Colorado Climate Update

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Water Availability Task Force

February 20, 2024

COLORADO CLIMATE CENTER

ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY

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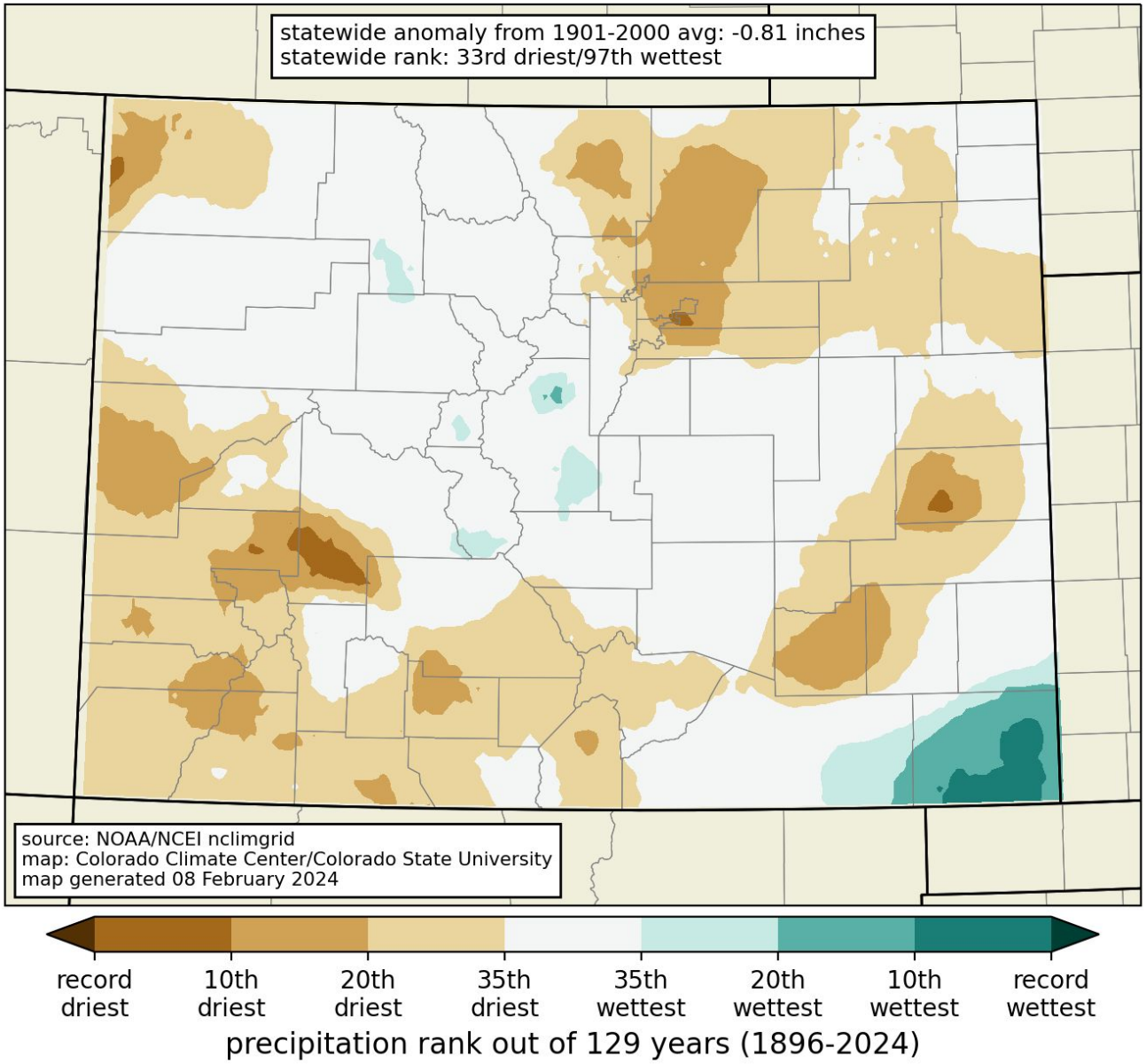
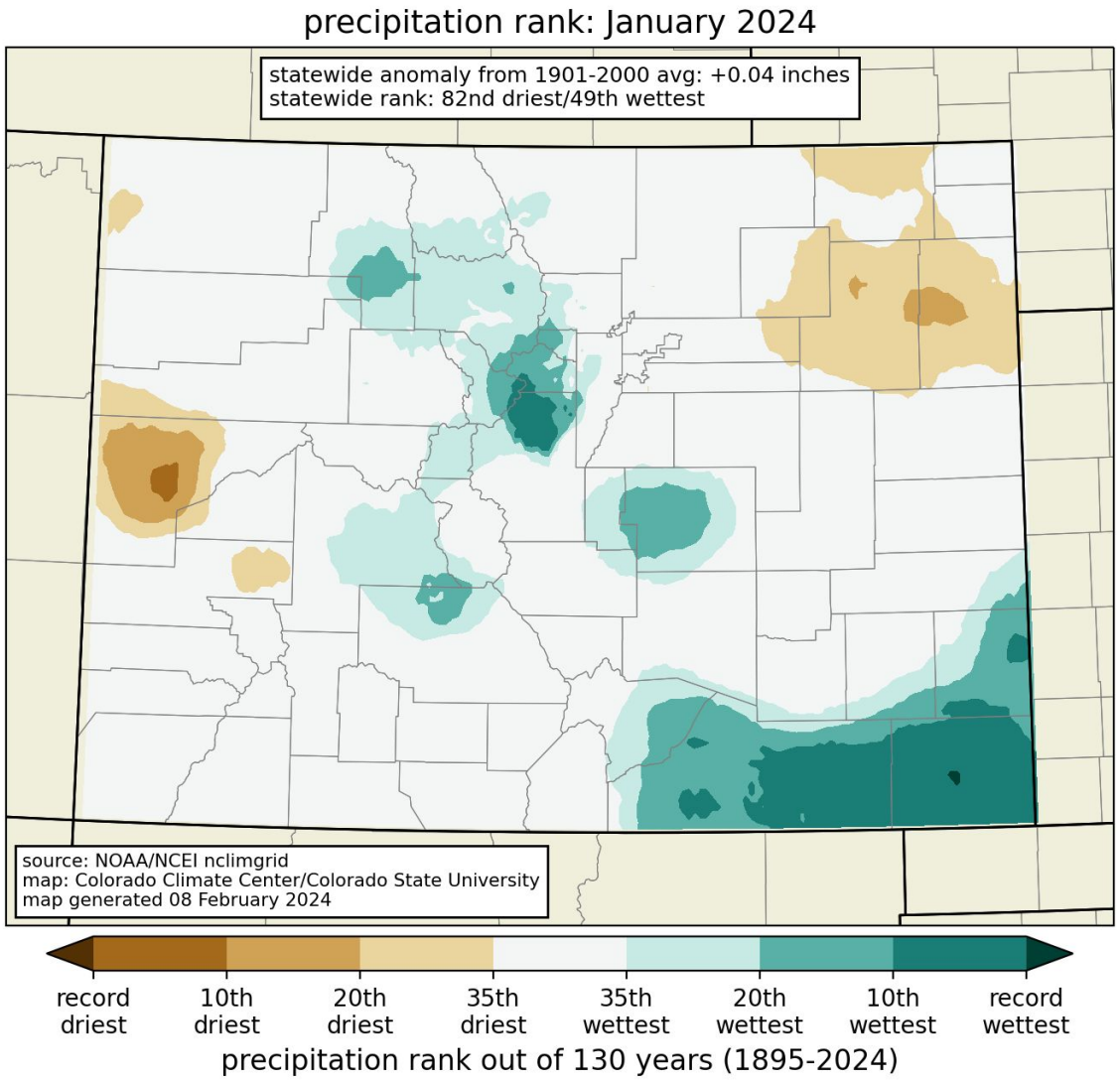
Water-year-to-date

precipitation rank: 4 months ending January 2024 (Oct-Jan)



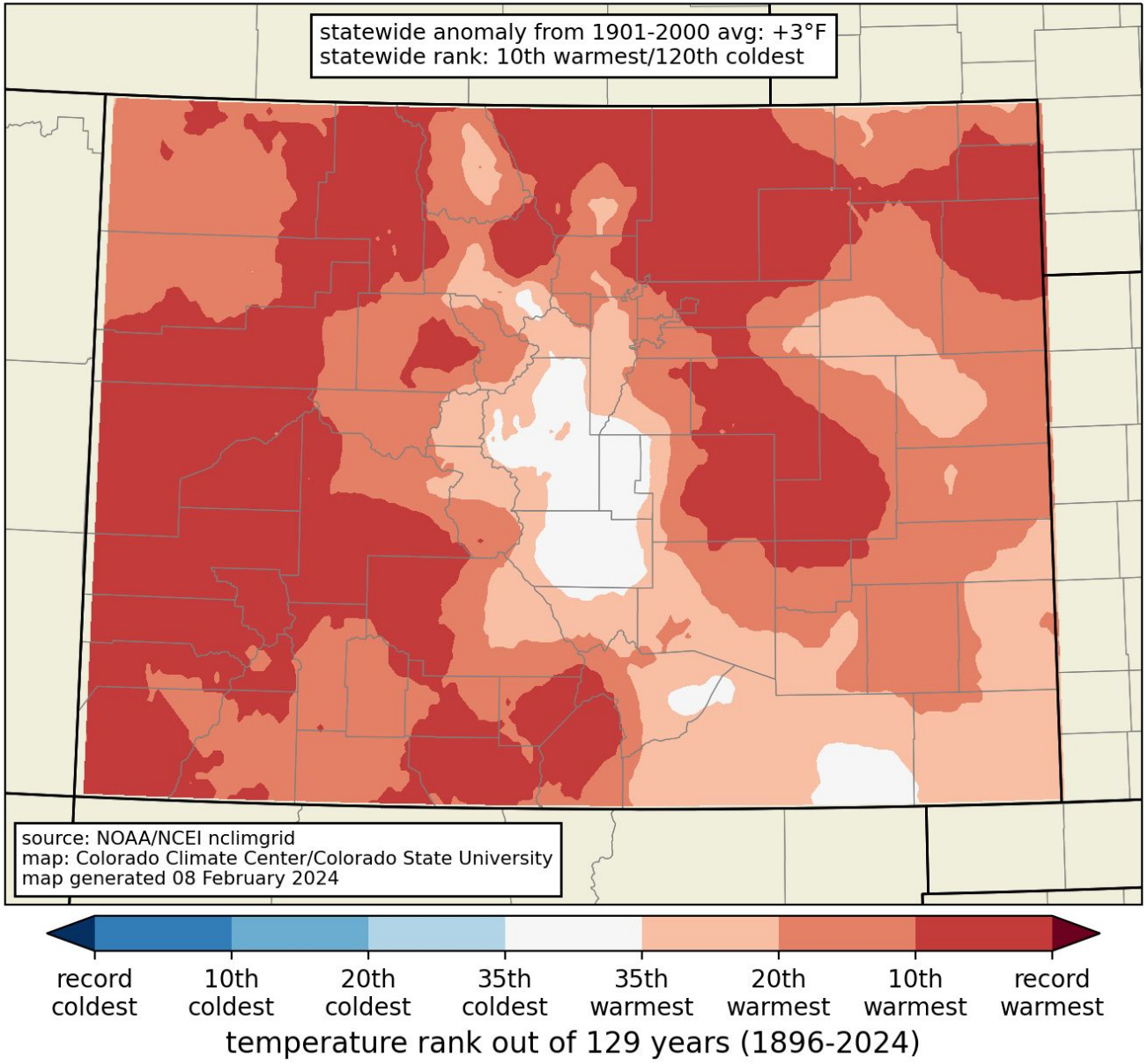
https://climate.colostate.edu/co_cag/rank_maps.html



