

Climate Center Update

Colorado Water
Conditions Monitoring
Committee 4/22/2025

Peter Goble
Colorado Climate
Center



Photo Credit:
Noah Newman



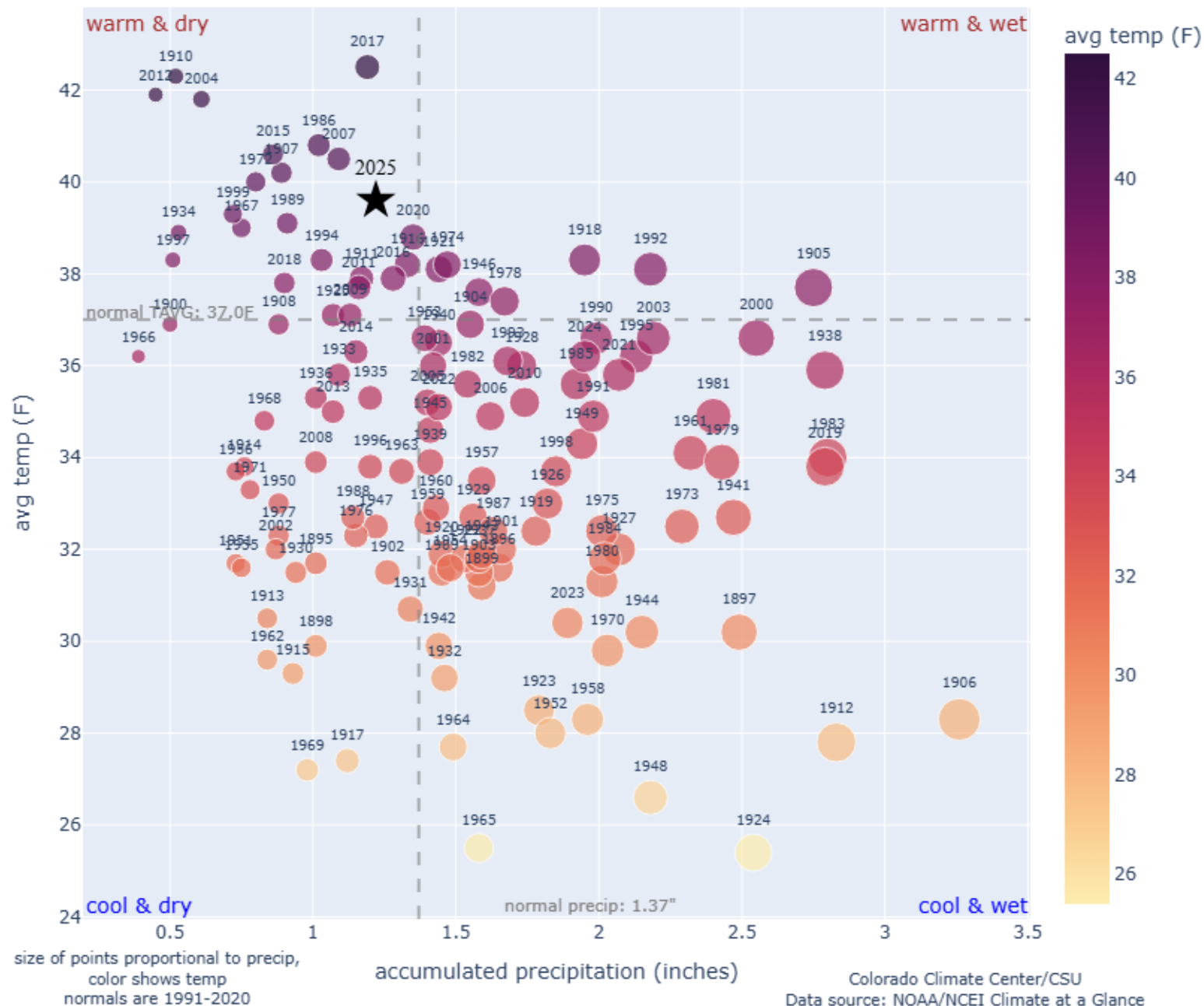
ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY

Agenda

- Current seasonal climate conditions update
- Notable events
- Drought update
- Seasonal Forecast info (How is spring shaping up?)



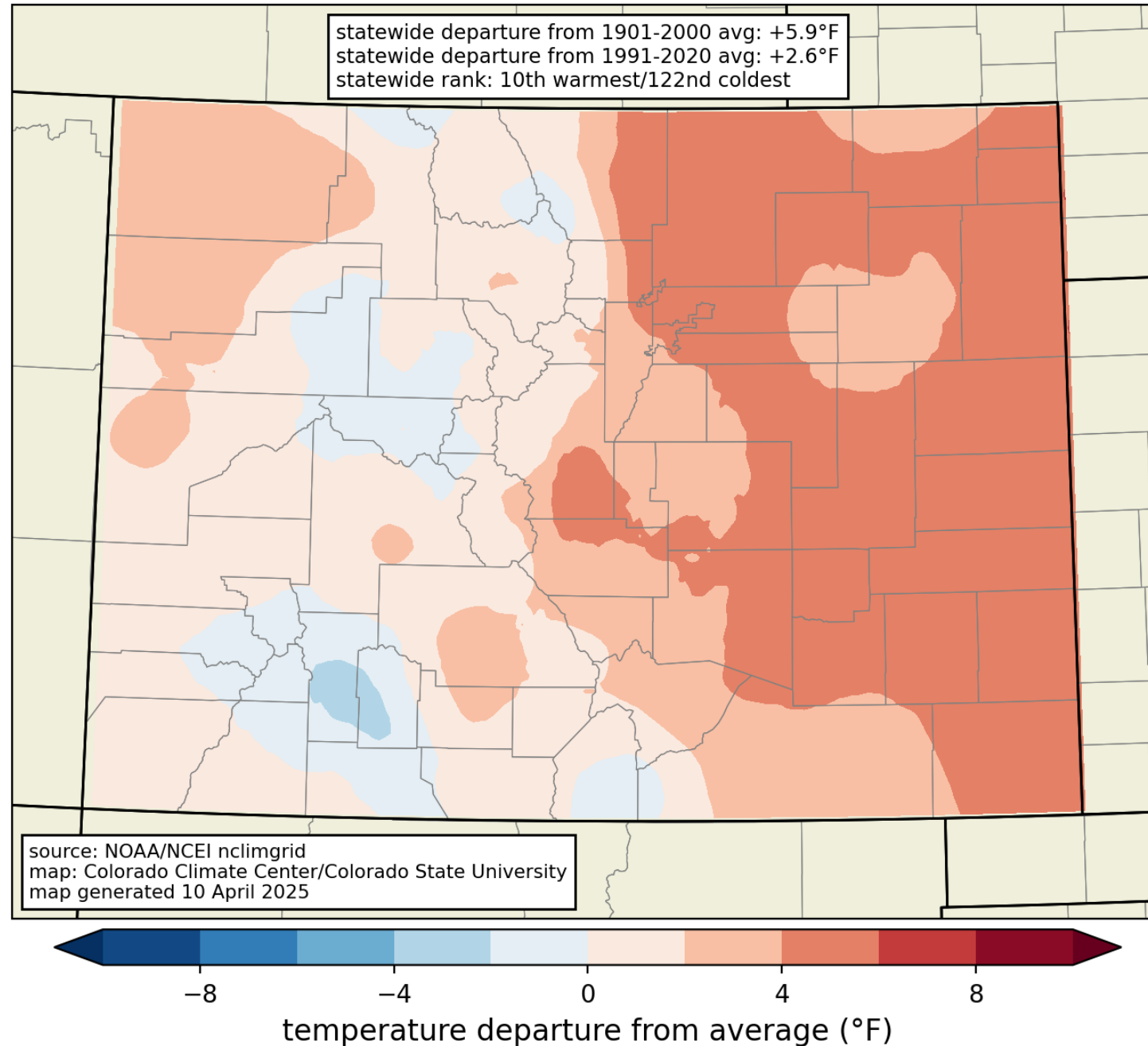
Colorado statewide average temperature and precipitation, March



2.6 °F above
1991-2020
normal

0.15" below
1991-2020
normal

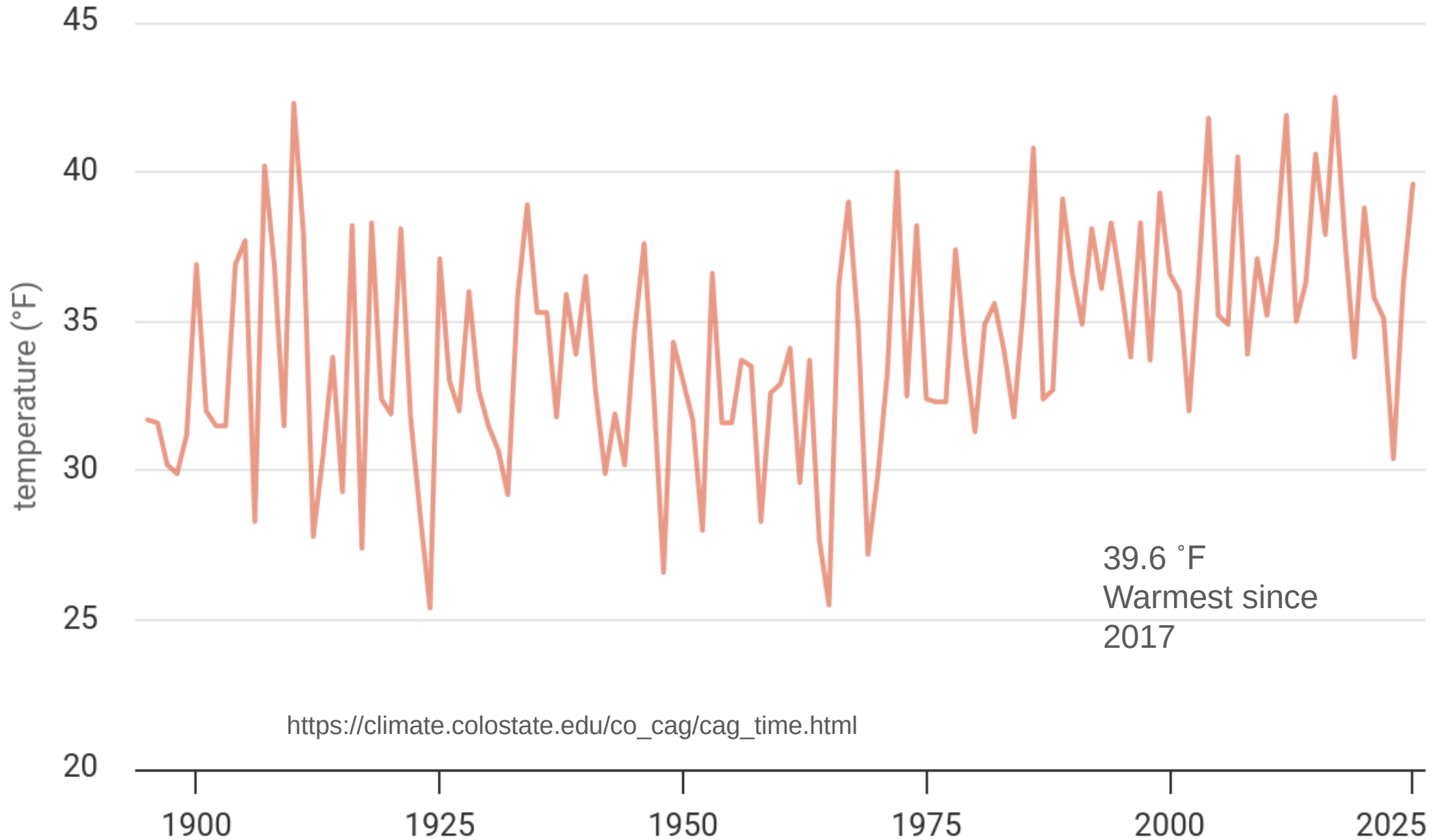
temperature departure from 1991-2020 average March 2025



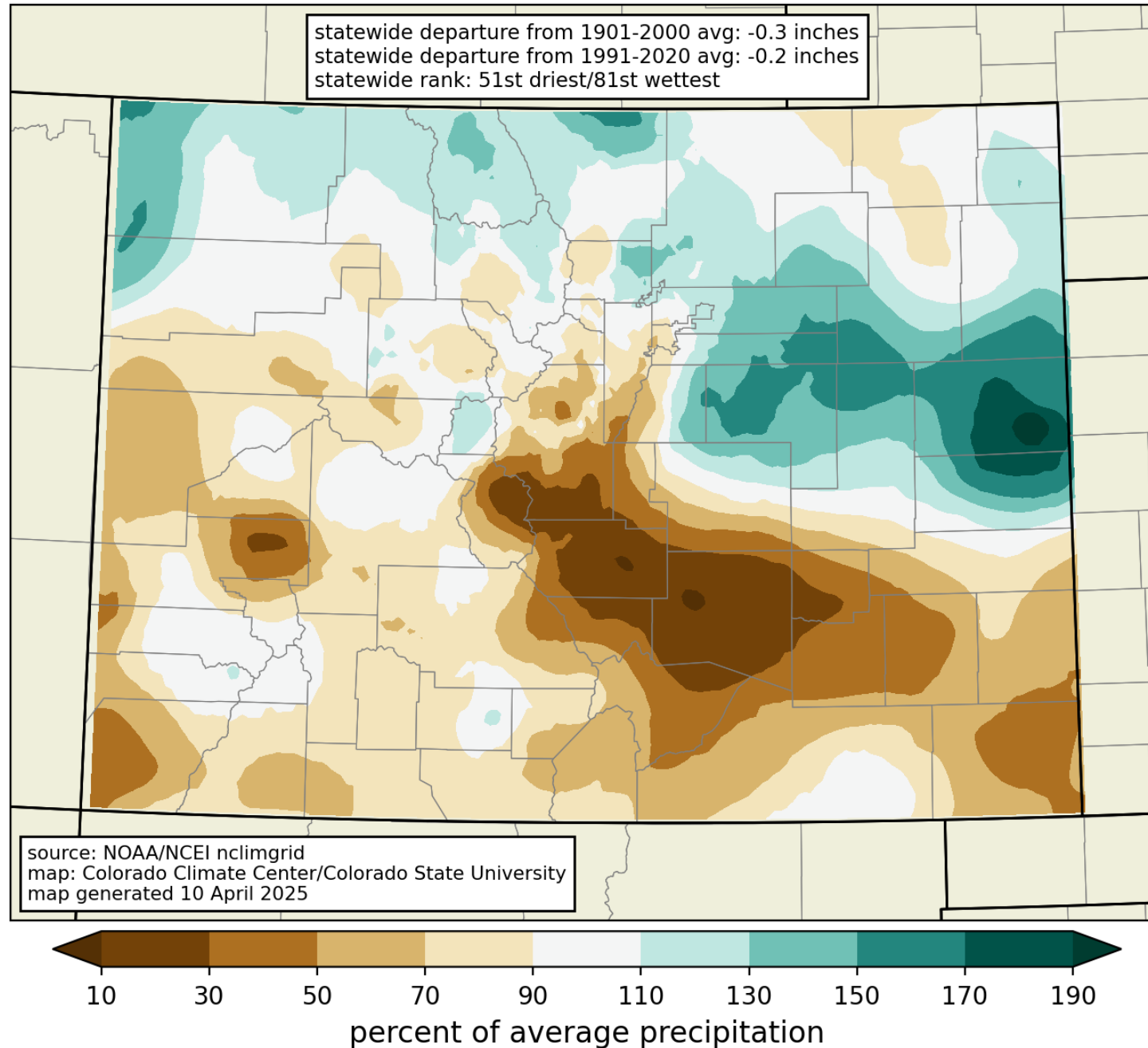
https://climate.colostate.edu/co_cag/rank_maps.htm
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Colorado March Average Temperature

