

# Colorado Climate Center

## *WATF Climate Update*

Russ Schumacher, state climatologist

Water Availability Task Force

February 17, 2022



DEPARTMENT OF ATMOSPHERIC SCIENCE  
COLORADO STATE UNIVERSITY

# Water year 2022 to date: temperature, precipitation, evaporative demand

January 25, 2022

<https://twitter.com/EricPurvis8/status/1486061549269786631>



Eric Purvis  
@EricPurvis8

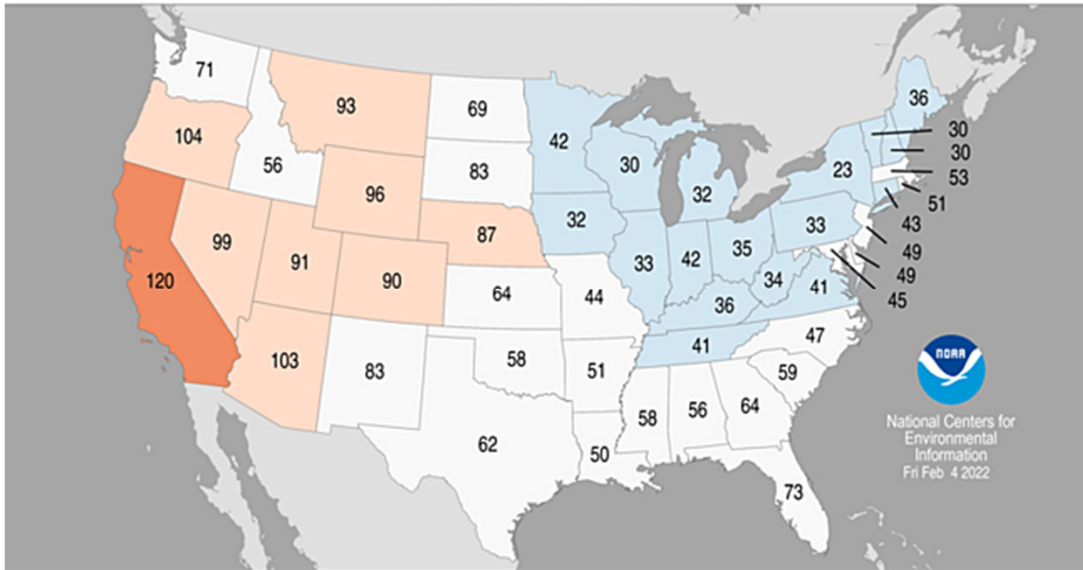
...

27" of snow at Mt Sunflower so far and still falling.  
Might even be able to ski the mountain today!



## Statewide Average Temperature Ranks

January 2022  
Period: 1895-2022



Month	T Rank (of 127 years)	Above, below, or near avg?
Oct	41 <sup>st</sup> warmest	near avg
Nov	3 <sup>rd</sup> warmest	much above
Dec	2 <sup>nd</sup> warmest	much above
Jan	39 <sup>th</sup> warmest	above

Statewide: tied for 2<sup>nd</sup> warmest October-January (tied with WY1934, only WY2018 warmer)  
 4.5°F above 20<sup>th</sup> century average  
 3.2°F above 1991-2020 average



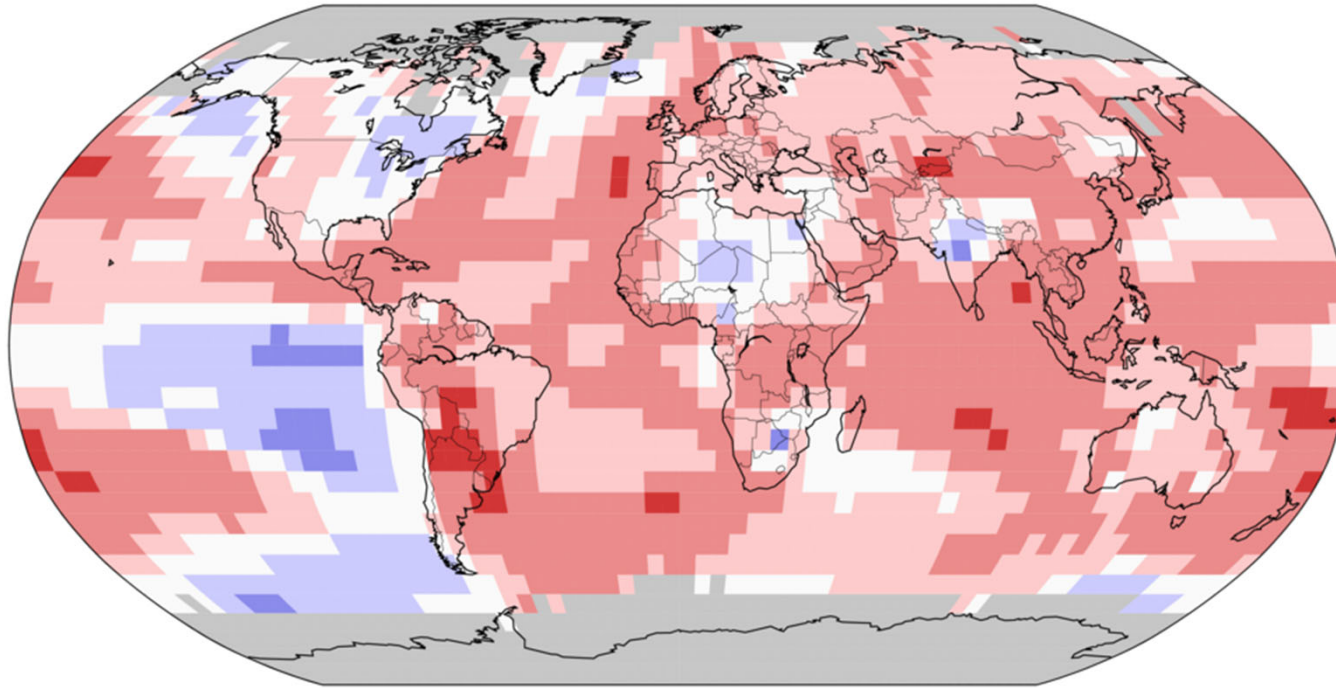
Period	Value	1901-2000 Mean	Anomaly	Rank (1895-2022)	Warmest/Coollest Since	Record
January 2022 1-Month	26.1°F (-3.3°C)	23.7°F (-4.6°C)	2.4°F (1.3°C)	90th Coolest	Coollest since: 2019	1937
				39th Warmest	Warmest since: 2021	1986
Ties: 2020						
Dec 2021–Jan 2022 2-Month	29.2°F (-1.6°C)	24.4°F (-4.2°C)	4.8°F (2.6°C)	120th Coolest	Coollest since: 2021	1979
				8th Warmest	Warmest since: 2018	1981
Nov 2021–Jan 2022 3-Month	33.1°F (0.6°C)	27.5°F (-2.5°C)	5.6°F (3.1°C)	125th Coolest	Coollest since: 2021	1973
				3rd Warmest	Warmest since: 2018	2018
Oct 2021–Jan 2022 4-Month	36.8°F (2.7°C)	32.3°F (0.2°C)	4.5°F (2.5°C)	126th Coolest	Coollest since: 2021	1899
				2nd Warmest	Warmest since: 2018	2018
Ties: 1934						
Sep 2021–Jan 2022 5-Month	41.9°F (5.5°C)	37.3°F (2.9°C)	4.6°F (2.6°C)	127th Coolest	Coollest since: 2021	1899
				1st Warmest	Warmest to Date	2022
Aug 2021–Jan 2022 6-Month	46.2°F (7.9°C)	42.0°F (5.6°C)	4.2°F (2.3°C)	127th Coolest	Coollest since: 2021	1899
				1st Warmest	Warmest to Date	2022
Jul 2021–Jan 2022 7-Month	49.6°F (9.8°C)	45.5°F (7.5°C)	4.1°F (2.3°C)	127th Coolest	Coollest since: 2021	1913
				1st Warmest	Warmest to Date	2022
Jun 2021–Jan 2022 8-Month	51.6°F (10.9°C)	47.5°F (8.6°C)	4.1°F (2.3°C)	127th Coolest	Coollest since: 2021	1913
				1st Warmest	Warmest to Date	2022
May 2021–Jan 2022 9-Month	51.7°F (10.9°C)	47.9°F (8.8°C)	3.8°F (2.1°C)	127th Coolest	Coollest since: 2021	1913
				1st Warmest	Warmest to Date	2022
Apr 2021–Jan 2022 10-Month	50.8°F (10.4°C)	47.4°F (8.6°C)	3.4°F (1.8°C)	127th Coolest	Coollest since: 2021	1913
				1st Warmest	Warmest to Date	2022



# Land & Ocean Temperature Percentiles Jan 2022

NOAA's National Centers for Environmental Information

Data Source: NOAA GlobalTemp v5.0.0-20220208




**Globally, 6<sup>th</sup>  
warmest January  
on record**




  
Record  
Coldest

  
Much  
Cooler than  
Average

  
Cooler than  
Average

  
Near  
Average

  
Warmer than  
Average

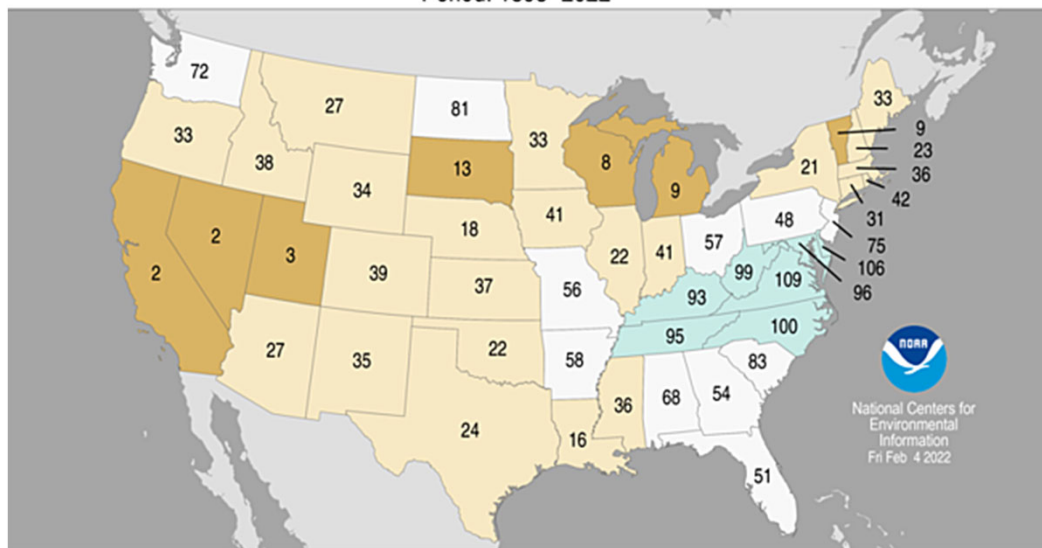
  
Much  
Warmer than  
Average

  
Record  
Warmest

GHCNM v4.0.1.20220207.qfe



Statewide Precipitation Ranks  
 January 2022  
 Period: 1895–2022



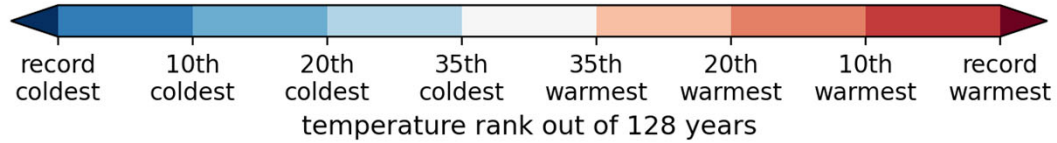
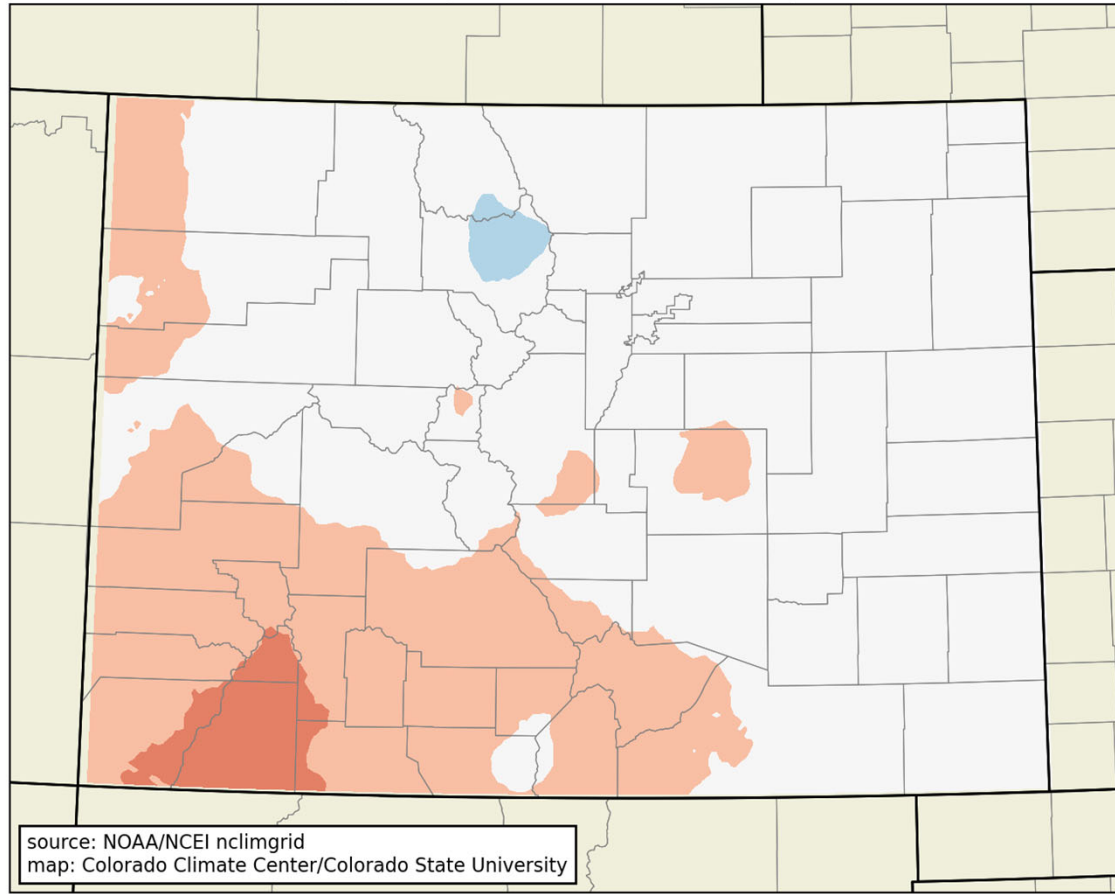
Month	P Rank (of 127 years)	Above, below, or near avg?
Oct	62 <sup>nd</sup> driest	near avg
Nov	10 <sup>th</sup> driest	much below
Dec	14 <sup>th</sup> wettest	above
Jan	39 <sup>th</sup> driest	below

Statewide: 38<sup>th</sup> driest October-January  
 0.59" below 20<sup>th</sup> century average



average temperature rank: January 2022

Statewide: 39<sup>th</sup>  
warmest January

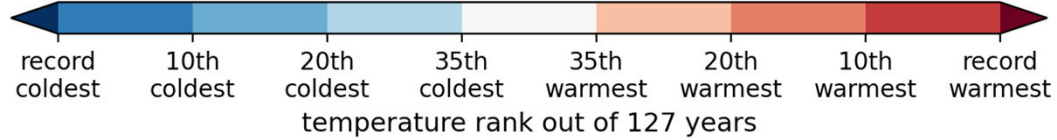
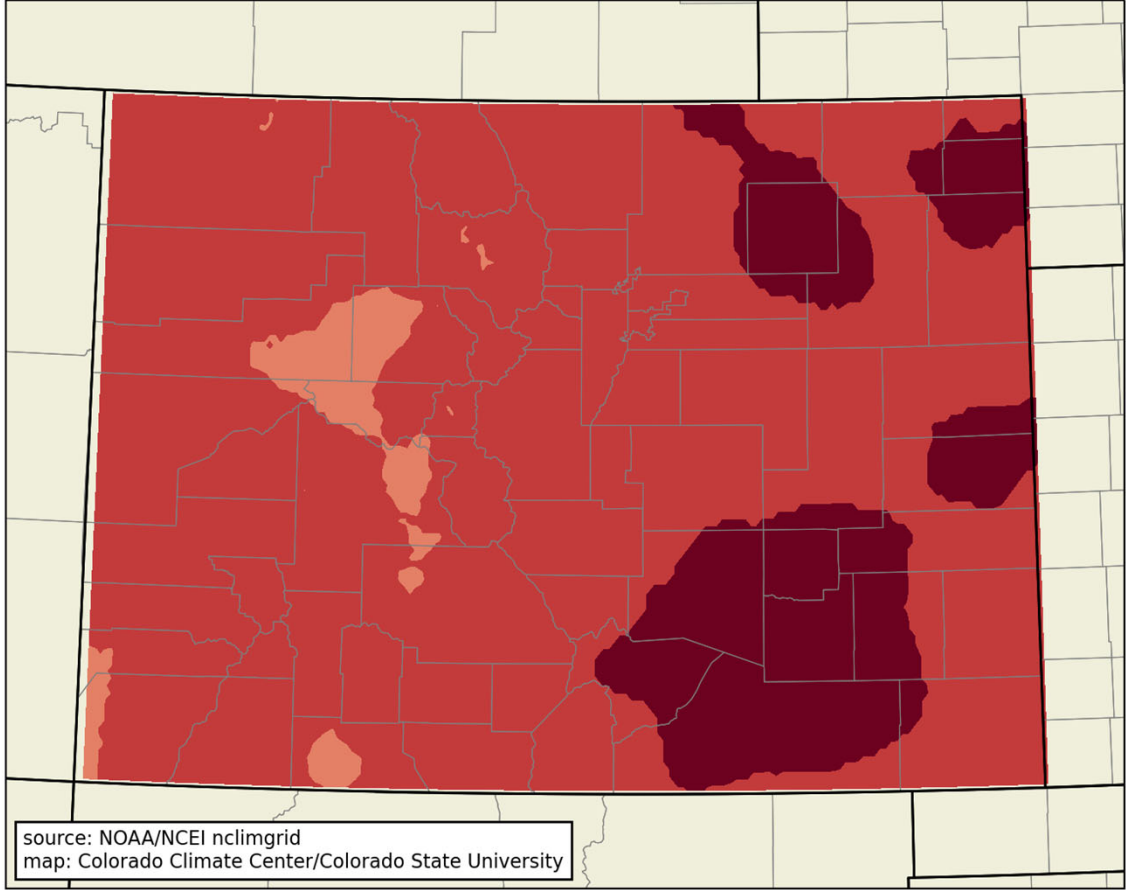


[http://climate.colostate.edu/ranks\\_monthly\\_maps.html](http://climate.colostate.edu/ranks_monthly_maps.html)



average temperature rank: 4 months ending January 2022 (Oct-Jan)

Statewide: tied for 2<sup>nd</sup> warmest October-January (tied with WY1934, only WY2018 warmer)

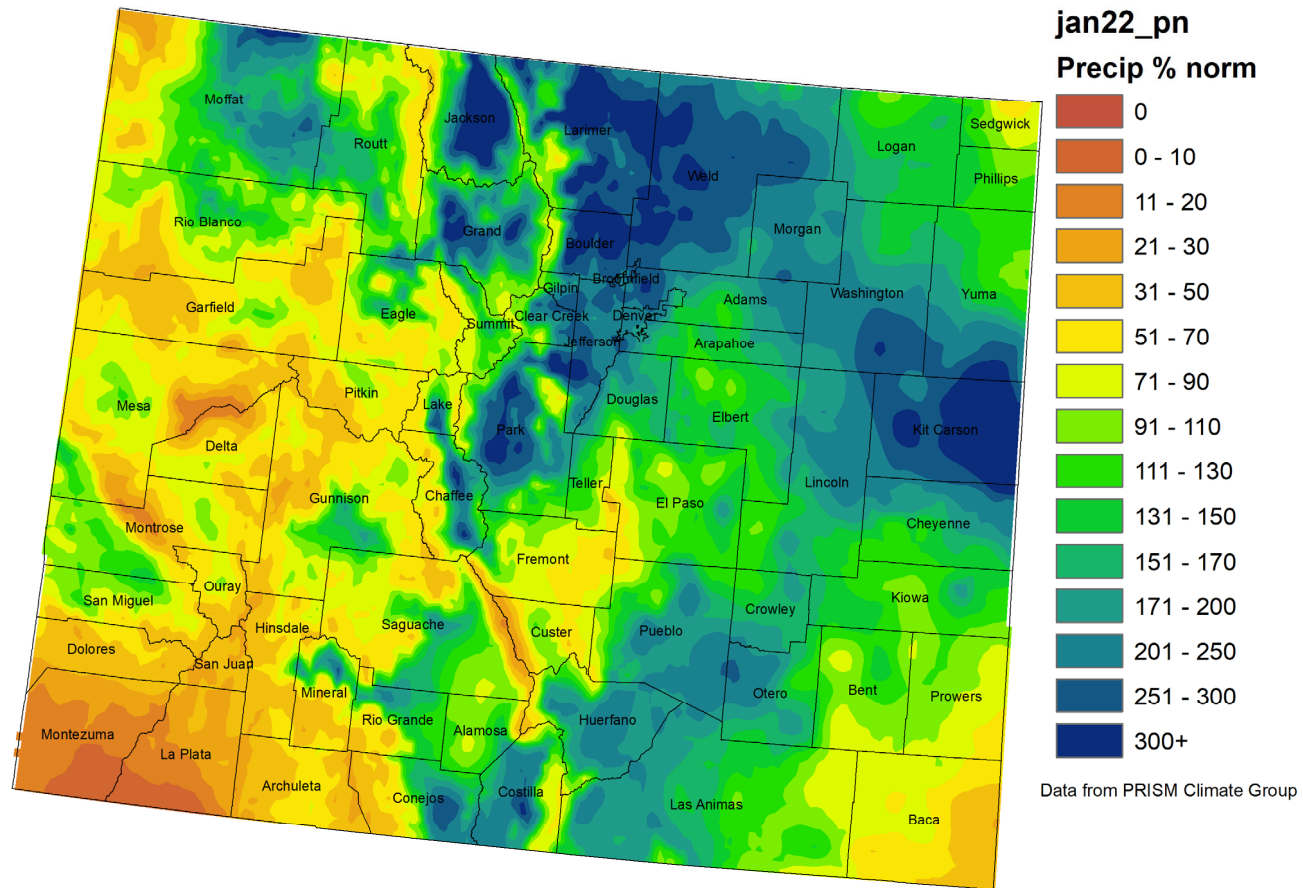


[http://climate.colostate.edu/ranks\\_monthly\\_maps.html](http://climate.colostate.edu/ranks_monthly_maps.html)



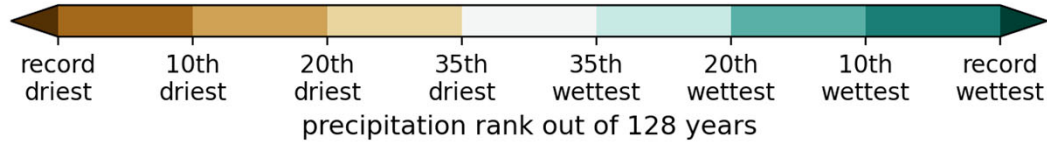
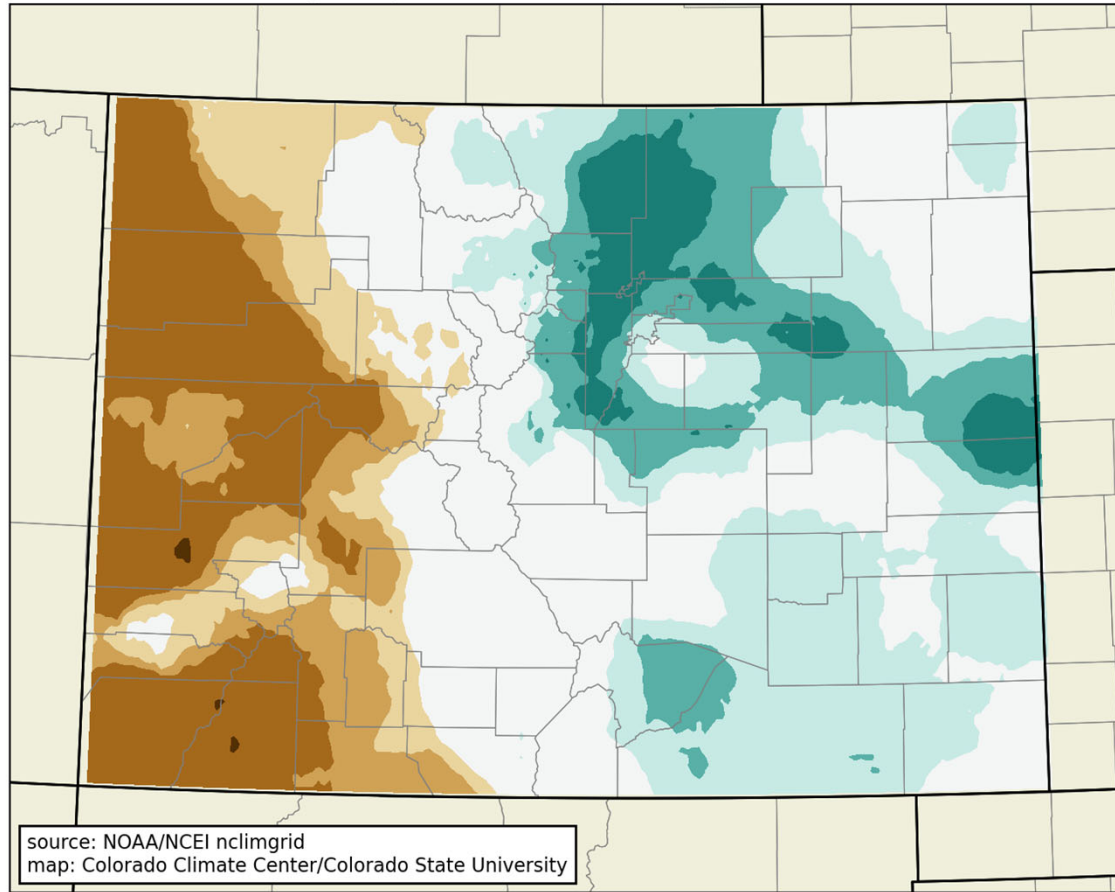