Month	P Rank (of 129 years)	Above, below, or near 20th century avg?
Oct	52nd driest	near avg
Nov	22nd driest	below
Dec	64th wettest	near avg
Jan	49th wettest	near avg
Feb		
Mar		
Apr		
May		
Jun		
Jul		
Aug		
Sep		

https://www.ncdc.noaa.gov/temp-and-precip/us-maps/

average temperature rank: 4 months ending January 2024 (Oct-Jan)



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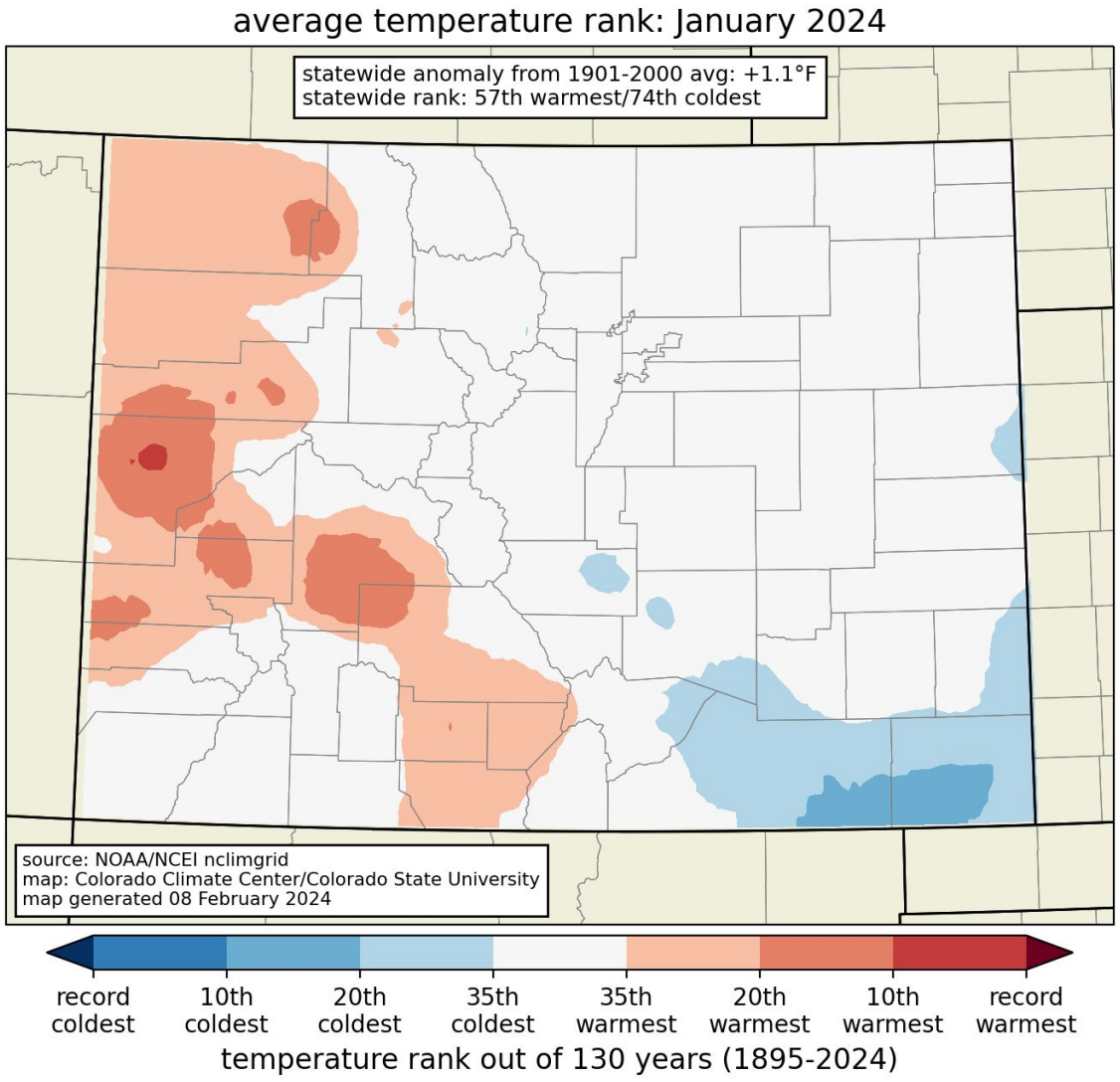

Month	T Rank (of 129 years)	Above, below, or near 20th century avg?
Oct	26th warmest	above
Nov	20th warmest	above
Dec	7th warmest	much above
Jan	57th warmest	near avg
Feb		
Mar		
Apr		
May		
Jun		
Jul		
Aug		
Sep		

