# Colorado Climate Update

**Russ Schumacher, state climatologist**

**Water Conditions Monitoring Committee**

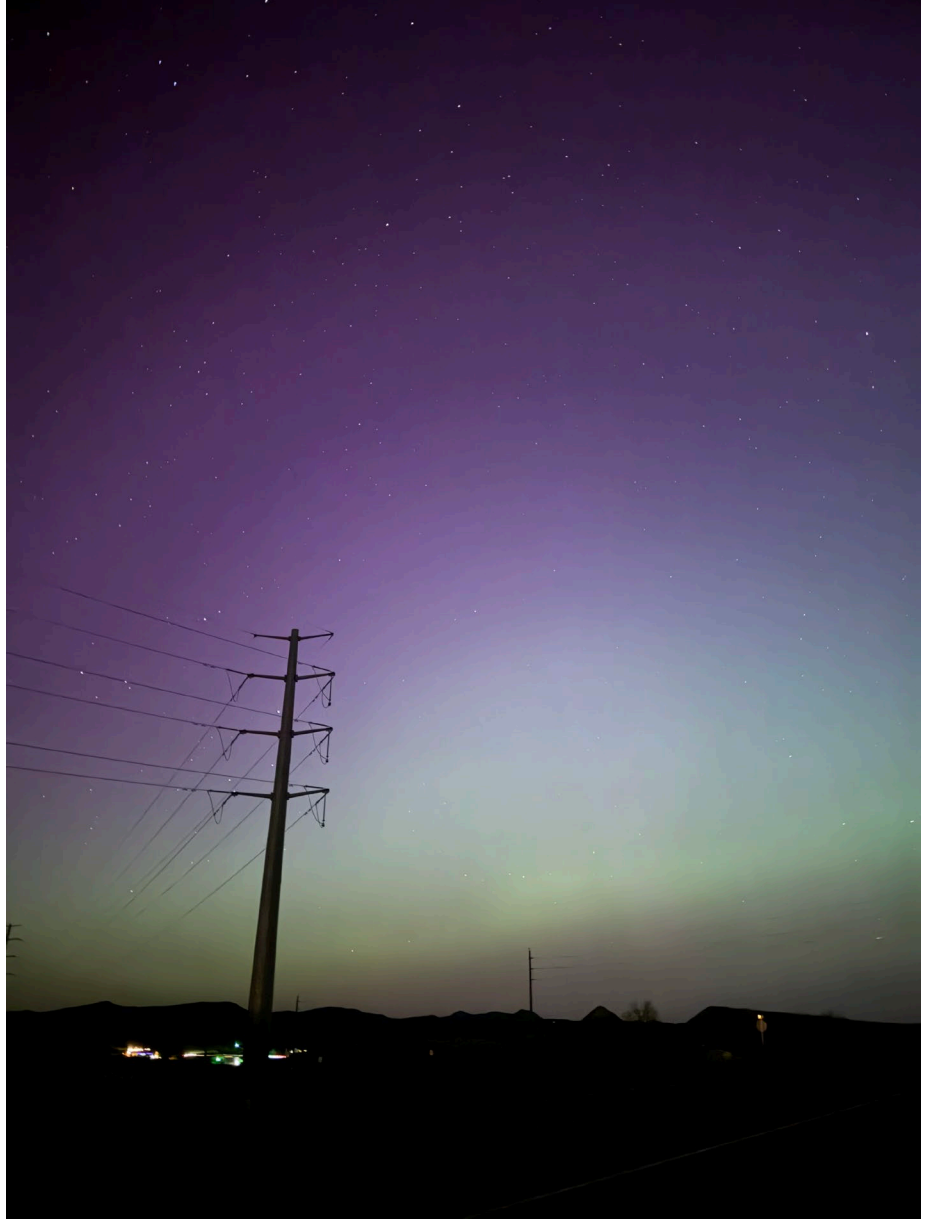
**May 21, 2024**

COLORADO CLIMATE CENTER

ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY

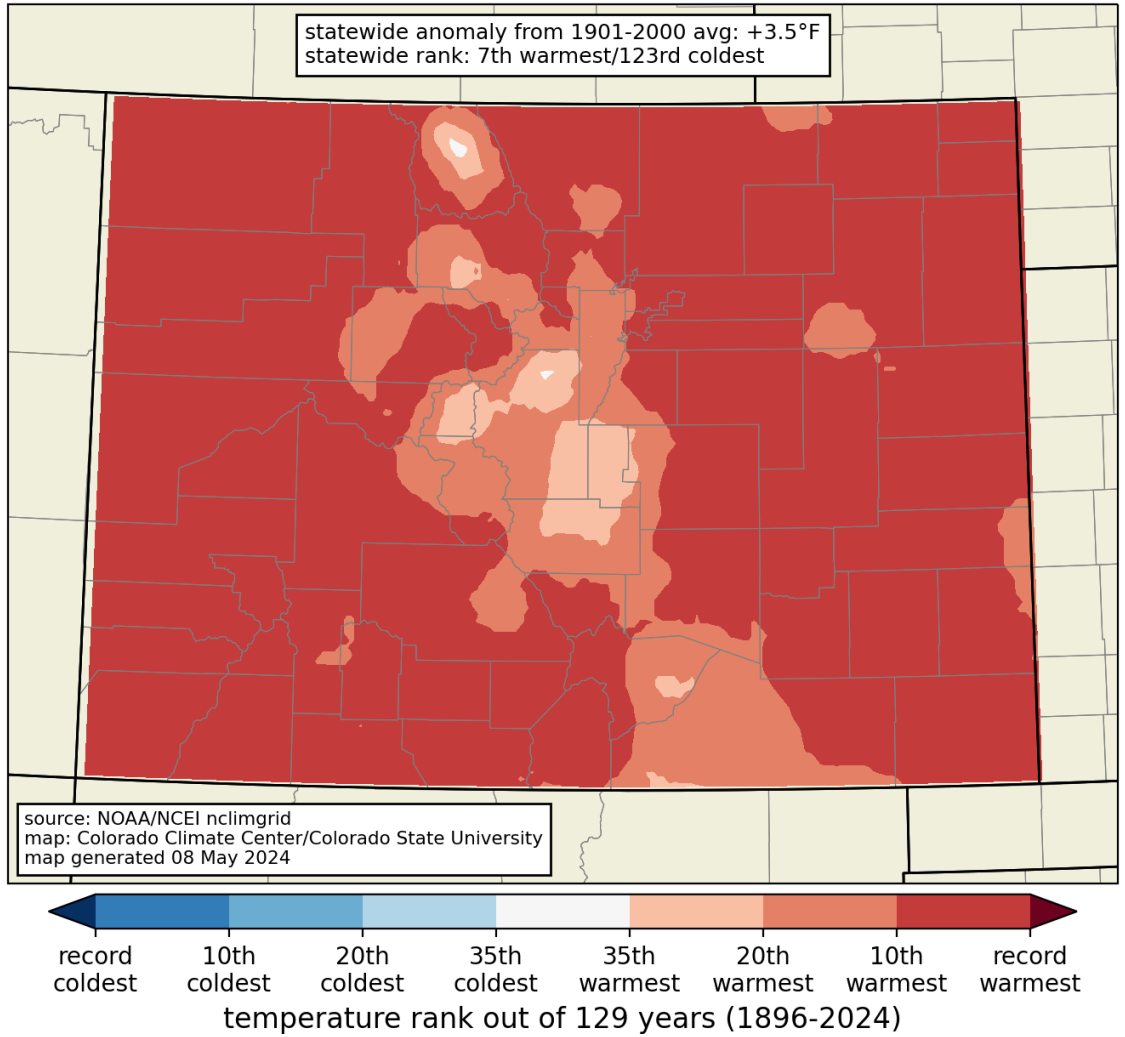
# Water year 2024 to date:

## temperature, precipitation, evaporative demand



Aurora north of Fort Collins, May 10

average temperature rank: 7 months ending April 2024 (Oct-Apr)

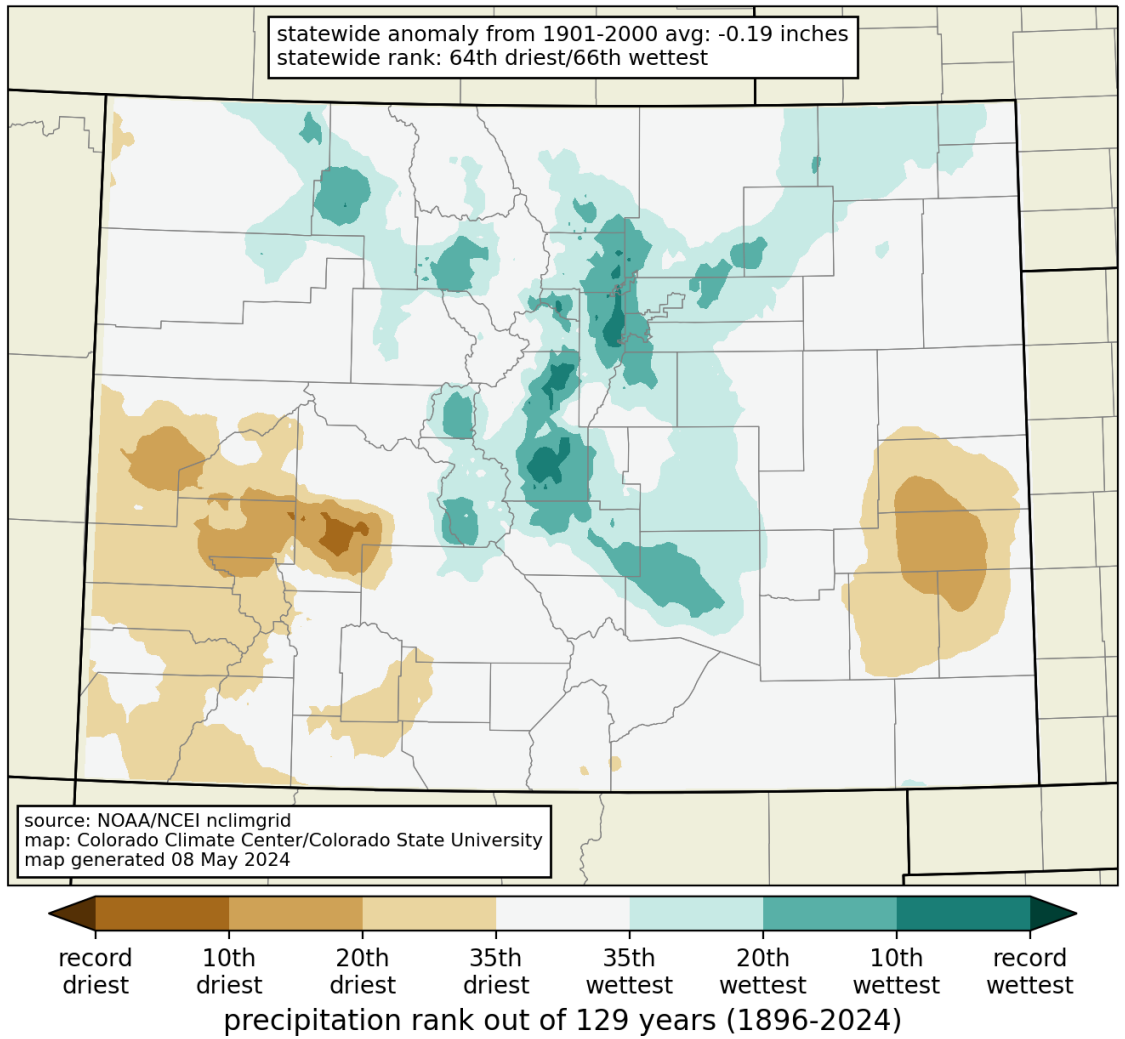



## Colorado rankings:

| Month | T Rank (of 129 years) | Above, below, or near 20th century avg? |
|---|---|---|
| Oct | 26th warmest | above |
| Nov | 20th warmest | above |
| Dec | 7th warmest | much above |
| Jan | 51th warmest | near avg |
| Feb | 11th warmest | much above |
| March | 31st warmest | above |
| April | 17th warmest | above |

**Statewide: 7th warmest October-April (out of 129), warmest start to a water year since 2018**

precipitation rank: 7 months ending April 2024 (Oct-Apr)




## Colorado rankings:

| Month | T Rank (of 129 years) | Above, below, or near 20th century avg? |
|---|---|---|
| Oct | 52nd driest | near avg |
| Nov | 22nd driest | below |
| Dec | 66th driest | near avg |
| Jan | 47th wettest | near avg |
| Feb | 19th wettest | above |
| Mar | 16th wettest | above |
| Apr | 46th driest | near avg |

