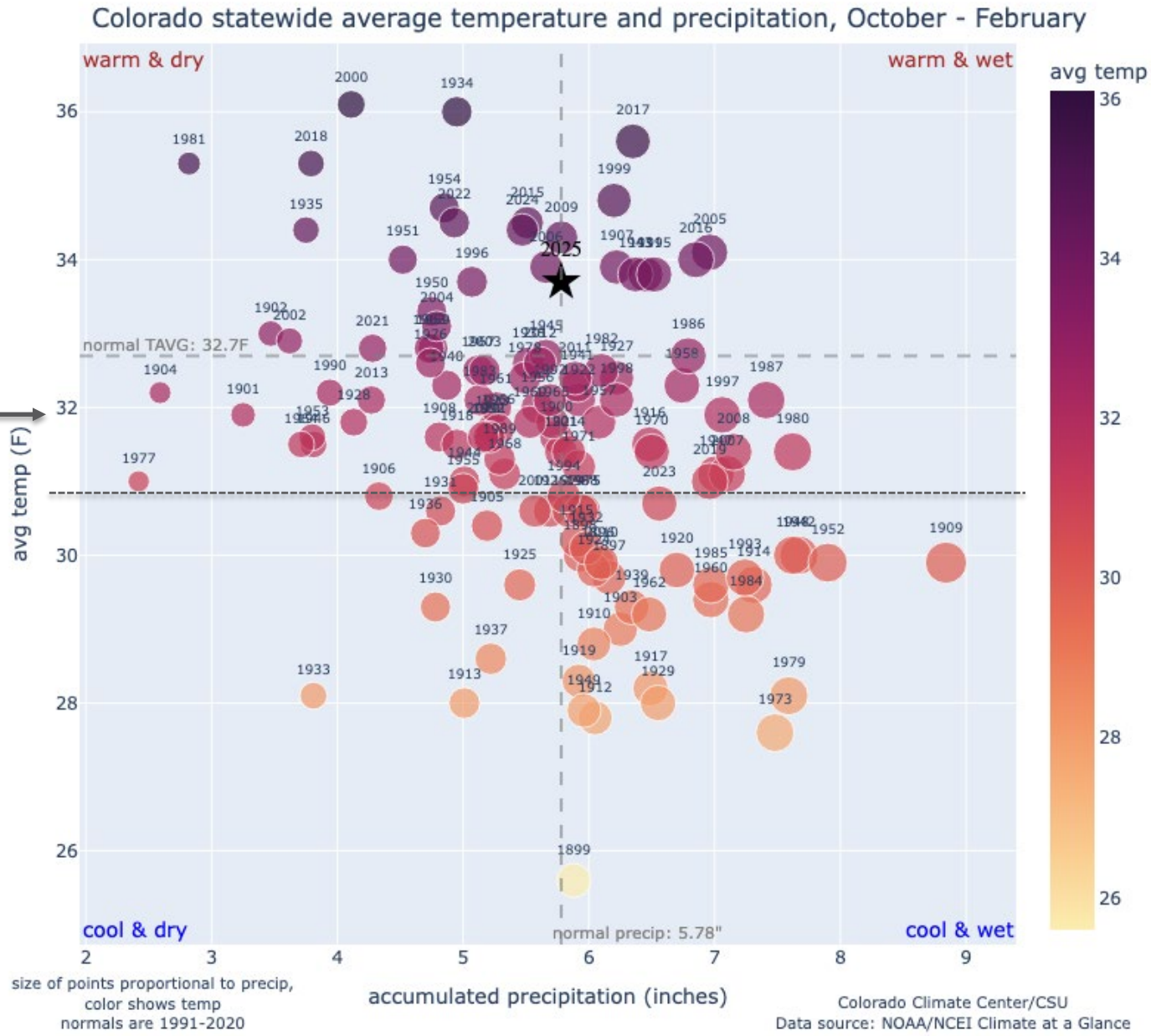
Cool & wet

Warm & dry

October 2024-February 2025

1991-2020 avg temp →

1901-2000 avg temp →

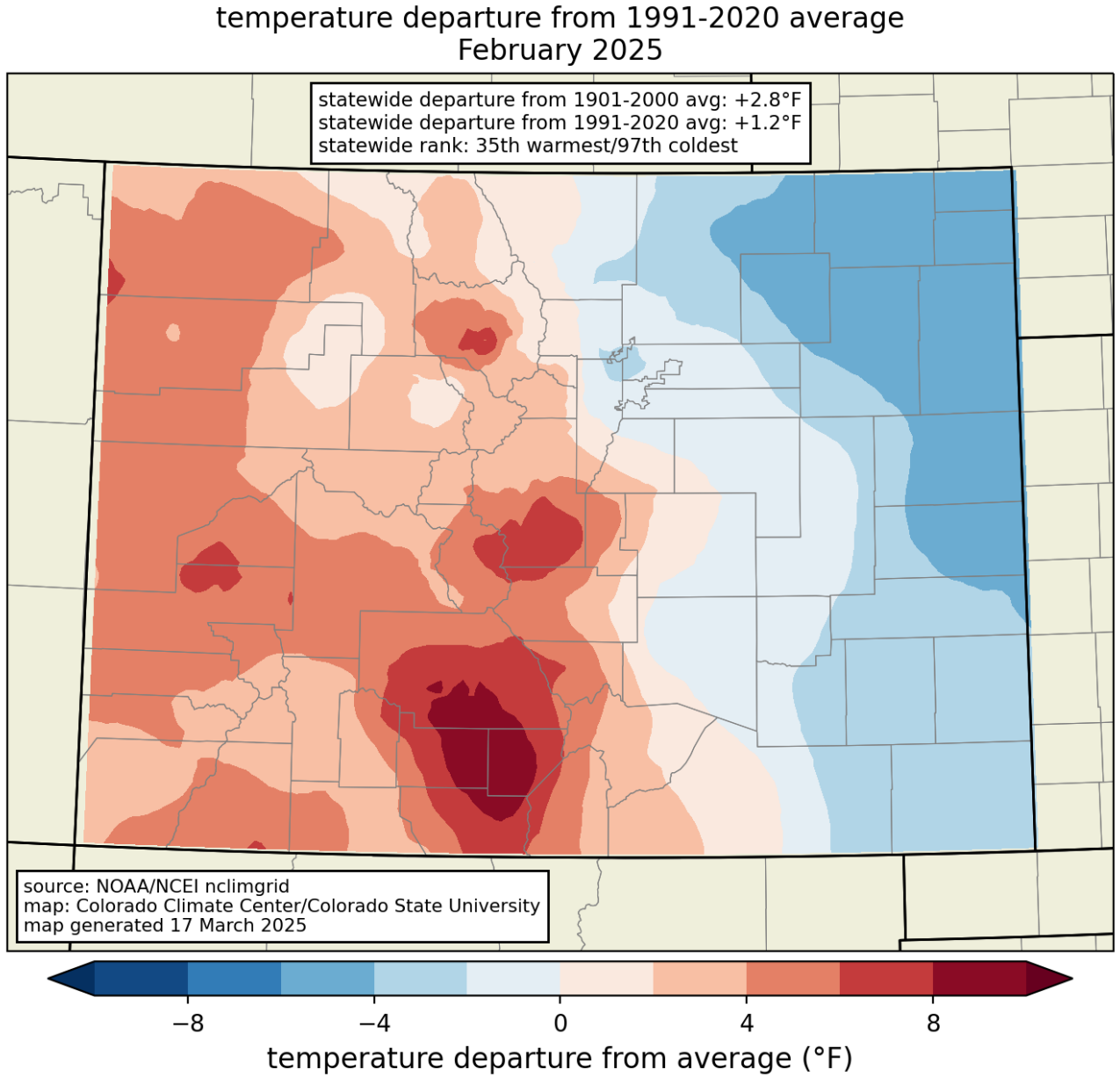


Warm & wet

First 5 months of water year: warmer than average, near average precipitation statewide

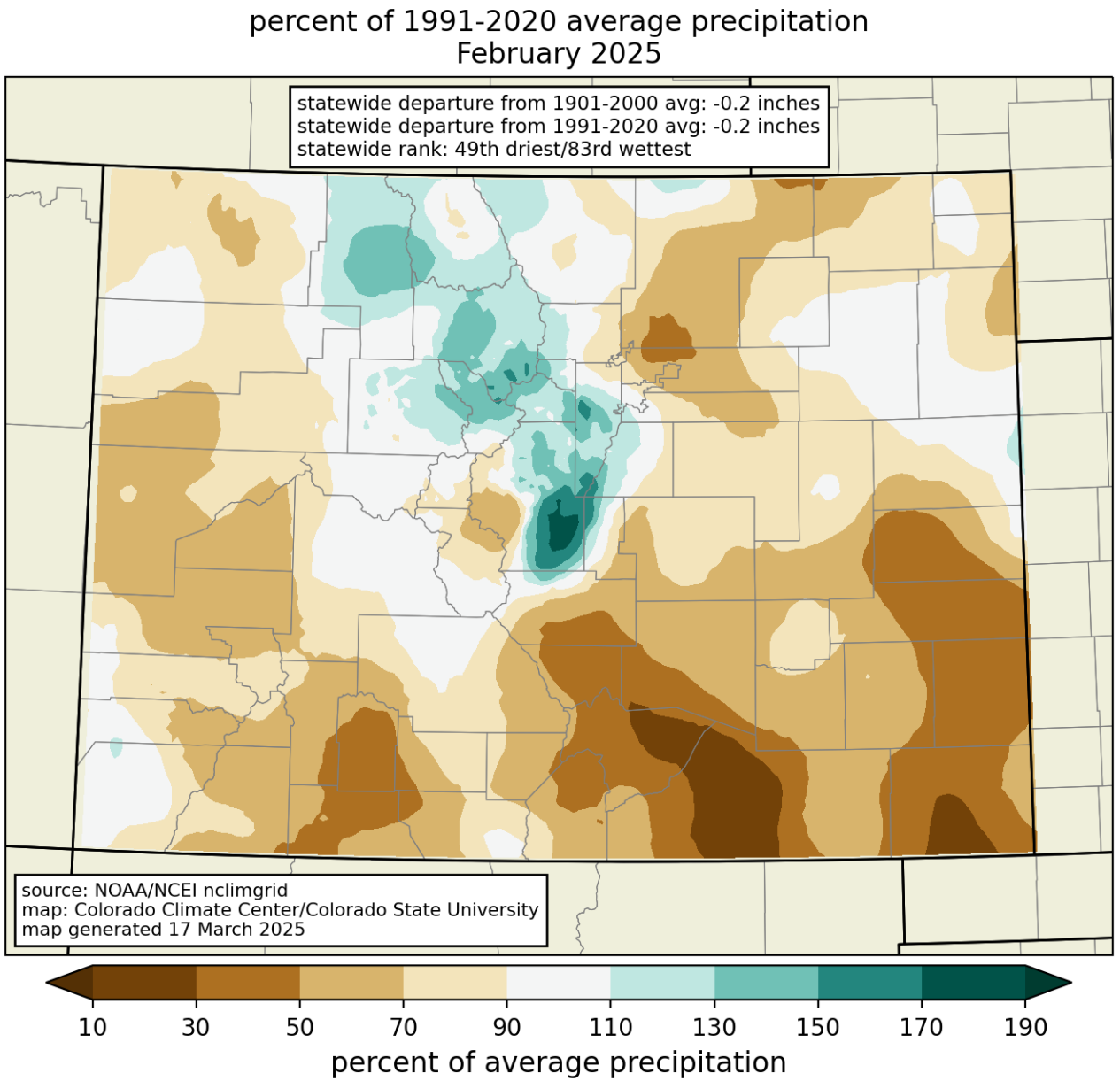
Cool & dry

Cool & wet



Big west-east split for temperature in February: western Colorado was extremely warm, eastern Colorado was colder than average.

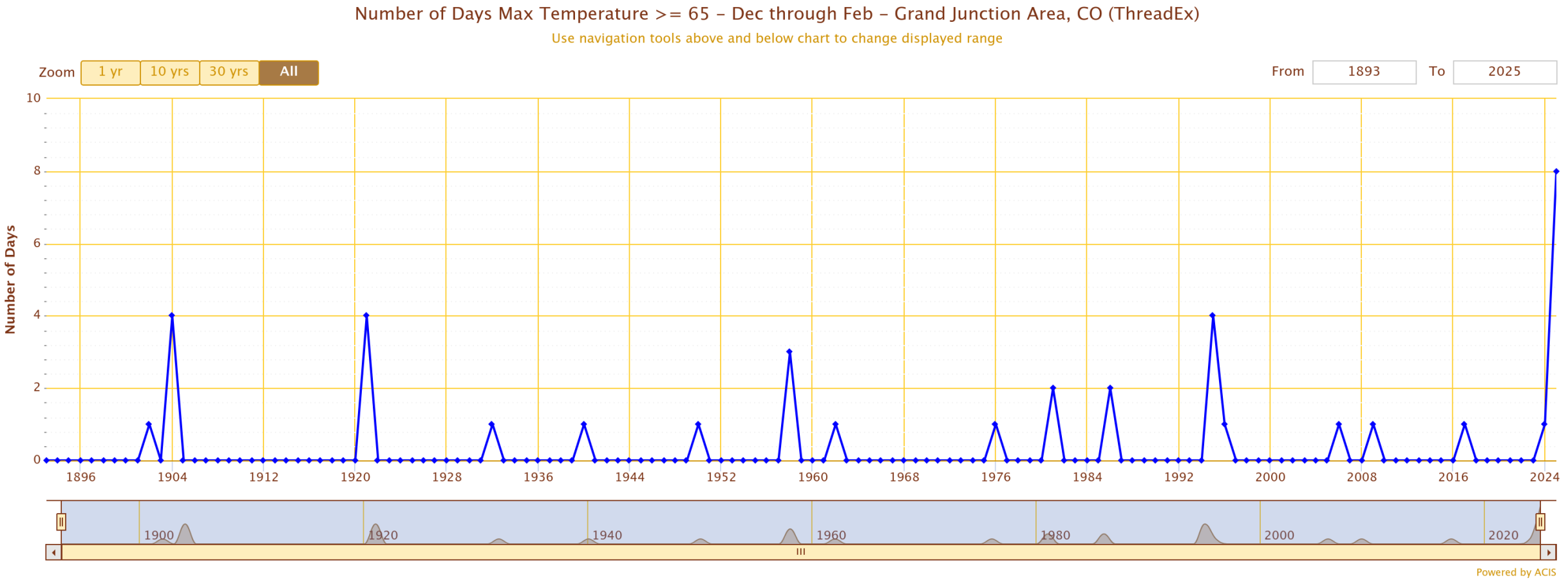
Warmest February on record at Alamosa



February was very dry in southeastern and southwestern Colorado

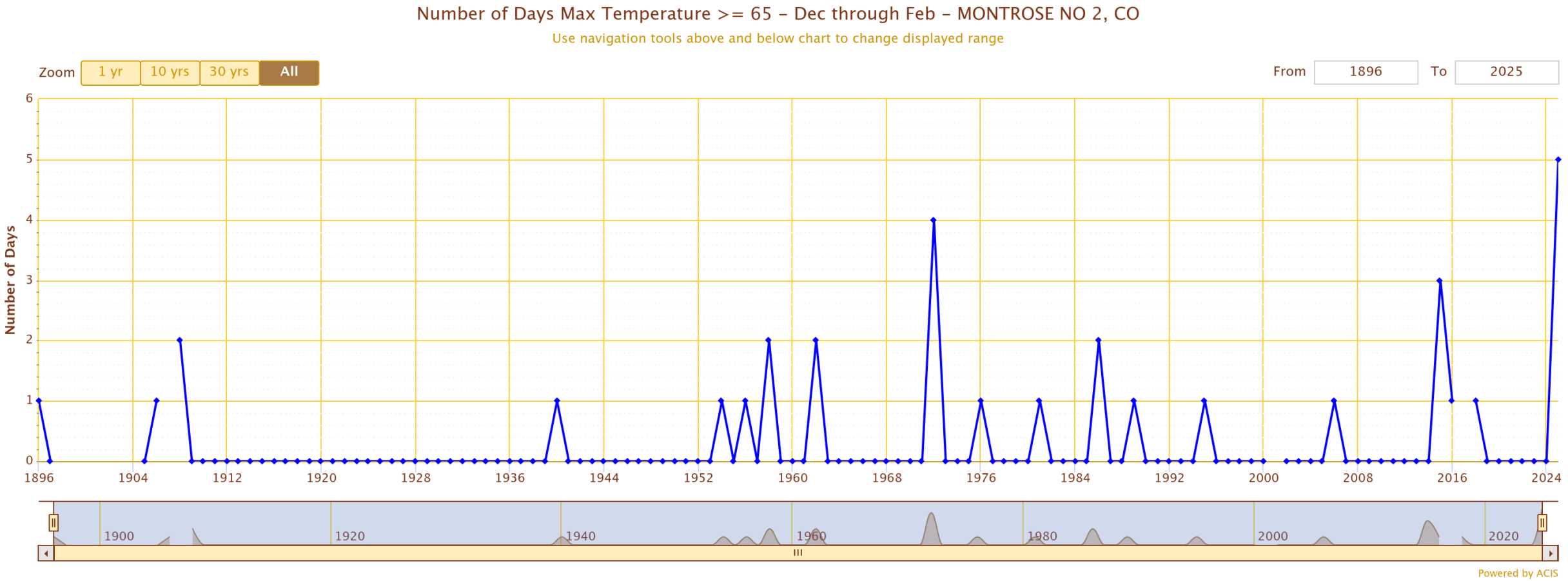
The northern and central mountains had above-average snowfall in February