https://www.ncdc.noaa.gov/temp-and-precip/us-maps/

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Current Conditions

Temperature

Precipitation

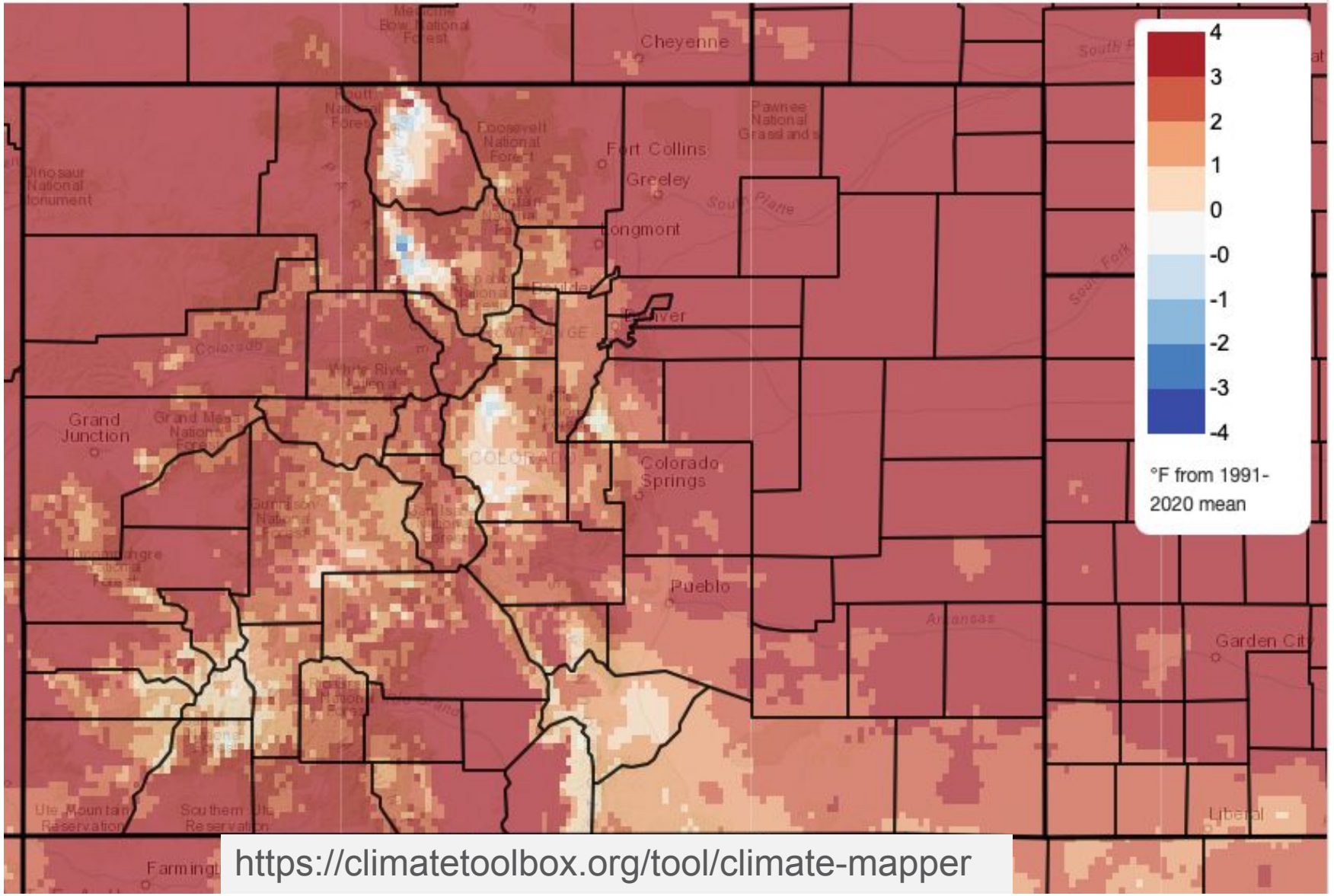
Evaporative Demand

Soil Moisture

Vegetation

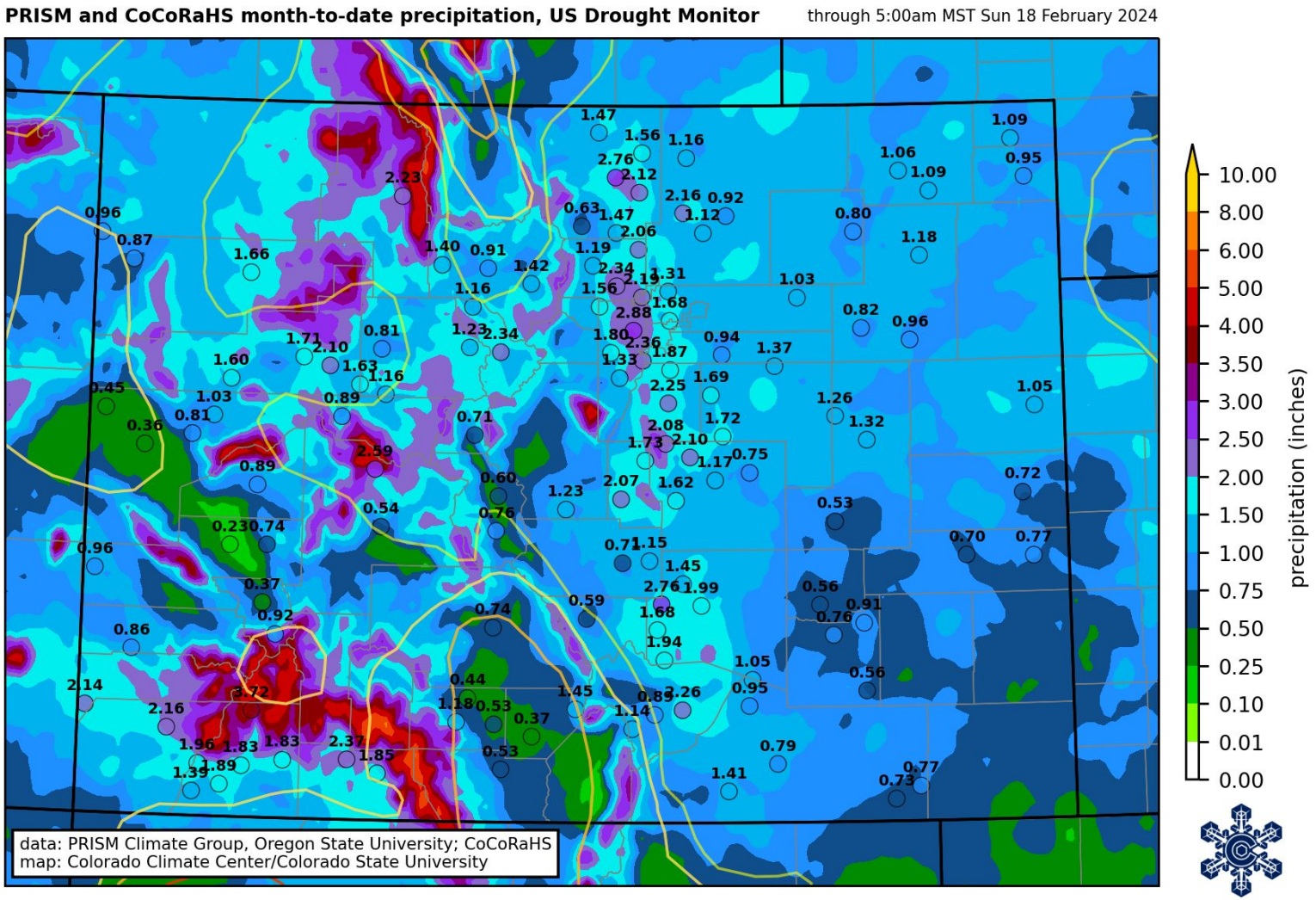
Mean Daily Temperature Anomaly, Last 30 Days

2024/01/19 - 2024/02/17



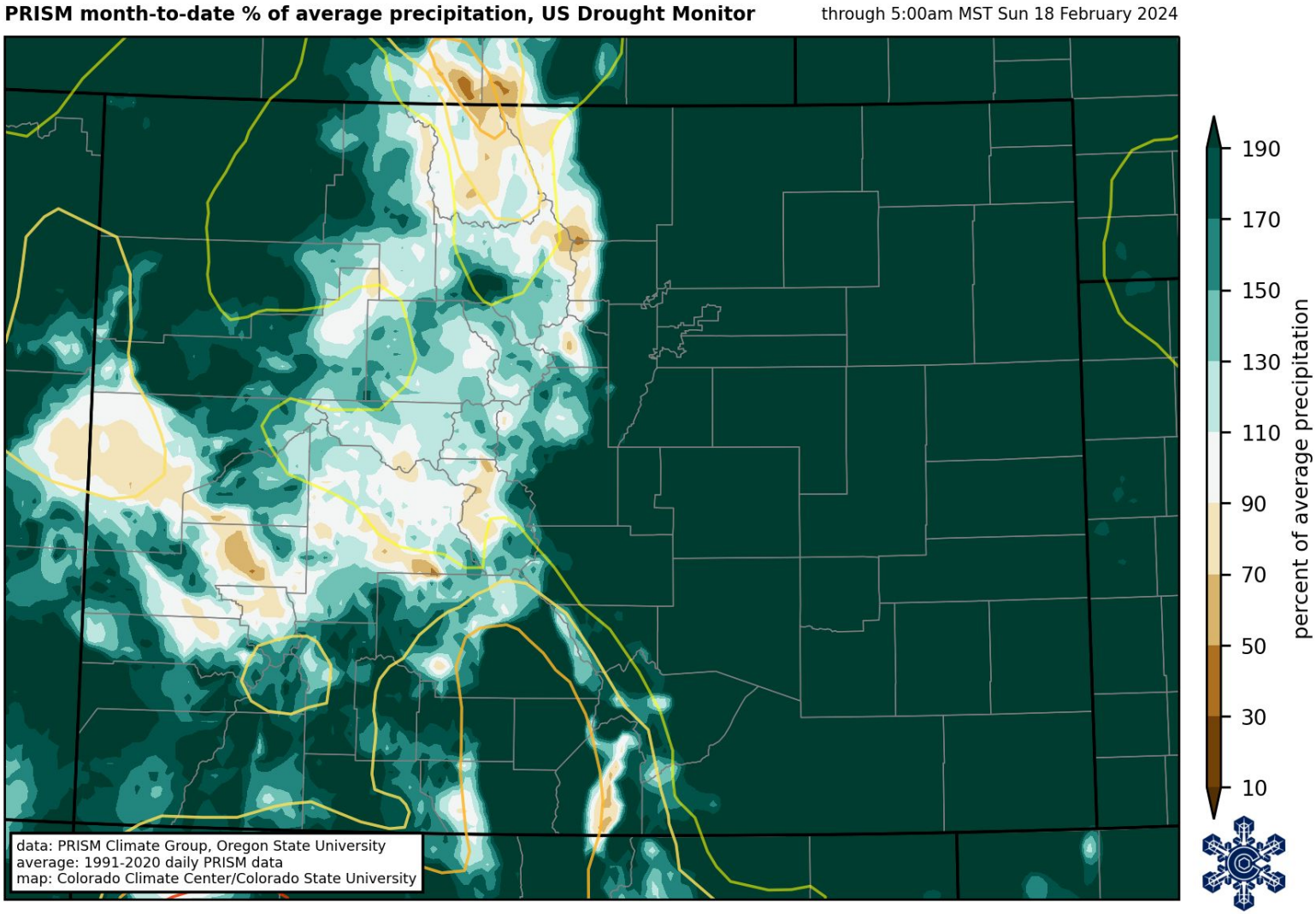
https://climatetoolbox.org/tool/climate-mapper

Month-to-date Precipitation



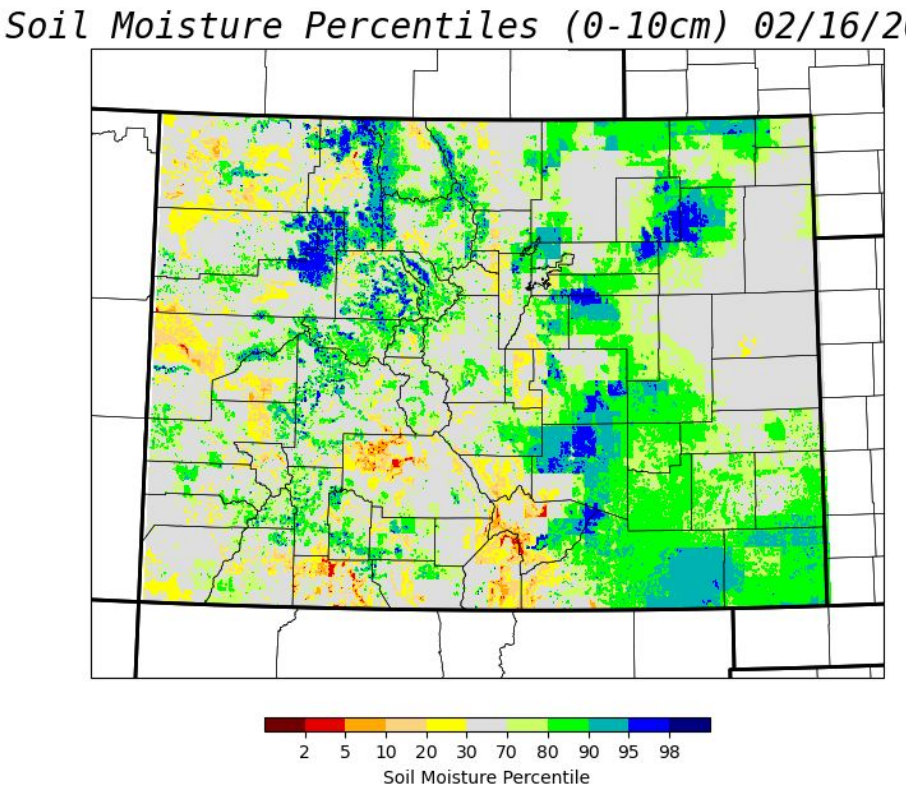
https://climate.colostate.edu/maps/qpe/prism_mtd_current.png