# Colorado January 2022 Precipitation as a Percentage of Normal



precipitation rank: January 2022

Statewide: 39<sup>th</sup> driest  
January



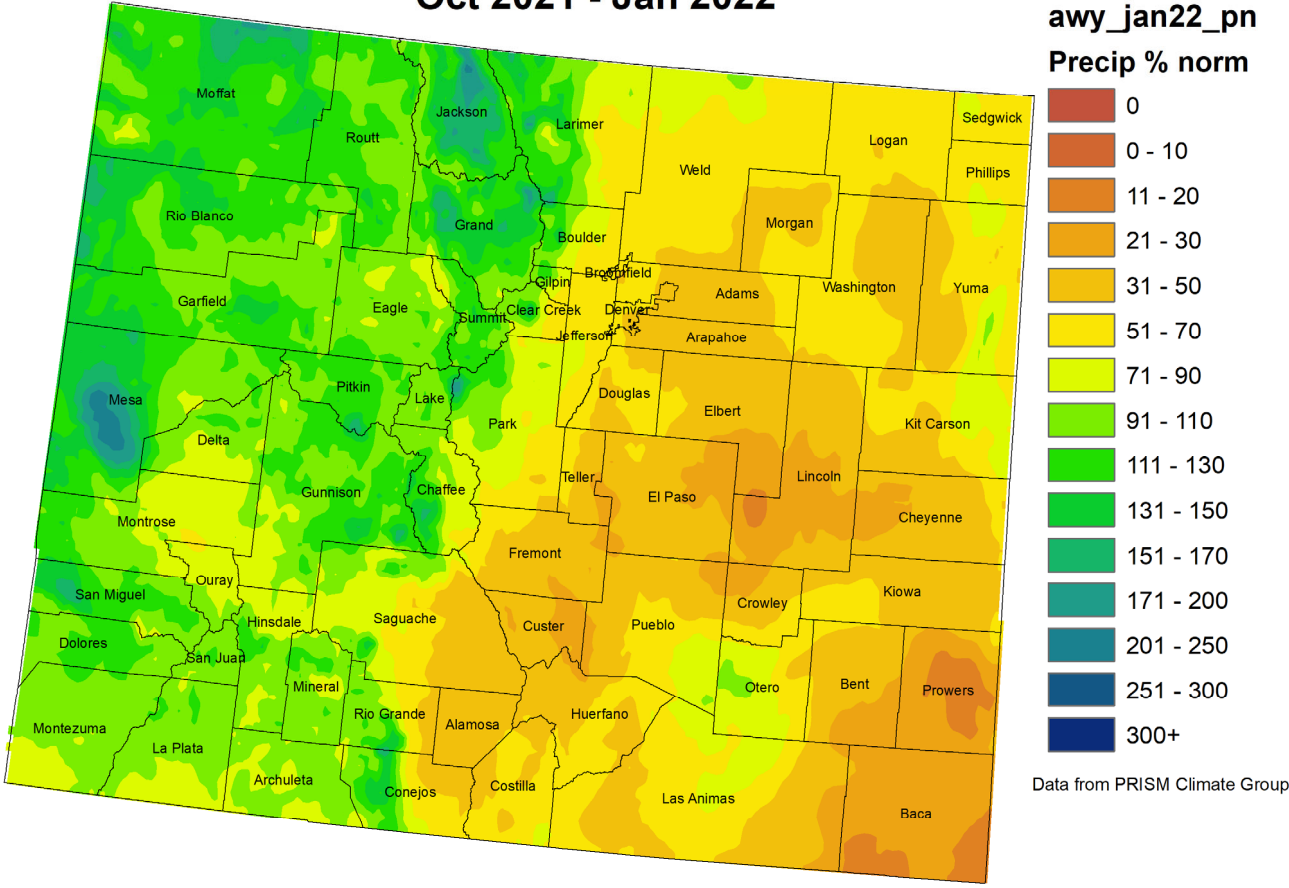
[http://climate.colostate.edu/ranks\\_monthly\\_maps.html](http://climate.colostate.edu/ranks_monthly_maps.html)



COLORADO CLIMATE CENTER

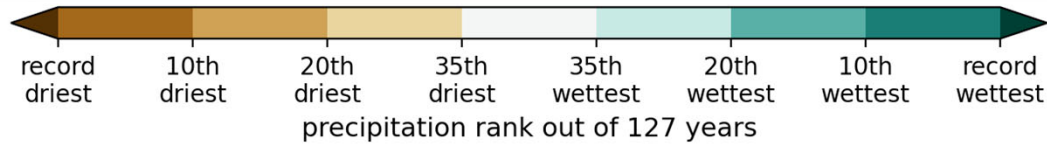
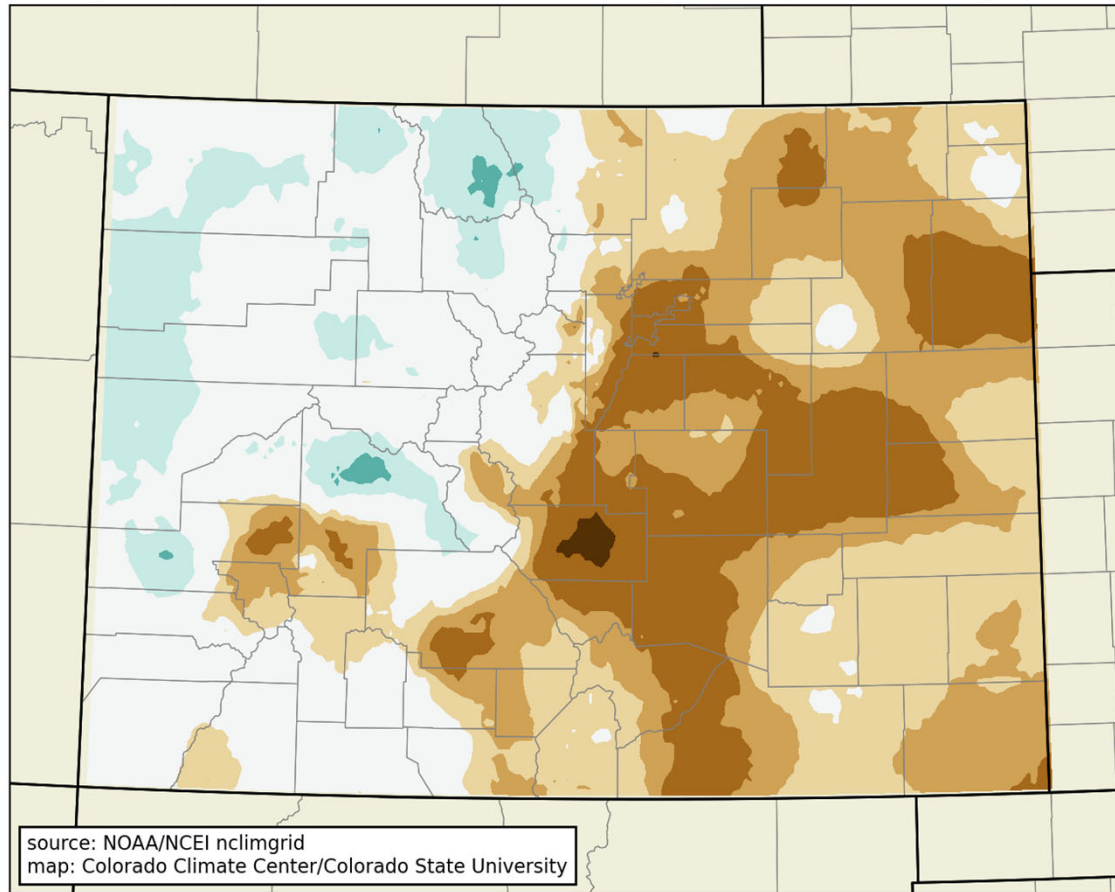


# Colorado Water Year 2022 Precipitation as a Percentage of Normal Oct 2021 - Jan 2022



precipitation rank: 4 months ending January 2022 (Oct-Jan)

Statewide: 39<sup>th</sup> driest  
October-January



[http://climate.colostate.edu/  
ranks\\_monthly\\_maps.html](http://climate.colostate.edu/ranks_monthly_maps.html)



COLORADO CLIMATE CENTER



Colorado statewide average temperature and precipitation, October - January

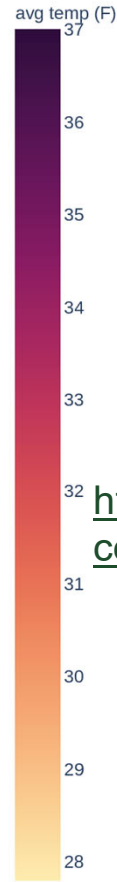
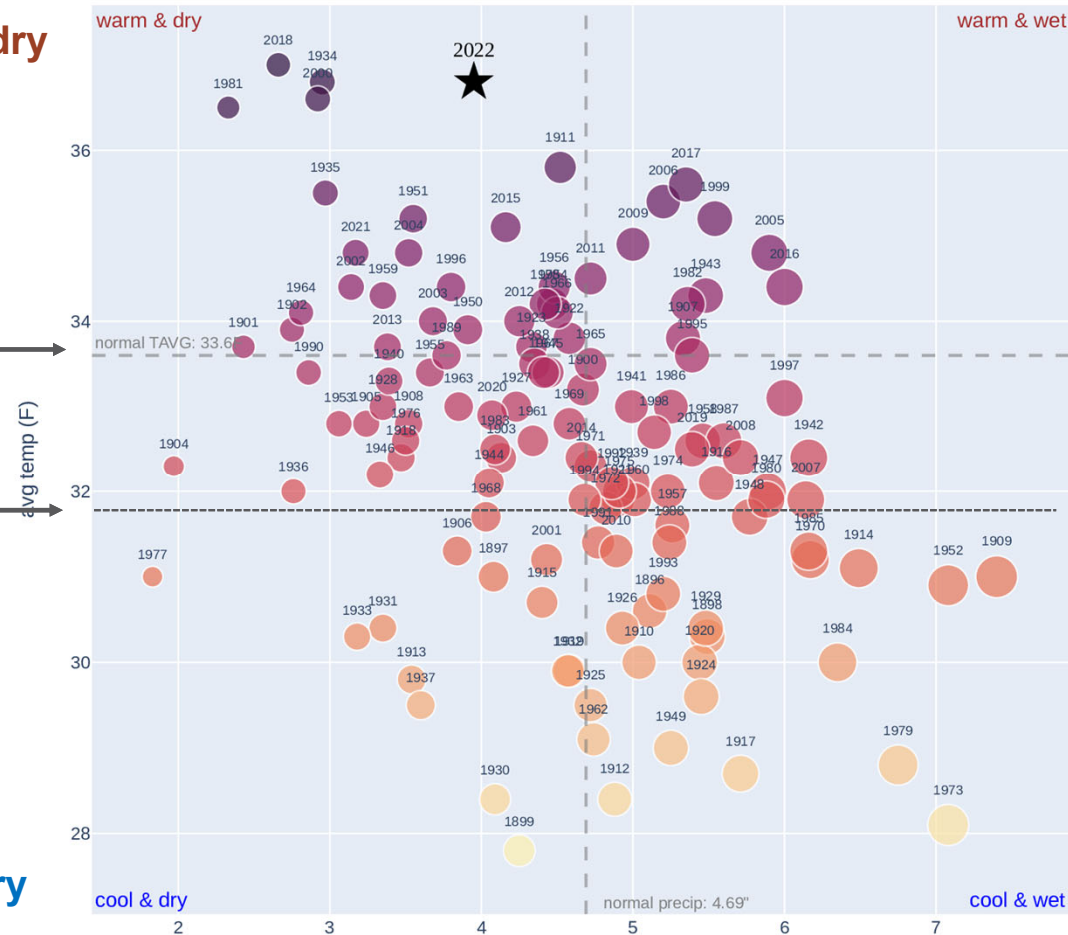
**Warm & dry**

**Water year 2022 through January**

**Warm & wet**

1991-2020 avg temp →

1901-2000 avg temp →



[https://climate.colostate.edu/co\\_cag/quadrant.html](https://climate.colostate.edu/co_cag/quadrant.html)

**Cool & dry**

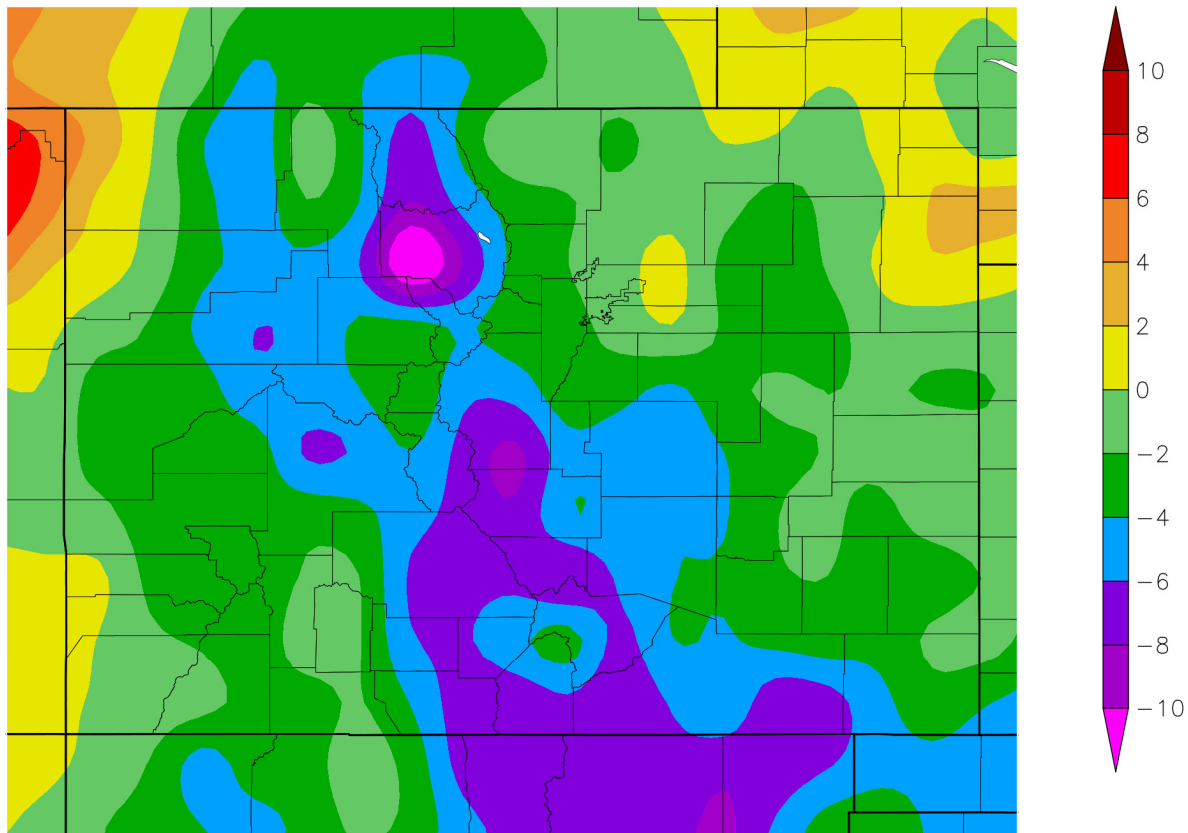
**Cool & wet**

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



# Departure from Normal Temperature (F) 2/1/2022 – 2/15/2022

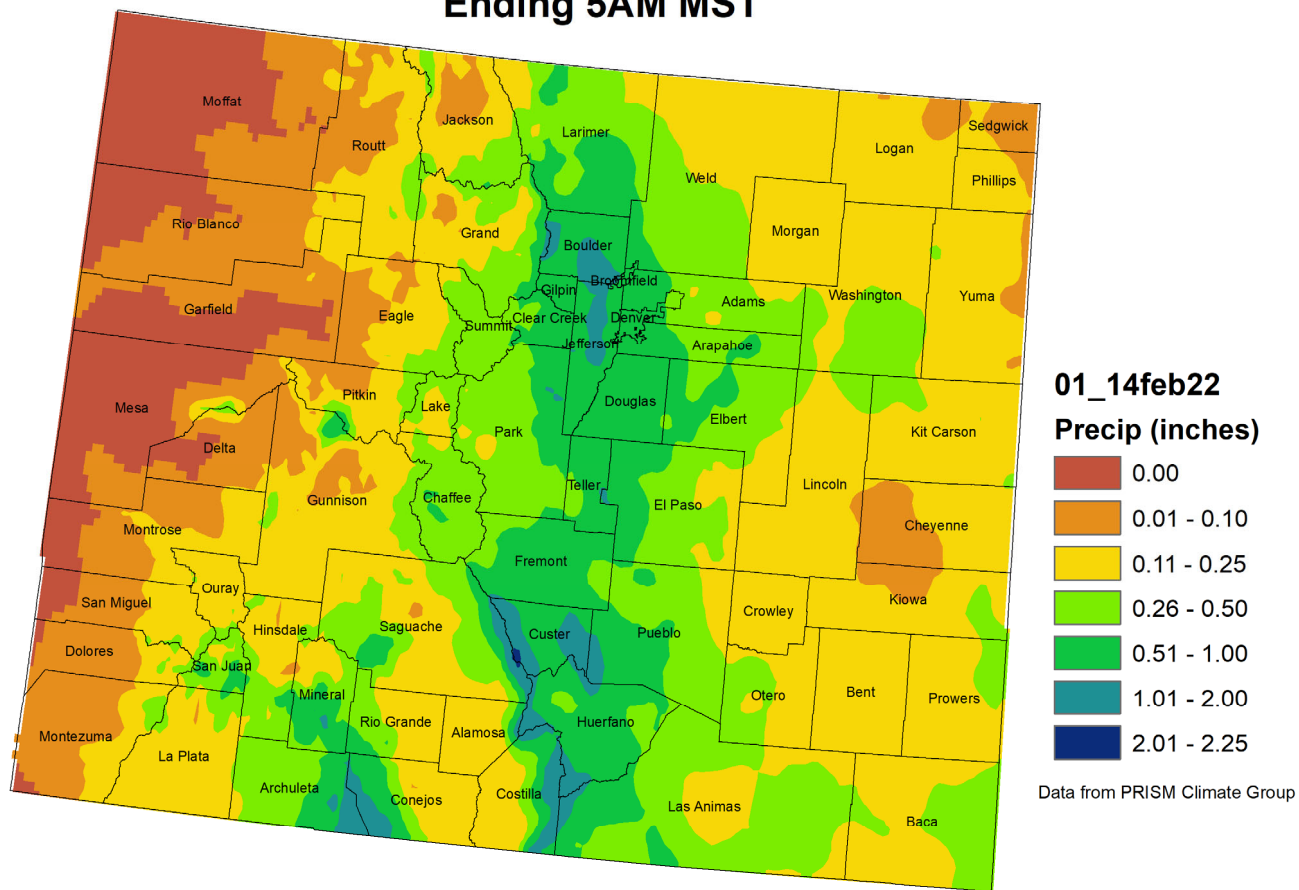


Generated 2/16/2022 at HPRCC using provisional data.

