

Colorado Climate Update

Russ Schumacher, state climatologist

Water Conditions Monitoring Committee

June 17, 2025



**COLORADO
CLIMATE
CENTER**



ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY

Water Year 2025 so far

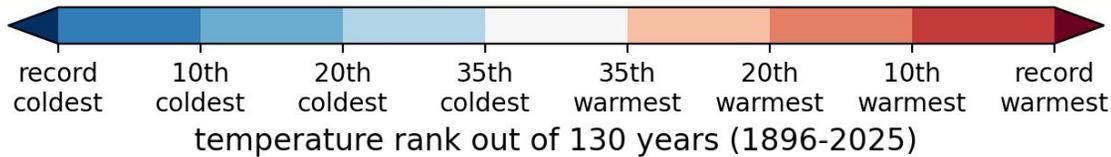
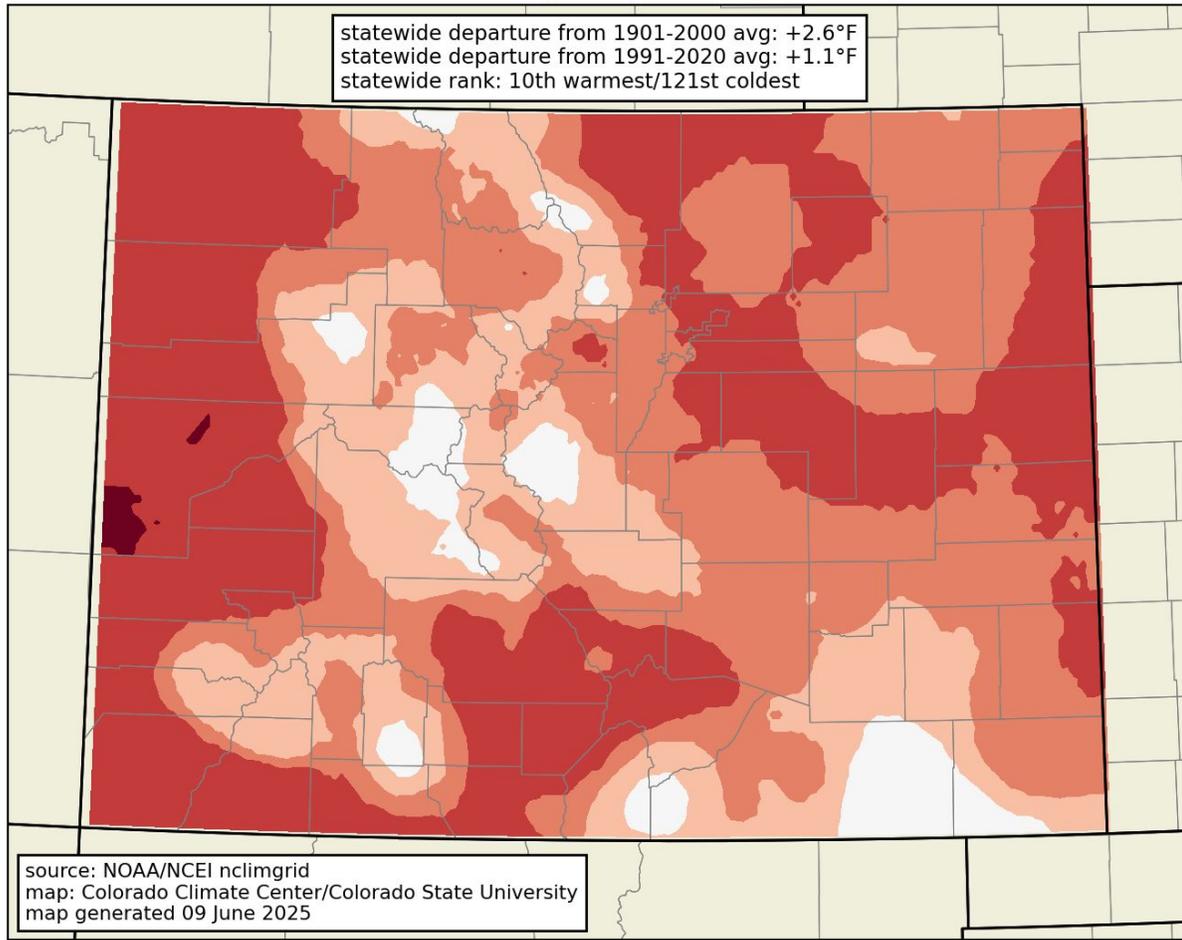
temperature, precipitation, etc.



(Photo courtesy of Henry Reges –
June 14 in Fort Collins)



average temperature rank
8 months ending May 2025 (Oct-May)

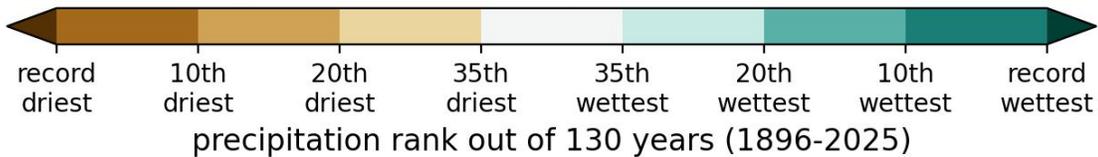
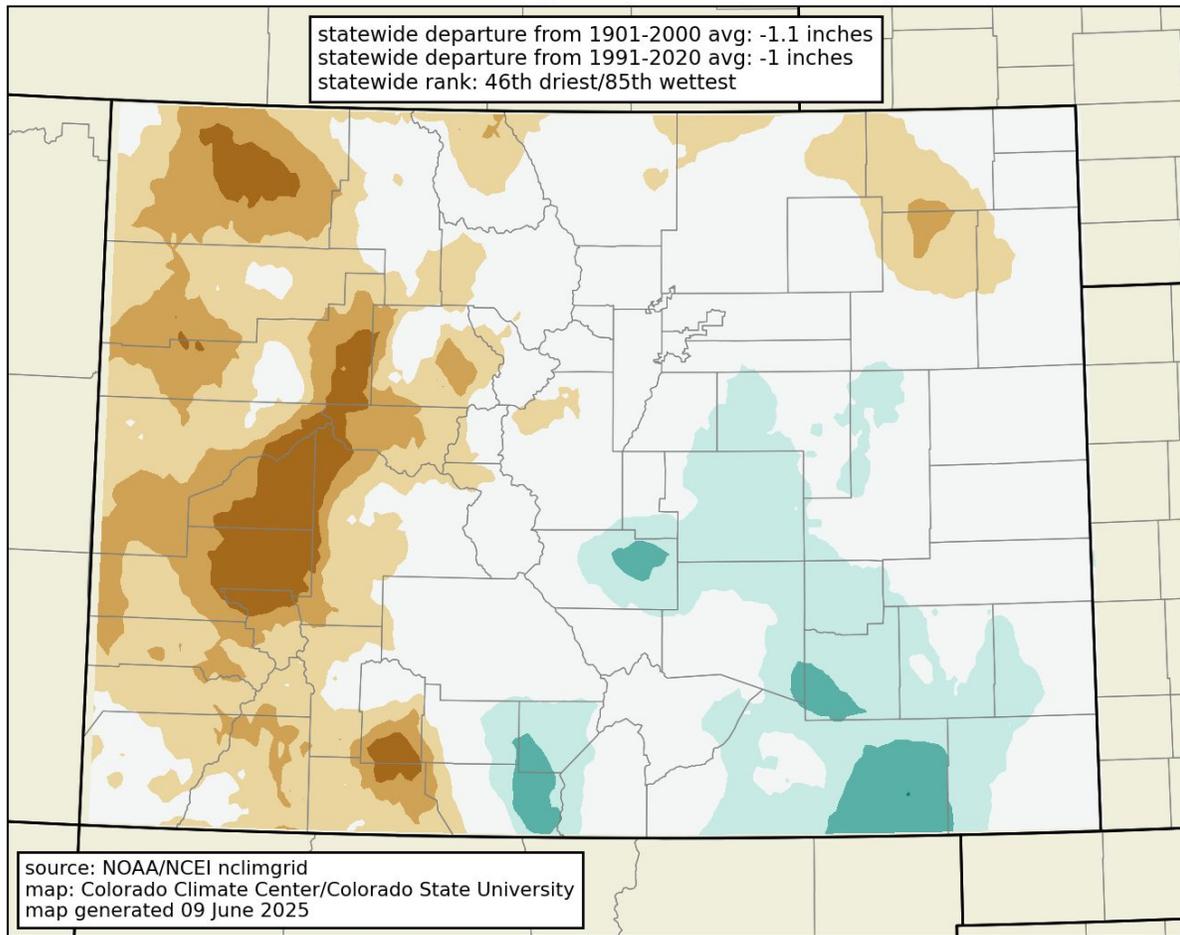


Statewide: Tied for 10th warmest first 8 months of the water year

Month	T Rank (of 130 years)	Above, below, or near 20 th century avg?
Oct	2 nd warmest	much above
Nov	45 th coldest	near average
Dec	3 rd warmest	much above
Jan	24 th coldest	below
Feb	35 th warmest	above
Mar	10 th warmest	much above
Apr	33 rd warmest	above
May	59 th warmest	near average



precipitation rank
8 months ending May 2025 (Oct-May)

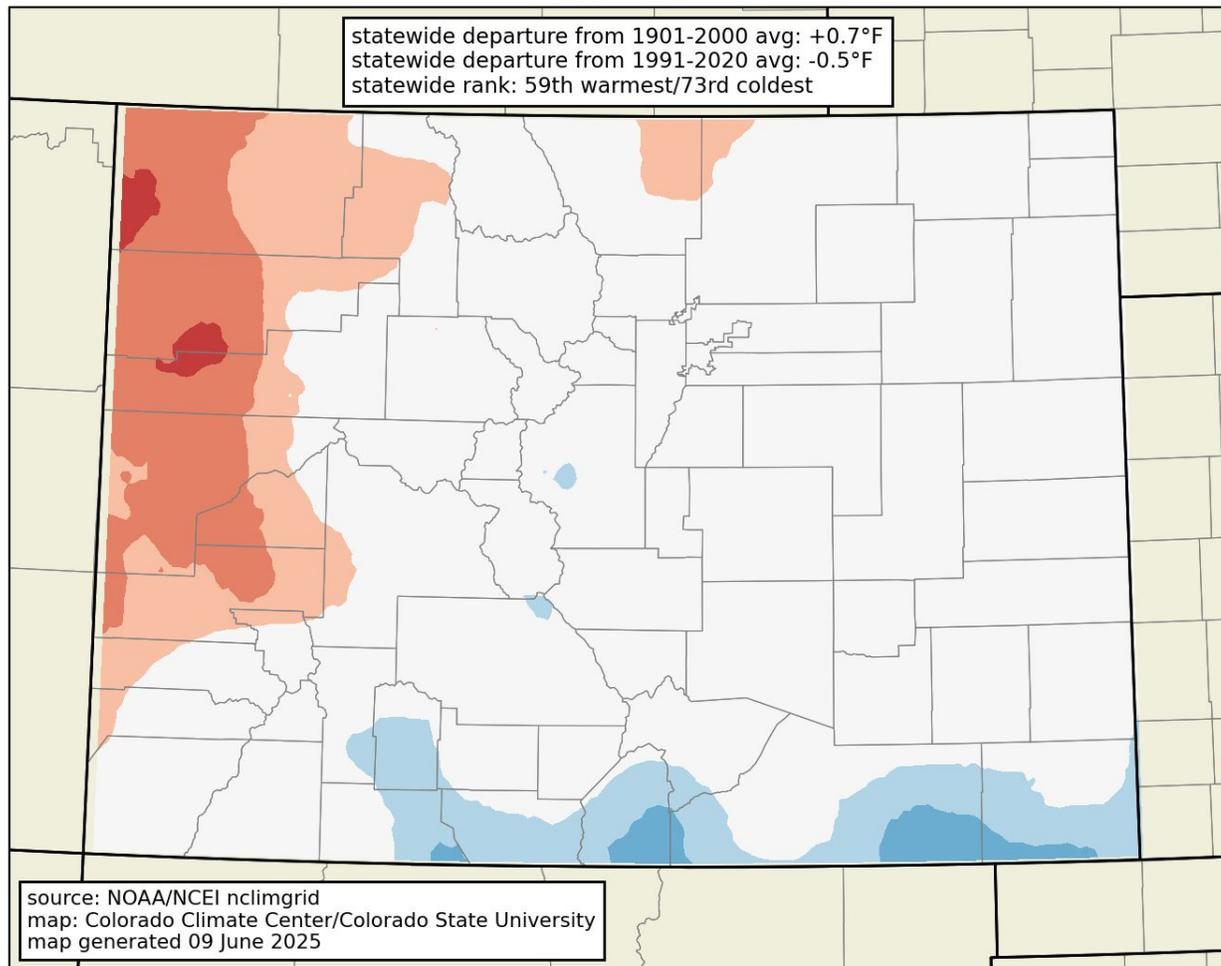


Statewide: 46th driest/85th wettest first seven months of the water year

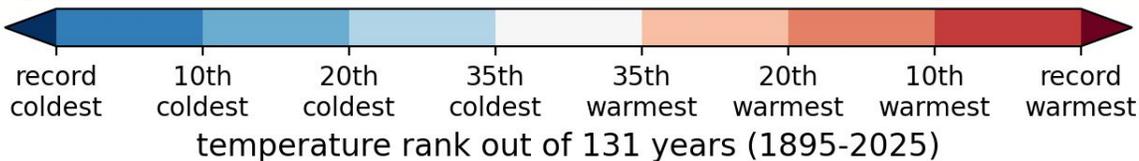
Month	P Rank (of 130 years)	Above, below, or near 20 th century avg?
Oct	47 th wettest	near average
Nov	5 th wettest	much above
Dec	12 th driest	below
Jan	34 th driest	below
Feb	46 th driest	near average
Mar	50 th driest	near average
Apr	15 th driest	below
May	62 nd wettest	near average



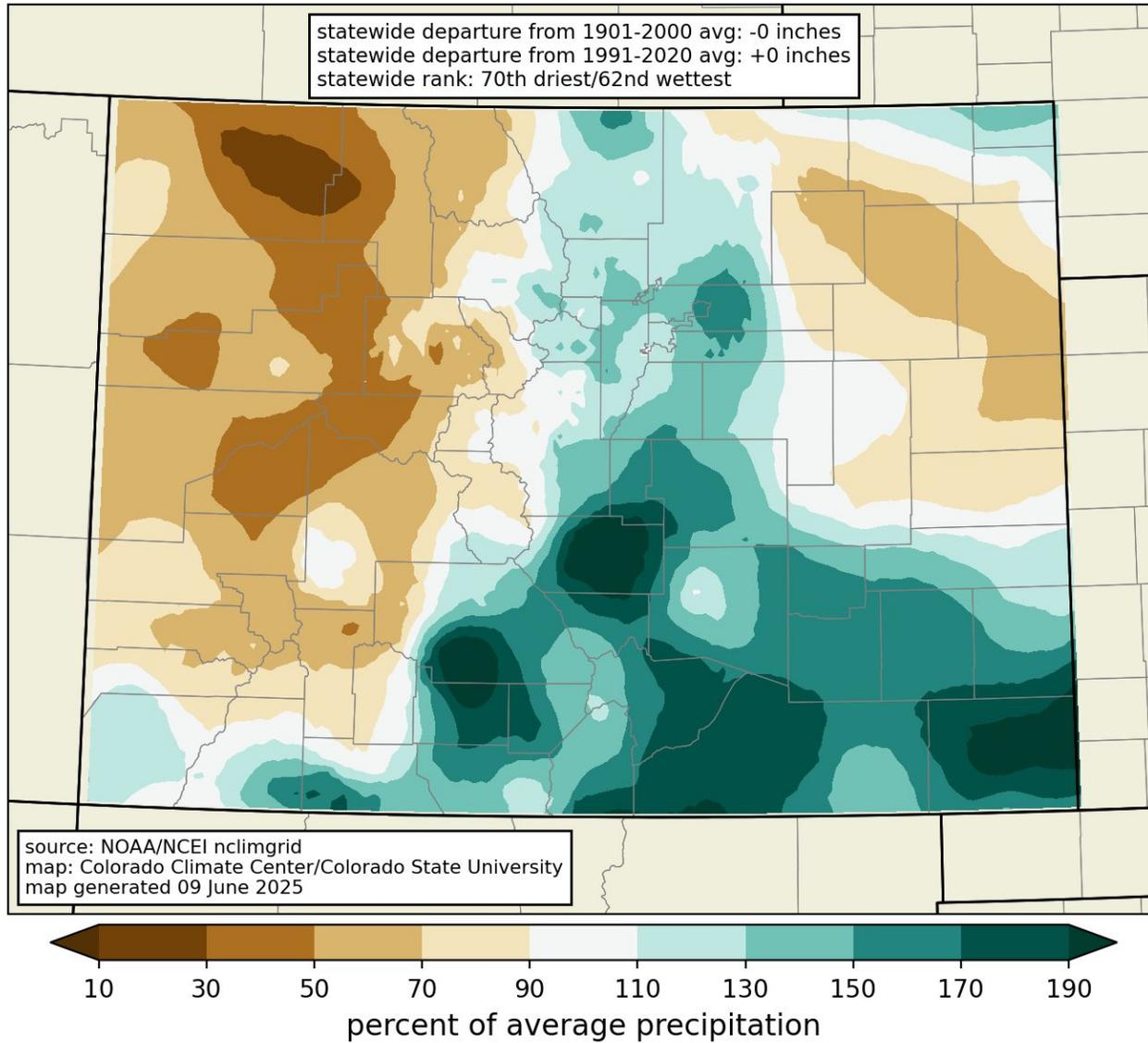
average temperature rank
May 2025



May was not too remarkable in terms of temperature: warmer than average on the western slope; cooler than average in the southern tier of counties; near average everywhere else