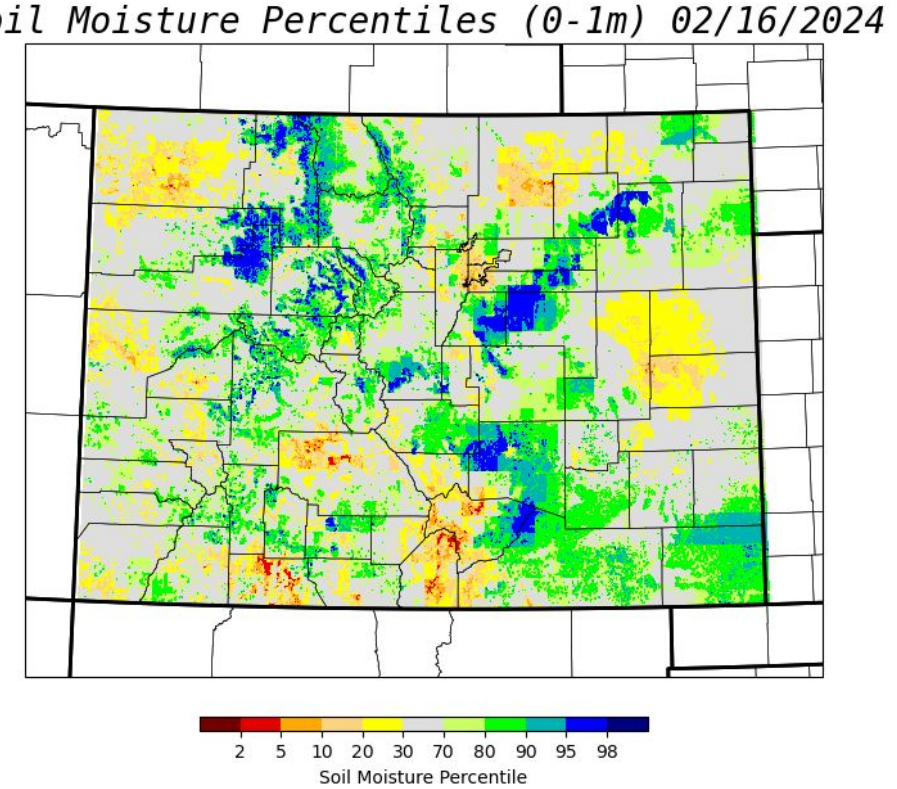
Month-to-date % Avg. Precipitation



https://climate.colostate.edu/maps/qpe/prism_mtd_pnp_current.png

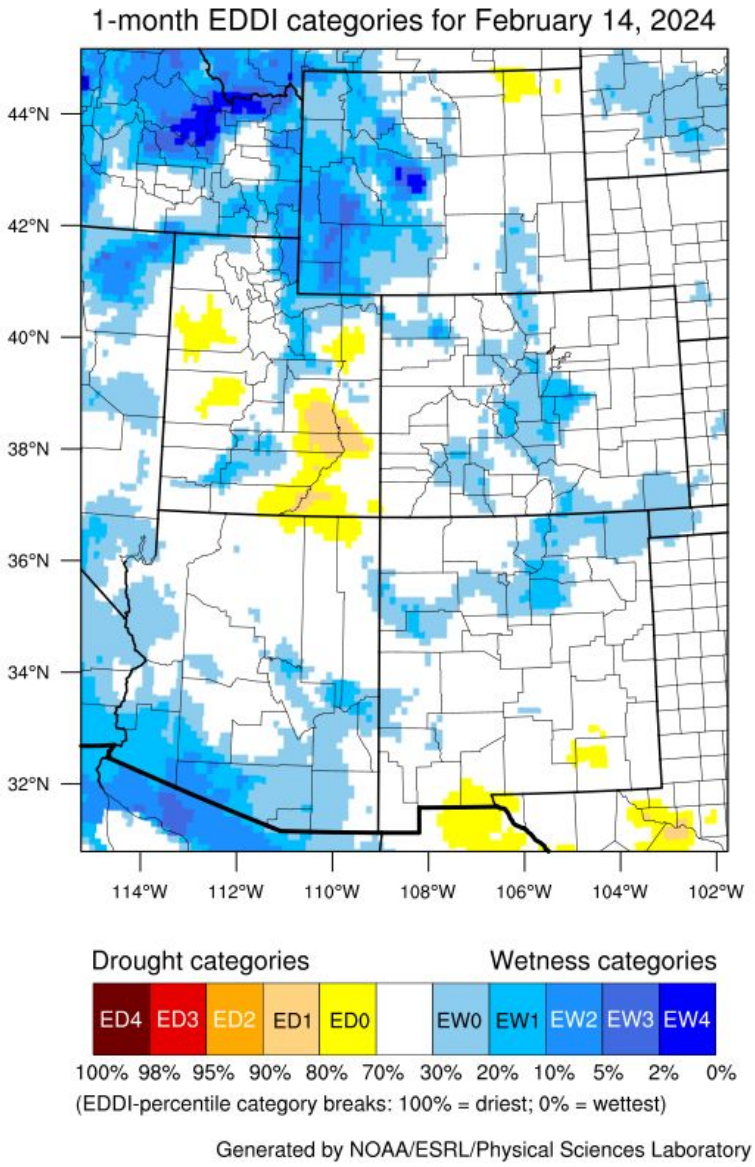
Soil Moisture





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

Evaporative Demand

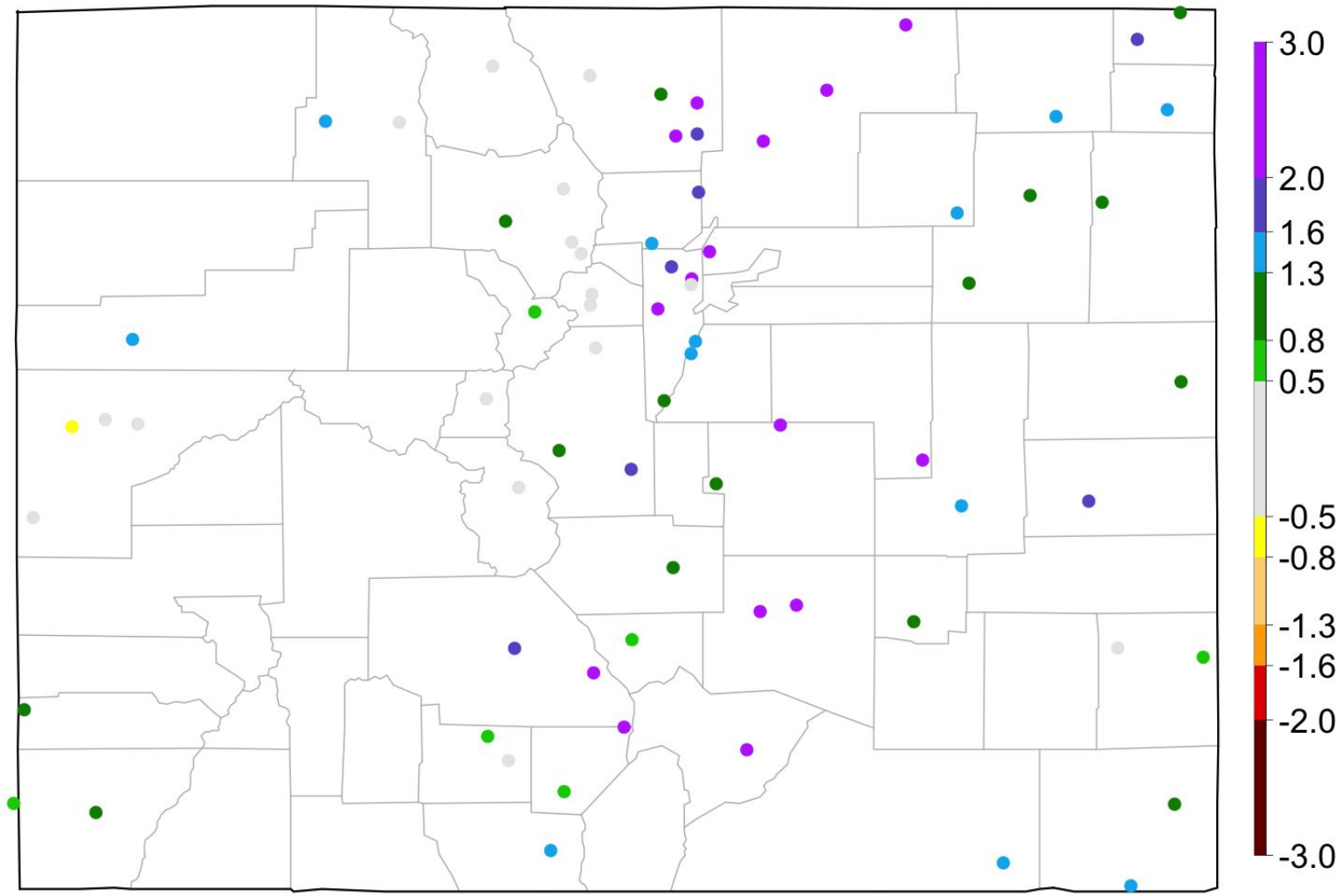


Evaporative Demand:

Temperature +
Relative Humidity +
Solar radiation +
Wind

https://psl.noaa.gov/eddi/

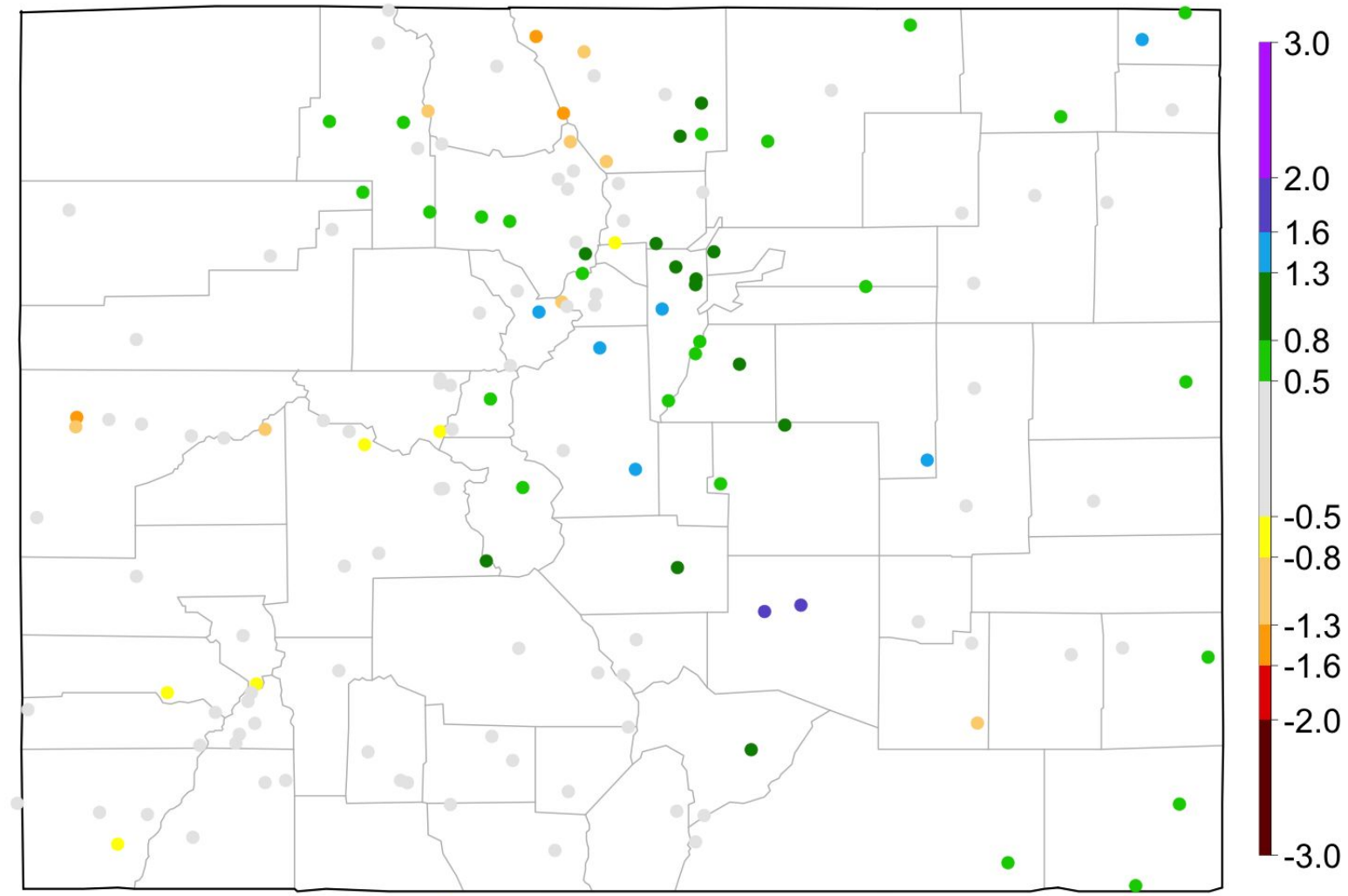
30-day SPI: 2024/01/20 - 2024/02/18



Data from High Plains Regional Climate Center and ACIS

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

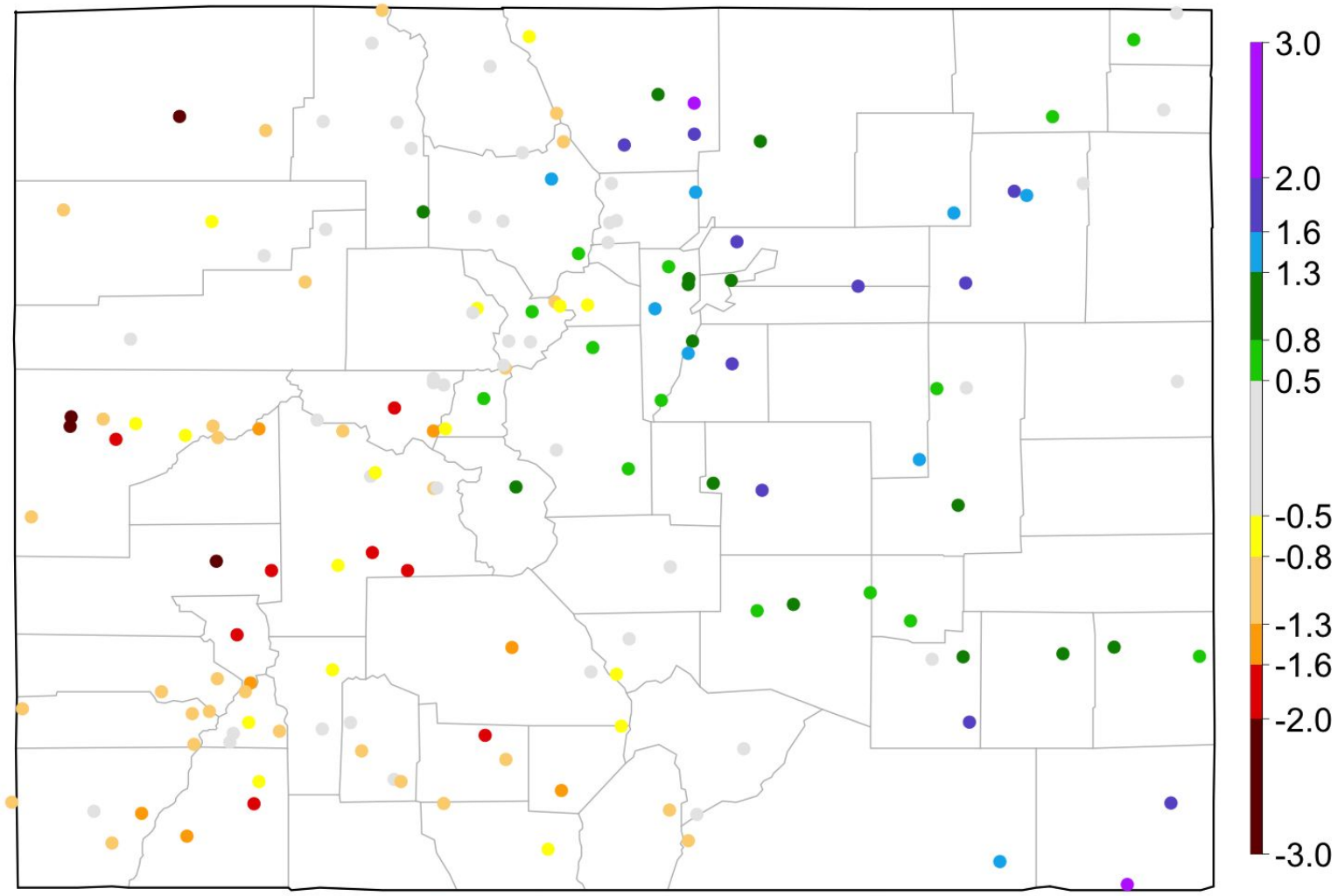
120-day SPI: 2023/10/22 - 2024/02/18



Data from High Plains Regional Climate Center and ACIS

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

9-month SPI: 2023/05/19 - 2024/02/18



Data from High Plains Regional Climate Center and ACIS

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

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Drought

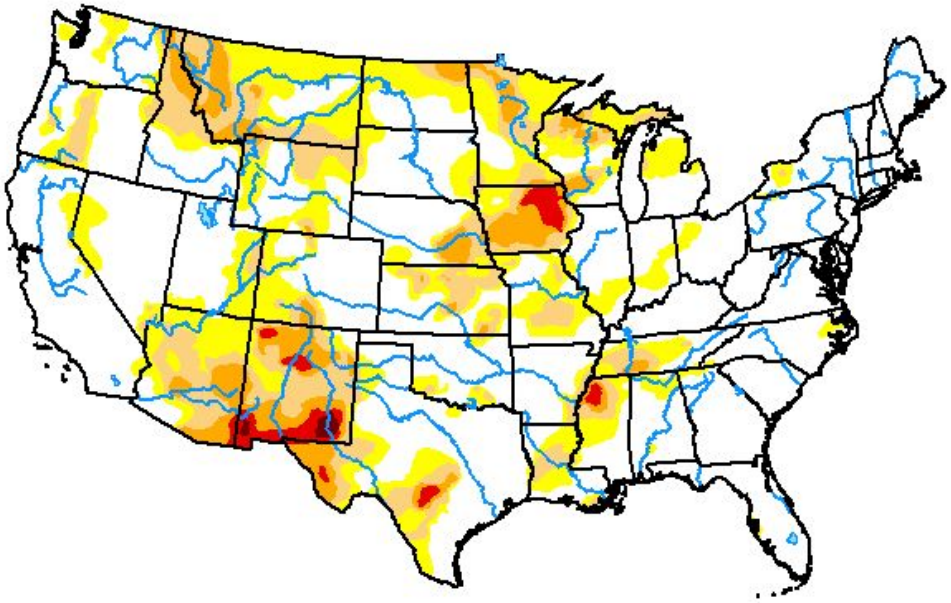
National Drought

Colorado Drought

Changes in Drought

U.S. Drought Monitor

Contiguous U.S. (CONUS)



February 13, 2024

(Released Thursday, Feb. 15, 2024)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	60.37	39.63	19.46	7.70	1.55	0.18
Last Week *02-06-2024*	58.27	41.73	21.22	9.25	1.96	0.27
3 Months Ago *11-14-2023*	44.25	55.75	37.45	21.46	8.99	2.76
Start of Calendar Year *01-02-2024*	45.19	54.81	32.98	16.61	6.28	1.22
Start of Water Year *09-26-2023*	43.65	56.35	38.23	22.46	10.15	2.82
One Year Ago *02-14-2023*	42.69	57.31	41.35	18.93	5.61	1.70

Intensity:

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

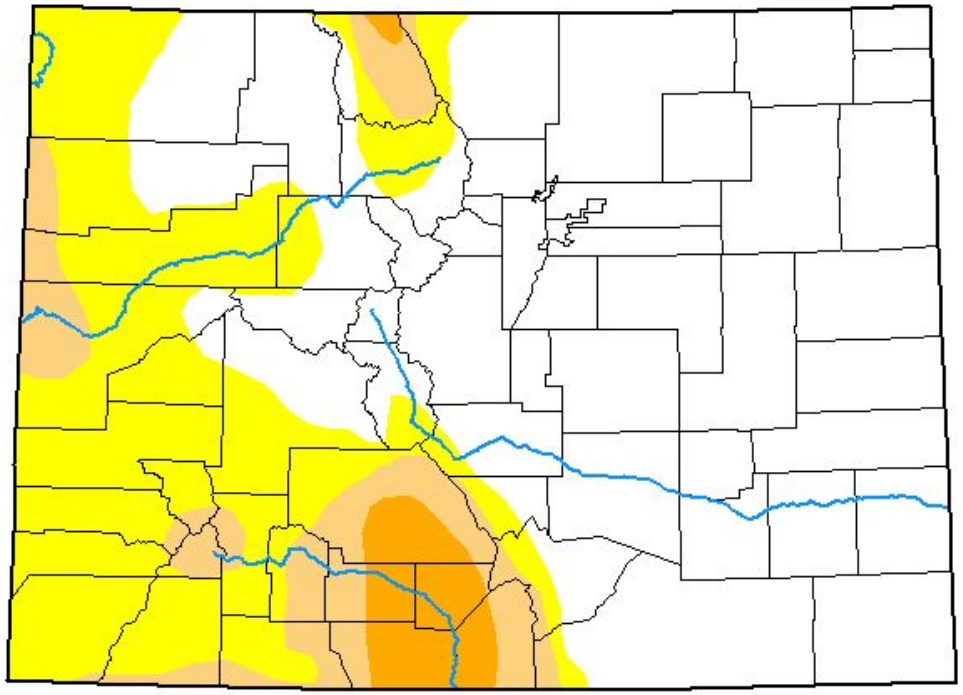
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:

Deborah Bathke
National Drought Mitigation Center

droughtmonitor.unl.edu

U.S. Drought Monitor
Colorado



February 13, 2024

(Released Thursday, Feb. 15, 2024)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	63.20	36.80	11.65	3.52	0.00	0.00
Last Week *02-06-2024*	59.57	40.43	20.56	5.21	1.95	0.00
3 Months Ago *11-14-2023*	47.66	52.34	26.90	6.87	1.31	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 *02-14-2023*	41.35	58.65	37.42	12.29	2.00	0.16

Intensity:

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

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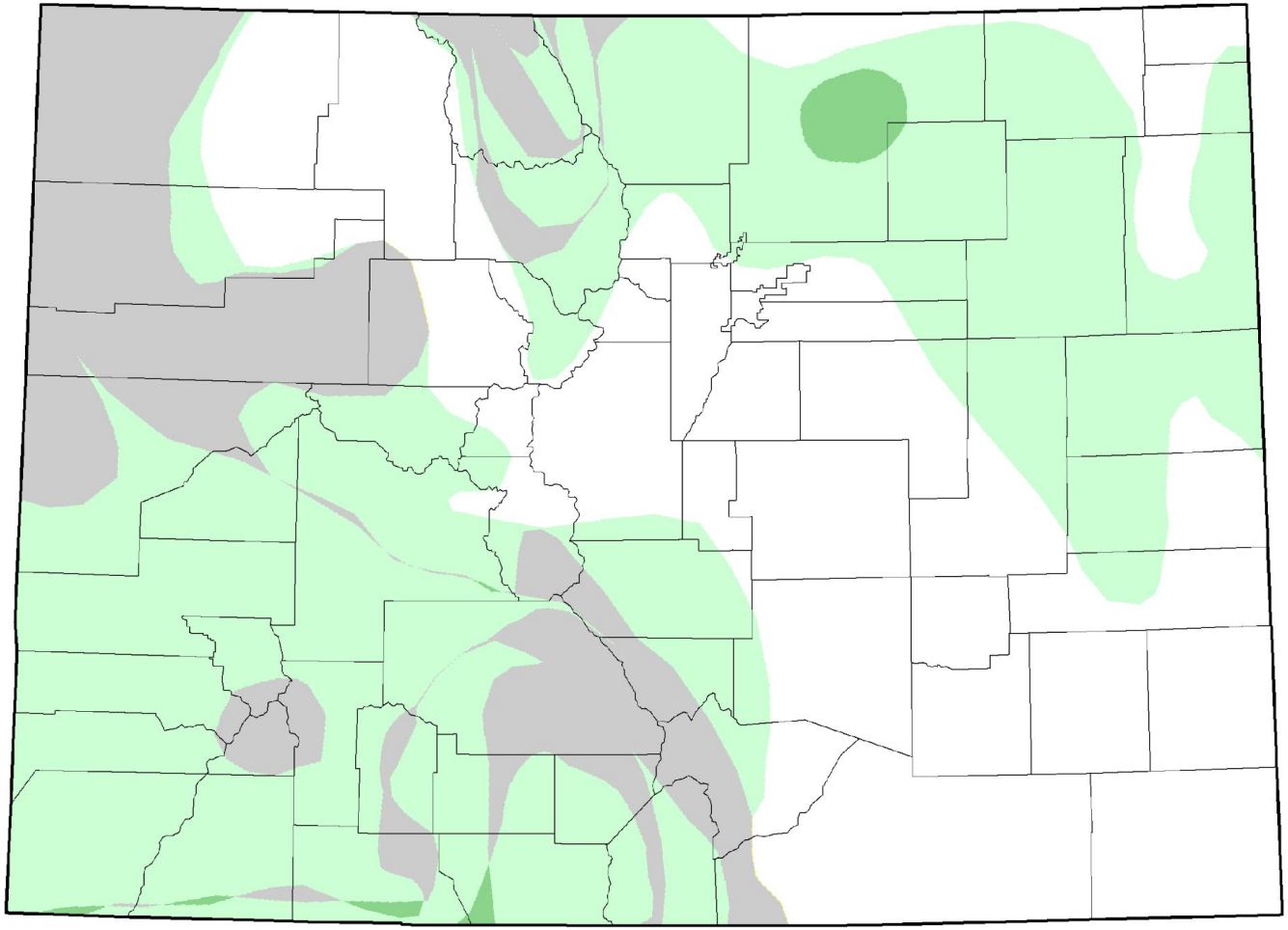
U.S. Drought Monitor Class Change - Colorado