**Statewide: 64th driest/66th wettest October-April (out of 129): almost exactly average**

# Colorado April 2024 Precipitation as a Percentage of Normal

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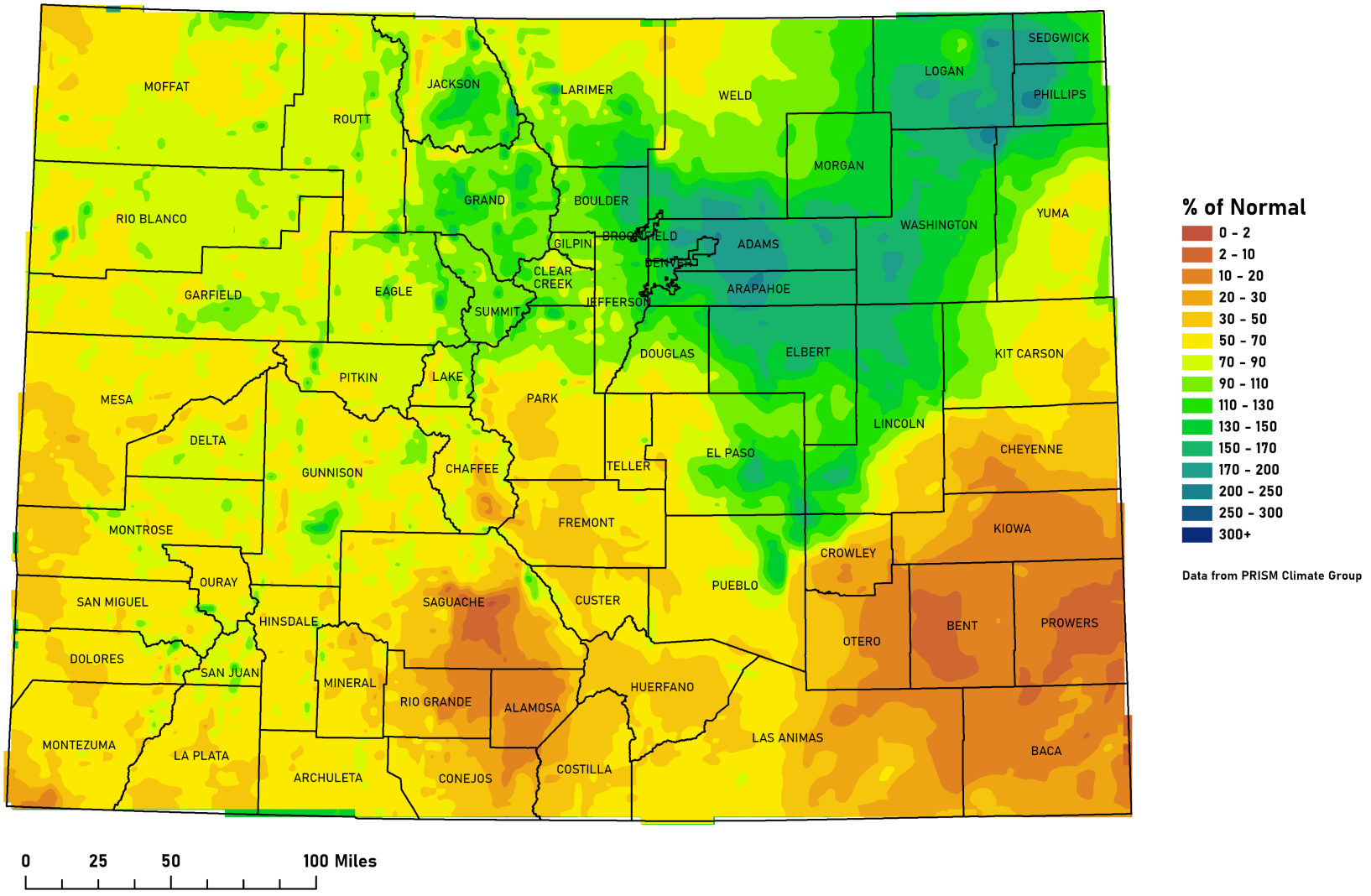
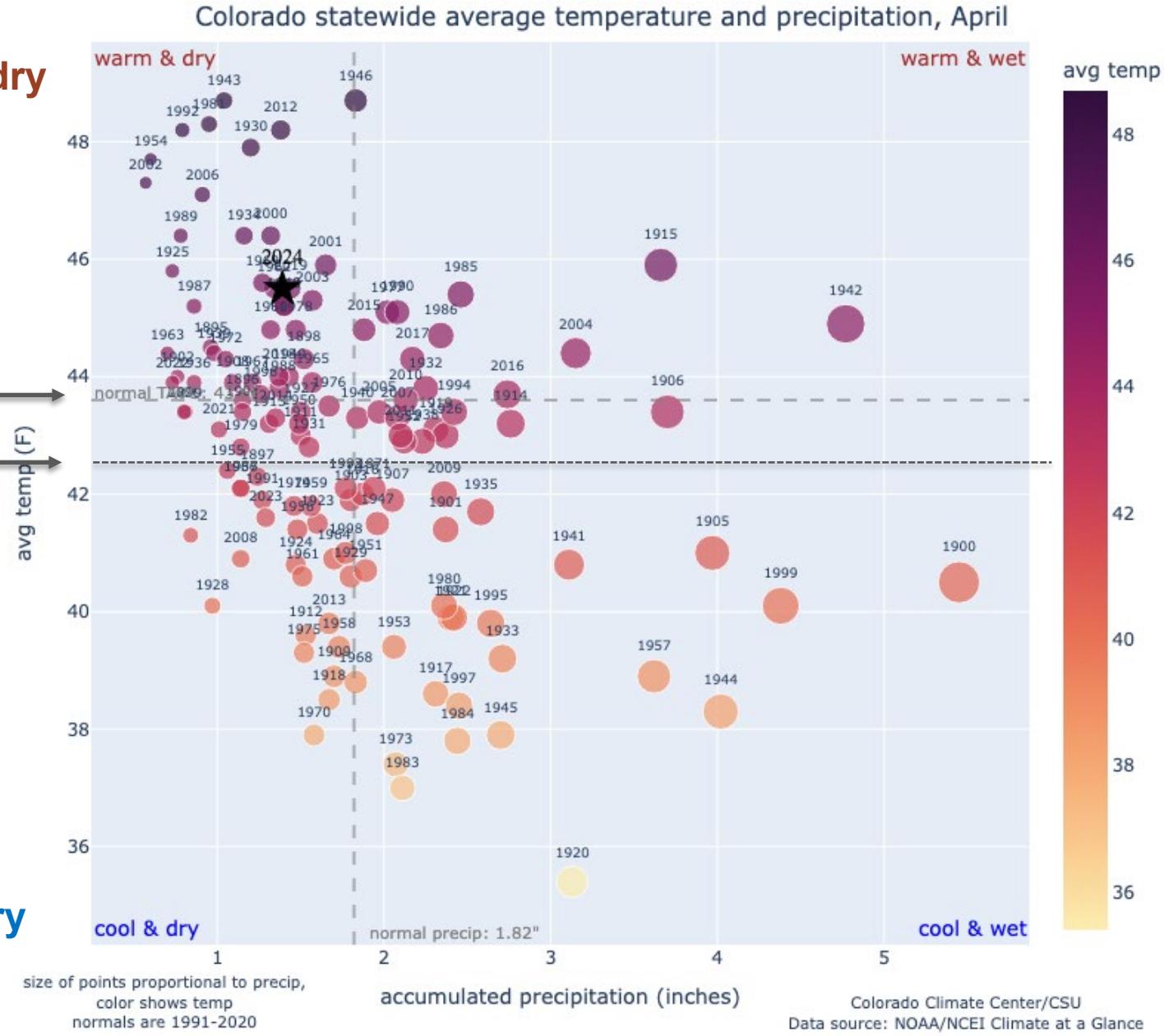