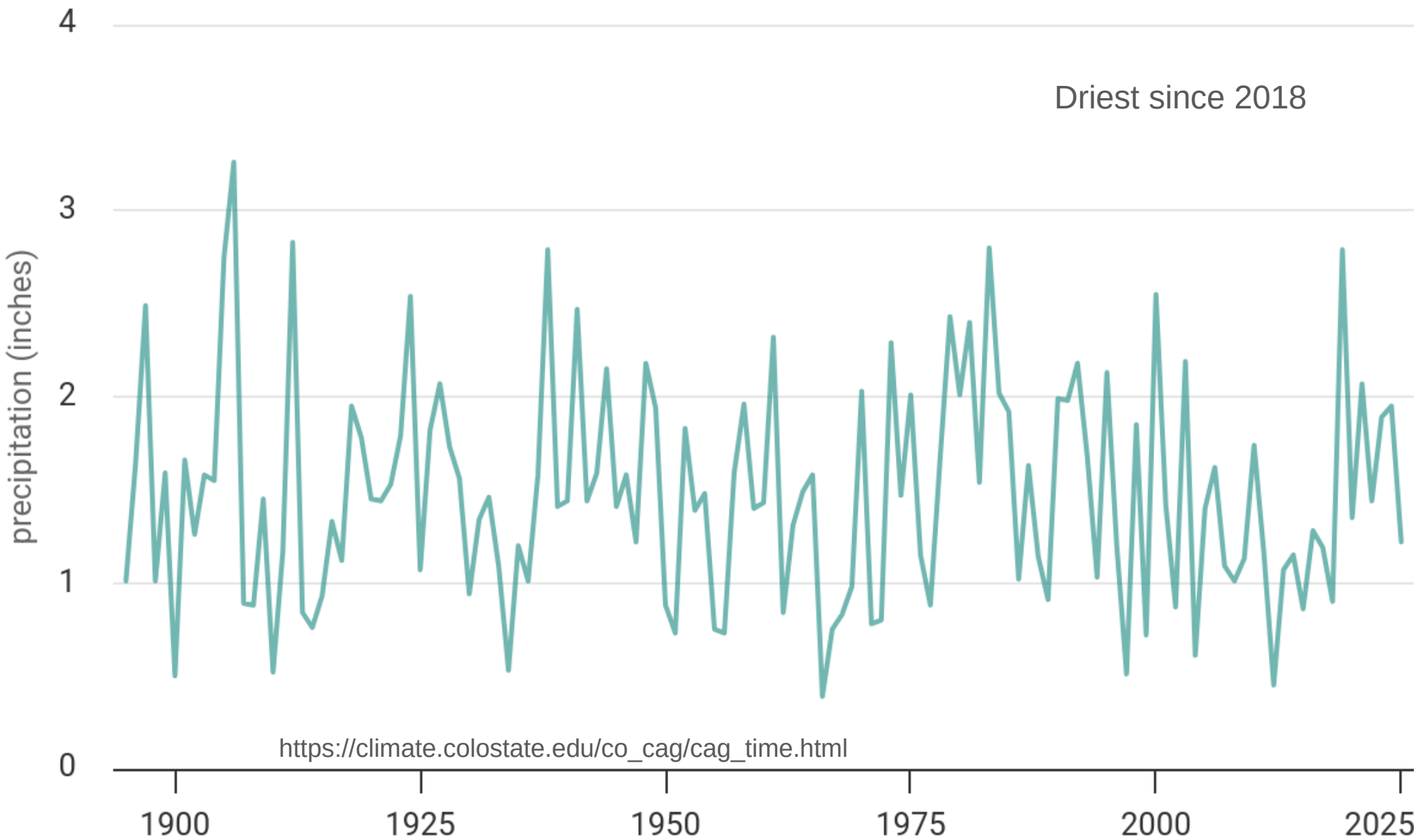


percent of 1991-2020 average precipitation
March 2025

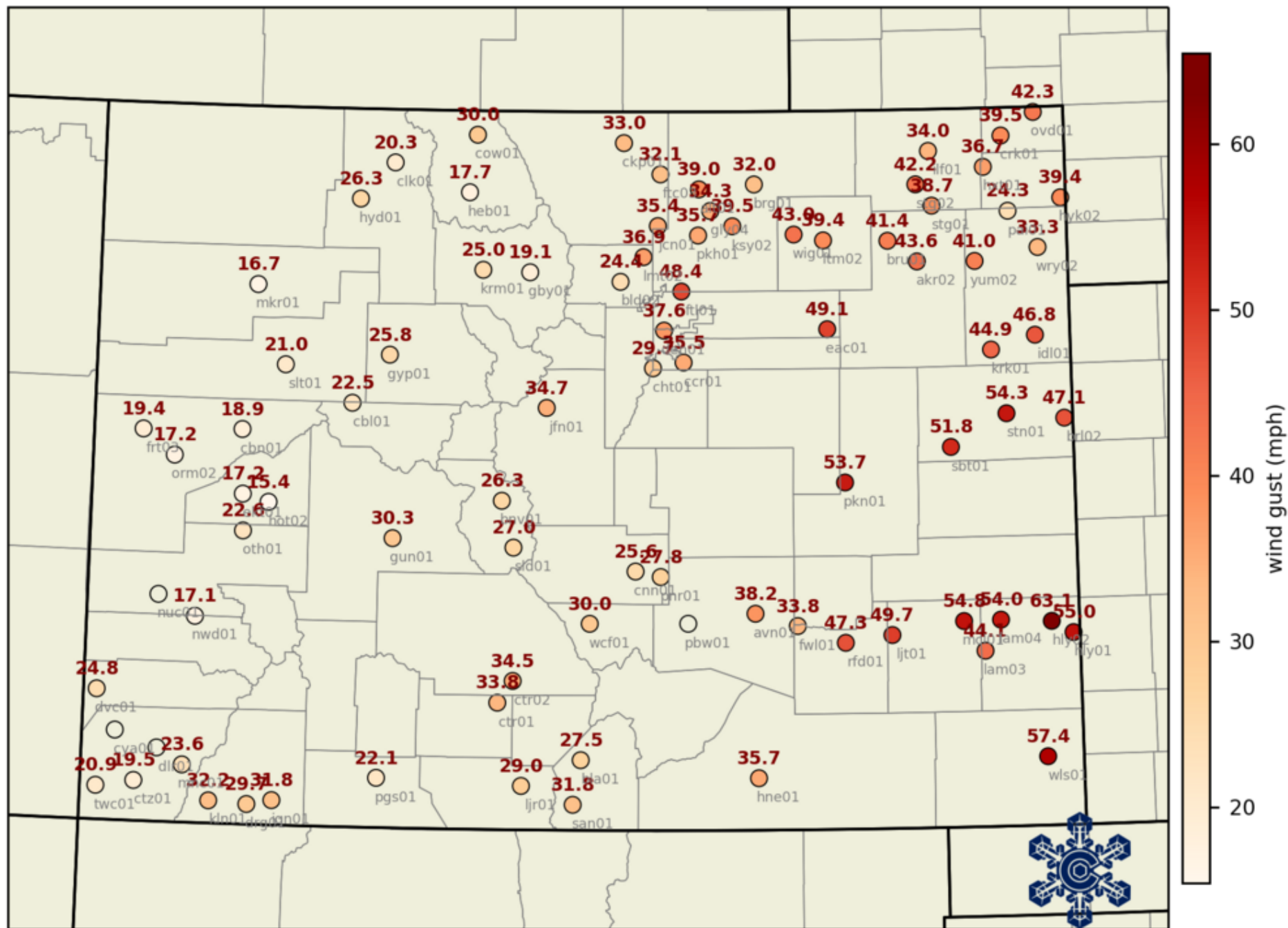


https://climate.colostate.edu/co_cag/rank_maps.htm
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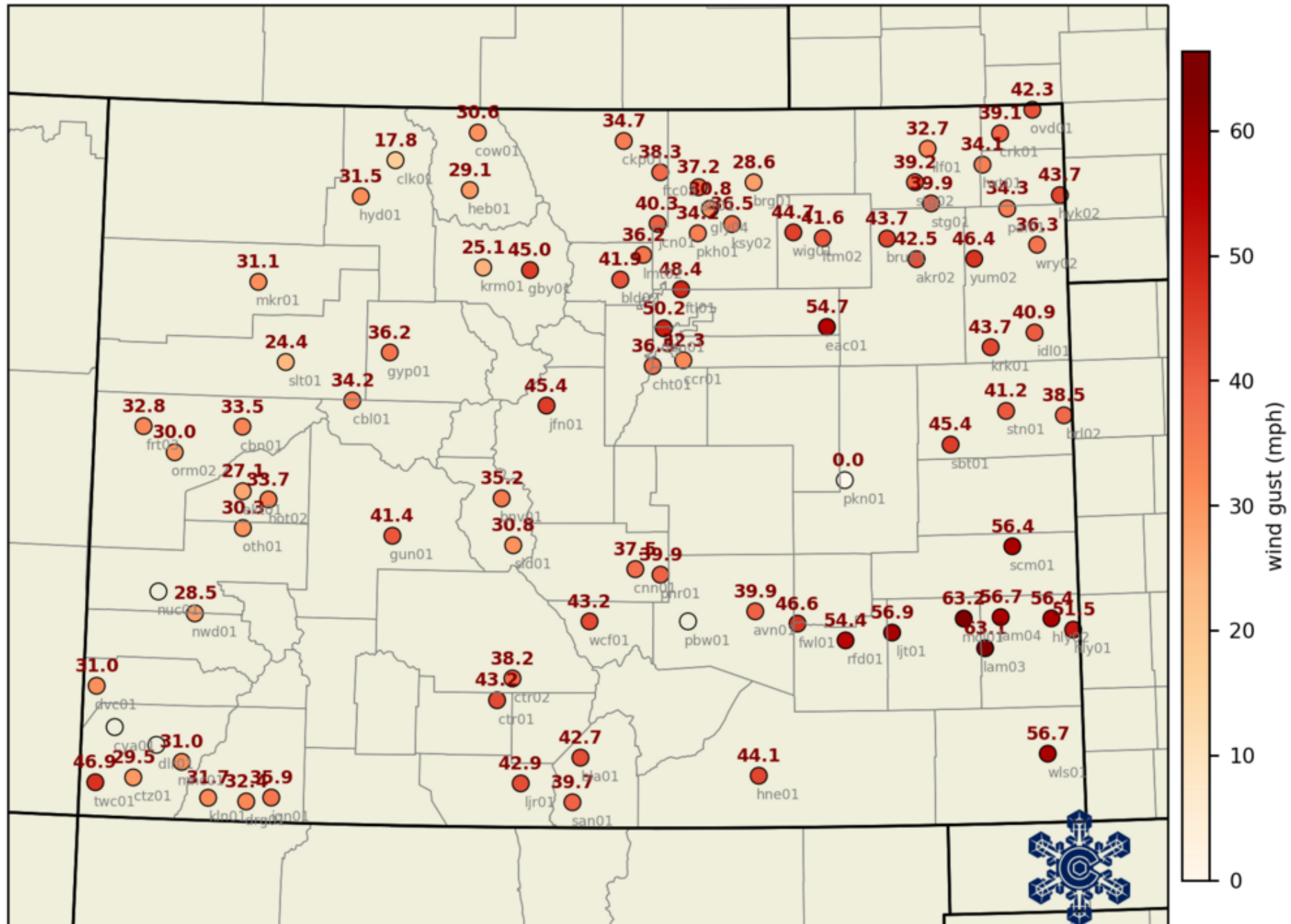
Colorado March Precipitation