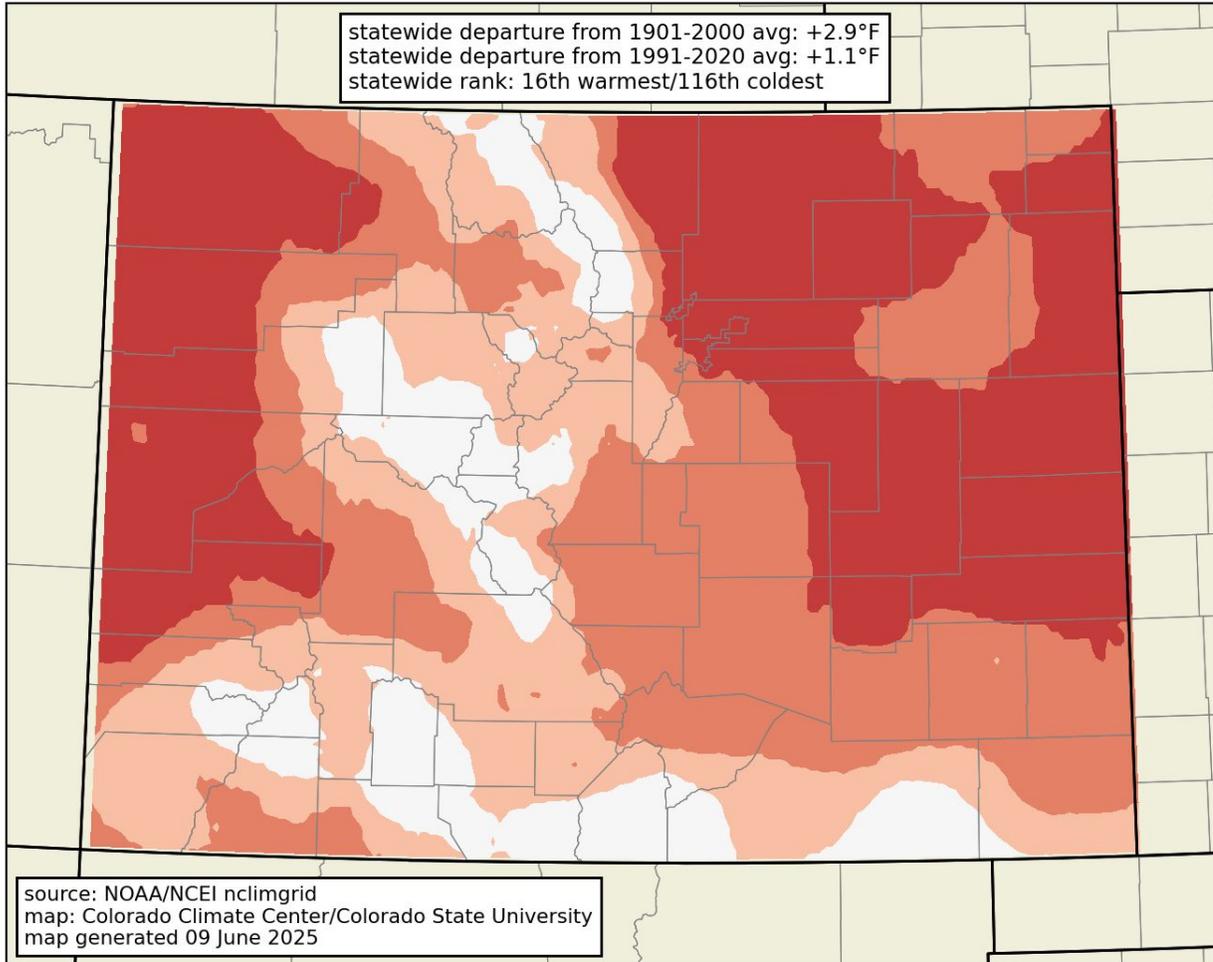
percent of 1991-2020 average precipitation
May 2025



May was wet in the southeast as a result of the big storm early in the month

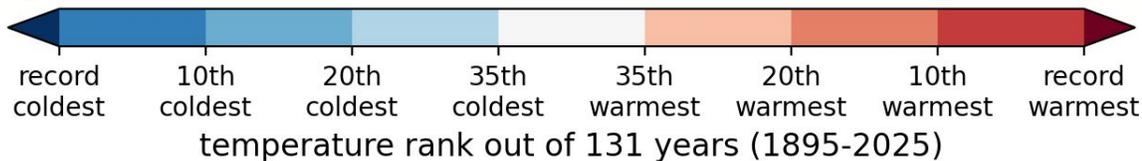
Northwestern Colorado continued to dry out, as did parts of the northeastern Plains

average temperature rank
3 months ending May 2025 (Mar-May)

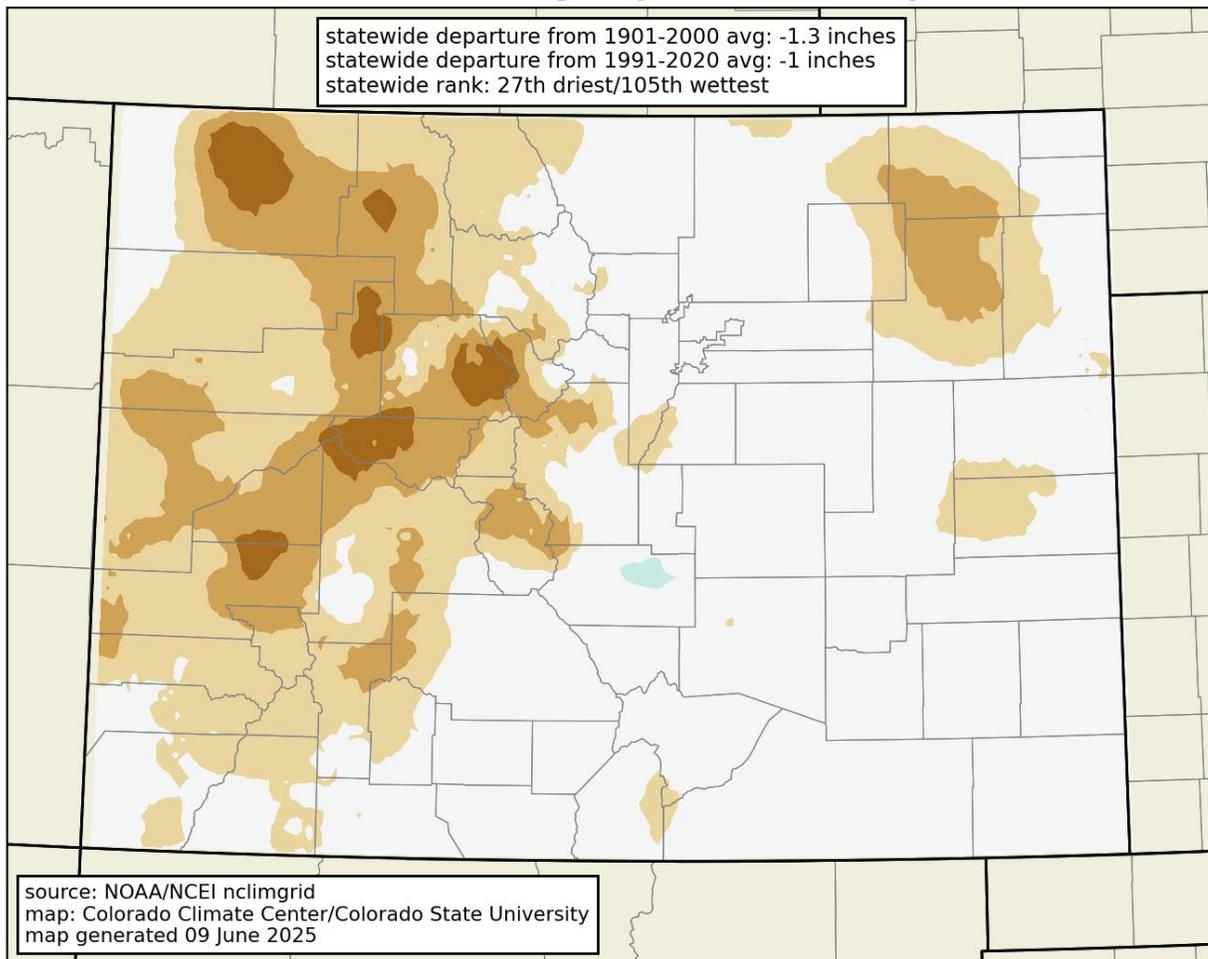


**Climatological spring
(March-April-May) was warmer
than average in most places**

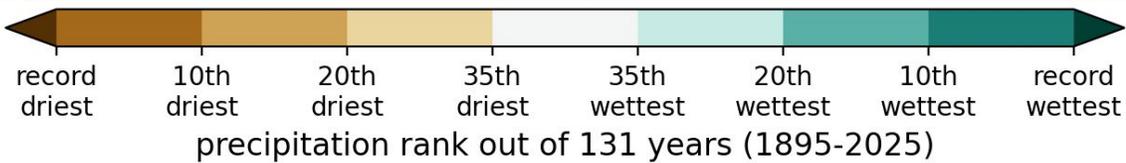
**March was very warm, April
pretty warm, and May close to
average**



precipitation rank
3 months ending May 2025 (Mar-May)



Spring was very dry across western Colorado, as well as portions of the northeastern Plains

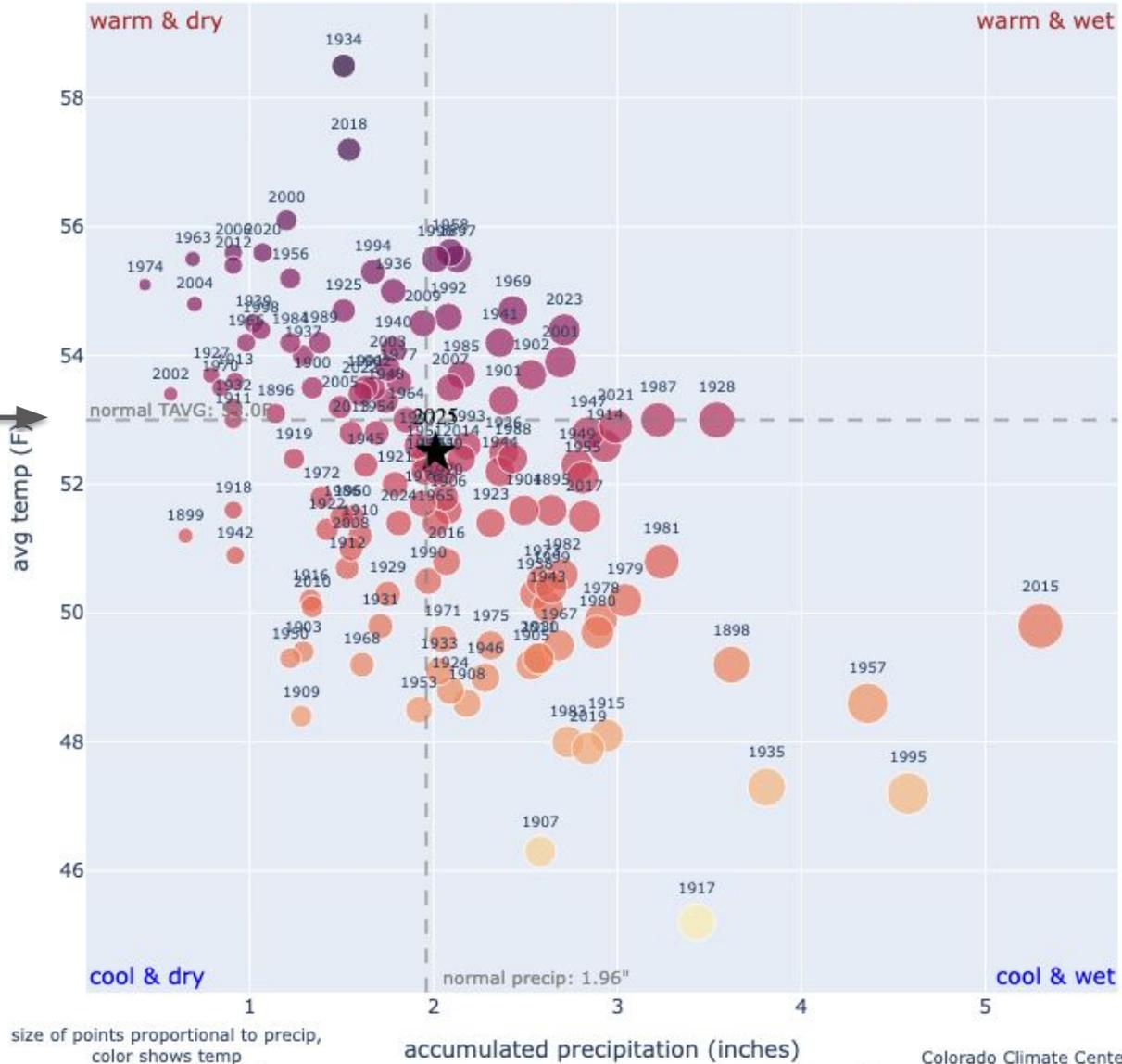


Colorado statewide average temperature and precipitation, May

Warm & dry

May 2025

1991-2020 avg temp



Warm & wet

May was very average considering the state as a whole

Cool & dry

Cool & wet

size of points proportional to precip, color shows temp normals are 1991-2020

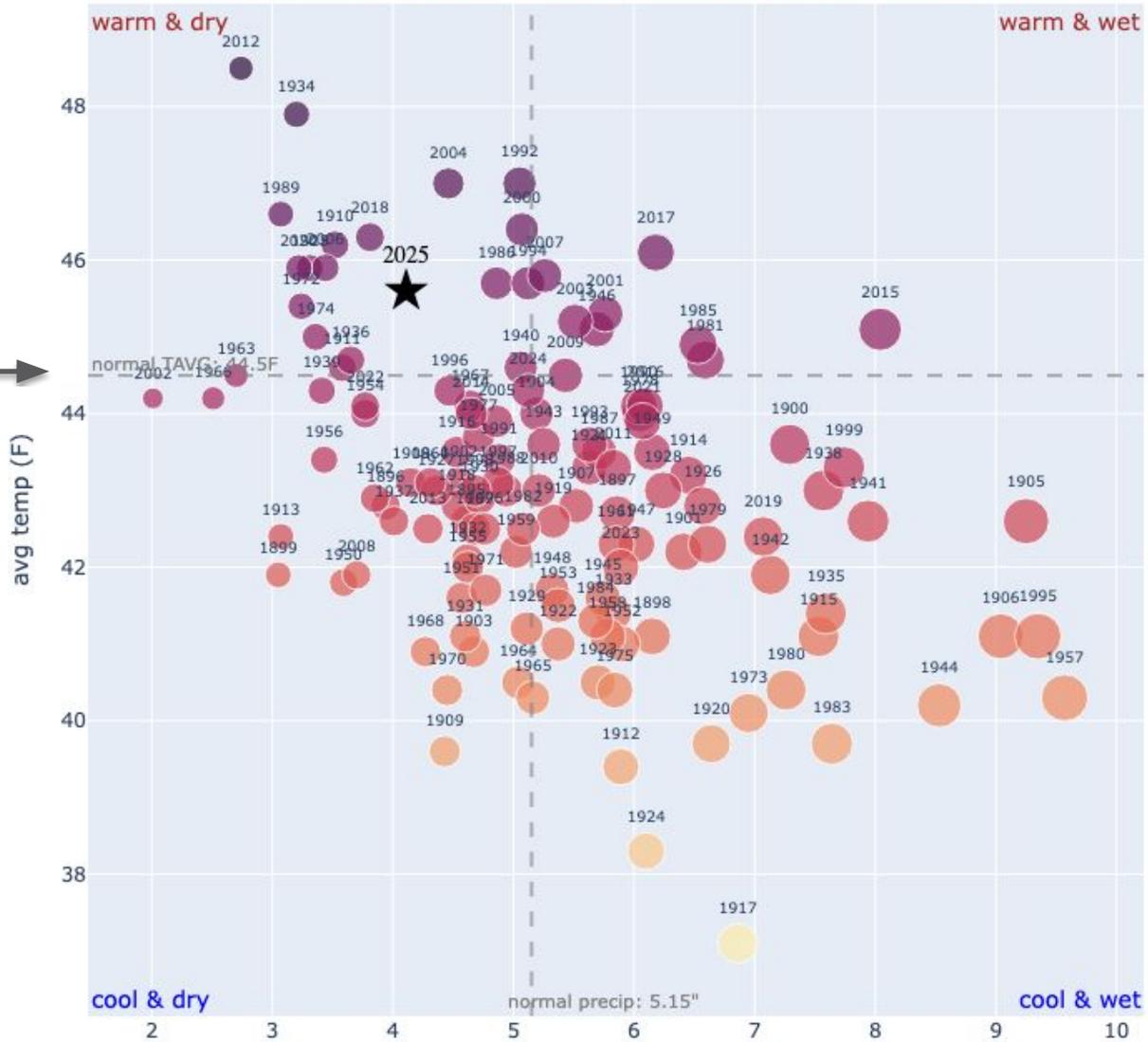
Colorado Climate Center/CSU
Data source: NOAA/NCEI Climate at a Glance



Colorado statewide average temperature and precipitation, March - May

Warm & dry
Spring 2025

1991-2020 avg temp →



Warm & wet
Spring was warm and dry statewide

Cool & dry

Cool & wet

size of points proportional to precip,
color shows temp
normals are 1991-2020

Colorado Climate Center/CSU
Data source: NOAA/NCEI Climate at a Glance

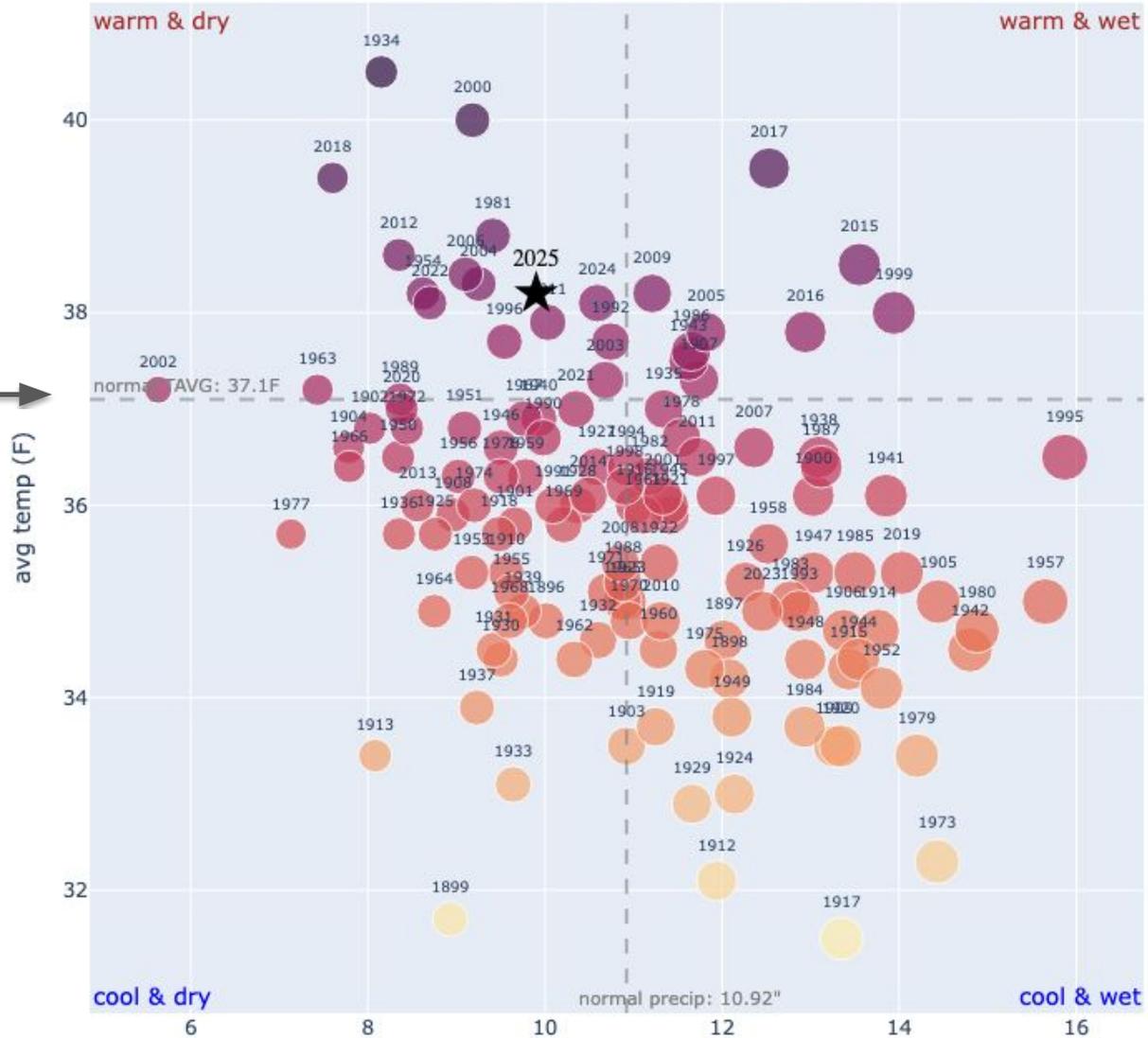


Colorado statewide average temperature and precipitation, October - May

Warm & dry

October 2024-May 2025

1991-2020 avg temp →



Warm & wet

First 8 months of water year: also in the warm and dry quadrant, though nowhere near some of the really bad drought years in the past