## April 2024




**Warm & dry**

**Warm & wet**

**Cool & dry**

**Cool & wet**

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

**Warm & dry**

**Water year 2024 through April**

1991-2020 avg temp →

1901-2000 avg temp →

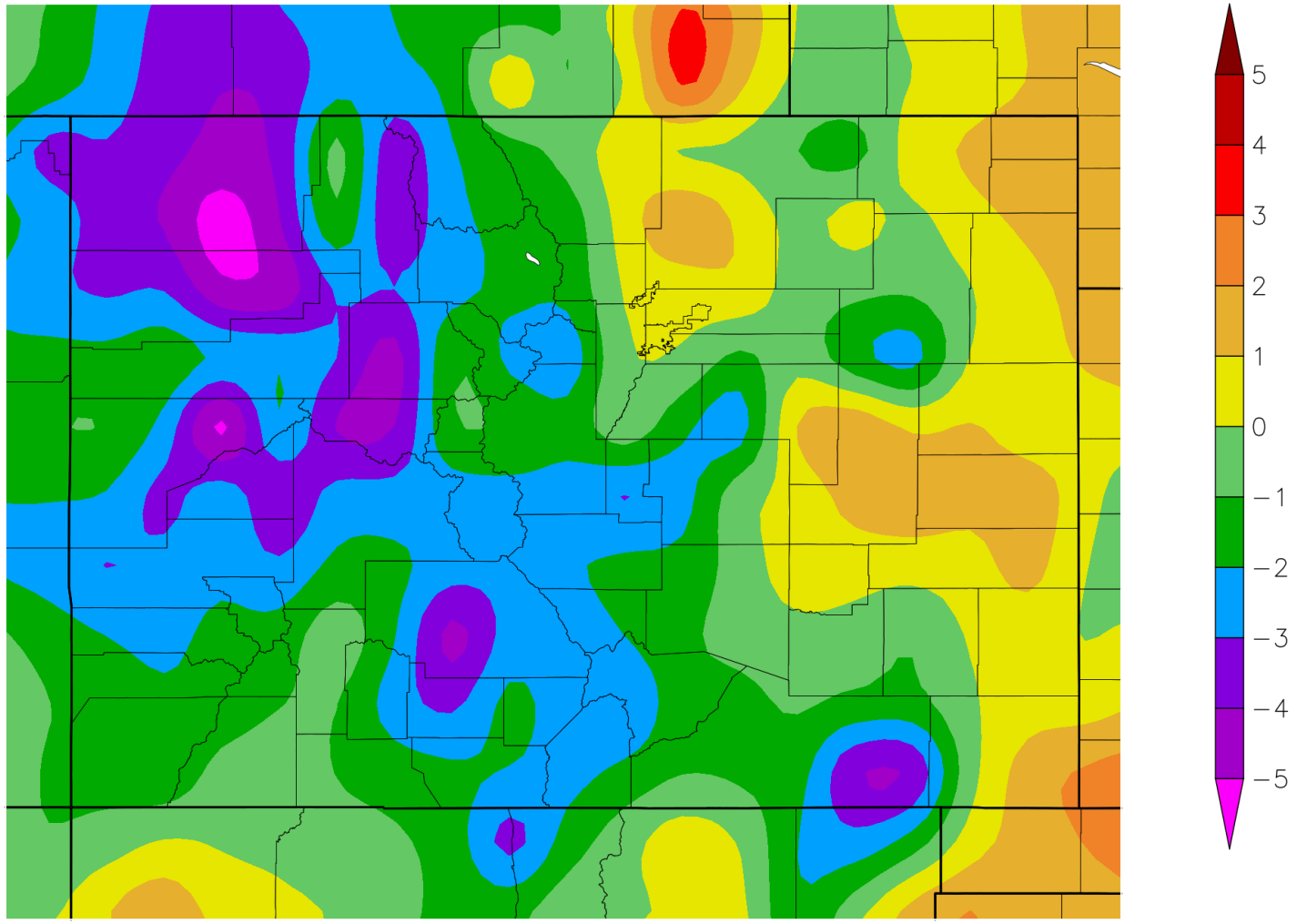

**Warm & wet**

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

**Cool & dry**

**Cool & wet**

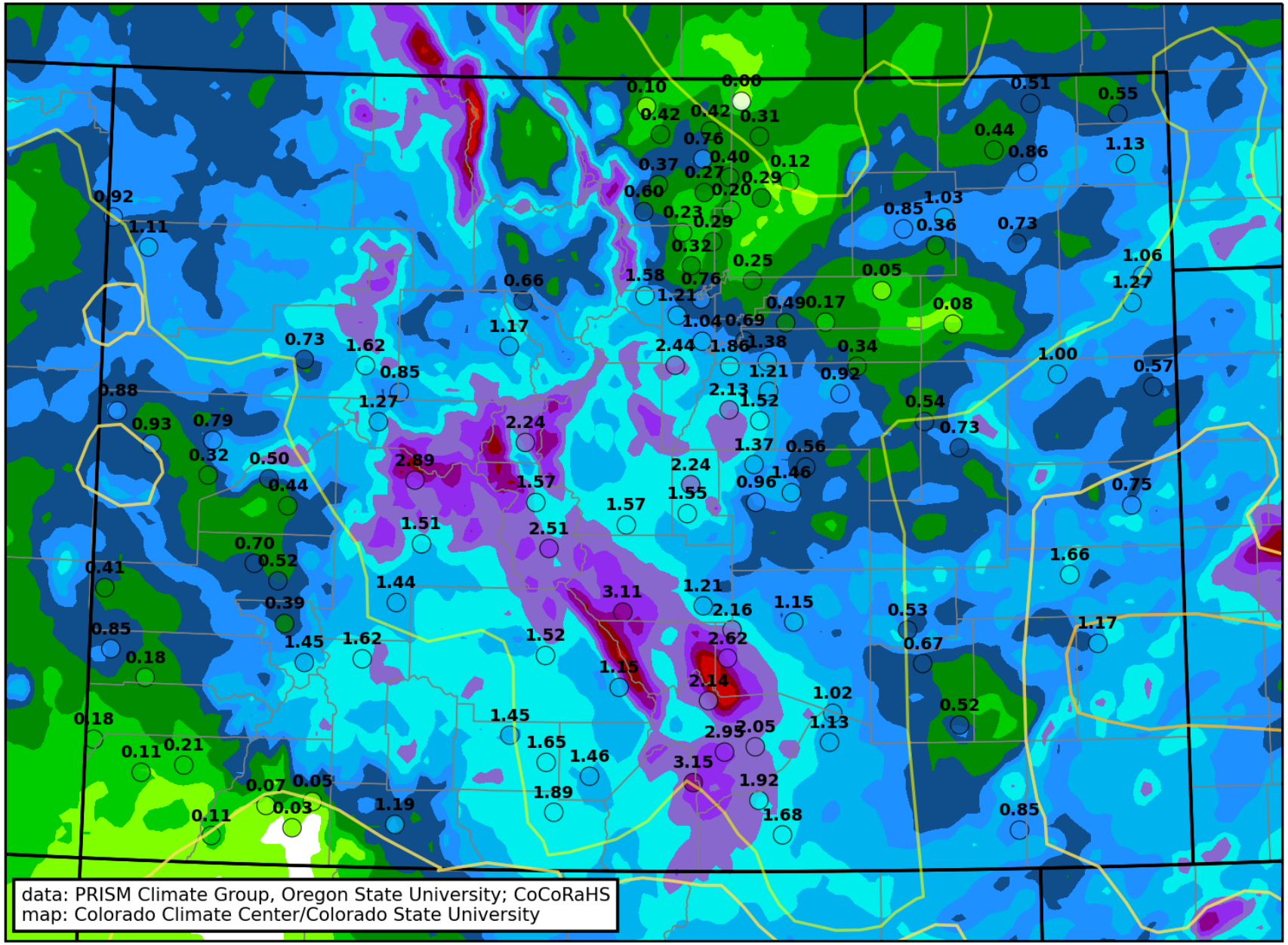
# May temperature so far



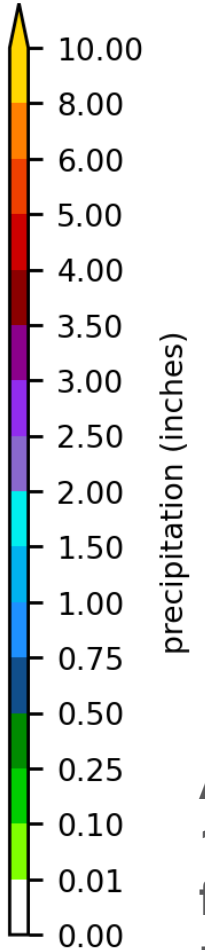

Generated 5/20/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

**PRISM and CoCoRaHS month-to-date precipitation, US Drought Monitor** through 5:00am MST Mon 20 May 2024



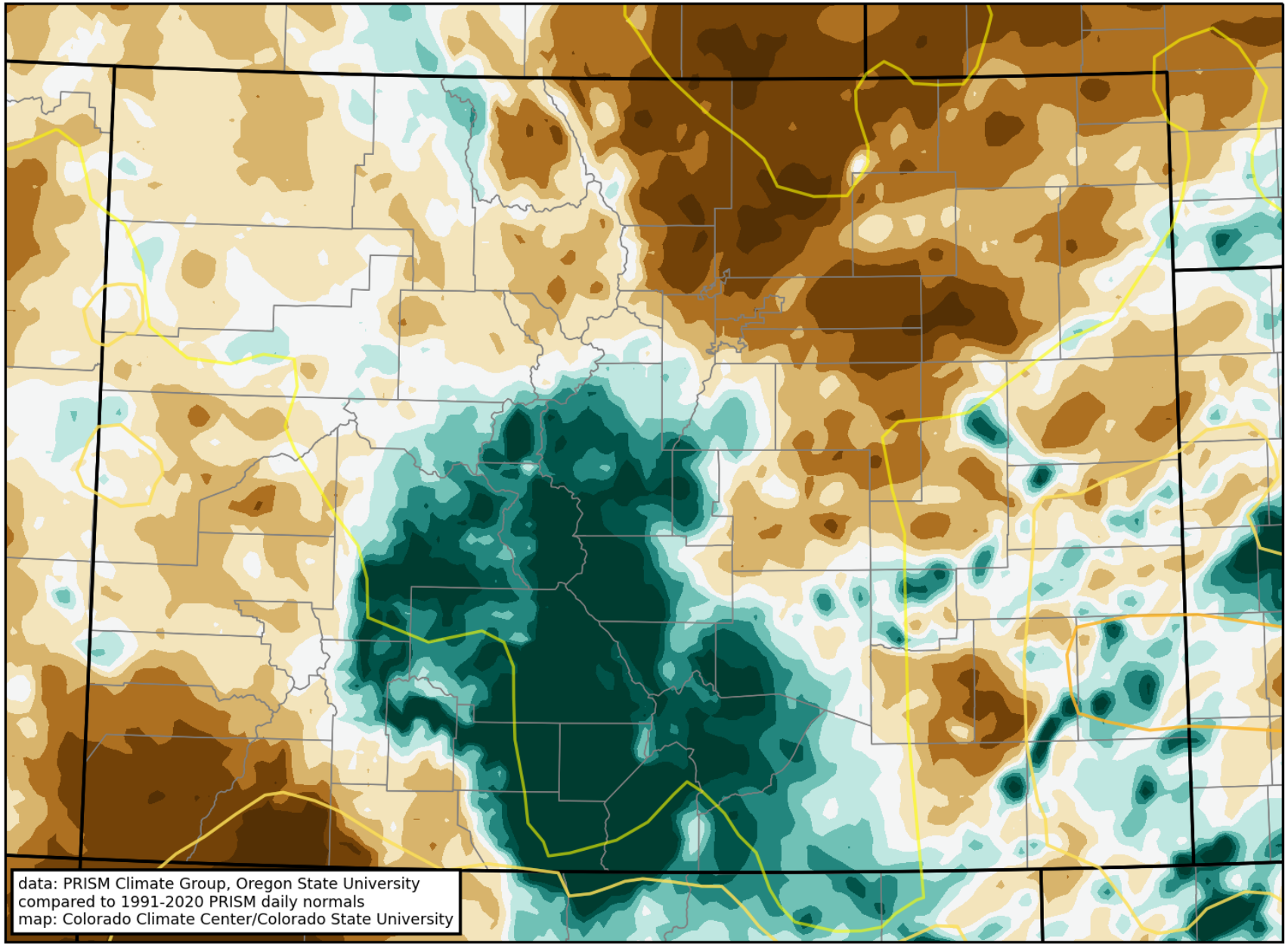

## May precipitation through Monday morning

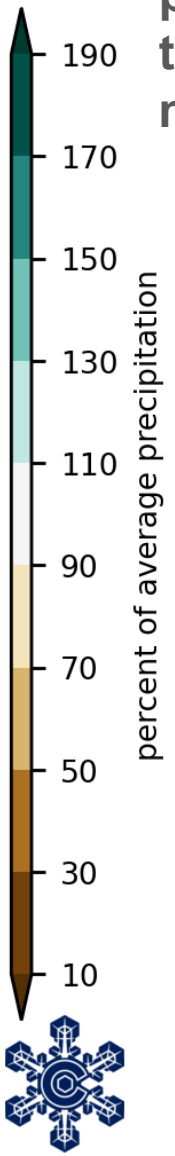



**Alamosa has 1.70” in May so far, 2nd wettest month-to-date**

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

through 5:00am MST Mon 20 May 2024




**May percent of normal precipitation through Monday morning**

# Very fast snowmelt in southern basins in late April

**Largest 14-day declines in SWE prior to April 30**

**San Miguel-Dolores-Animas-San Juan basin**

| Year | 14-day loss of snow water equivalent (inches) |
|---|---|
| **2024** | **-8.18** |
| 2017 | -7.79 |
| 2022 | -6.96 |
| 2009 | -6.96 |
| 2008 | -6.94 |

**Upper Rio Grande basin**

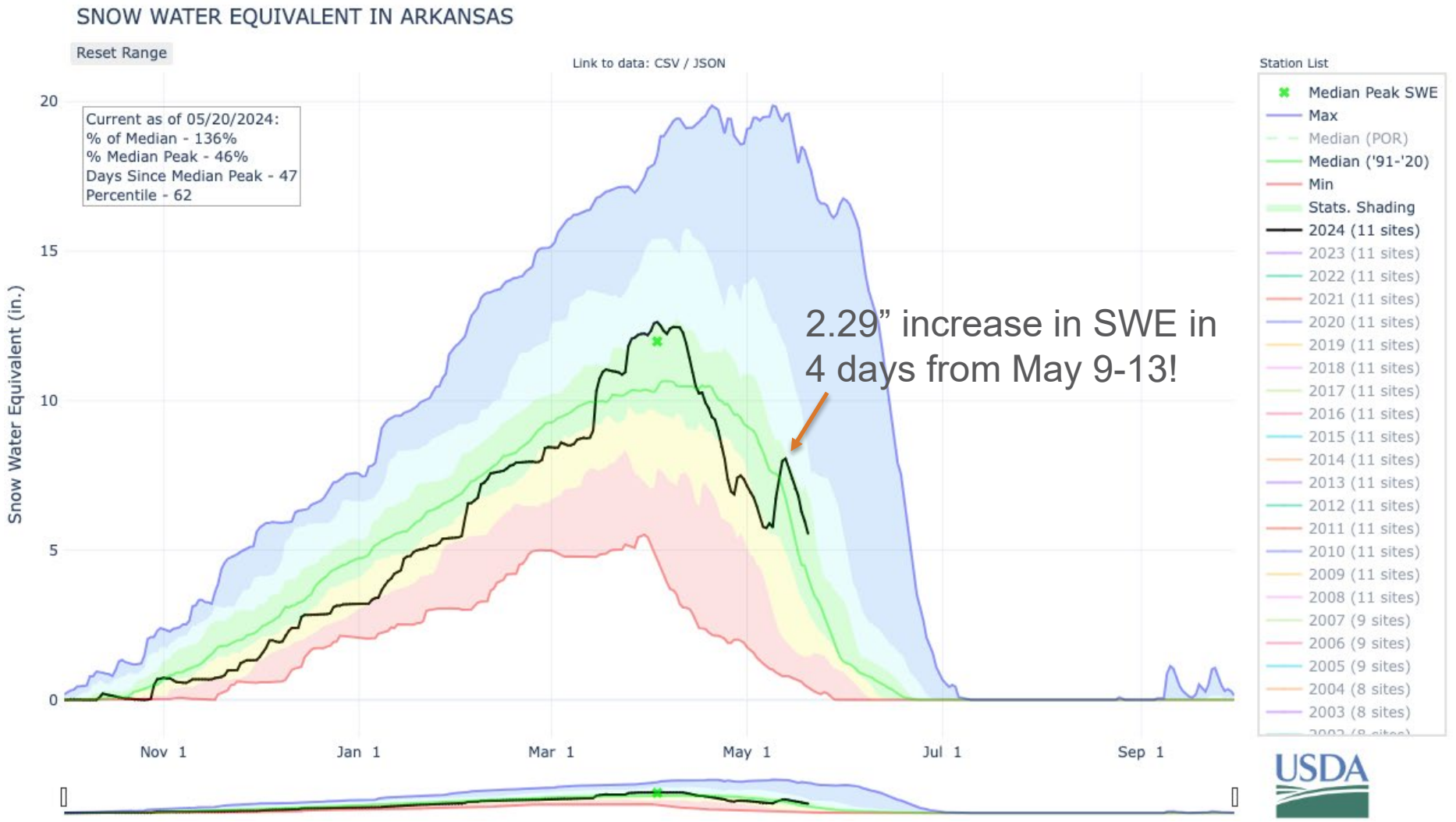
| Year | 14-day loss of snow water equivalent (inches) |
|---|---|
| **2024** | **-5.96** |
| 2022 | -5.86 |
| 1989 | -5.73 |
| 2017 | -4.88 |
| 2008 | -4.69 |

**Arkansas basin**

| Year | 14-day loss of snow water equivalent (inches) |
|---|---|
| **2024** | **-4.95** |
| 2022 | -4.40 |
| 2017 | -3.92 |
| 2008 | -3.65 |
| 2021 | -3.59 |

https://climate.colostate.edu/blog/index.php/2024/05/08/another-fast-early-melt-in-the-southern-mountains/

# But then the Arkansas basin recovered…




Largest 4-day increase on record for so late in the season in this basin (after May 8)

In 1999, gained 3.78” in 4 days at beginning of May

# Notable precipitation total

- Alamosa had 1.46” of precipitation from May 9-11, the 2nd-most for a 3-day period in May