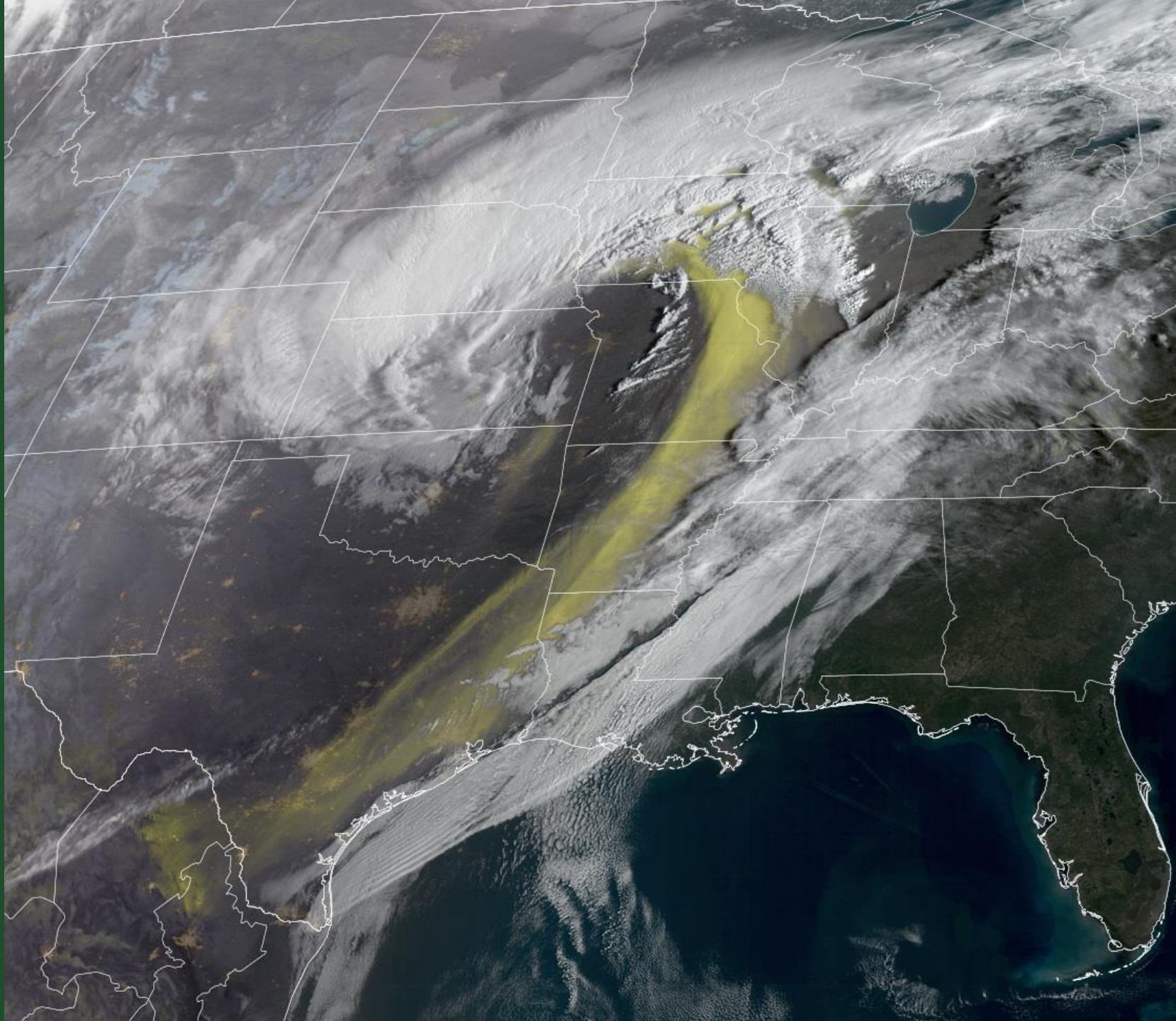


CoAgMET/Northern Water daily maximum wind gust (mph): 04 Mar 2025



CoAgMET/Northern Water daily maximum wind gust (mph): 18 Mar 2025

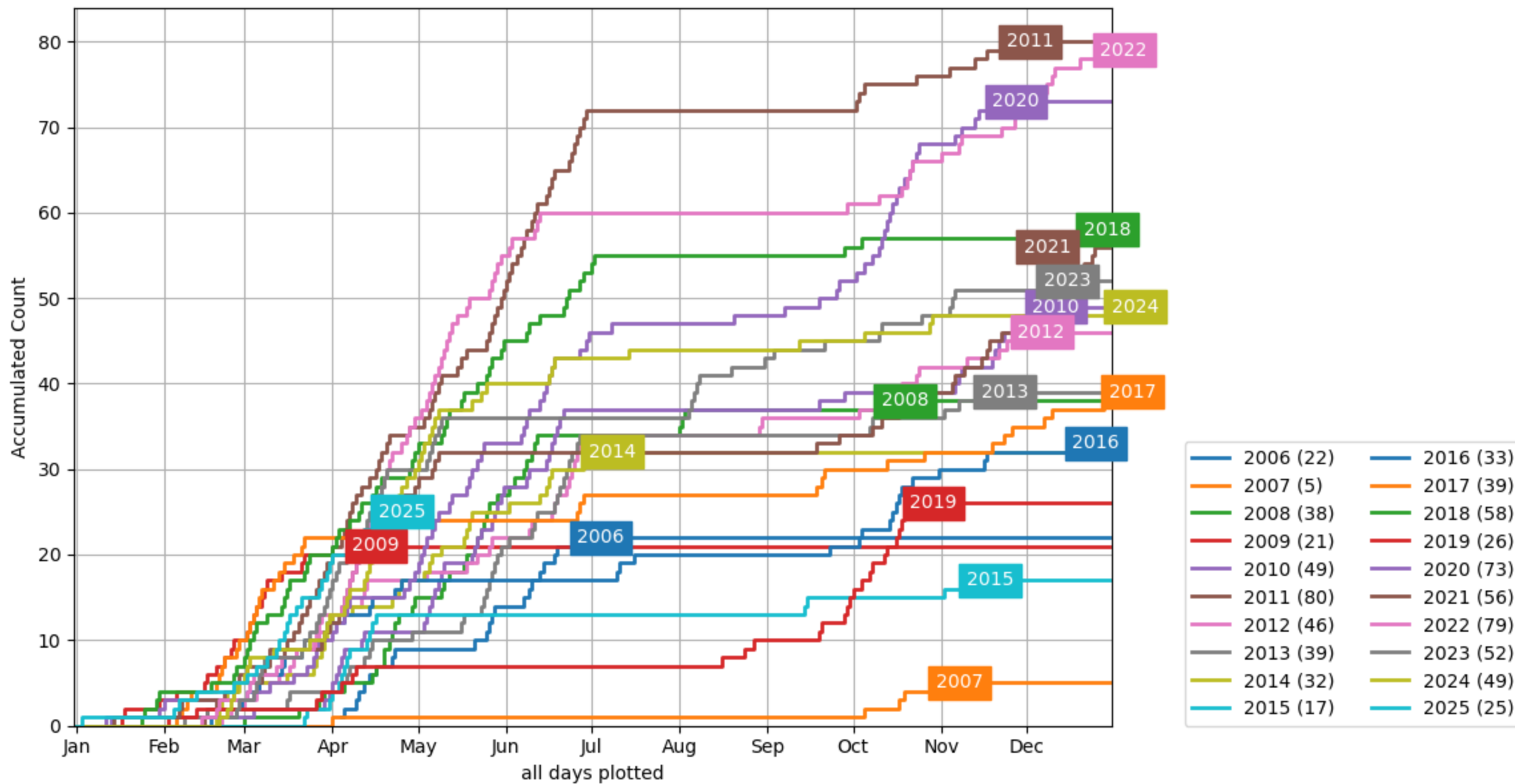




<https://www.weather.gov/lub/events-2025-20250318-wind>

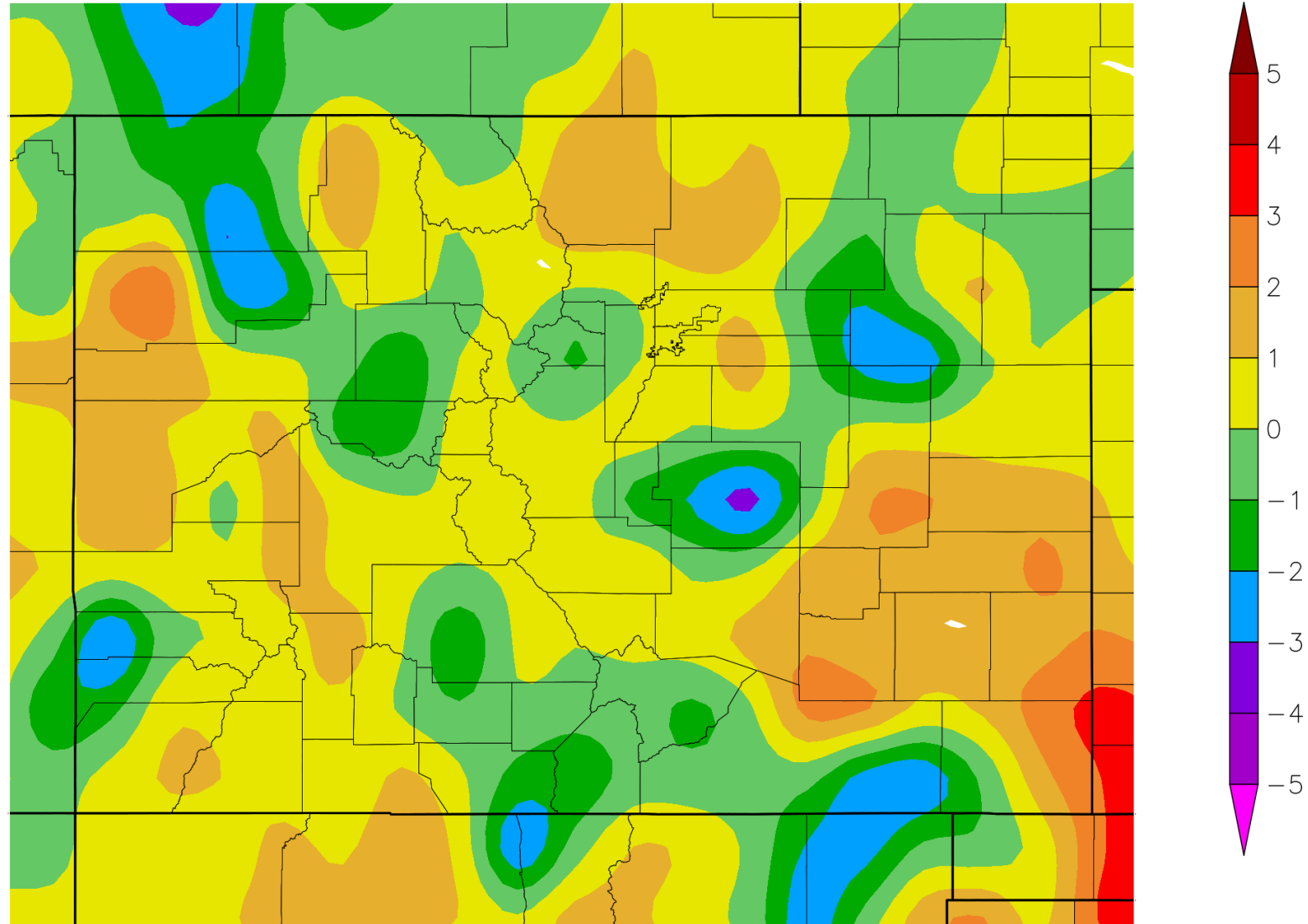


NWS WFO: Pueblo (PUB) Red Flag Warning Count



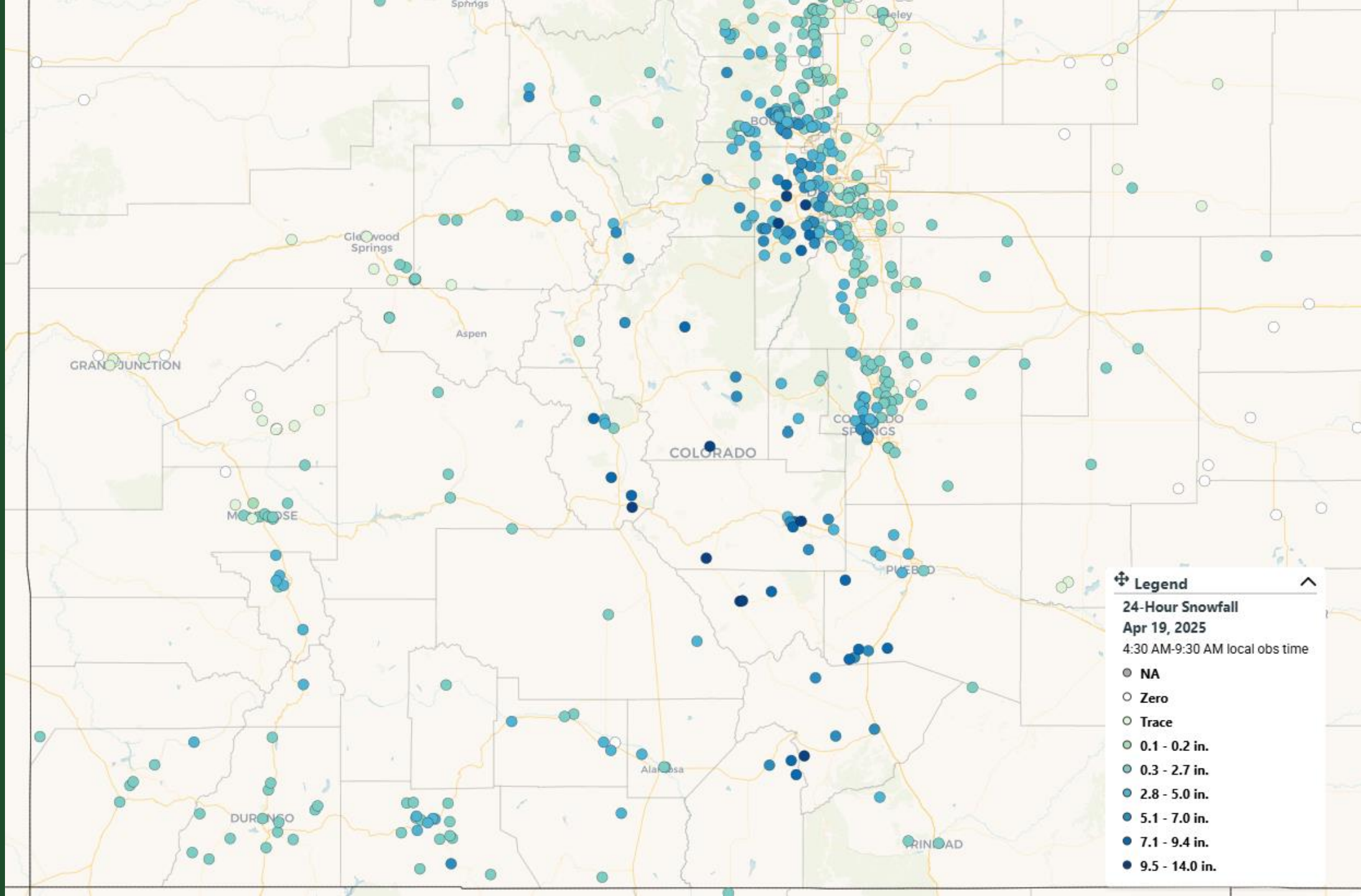
Departure from Normal Temperature (F)

4/1/2025 – 4/20/2025

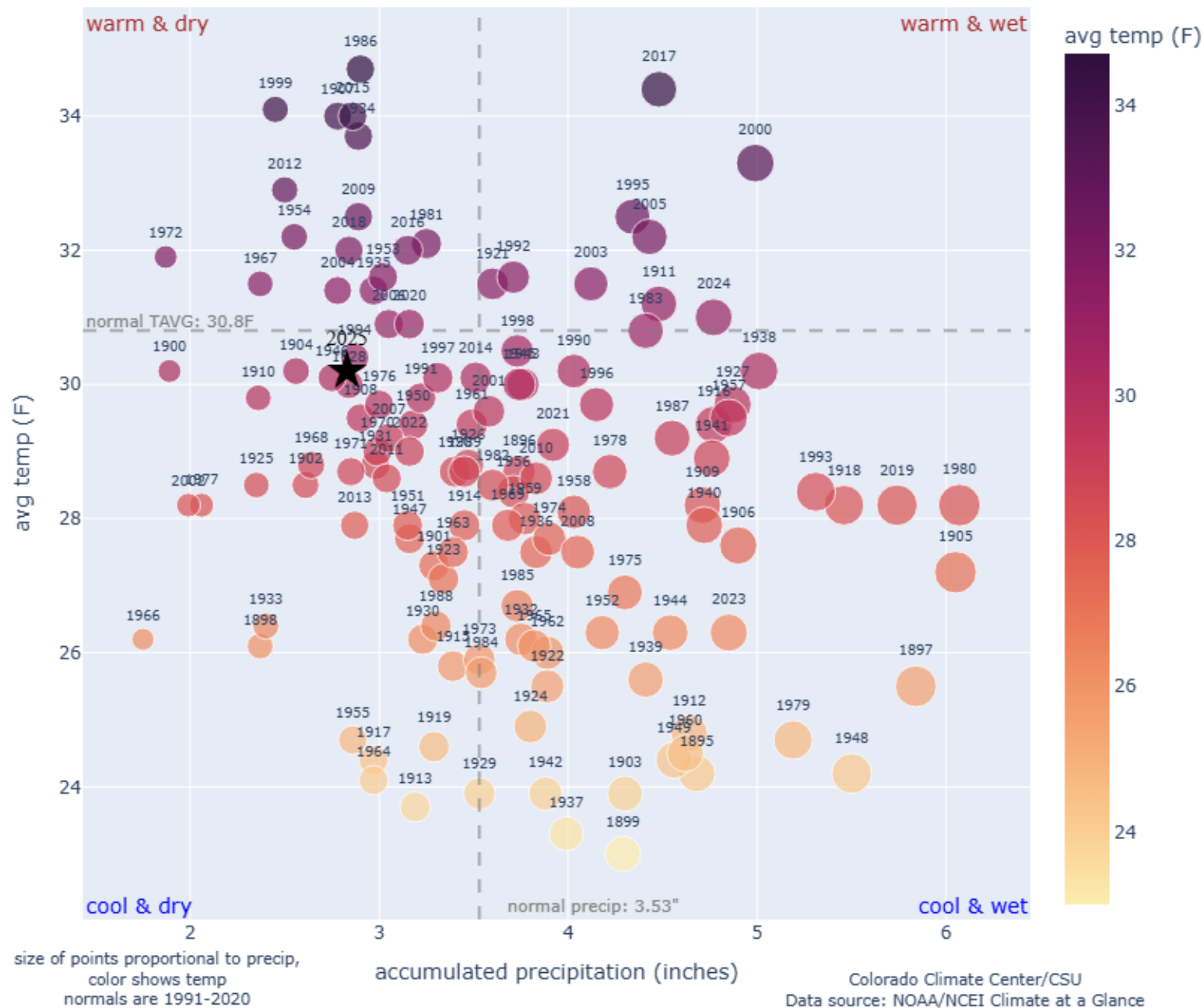


<https://hprcc.unl.edu/maps.php?map=ACISClimateMaps>





Colorado statewide average temperature and precipitation, January - March



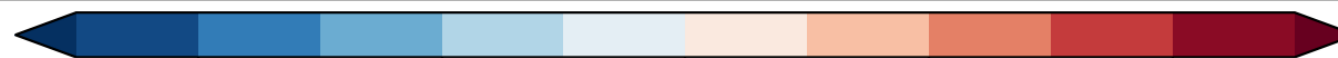
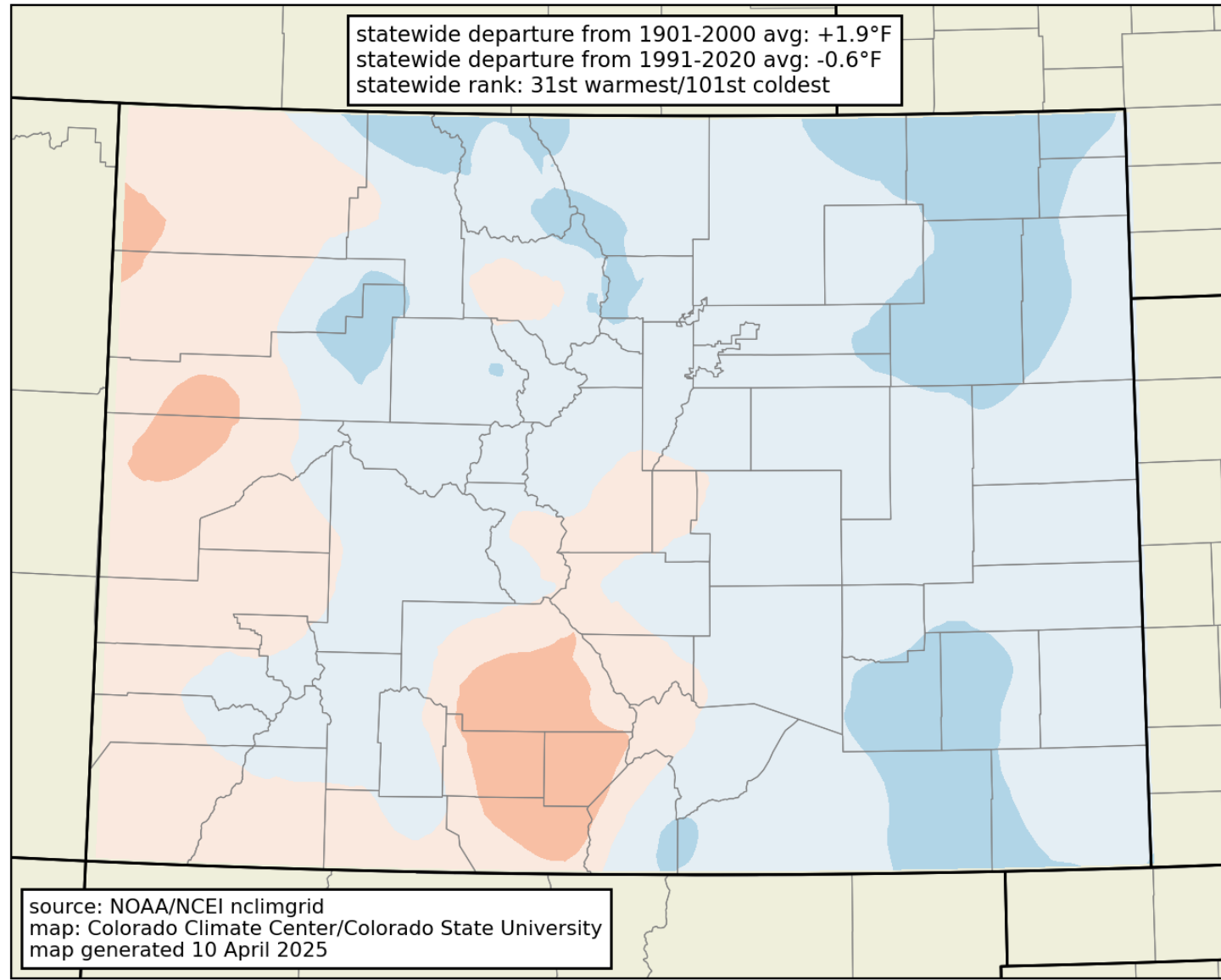
0.8 °F below
1991-2020
normal