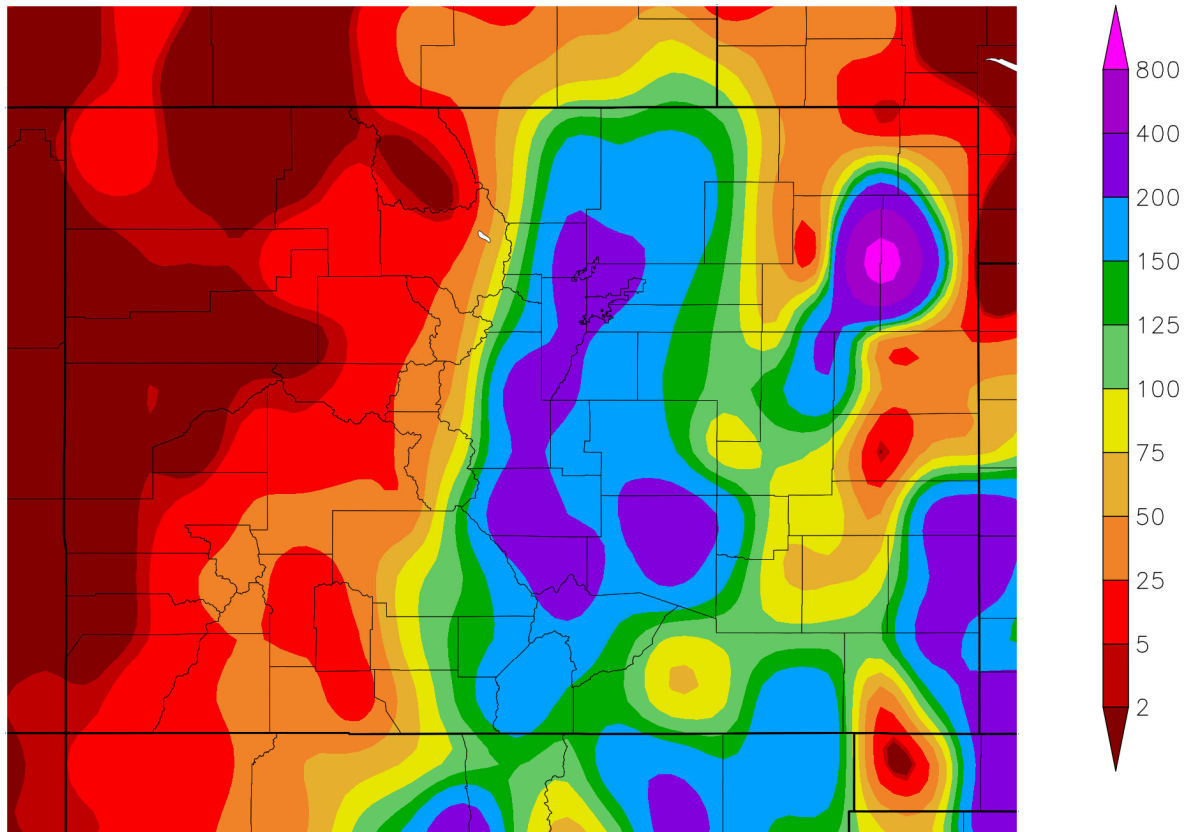
NOAA Regional Climate Centers



# Colorado Month to Date Precipitation 1 - 14 February 2022 Ending 5AM MST



# Percent of Normal Precipitation (%) 2/1/2022 – 2/15/2022

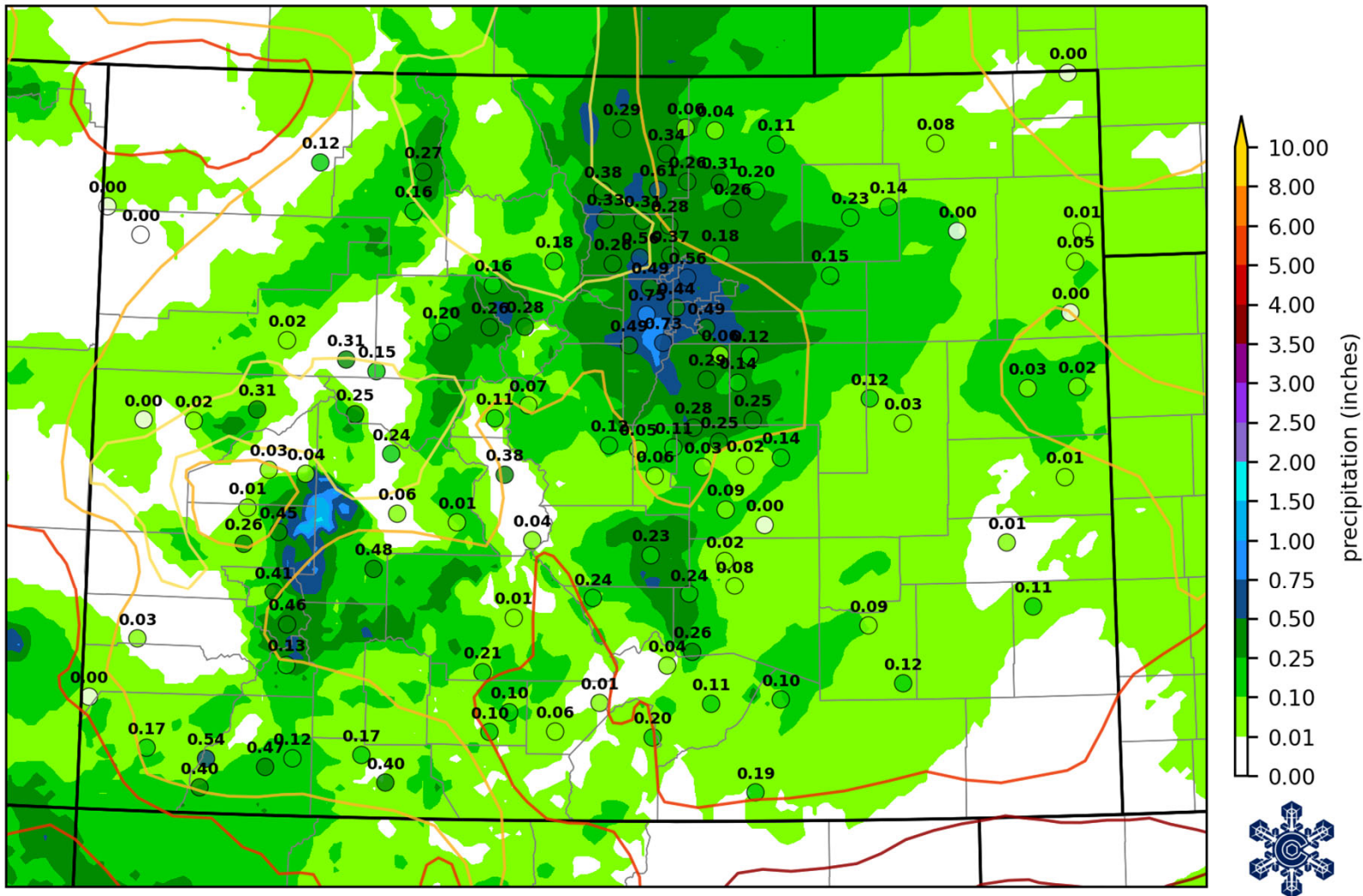


Generated 2/16/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

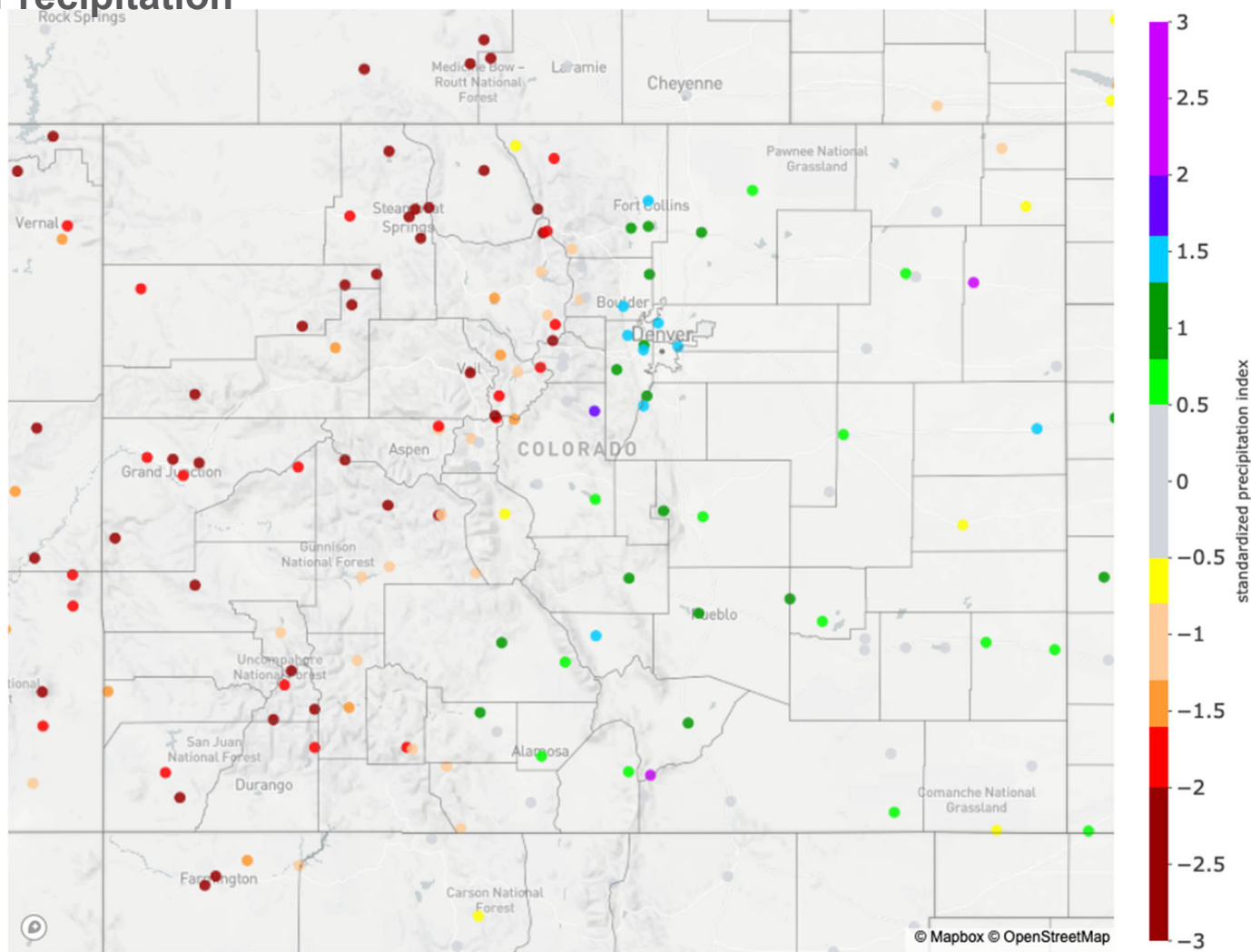






# Standardized Precipitation Index

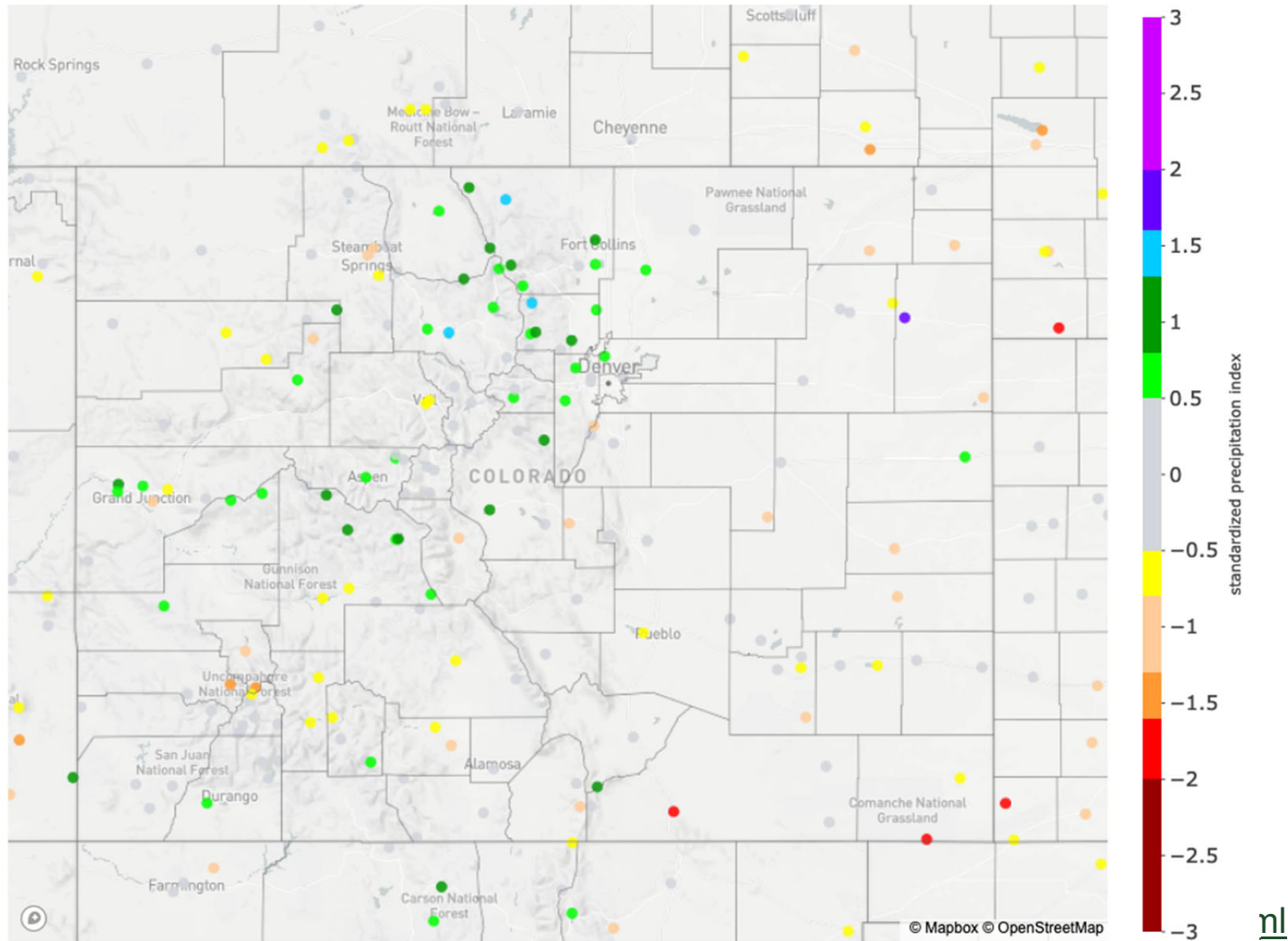
30-day Standardized Precipitation Index: 2022/01/16 - 2022/02/14



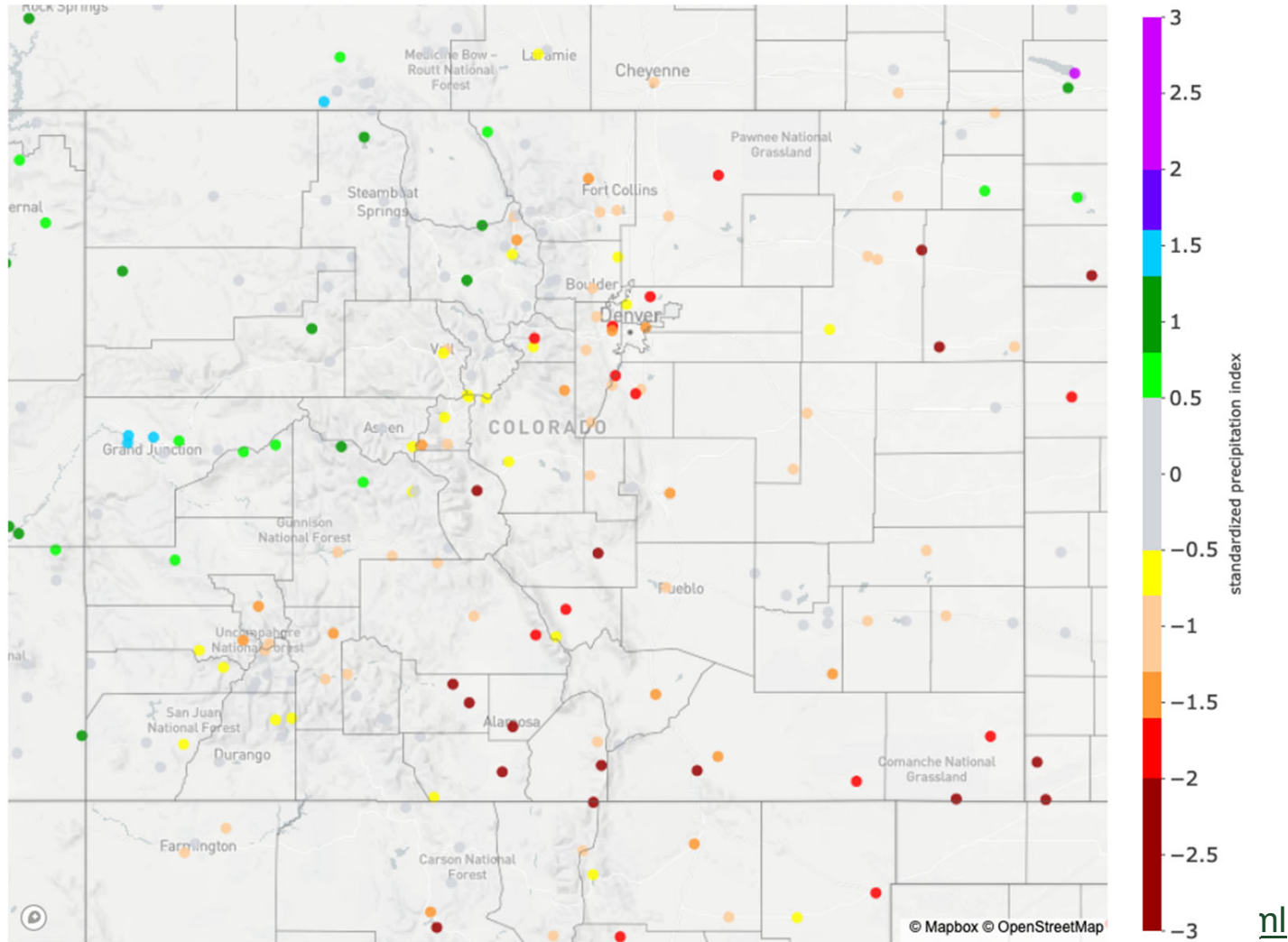
nl



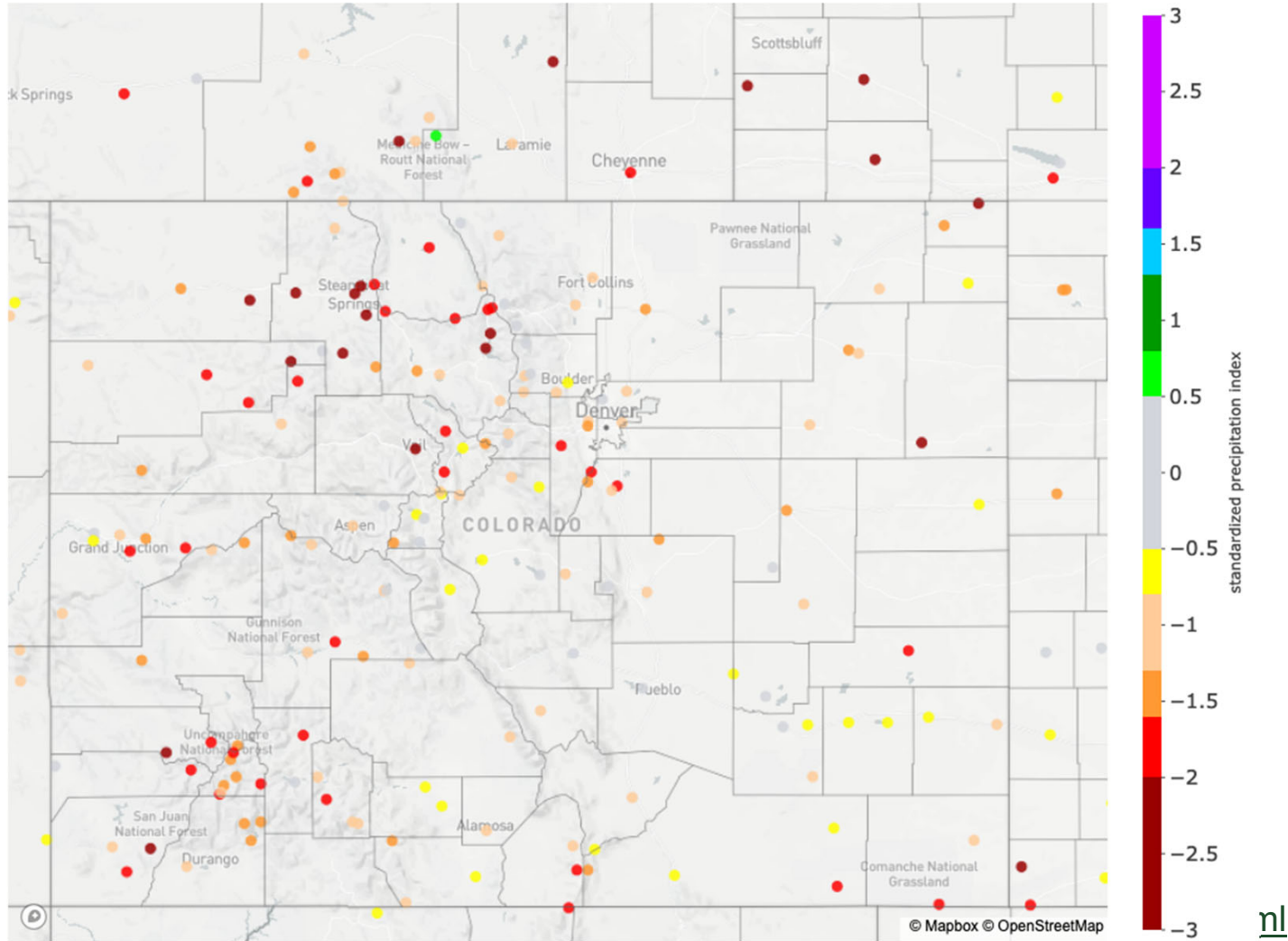
### 90-day Standardized Precipitation Index: 2021/11/17 - 2022/02/14



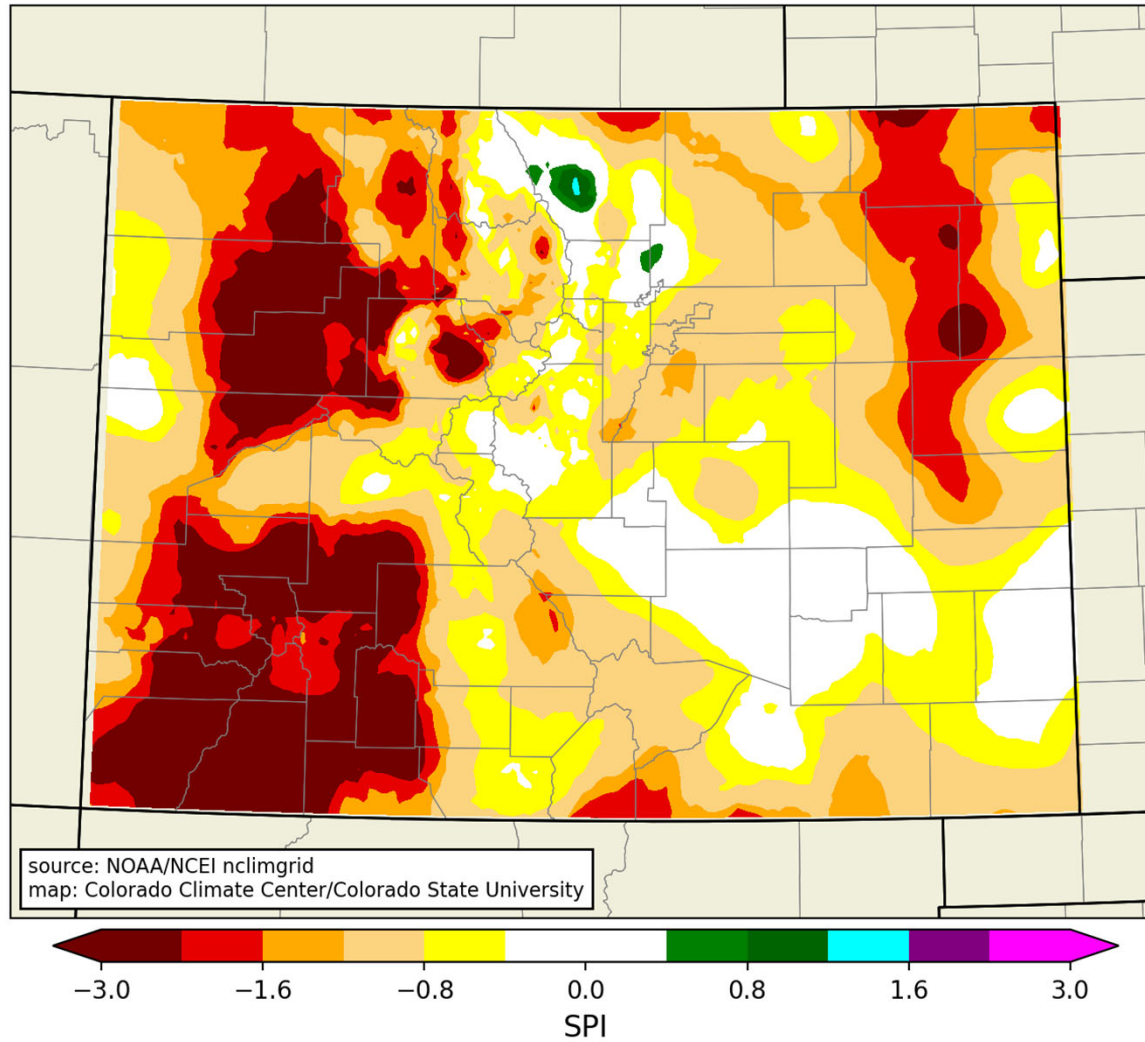
### 6-month Standardized Precipitation Index: 2021/08/15 - 2022/02/14



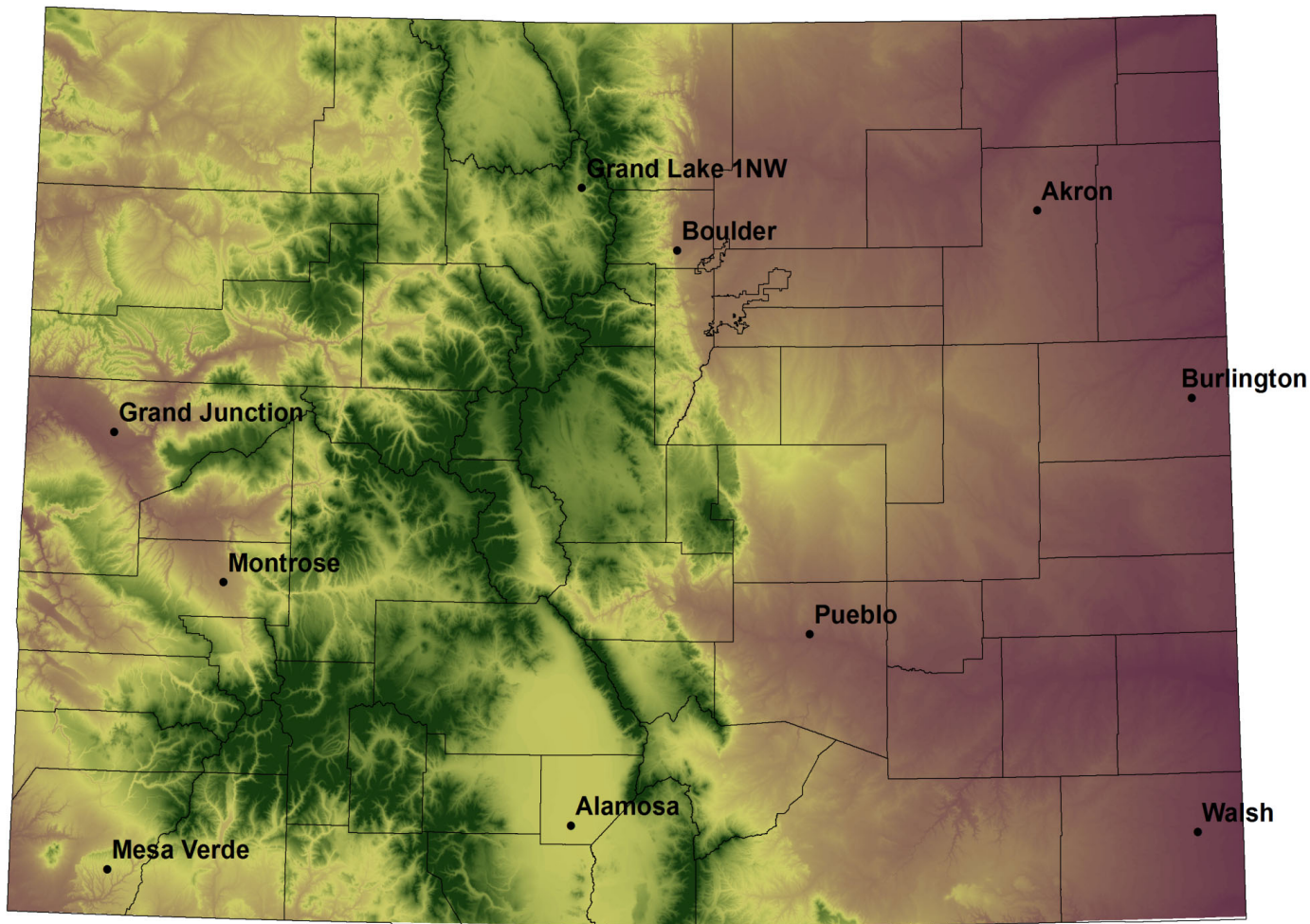
24-month Standardized Precipitation Index: 2020/02/15 - 2022/02/14