Warm winter days in southern and western Colorado



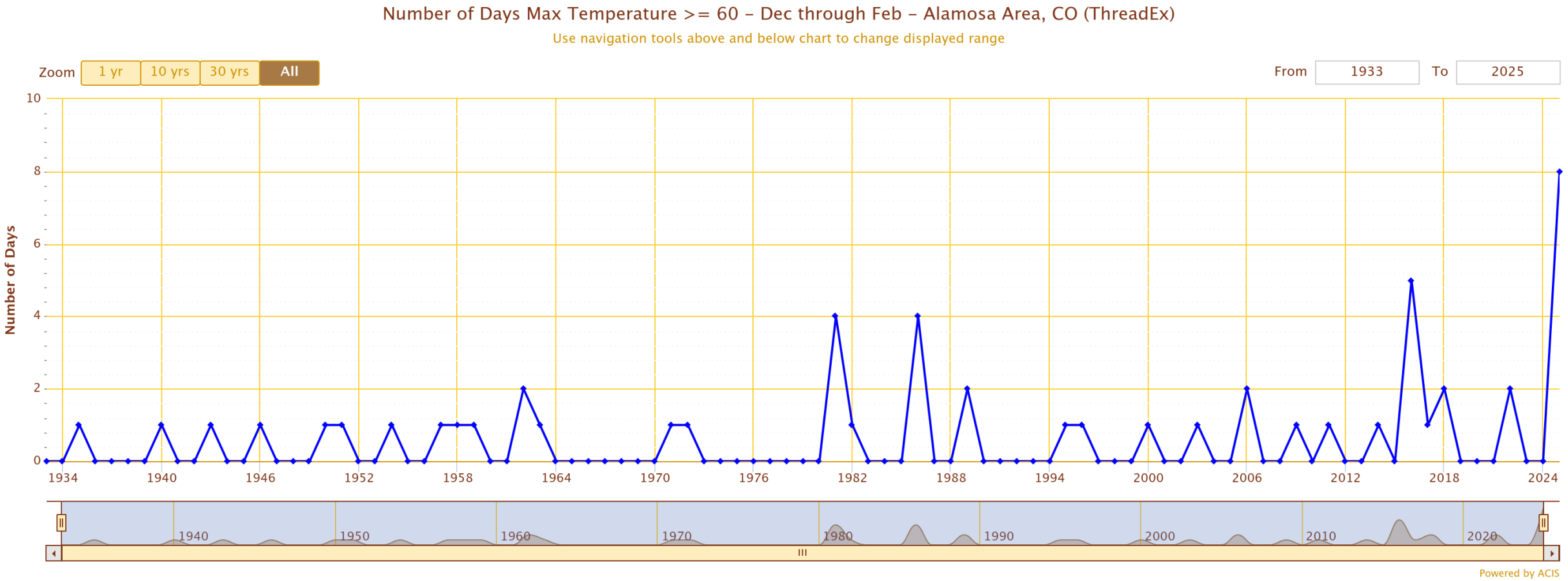
- **Grand Junction: 8 days of 65°F or warmer this winter (all during February, including 5 in a row!)**
- **Previous most in a winter was 4**

Warm winter days in southern and western Colorado



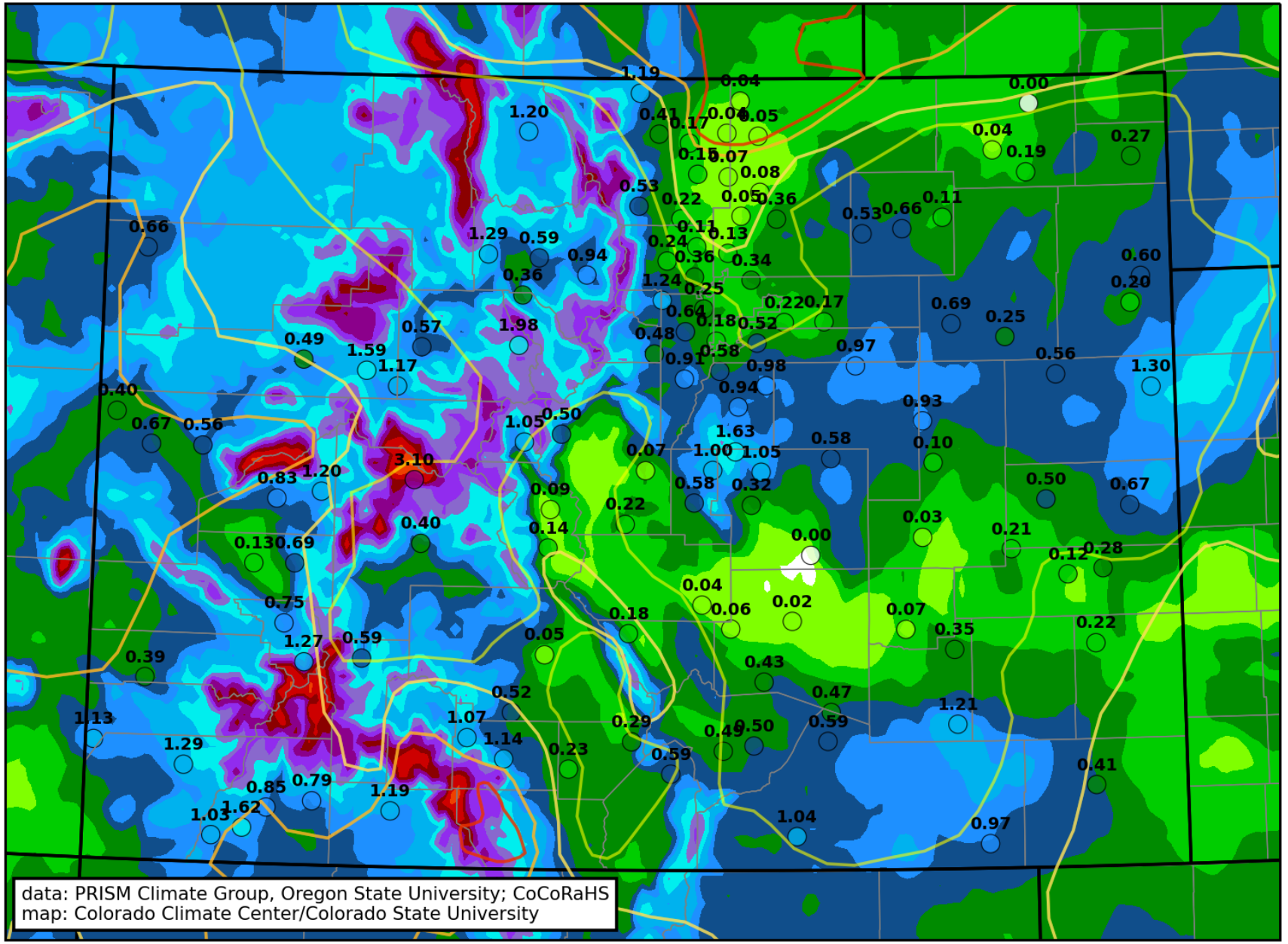
- **Montrose: 5 days of 65°F or warmer this winter**
- **Previous most in a winter was 4**

Warm winter days in southern and western Colorado



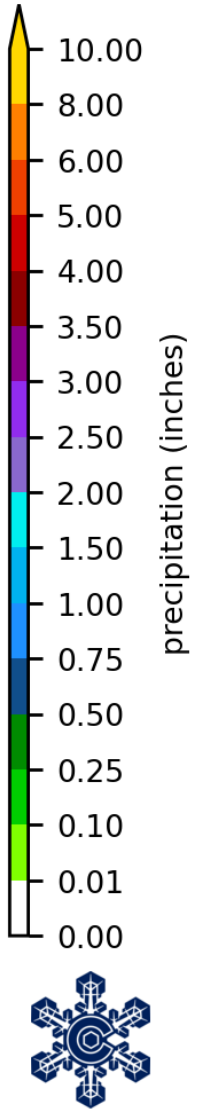
- **Alamosa: 8 days of 60°F or warmer this winter**
- **Previous most in a winter was 5**

PRISM and CoCoRaHS month-to-date precipitation, US Drought Monitor through 5:00am MST Mon 24 March 2025



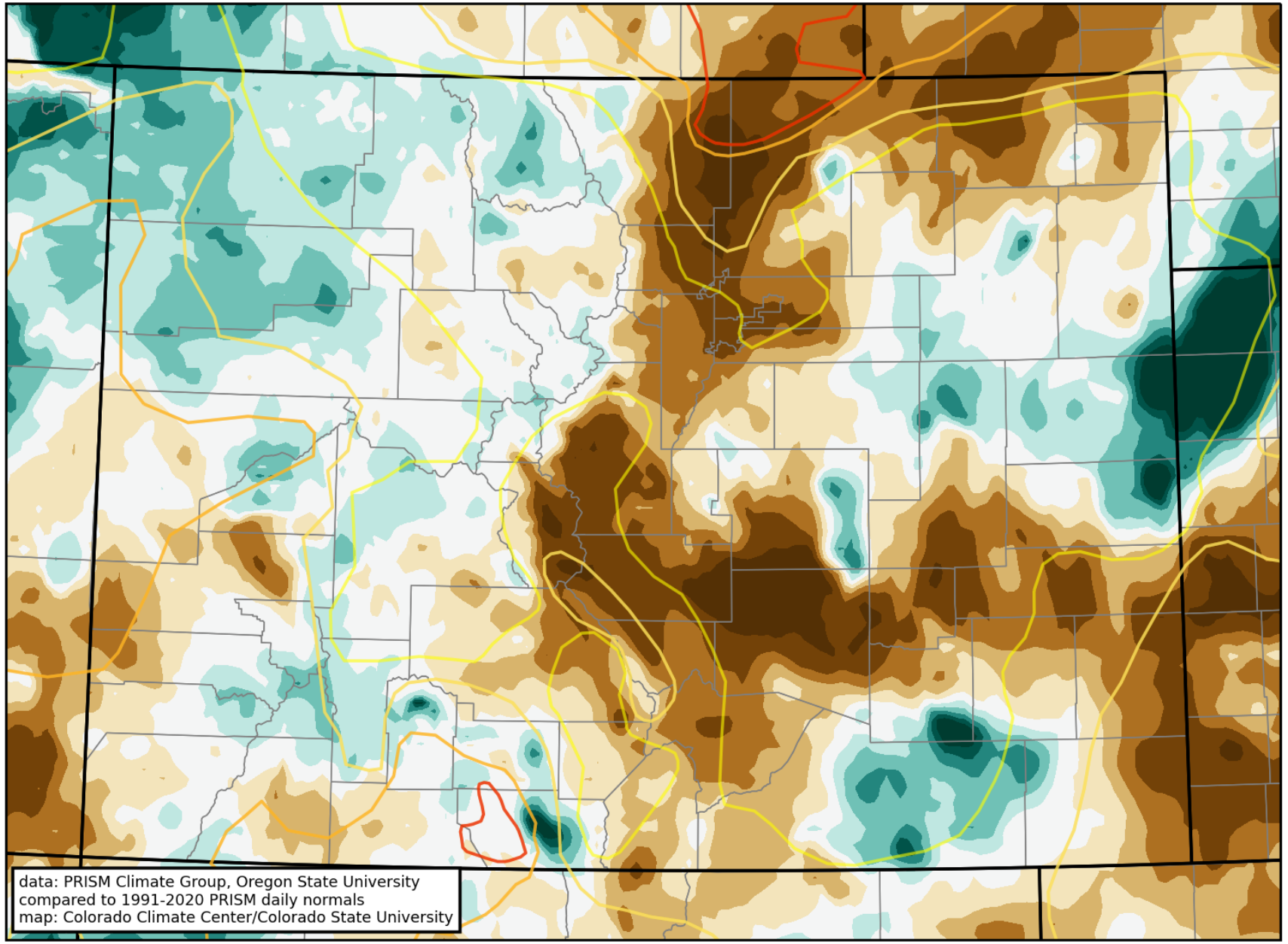
data: PRISM Climate Group, Oregon State University; CoCoRaHS
map: Colorado Climate Center/Colorado State University

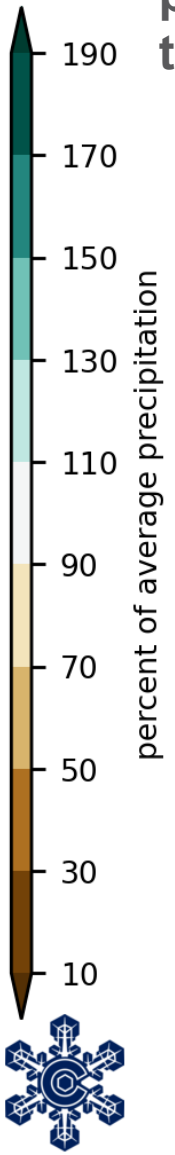
March precipitation through Monday morning (24th)