0.69" above
1991-2020
normal

https://climate.colostate.edu/co_cag/quadrant.html



temperature departure from 1991-2020 average
3 months ending March 2025 (Jan-Mar)



-8

-4

0

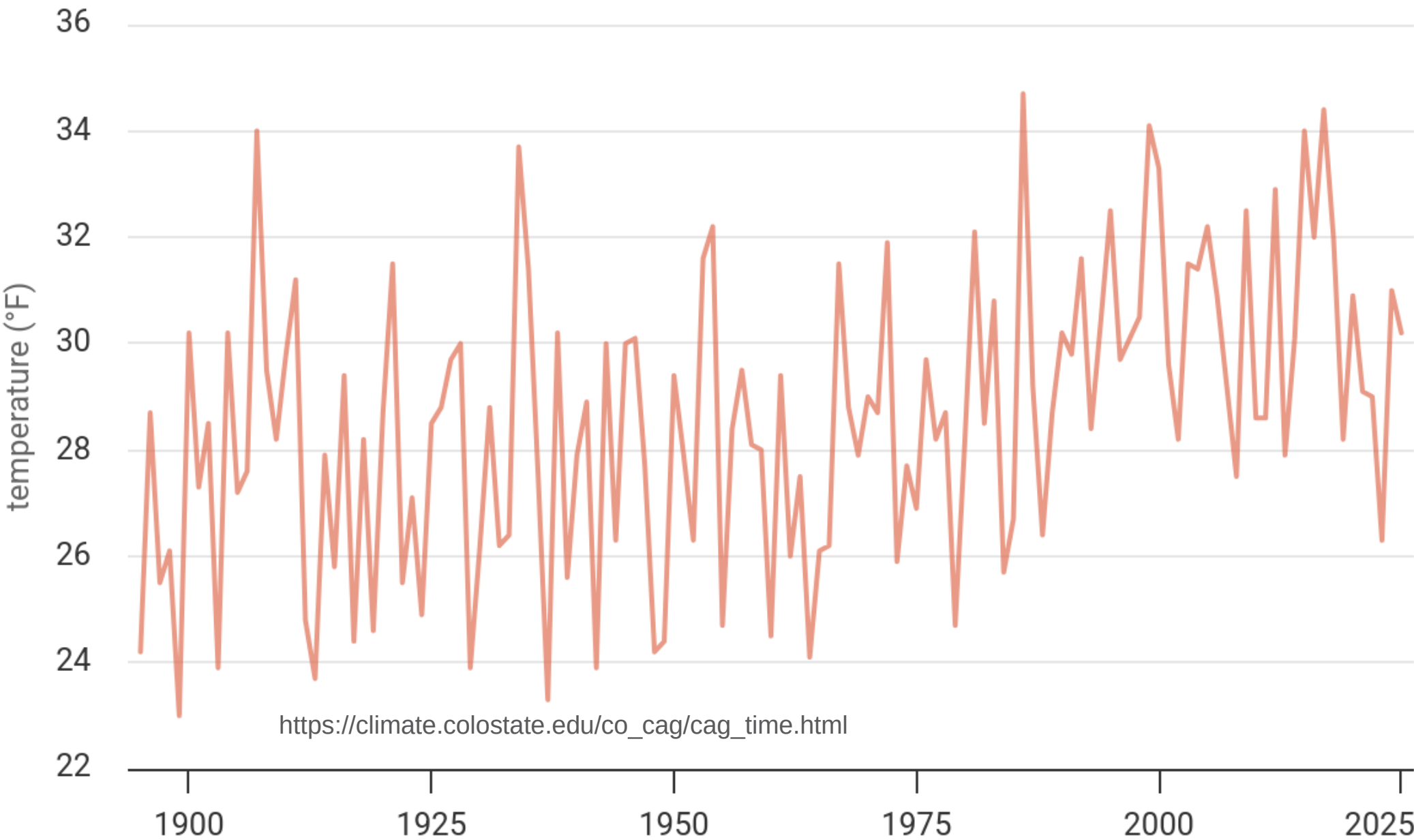
4

8

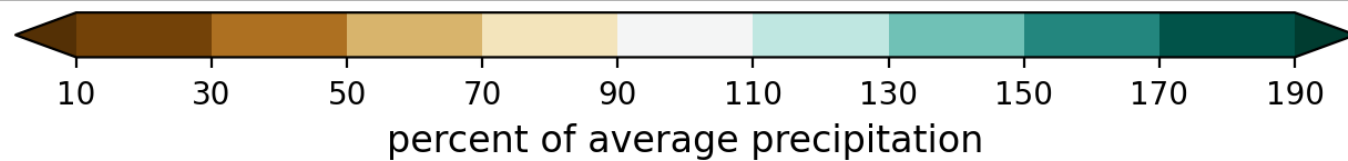
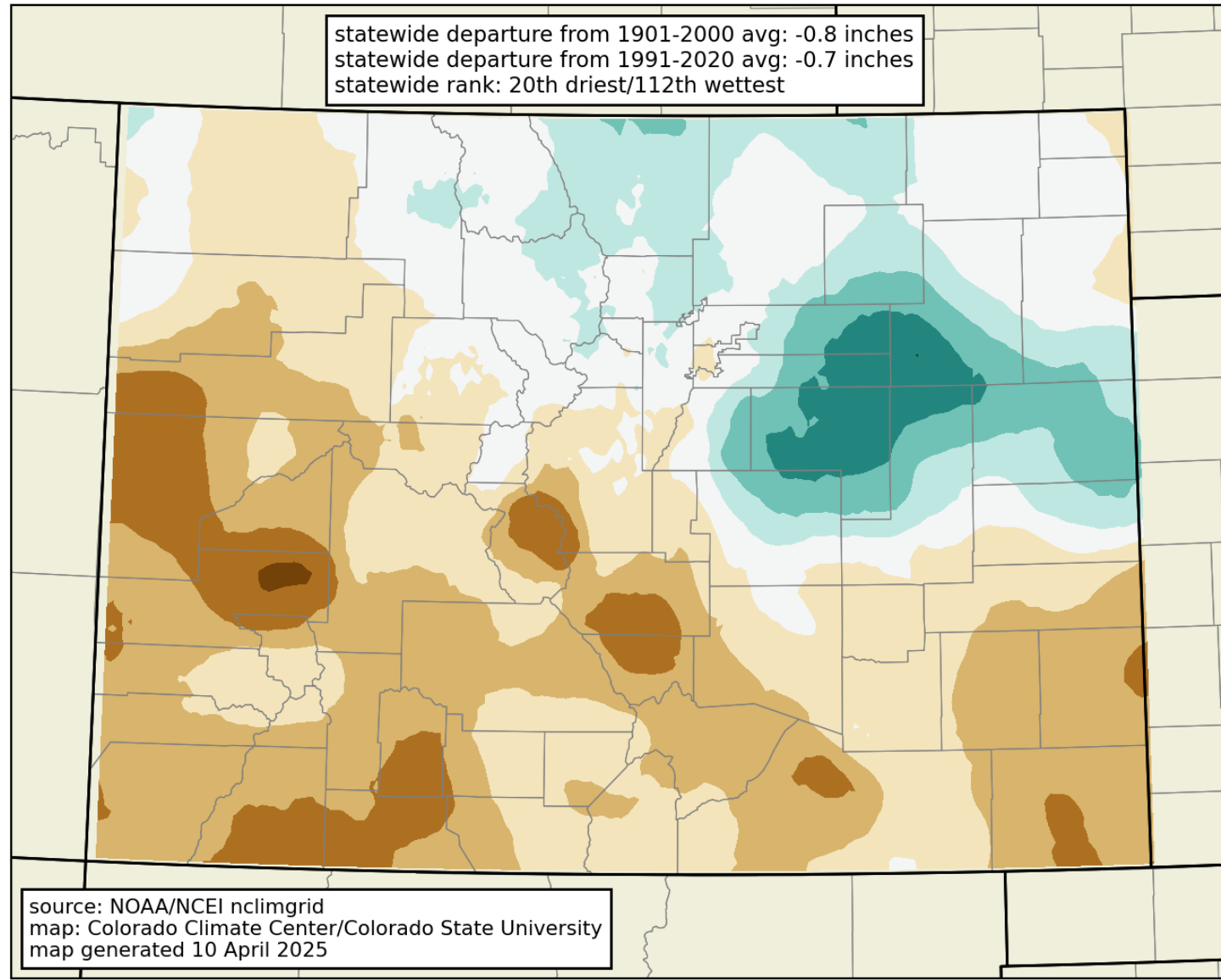
temperature departure from average (°F)

https://climate.colostate.edu/co_cag/rank_maps.htm
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Colorado January-March Average Temperature

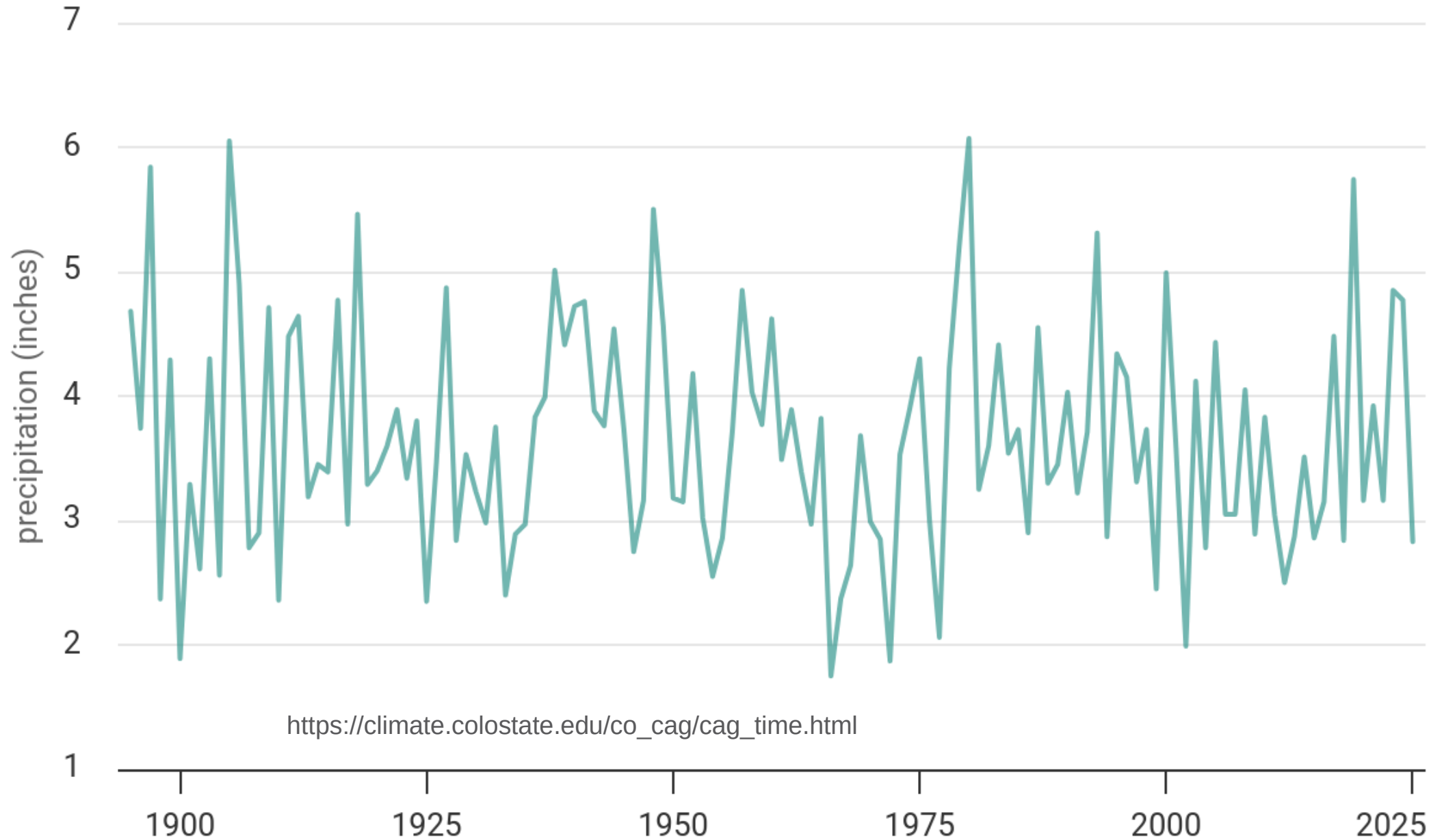


percent of 1991-2020 average precipitation
3 months ending March 2025 (Jan-Mar)



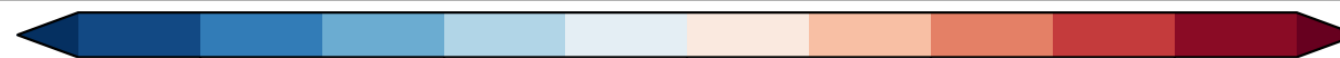
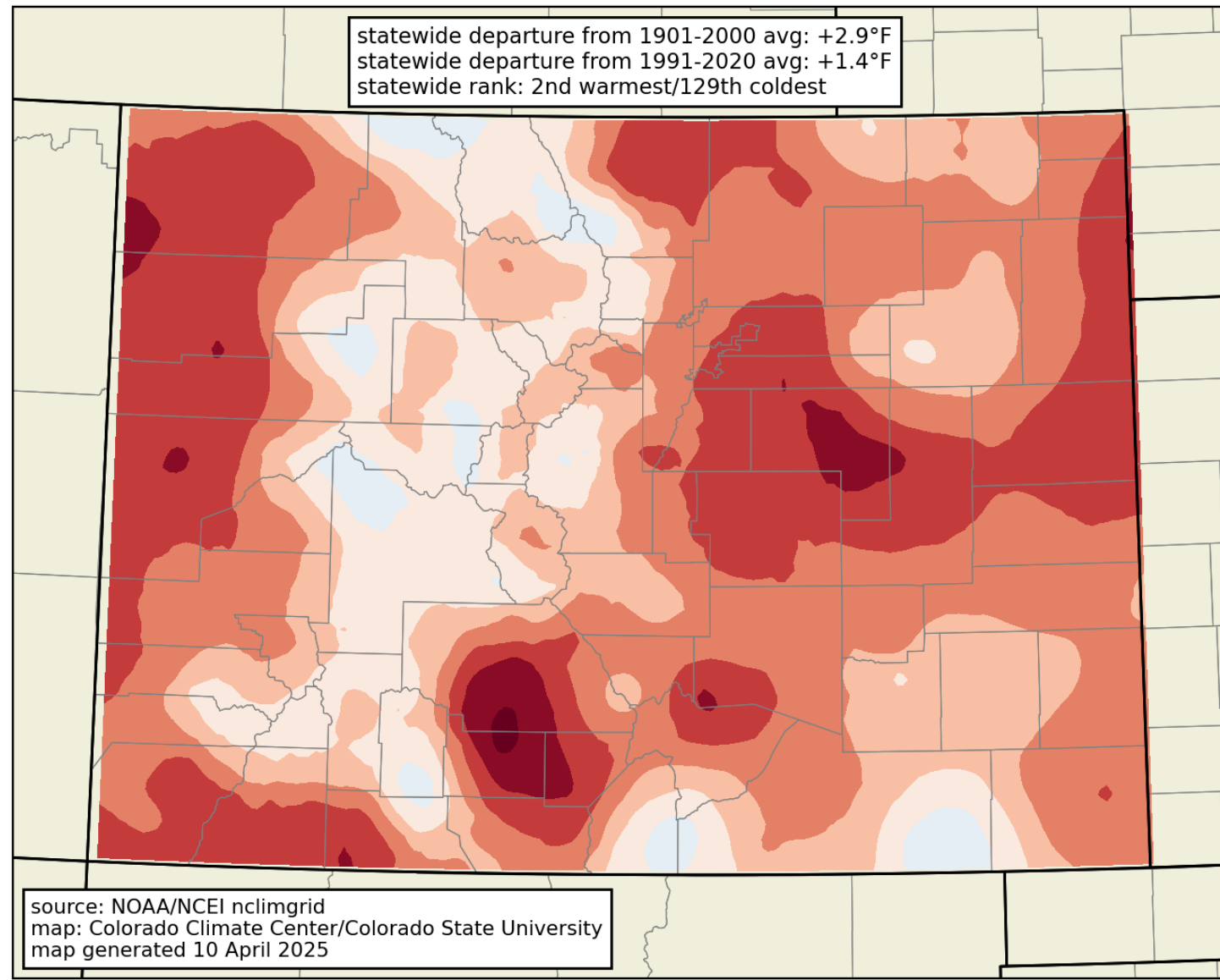
https://climate.colostate.edu/co_cag/rank_maps.htm
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Colorado January-March Precipitation



https://climate.colostate.edu/co_cag/cag_time.html

temperature departure from 1991-2020 average
12 months ending March 2025 (Apr-Mar)