4 Week



February 13, 2024
compared to
January 16, 2024

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

Outlook

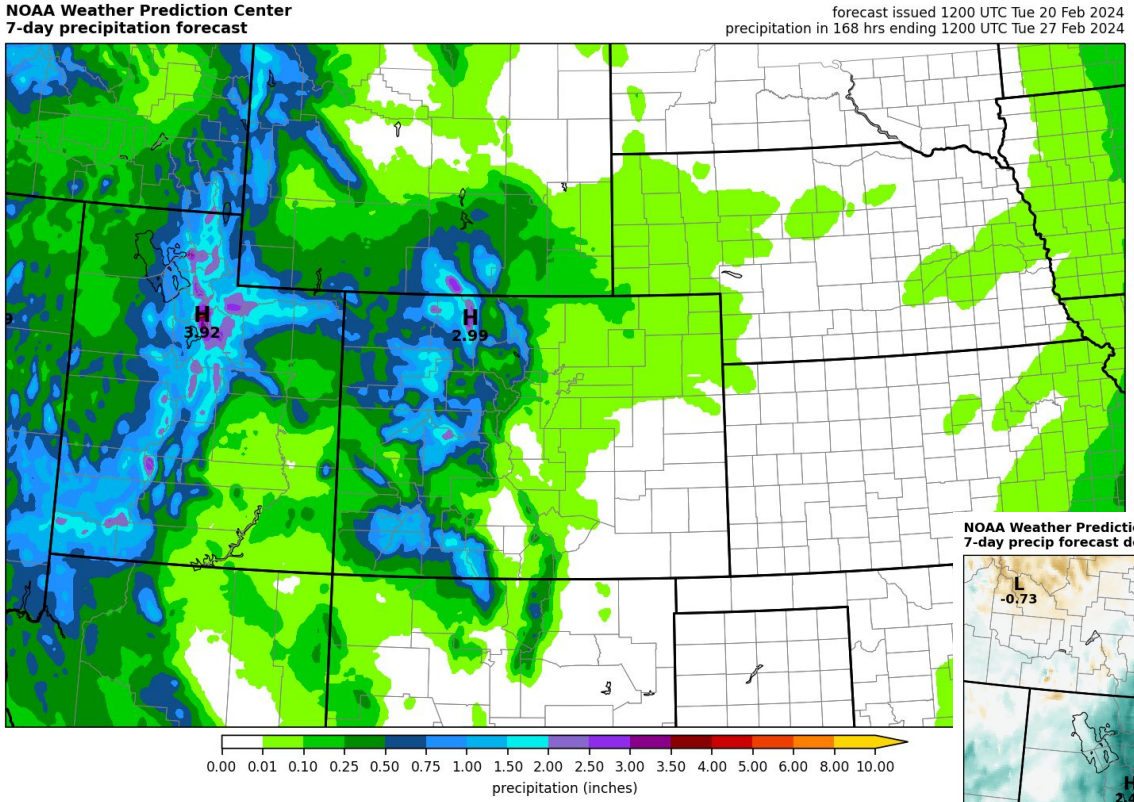
Next 7 days

8-14 day Outlook

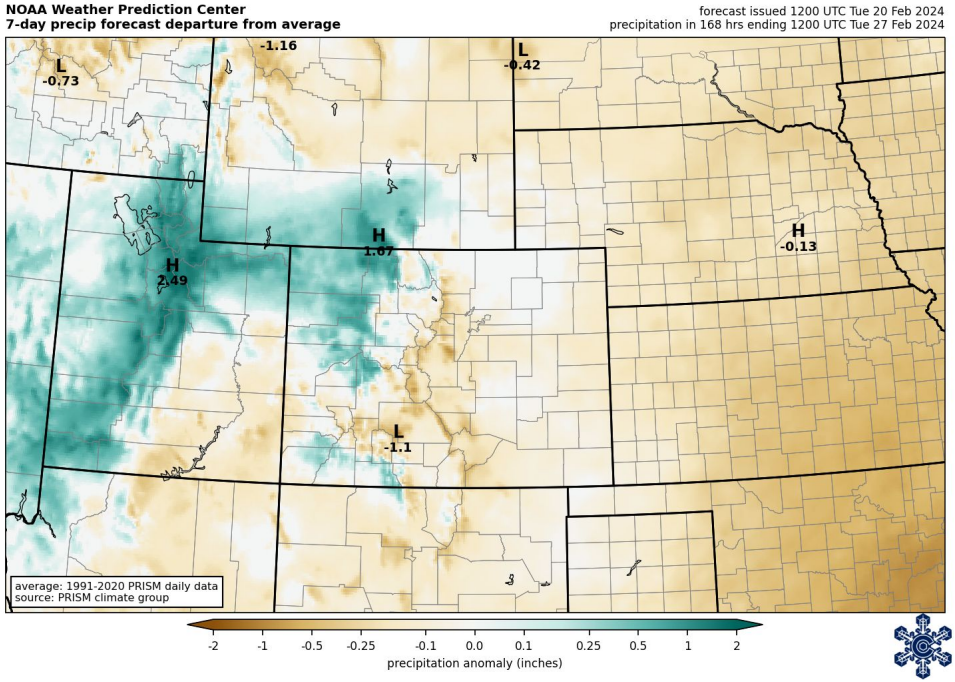
CPC Outlooks

El Niño

NOAA 7-day precip forecast

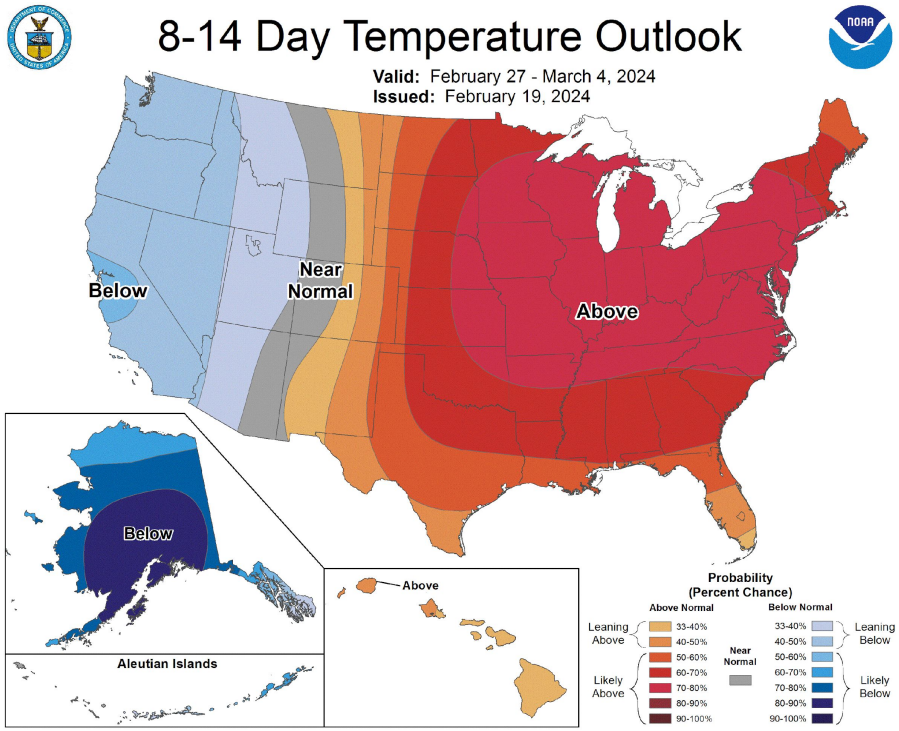


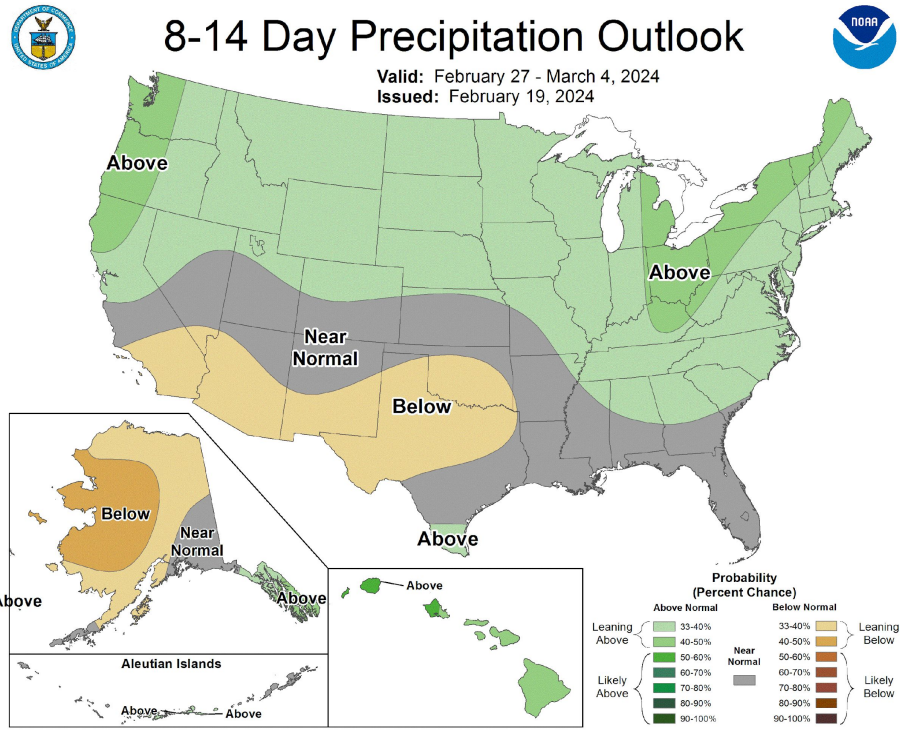
Decent activity for parts of the northwest, but fairly dry around the rest of the state.