PRISM month-to-date % of average precipitation, US Drought Monitor

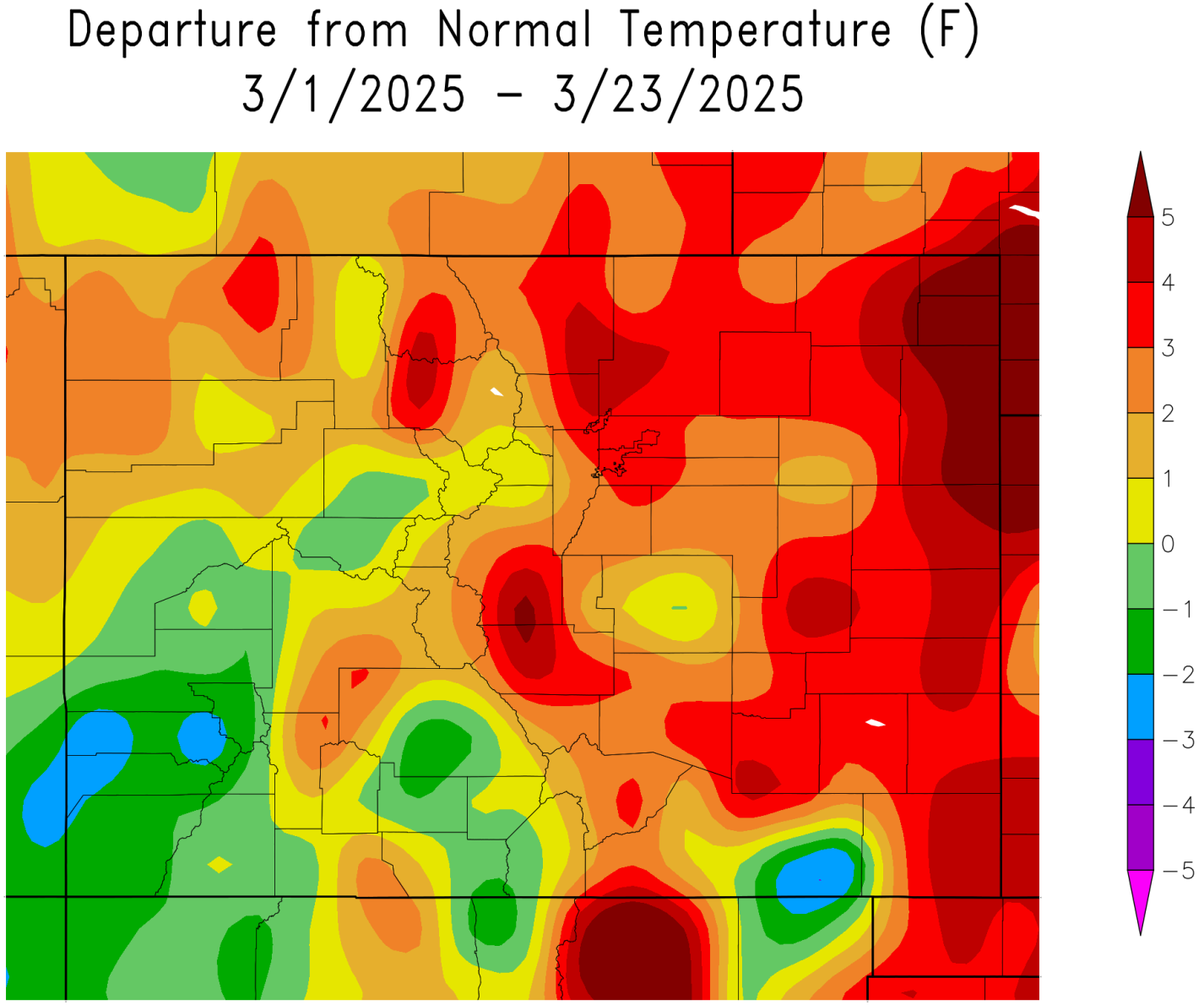
through 5:00am MST Mon 24 March 2025





March percent of normal precipitation through the 24th

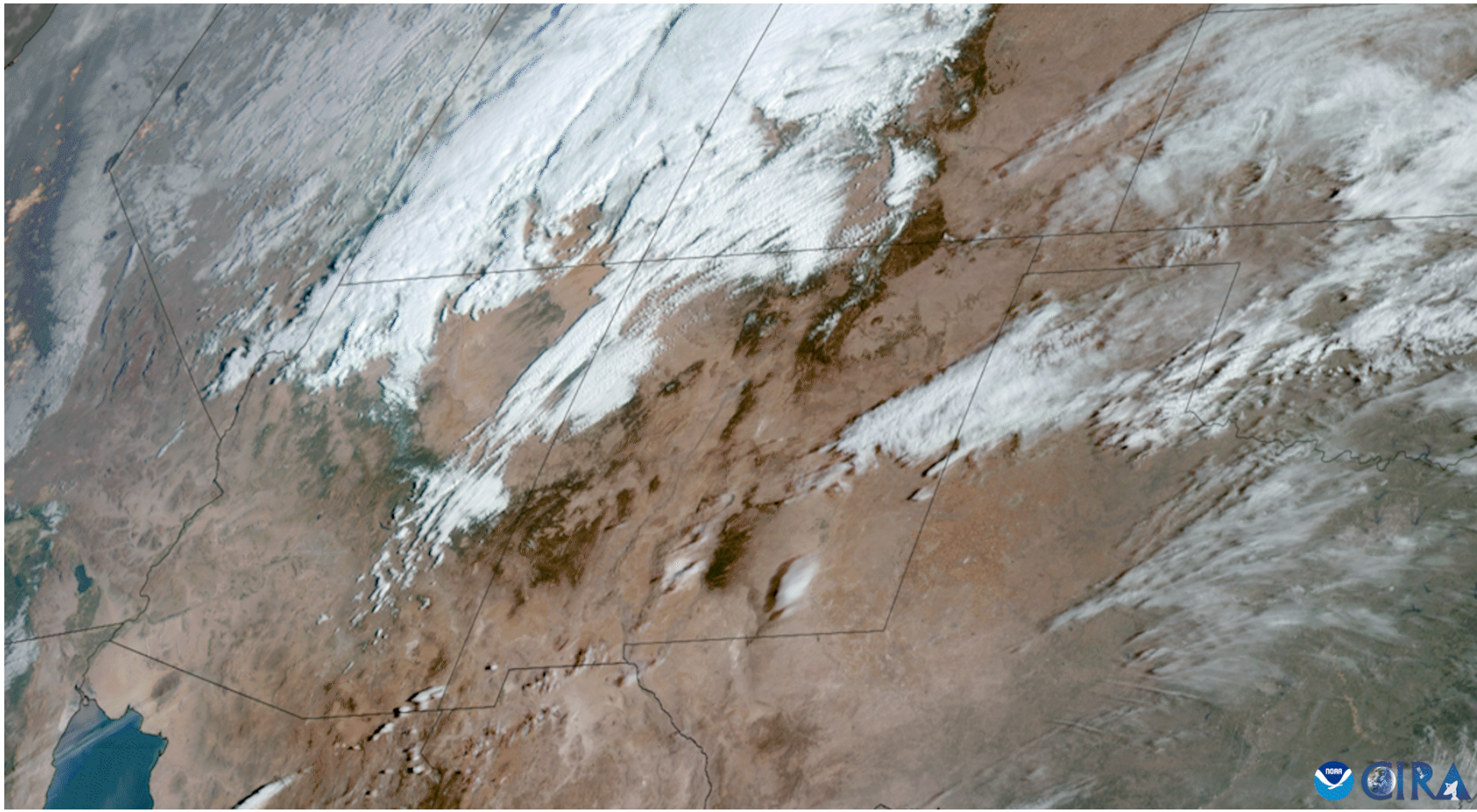
March departure from normal temperature through the 23rd



Generated 3/24/2025 at HPRCC using provisional data.

NOAA Regional Climate Centers

Drought conditions



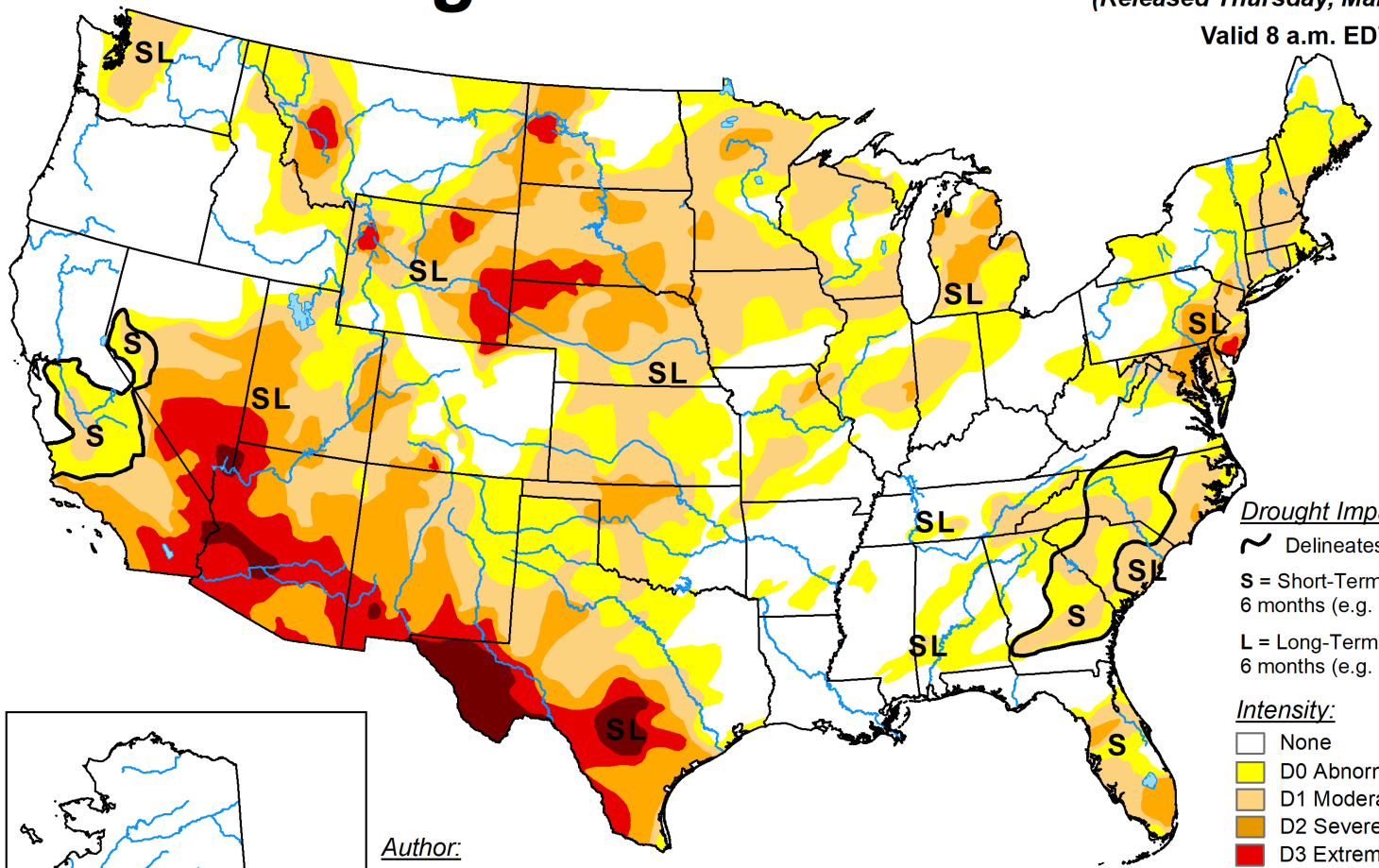
Dust storm, March 18
From
https://satlib.cira.colostate.edu/weather_media/dust-storms-across-the-western-plains/

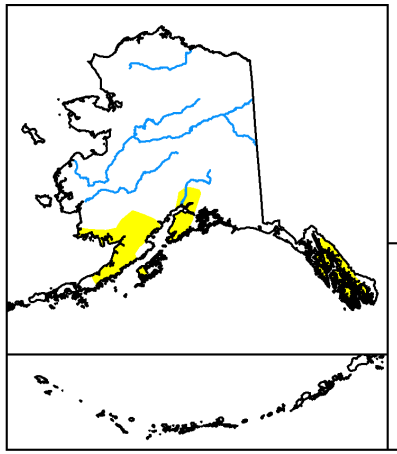
U.S. Drought Monitor

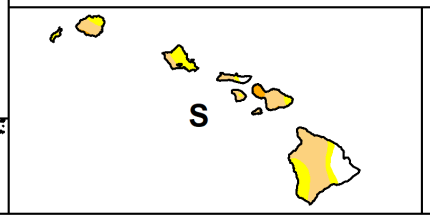
March 18, 2025

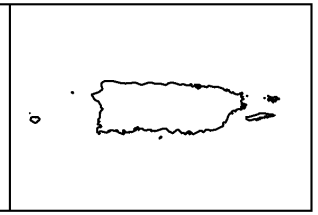
(Released Thursday, Mar. 20, 2025)

Valid 8 a.m. EDT









Author:
Brad Rippey
U.S. Department of Agriculture

Drought Impact Types:

Delineates dominant impacts

S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

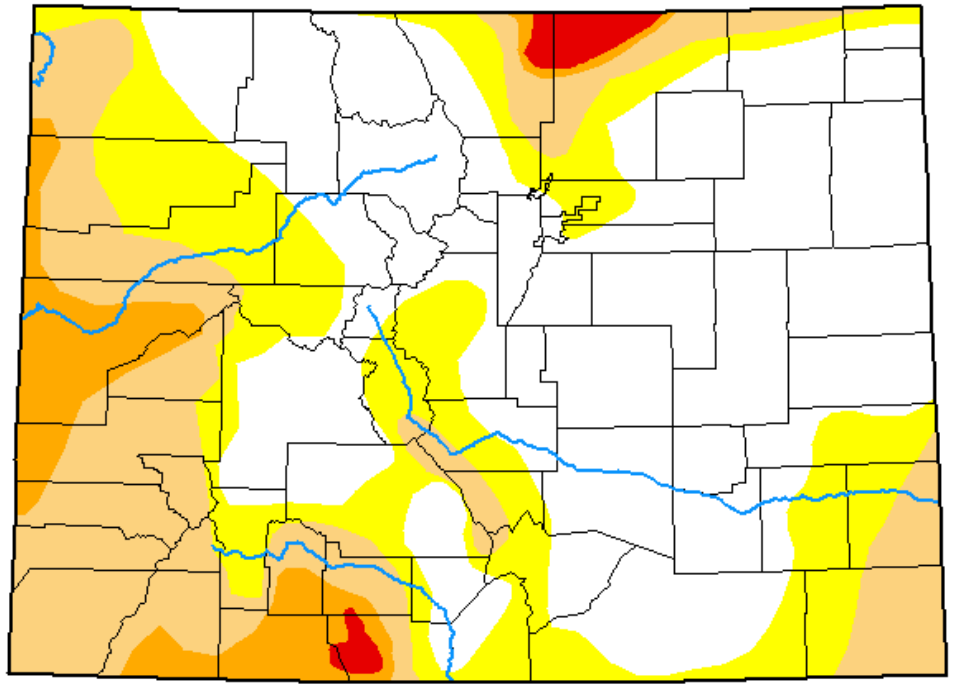
Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme 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

droughtmonitor.unl.edu

U.S. Drought Monitor
Colorado



March 18, 2025
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Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	50.18	49.82	28.01	7.63	1.18	0.00
Last Week *03-11-2025*	53.45	46.55	26.77	7.63	1.18	0.00
3 Months Ago *12-17-2024*	76.61	23.39	10.63	4.11	0.33	0.00
Start of Calendar Year *01-07-2025*	71.40	28.60	10.78	4.08	0.98	0.00
Start of Water Year *10-01-2024*	48.27	51.73	24.40	4.62	0.00	0.00
One Year Ago *03-19-2024*	65.92	34.08	8.40	0.00	0.00	0.00

Intensity:

- None
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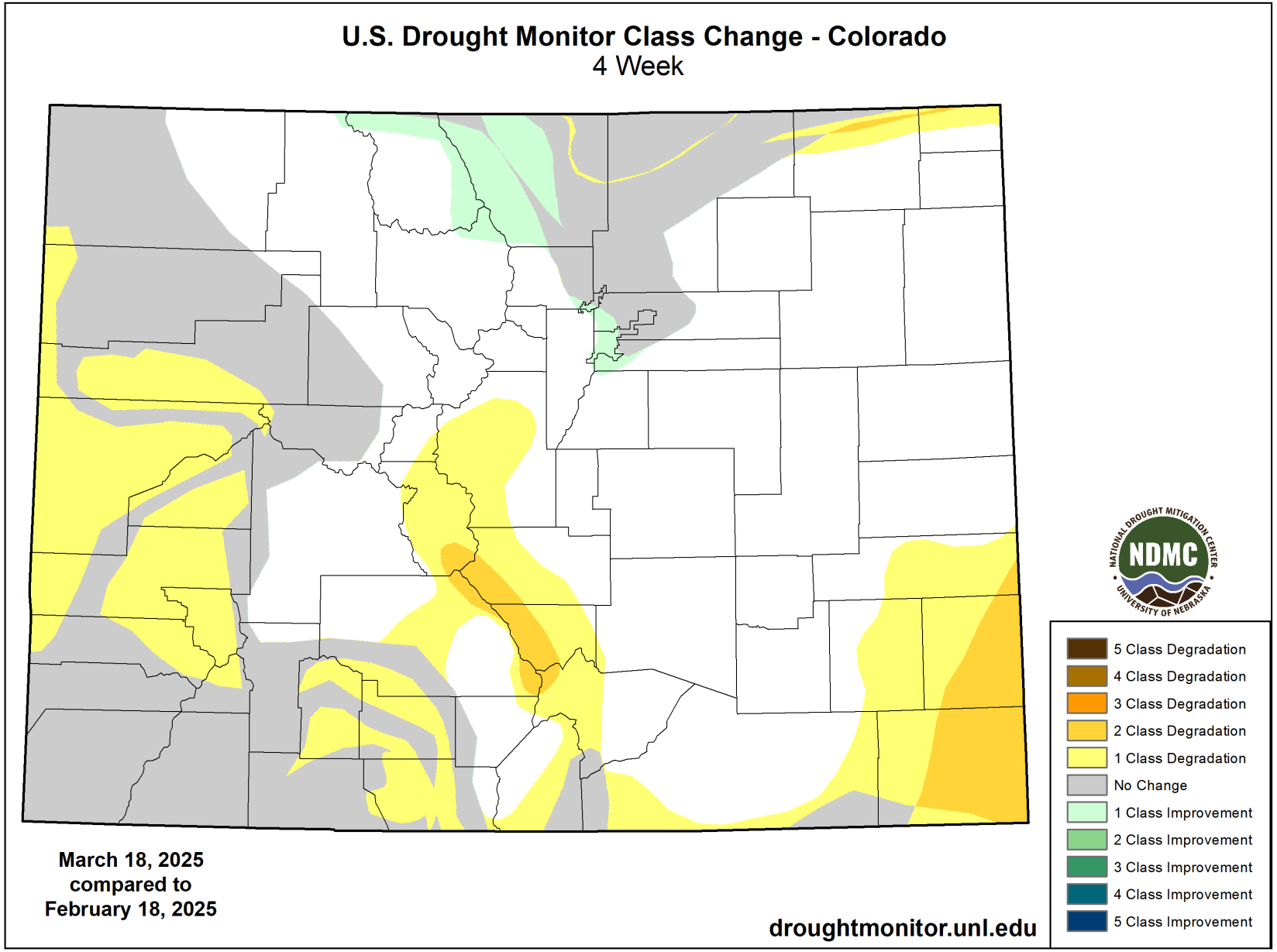
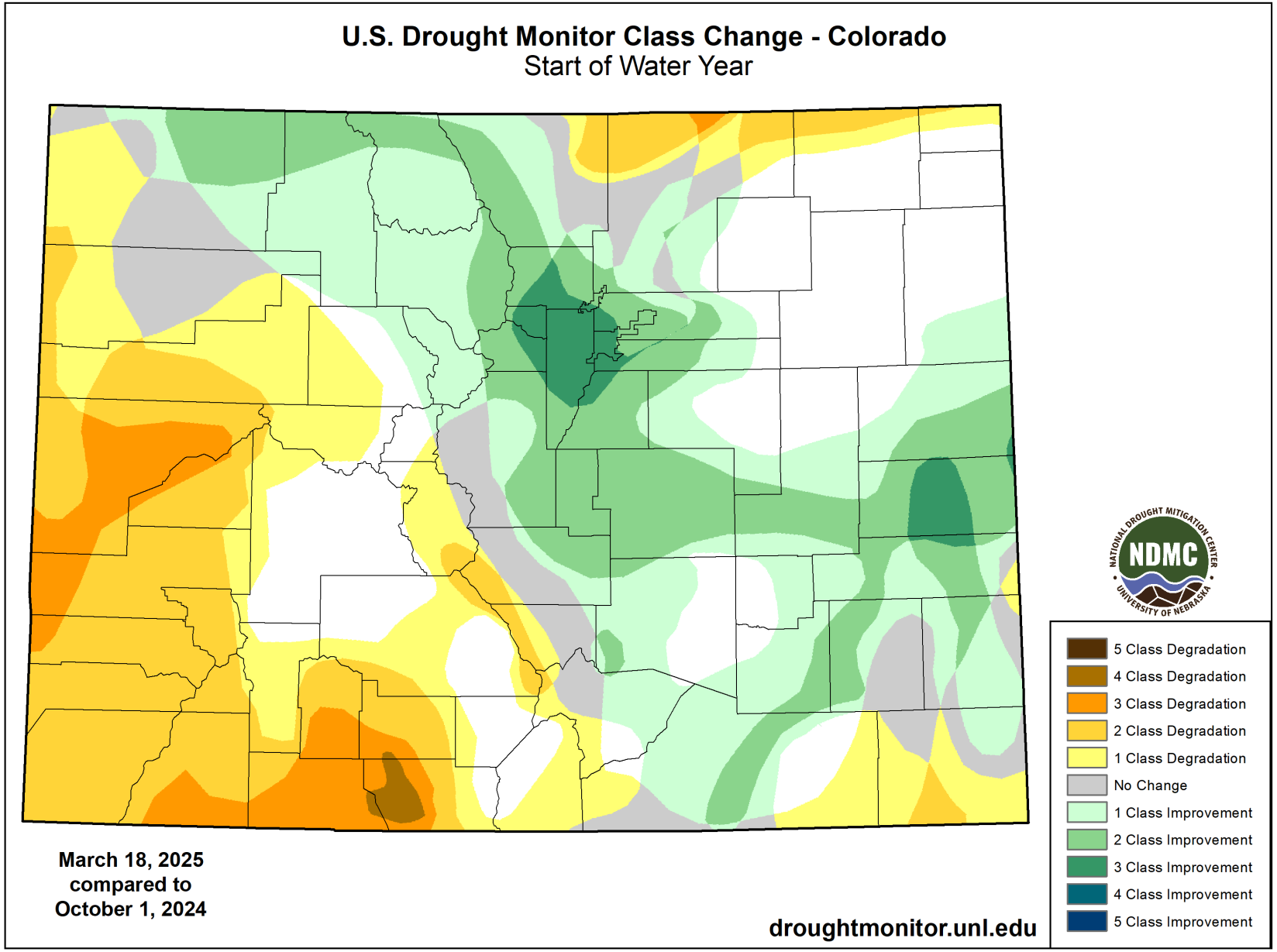
U.S. Department of Agriculture