-2.4

-1.2

0.0

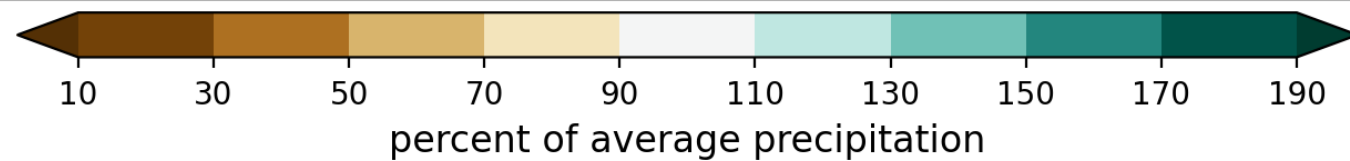
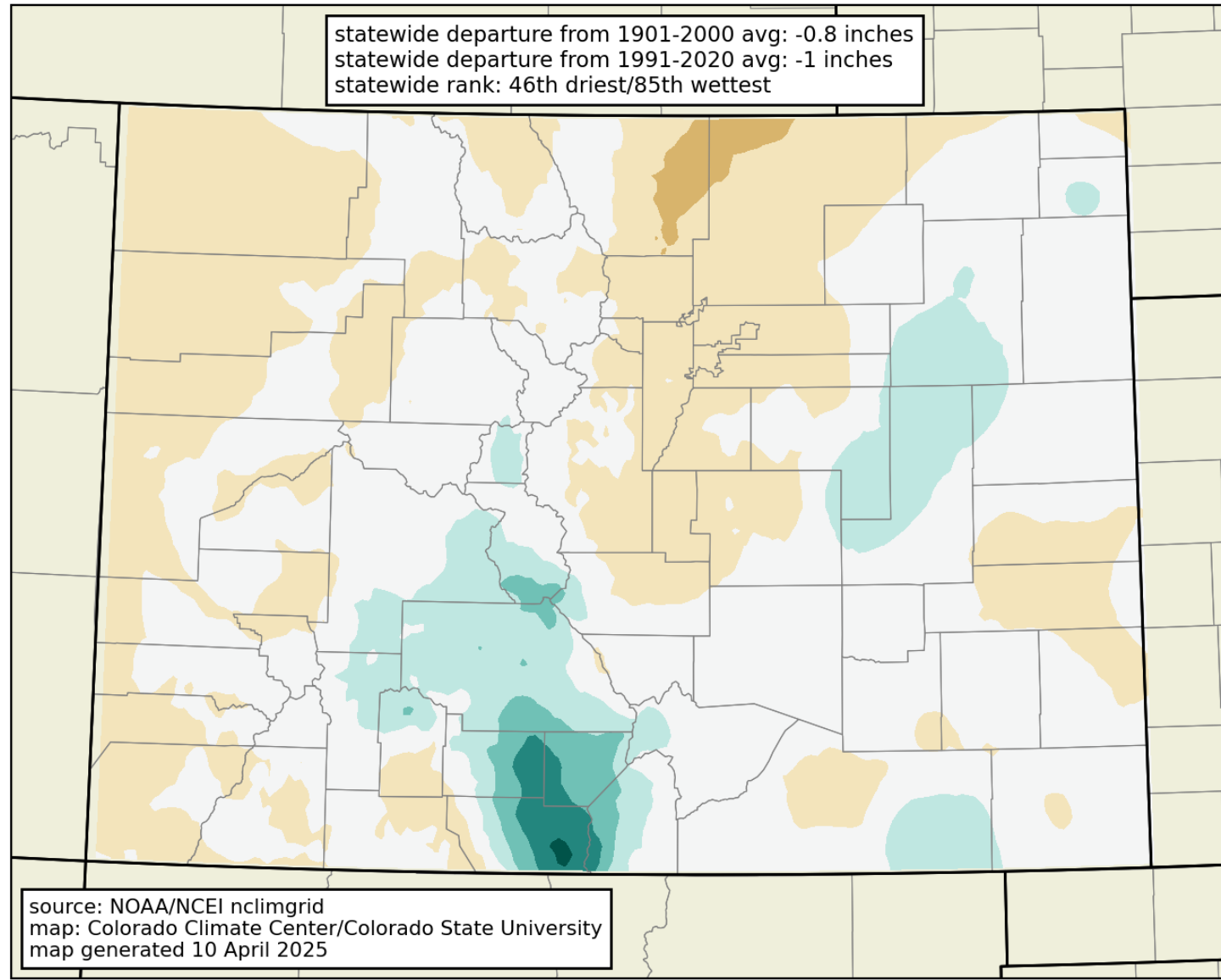
1.2

2.4

temperature departure from average (°F)

https://climate.colostate.edu/co_cag/rank_maps.htm
|

percent of 1991-2020 average precipitation
12 months ending March 2025 (Apr-Mar)



https://climate.colostate.edu/co_cag/rank_maps.htm
|

Drought Update

- Drought development across southern and western Colorado
- Modest improvements over northern Colorado
- Better than normal top meter soil moisture for most of the state
- Some areas of below normal terrestrial water storage scattered across the state



Seasonal Snow Totals

- Denver – 33” – lowest since 2018
- Boulder – 69” – lowest since 2018
- Fort Collins – 25” – lowest since 2011



U.S. Drought Monitor Colorado

April 15, 2025

(Released Thursday, Apr. 17, 2025)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	44.14	55.86	37.18	15.89	0.77	0.00
Last Week 04-08-2025	47.67	52.33	32.48	12.23	0.77	0.00
3 Months Ago 01-14-2025	71.40	28.60	13.46	4.08	0.98	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 04-16-2024	57.31	42.69	2.77	0.00	0.00	0.00

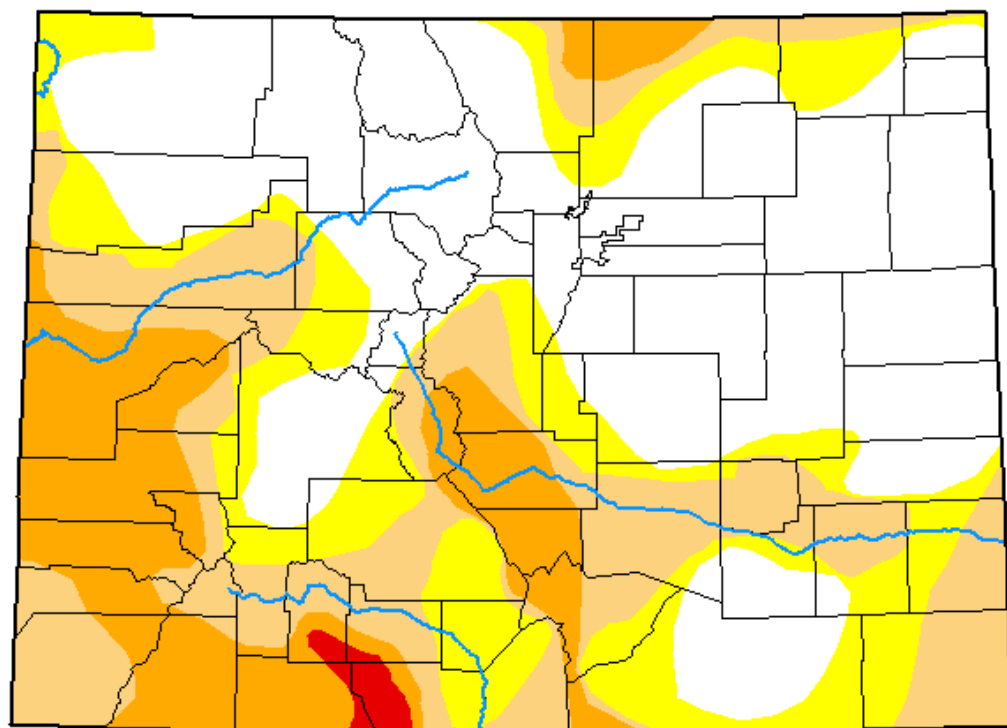
Intensity:

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:

Curtis Riganti
National Drought Mitigation Center

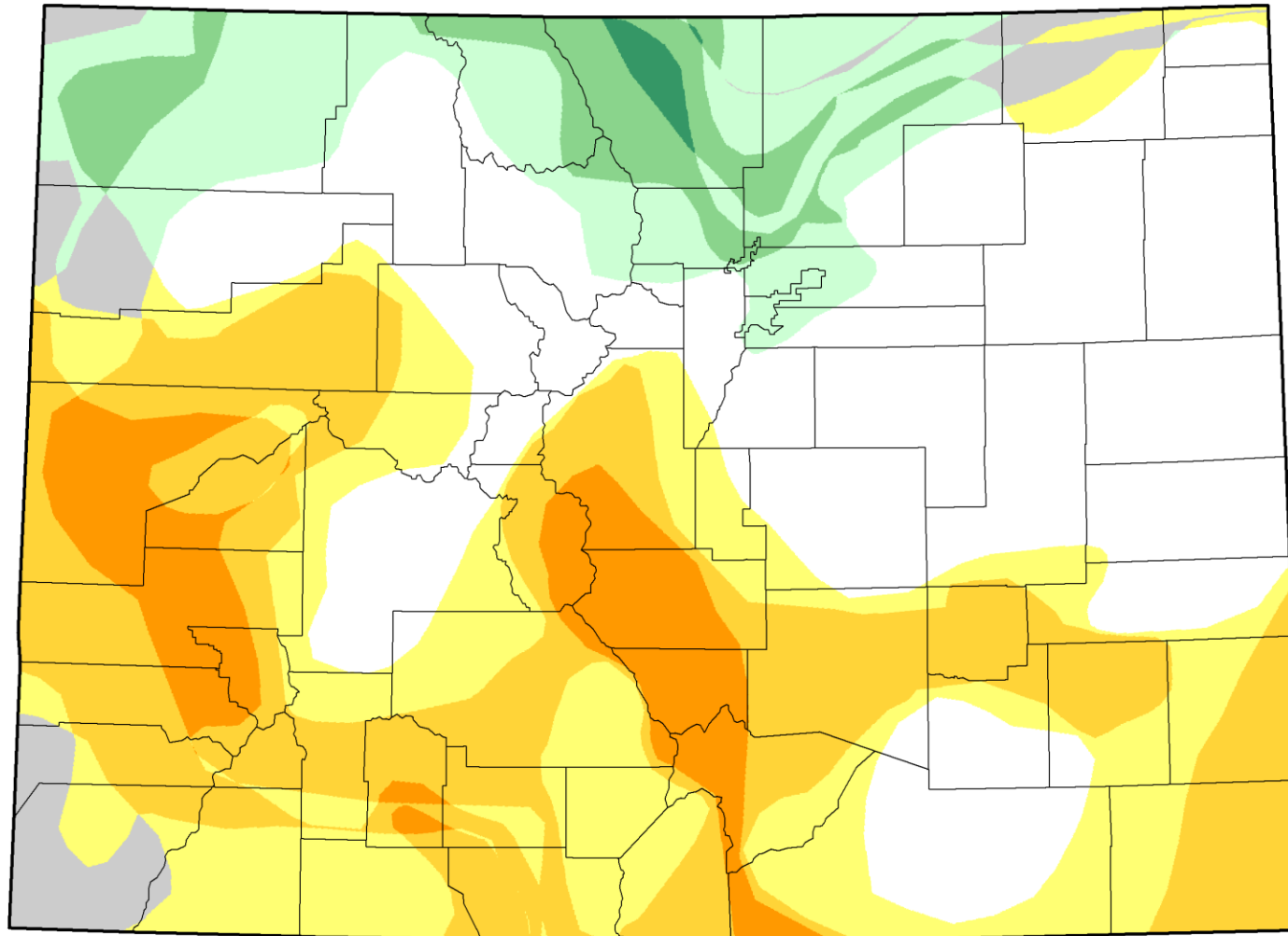


<https://droughtmonitor.unl.edu/>



droughtmonitor.unl.edu

U.S. Drought Monitor Class Change - Colorado 12 Week



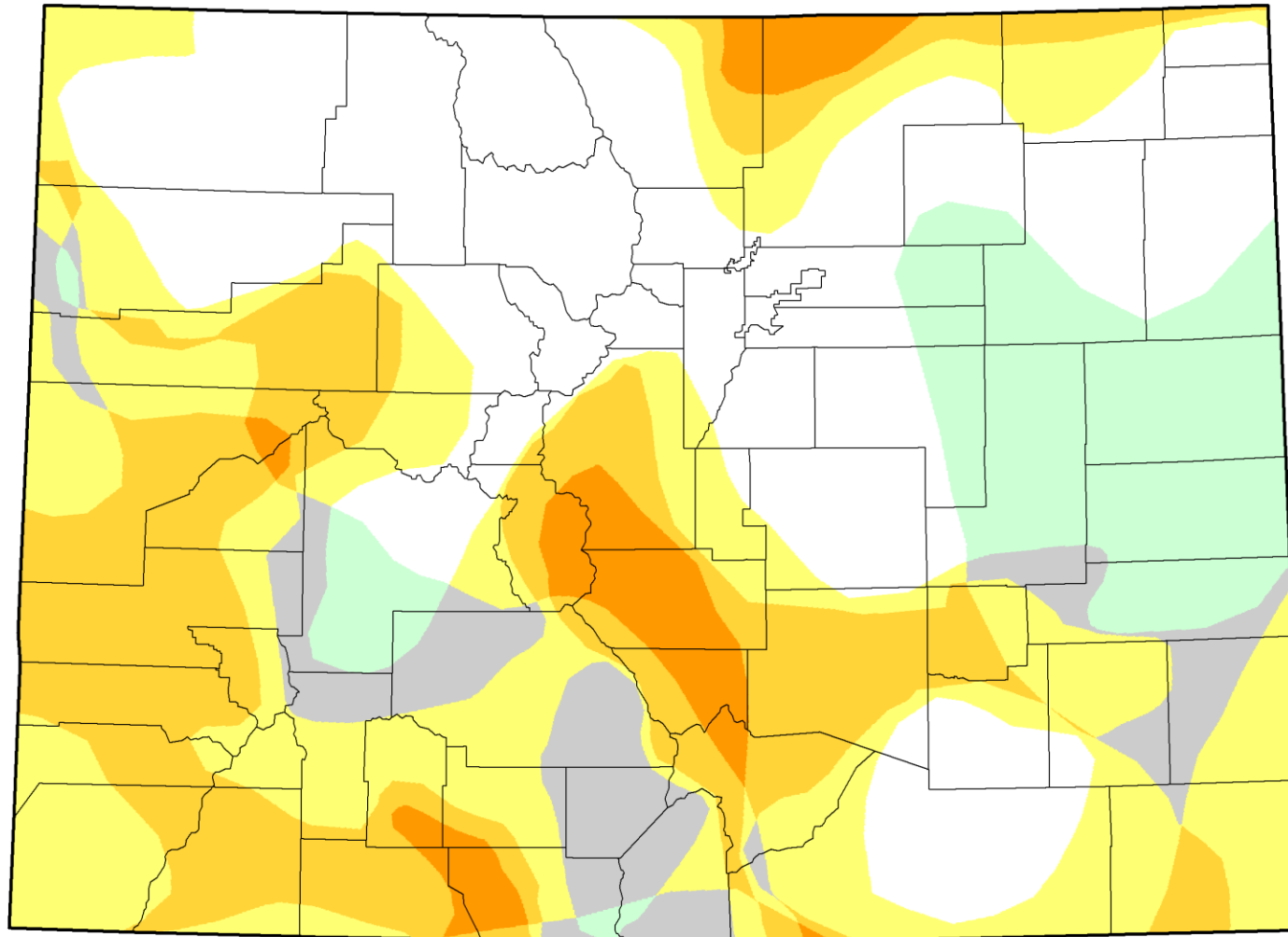
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