http://schumacher.atmos.colostate.edu/weather/

8-14 day outlook

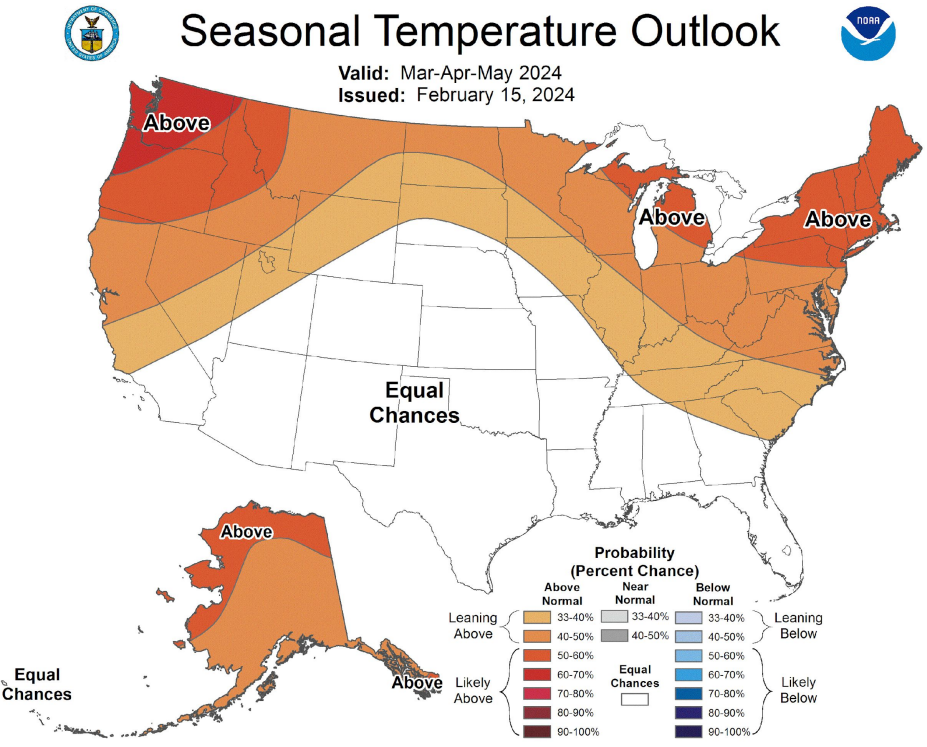


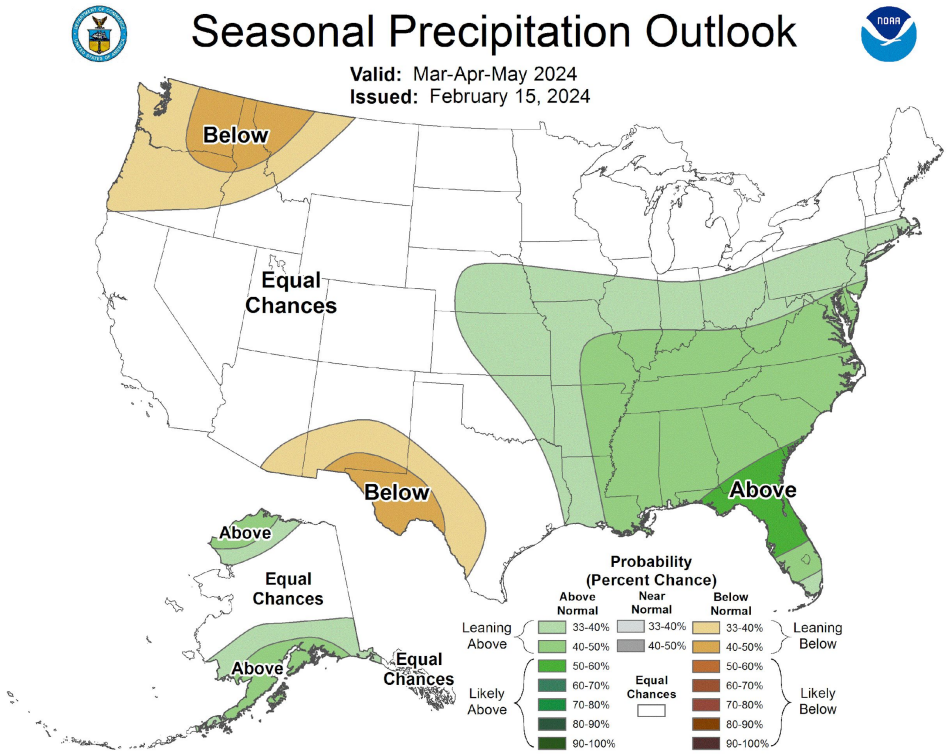


Temperatures likely to be above average east of the Divide. Most likely precipitation to be near normal, maybe slightly wetter to the north.

https://www.cpc.ncep.noaa.gov

Seasonal outlook

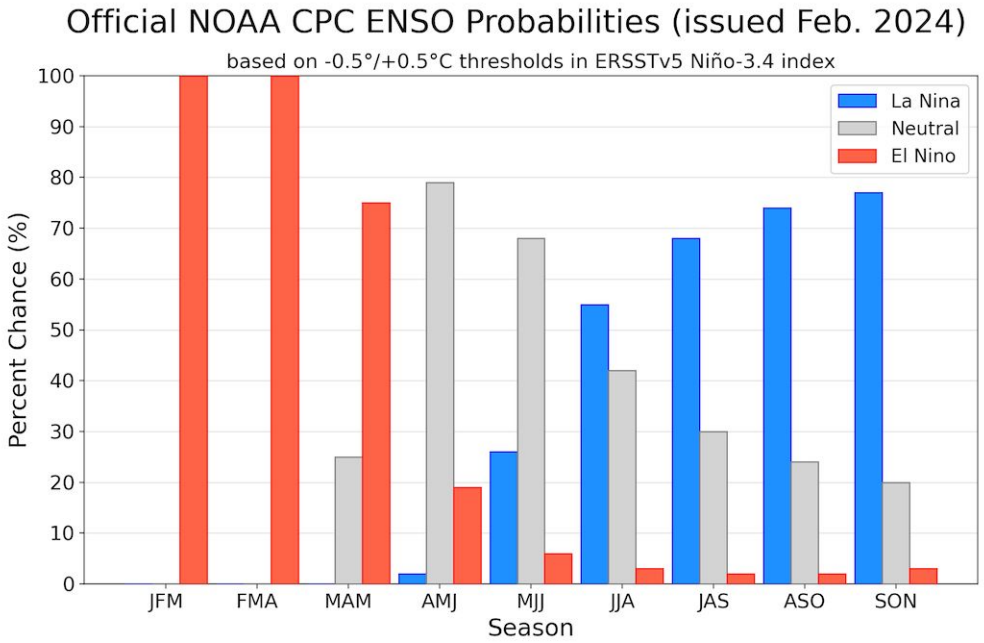


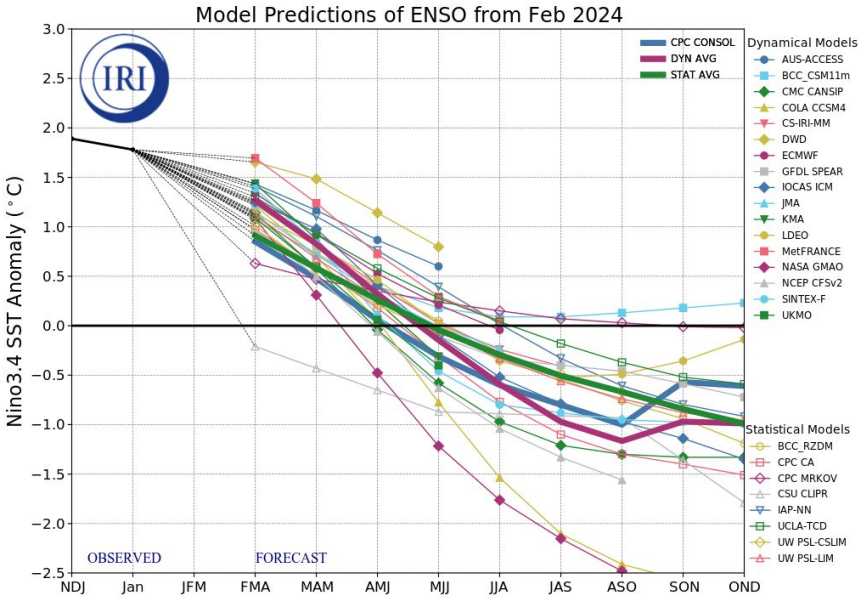


Not much guidance for spring outlook. Lots of uncertainty with temperature, especially given our variability in past springs. Climate models may be indicating possibility of a wetter March. Maybe a big snow on the way??

https://www.cpc.ncep.noaa.gov

What's the ENSO forecast?