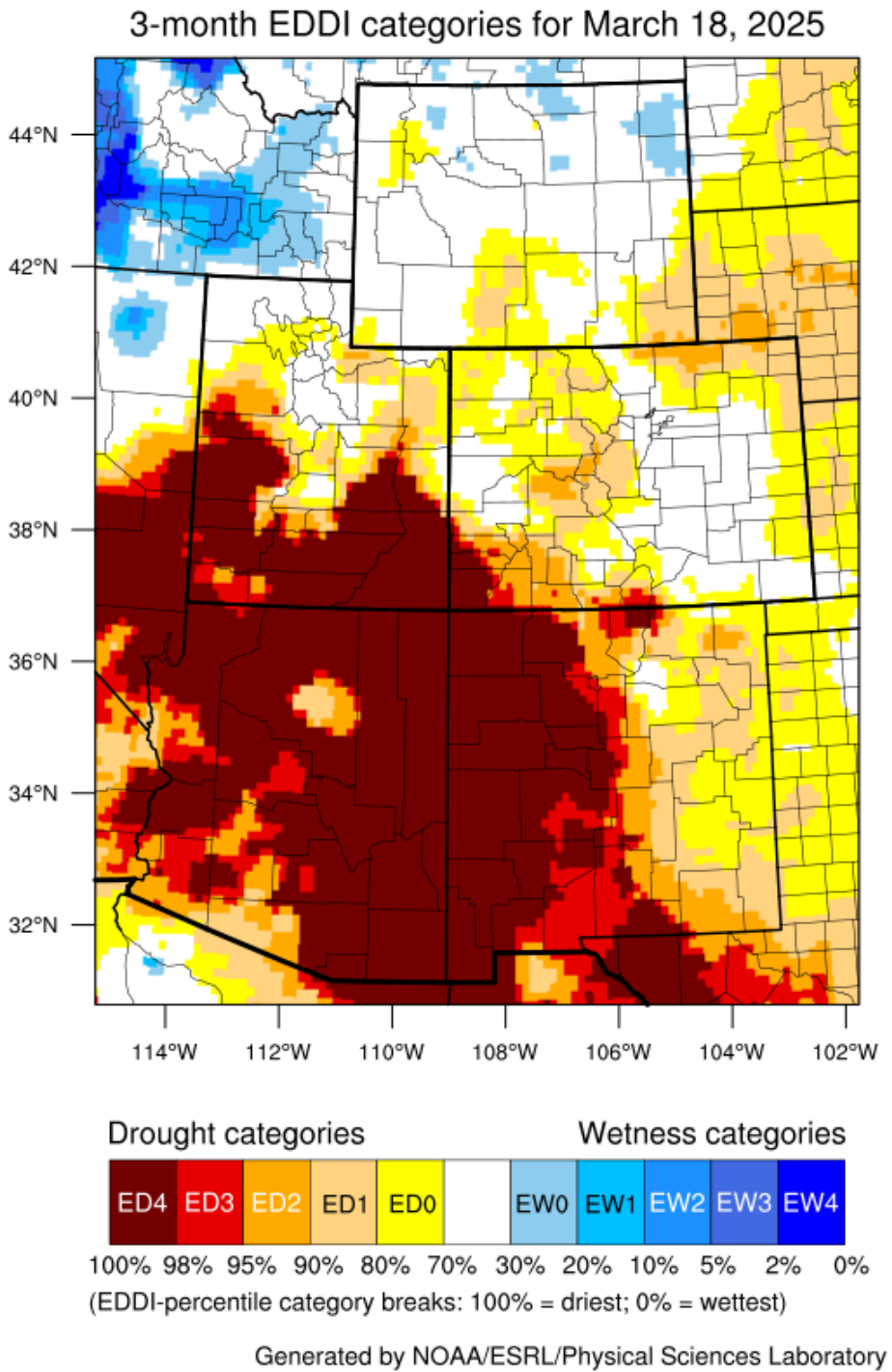
droughtmonitor.unl.edu

Change in the last 4 weeks



Change since beginning of the Water Year





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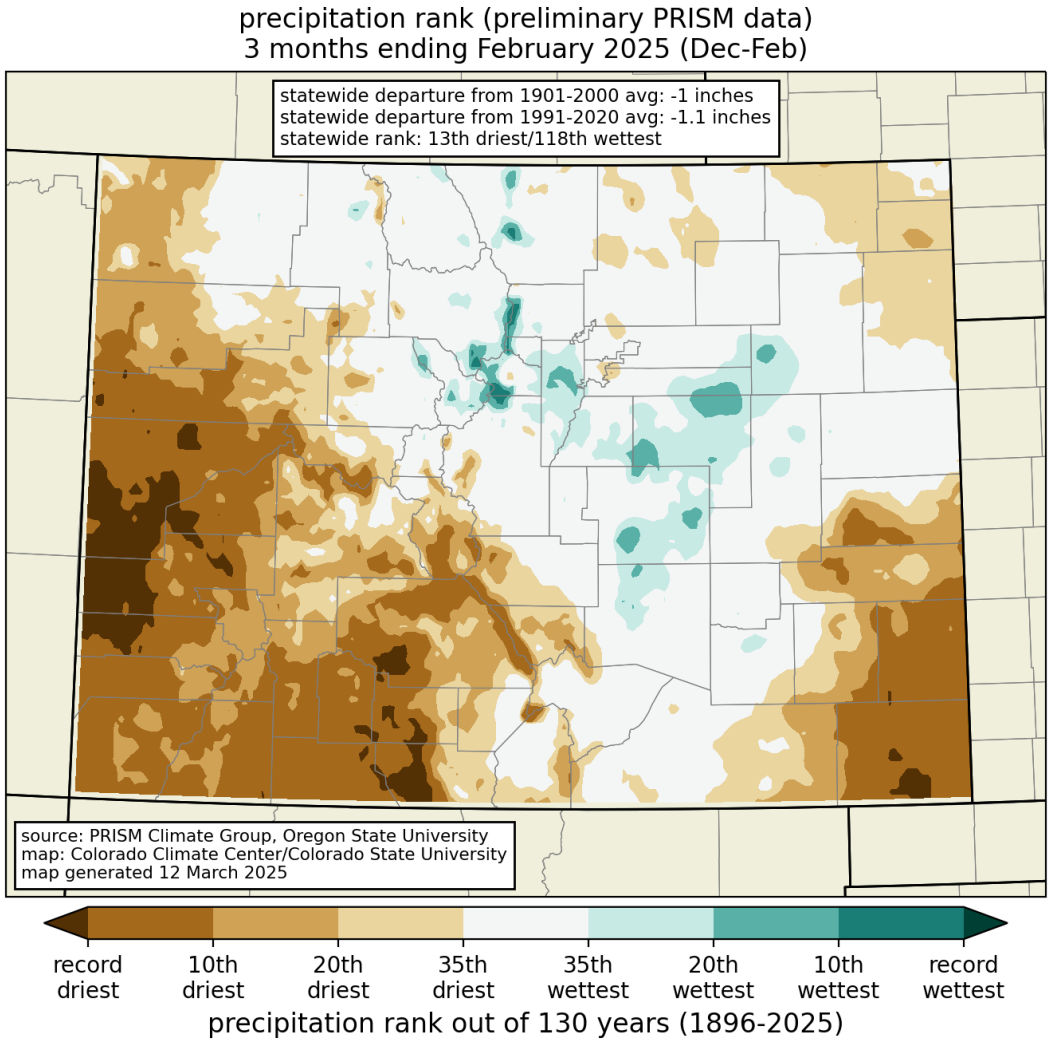
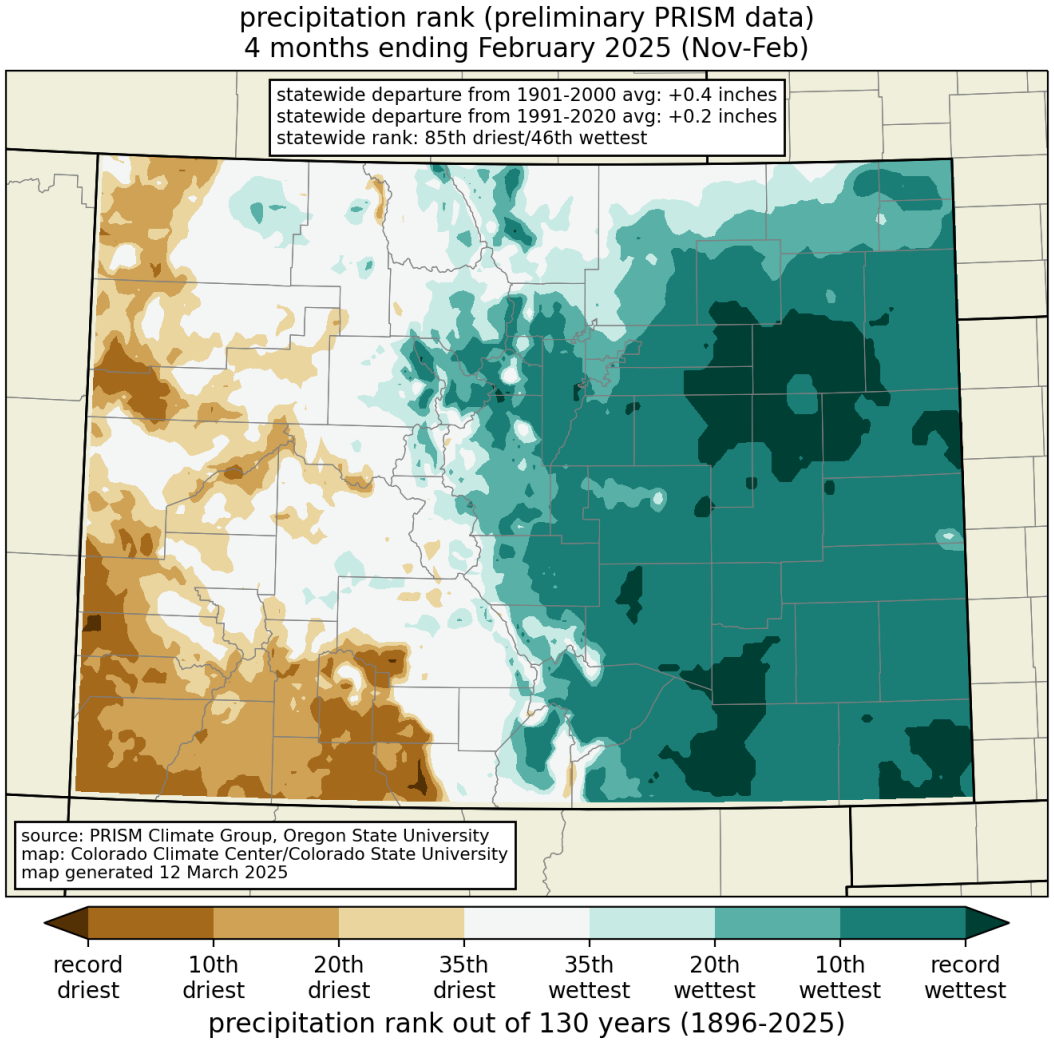
Evaporative Demand Drought Index

Over the last 3 months, the southwestern US has had extremely high evaporative demand (in addition to much below-average precipitation)

Evaporative demand has also been unusually high over parts of central and northeastern Colorado

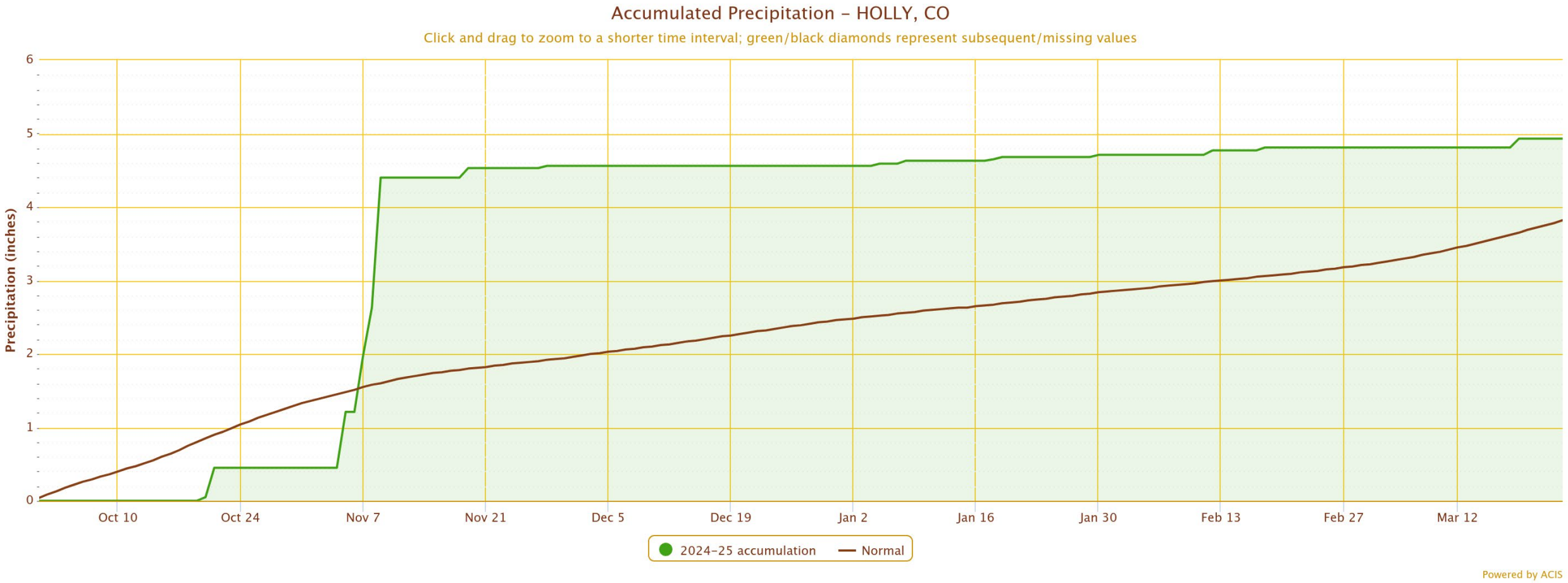
Is southeastern Colorado wet or dry right now?