Cool & dry

Cool & wet

size of points proportional to precip, color shows temp normals are 1991-2020

Colorado Climate Center/CSU
Data source: NOAA/NCEI Climate at a Glance



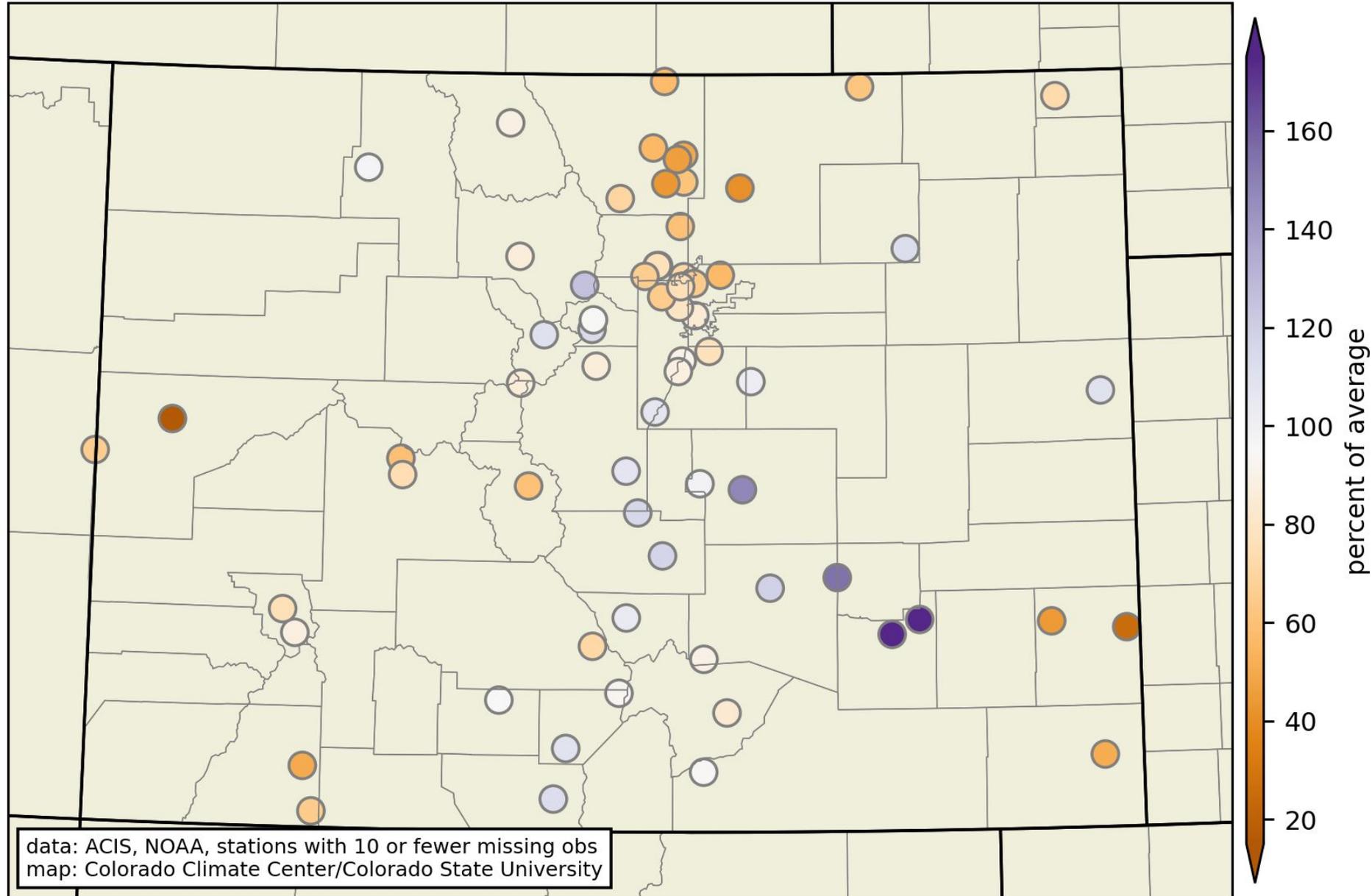
Snow season 2024-25 (lower elevations)

November storm put much of SE CO above average

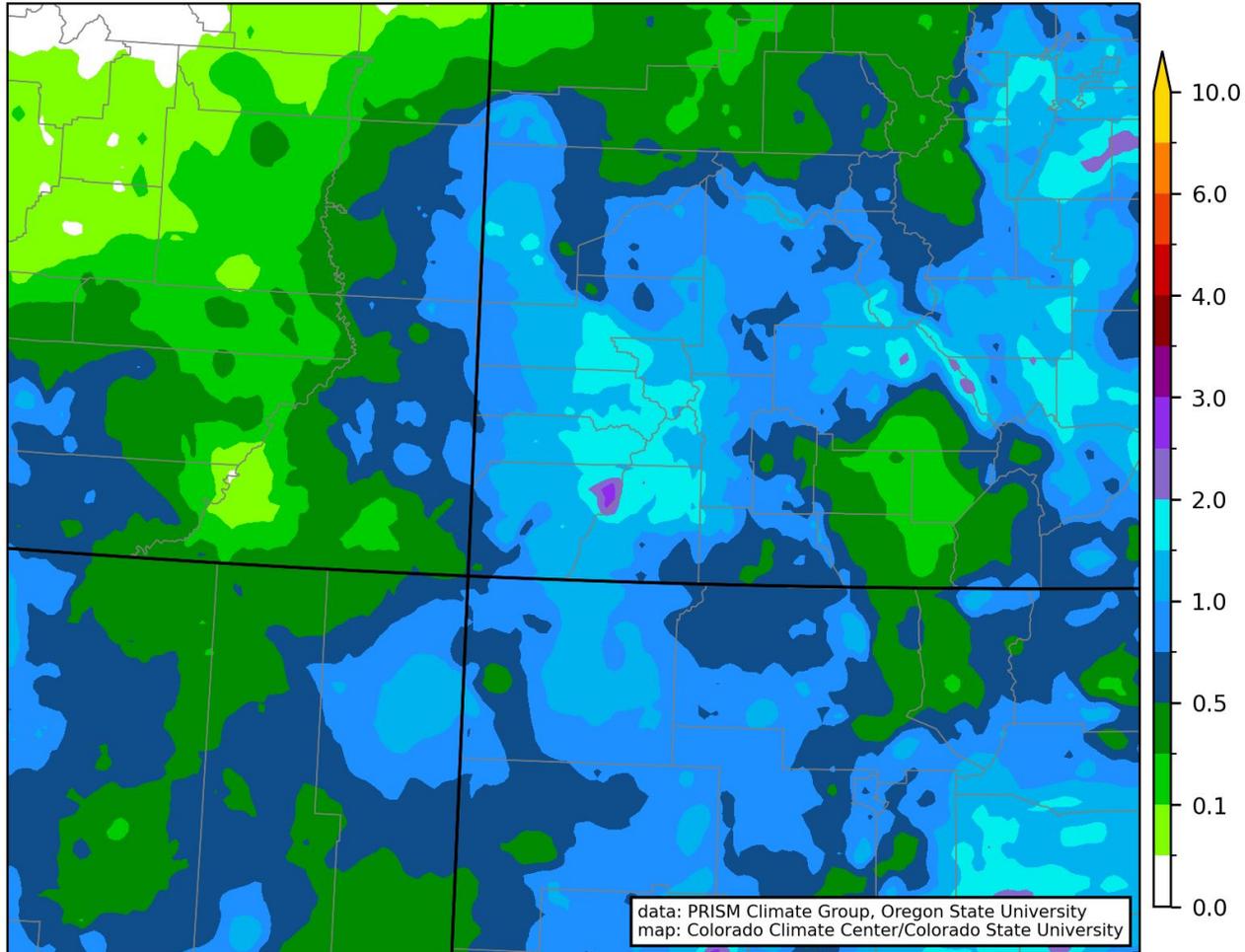
Grand Junction: only 2.8" of snow, the least on record

Holly had only 25% of its normal snowfall, but nearly 175% of Nov-Mar precipitation!

total snowfall for 2024-25 season: percent of 1991-2020 normal



PRISM total precipitation, 2-6 Jun 2025



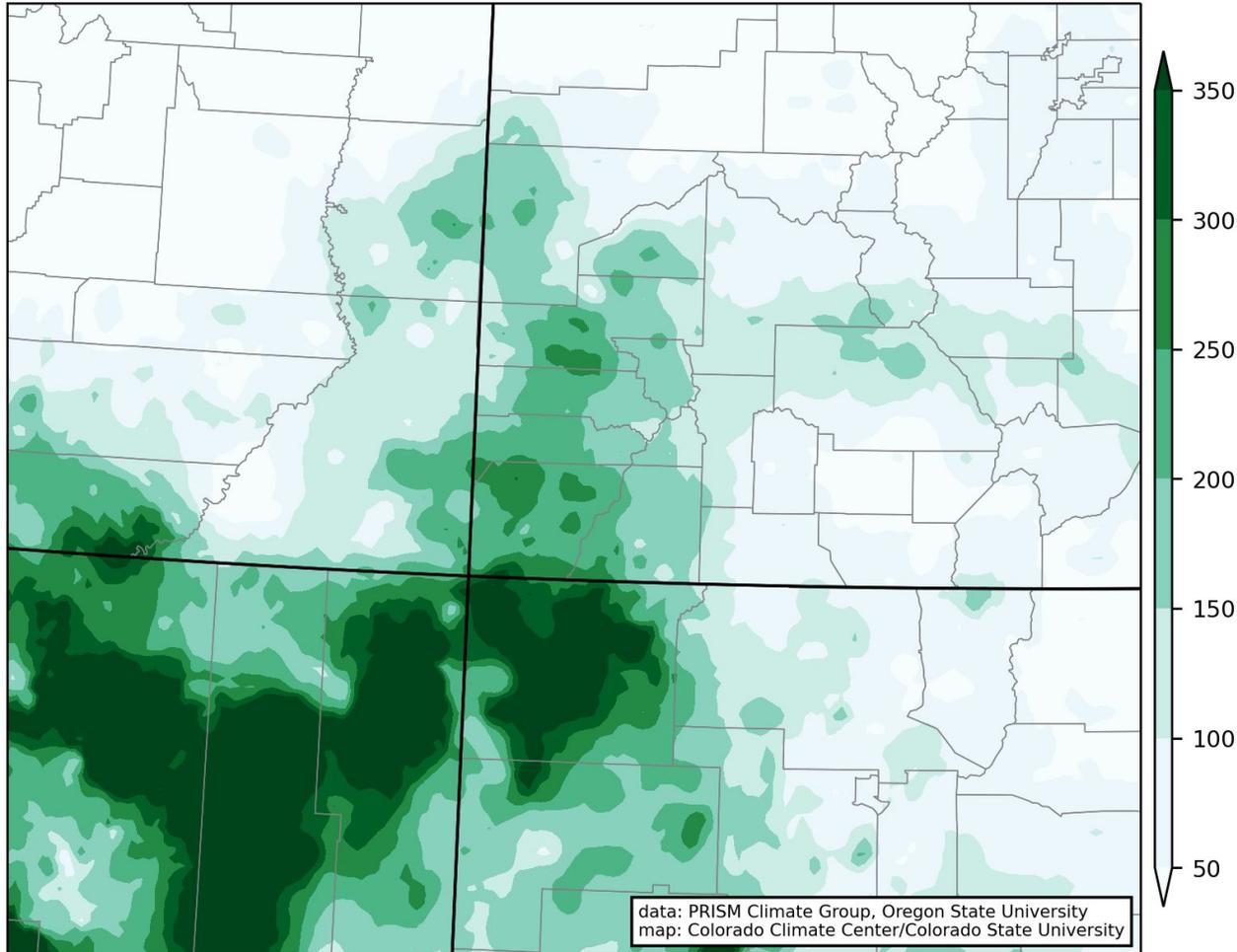
Unusual early-June rainstorm in southwestern Colorado

June is typically very dry around
the Four Corners

A strong upper-level trough
along with moisture from the
remnants of Tropical Storm
Alvin led to widespread rainfall
from around June 2-6



percent of June average precipitation that fell during 2-6 Jun 2025



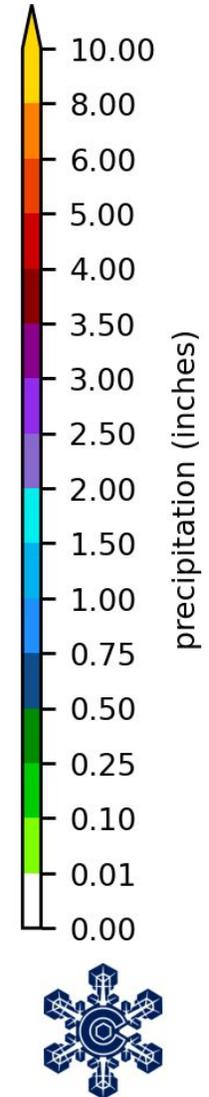
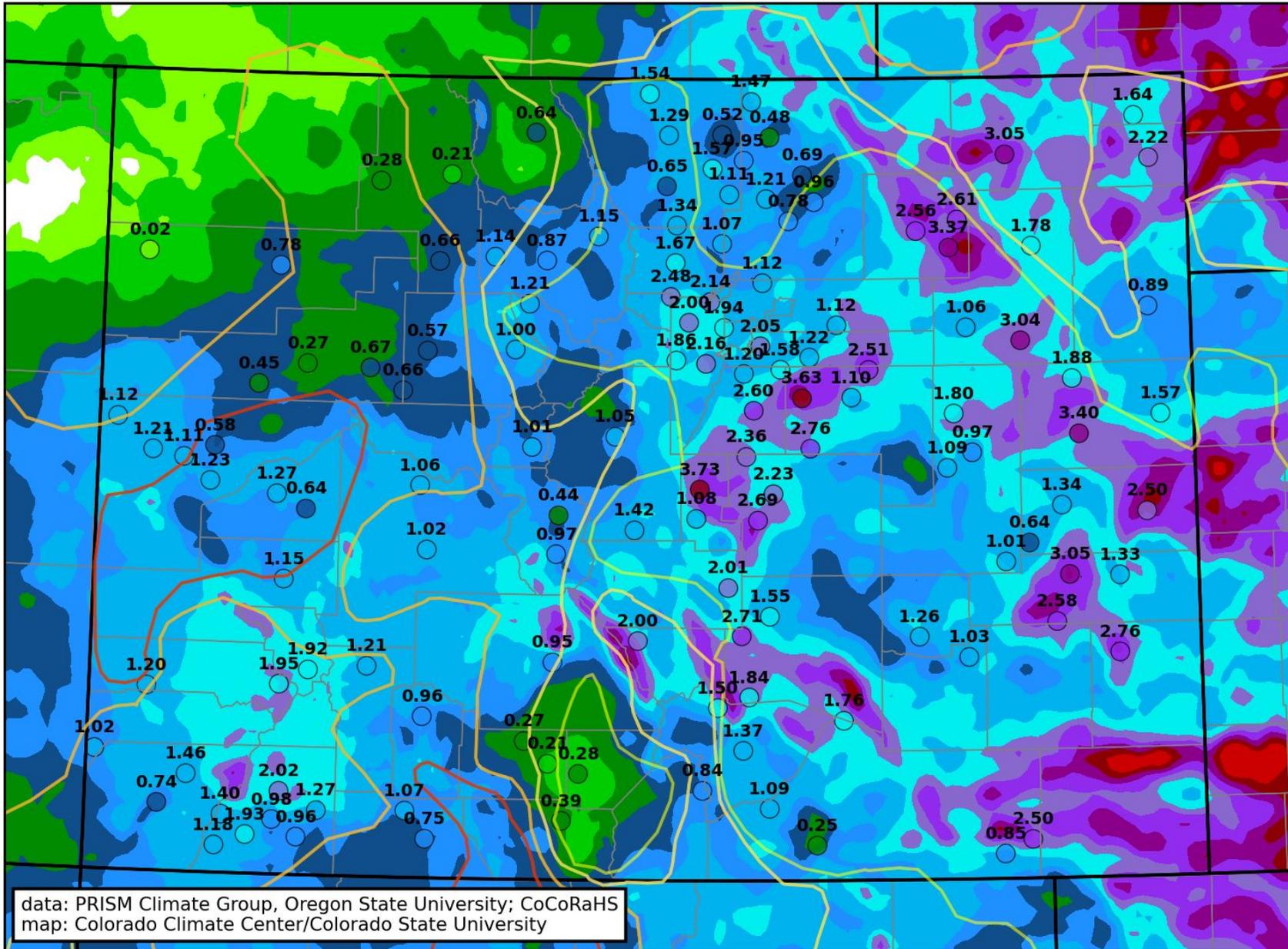
Unusual early-June rainstorm in southwestern Colorado

Over twice the average total
June rainfall from this storm in
much of southwestern Colorado