24-month SPI from NCEI nclimgrid, end of January 2022



## NWS Cooperative Stations for WATF

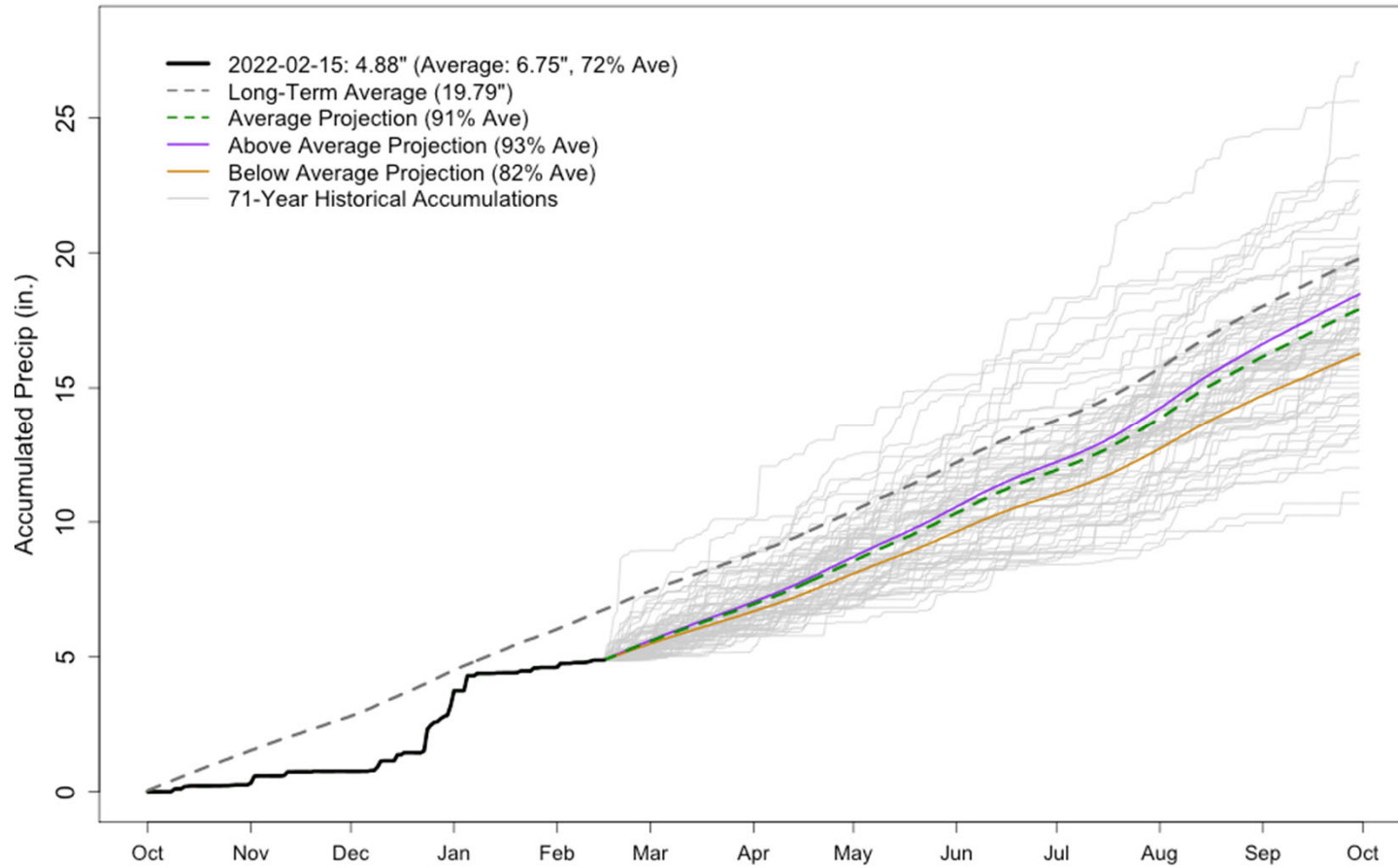


## Water Year 2021 – Station Updates



# Grand Lake

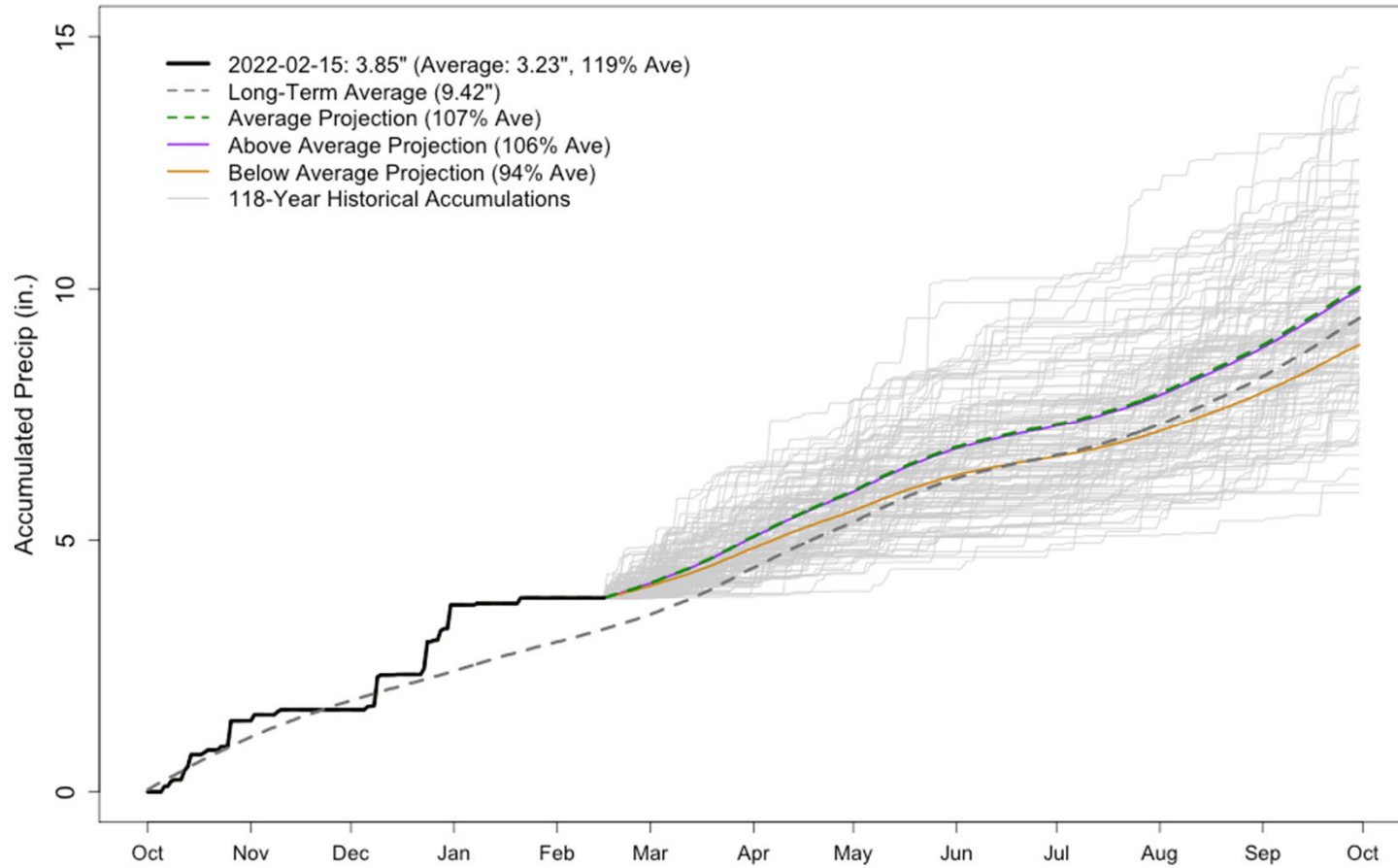
## GRAND LAKE 1 NW WY2022 Precipitation Projections





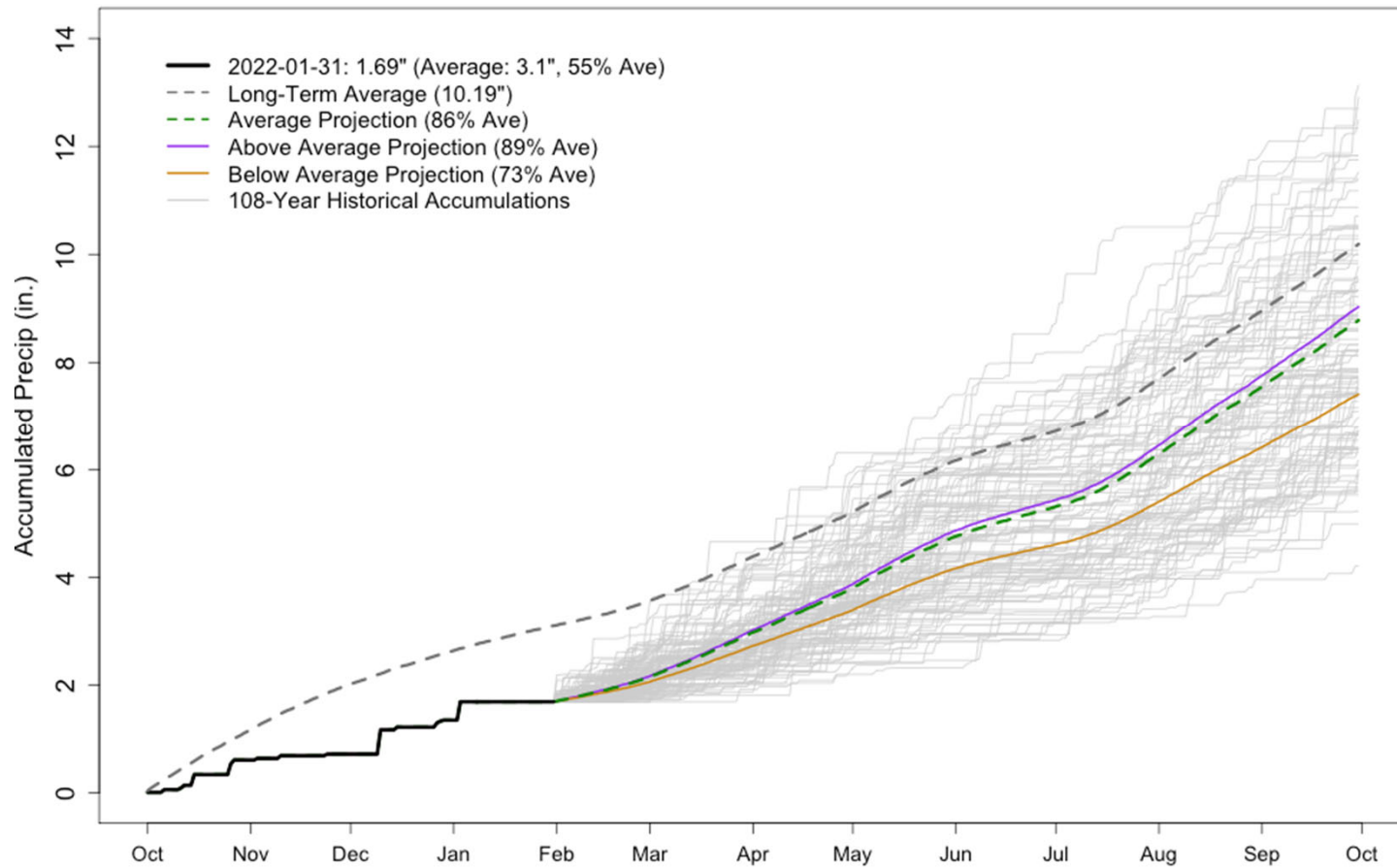
# Grand Junction

## GRAND JUNCTION WALKER FIELD WY2022 Precipitation Projections



# Montrose

## MONTROSE NO 2 WY2022 Precipitation Projections

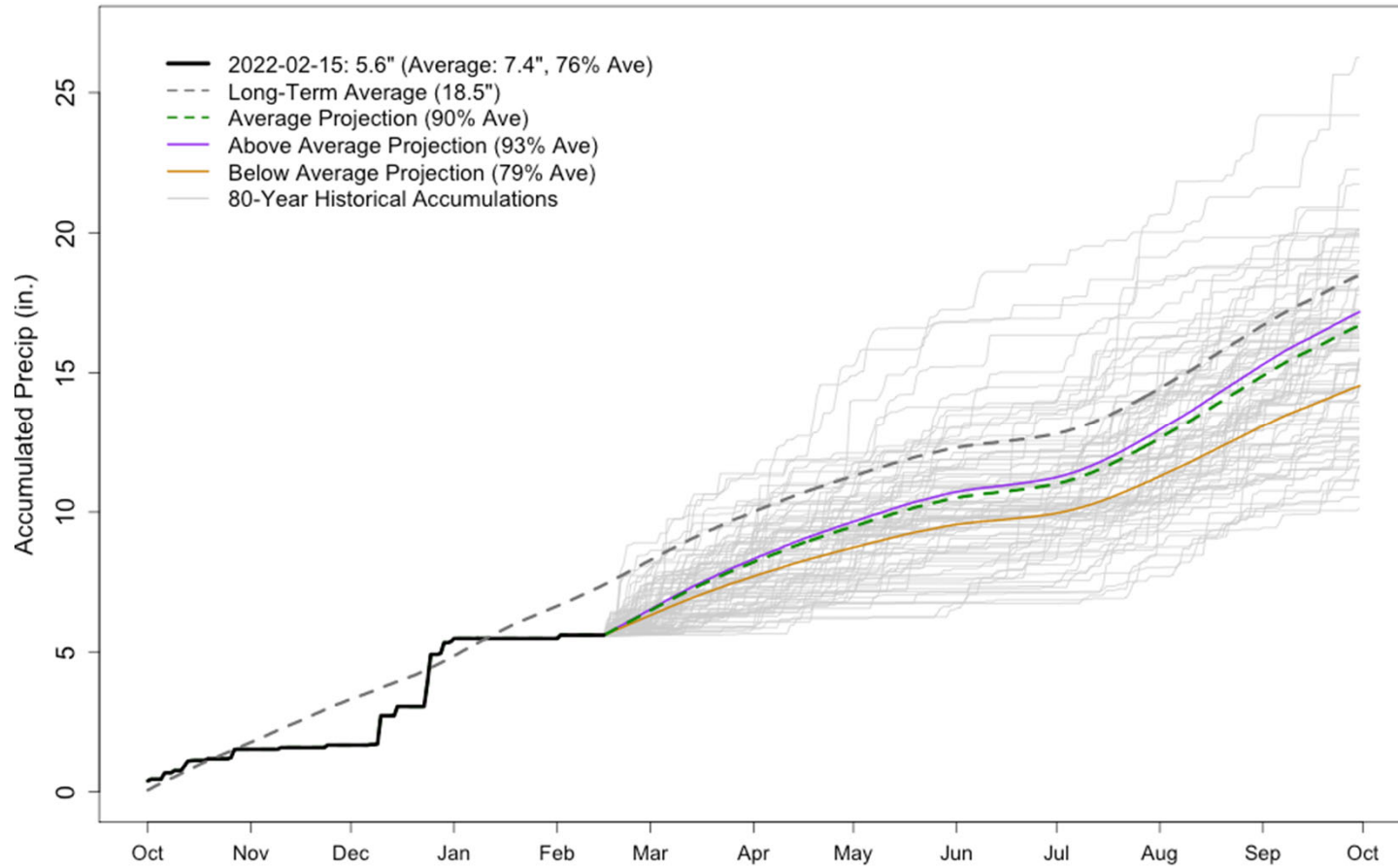


Note: data only through January 31, but nearby stations have remained dry with only ~0.1" in Feb. so far