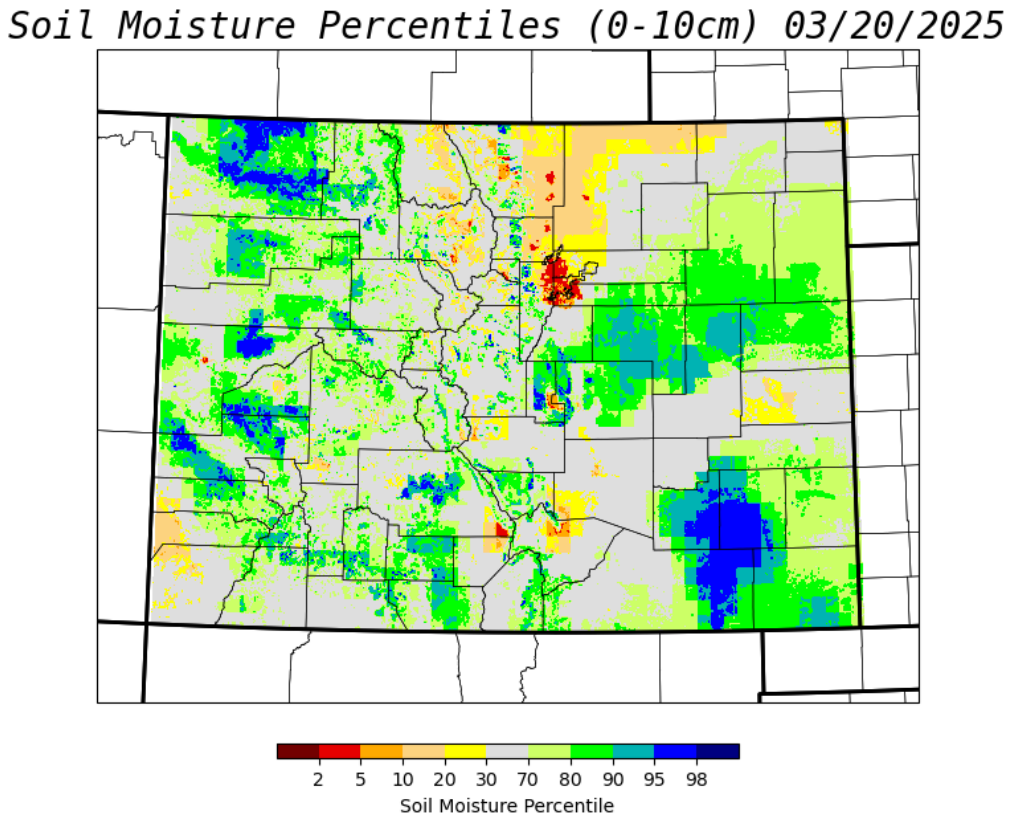


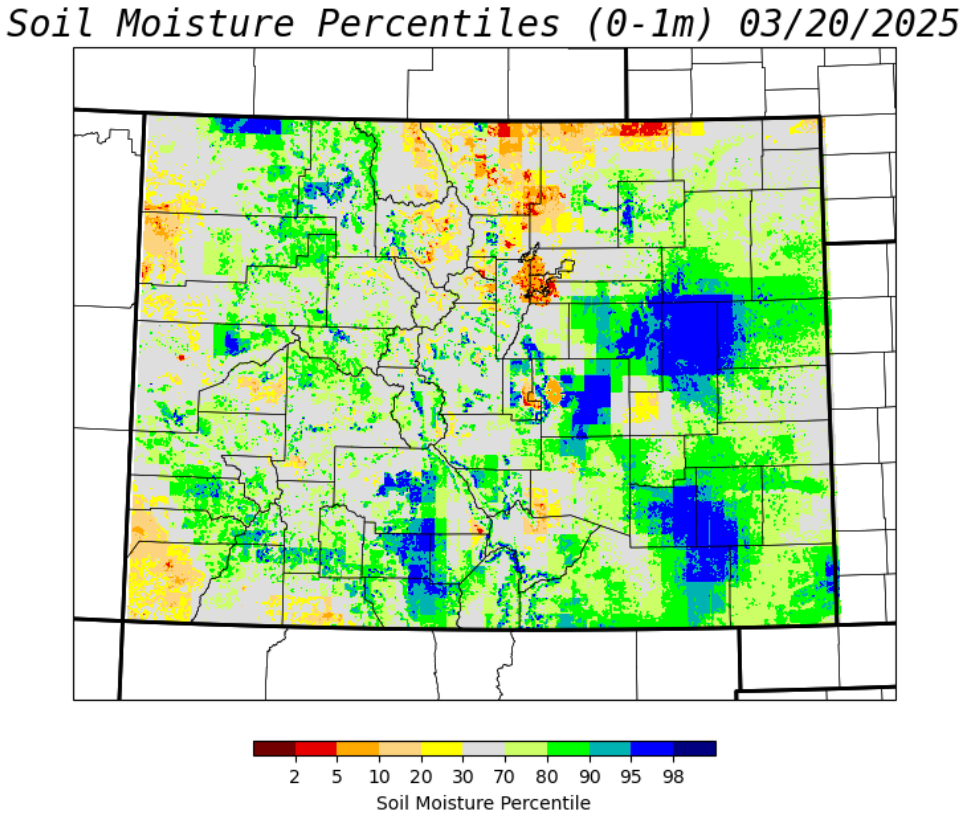
Parts of Baca County had their **driest** December through February, and their **wettest** November through February

Is southeastern Colorado wet or dry right now?



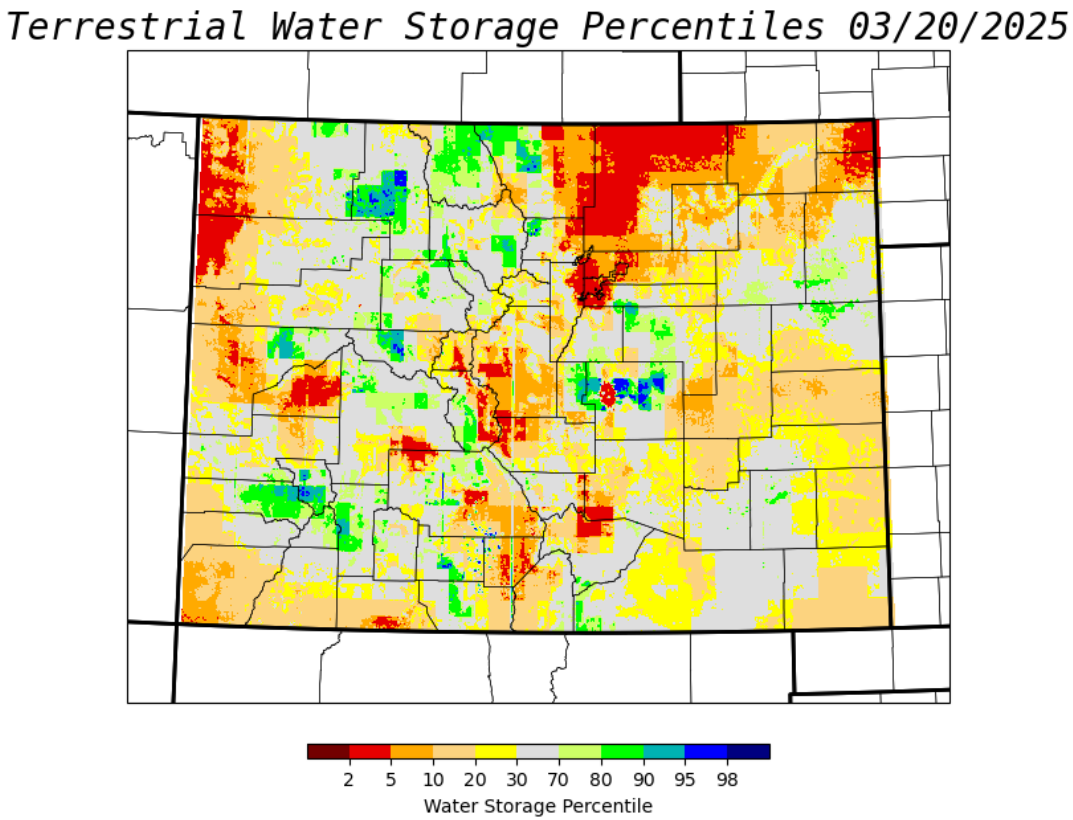
Holly has been extremely dry since the huge storm in November, but is still about an inch above average for the water year





These products suggest that both shallow and deep soil moisture are still doing ok in southeastern Colorado, especially in the places that got the most snow in November

Soil moisture continuing to decline on the northern Front Range



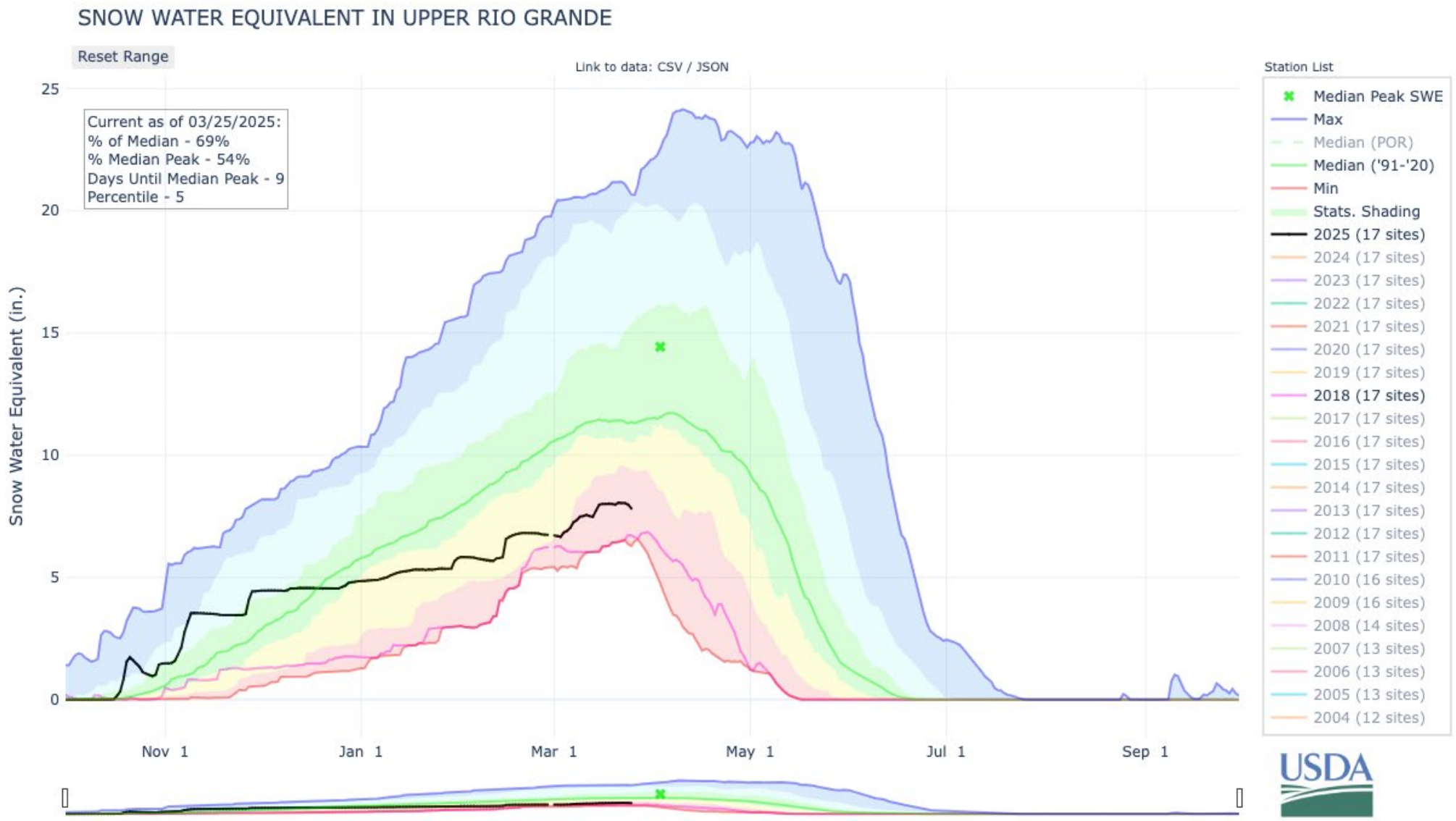
Terrestrial water storage: ground water + soil moisture + snowpack

This appears more reflective of recent deficits in precipitation and snow

In Upper Rio Grande basin, average peak snowpack is in 9 days

We would need about 6” of liquid to reach that average peak…and will likely lose some this week instead

(Not as bad as 2018 though!)



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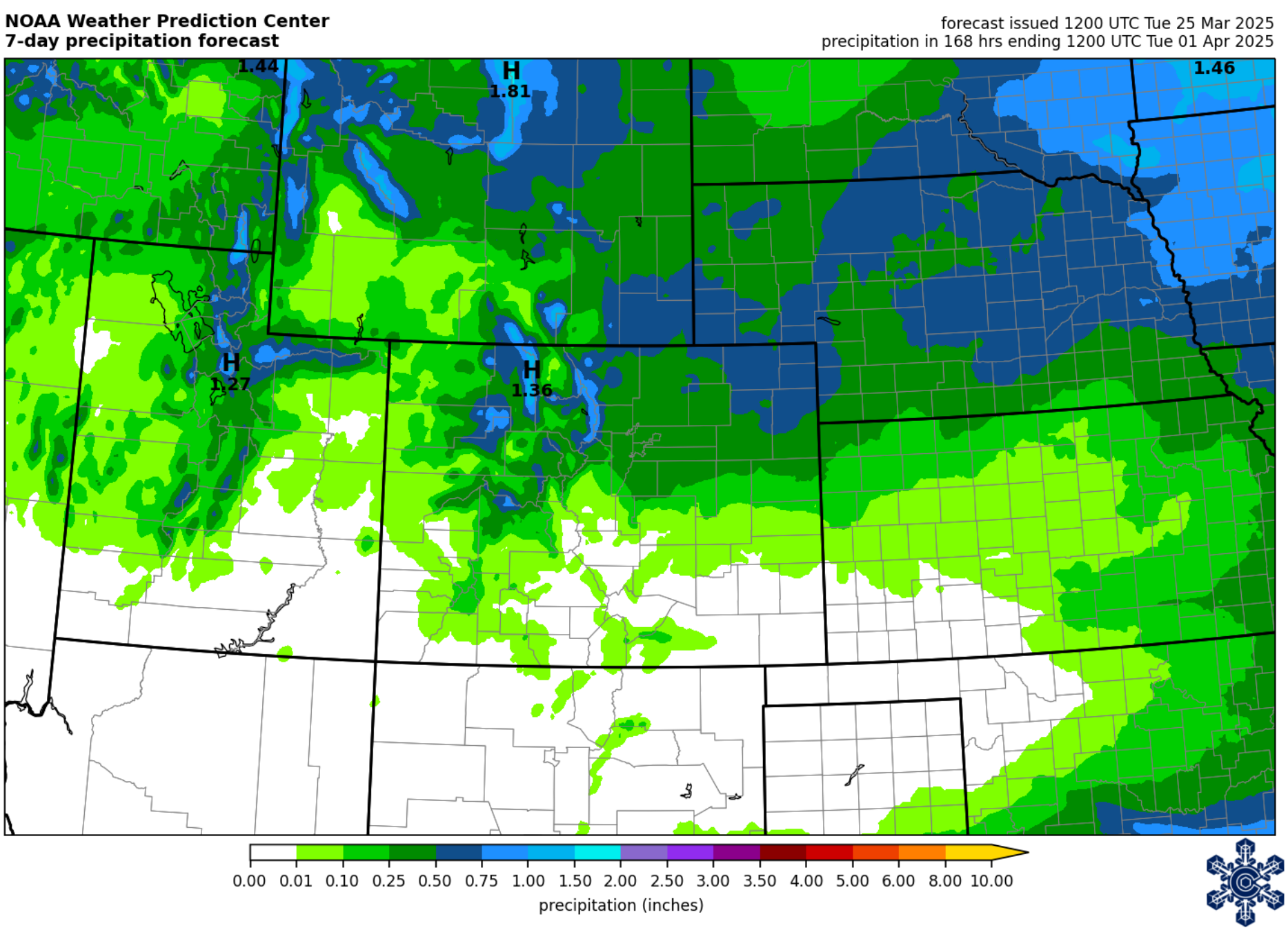
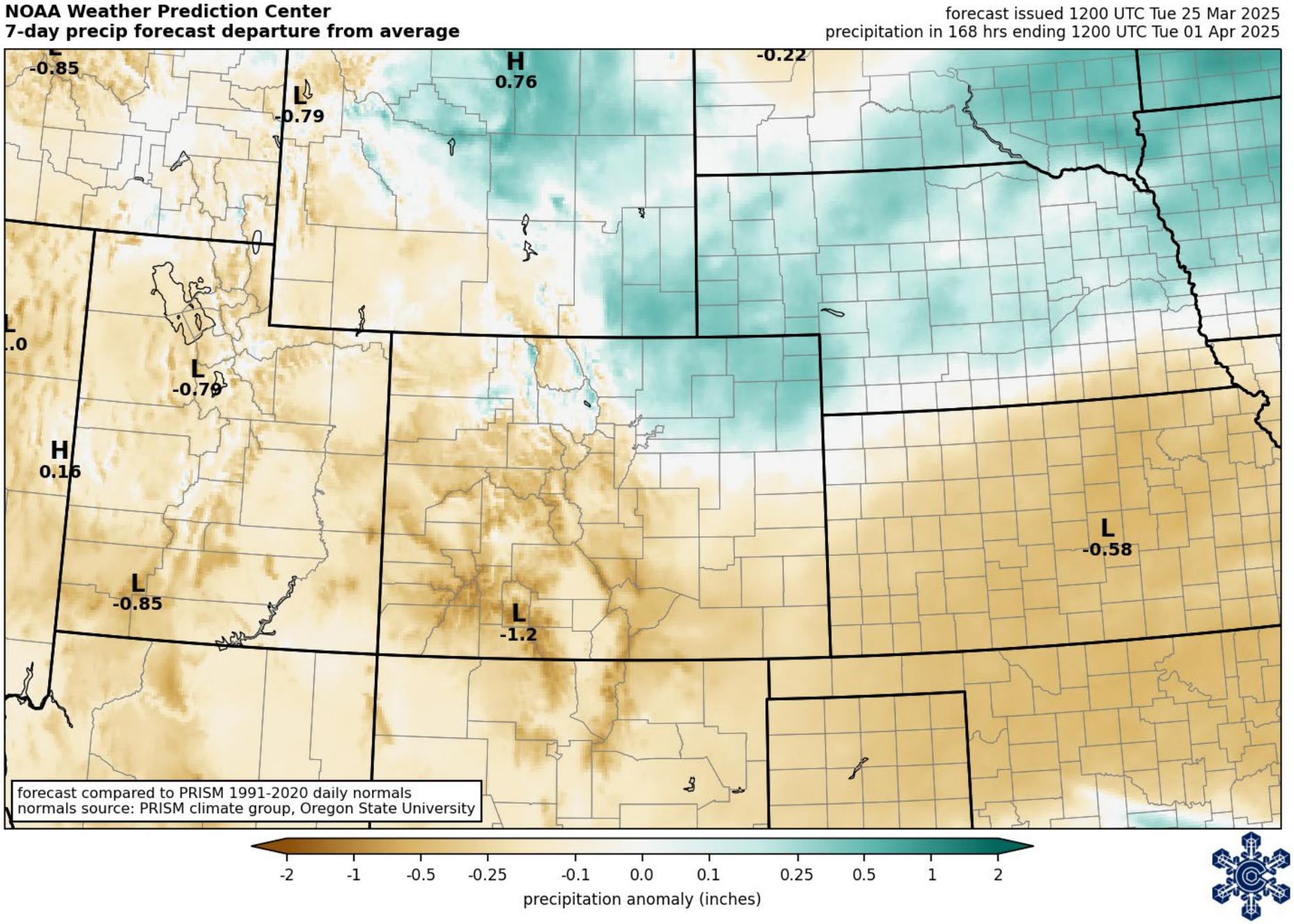
Outlook