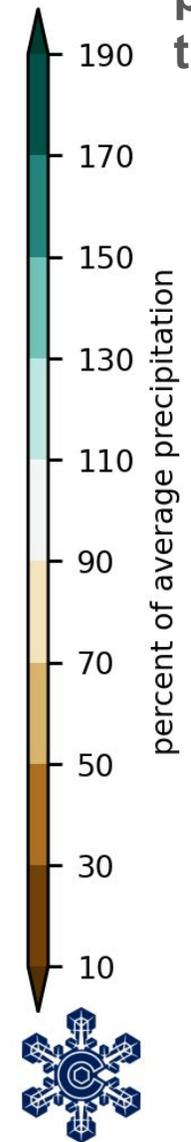
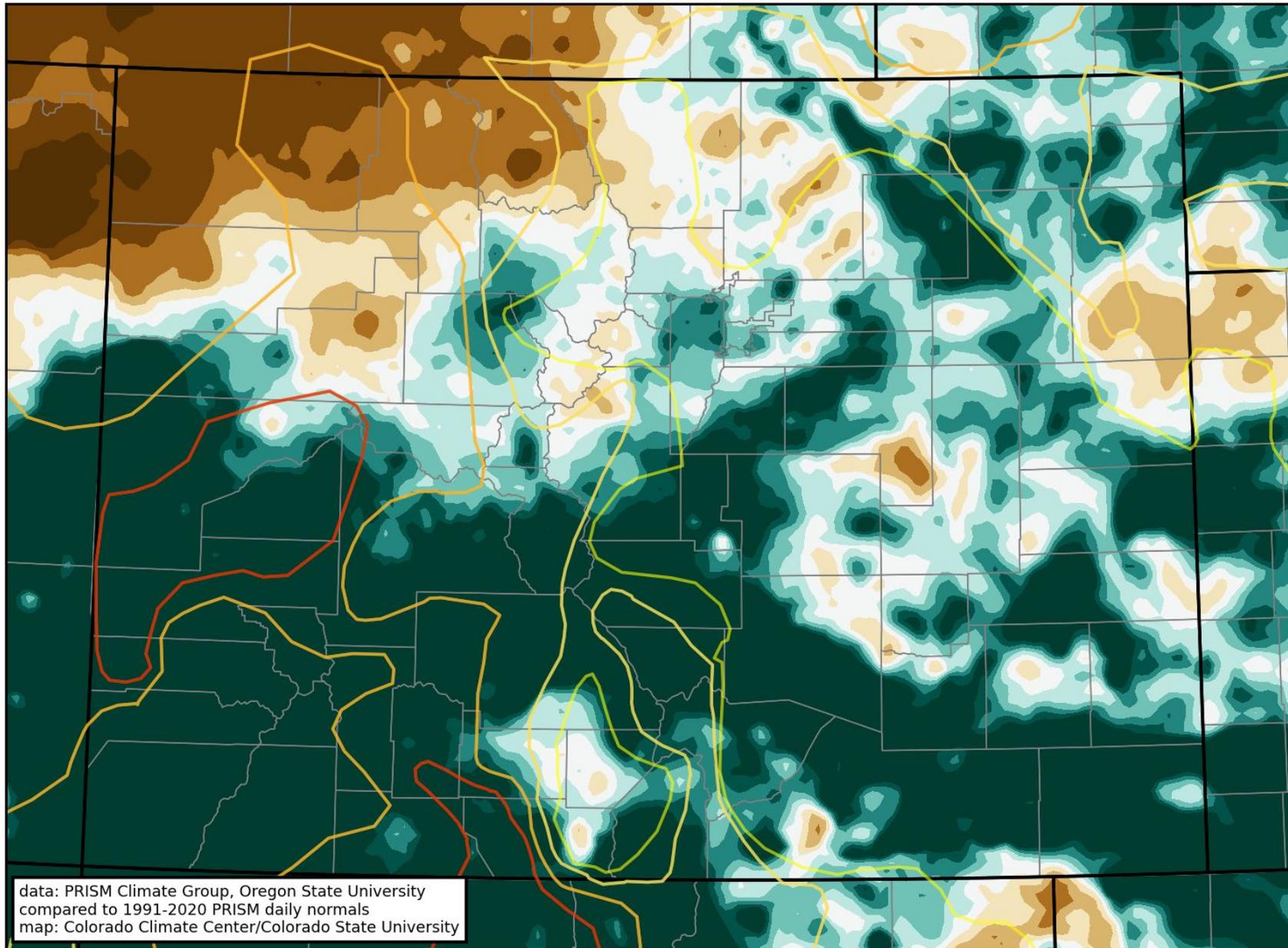
More than 3x the average June
rainfall farther southwest...but
keep in mind that the average is
nearly zero, so a half-inch is
many times the average!



June precipitation through Monday morning (16th)



June percent of normal precipitation through the 16th

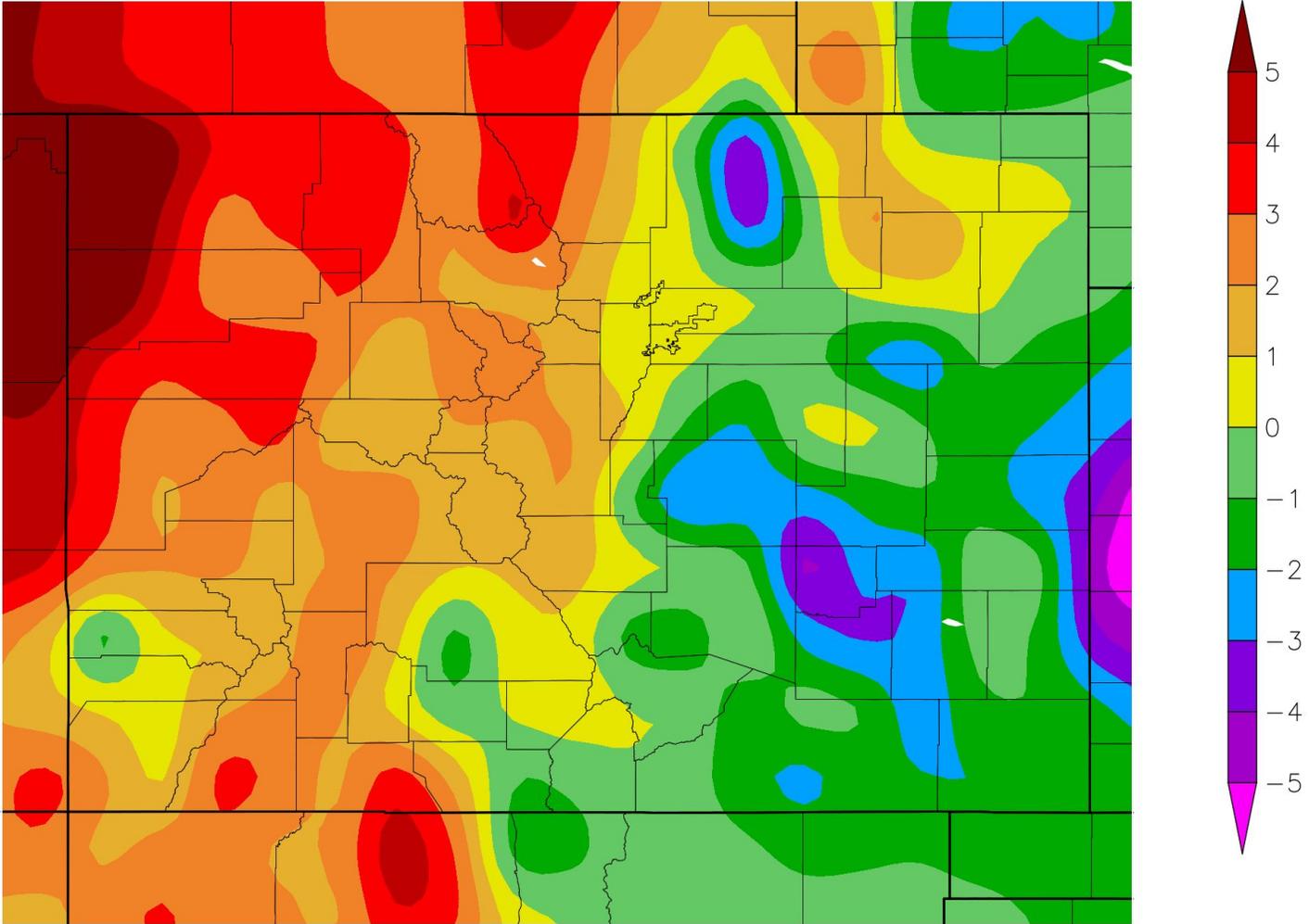


data: PRISM Climate Group, Oregon State University compared to 1991-2020 PRISM daily normals
map: Colorado Climate Center/Colorado State University



Departure from Normal Temperature (F) 6/1/2025 – 6/15/2025

June departure
from normal
temperature
through the 16th

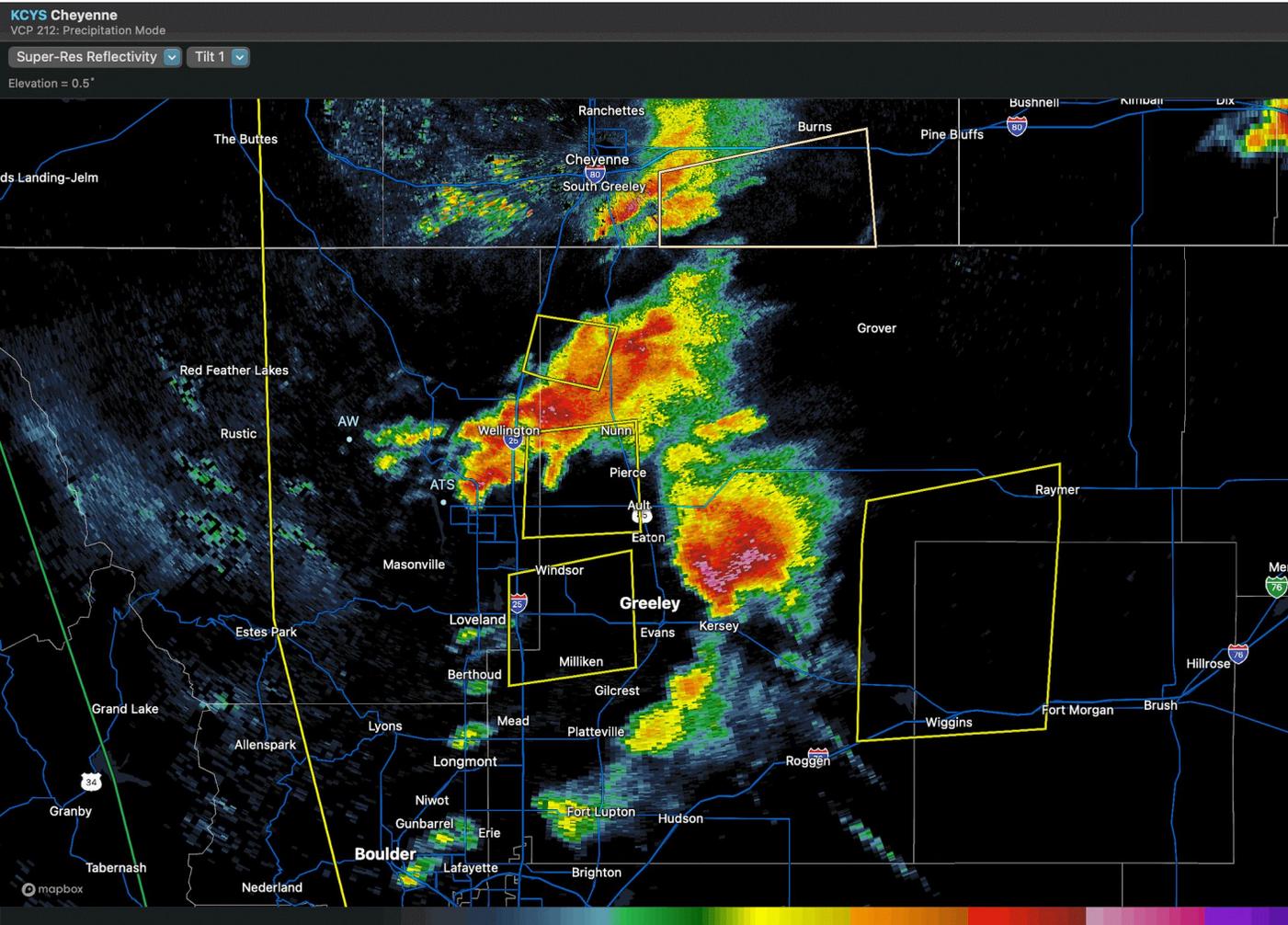


Generated 6/16/2025 using provisional data.

ACIS Web Services



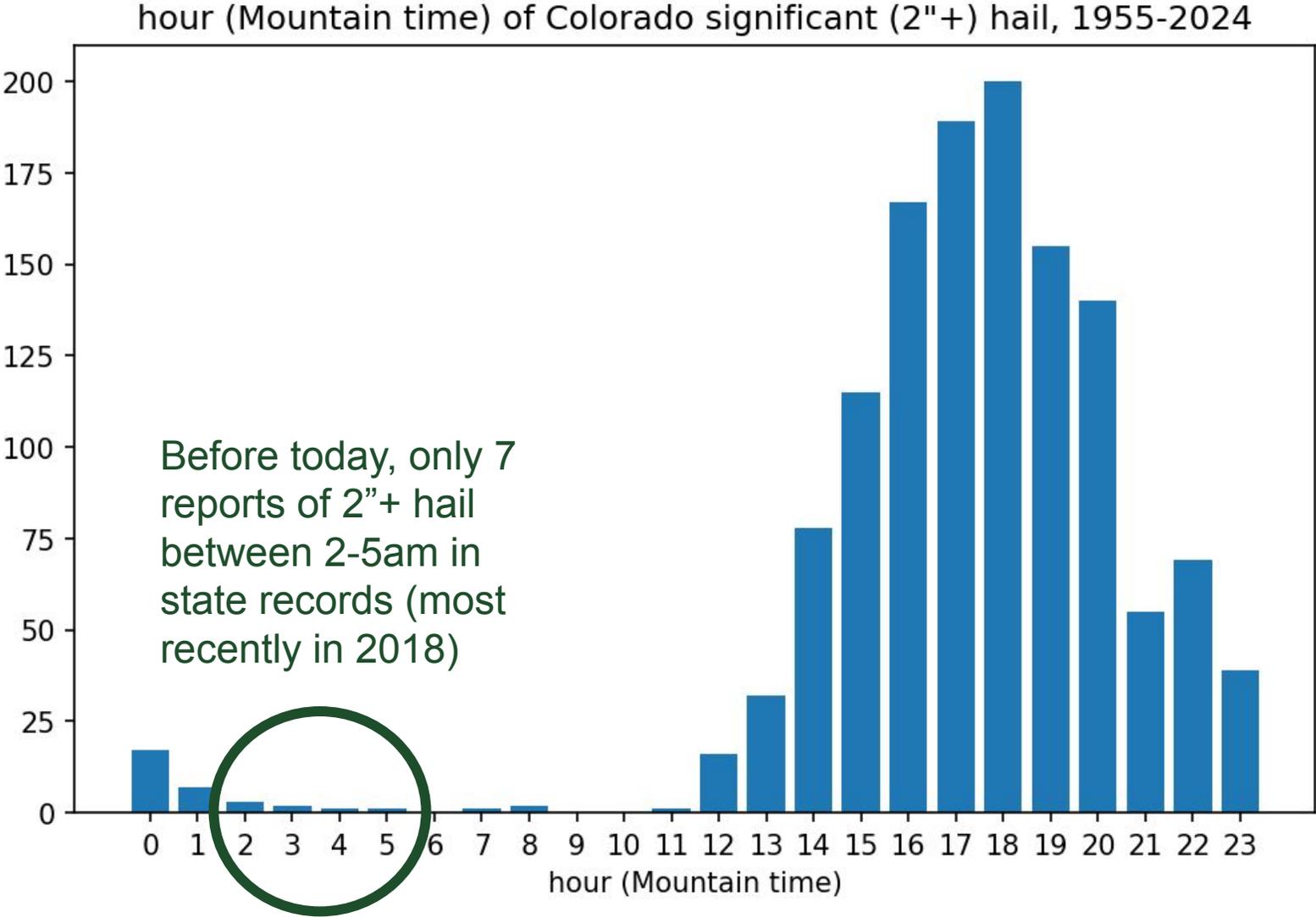
Hail at 2-4am?!?



Hail Observation
CO-LR-1146: Wellington 0.6 SSE
Obs Date: 2025-06-17 2:30 AM



Hail at 2-4am?!?