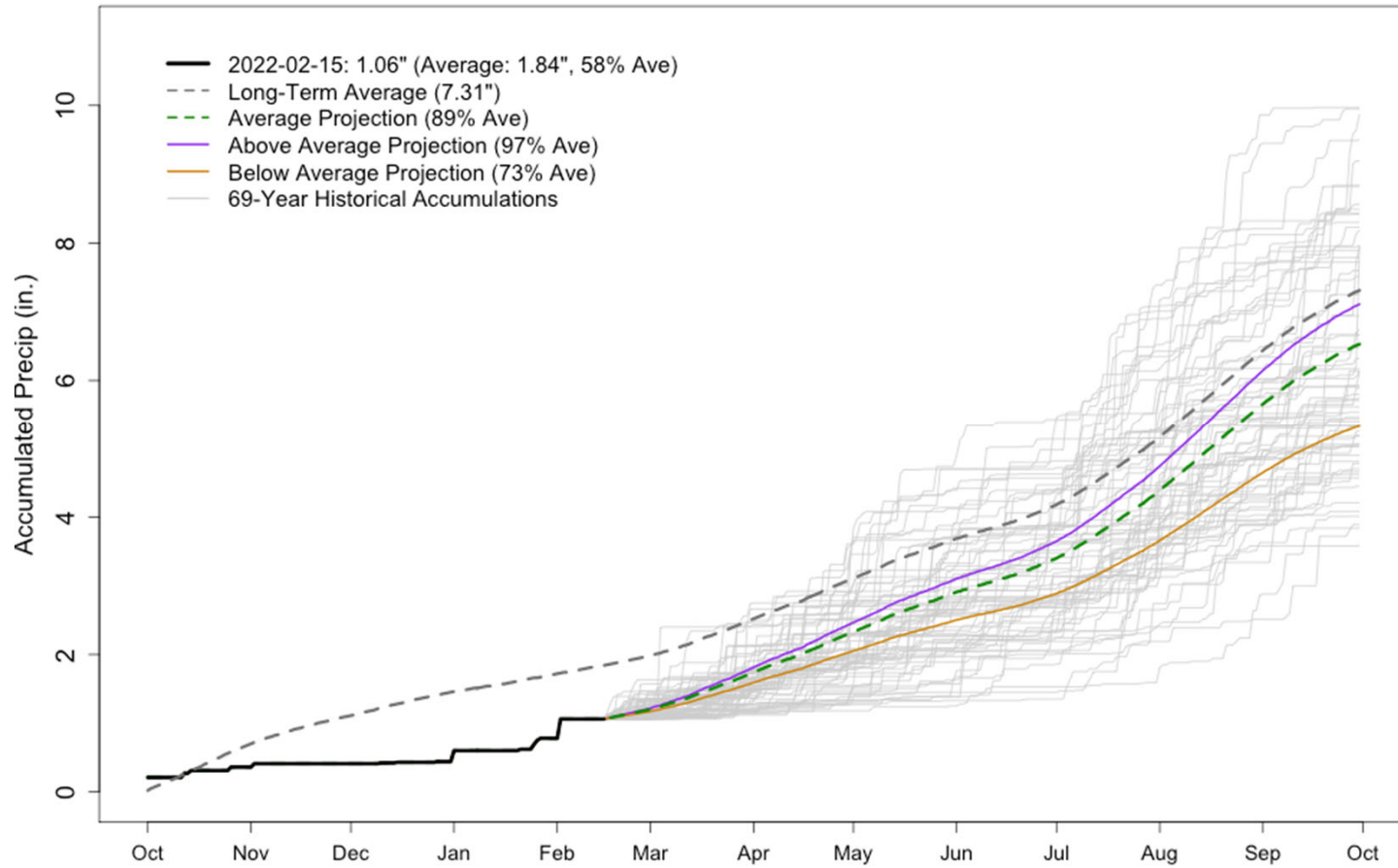
# Mesa Verde NP

## MESA VERDE NP WY2022 Precipitation Projections



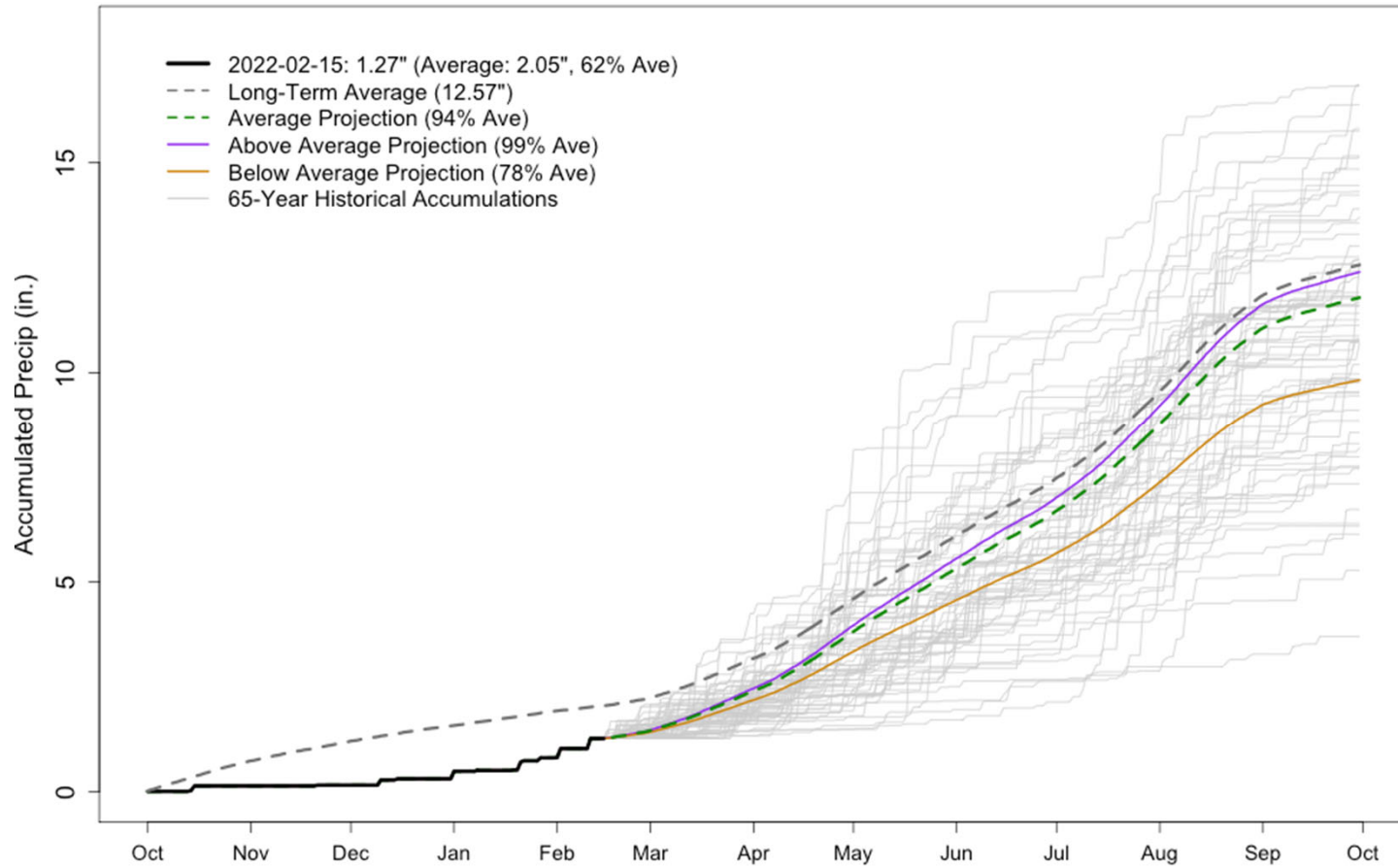
# Alamosa

## ALAMOSA-BERGMAN FIELD WY2022 Precipitation Projections

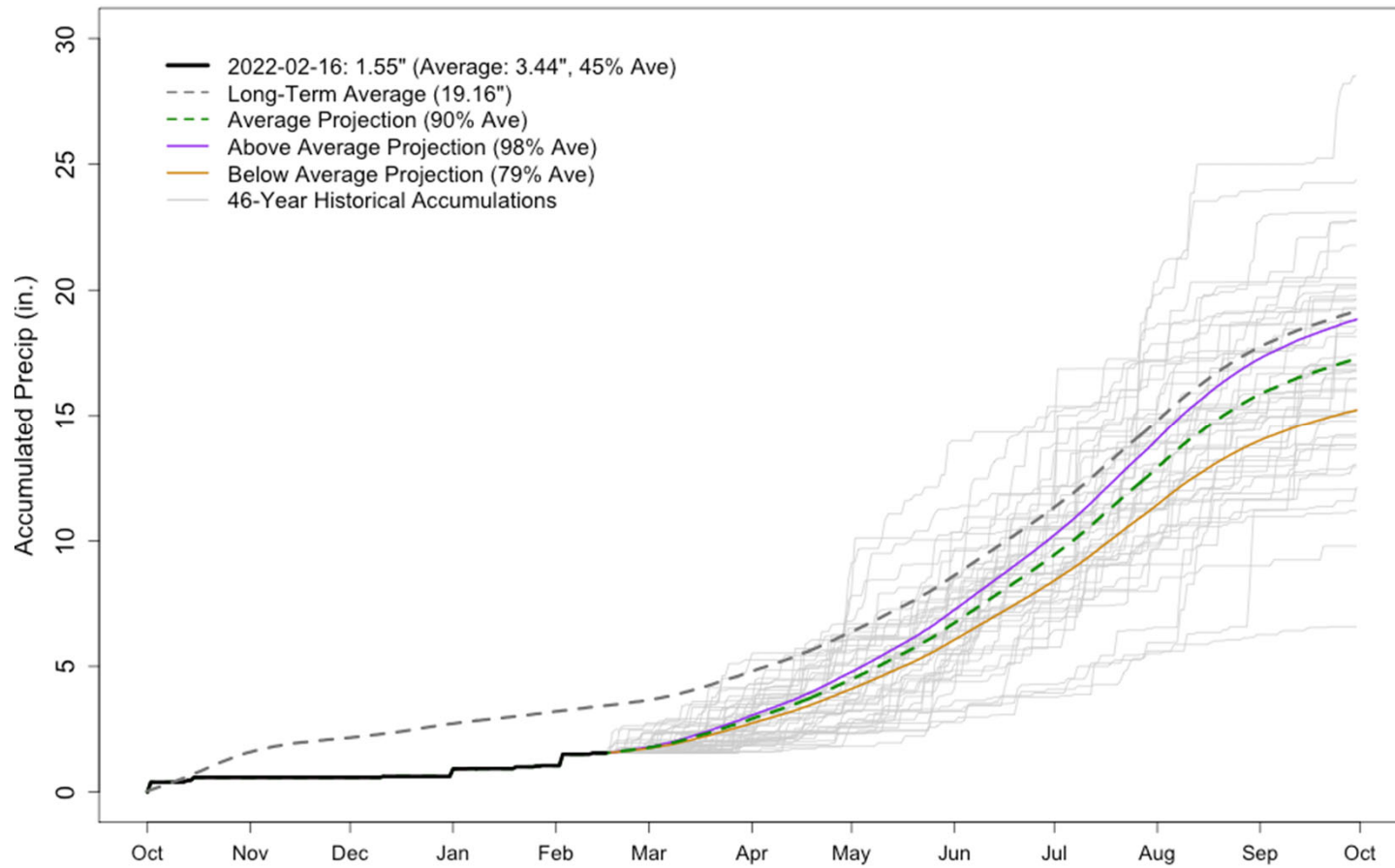


# Pueblo

## PUEBLO MEMORIAL AIRPORT WY2022 Precipitation Projections

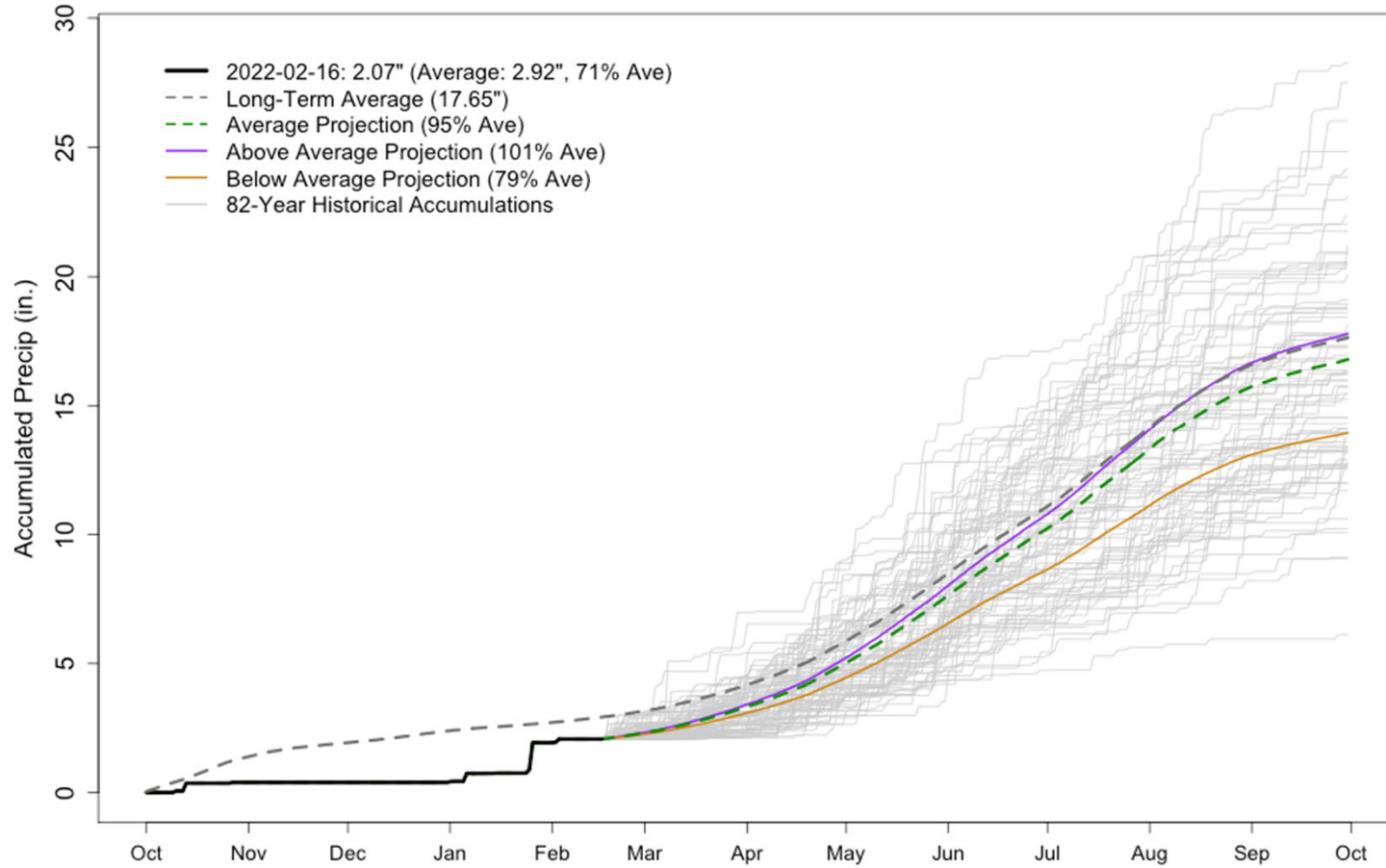


### WALSH 1 W WY2022 Precipitation Projections



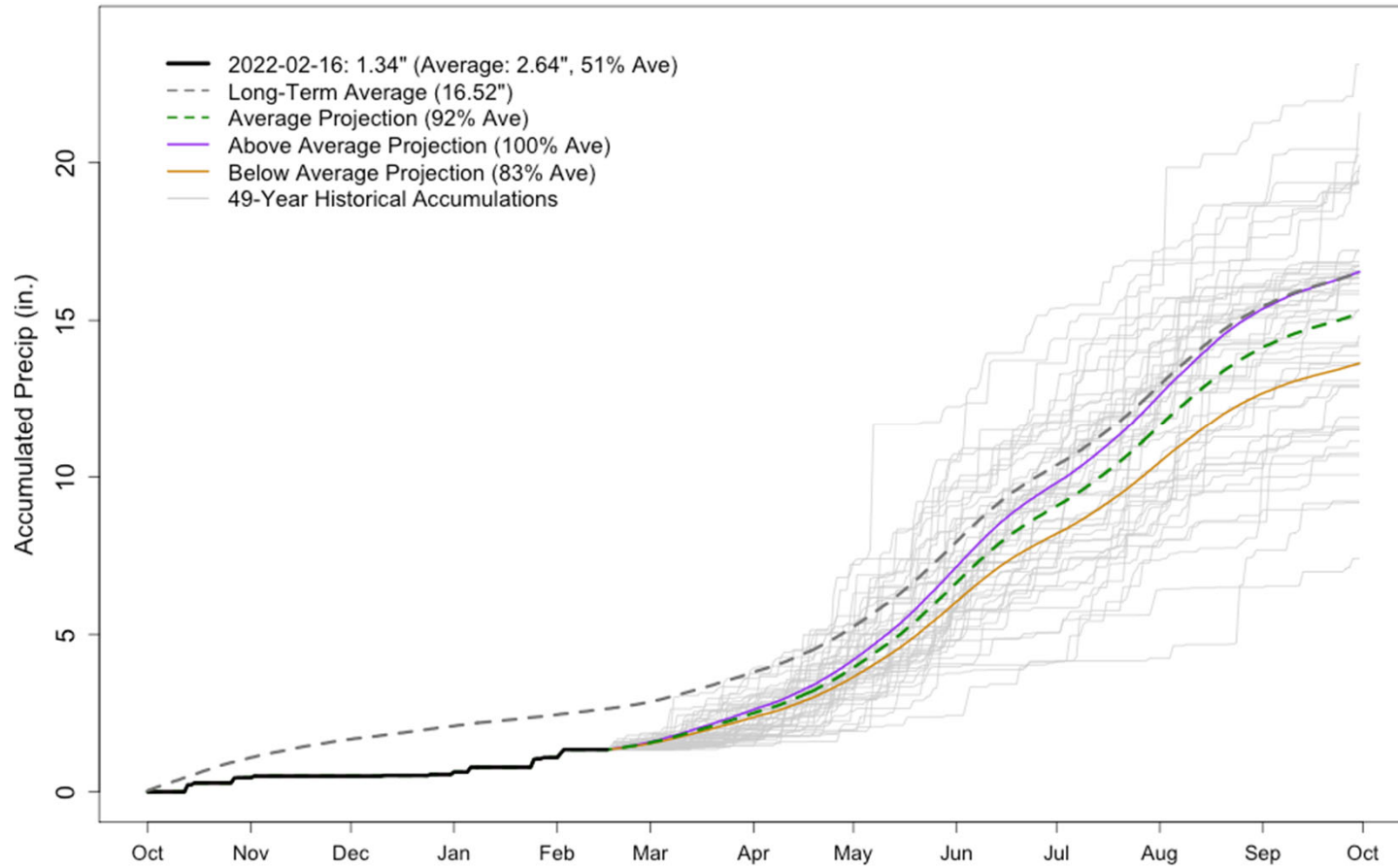
# Burlington

## BURLINGTON WY2022 Precipitation Projections



# Akron

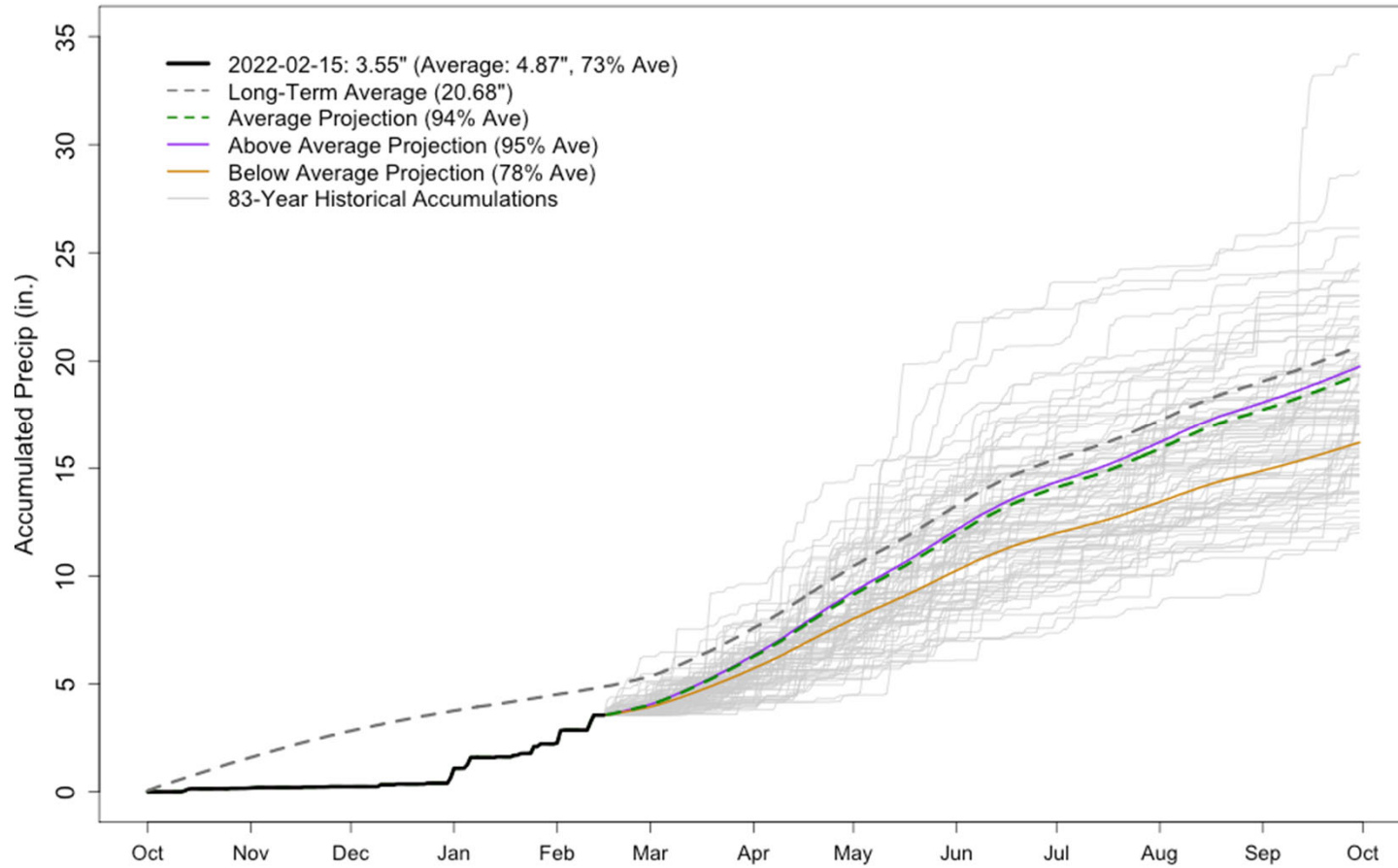
## AKRON 4 E WY2022 Precipitation Projections





# Boulder

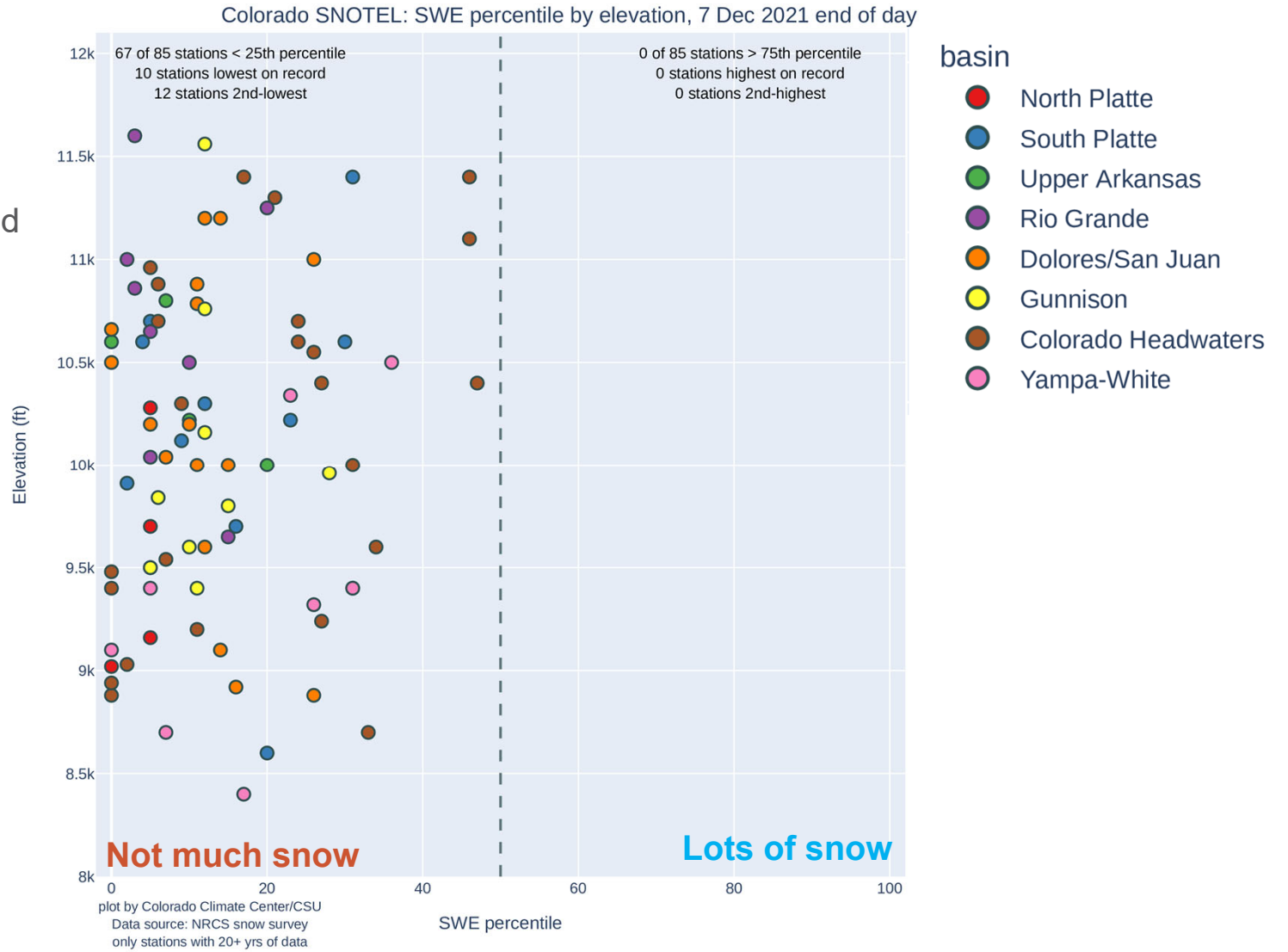
## BOULDER WY2022 Precipitation Projections