NOAA 7-day precipitation forecast

Dry until Friday, then a storm system should bring at least some precipitation to northern Colorado



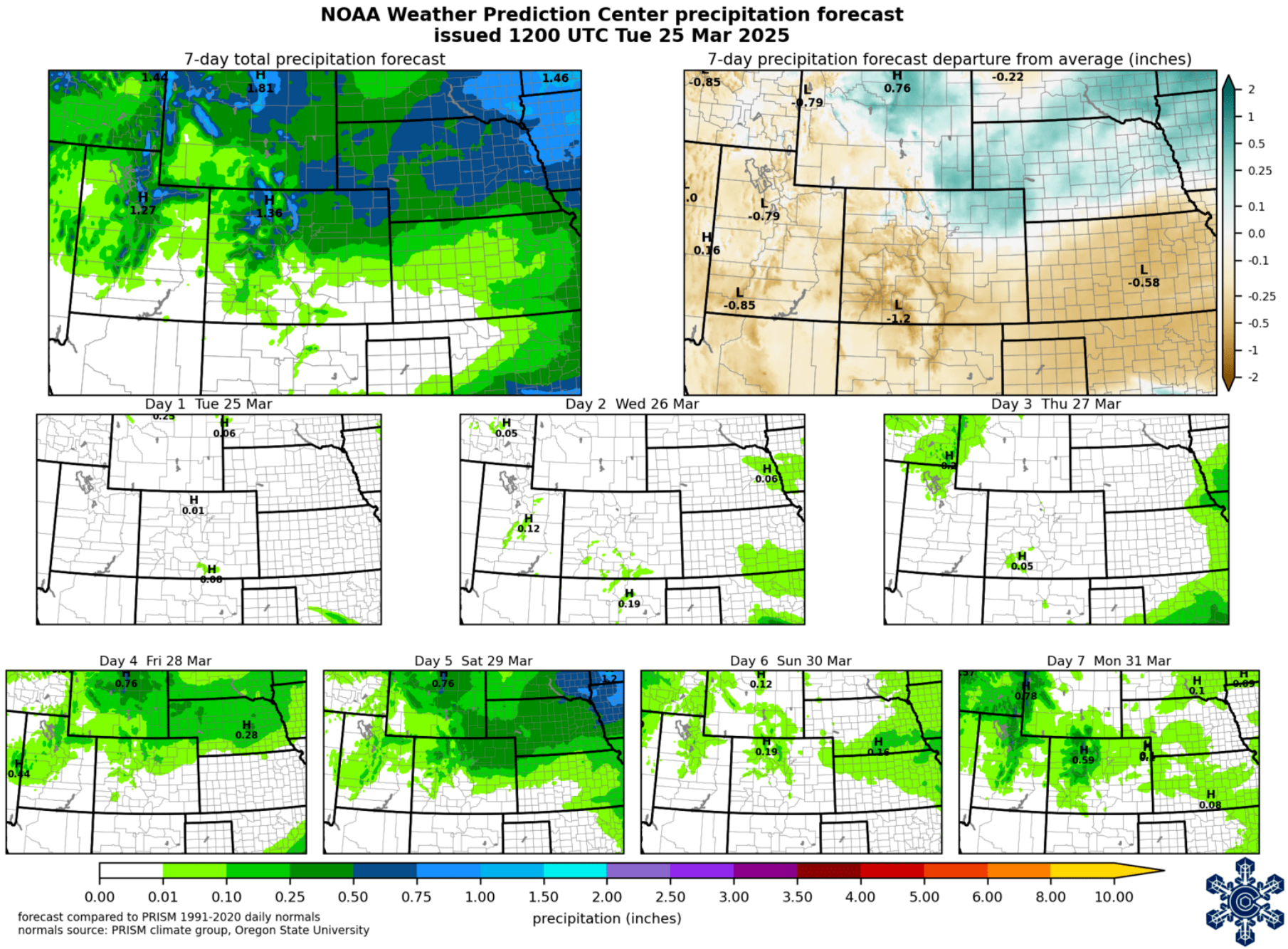
NOAA 7-day precipitation forecast (difference from average)



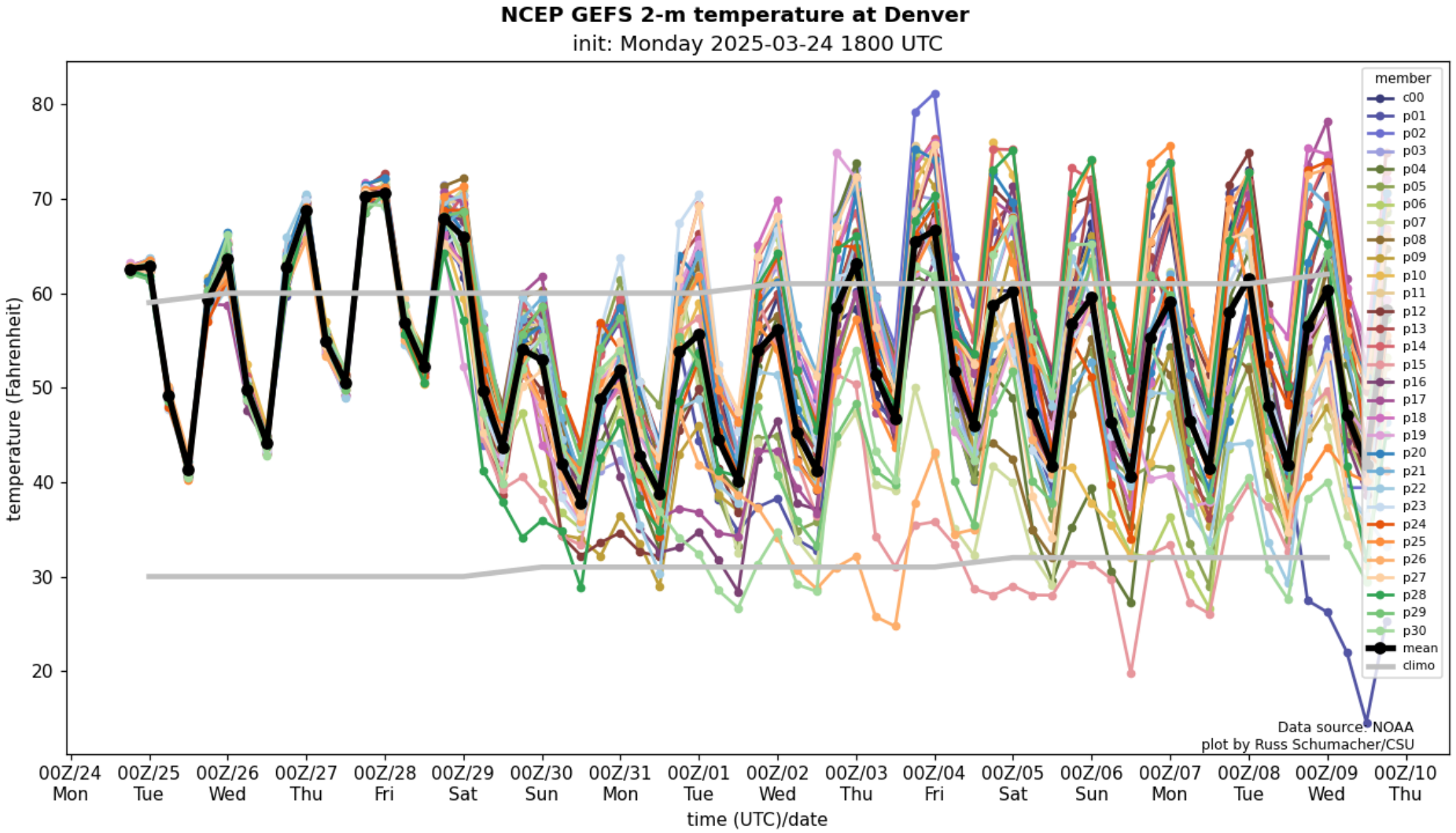
NOAA 7-day precipitation forecast

Quick-look maps on our drought page:

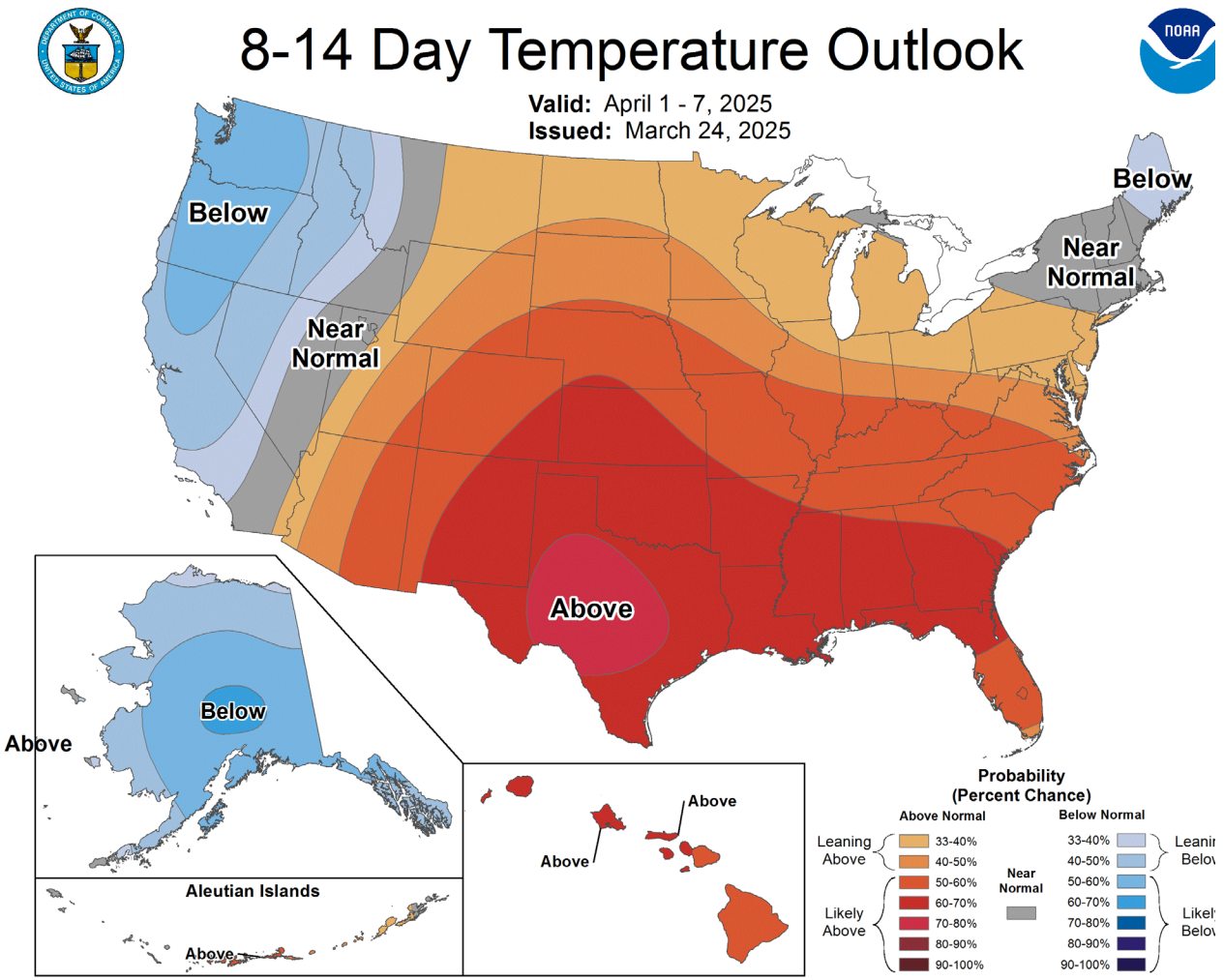
https://climate.colostate.edu/drought/#outlook

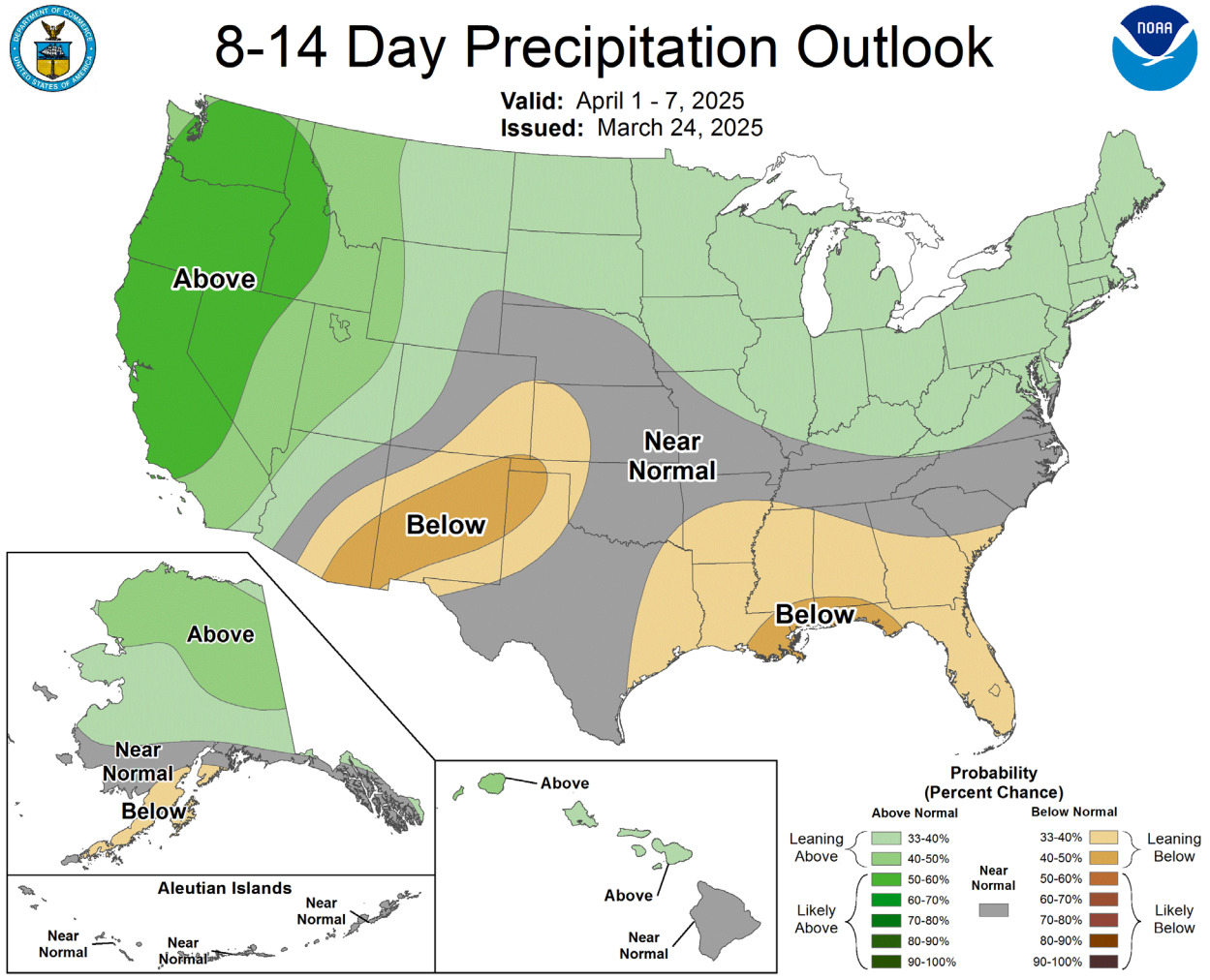


Record highs possible on Weds and Thurs; a bit cooler for a few days; then warming up again



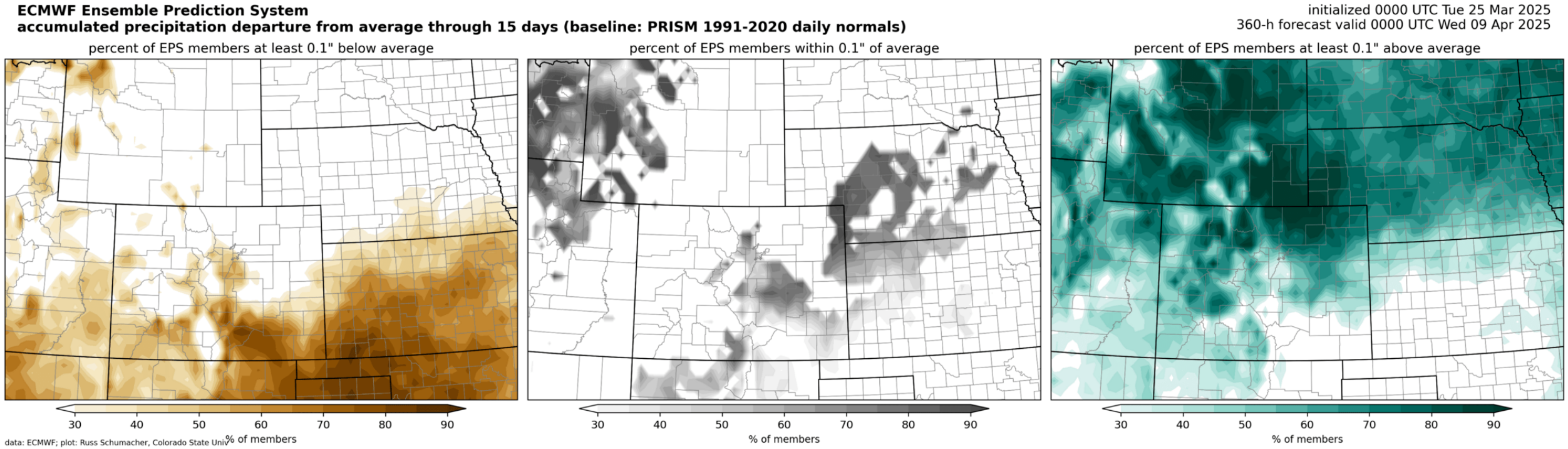
First week of April remaining warmer than average, with some mountain precip likely





Will the next 15 days be above, below, or near average precipitation?