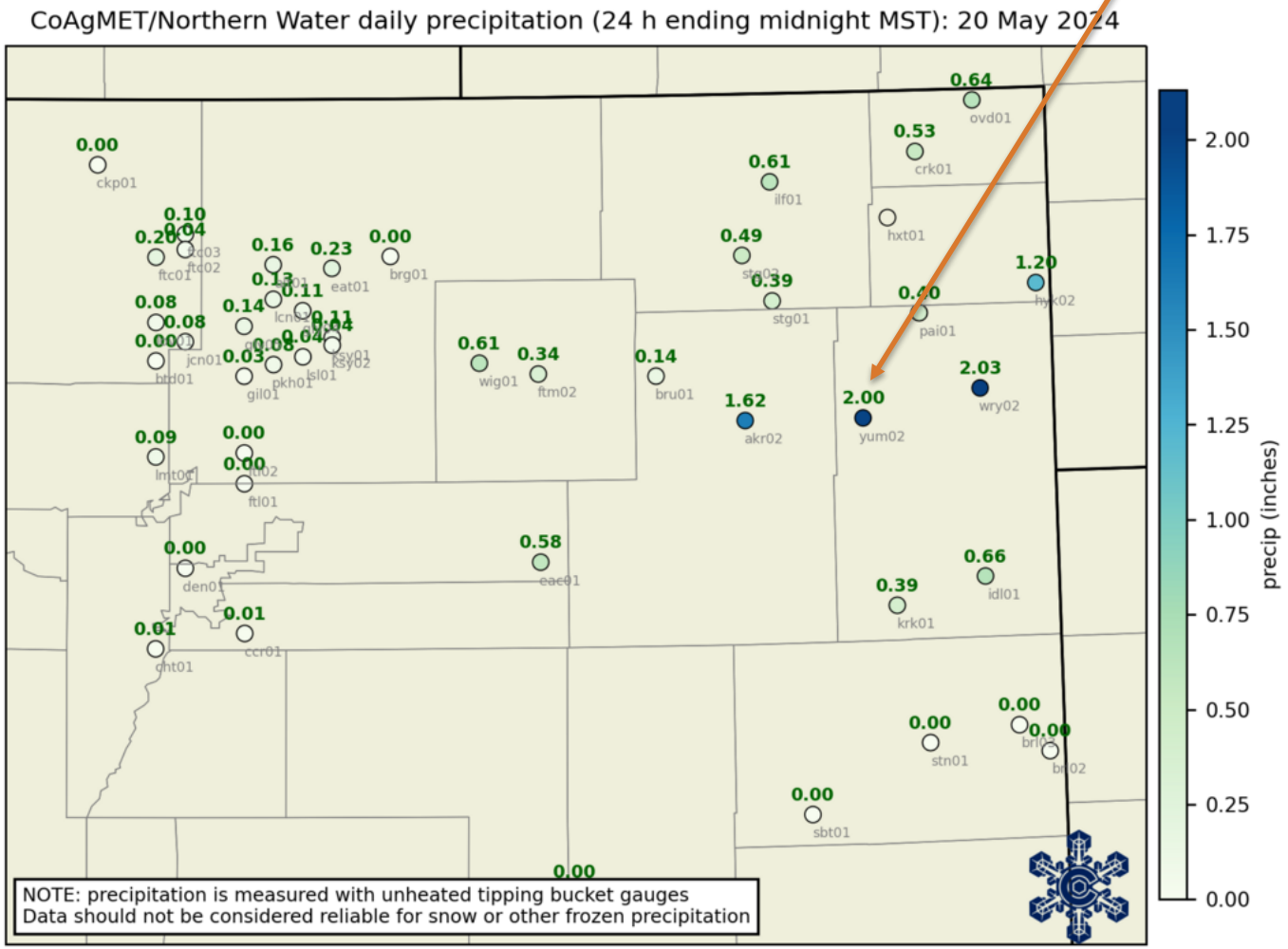
**Maximum 3-Day Total Precipitation for Alamosa Area, CO (ThreadEx)**

Click column heading to sort ascending, click again to sort descending.

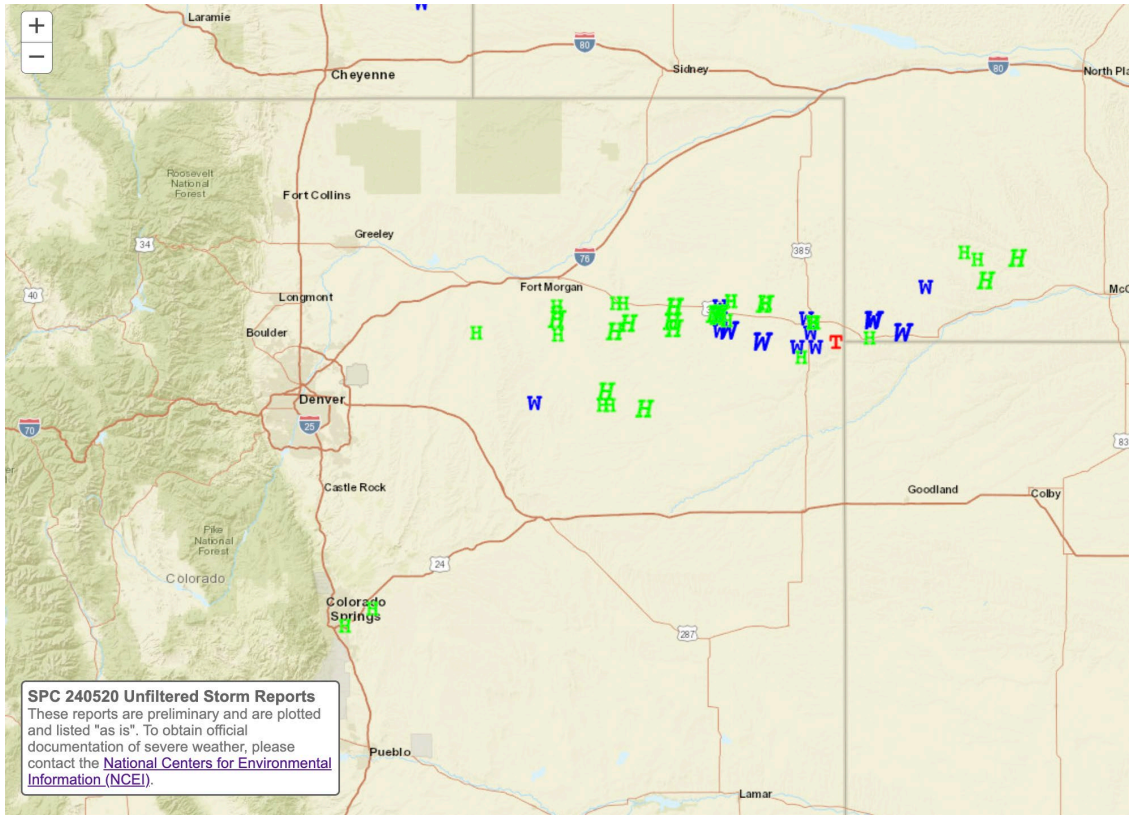
| Rank | Value | Ending Date | Missing Days |
|---|---|---|---|
| 1 | 1.61 | 1935-05-20 | 0 |
| 2 | 1.46 | 2024-05-11 | 0 |
| 3 | 1.41 | 1935-05-19 | 0 |
| 4 | 1.36 | 1935-05-18 | 0 |
| 5 | 1.29 | 2024-05-10 | 0 |
| 6 | 1.22 | 2017-05-10 | 0 |
| 7 | 1.16 | 2017-05-11 | 0 |
| 8 | 1.12 | 1967-05-28 | 0 |
| 9 | 1.03 | 2021-05-19 | 0 |
| - | 1.03 | 2021-05-18 | 0 |
| Period of record: 1906-05-01 to 2024-05-19 | | | |

# Last night

1.42” in 20 minutes at Yuma, station likely damaged by storm




## Severe storm reports



# Drought conditions

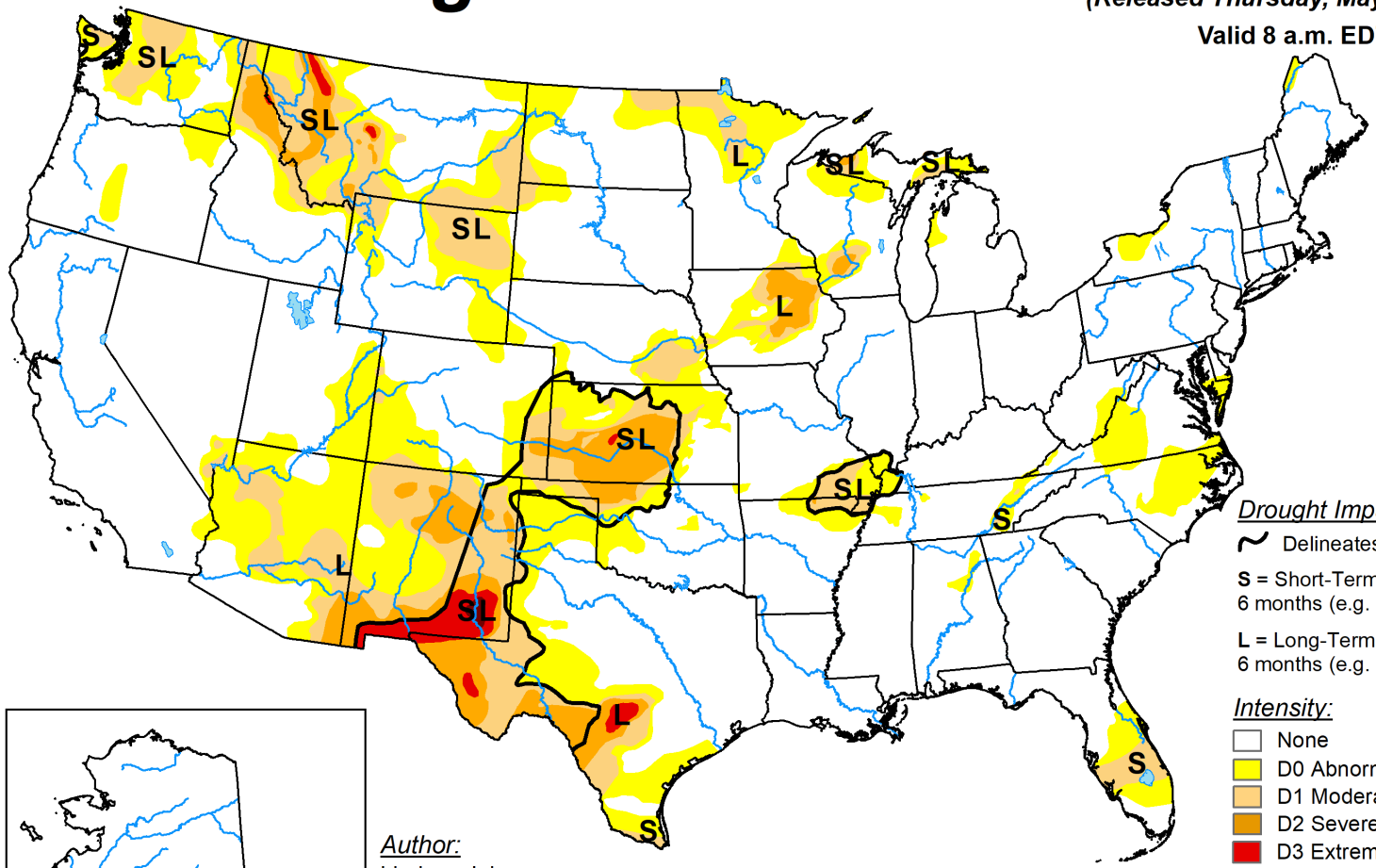
Family of ducks along the irrigation ditch in Fort Collins, May 19

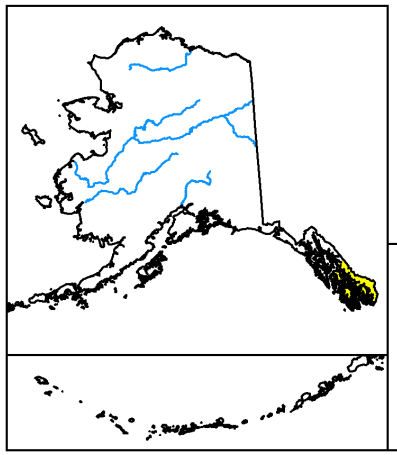
# U.S. Drought Monitor

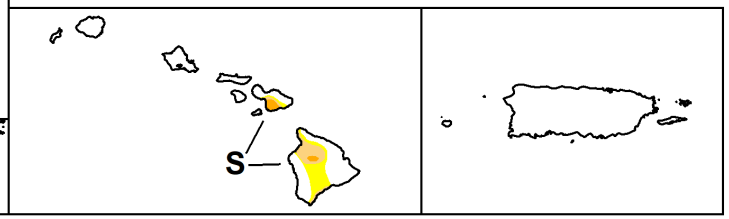
**May 14, 2024**

*(Released Thursday, May. 16, 2024)*

Valid 8 a.m. EDT








*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:*

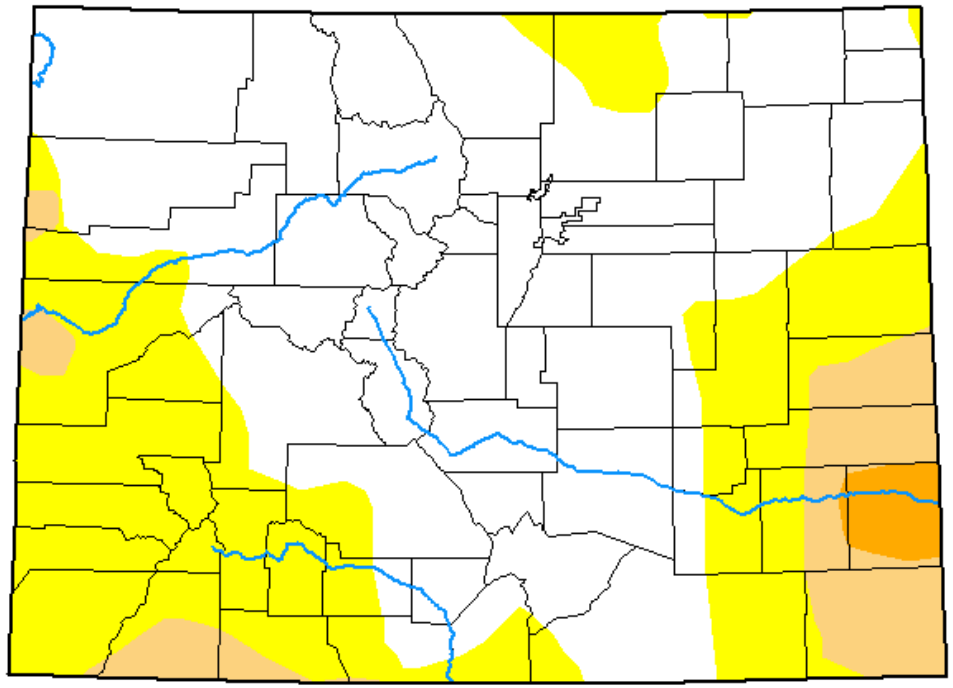
- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought


*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



## May 14, 2024
***(Released Thursday, May. 16, 2024)***
**Valid 8 a.m. EDT**

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| **Current** | 60.34 | 39.66 | 9.02 | 1.41 | 0.00 | 0.00 |
| **Last Week** *05-07-2024* | 55.96 | 44.04 | 10.62 | 1.41 | 0.00 | 0.00 |
| **3 Months Ago** *02-13-2024* | 63.20 | 36.80 | 11.65 | 3.52 | 0.00 | 0.00 |
| **Start of Calendar Year** *01-02-2024* | 34.65 | 65.35 | 29.59 | 8.85 | 2.05 | 0.00 |
| **Start of Water Year** *09-26-2023* | 65.71 | 34.29 | 17.43 | 2.77 | 0.00 | 0.00 |
| **One Year Ago** *05-16-2023* | 54.68 | 45.32 | 10.76 | 2.91 | 1.15 | 0.31 |

*Intensity:*

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

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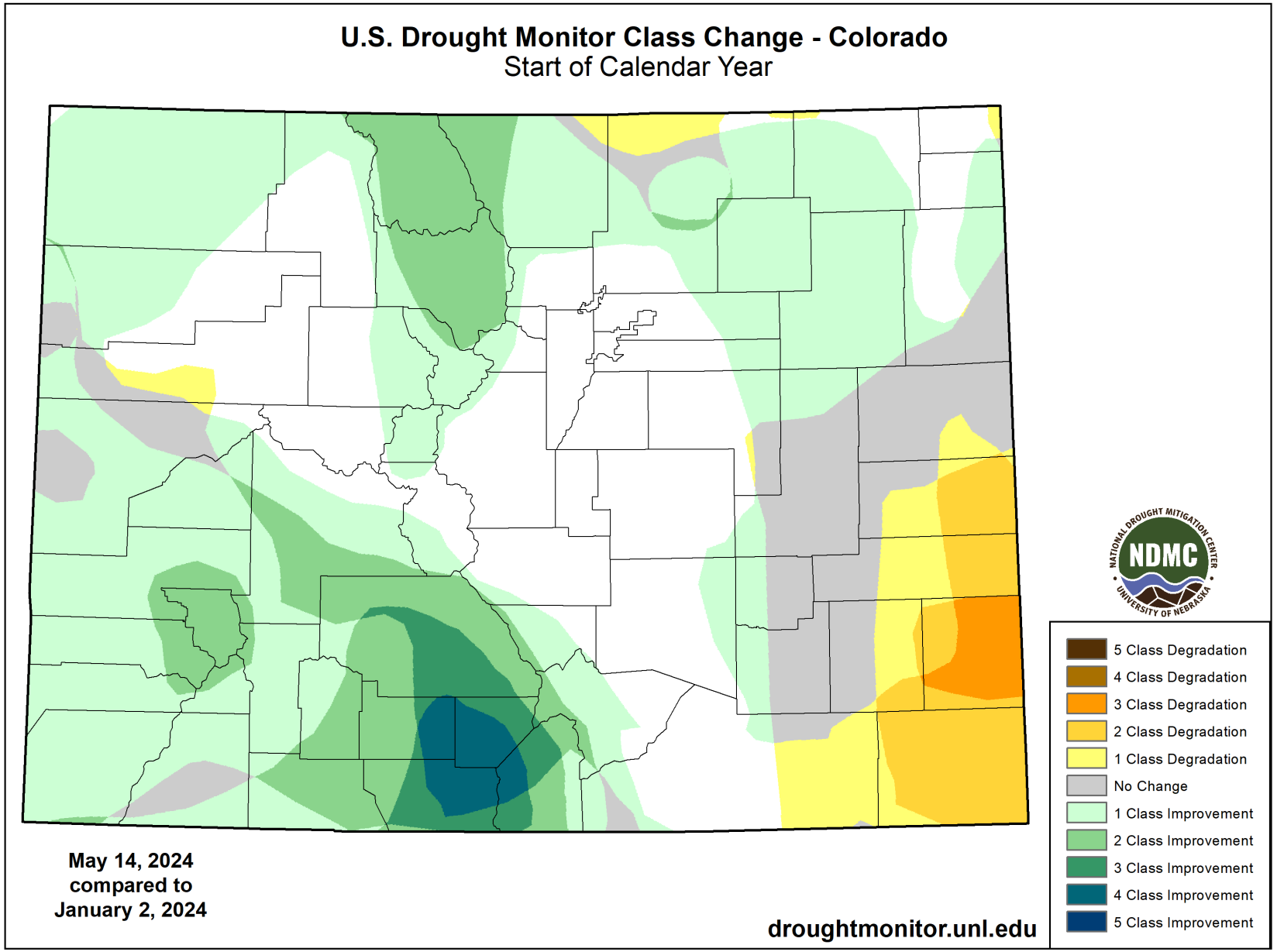
National Drought Mitigation Center

**droughtmonitor.unl.edu**

# Change since start of calendar year



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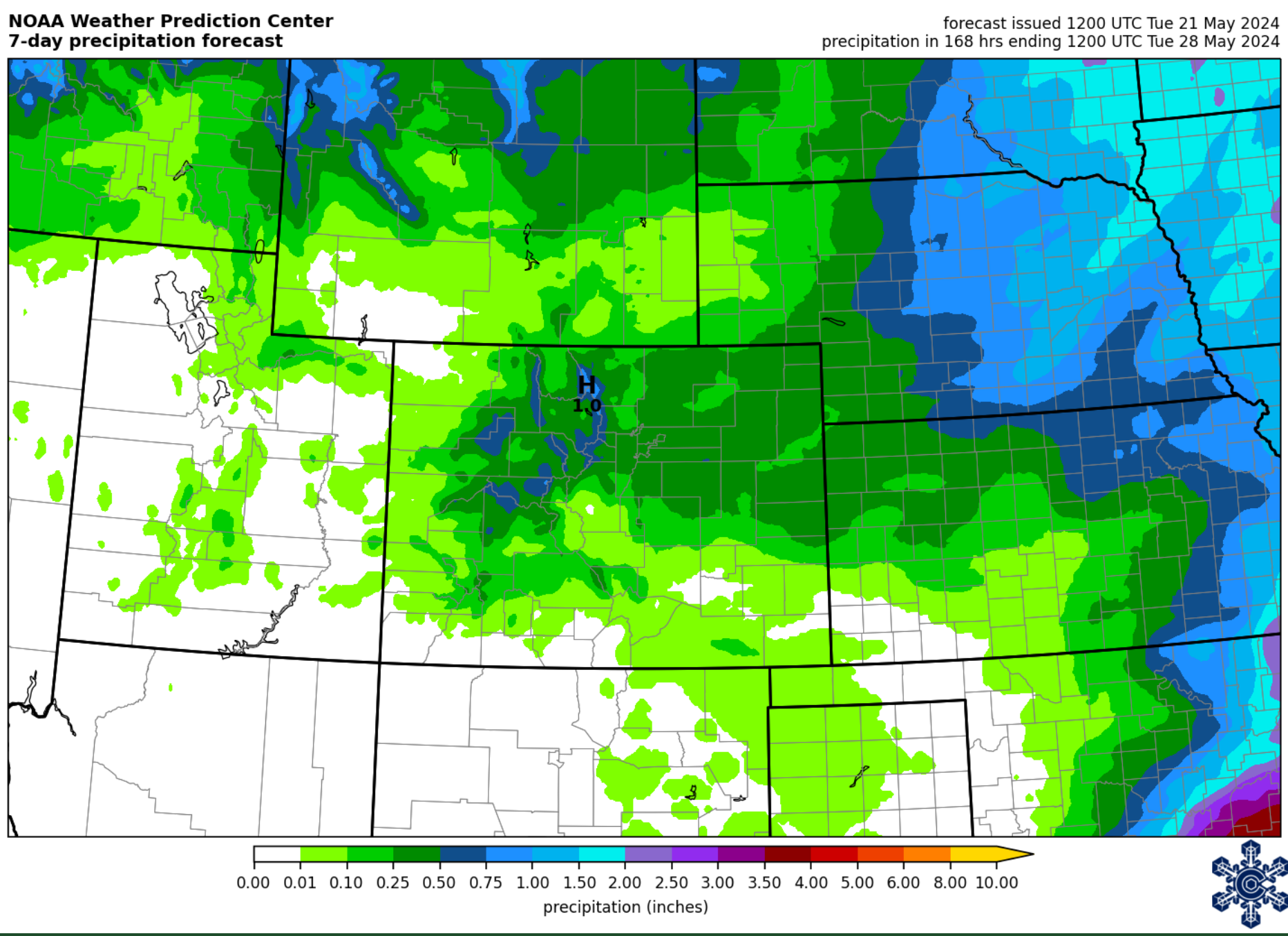
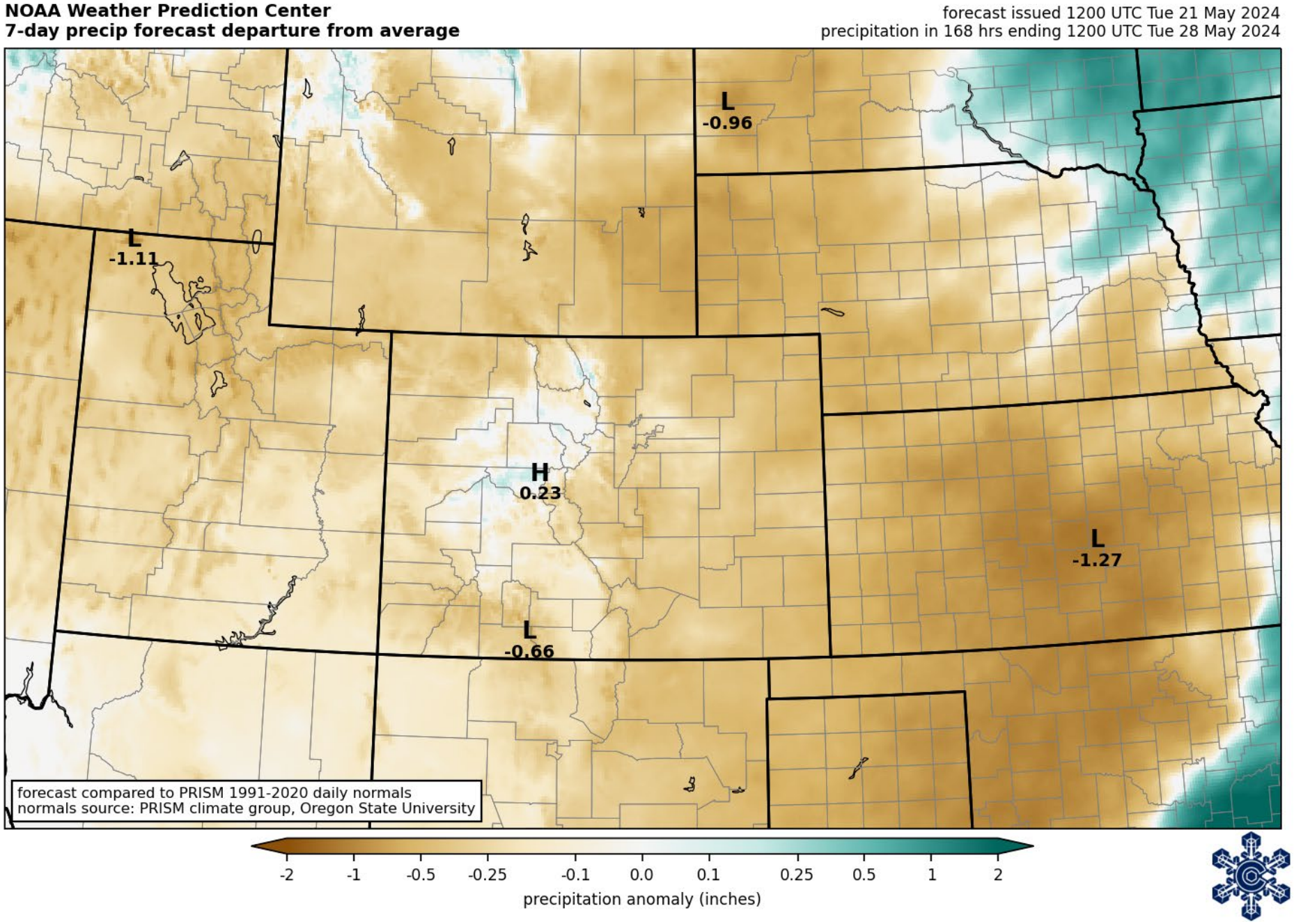
# Outlook