Drought conditions



COTrip webcam, east of Rangely, June 16

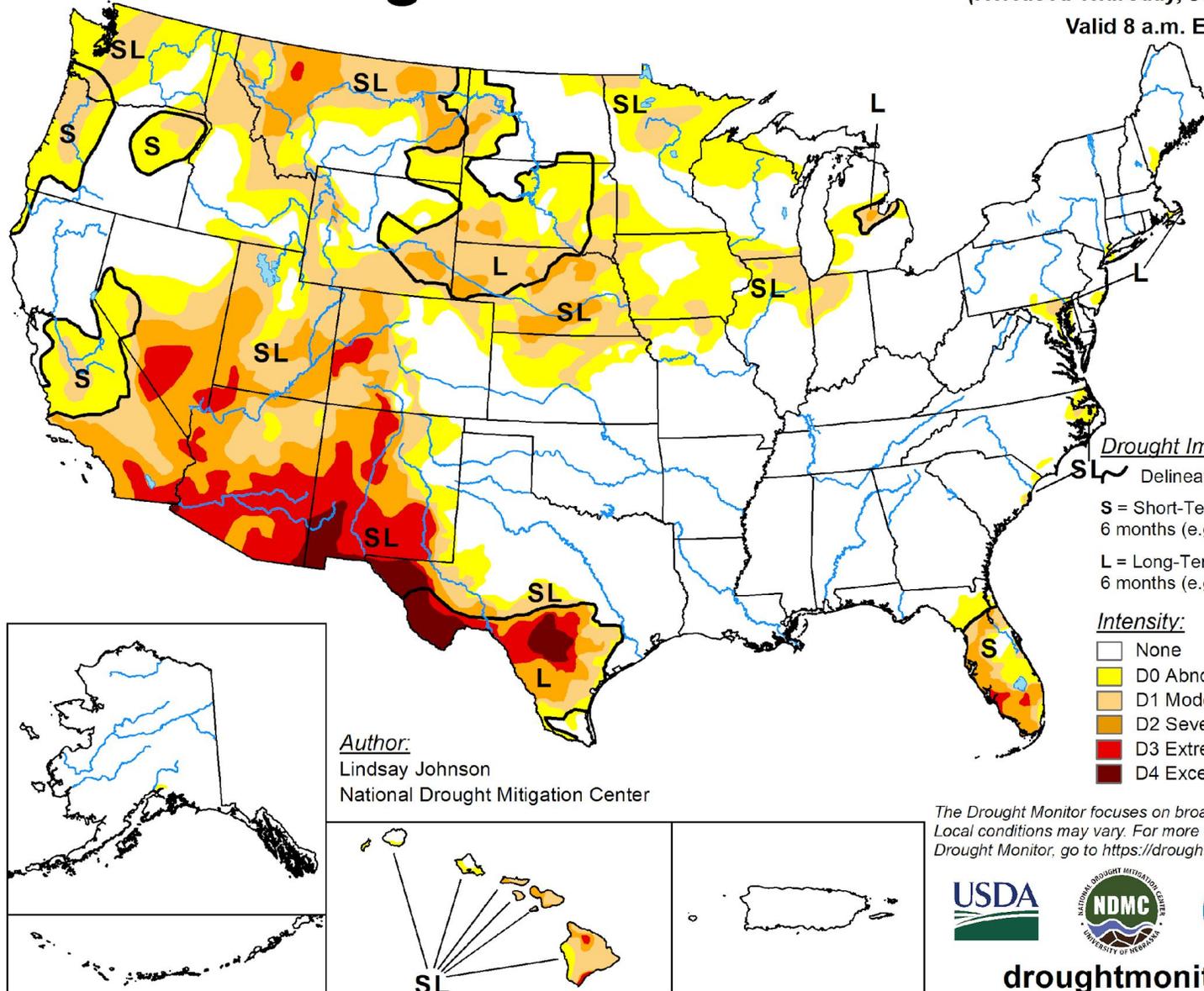


U.S. Drought Monitor

June 10, 2025

(Released Thursday, Jun. 12, 2025)

Valid 8 a.m. EDT



Drought Impact Types:

- SL 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

Author:
Lindsay Johnson
National Drought Mitigation Center

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>

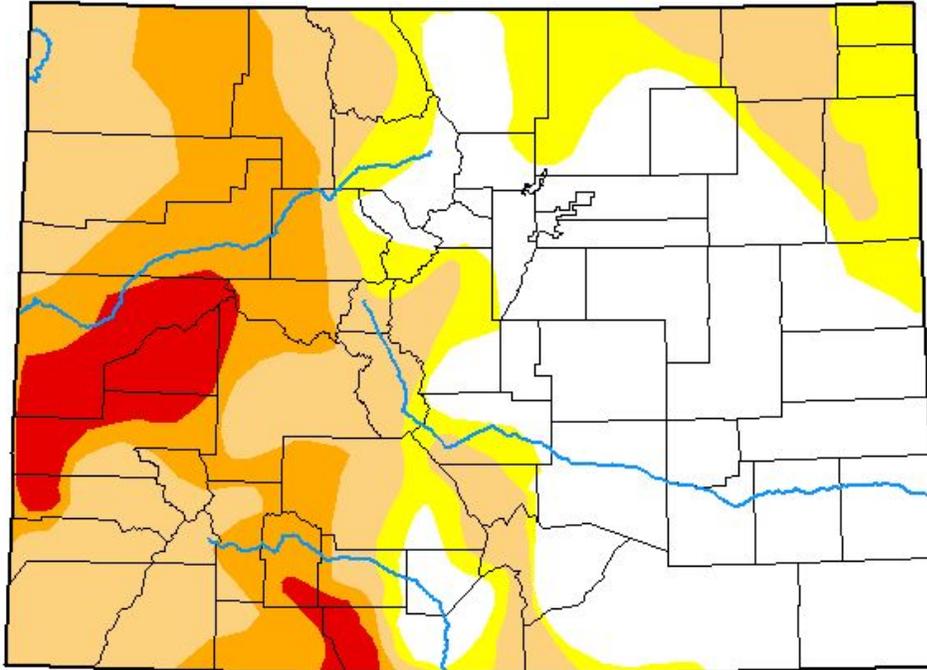


droughtmonitor.unl.edu



U.S. Drought Monitor Colorado

June 10, 2025
(Released Thursday, Jun. 12, 2025)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	40.43	59.57	46.49	20.18	5.39	0.00
Last Week 06-03-2025	35.39	64.61	48.18	21.12	6.17	0.00
3 Months Ago 03-11-2025	53.45	46.55	26.77	7.63	1.18	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 06-11-2024	62.24	37.76	13.86	0.38	0.00	0.00

Intensity:

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

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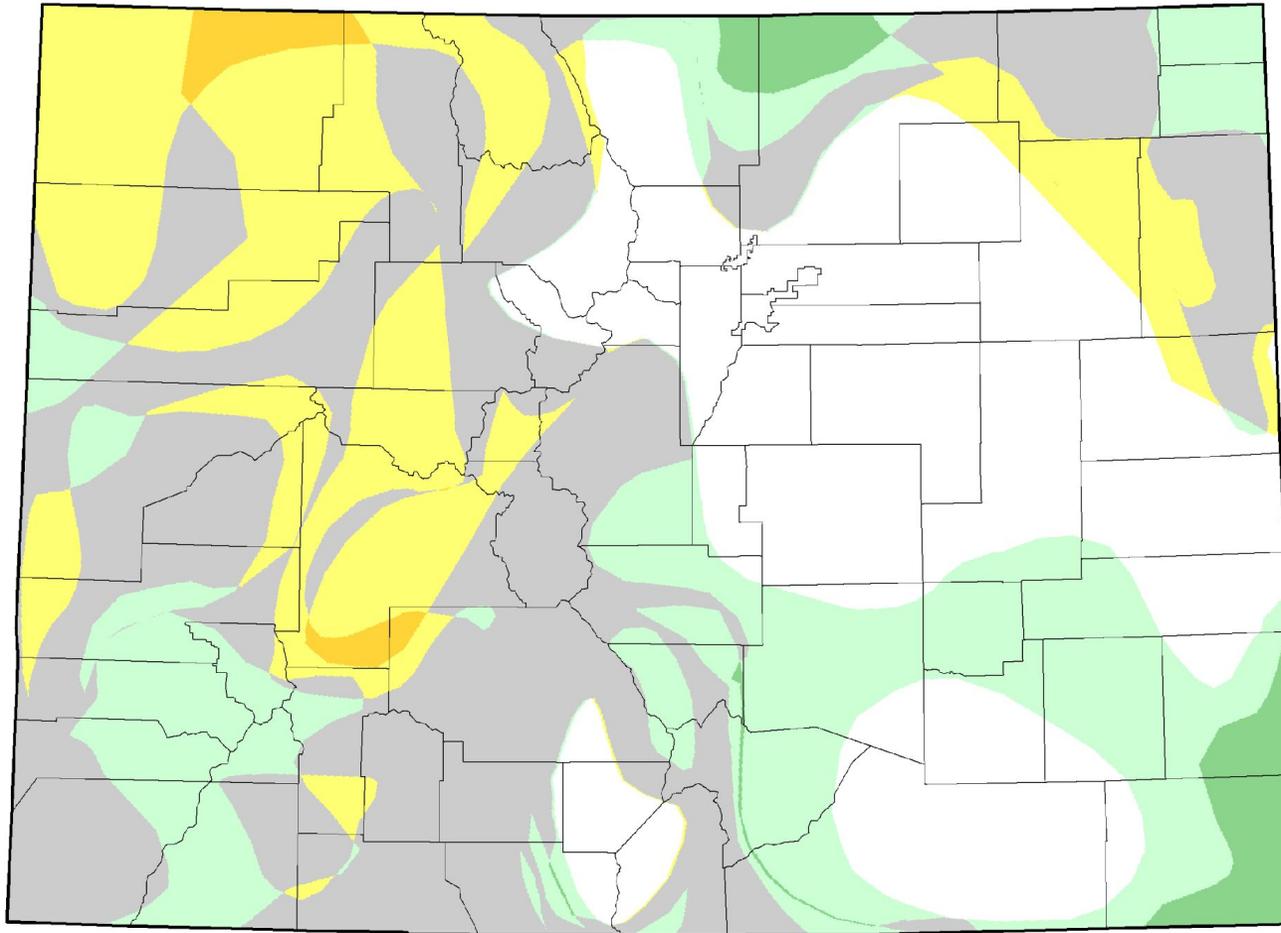


droughtmonitor.unl.edu



Change in the last 4 weeks

U.S. Drought Monitor Class Change - Colorado 4 Week



- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

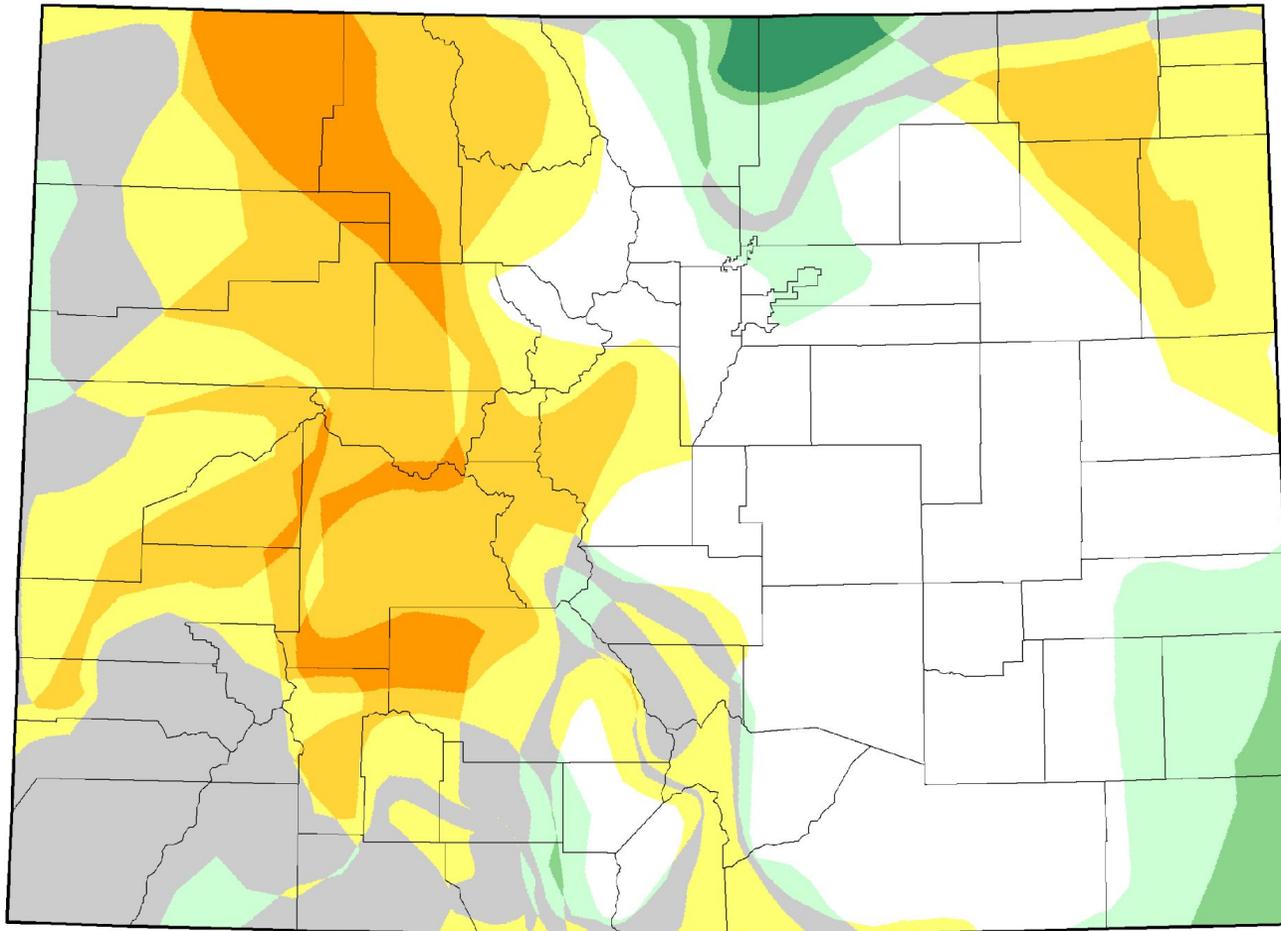
June 10, 2025
compared to
May 13, 2025

droughtmonitor.unl.edu



Change in the last 3 months

U.S. Drought Monitor Class Change - Colorado 13 Week



June 10, 2025
compared to
March 11, 2025

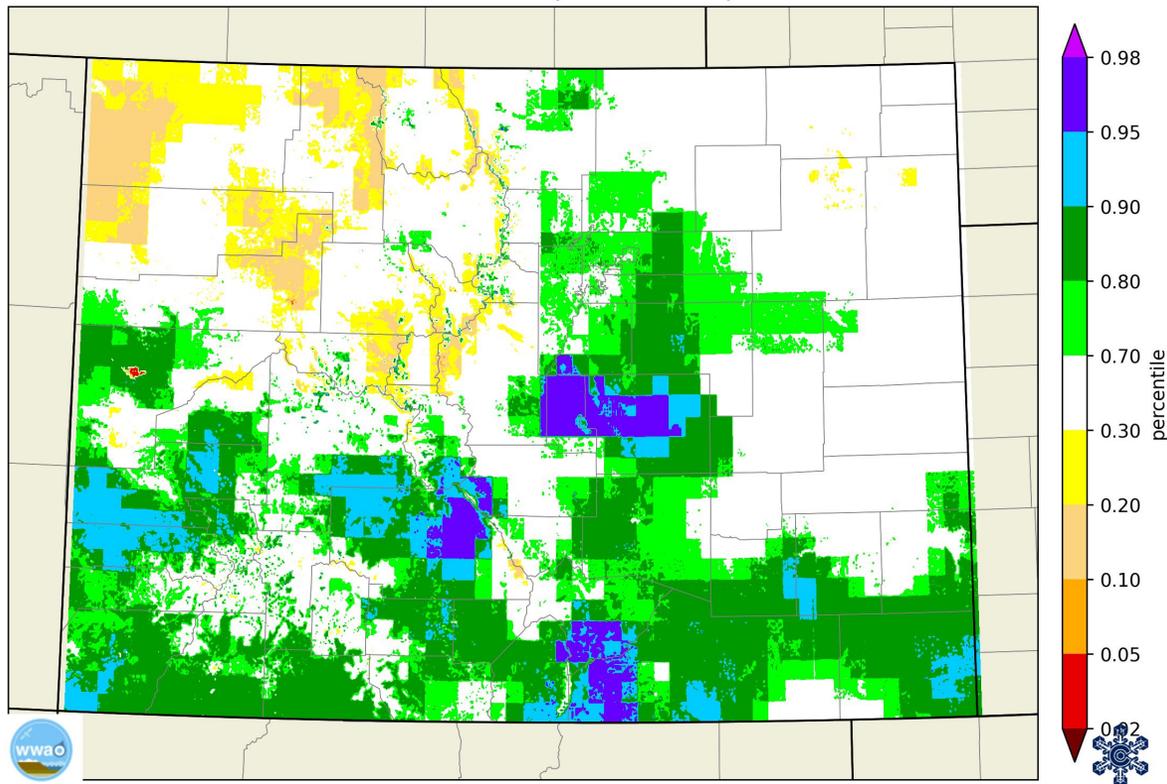
droughtmonitor.unl.edu



- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

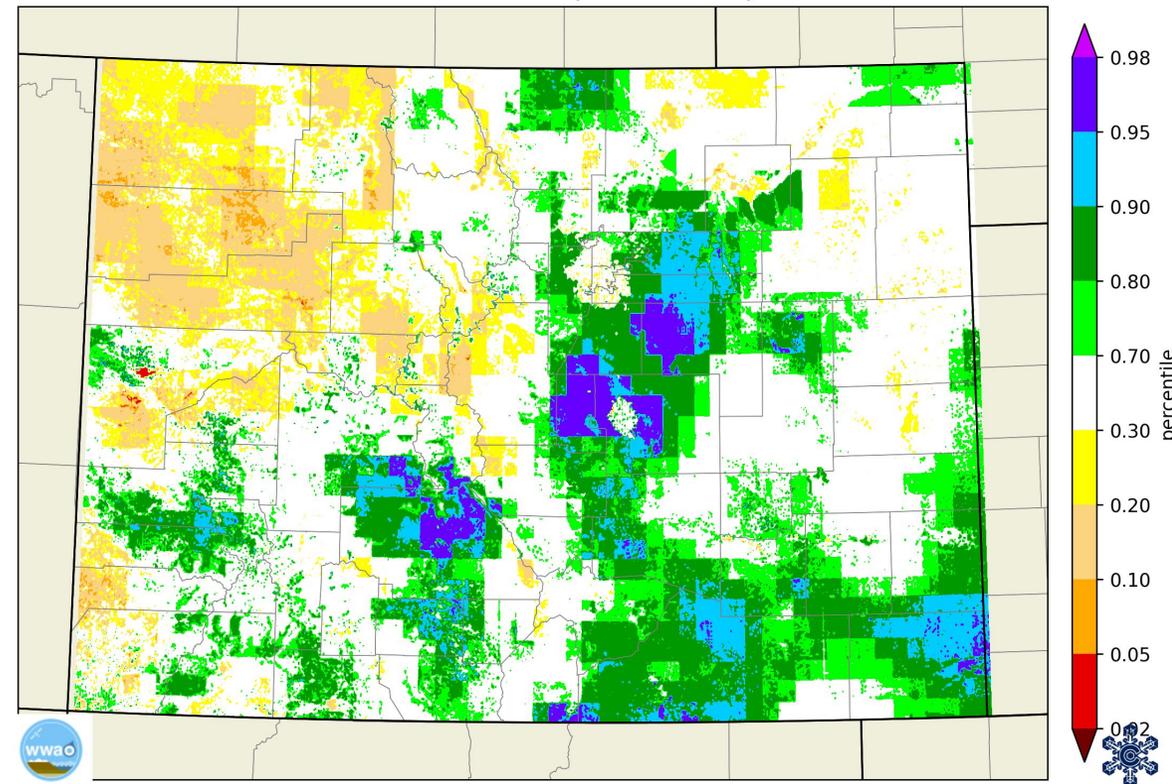


WLDAS 10-cm Soil moisture percentile, 12 Jun 2025



Shallow soil moisture: top 10 cm

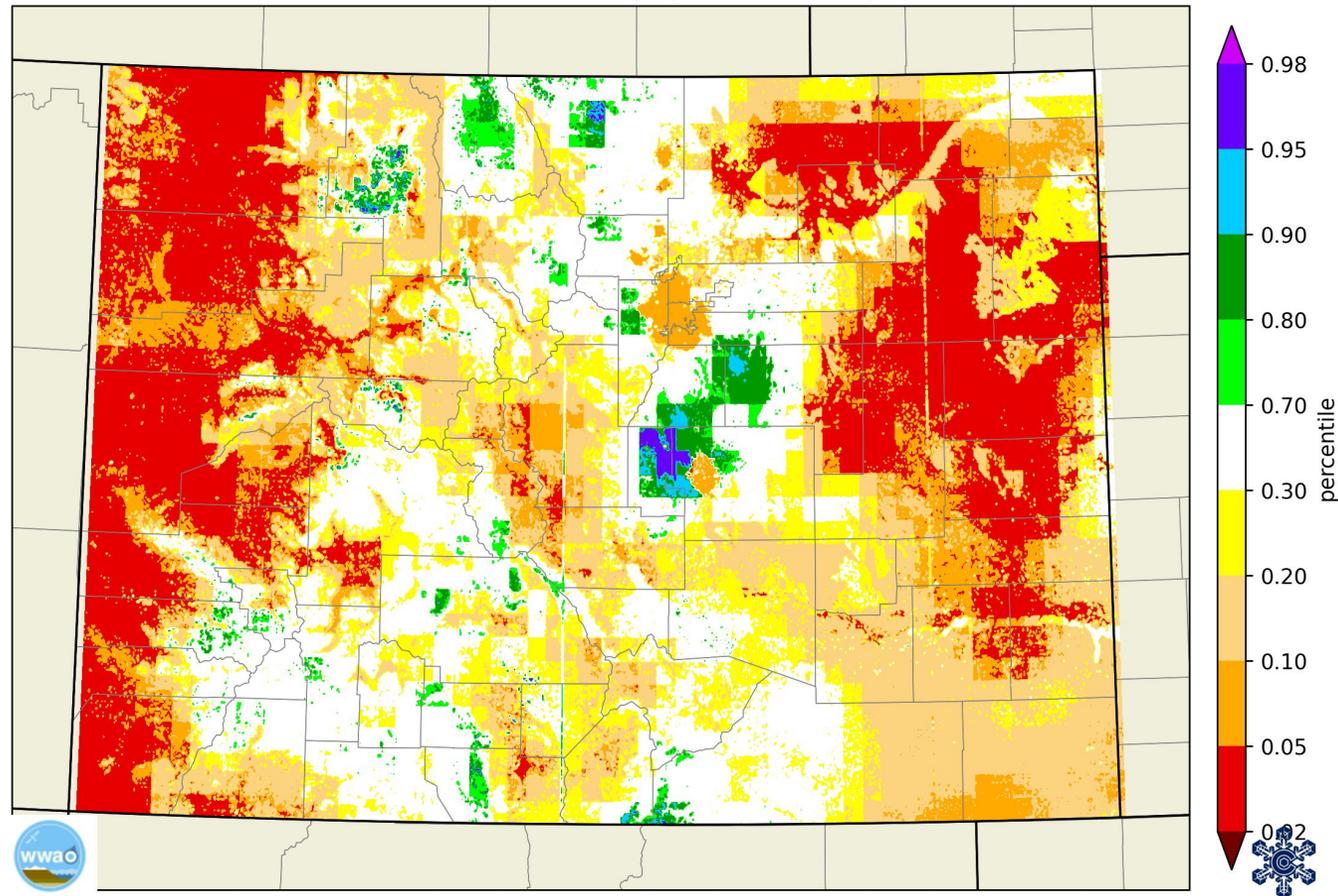
WLDAS 1-meter Soil moisture percentile, 12 Jun 2025