April 15, 2025
compared to
January 21, 2025

<https://droughtmonitor.unl.edu/>

droughtmonitor.unl.edu

U.S. Drought Monitor Class Change - Colorado 52 Week



April 15, 2025
compared to
April 16, 2024

<https://droughtmonitor.unl.edu/>

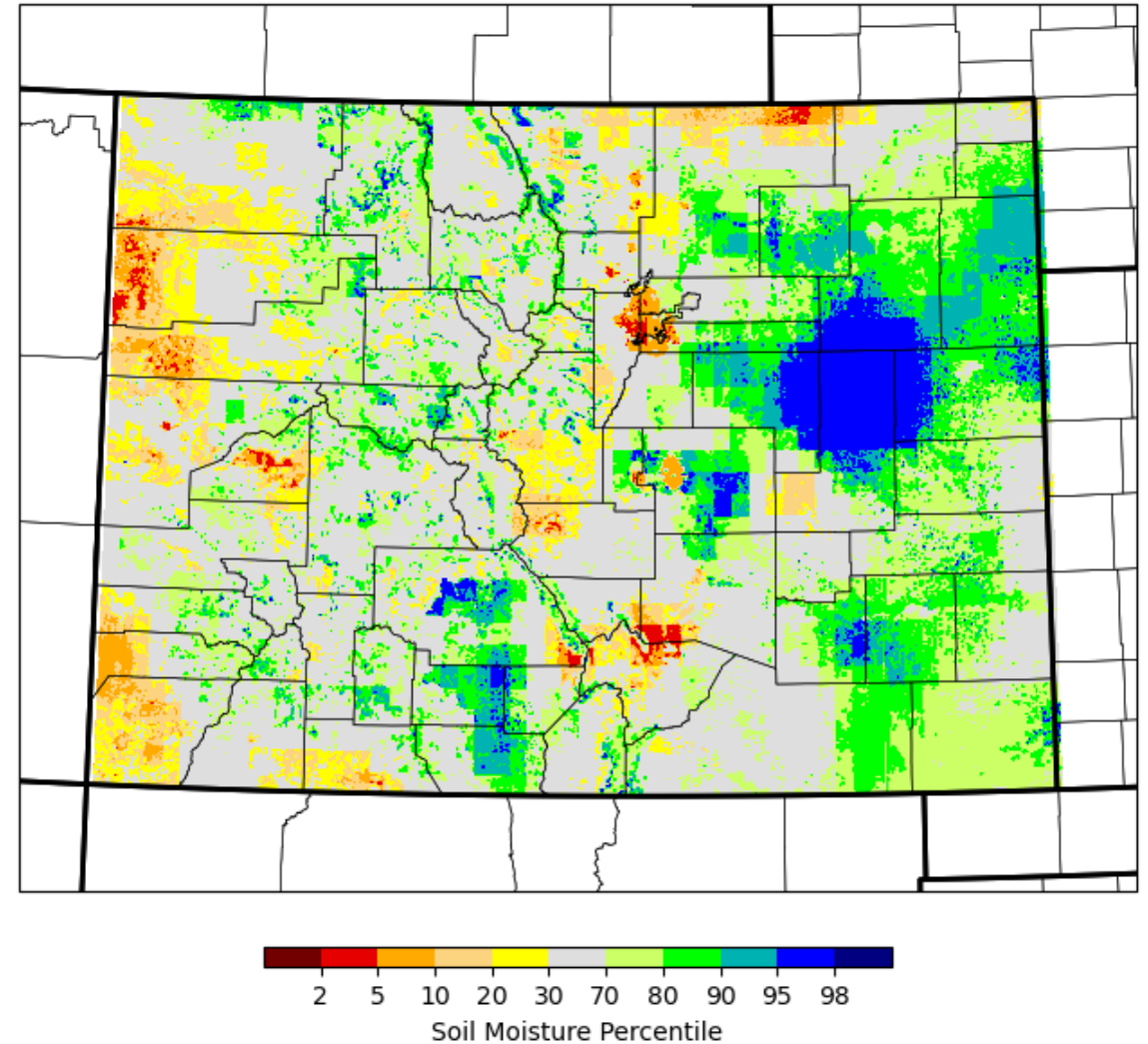
droughtmonitor.unl.edu

- 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

Soil Moisture Percentiles (0-1m) 04/11/2025

High soil moisture on eastern plains:
Good. Always better to start the growing
season with more plant water

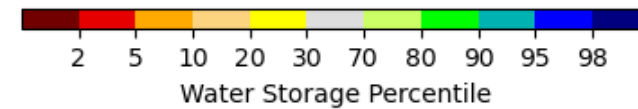
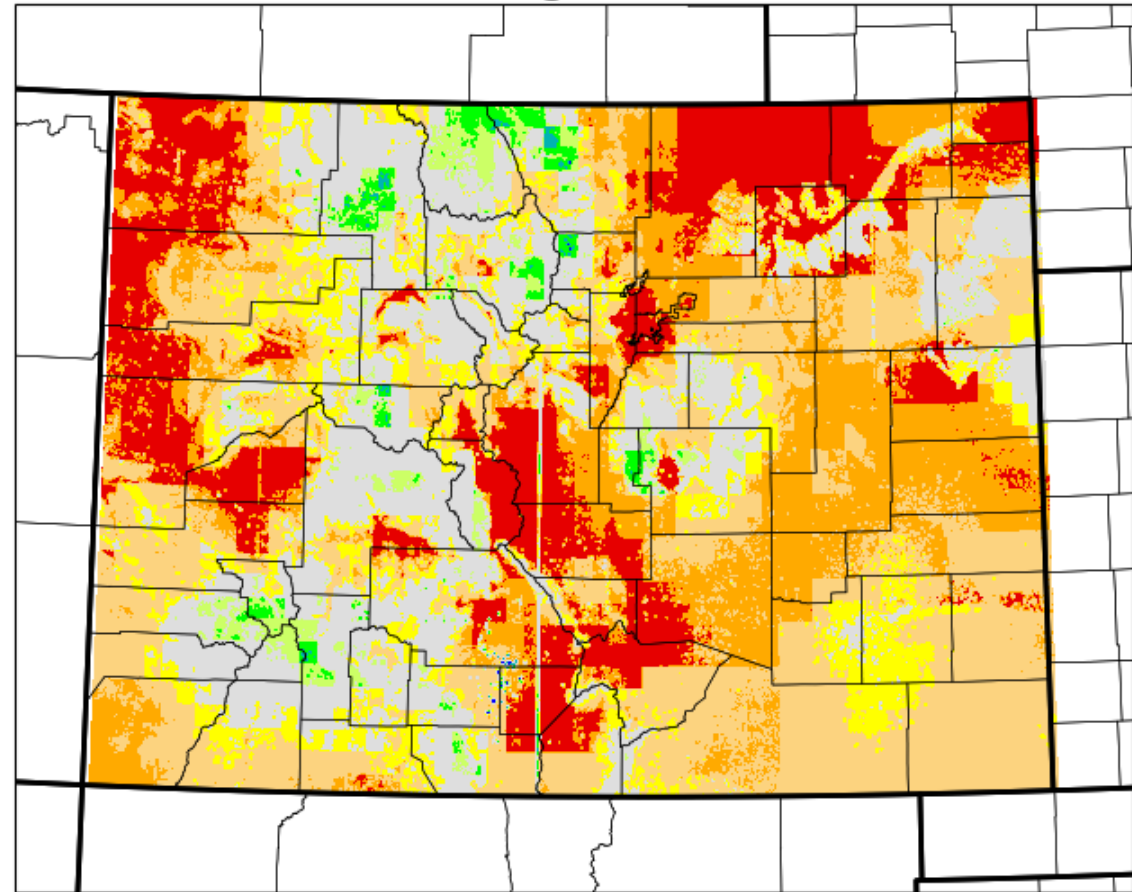
High soil moisture over mid-elevations of
western Colorado: Bad. This signifies
early snowmelt



Terrestrial Water Storage Percentiles 04/11/2025

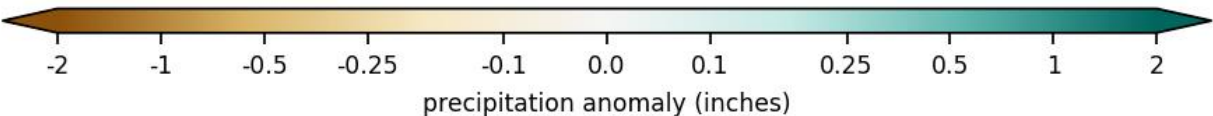
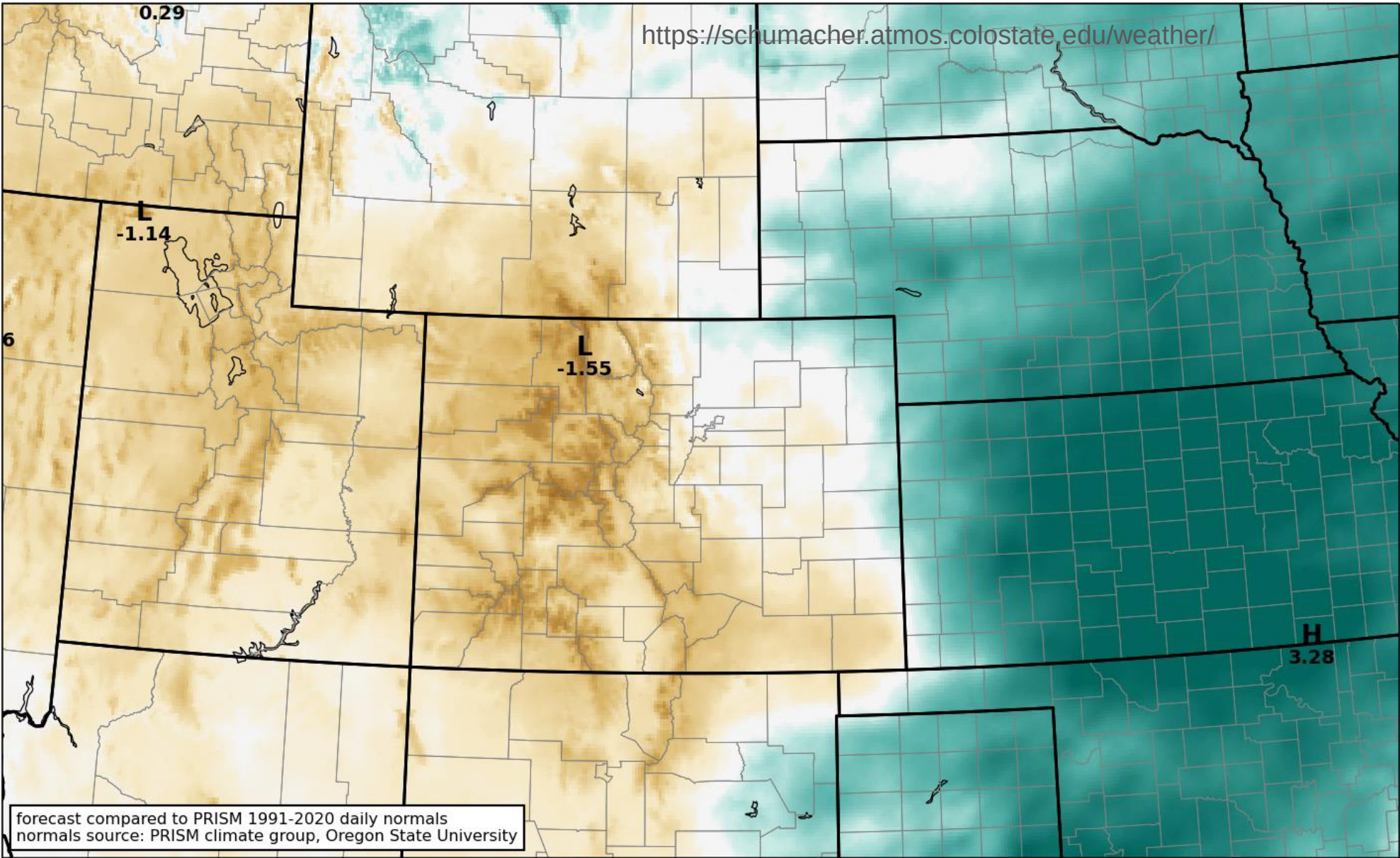
Groundwater products indicating very dry conditions in parts of northern and western Colorado

This product integrates satellite groundwater retrievals and modeled soil moisture. It also includes snowpack and canopy moisture



Spring/Summer Outlook



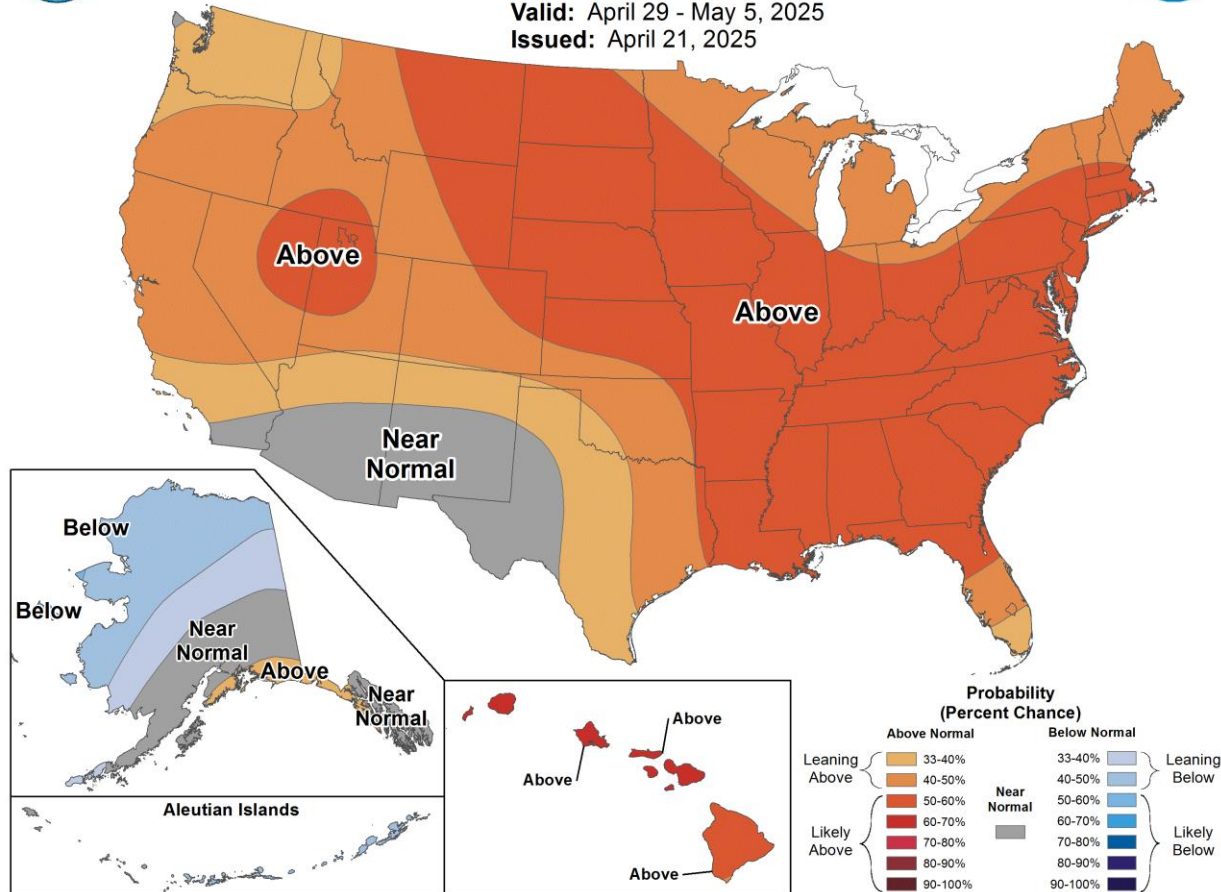




8-14 Day Temperature Outlook



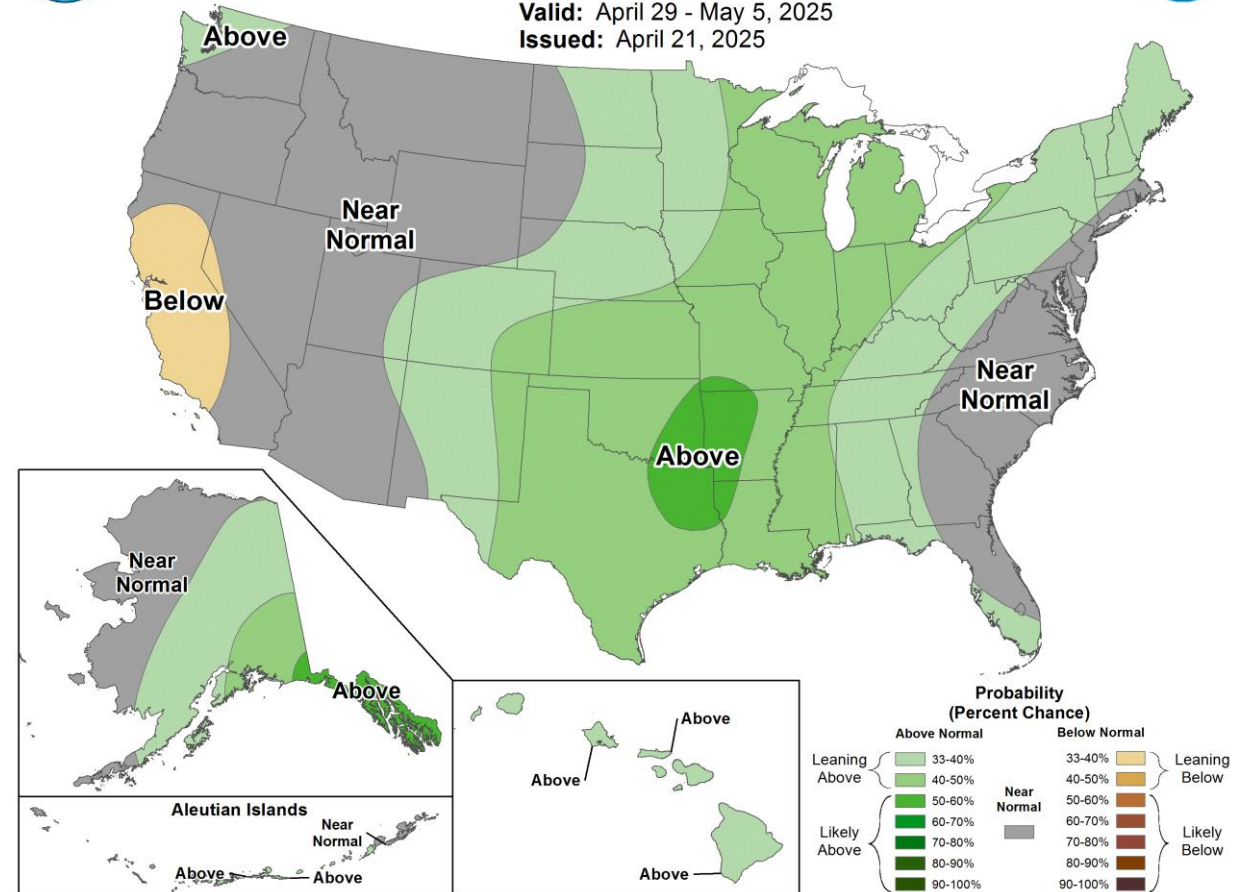
Valid: April 29 - May 5, 2025
Issued: April 21, 2025