# NOAA 7-day precipitation forecast

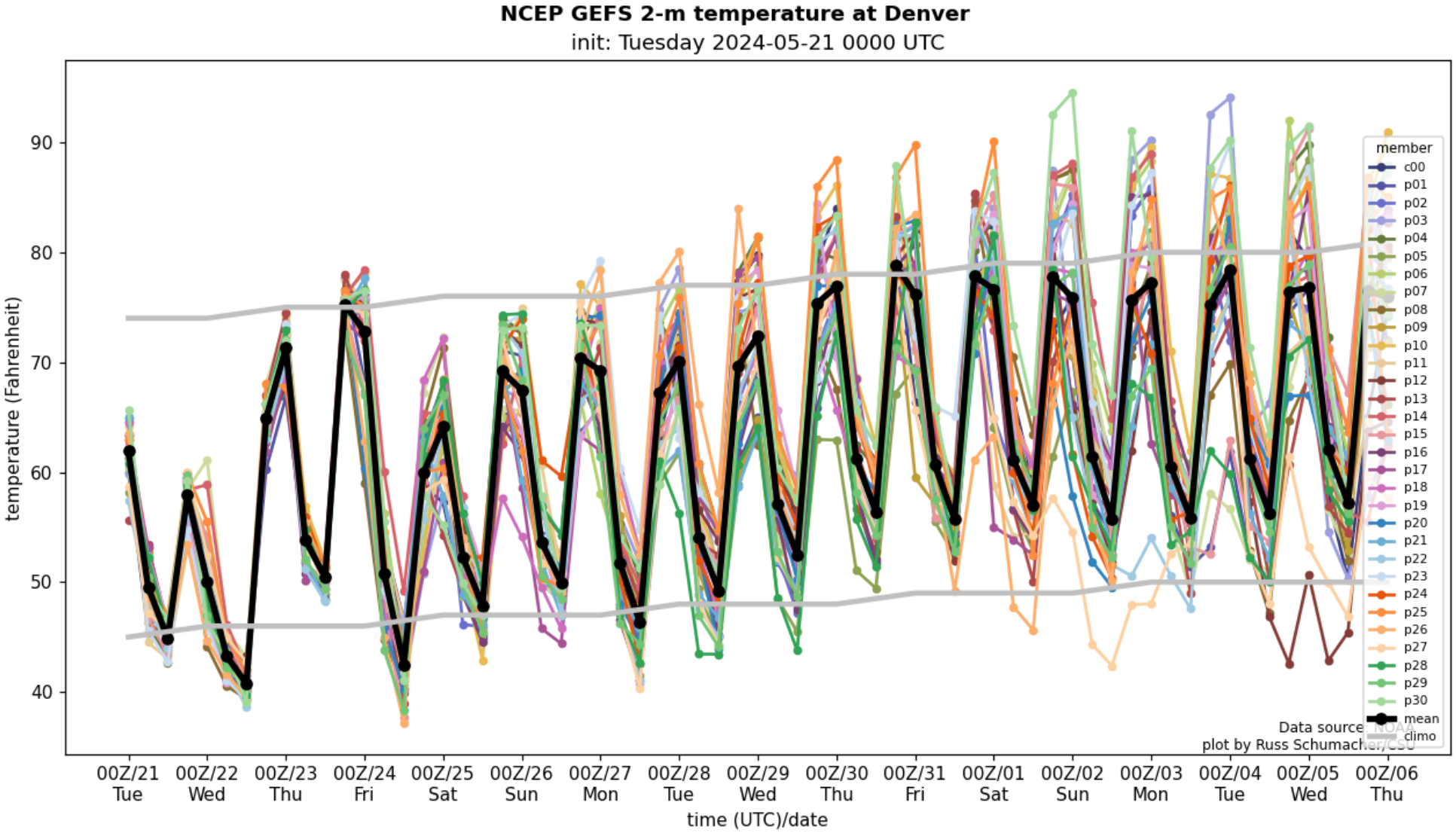
This forecast precipitation is almost all today; then dry for the next several days



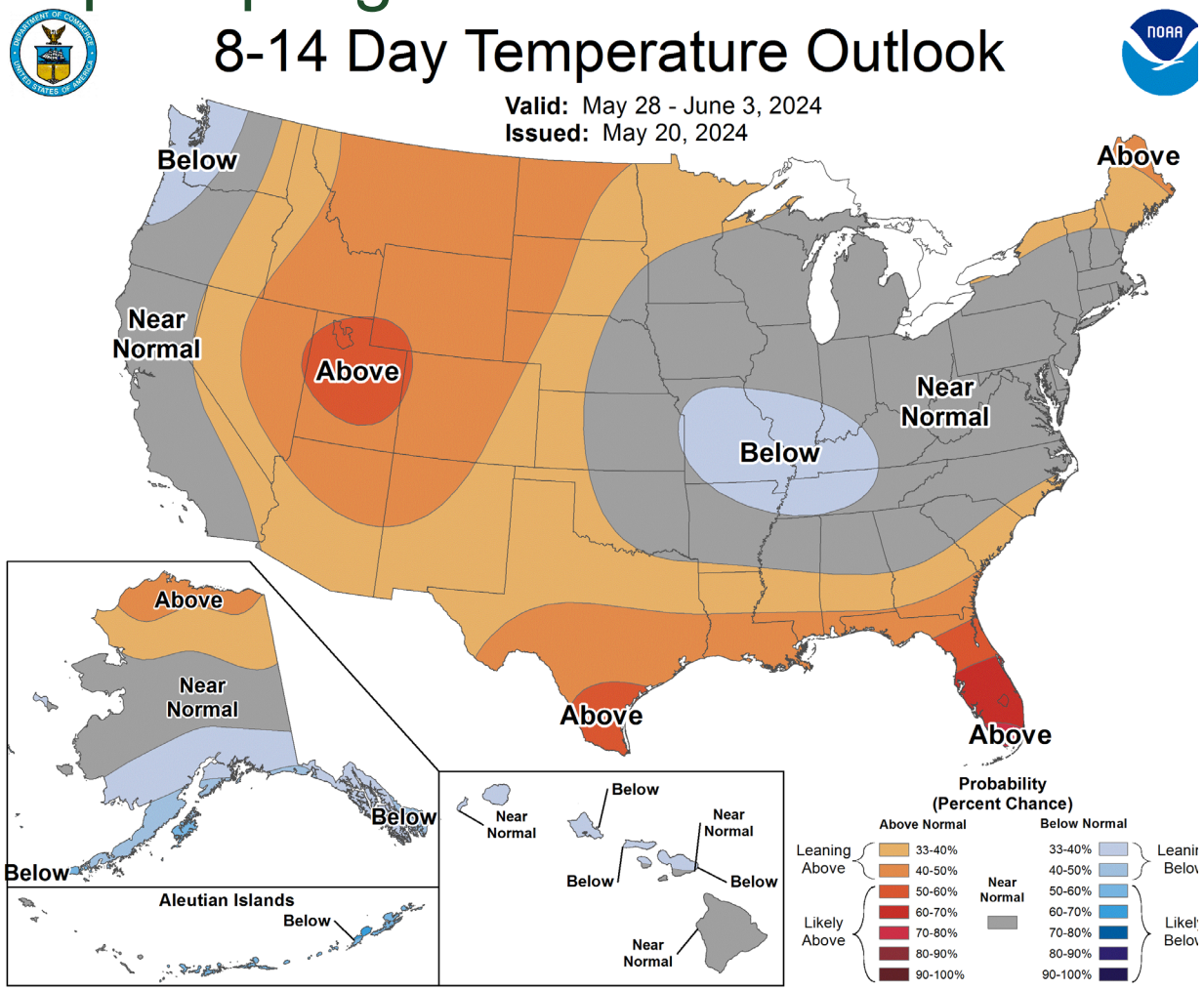
# NOAA 7-day precipitation forecast (difference from average)

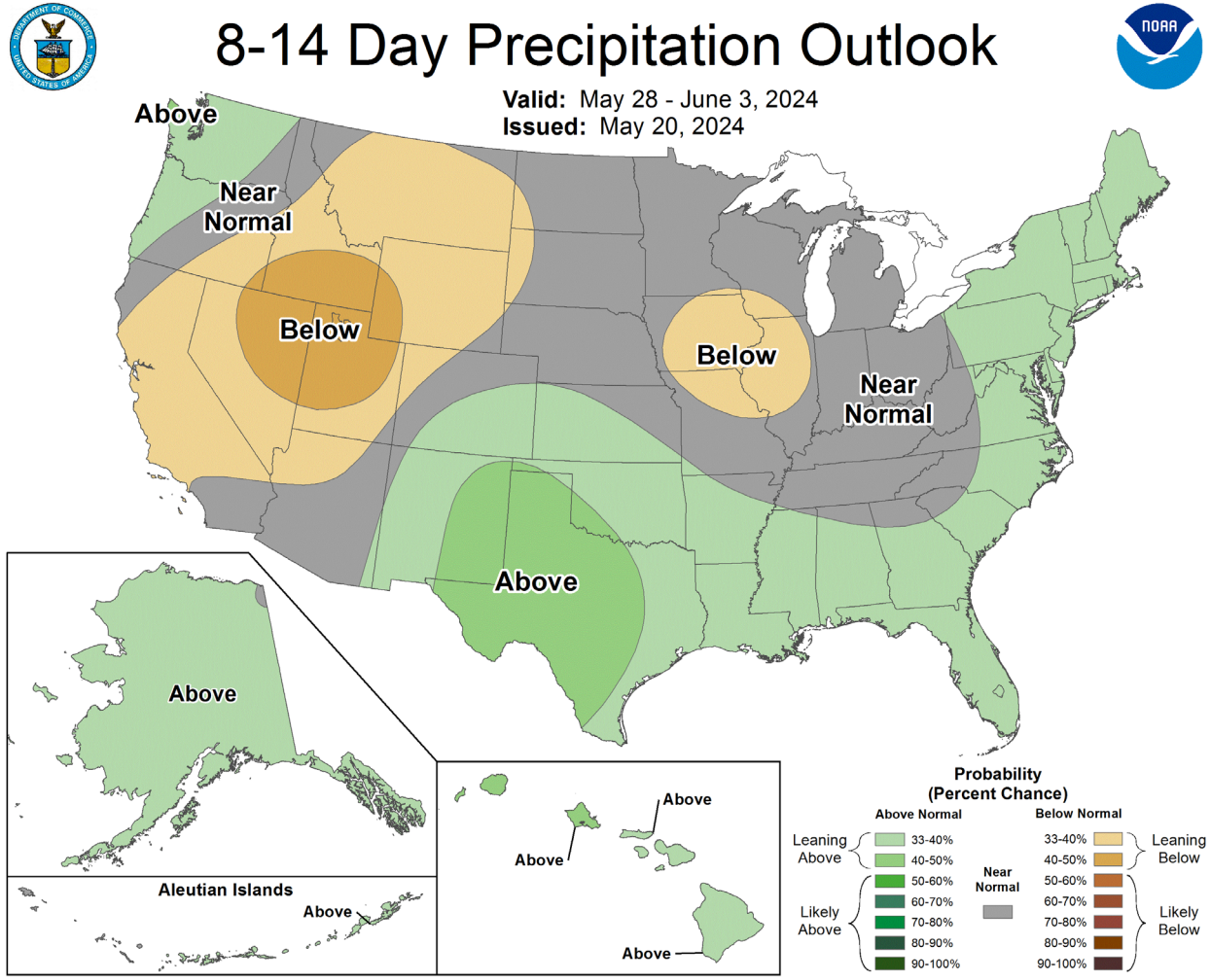


# Temperatures generally in the average range for the next couple weeks, no signal for major heat or cold waves (but the average slopes up as we head into June!)



# The May 28-June 3 period leans warmer than normal, no strong precip signal



# El Niño technically still in place, but not for long

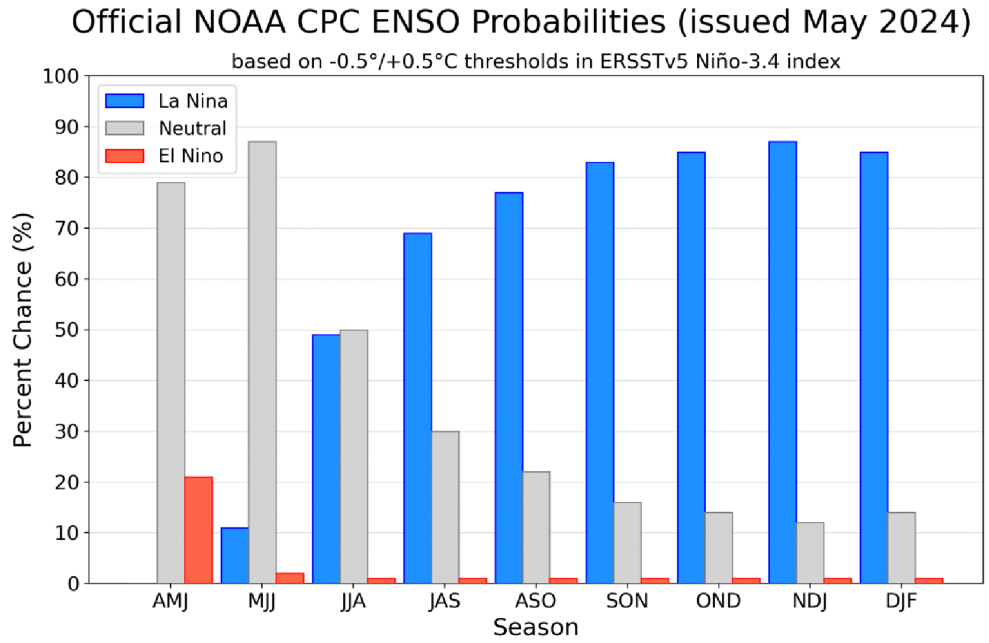



Figure 7. Official ENSO probabilities for the Niño 3.4 sea surface temperature index (5°N-5°S, 120°W-170°W). Figure updated 9 May 2024.