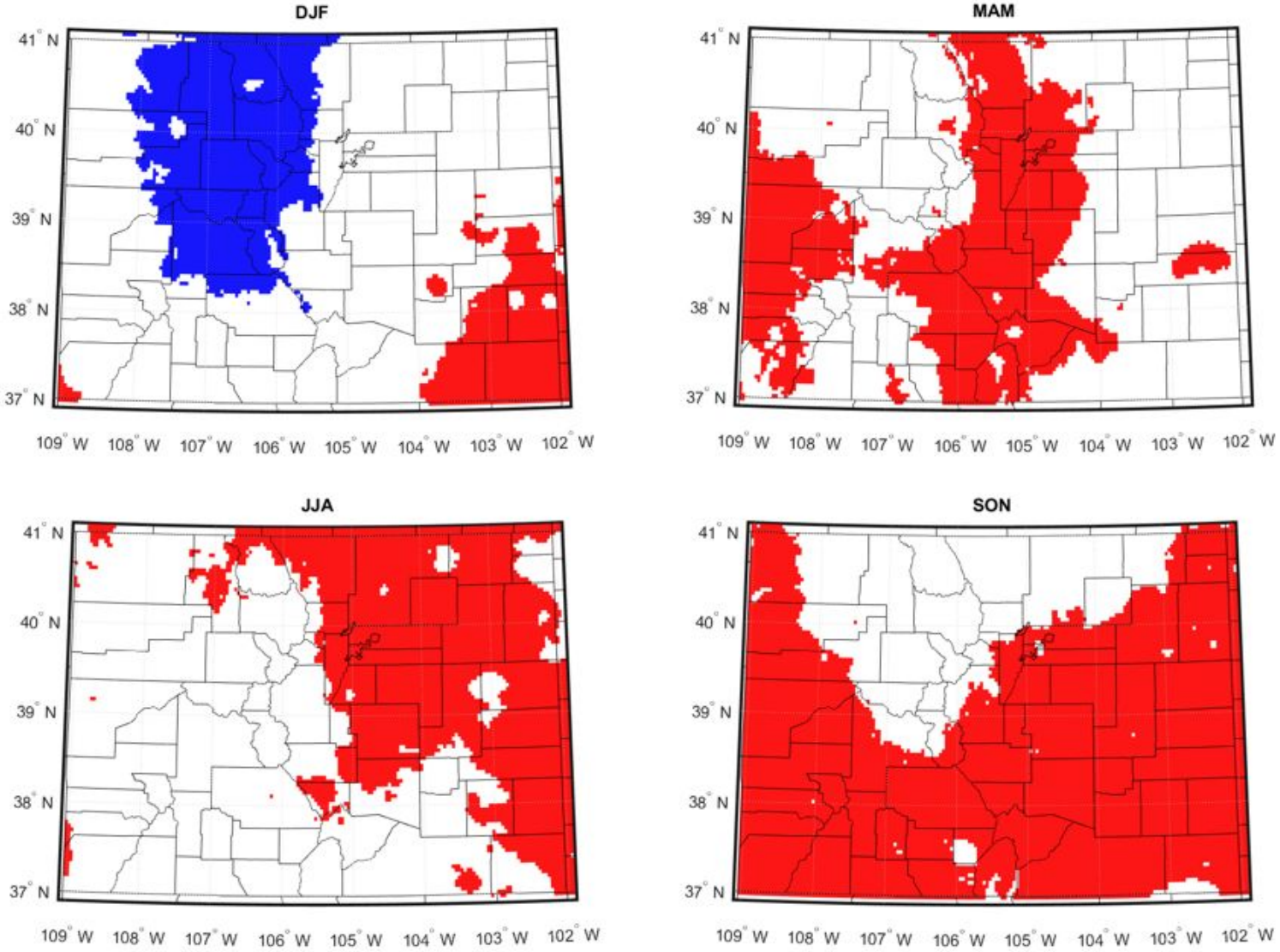


CPC/IRI February 19, 2024: As of mid-February 2024, moderate-strong El Niño conditions persist in the central-eastern equatorial Pacific, with important oceanic and atmospheric indicators aligning with an ongoing El Niño event that is gradually diminishing. An El Niño advisory from the CPC continues for February 2024, alongside a La Niña watch issued for June to August 2024. Almost all the models in the IRI ENSO prediction plume forecast a continuation of the El Niño event during the rest of the boreal winter and spring of 2024, which rapidly weakens thereafter.

https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/

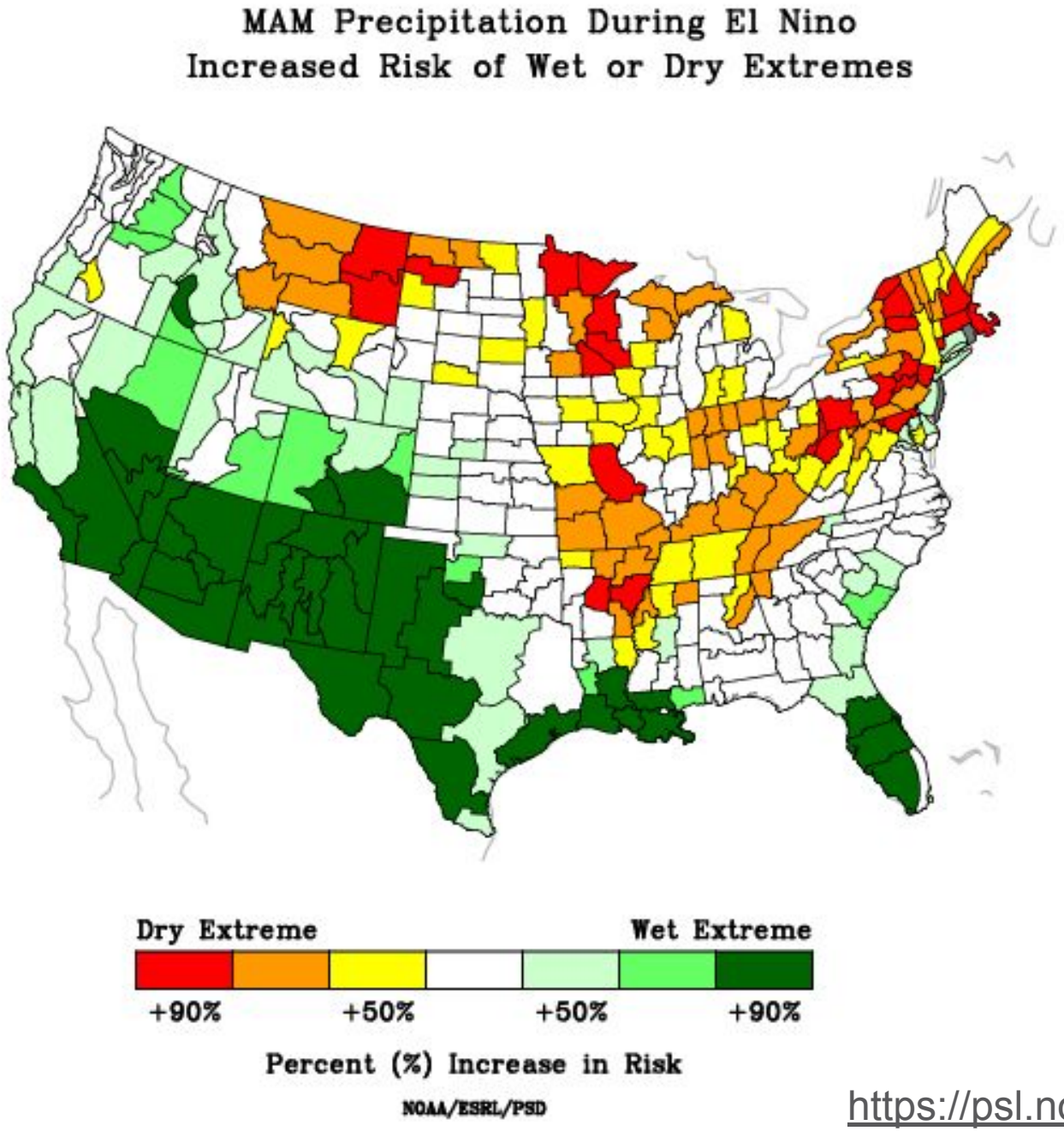
What does El Niño mean for the spring?

General Relationship Between Colorado Precipitation and El Niño Southern Oscillation (1951-2020)



Red: El Niño tends wetter

Blue: La Niña tends wetter



Information from previous El Niño events indicate we tend to have an increased risk for wet extremes, and a decreased risk for dry extremes in the spring.

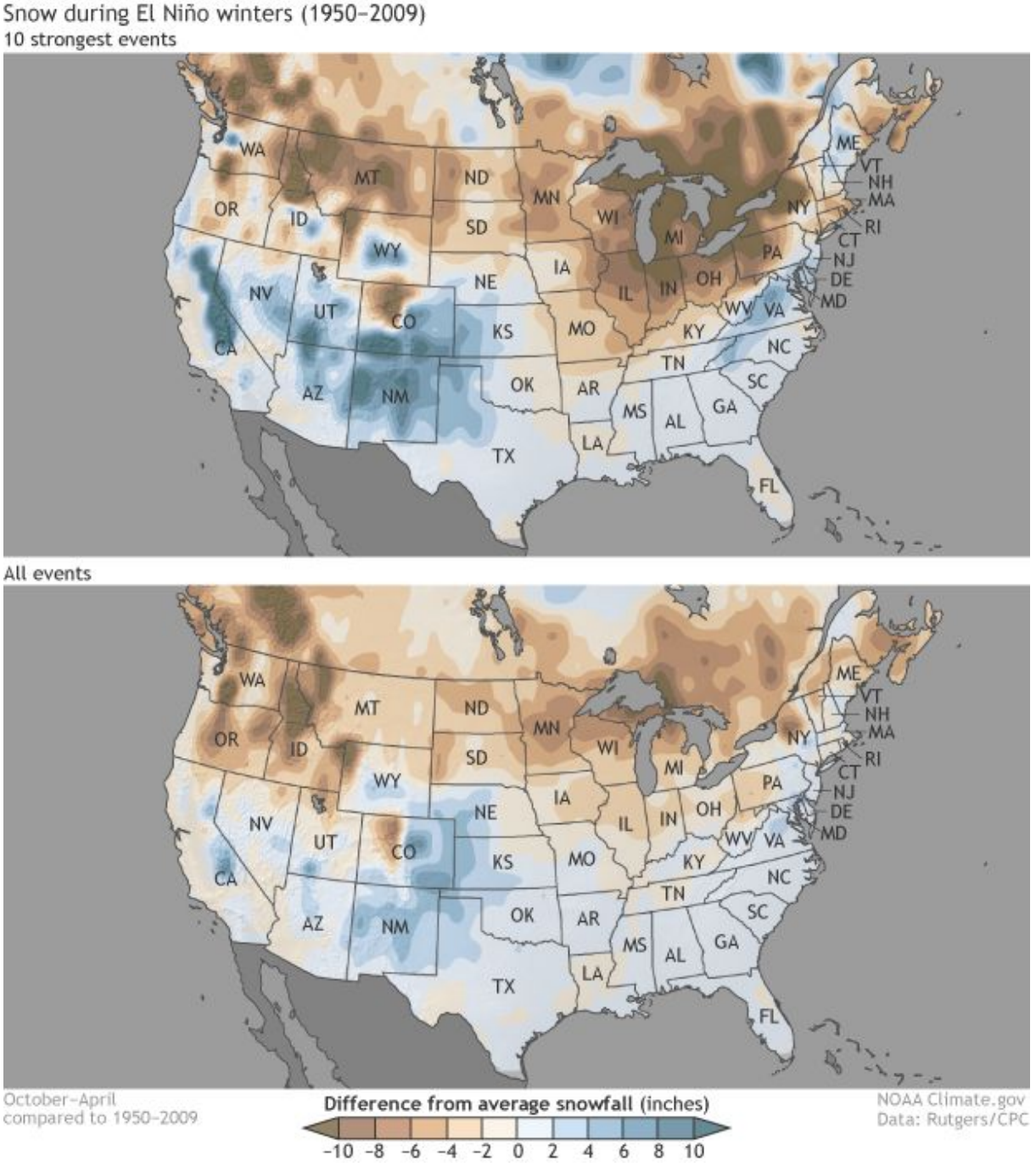
https://psl.noaa.gov/enso/climaterisks/

Snow and El Nino

https://climate.gov

More favorable conditions for snow in southern CO and the eastern plains during an El Niño.

Northern mountains are more likely to miss out on snow during an El Niño.



Key Takeaways

- Current Conditions
  - WY2024 has thus far been very mild, above average temperatures.
  - Recent atmospheric rivers have helped boost moisture and improve drought.
  - Early season dryness should not be forgotten.
  - Looking to wrap up February dry and mild, but March could bring some more precipitation activity!
- What can we expect with El Niño?
  - We haven't been strictly following the expected El Niño pattern this winter. But it's still going strong into the spring.
  - There is uncertainty with the temperature signal.
  - While precipitation outlook is uncertain, most of our state tends to get more precipitation during an El Niño.
  - If you're going to hedge bets, it seems less likely to have drought development during an El Niño spring.
  - El Niño will quickly weaken as we get closer to summer and we are more likely to go back into La Niña conditions in the fall. Stay tuned!

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To view this and other presentations:
https://climate.colostate.edu/ccc_archive.html

Thank you

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