Deep soil moisture: top 1 meter

These products suggest that recent rains have recharged the soil moisture across most of the eastern Plains, and also parts of southwestern Colorado

Soils are drying out across northwestern Colorado, and deeper soil moisture remains poor in many areas on the western slope



Terrestrial water storage: groundwater + soil moisture + snowpack

When including groundwater, conditions continue to look poor across much of the state

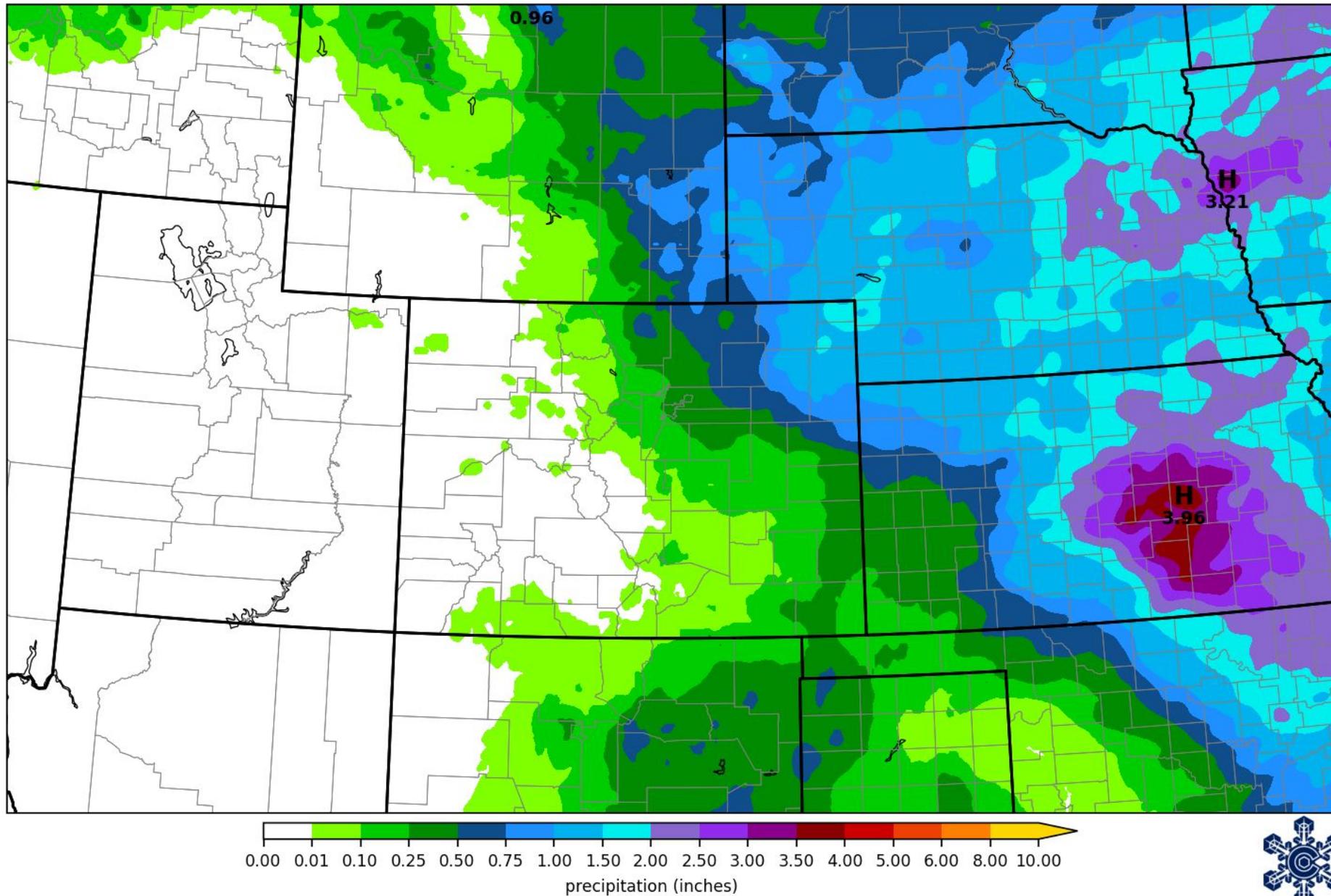


Outlook

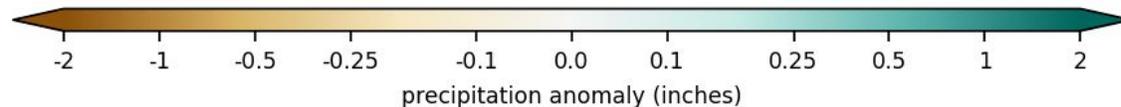
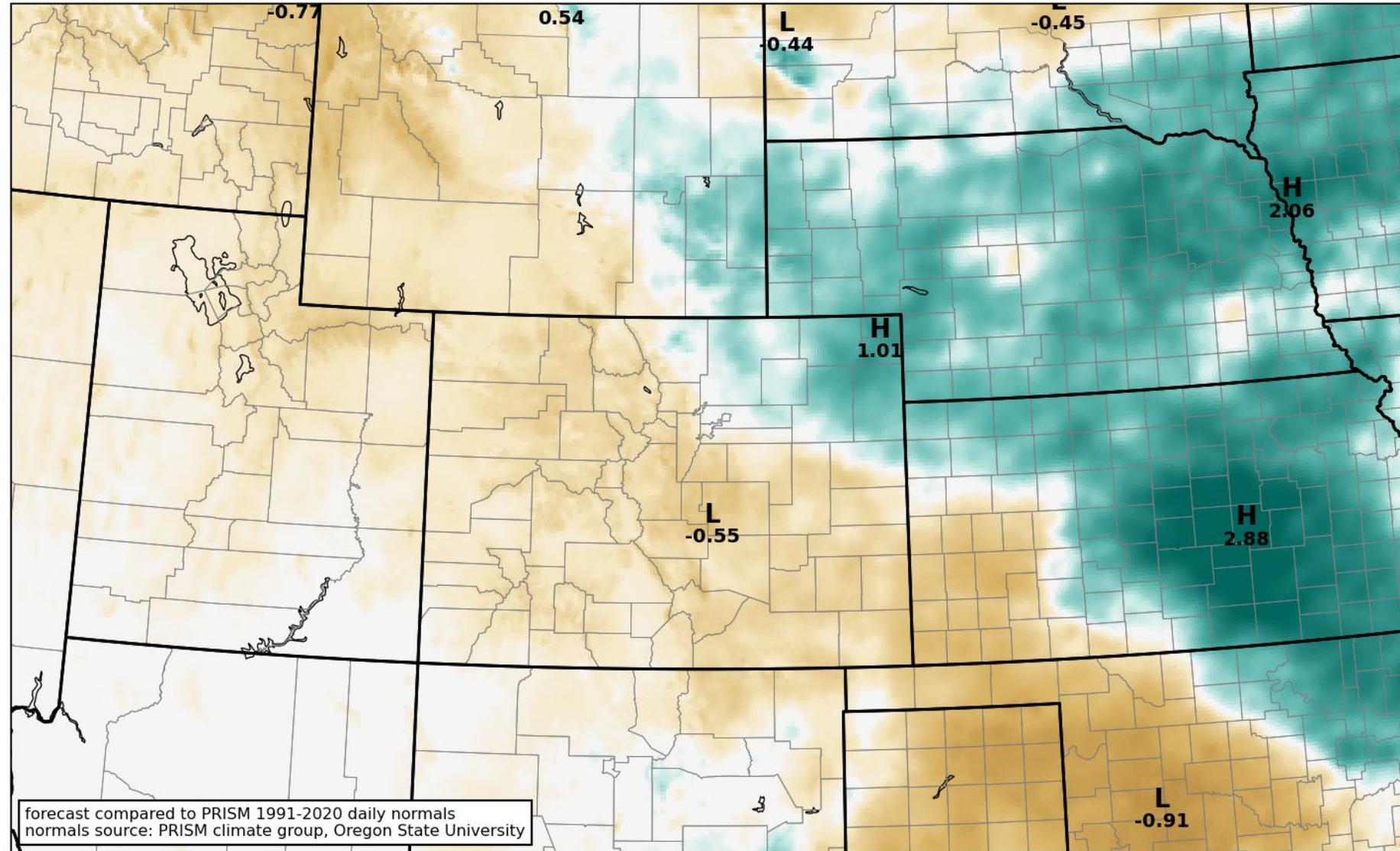


NOAA 7-day precipitation forecast

More storm chances
today in eastern
Colorado, then
drying out

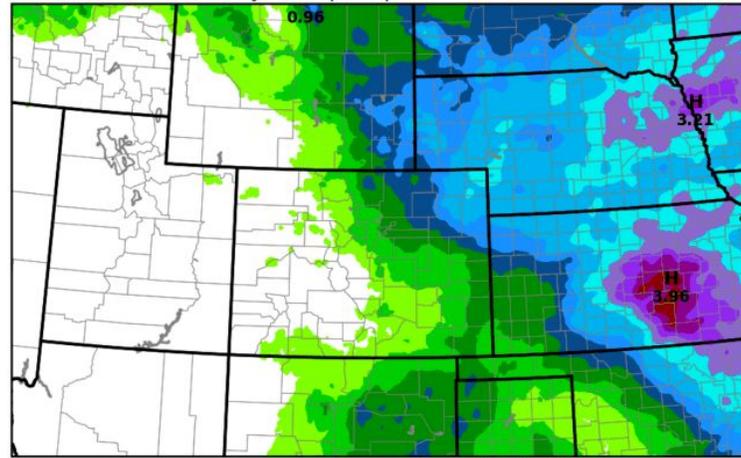


NOAA 7-day precipitation forecast (difference from average)

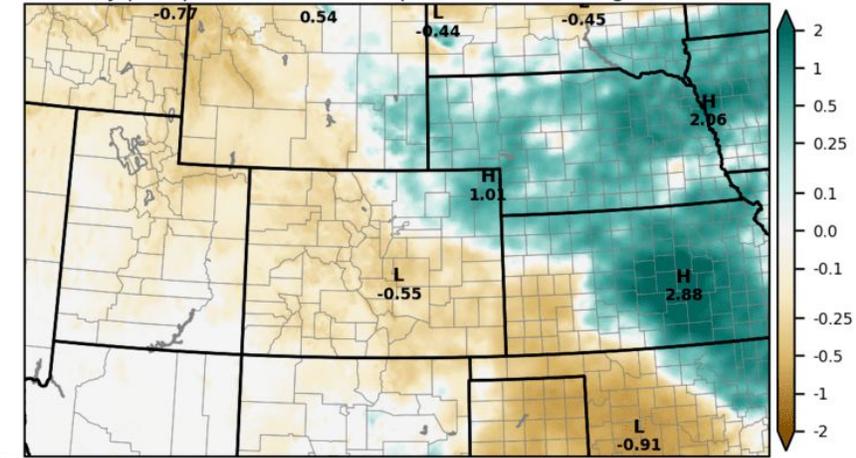


NOAA 7-day precipitation forecast

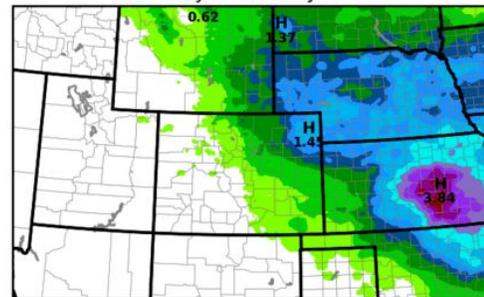
7-day total precipitation forecast



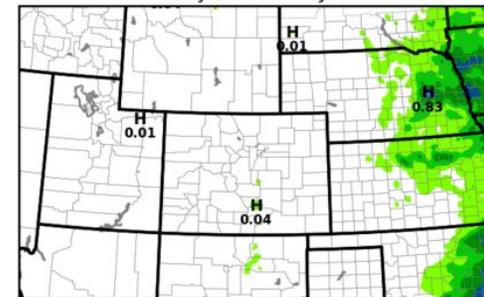
7-day precipitation forecast departure from average (inches)



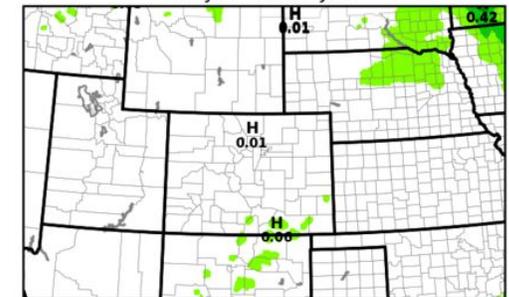
Day 1 Tue 17 Jun



Day 2 Wed 18 Jun



Day 3 Thu 19 Jun



Day 4 Fri 20 Jun



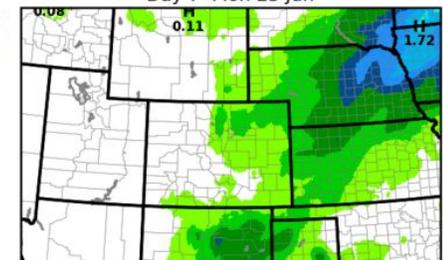
Day 5 Sat 21 Jun



Day 6 Sun 22 Jun



Day 7 Mon 23 Jun



forecast compared to PRISM 1991-2020 daily normals
normals source: PRISM climate group, Oregon State University

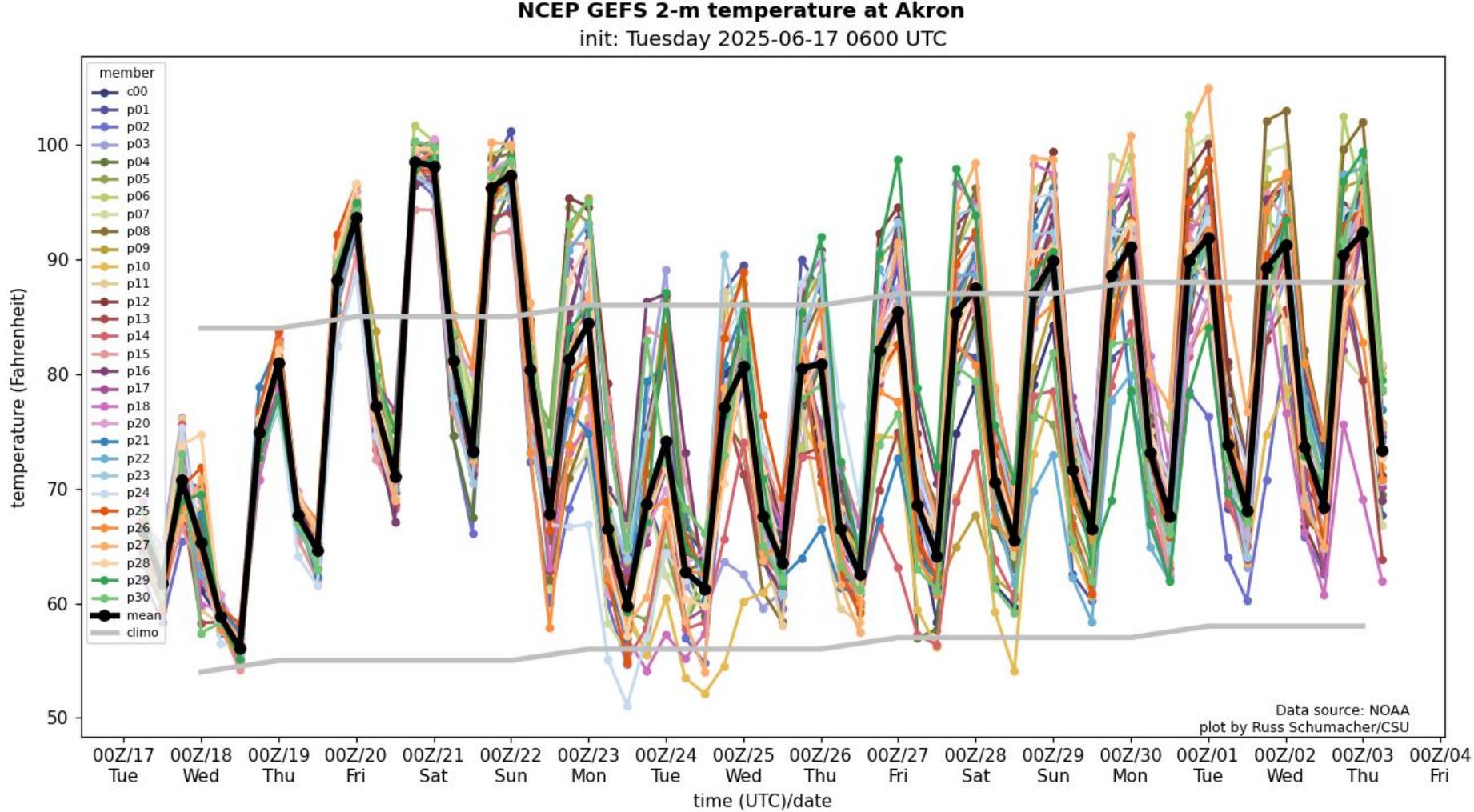


Quick-look maps on our drought page:

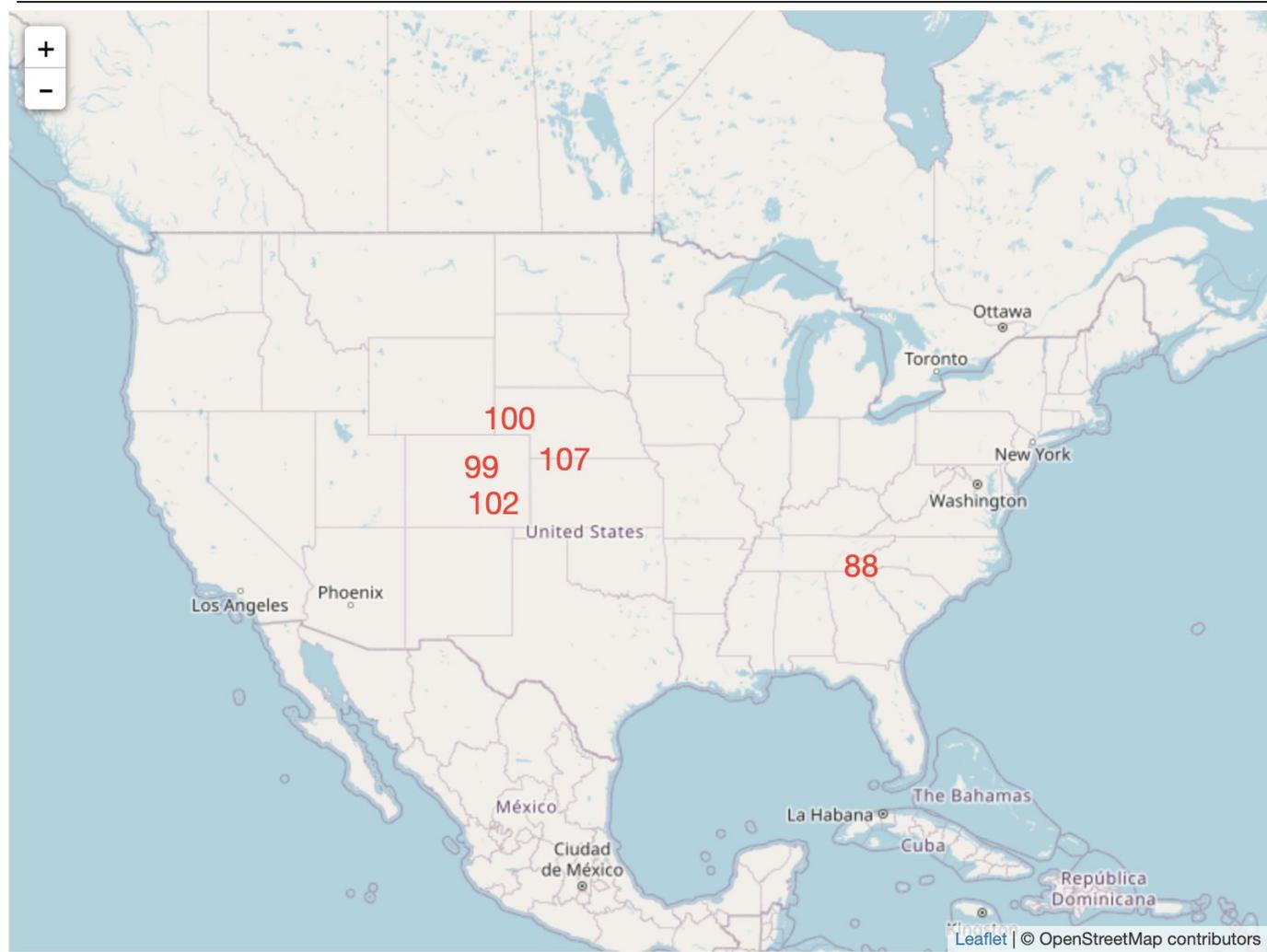
<https://climate.colostate.edu/drought/#outlook>



Heat wave from Thurs-Sat, then cooling down early next week



Potential record highs on Friday-Saturday, with 100s on the eastern Plains



Fri Jun 20 2025
HI MAX (REC/YR) POR

BFF	100	(101/2007)	1893
BRCN7	88	(88/2009)	2000
DEN	99	(99/2017)	1872
MCK	107	(101/2017)	1896
PUB	102	(103/2006)	1888

5 STATION(S)



Last week of June looks closer to average for both temp & precip



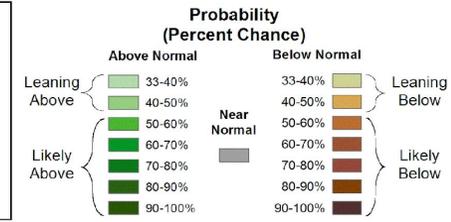
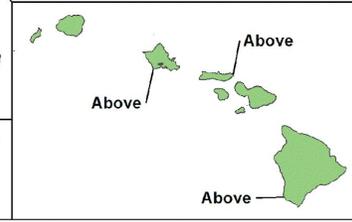
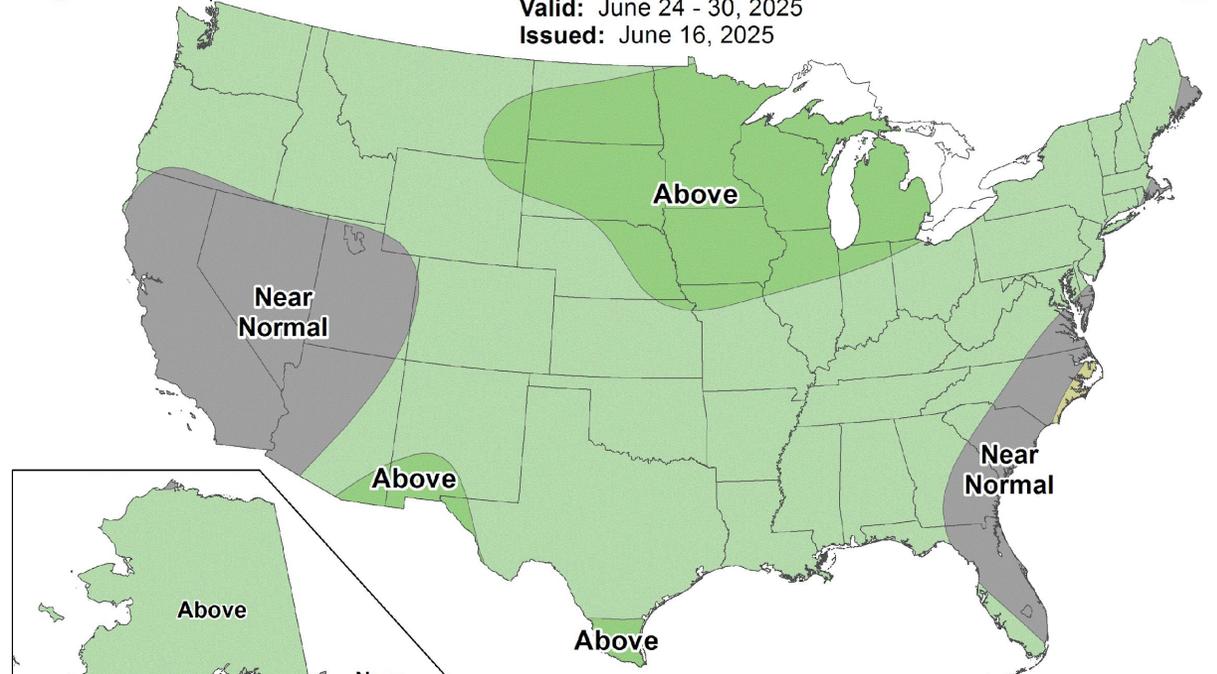
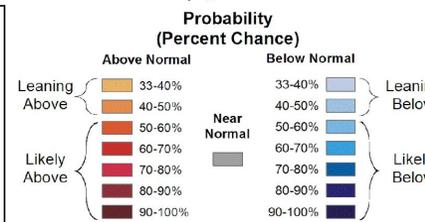
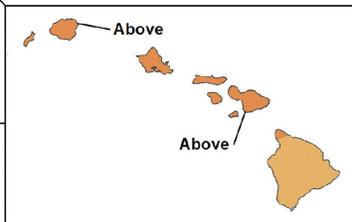
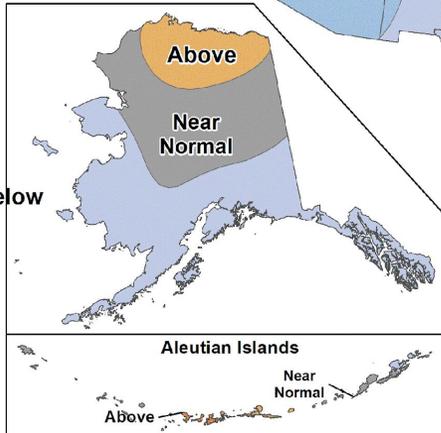
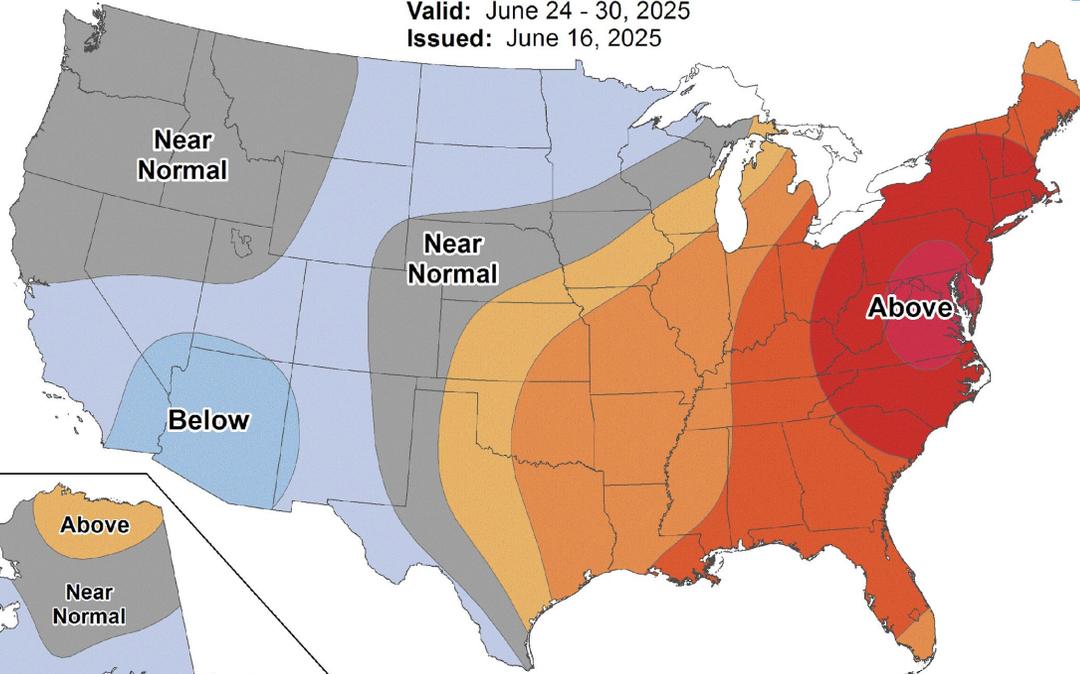
8-14 Day Temperature Outlook

Valid: June 24 - 30, 2025
Issued: June 16, 2025



8-14 Day Precipitation Outlook

Valid: June 24 - 30, 2025
Issued: June 16, 2025



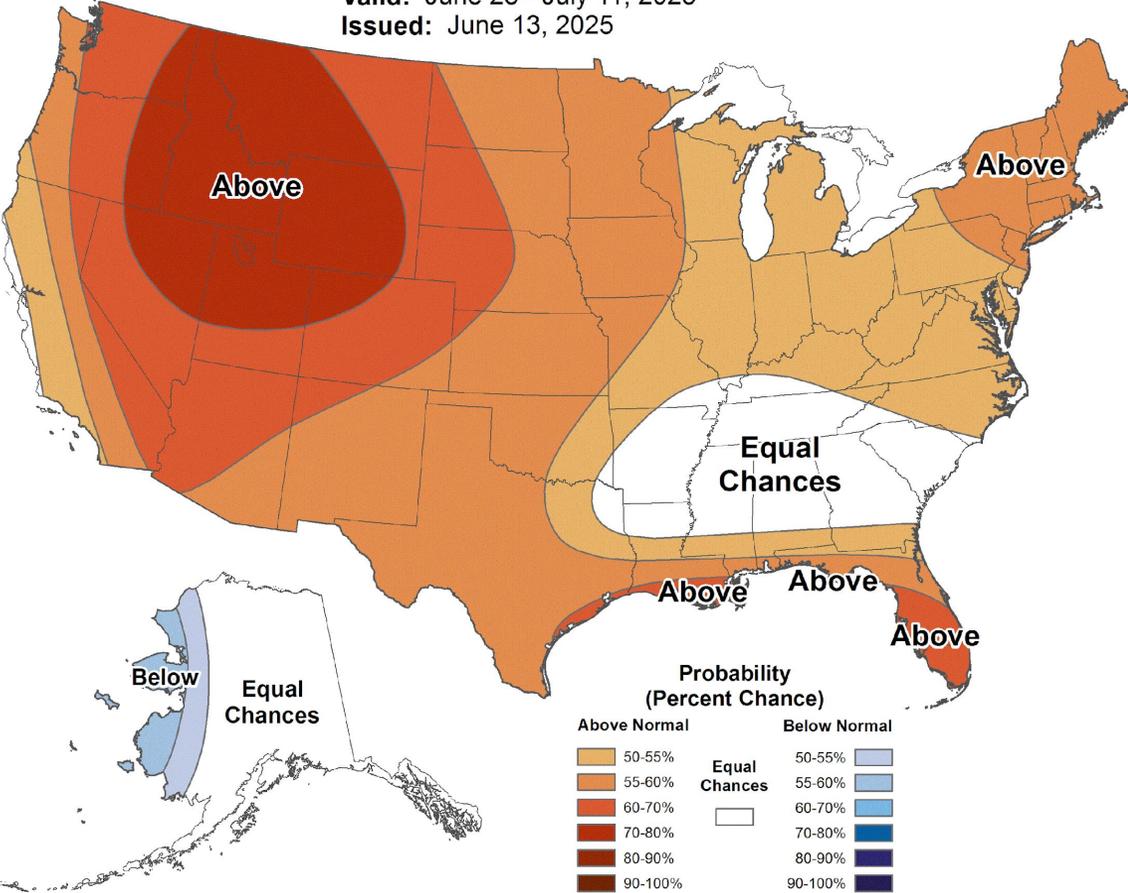
Early July then looks hot, but with monsoon getting going in the SW



Weeks 3-4 Temperature Outlook



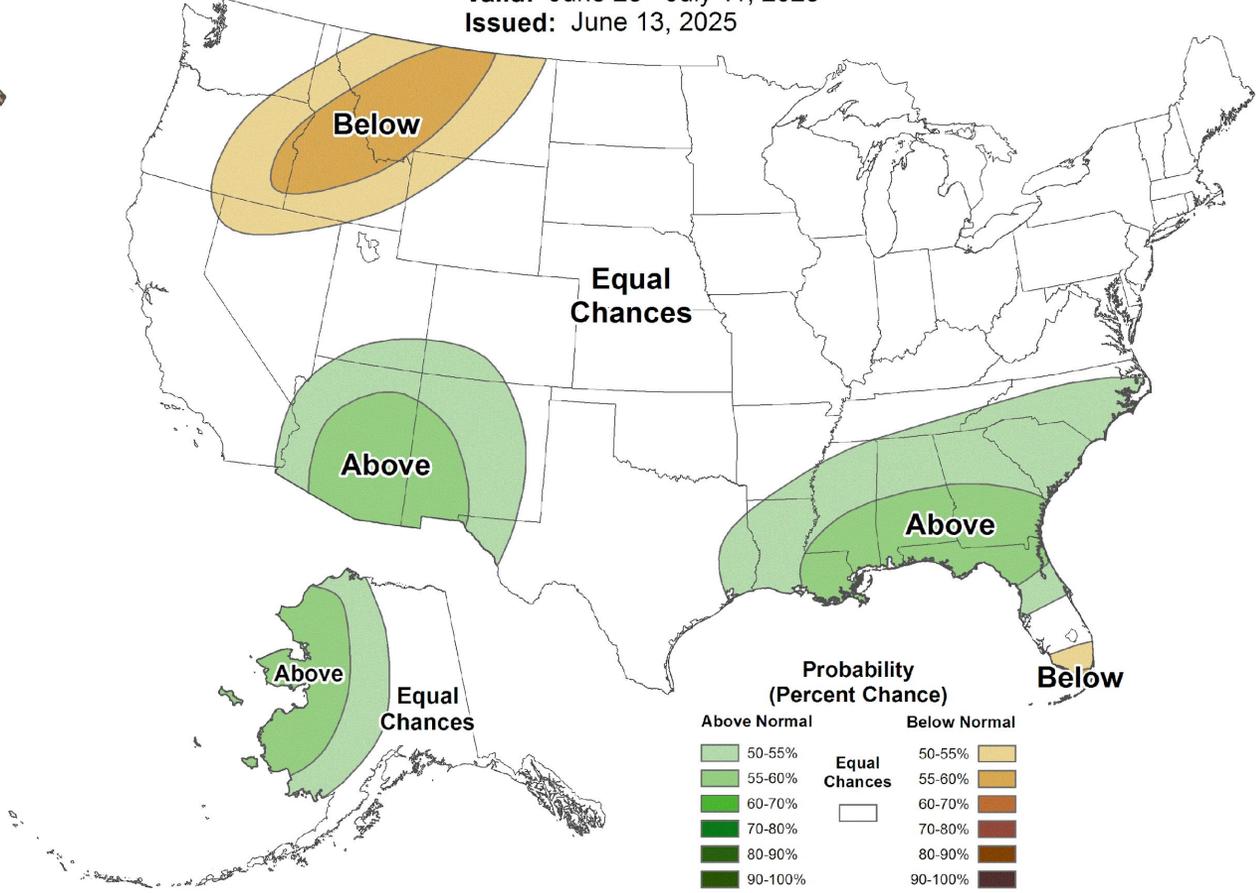
Valid: June 28 - July 11, 2025
Issued: June 13, 2025



Weeks 3-4 Precipitation Outlook



Valid: June 28 - July 11, 2025
Issued: June 13, 2025



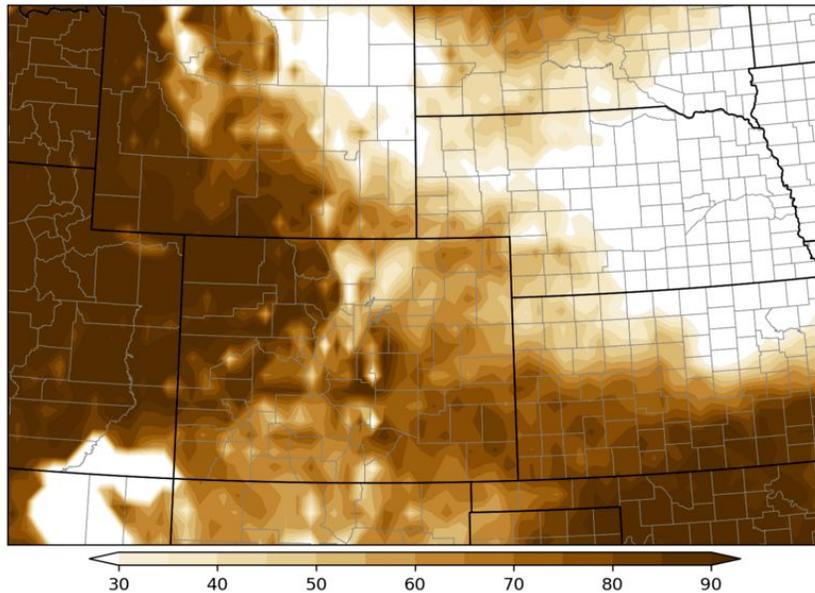
Will the next 15 days be above, below, or near average precipitation?