Out of 50 different model forecasts, how many are at least 0.1” above/below average, or within 0.1” of average

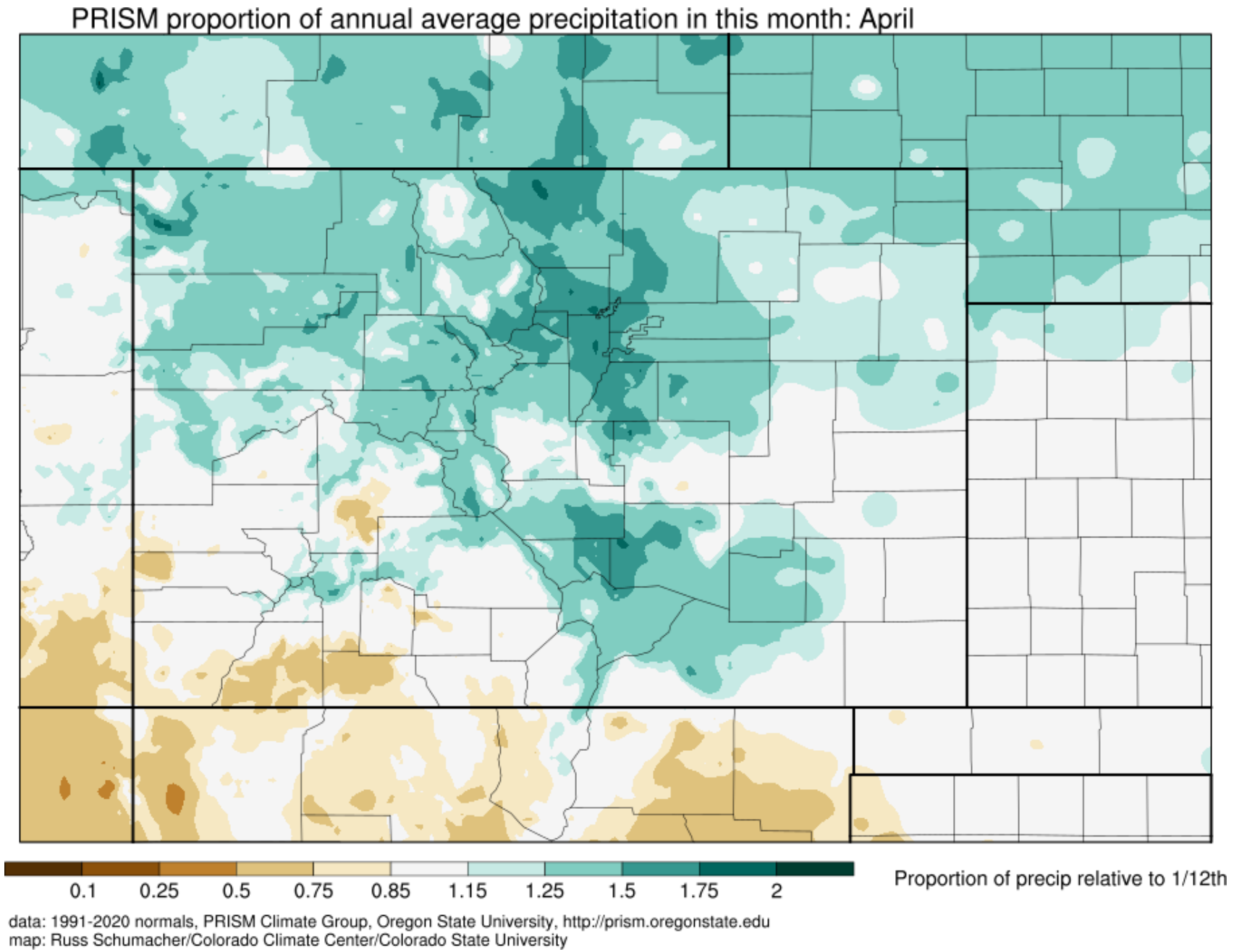


Percent of members below average | **Percent of members within 0.1”** | **Percent of members above avg**

https://schumacher.atmos.colostate.edu/weather/ecmwf.php

Is April typically a wet or dry month?

Wettest month of the year for the lower elevations in northwest Colorado, and a very important month along the Front Range



La Niña on its way out, return to neutral conditions for a while

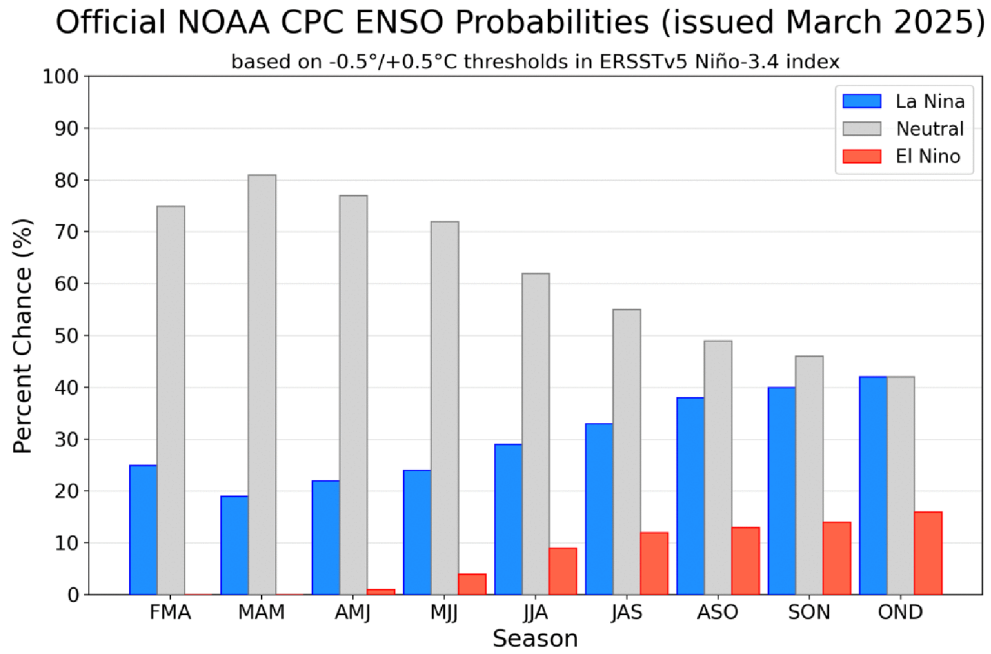


Figure 7. Official ENSO probabilities for the Niño 3.4 sea surface temperature index (5°N-5°S, 120°W-170°W). Figure updated 13 March 2025.

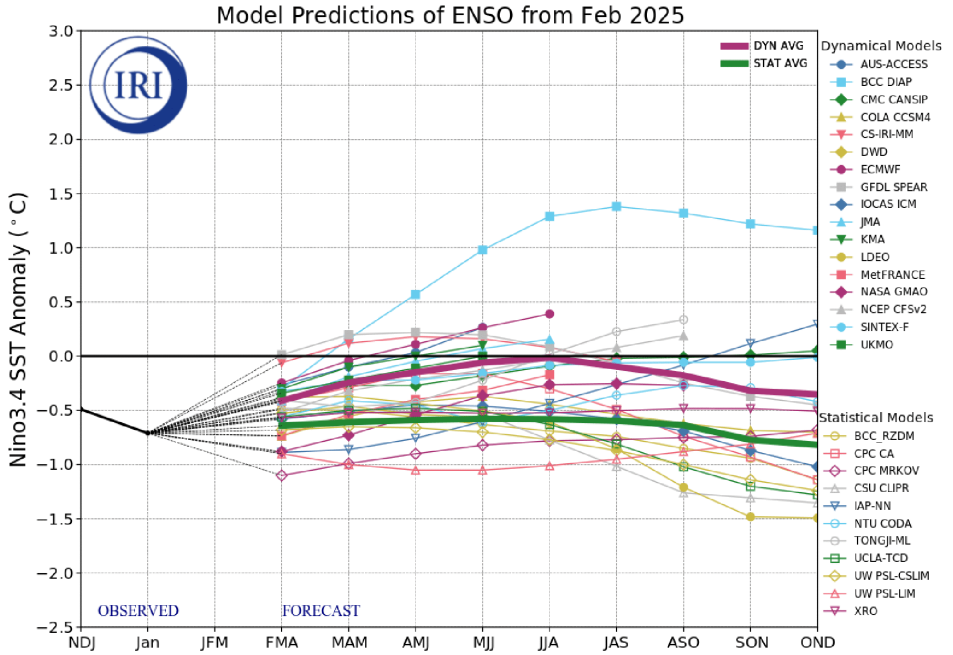


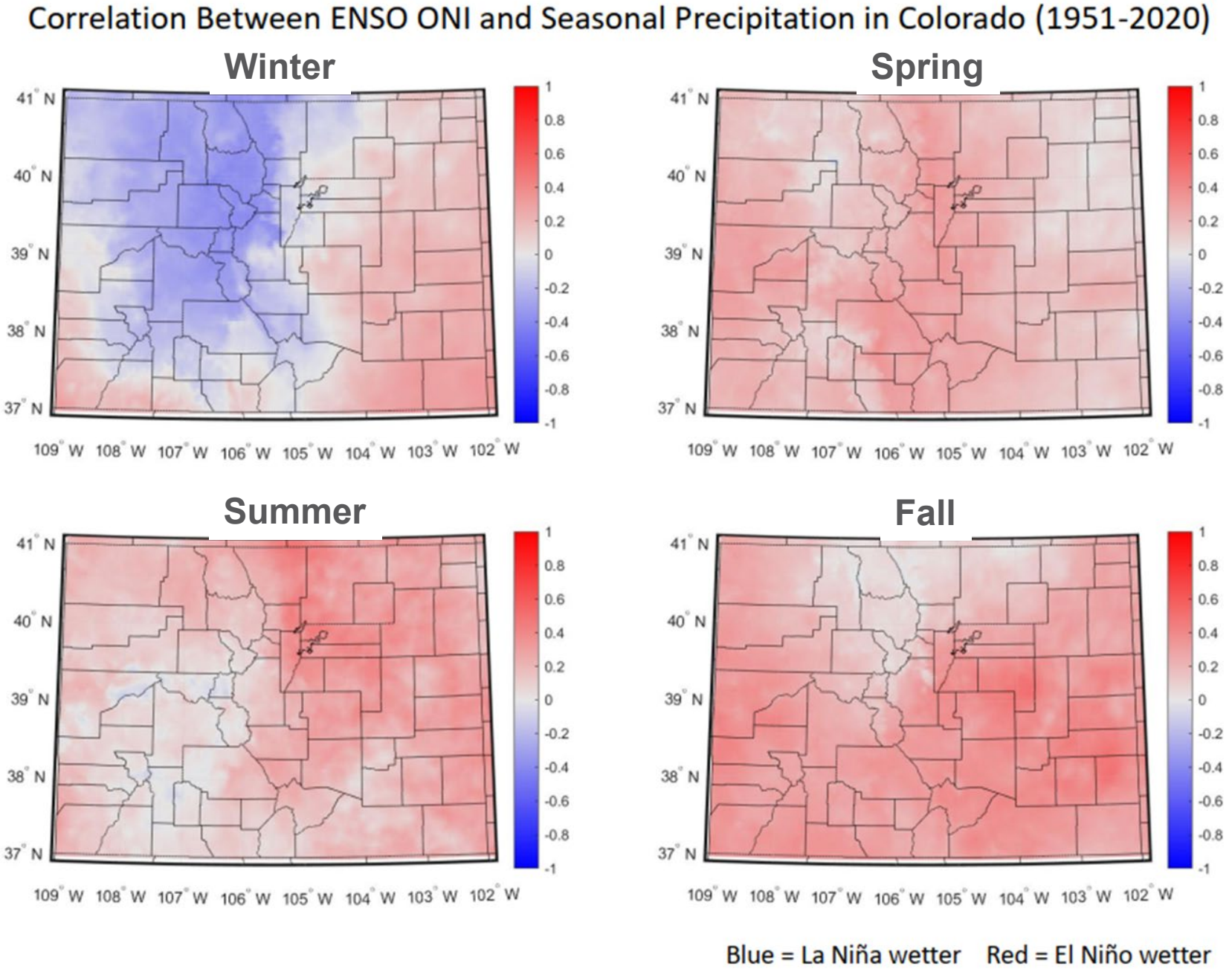
Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 19 February 2025 by the International Research Institute (IRI) for Climate and Society.

"ENSO-neutral is favored to develop in the next month and persist through the Northern Hemisphere summer (62% chance in June-August 2025"

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml

Which seasons tend to be wet or dry depending on the status of El Niño and La Niña?

Blue: La Niña wetter
Red: El Niño wetter

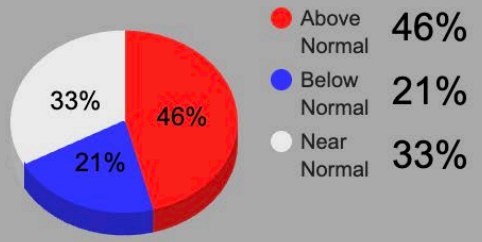


NOAA's April temperature outlook

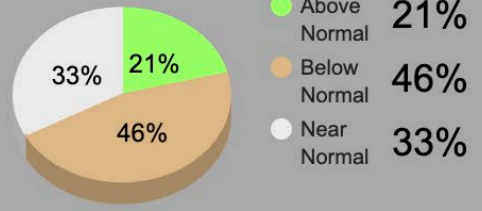
Find address or place

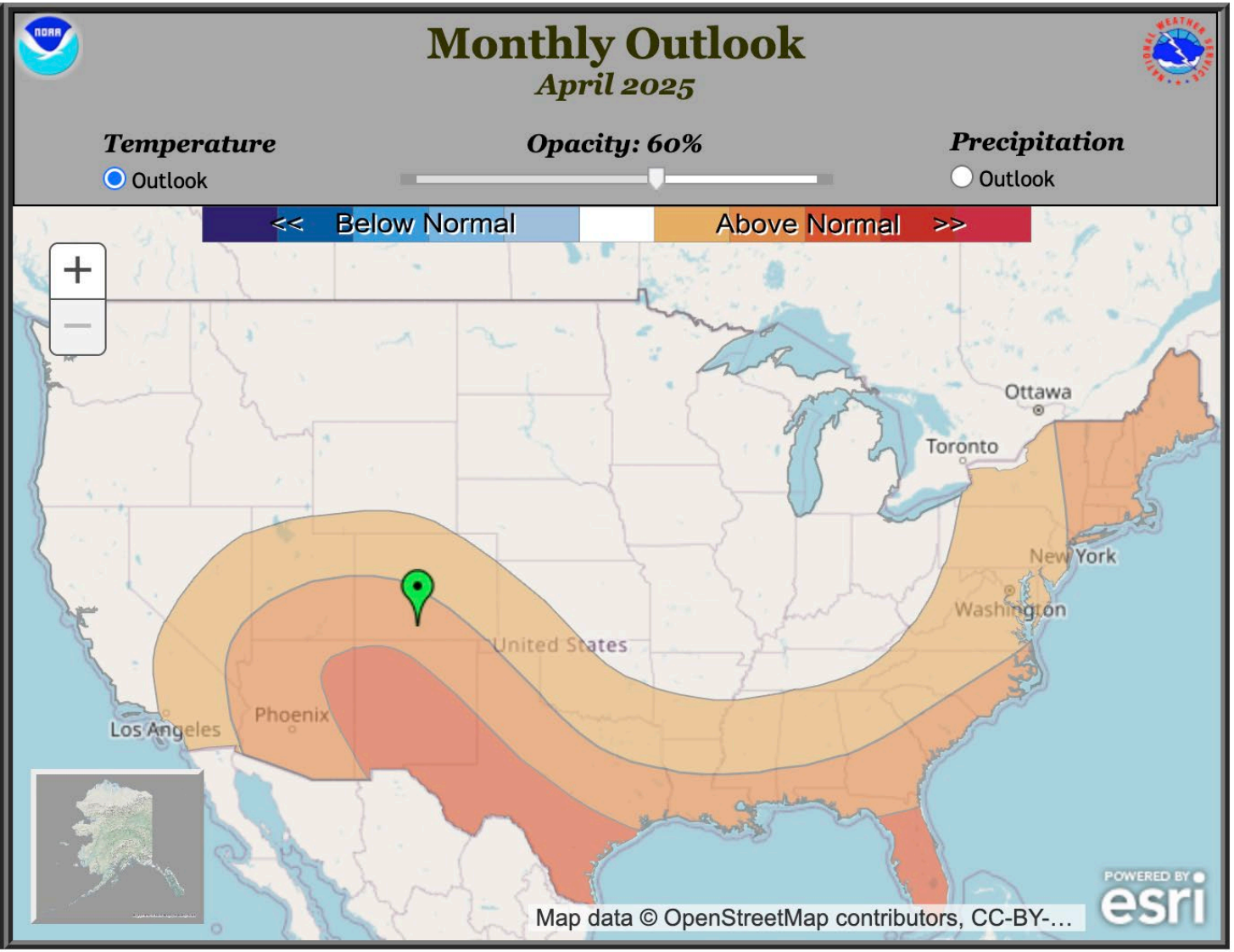
7 Day Forecast for Alamosa, CO

Three Category Temperature Outlook
Normal Maximum Temperature: **59**
Normal Minimum Temperature: **24**