Snowpack evolution over the season

SWE percentile by elevation, dots are colored by the basin

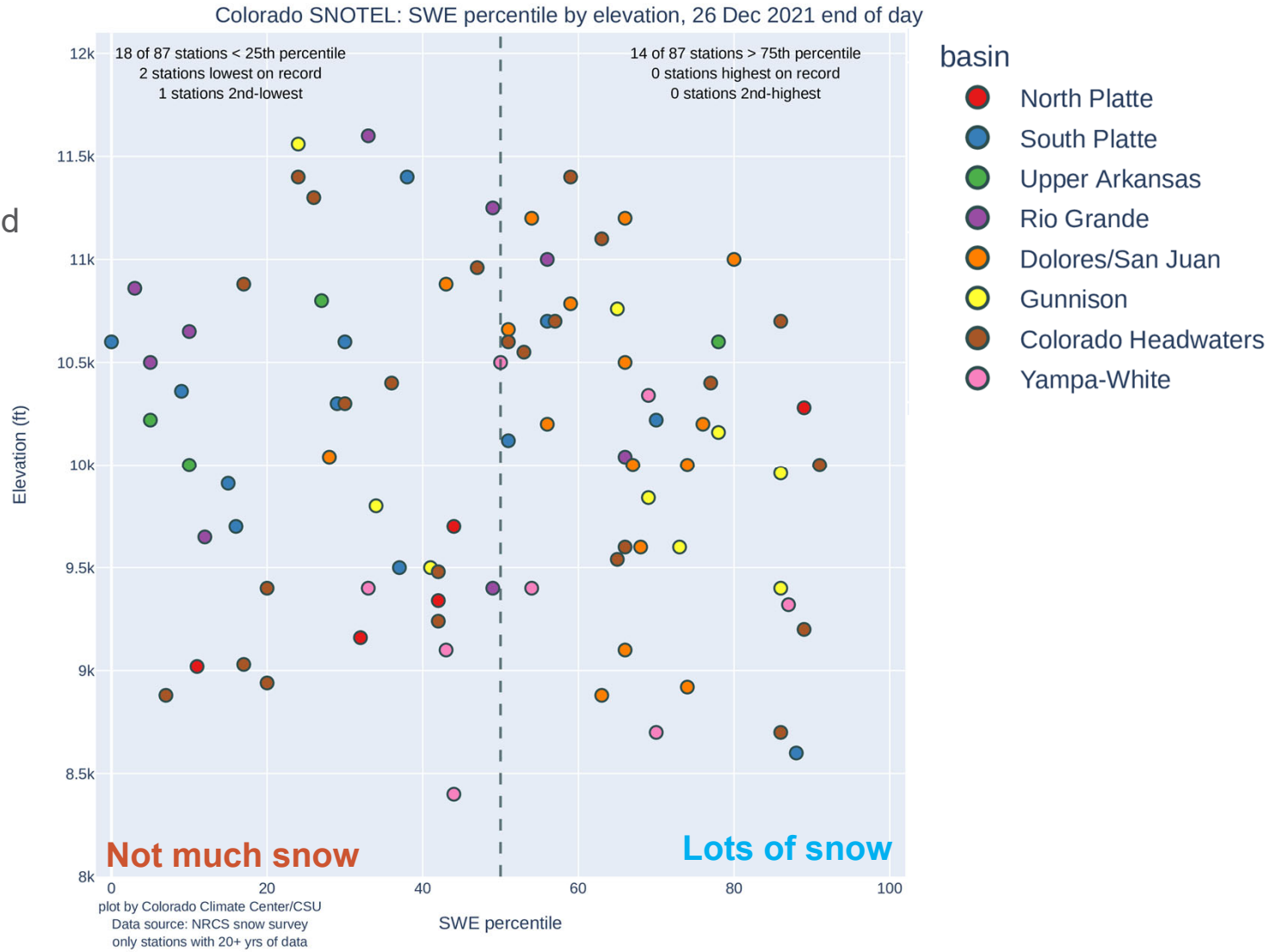
December 7



Snowpack evolution over the season

SWE percentile by elevation, dots are colored by the basin

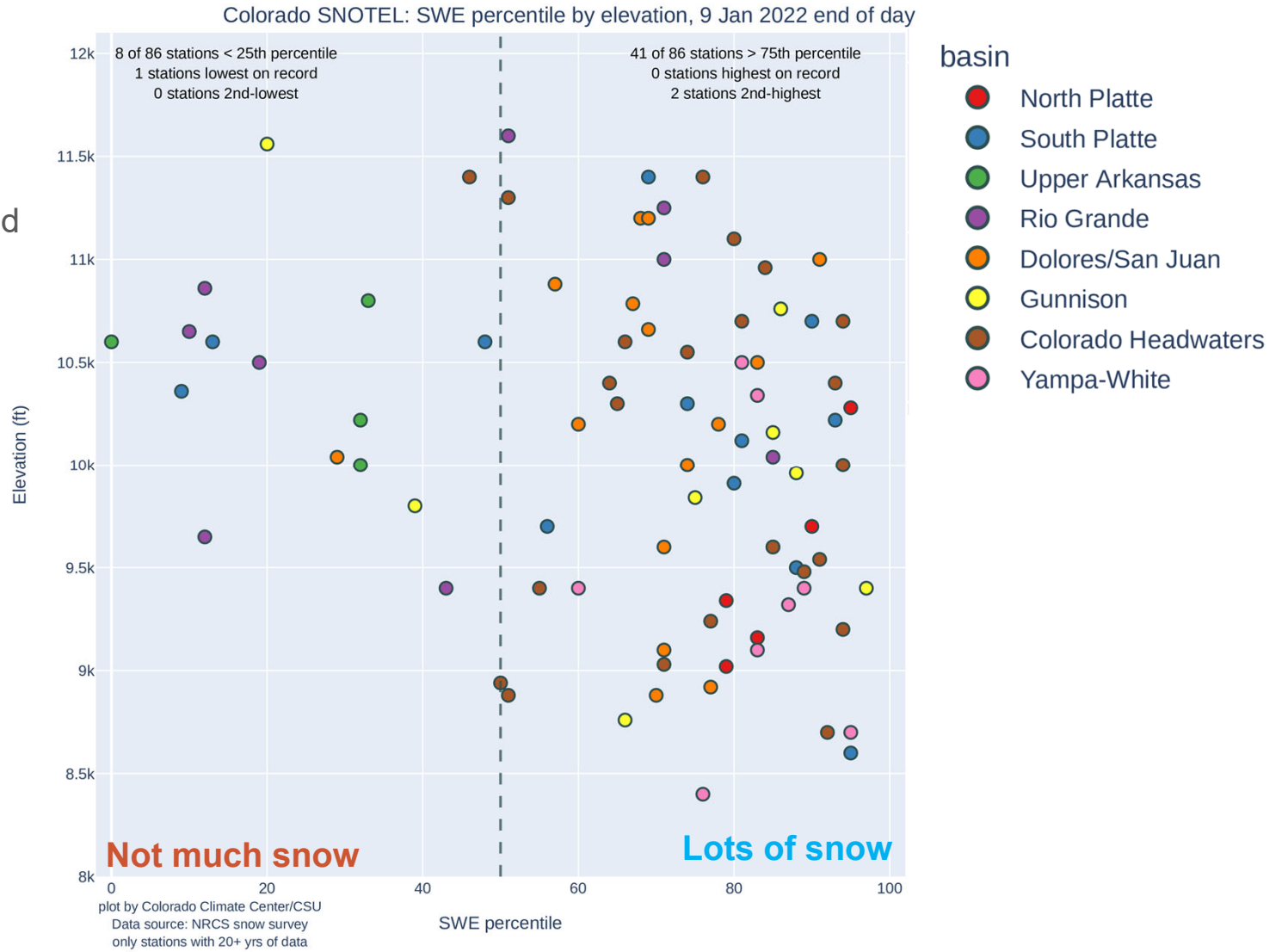
December 26



# Snowpack evolution over the season

SWE percentile by elevation, dots are colored by the basin

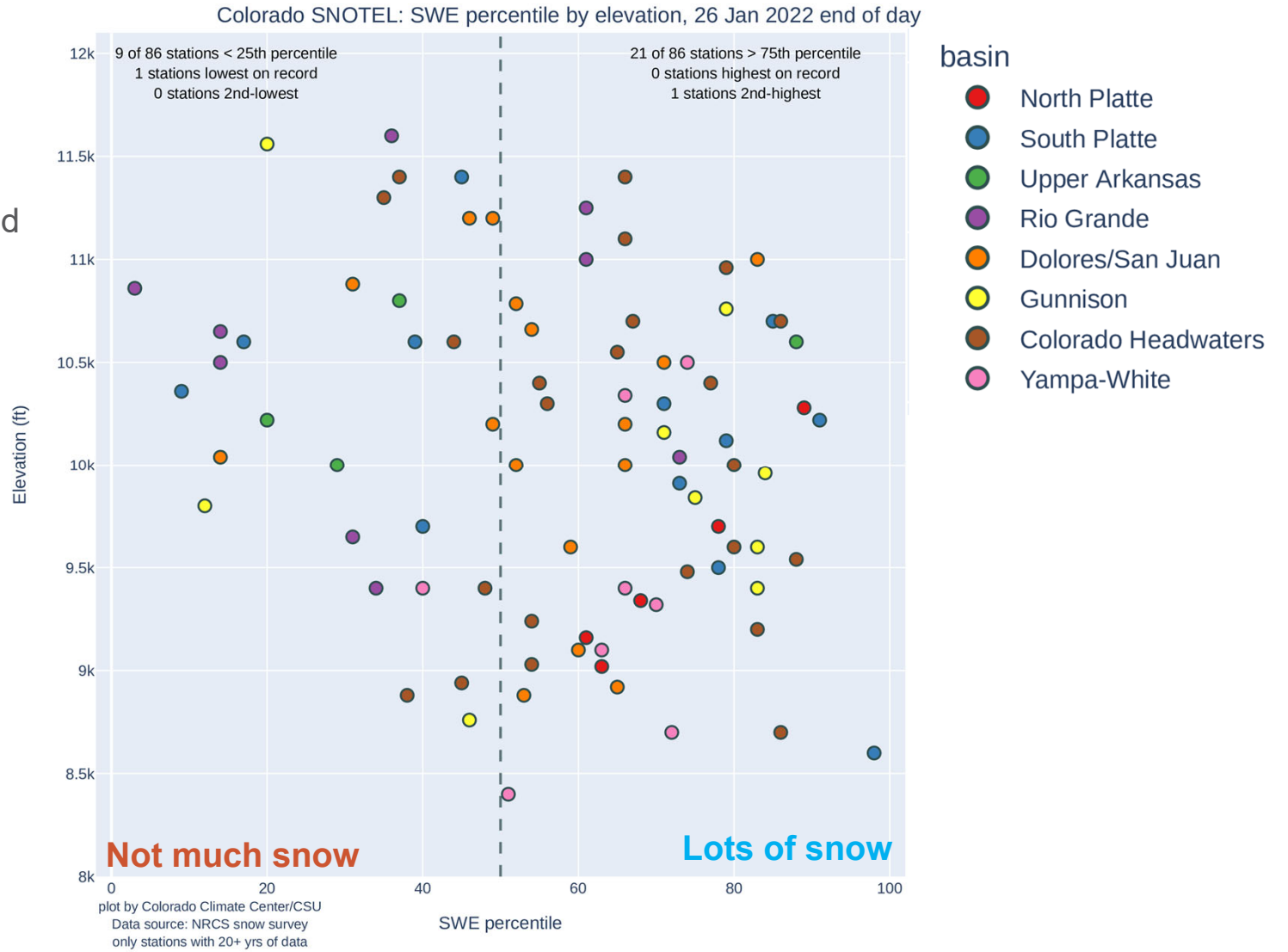
January 9



# Snowpack evolution over the season

SWE percentile by elevation, dots are colored by the basin

January 26

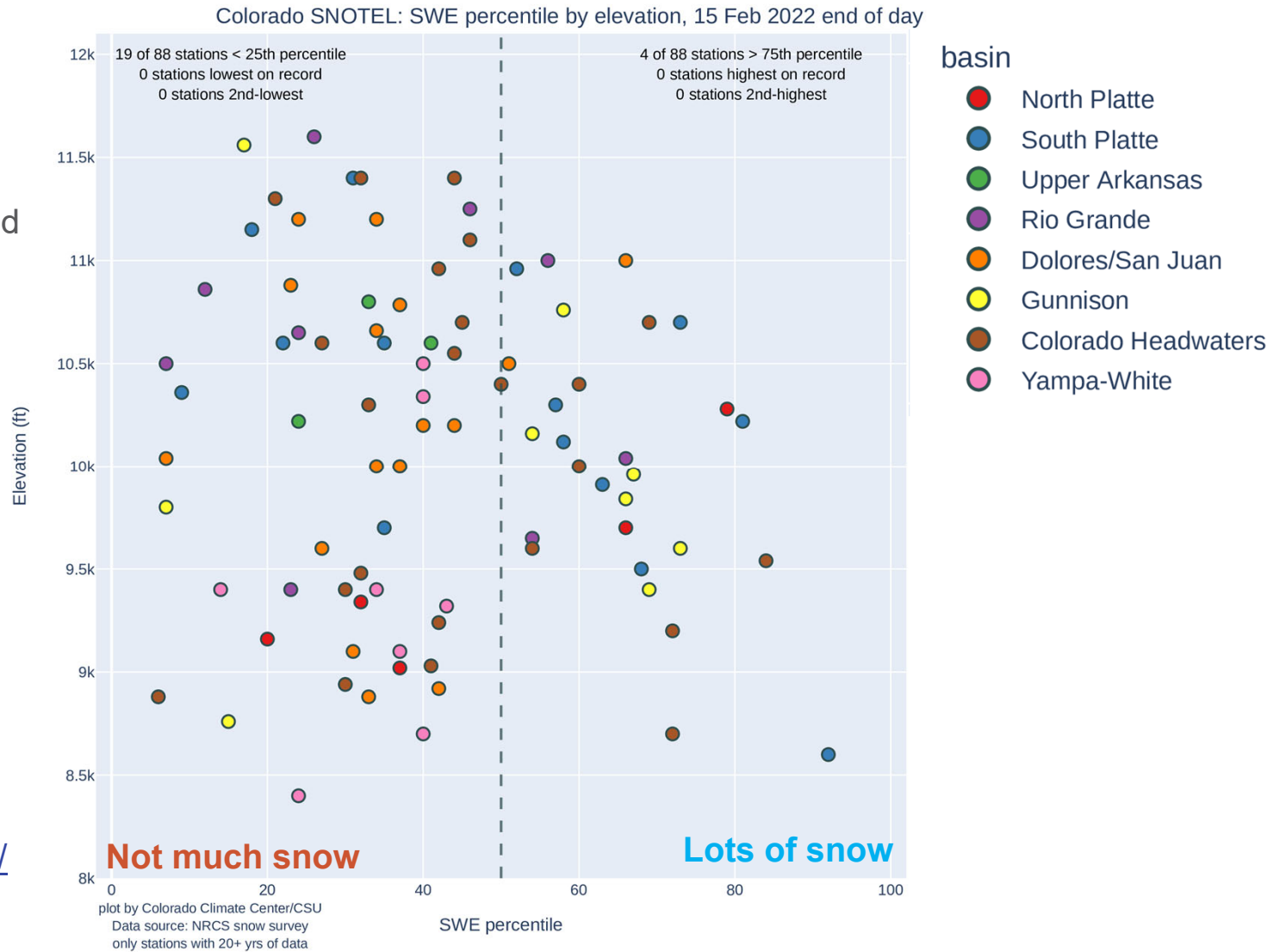


Snowpack evolution over the season

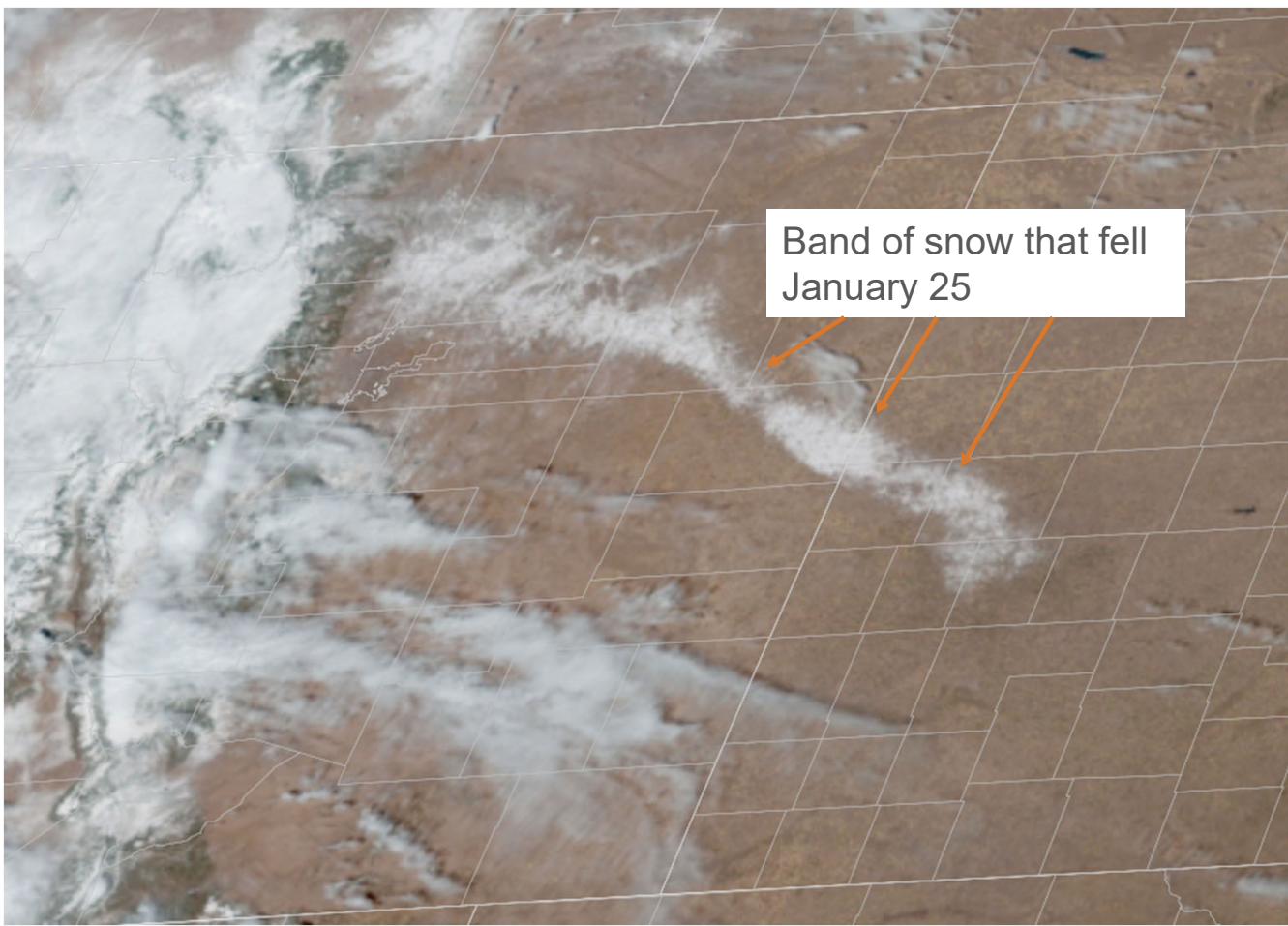
SWE percentile by elevation, dots are colored by the basin

February 15

<http://climate.colostate.edu/snotel.html>



# Drought Conditions

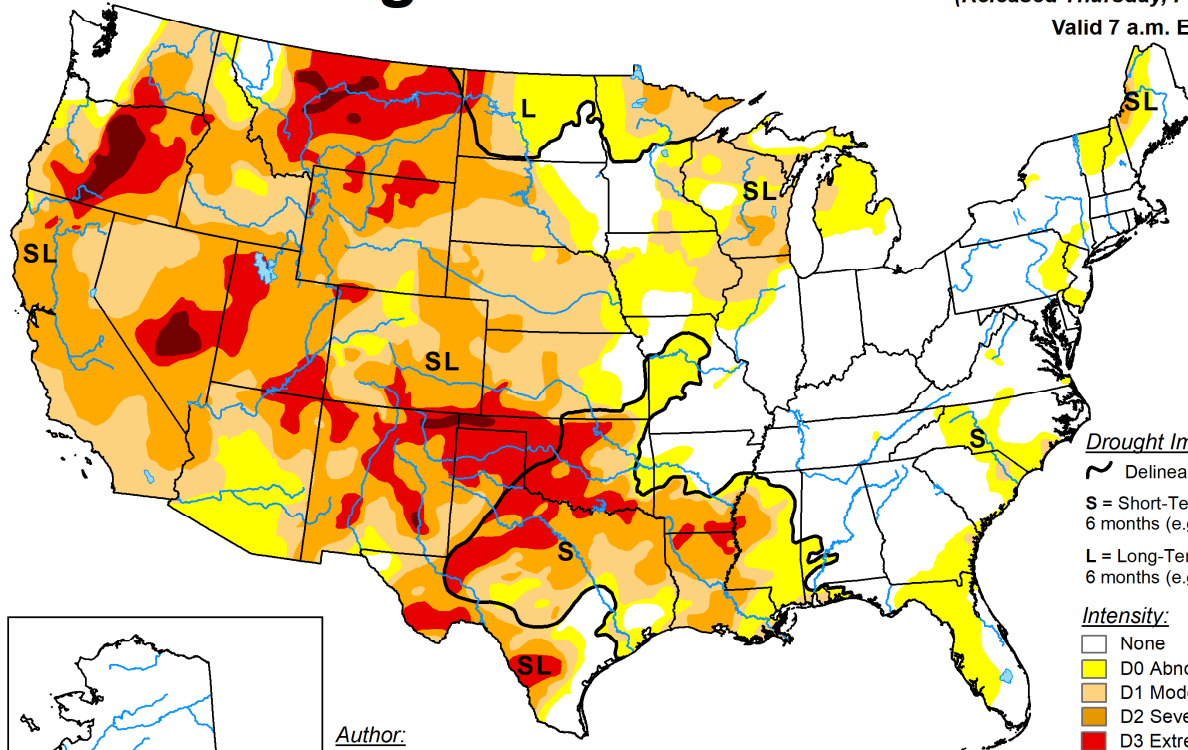


Band of snow that fell  
January 25

Image from the afternoon of  
February 9

# U.S. Drought Monitor

**February 15, 2022**  
 (Released Thursday, Feb. 17, 2022)  
 Valid 7 a.m. EST

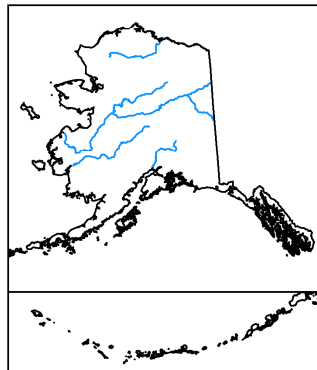


**Drought Impact Types:**

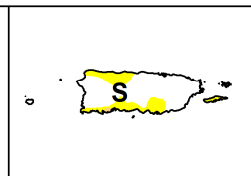
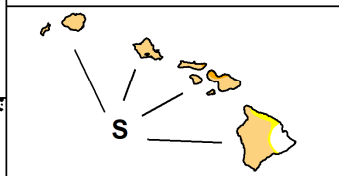
- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

**Intensity:**

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



*Author:*  
 Brad Pugh  
 CPC/NOAA



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>



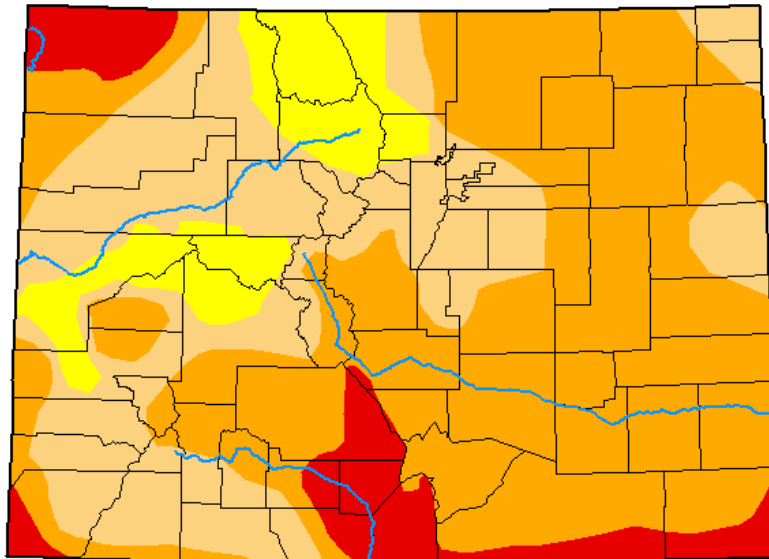
[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)





# U.S. Drought Monitor Colorado

**February 15, 2022**  
(Released Thursday, Feb. 17, 2022)  
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	90.41	59.81	8.55	0.00
<b>Last Week</b> 02-08-2022	0.00	100.00	88.17	62.00	8.55	0.00
<b>3 Months Ago</b> 11-16-2021	2.51	97.49	77.70	39.35	6.10	0.00
<b>Start of Calendar Year</b> 01-04-2022	0.00	100.00	95.49	67.08	22.25	0.00
<b>Start of Water Year</b> 09-28-2021	12.72	87.28	46.42	26.30	15.05	3.91
<b>One Year Ago</b> 02-16-2021	0.00	100.00	100.00	90.24	58.91	17.78

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:

Brad Pugh  
CPC/NOAA



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)



# U.S. Drought Monitor Colorado

**February 16, 2021**

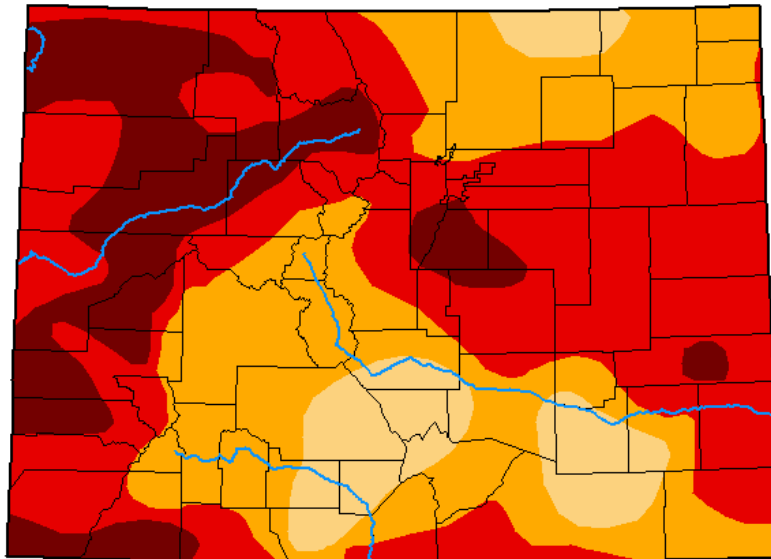
**One year ago**

(Released Thursday, Feb. 18, 2021)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	100.00	90.24	58.91	17.78
<b>Last Week</b> 02-11-2021	0.00	100.00	100.00	90.24	70.11	24.79
<b>3 Months Ago</b> 11-19-2020	0.00	100.00	100.00	93.71	74.08	27.22
<b>Start of Calendar Year</b> 12-31-2020	0.00	100.00	100.00	93.73	76.17	27.60
<b>Start of Water Year</b> 10-01-2020	0.00	100.00	99.29	89.35	52.88	2.64
<b>One Year Ago</b> 02-20-2020	28.75	71.25	43.82	3.30	0.00	0.00



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:

David Miskus  
NOAA/NWS/NCEP/CPC



[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)



# U.S. Drought Monitor Colorado

**August 17, 2021**

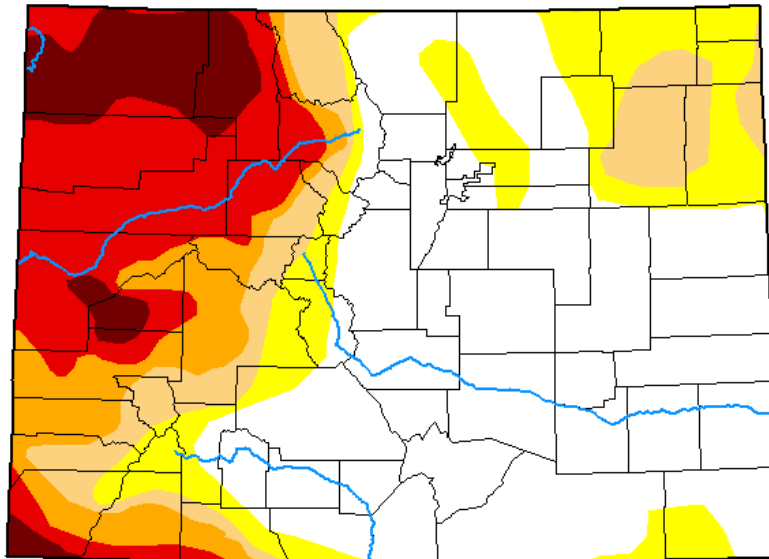
**Six months ago**

(Released Thursday, Aug. 19, 2021)

Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	48.62	51.38	37.23	28.04	20.37	6.38
<b>Last Week</b> 08-10-2021	53.18	46.82	34.43	28.04	20.37	6.38
<b>3 Months Ago</b> 05-18-2021	23.30	76.70	51.80	39.29	28.96	16.39
<b>Start of Calendar Year</b> 12-29-2020	0.00	100.00	100.00	93.73	76.17	27.60
<b>Start of Water Year</b> 09-29-2020	0.00	100.00	99.29	89.35	52.88	2.64
<b>One Year Ago</b> 08-18-2020	0.00	100.00	98.76	72.69	27.31	0.00



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>*

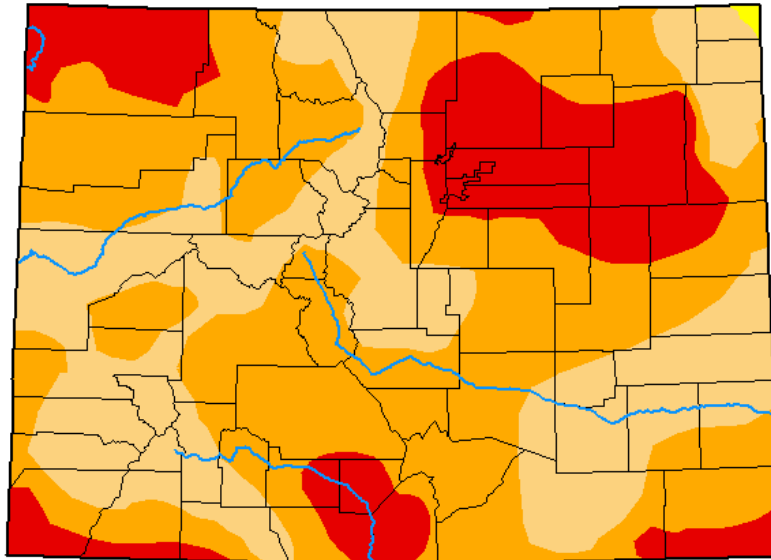
Author:

Curtis Riganti  
National Drought Mitigation Center



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

# U.S. Drought Monitor Colorado



**December 14, 2021** **Two months ago**  
 (Released Thursday, Dec. 16, 2021)  
 Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	99.86	67.90	19.18	0.00
<b>Last Week</b> 12-07-2021	0.00	100.00	99.87	67.85	19.18	0.00
<b>3 Months Ago</b> 09-14-2021	34.60	65.40	37.06	24.48	15.05	3.91
<b>Start of Calendar Year</b> 12-29-2020	0.00	100.00	100.00	93.73	76.17	27.60
<b>Start of Water Year</b> 09-28-2021	12.72	87.28	46.42	26.30	15.05	3.91
<b>One Year Ago</b> 12-15-2020	0.00	100.00	100.00	93.73	76.17	27.60

Intensity:

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

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Author:

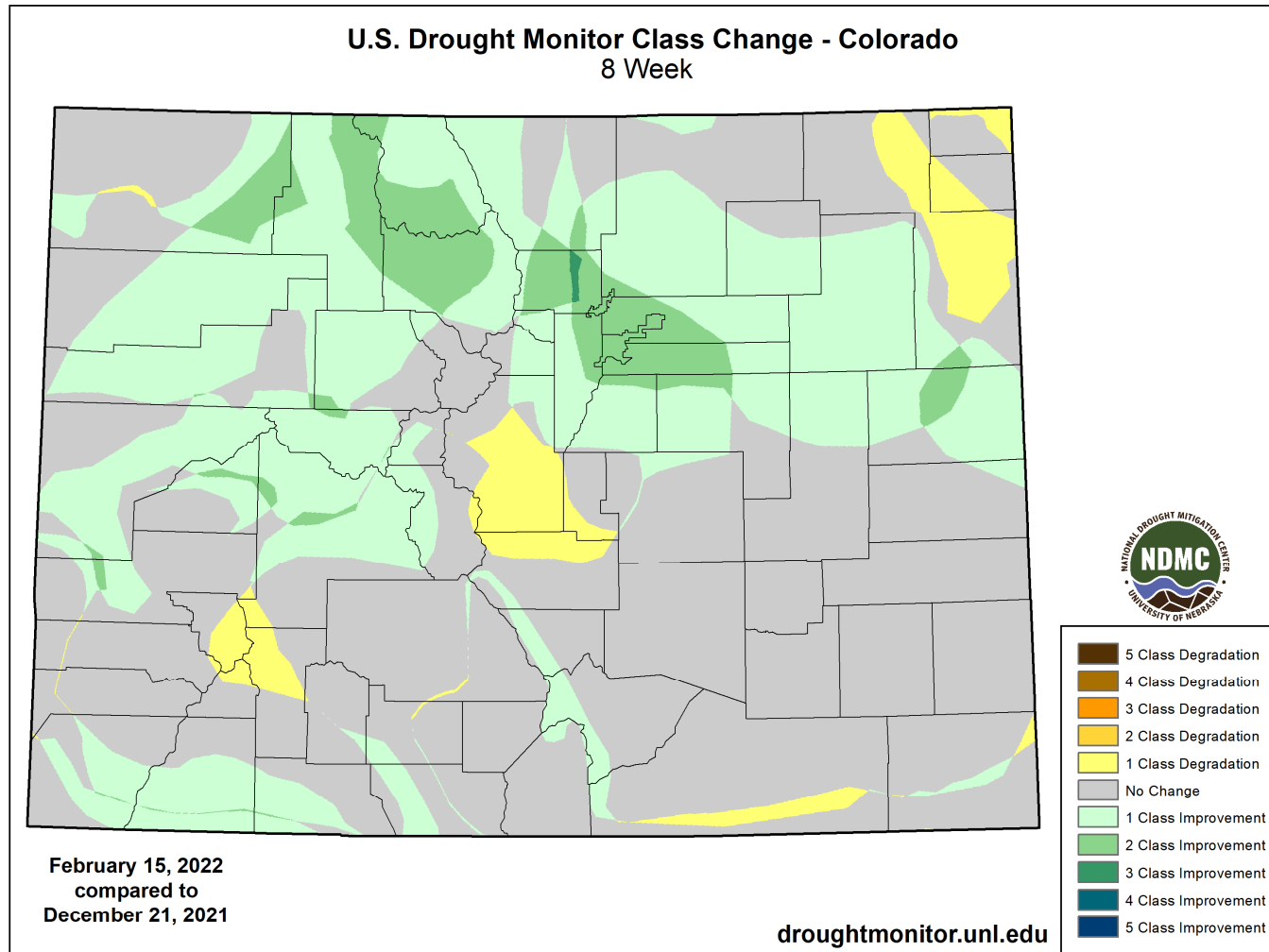
David Simeral  
 Western Regional Climate Center