8-14 Day Precipitation Outlook

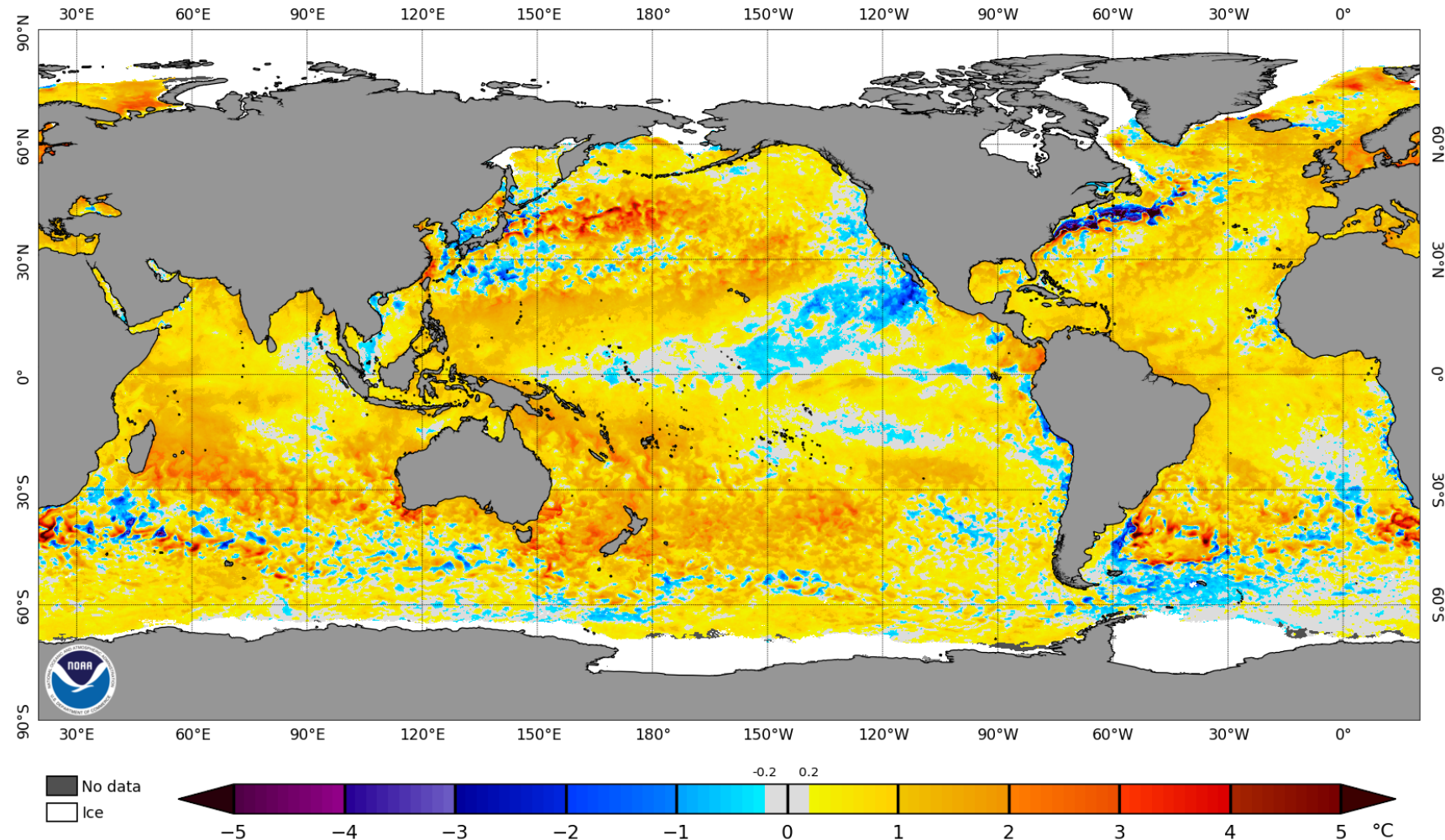


Valid: April 29 - May 5, 2025
Issued: April 21, 2025

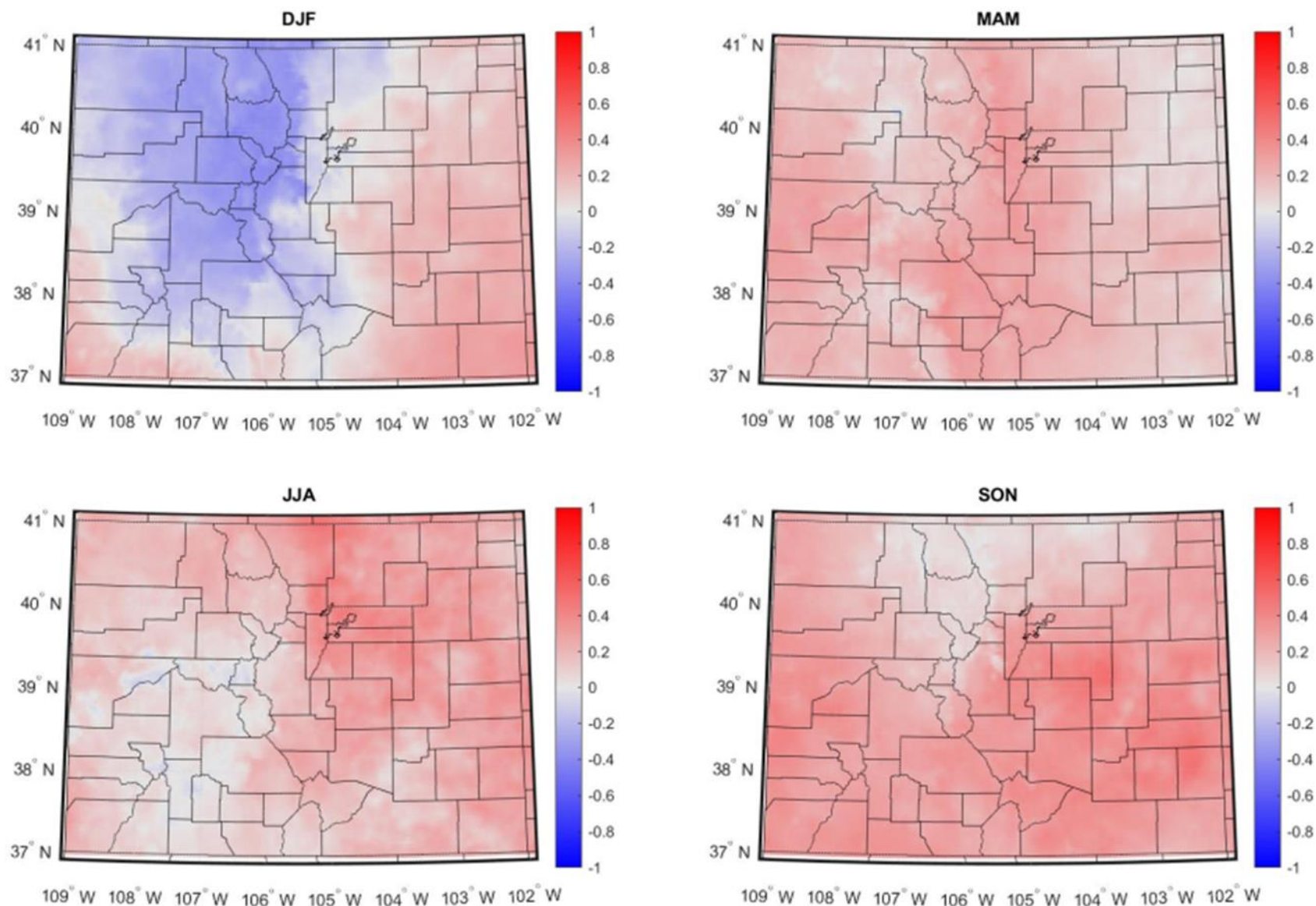


Beyond the Forecast (El Niño/La Niña)

NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 20 Apr 2025



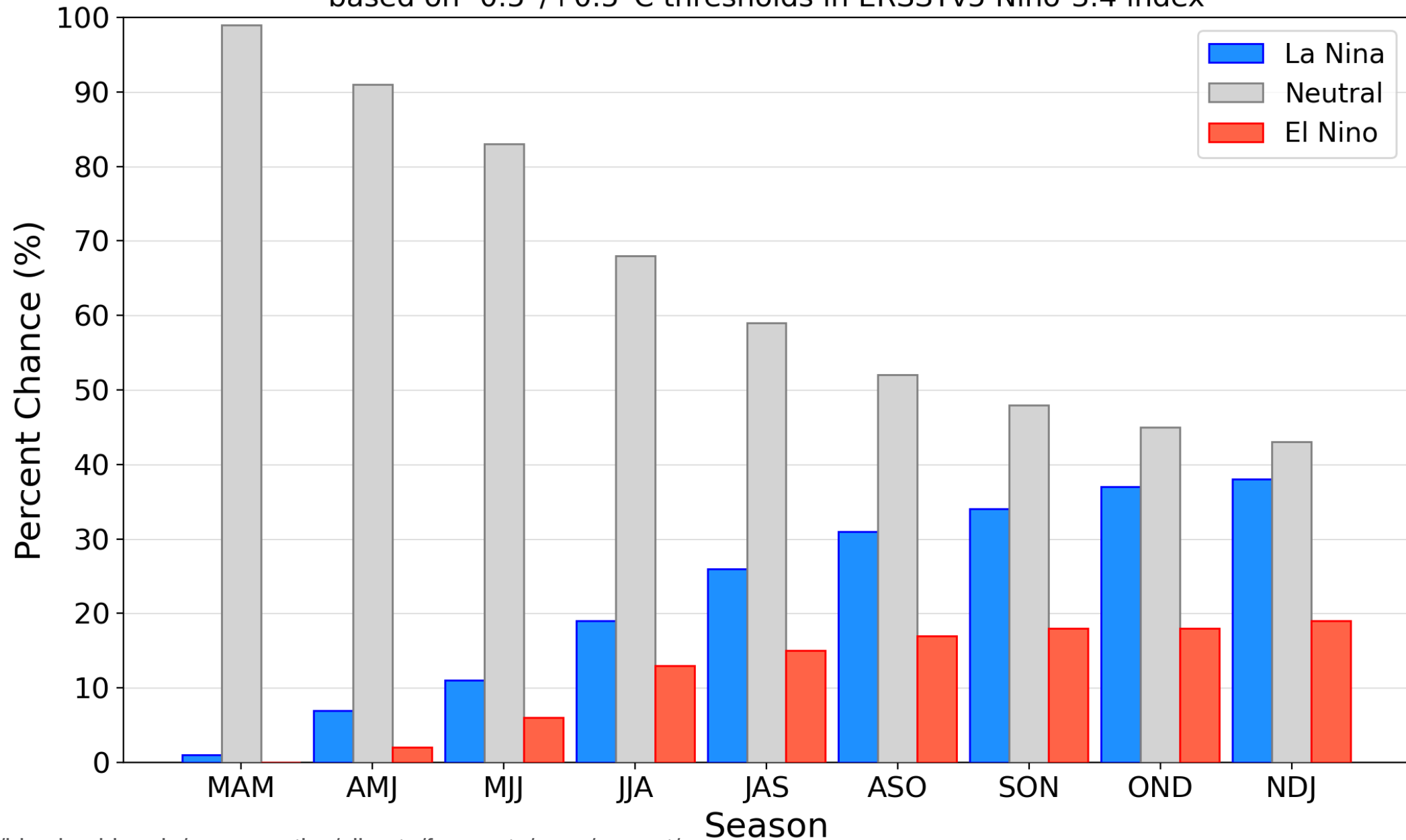
Correlation Between ENSO ONI and Seasonal Precipitation in Colorado (1951-2020)



Blue = La Niña wetter Red = El Niño wetter

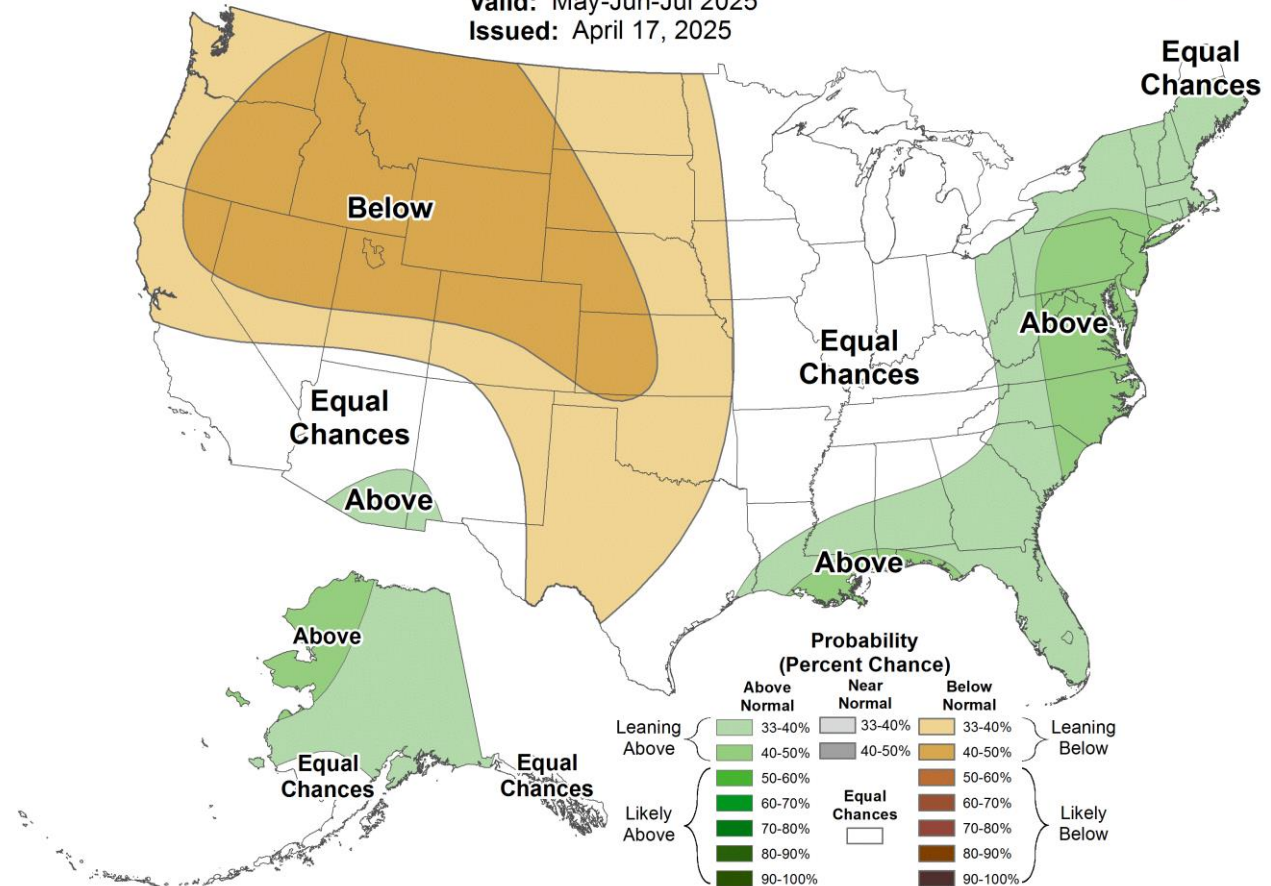
Official NOAA CPC ENSO Probabilities (issued April 2025)

based on $-0.5^{\circ}/+0.5^{\circ}\text{C}$ thresholds in ERSSTv5 Niño-3.4 index