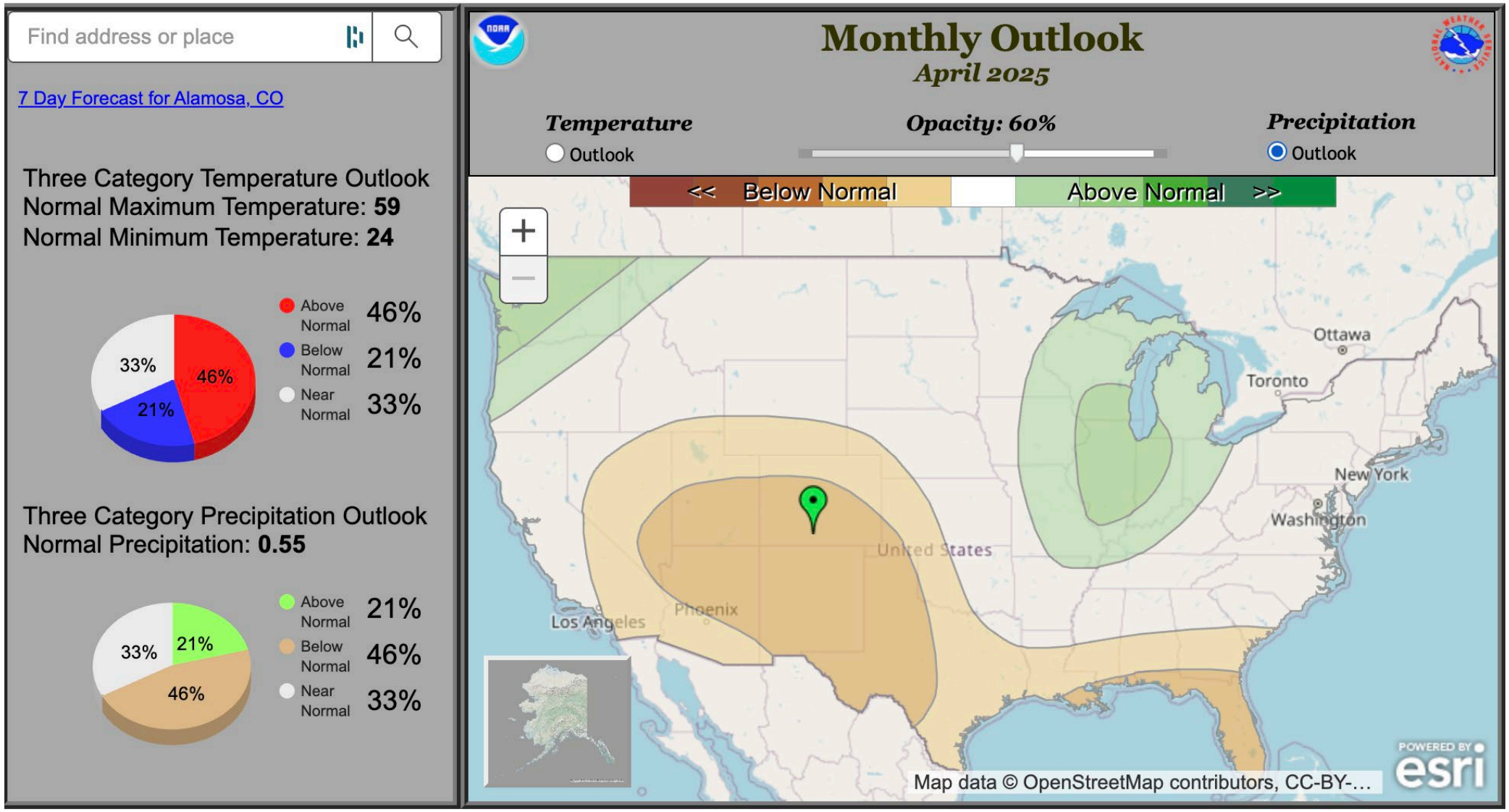


Three Category Precipitation Outlook
Normal Precipitation: **0.55**

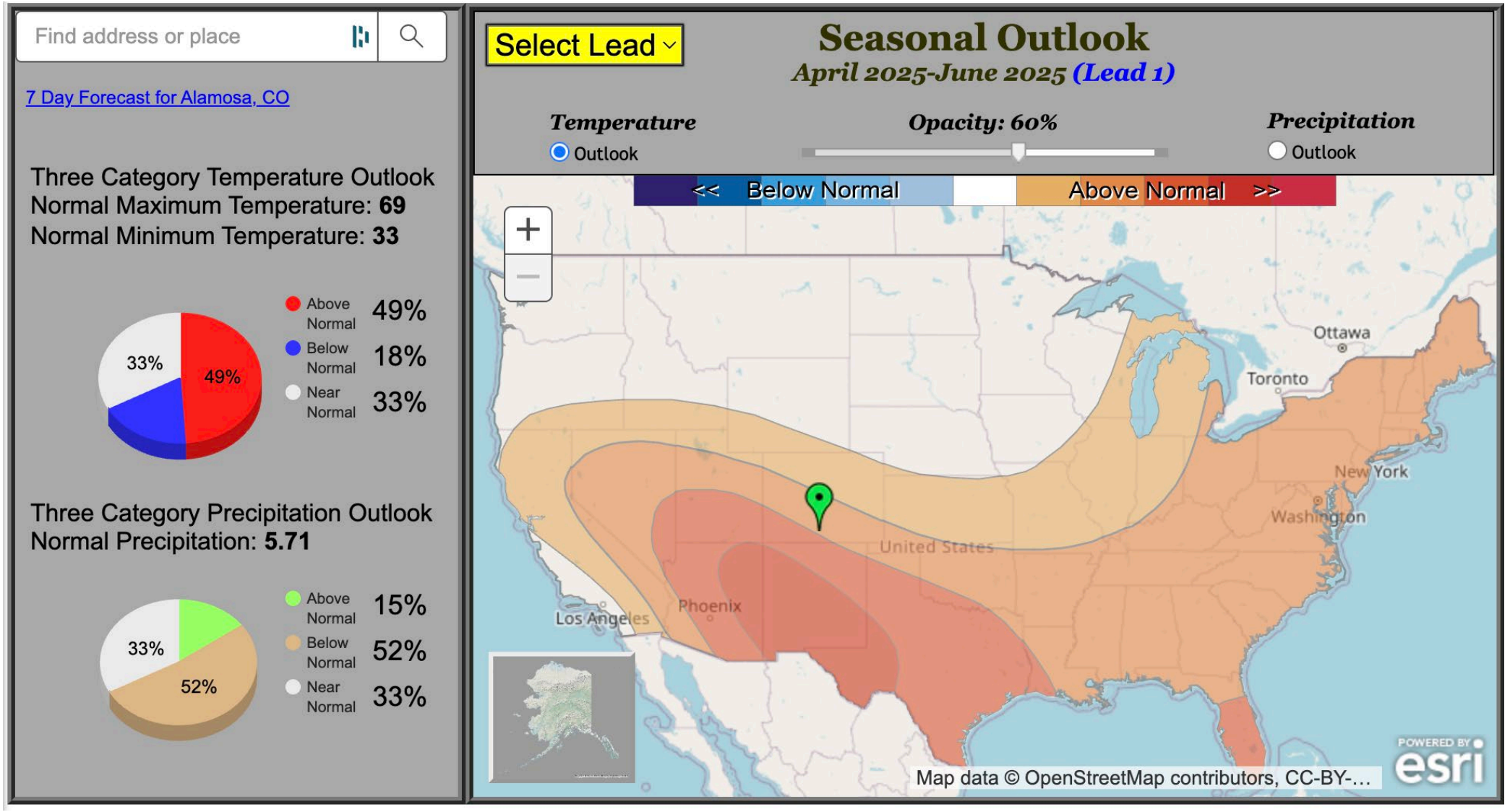




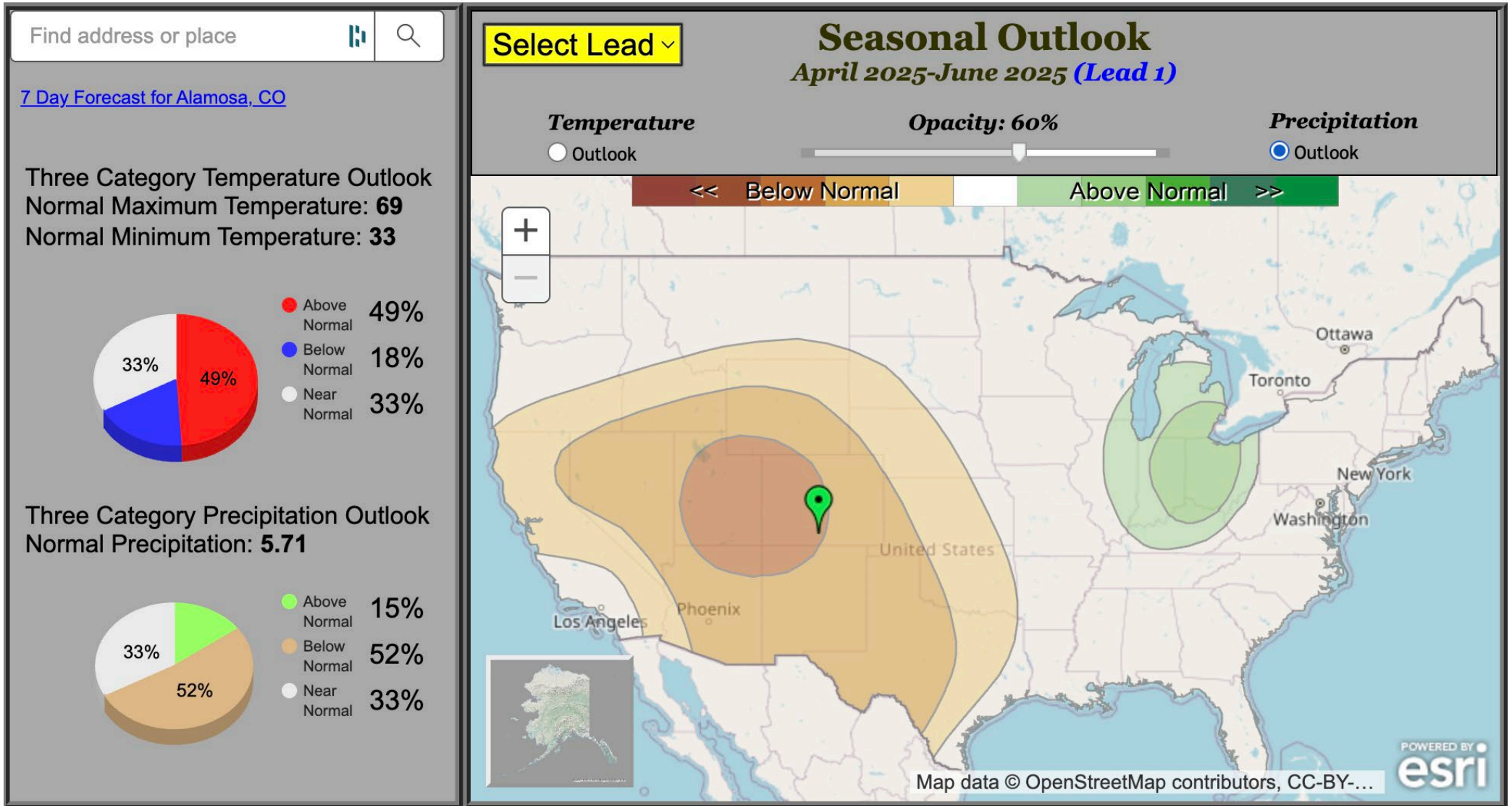
NOAA's April precipitation outlook



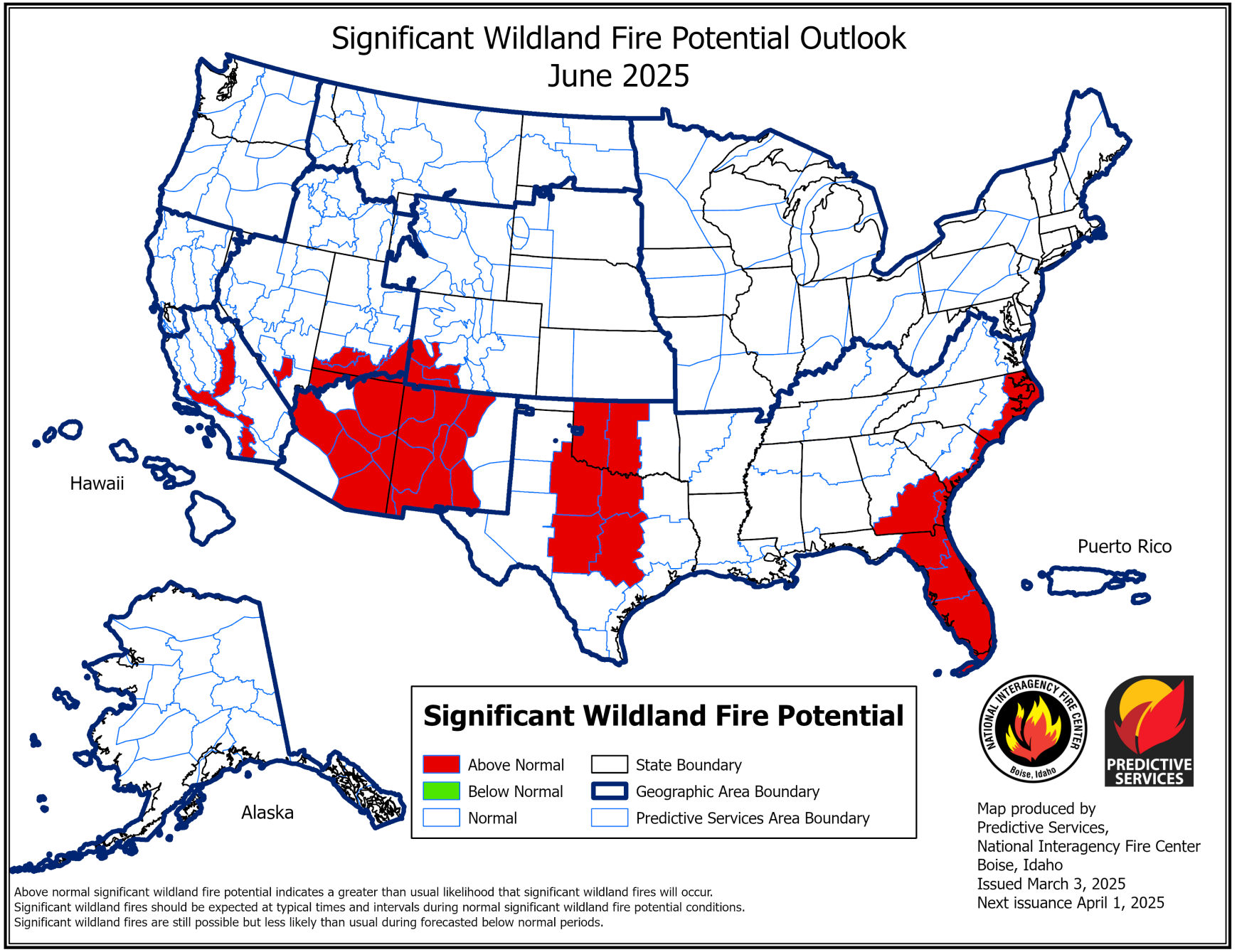
NOAA's April-May-June temperature outlook



NOAA's April-May-June precipitation outlook



USDA outlooks for wildfire potential show near-normal risk across Colorado through May, then increased risk in the southwest in June



Takeaways

- Water Year 2025 has generally started warm and dry, aside from the huge November snowstorm.
- Winter 24-25 was among the warmest and driest on record in western CO
- March has been dry and windy in eastern Colorado; the mountains have seen decent snow but not nearly enough to make up deficits from winter
- Drought has worsened in the southwest, and starting to expand in the east
- Good news:
  - La Niña is waning
  - Early outlooks suggest an active summer monsoon season
- **Bad news:**
  - **Current conditions combined with outlooks for spring and early summer raise serious concerns about drought in the southern part of the state**

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