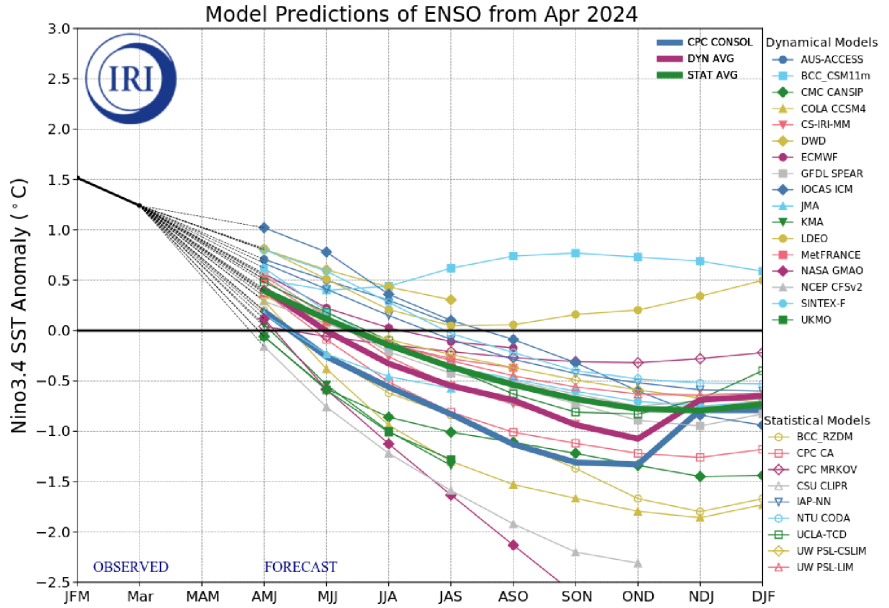
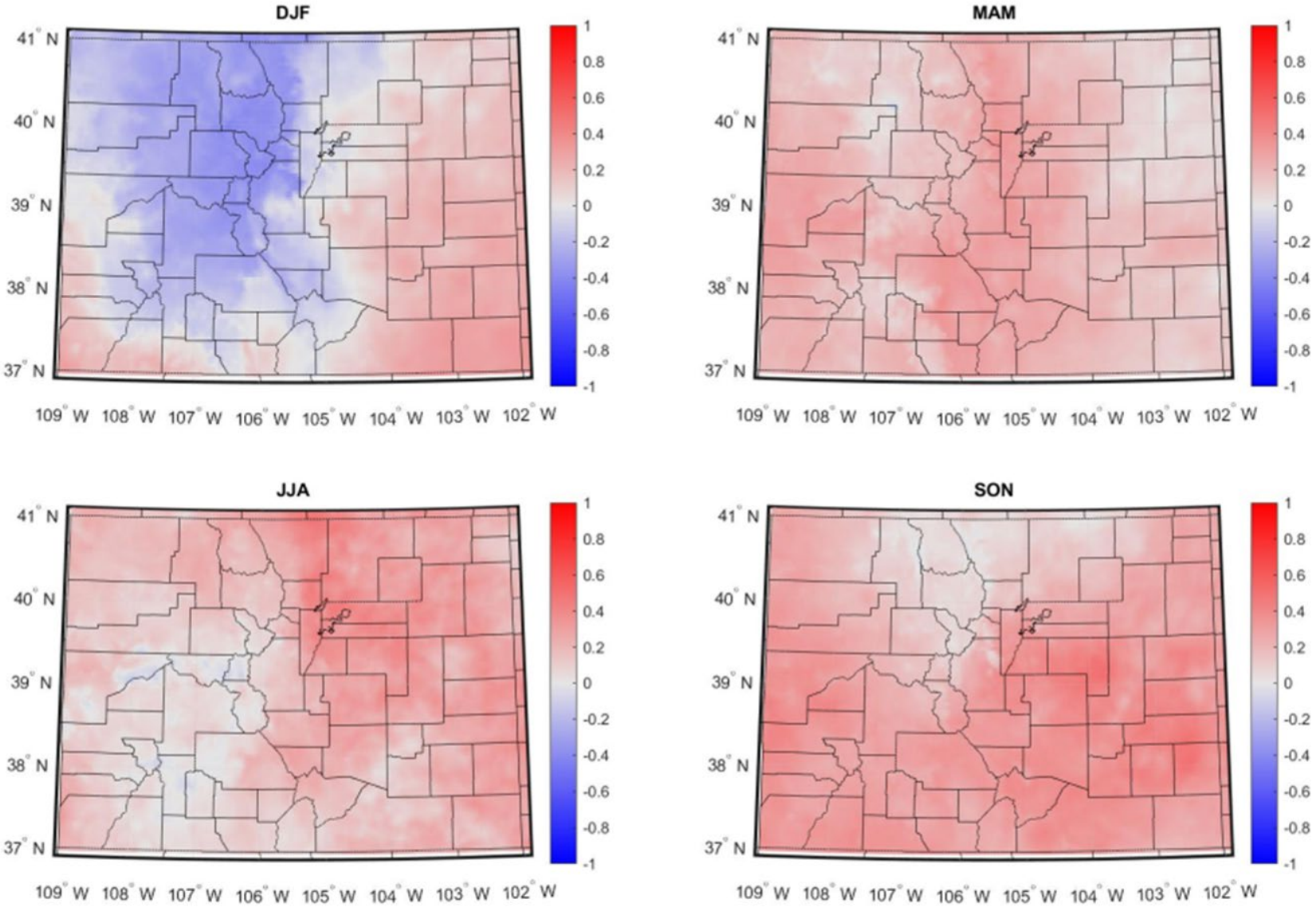



Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 19 April 2024 by the International Research Institute (IRI) for Climate and Society.

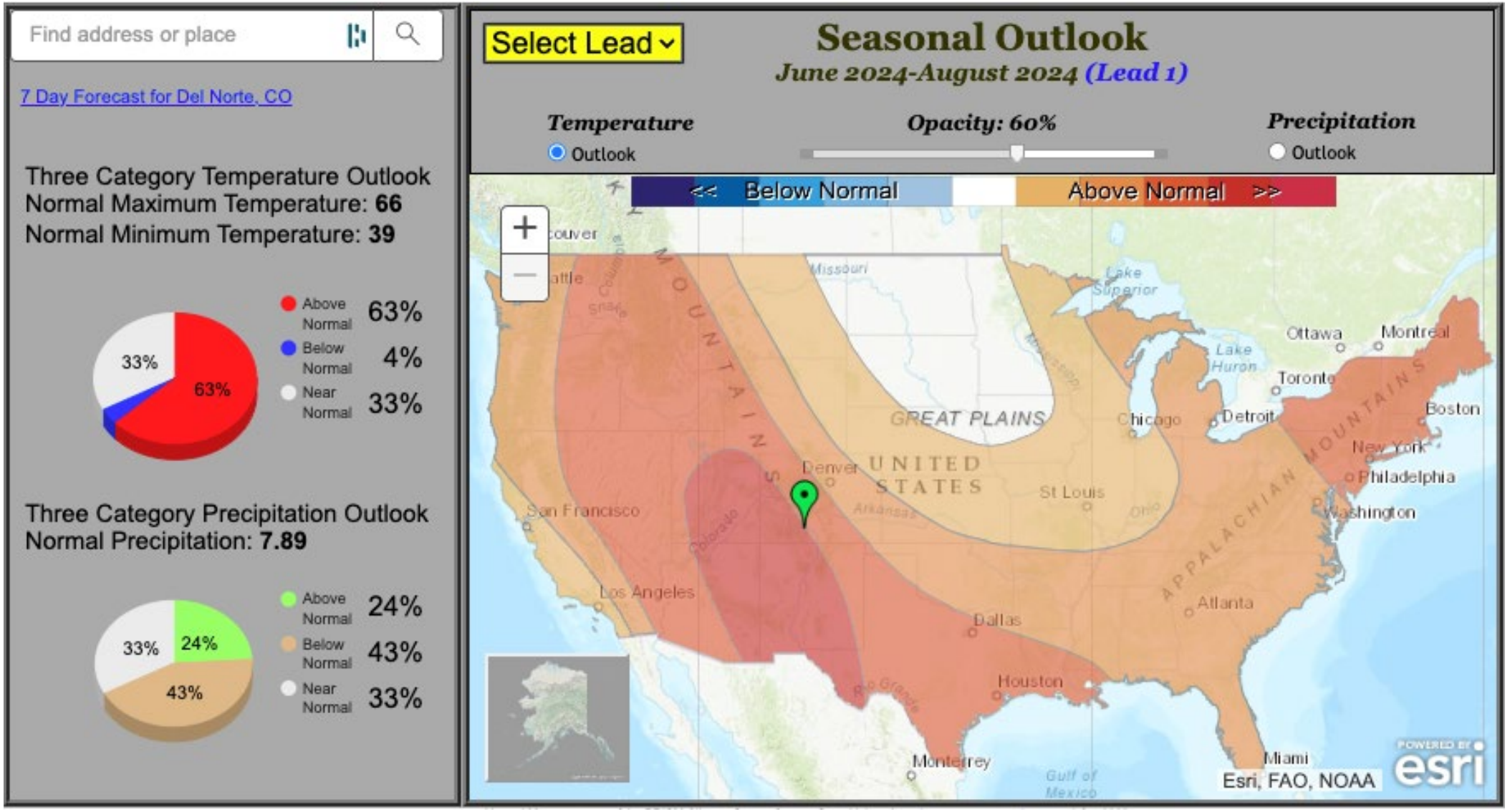
**"A transition from El Niño to ENSO-neutral is likely in the next month. La Niña may develop in June-August (49% chance) or July-September (69% chance)."** https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml

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




Blue = La Niña wetter  Red = El Niño wetter

# Summer (June-July-August) outlook



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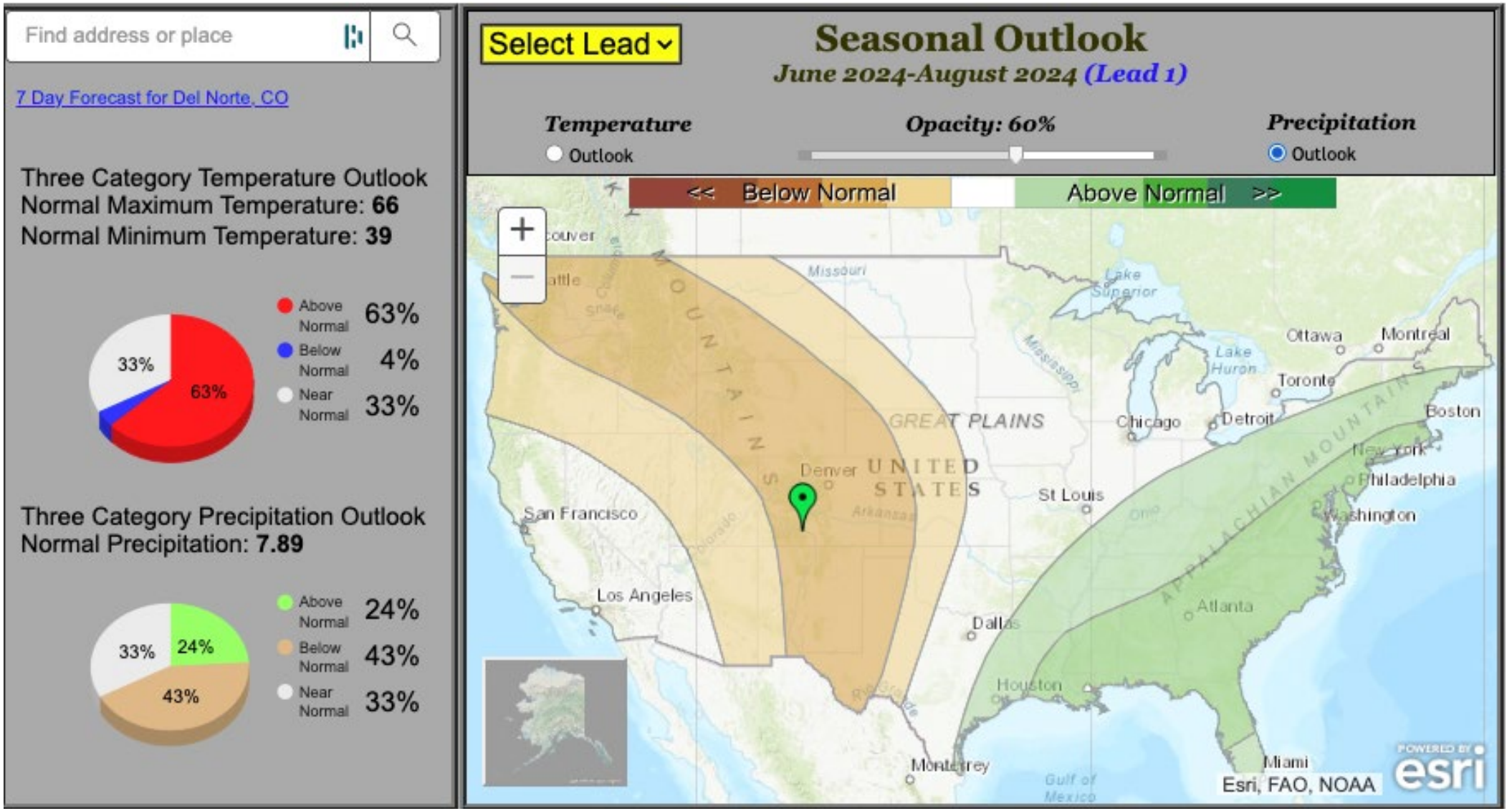