Seasonal Precipitation Outlook

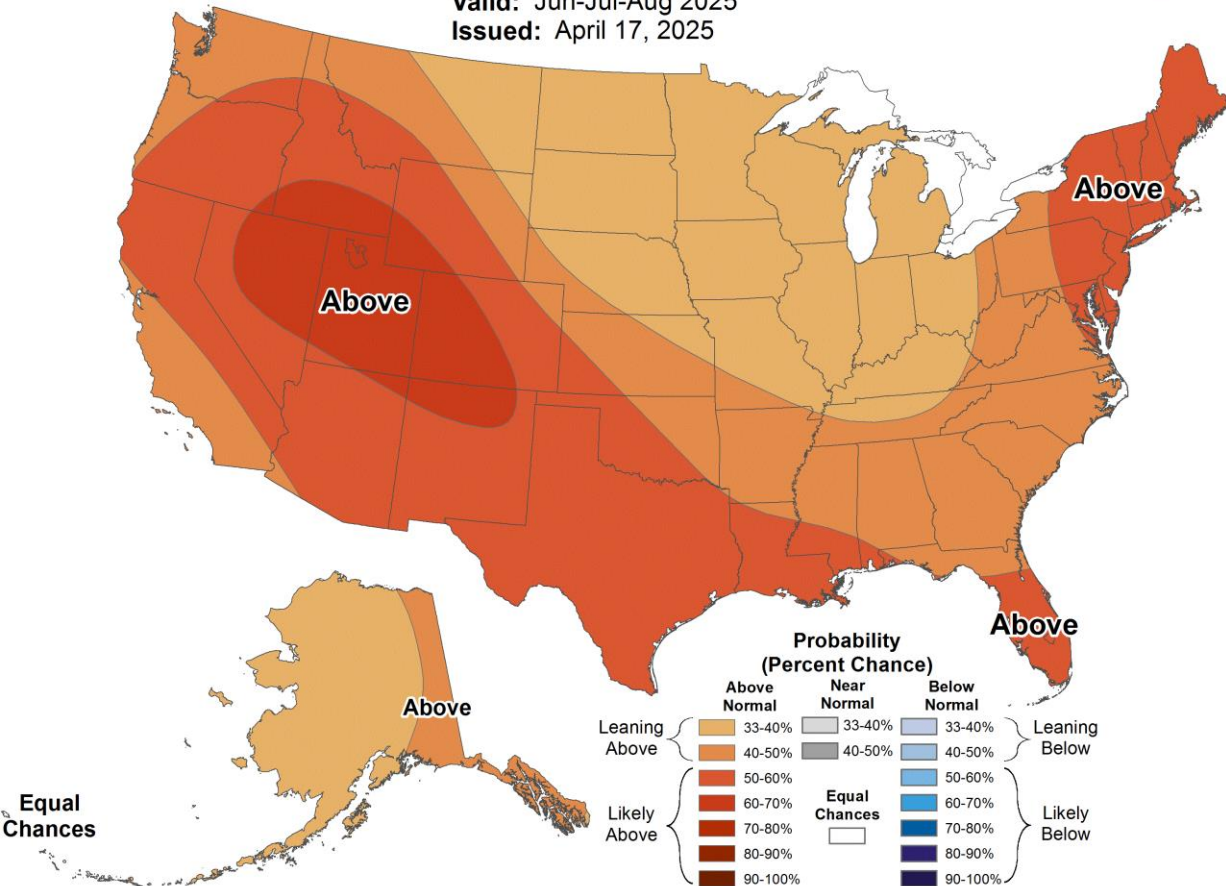




Seasonal Temperature Outlook



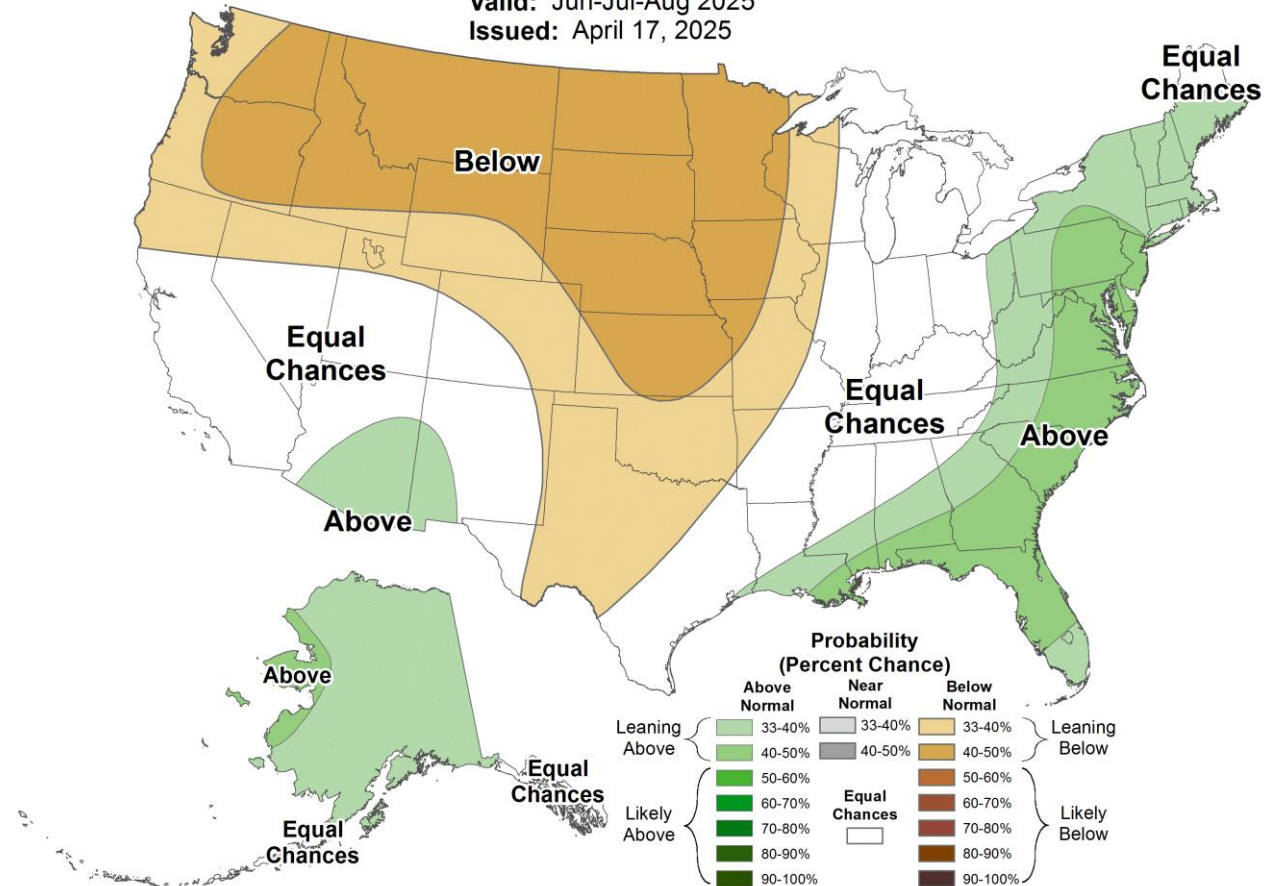
Valid: Jun-Jul-Aug 2025
Issued: April 17, 2025



Seasonal Precipitation Outlook



Valid: Jun-Jul-Aug 2025
Issued: April 17, 2025

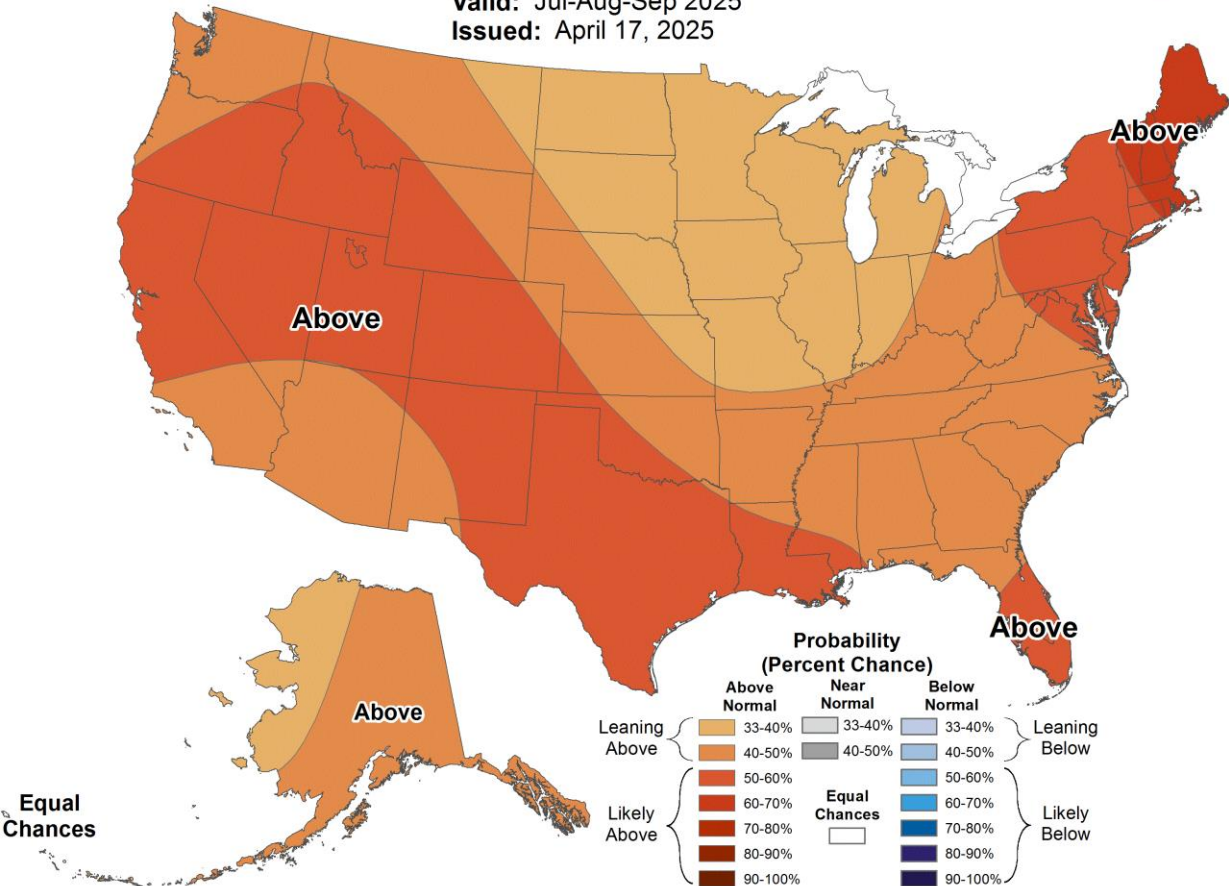




Seasonal Temperature Outlook



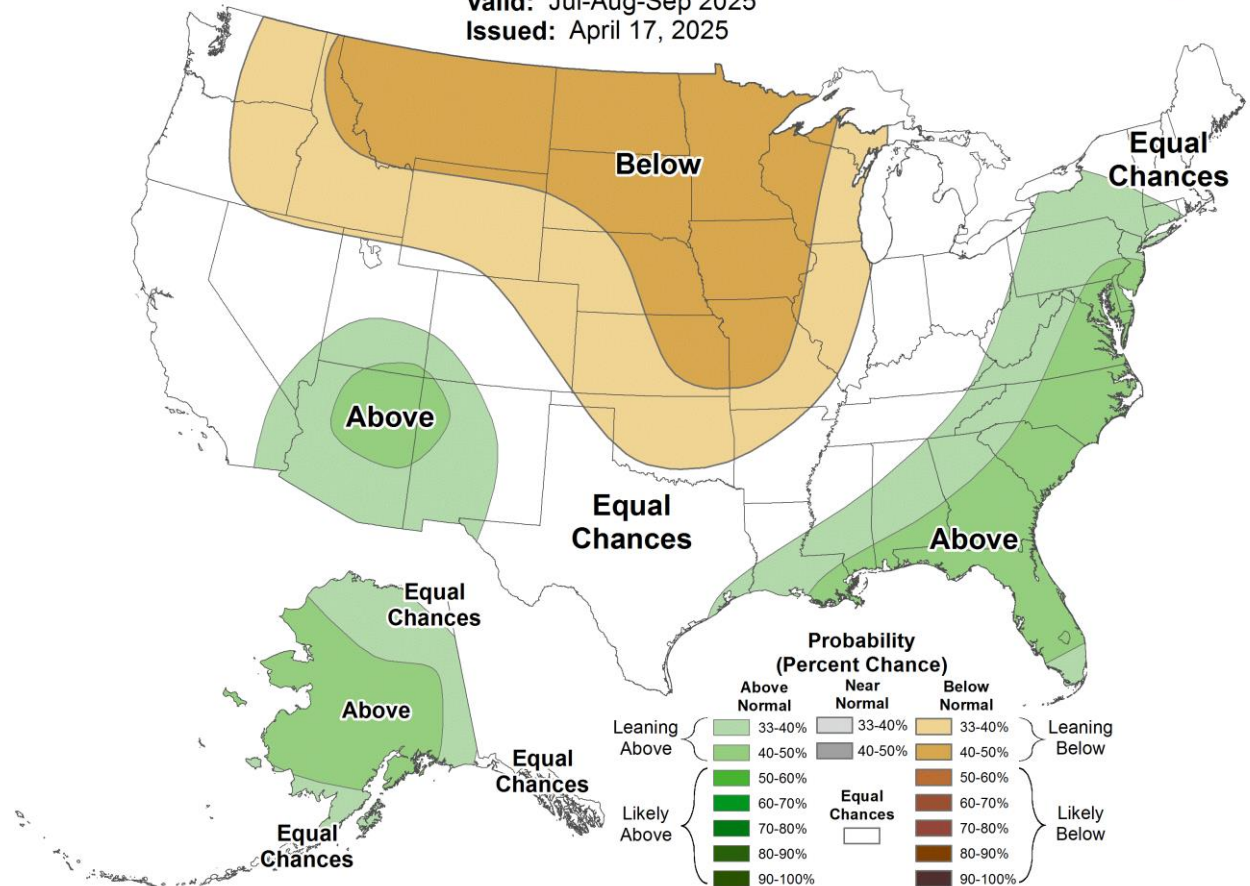
Valid: Jul-Aug-Sep 2025
Issued: April 17, 2025



Seasonal Precipitation Outlook



Valid: Jul-Aug-Sep 2025
Issued: April 17, 2025



Takeaways

- March was 2.6 °F warmer than the 1991-2020 normal. We are still off to a little cooler than normal start to the calendar year (warmer than normal for the water year)
- We experienced quite a few days with high wind gusts in March 2025 including gusts > 70mph in SE CO with dust storms (March 18th)
- Drought conditions have worsened across most of the state with some improvement in northern Colorado
- La Niña is gone, giving way to neutral conditions. However, some lagged La Niña impacts are possible
- La Niña is correlated with drier than average spring conditions in Colorado and a much lower risk of a wet extreme
- The early summer outlook suggests an increased chance of warmer than normal temperatures with a tilt towards drier than normal conditions in the northern and eastern portion of the state. Dynamical models form an odd consensus on drier than normal conditions for summer 2025 over the north-central United States



Colorado Climate Center (Contact Us)

Thanks, and let's keep in touch!

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Peter Goble (Assistant State Climatologist) – peter.goble@colostate.edu

Viewing this, and previous WCMC Briefings:

http://climate.colostate.edu/ccc_archive.html

Thank you



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