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

ECMWF Ensemble Prediction System
accumulated precipitation departure from average through 15 days (baseline: PRISM 1991-2020 daily normals)

initialized 0000 UTC Tue 17 Jun 2025
360-h forecast valid 0000 UTC Wed 02 Jul 2025

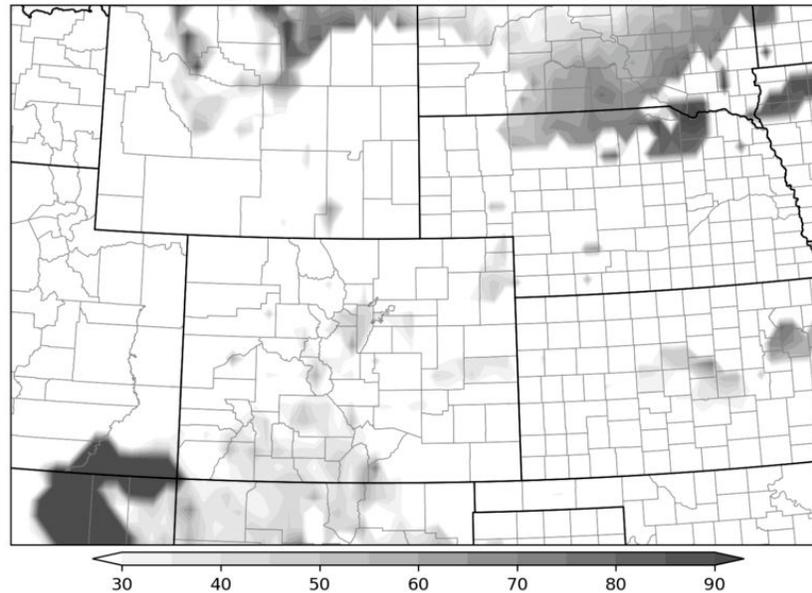
percent of EPS members at least 0.1" below average



data: ECMWF; plot: Russ Schumacher, Colorado State Uni

Percent of members below average

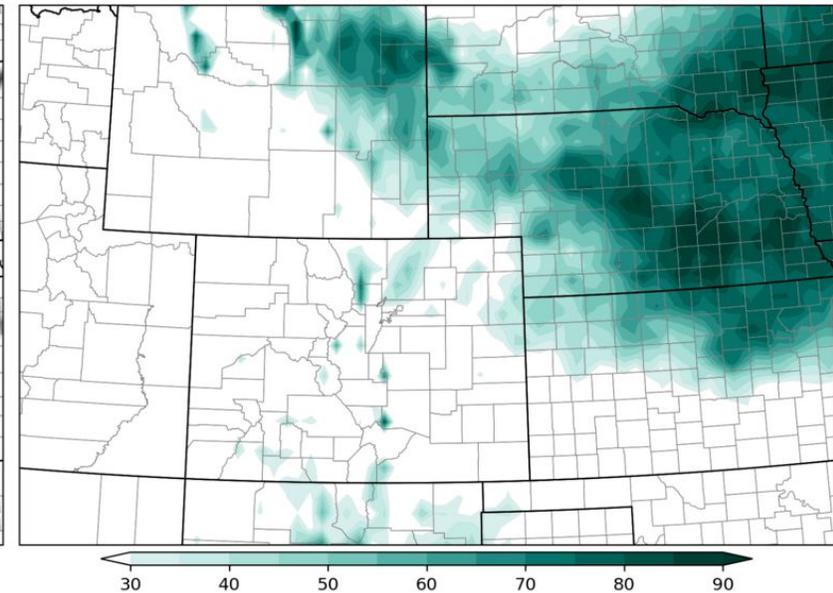
percent of EPS members within 0.1" of average



% of members

Percent of members within 0.1"

percent of EPS members at least 0.1" above average



% of members

Percent of members above avg

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



ENSO-neutral conditions in place for a while

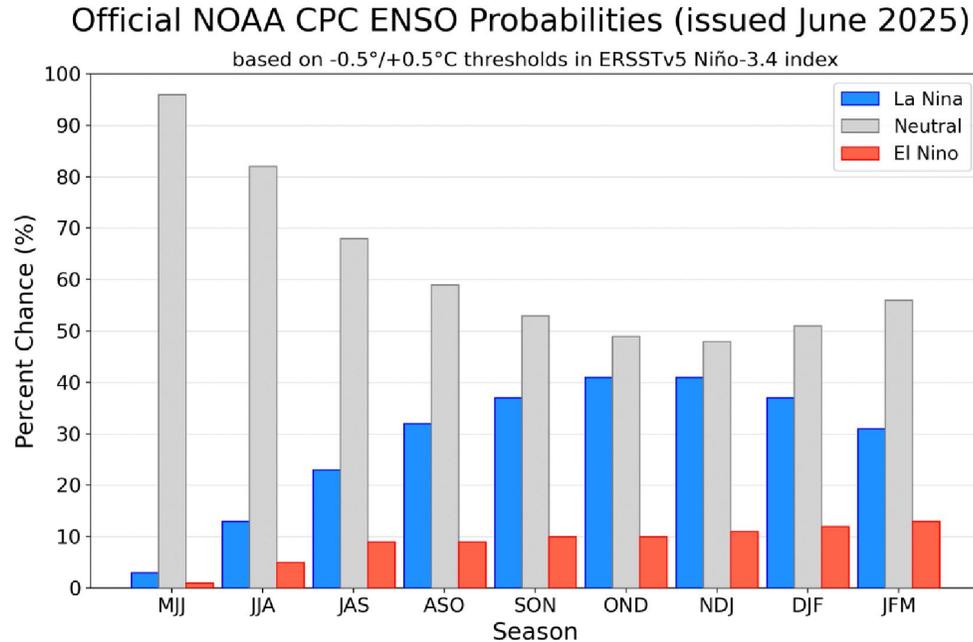


Figure 7. Official ENSO probabilities for the Niño 3.4 sea surface temperature index (5°N - 5°S , 120°W - 170°W). Figure updated 12 June 2025.

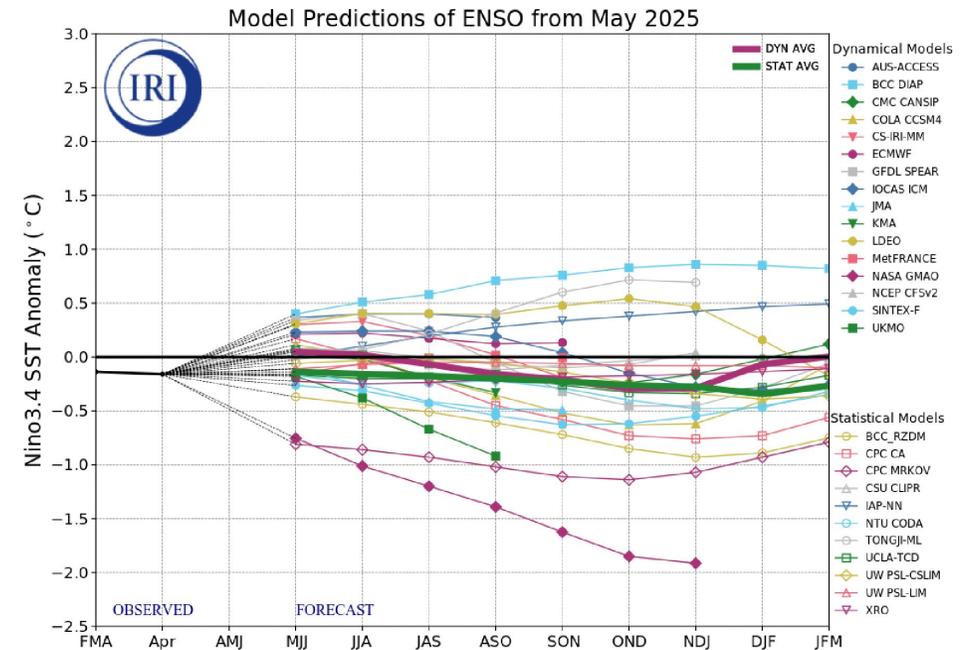
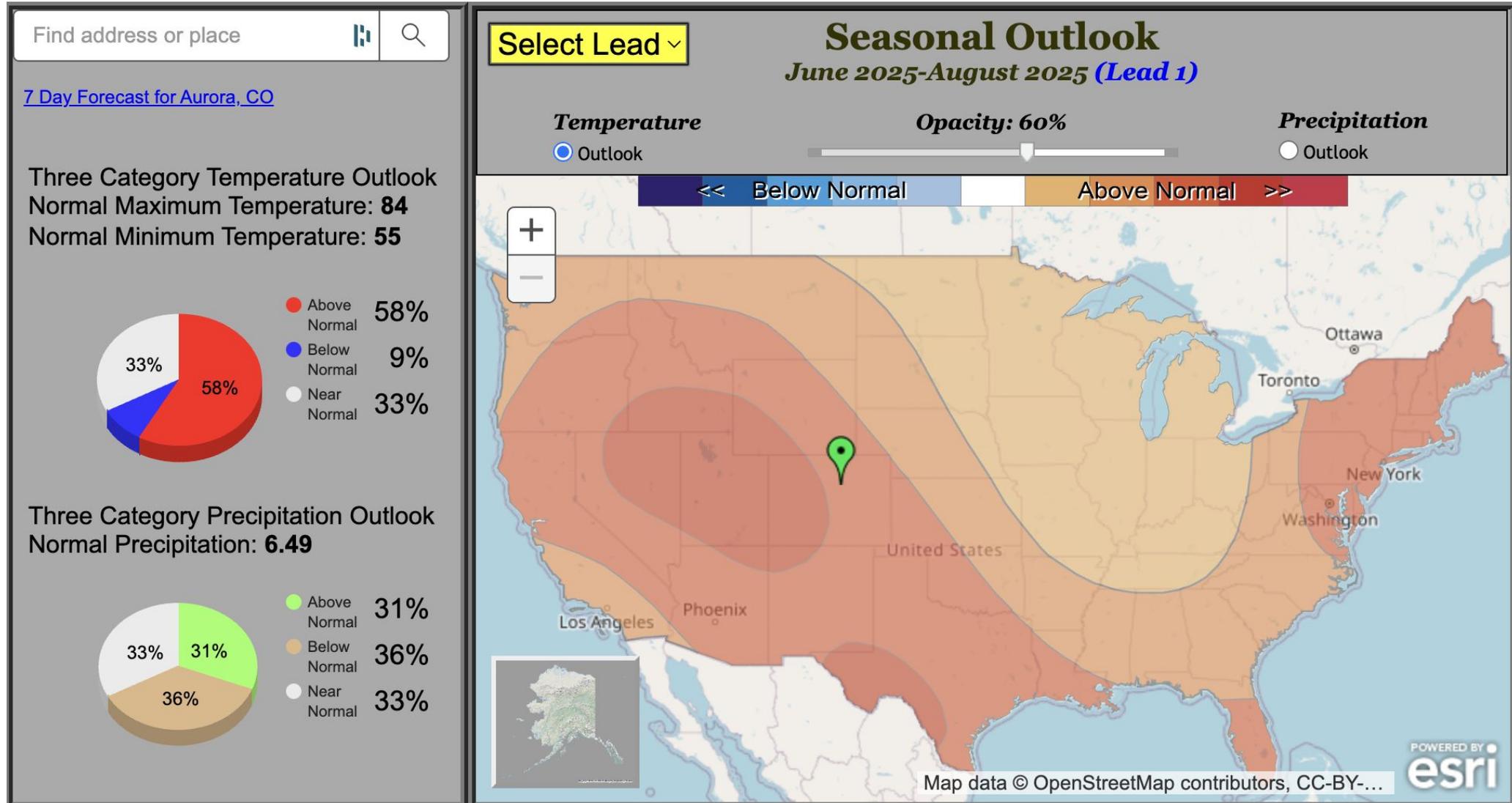


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N - 5°S , 120°W - 170°W). Figure updated 19 May 2025 by the International Research Institute (IRI) for Climate and Society.

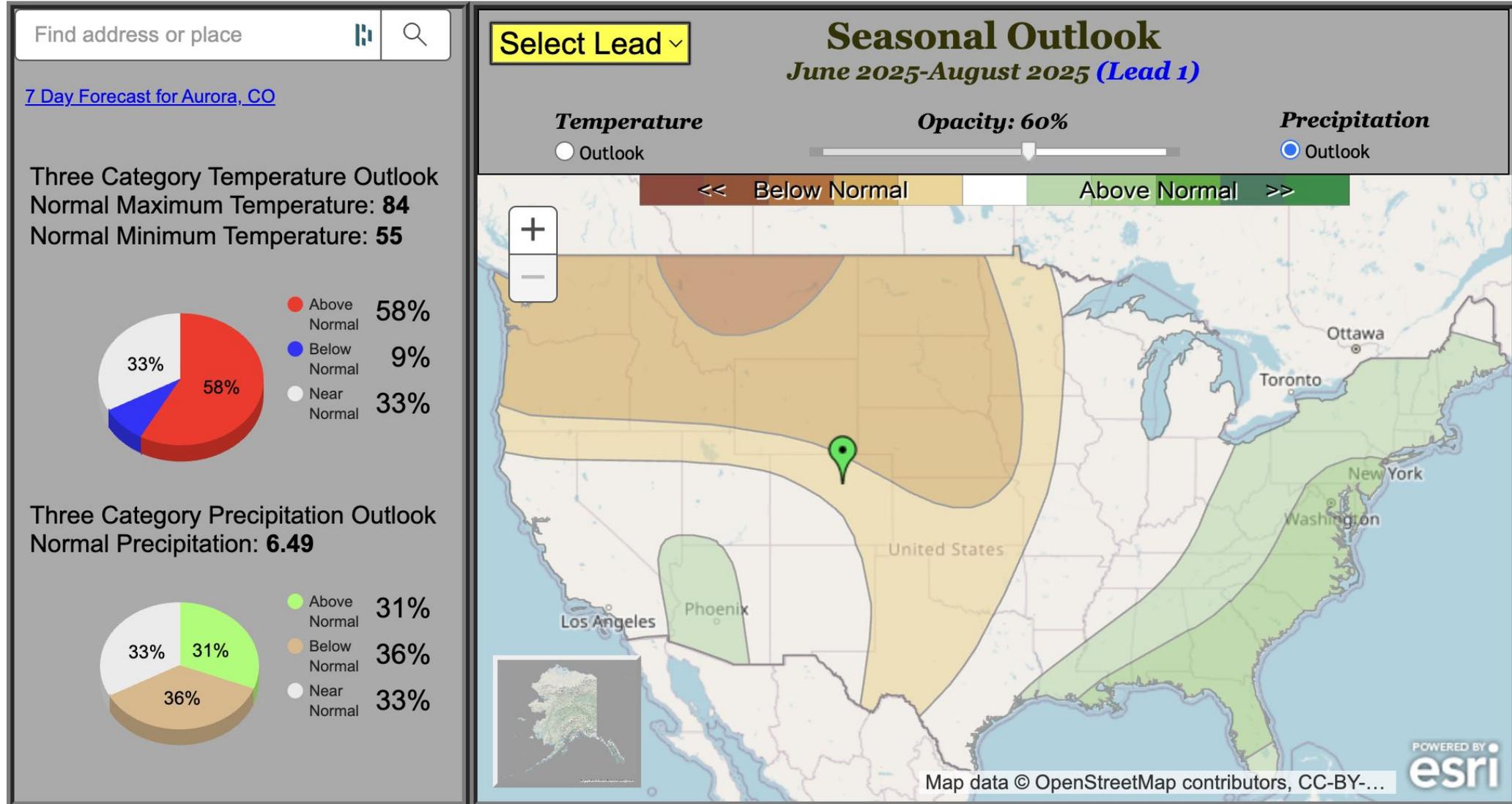
“ENSO-Neutral is likely in the Northern Hemisphere summer 2025 (82% chance in June-August) and may continue into winter 2025-26, though confidence is lower”
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensodisc.shtml



NOAA's June-July-August temperature outlook



NOAA's June-July-August precipitation outlook



Takeaways

- Water Year 2025 has been on the warm and dry side, especially for western Colorado (the southeastern plains have been wetter than average)
- May 2025 was very average when considering the state as a whole
- June brought an unusual amount of rain to southwestern Colorado, slowing down the worsening of drought there. Beneficial rain to much of eastern Colorado as well.
- Northwestern Colorado is the part of the state with the most concerns at present, with much-below precipitation for the last several months. Streamflows remain below average across western Colorado.
- Heat wave this weekend! Chances for record highs on Friday and Saturday.
- Then the usual late-June dry period, and wait and hope for the monsoon to begin
- La Niña is gone; making precipitation outlook somewhat uncertain, but potential is there for an active summer monsoon season in the SW





Thank you!



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