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

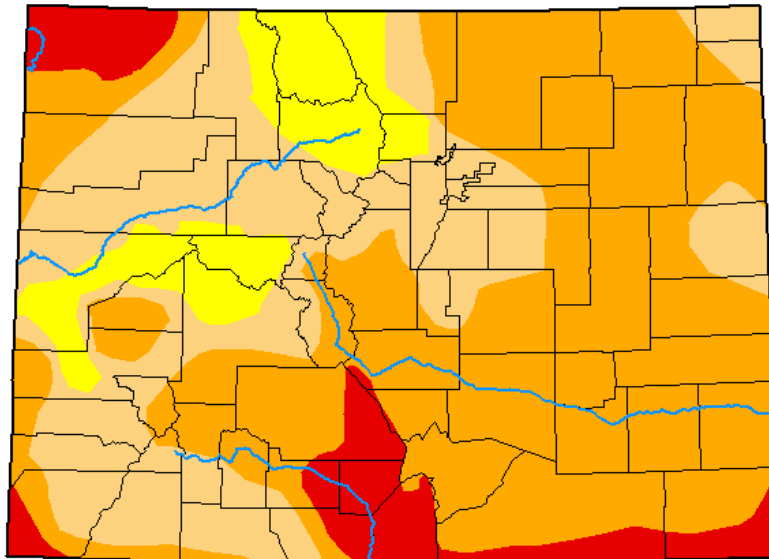


# Change over two months



# U.S. Drought Monitor Colorado

**February 15, 2022**  
(Released Thursday, Feb. 17, 2022)  
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	90.41	59.81	8.55	0.00
<b>Last Week</b> 02-08-2022	0.00	100.00	88.17	62.00	8.55	0.00
<b>3 Months Ago</b> 11-16-2021	2.51	97.49	77.70	39.35	6.10	0.00
<b>Start of Calendar Year</b> 01-04-2022	0.00	100.00	95.49	67.08	22.25	0.00
<b>Start of Water Year</b> 09-28-2021	12.72	87.28	46.42	26.30	15.05	3.91
<b>One Year Ago</b> 02-16-2021	0.00	100.00	100.00	90.24	58.91	17.78

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:

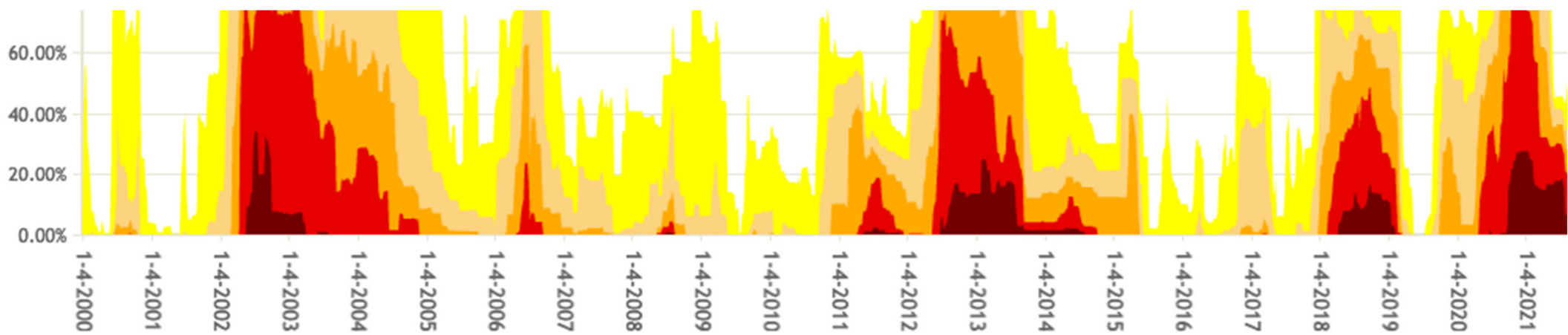
Brad Pugh  
CPC/NOAA





[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)



# Percent of Colorado in drought (since 2000)

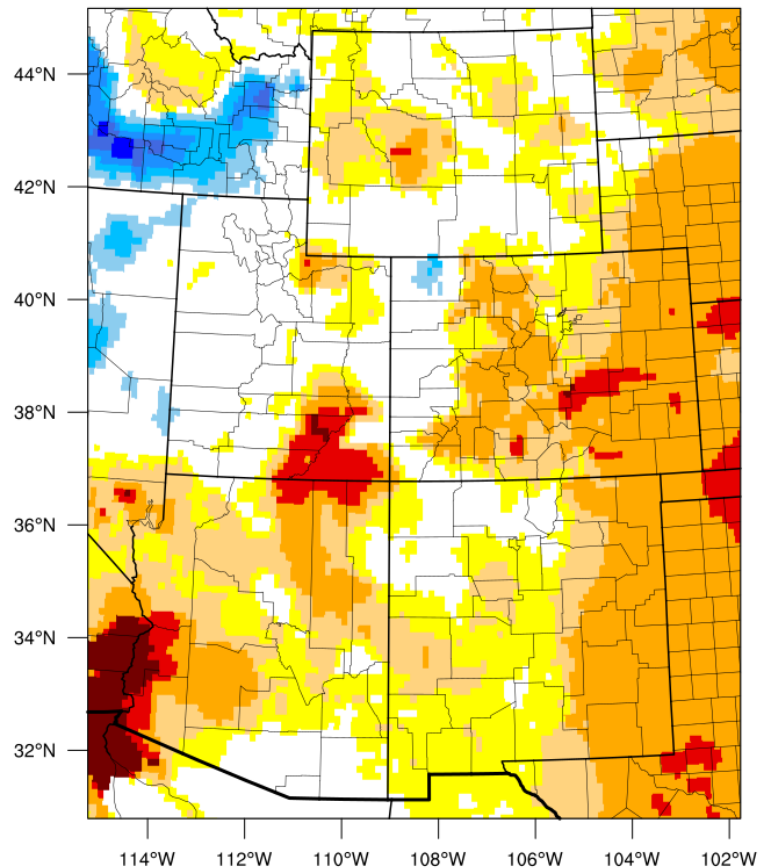


***Intensity:***

-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

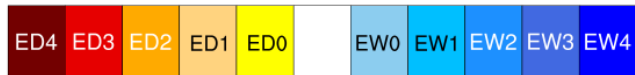


2-month EDDI categories for February 12, 2022



Drought categories

Wetness categories



100% 98% 95% 90% 80% 70% 30% 20% 10% 5% 2% 0%  
(EDDI-percentile category breaks: 100% = driest; 0% = wettest)

Generated by NOAA/ESRL/Physical Sciences Laboratory

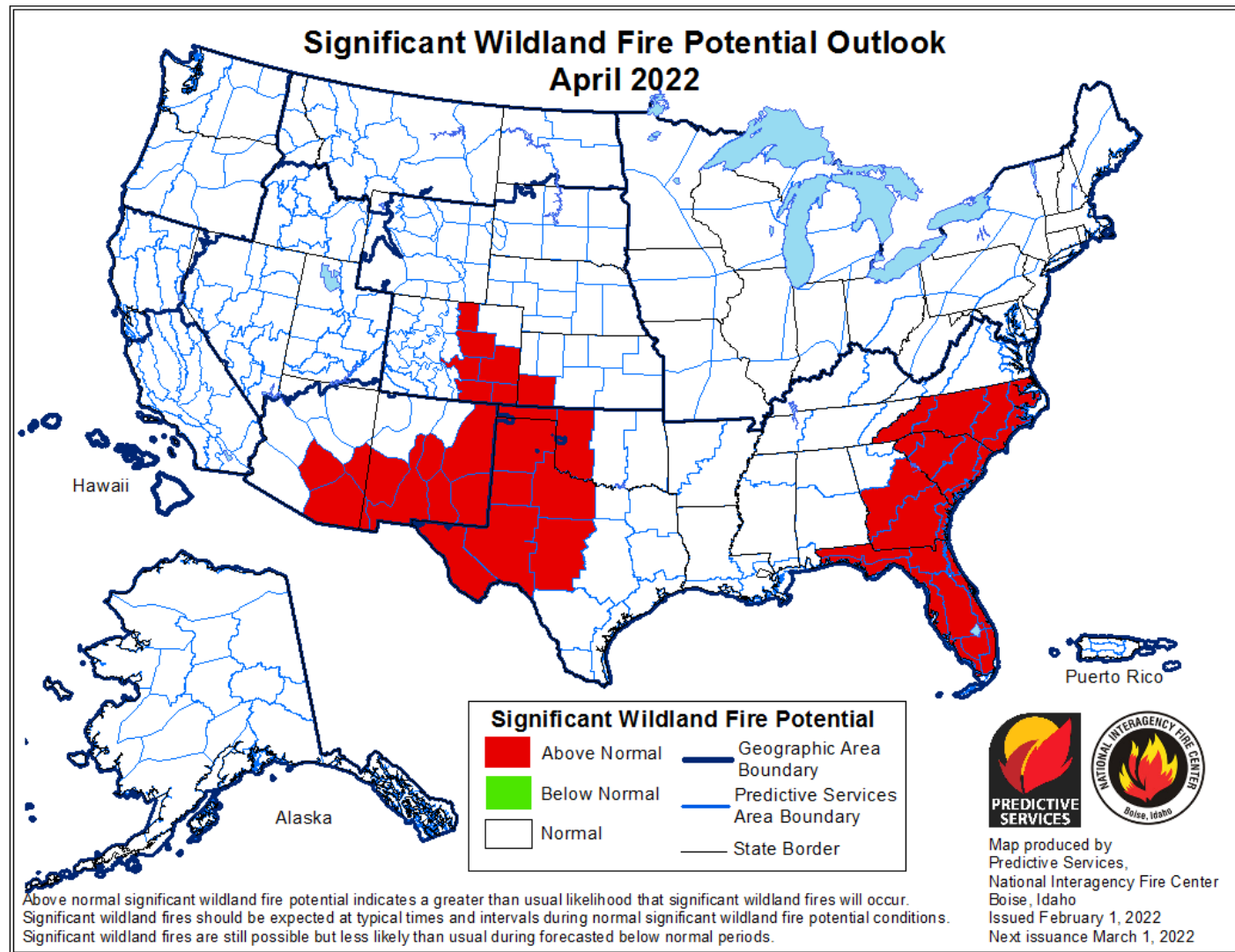
## Evaporative Demand Drought Index

Usually we look at evaporative demand in the warm season, but the last few months have had above normal (for winter) ET on the eastern plains, with drought continuing.

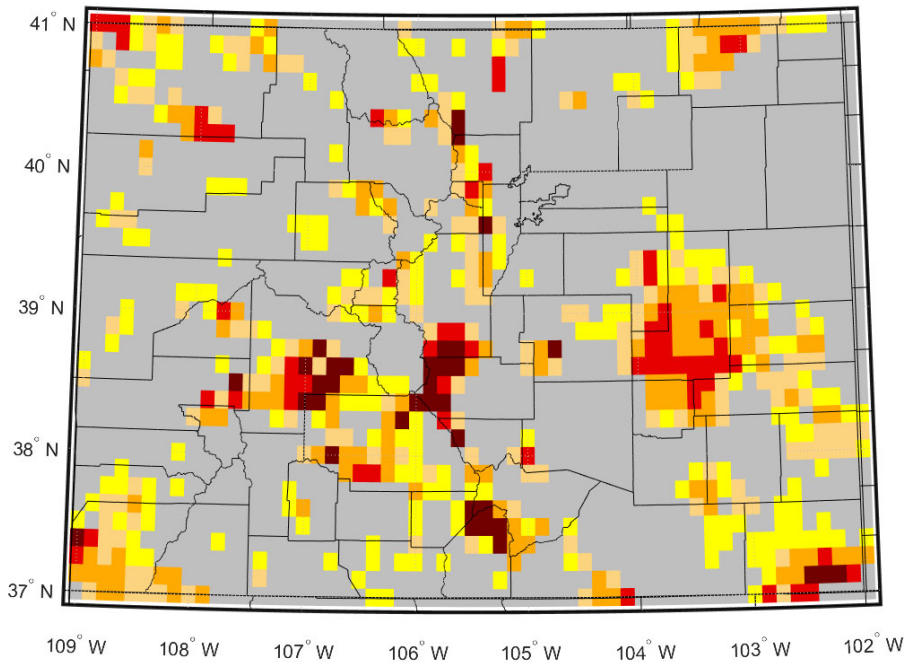




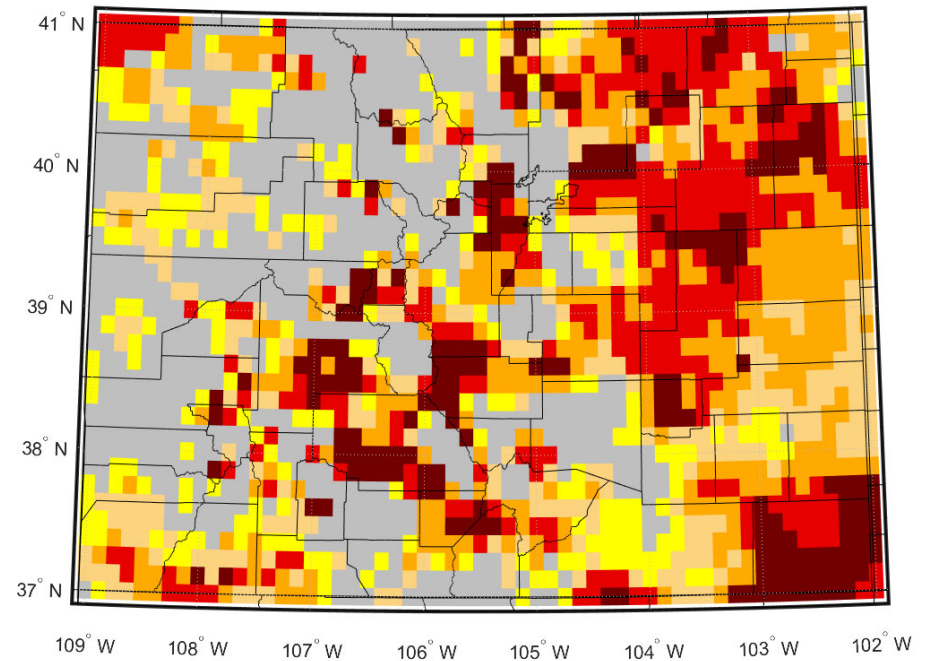
**USDA outlooks point to increased potential for grass fires in the spring on the plains**



Top 10cm Soil Moisture Percentile  
02/08/2022



Top Meter Soil Moisture Percentile  
02/08/2022

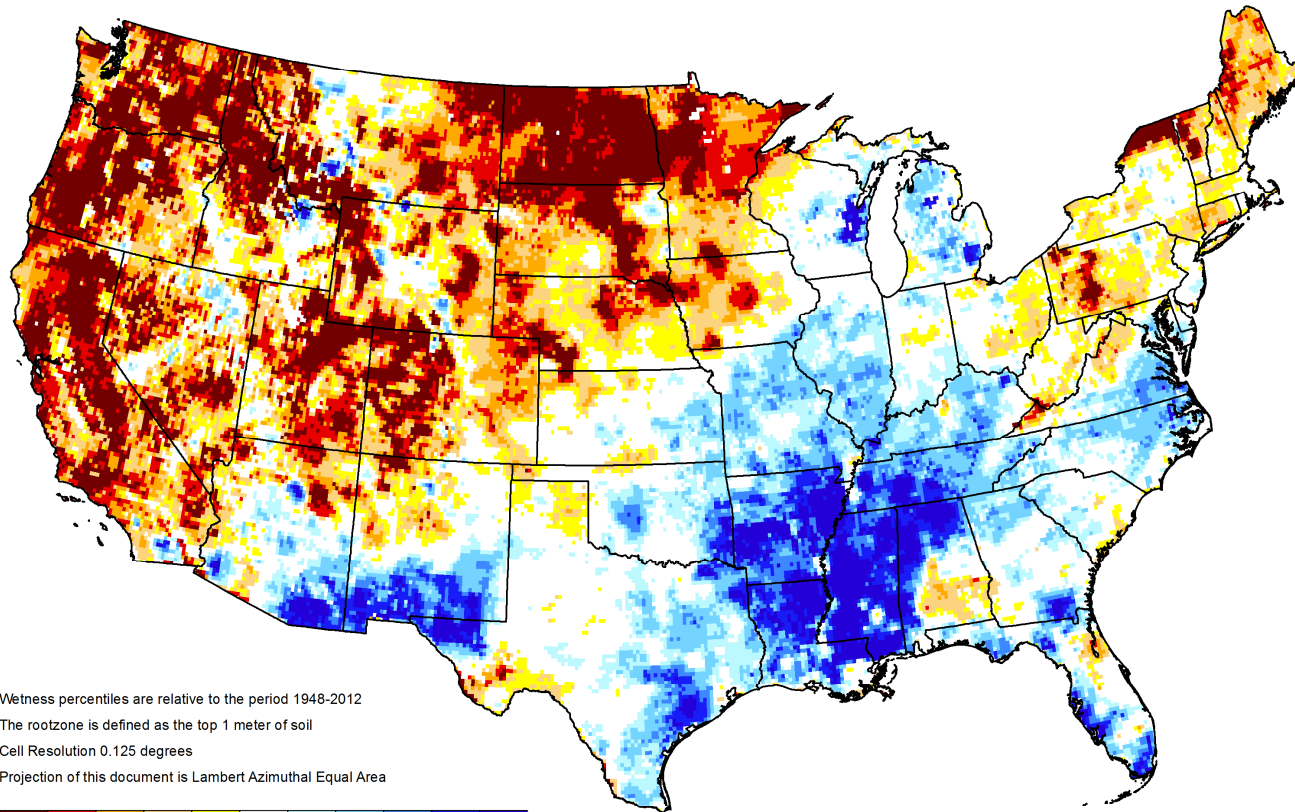


Shallow soil moisture looking better in most places; deficits remain in deep soil moisture especially on the eastern plains and parts of the San Luis Valley

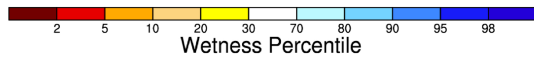


# GRACE-Based Root Zone Soil Moisture Drought Indicator

August 16, 2021



Wetness percentiles are relative to the period 1948-2012  
The rootzone is defined as the top 1 meter of soil  
Cell Resolution 0.125 degrees  
Projection of this document is Lambert Azimuthal Equal Area



<https://nasagrace.unl.edu>

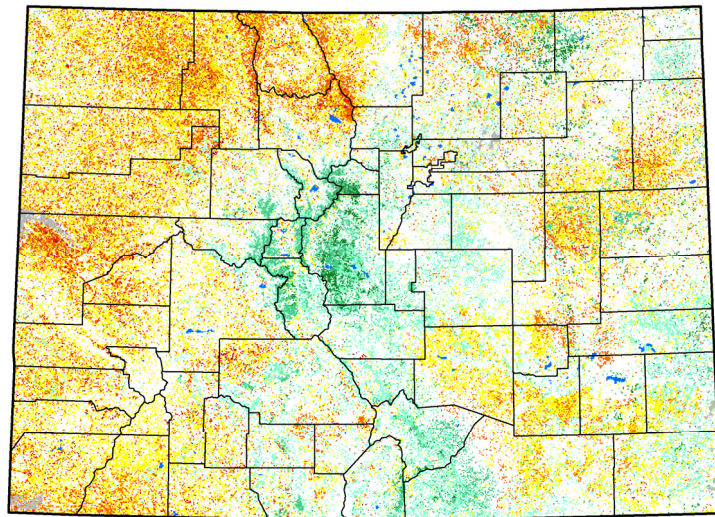


VegDRI: longer-term vegetation condition

QuickDRI: shorter-term vegetation response

**Vegetation Drought Response Index**  
Complete: Colorado

August 22, 2021



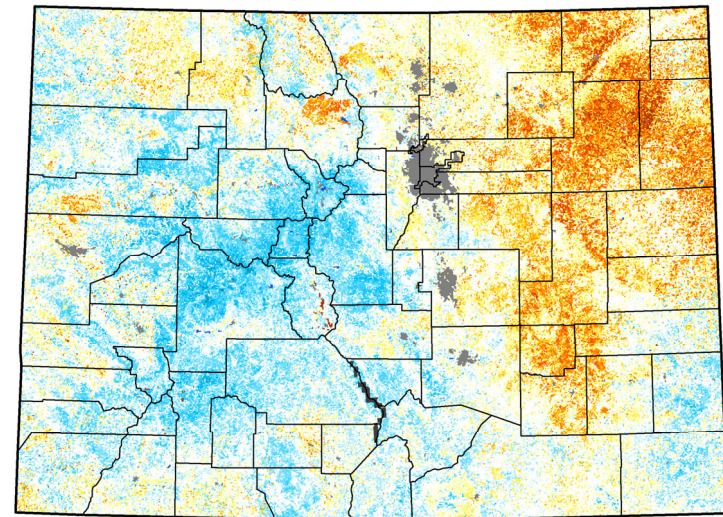
**Vegetation Condition**

- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-drought stress
- Near Normal
- Unusually Moist
- Very Moist
- Extreme Moist
- Out of Season
- Water



**Quick Drought Response Index**  
Colorado

August 15, 2021  
(Week 33)

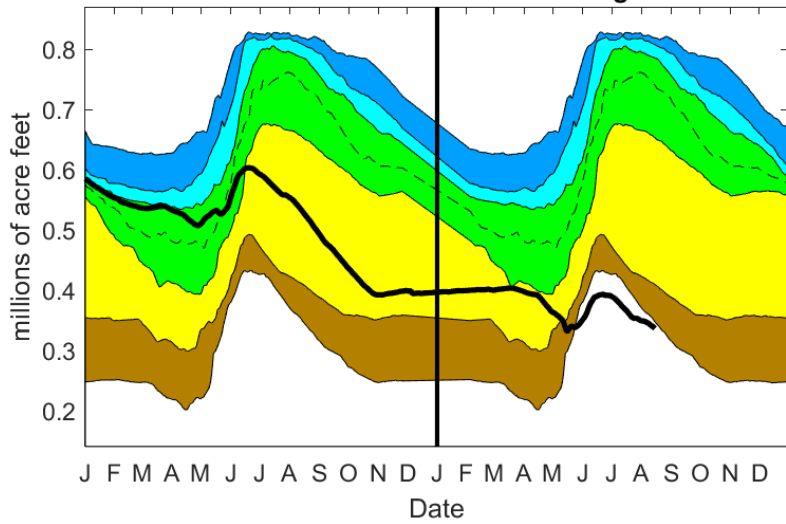


**Conditions Relative to 4-Week Historical Average**

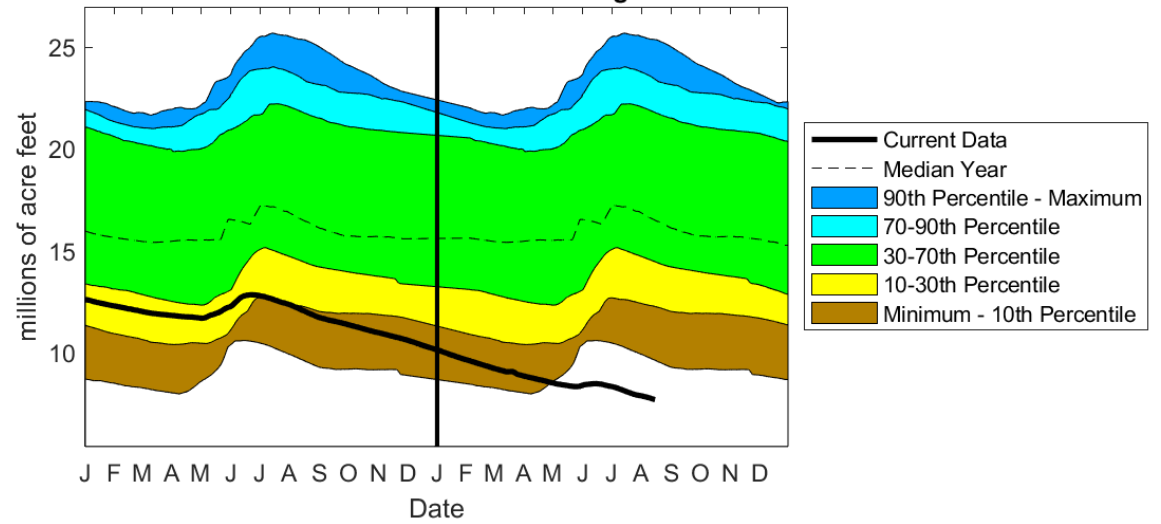
- Wetter
- Near Average
- Drier
- Out of Season
- Urban
- No Data
- Water



**Blue Mesa Reservoir Level 08/15/2021**  
**50 Percent of 1981-2019 Average**



**Lake Powell Level 08/15/2021**  
**43 Percent of 1981-2019 Average**



- Current Data
- - - Median Year
- 90th Percentile - Maximum
- 70-90th Percentile
- 30-70th Percentile
- 10-30th Percentile
- Minimum - 10th Percentile