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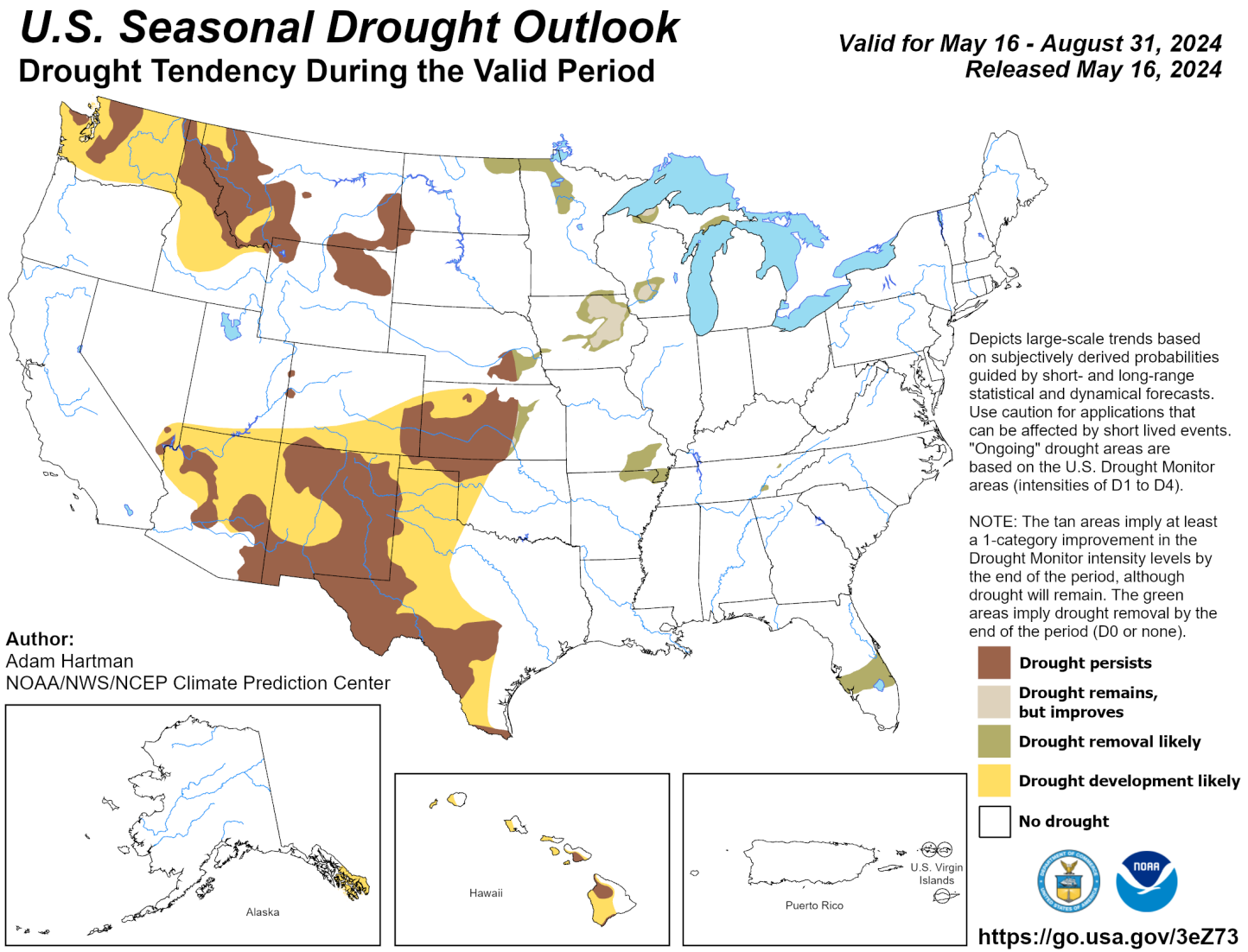
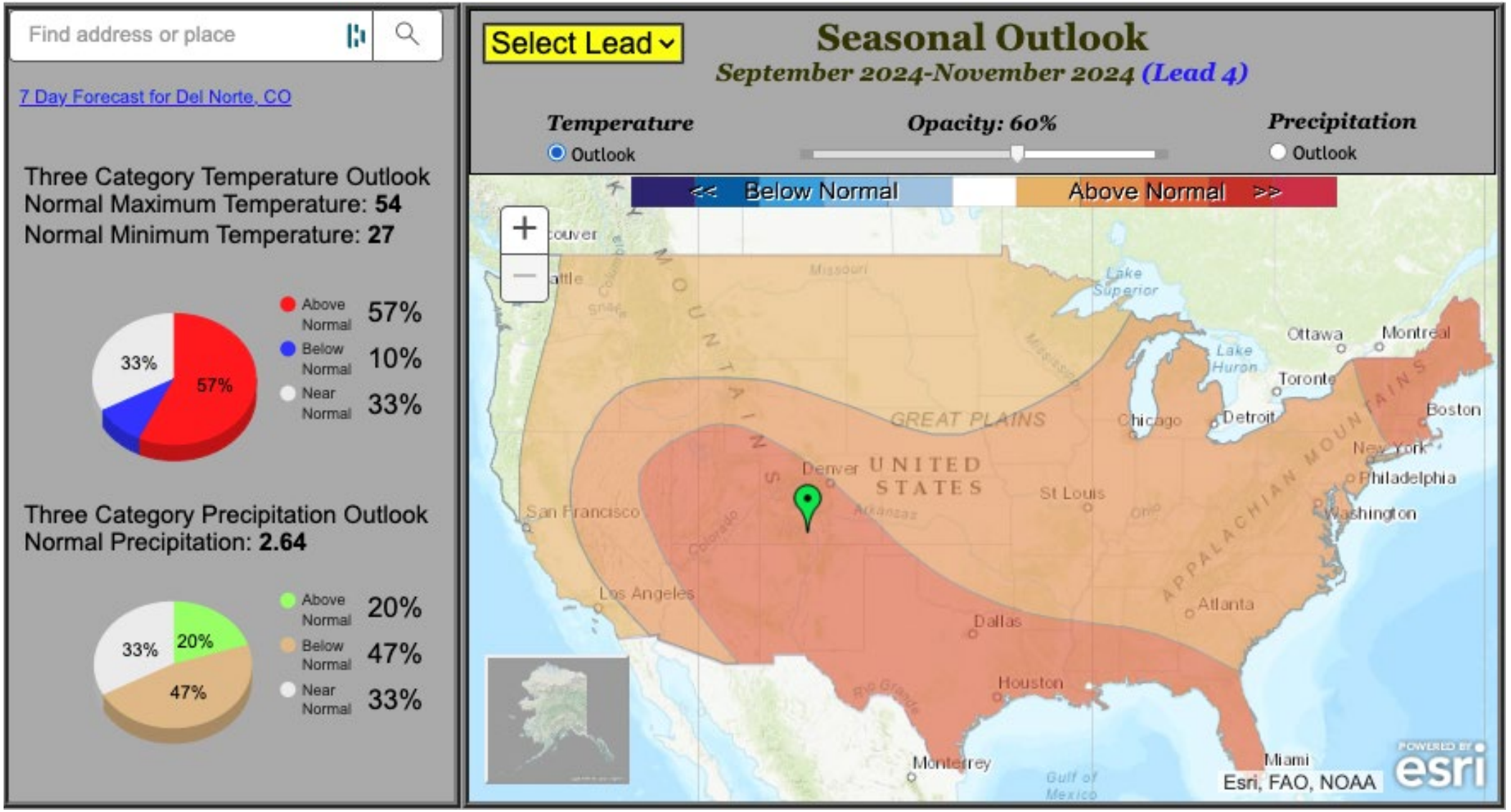


# Fall (Sept-Oct-Nov) outlook



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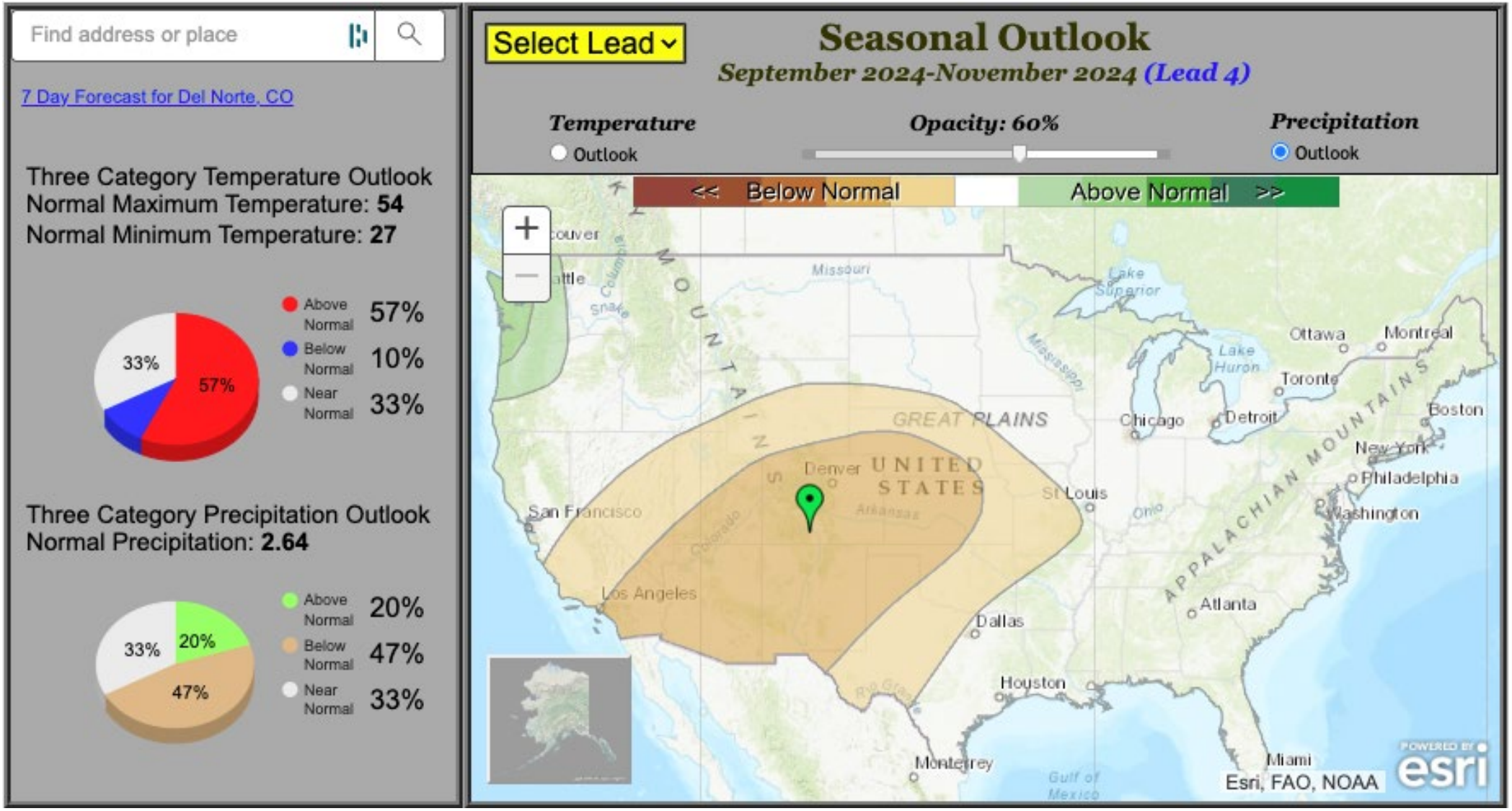

# Takeaways

- Water Year 2024 has continued to be warm across Colorado: 7th warmest October through April period, though May has been relatively cool thus far
- Statewide, precipitation has remained near average. Central and southern Colorado have been wet recently, while parts of the eastern plains have had a dry May
- Snowmelt has been rapid in the southern basins, while snowpack remains strong to the north
- El Niño will be gone soon, with a quick shift to La Niña
- Climate Prediction Center outlooks show high probabilities of a hot, dry summer, with warmer and drier than average conditions continuing into next winter
  - Always take seasonal projections with a grain of salt, but these show much higher confidence than they usually have this far in advance


# Thank you!

https://climate.colostate.edu/

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