See others on our drought page:  
<https://climate.colostate.edu/drought/>



# nature climate change

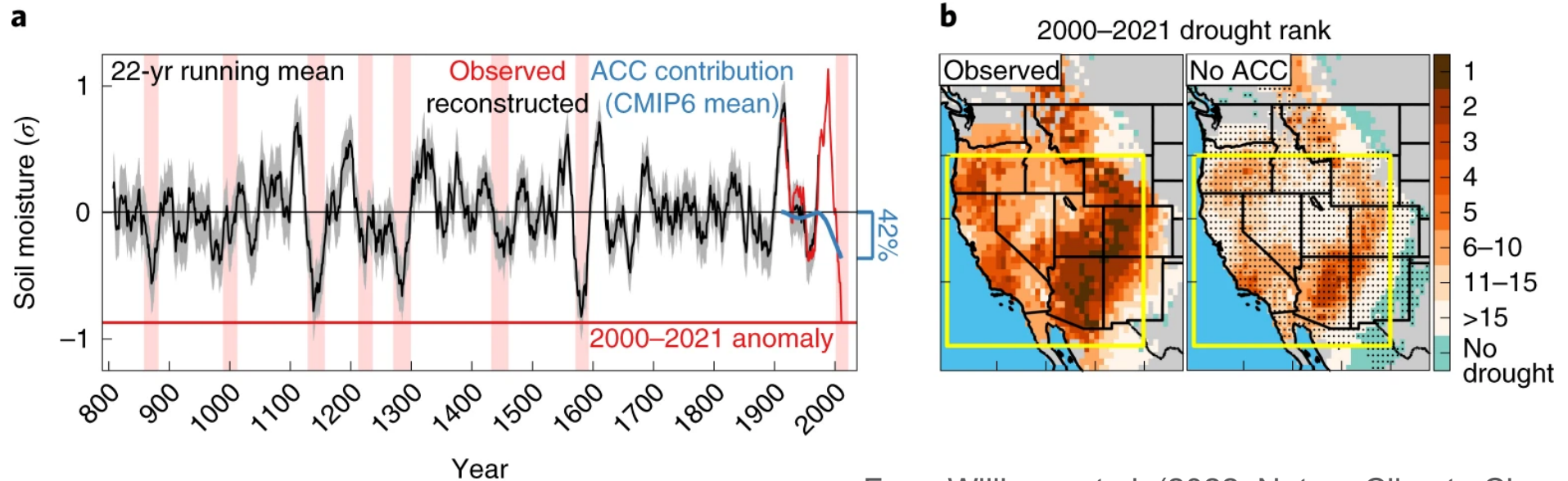
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Brief Communication | [Published: 14 February 2022](#)

## Rapid intensification of the emerging southwestern North American megadrought in 2020–2021

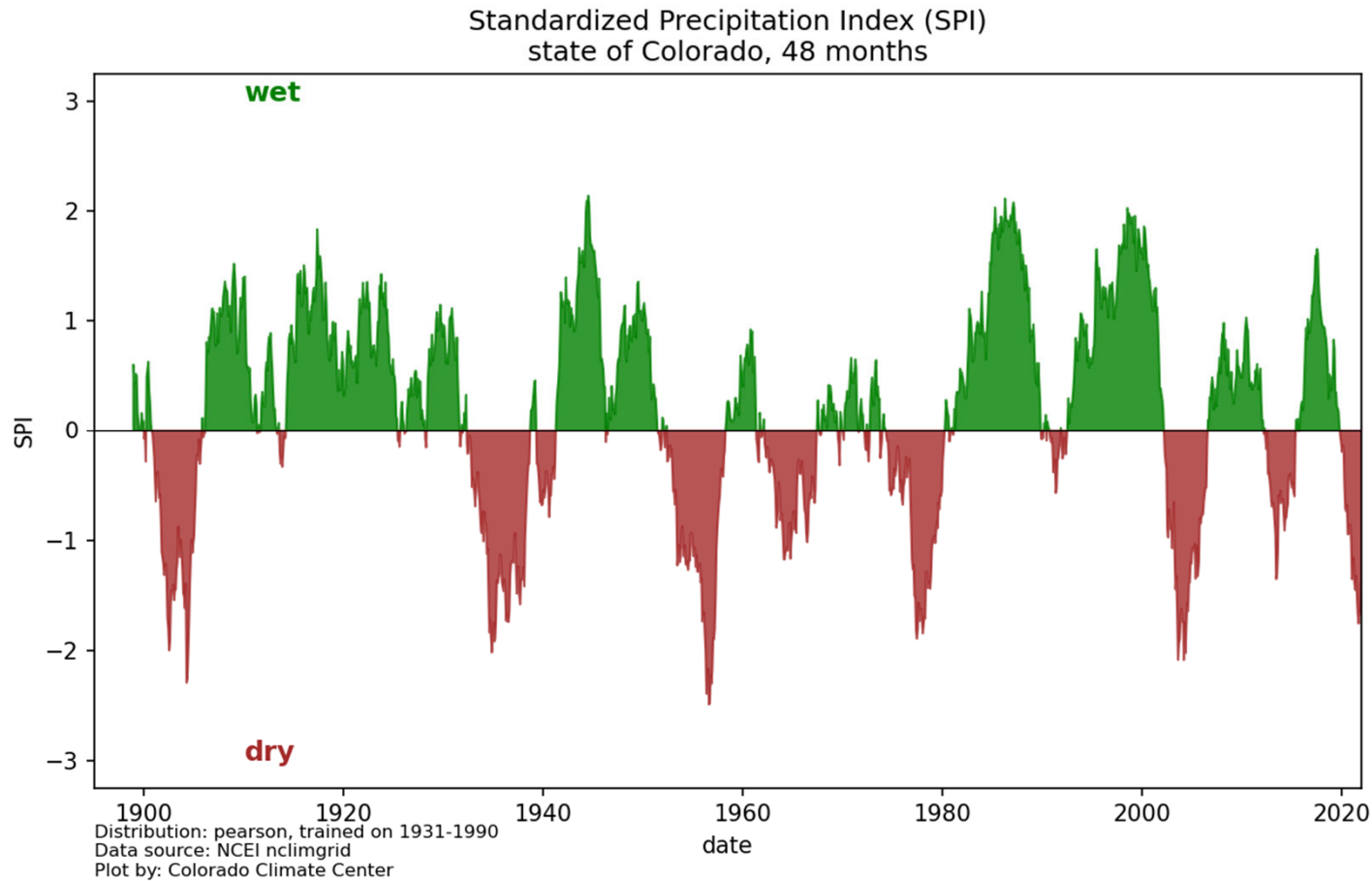
[A. Park Williams](#) ✉, [Benjamin I. Cook](#) & [Jason E. Smerdon](#)



From Williams et al. (2022, Nature Climate Change)



# Wet and dry periods come and go, and droughts have always been a part of our climate...

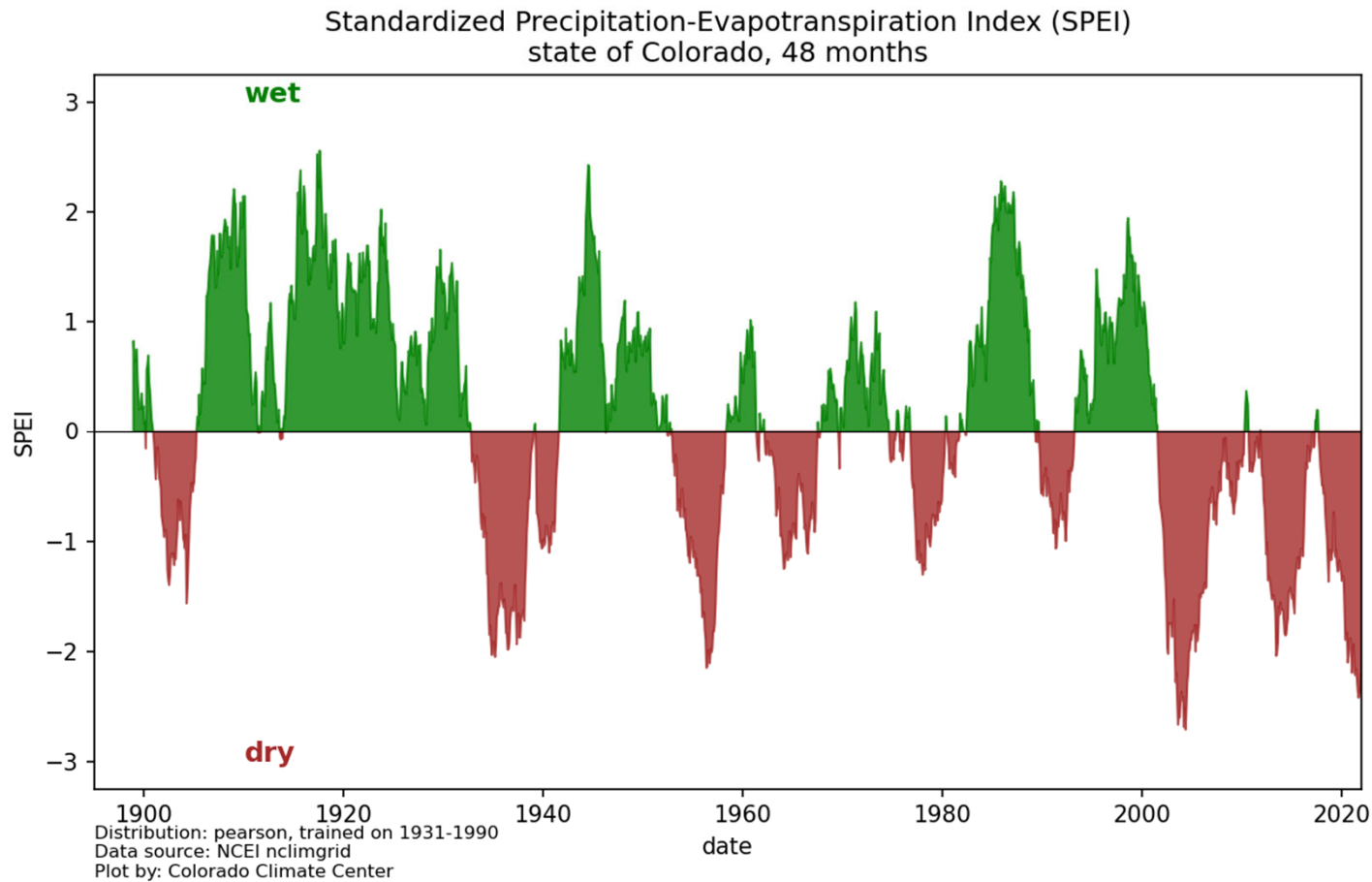


Considers  
precip only

Standardized precipitation index (48 months, statewide)



...but a warmer atmosphere is “thirstier”, making droughts more intense and more likely



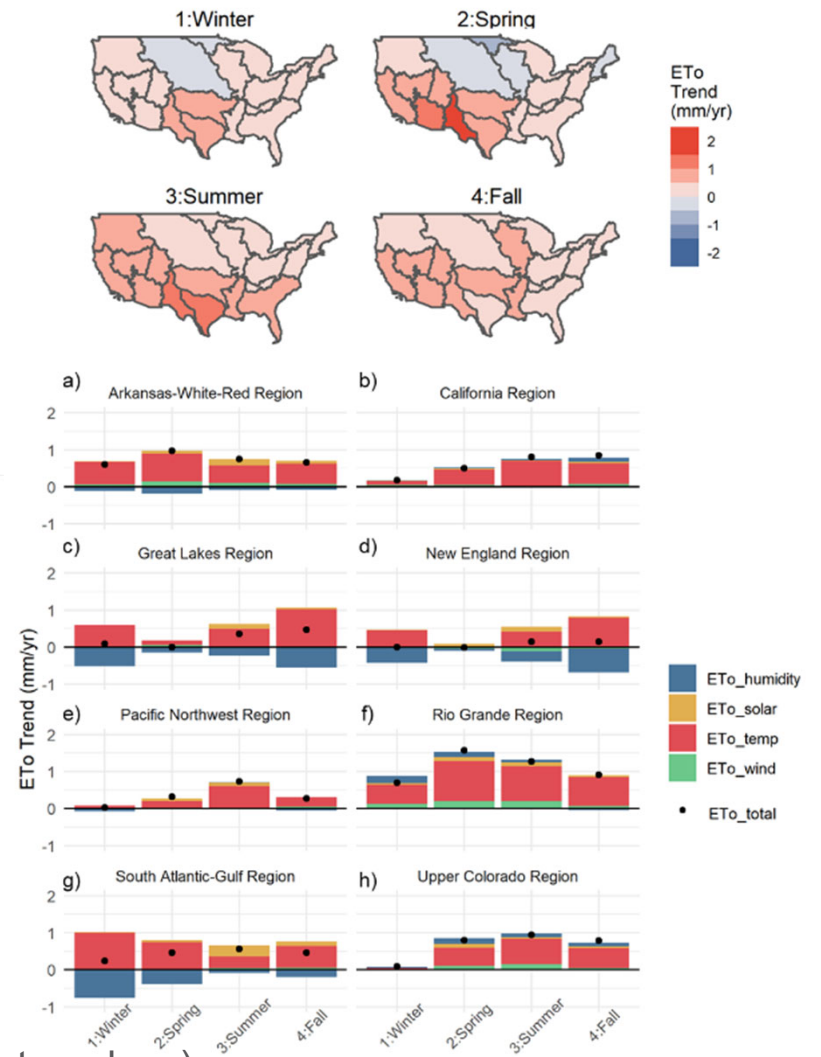
Considers  
precip +  
temperature

Standardized precipitation-evapotranspiration index (48 months, statewide)





# Trends in reference evapotranspiration by season, averaged across multiple datasets



A multi-dataset assessment of climatic drivers and uncertainties of recent trends in evaporative demand across the continental US

Christine M. Albano<sup>1</sup>, John T. Abatzoglou<sup>2</sup>, Daniel J. McEvoy<sup>3</sup>, Justin L. Huntington<sup>4</sup>, Charles G. Morton<sup>4</sup>, Michael D. Dettinger<sup>5</sup>, and Thomas J. Ott<sup>1</sup>

[View Less](#)

<sup>1</sup> <sup>a</sup> Division of Hydrologic Sciences, Desert Research Institute, Reno, Nevada | <sup>2</sup> <sup>b</sup> Management of Complex Systems Department, University of California, Merced, Merced, California | <sup>3</sup> <sup>c</sup> Division of Atmospheric Sciences, Desert Research Institute, Reno, Nevada | <sup>4</sup> <sup>d</sup> Division of Earth and Ecosystem Sciences, Desert Research Institute, Reno, Nevada | <sup>5</sup> <sup>e</sup> California-Nevada Climate Applications Program, Scripps Institution of Oceanography, La Jolla, California

Published-online: 27 Jan 2022

DOI: <https://doi.org/10.1175/JHM-D-21-0163.1>

From Albano et al. (2022, J. Hydrometeorology)





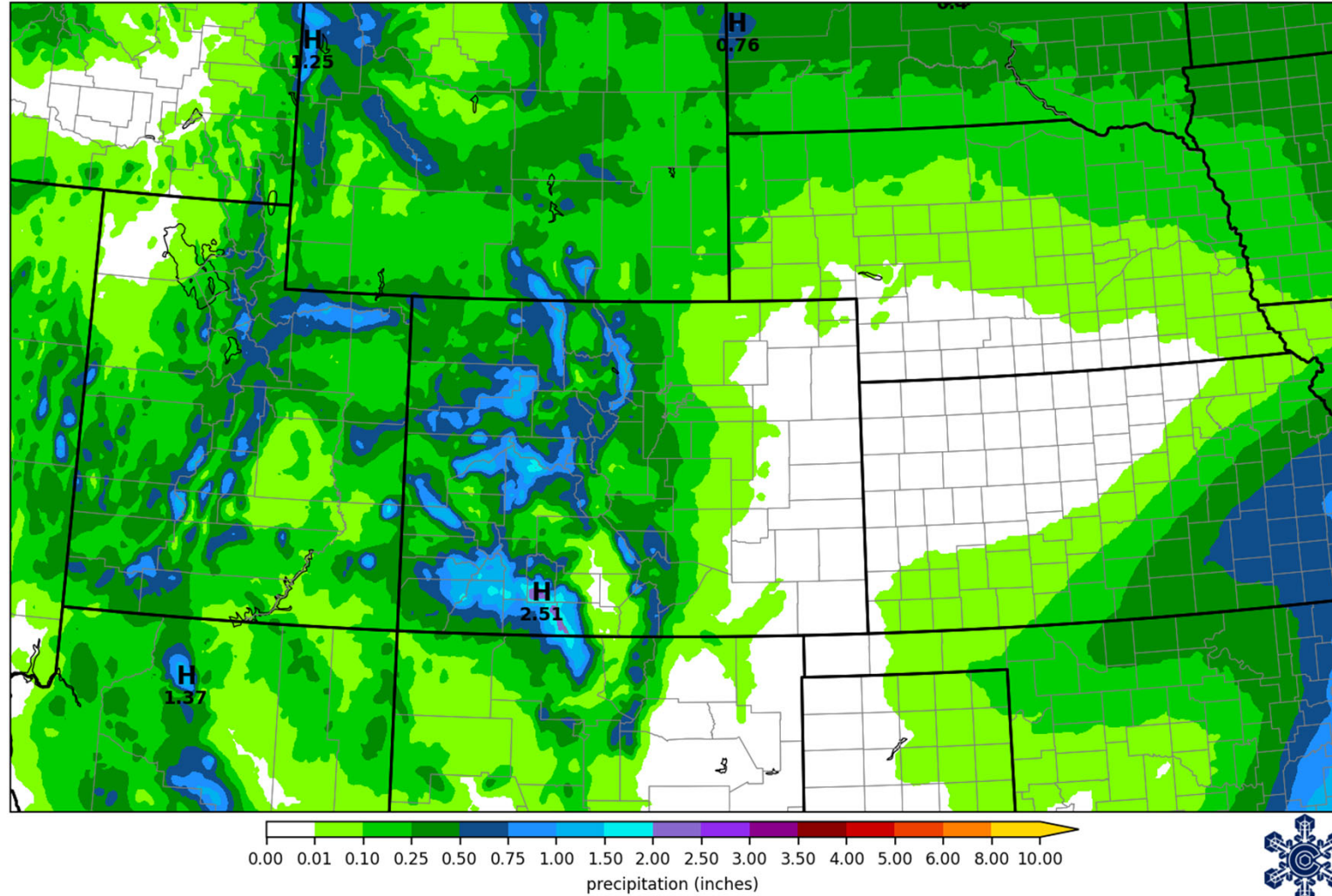
## Outlook



# NOAA 7-day precipitation forecast

NOAA Weather Prediction Center  
7-day precipitation forecast

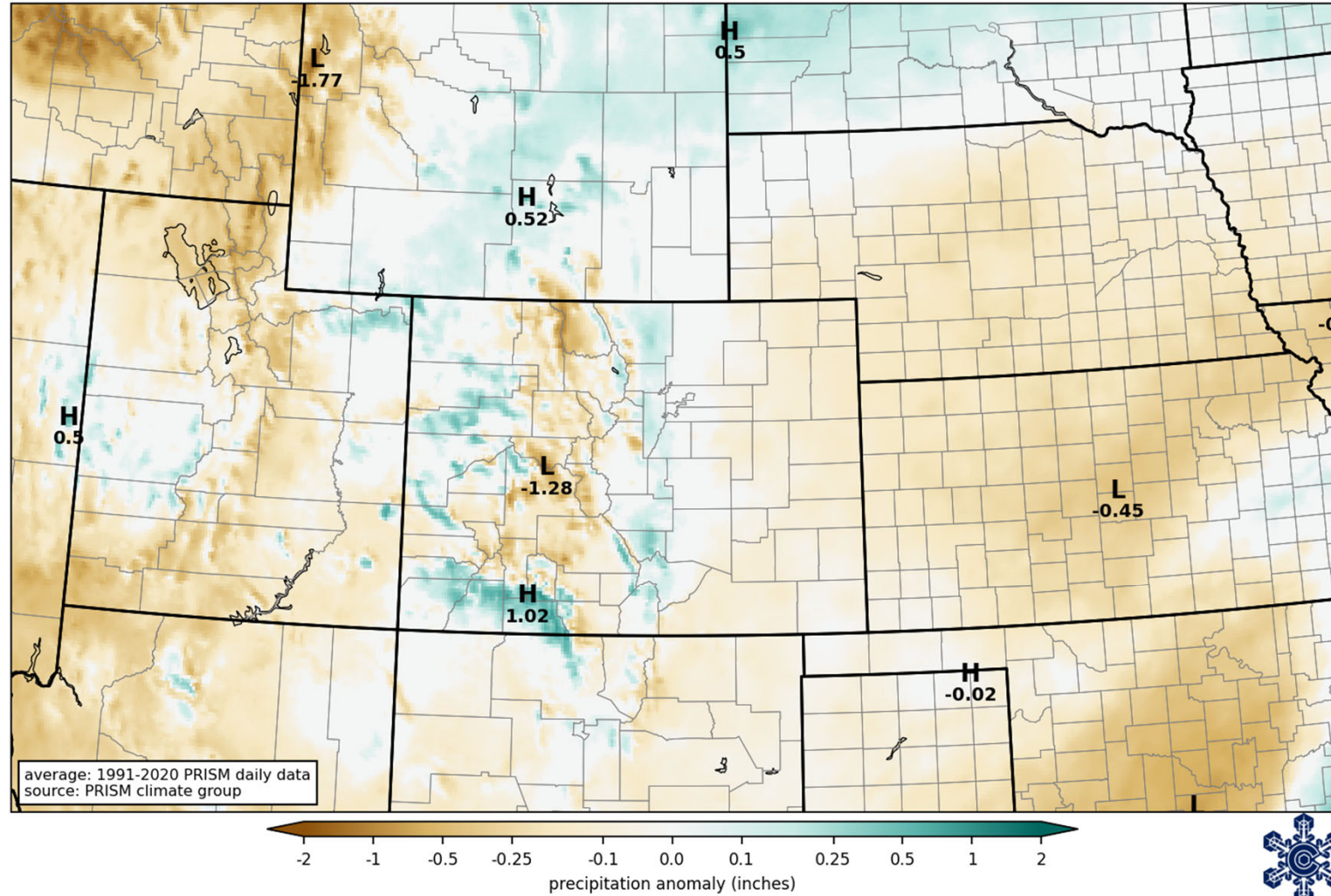
forecast issued 1200 UTC Thu 17 Feb 2022  
precipitation in 168 hrs ending 1200 UTC Thu 24 Feb 2022



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

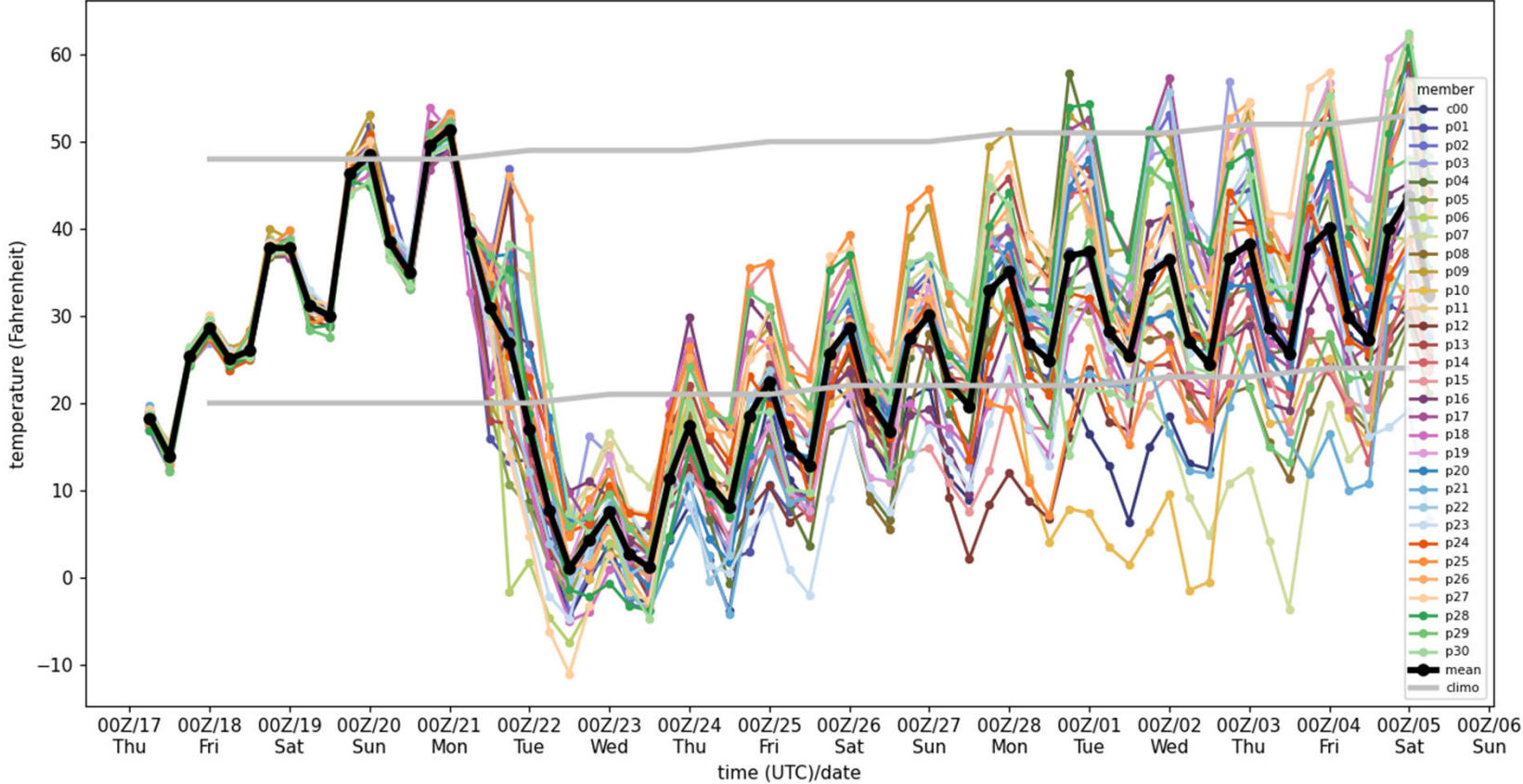
NOAA Weather Prediction Center  
7-day precip forecast departure from average

forecast issued 1200 UTC Thu 17 Feb 2022  
precipitation in 168 hrs ending 1200 UTC Thu 24 Feb 2022



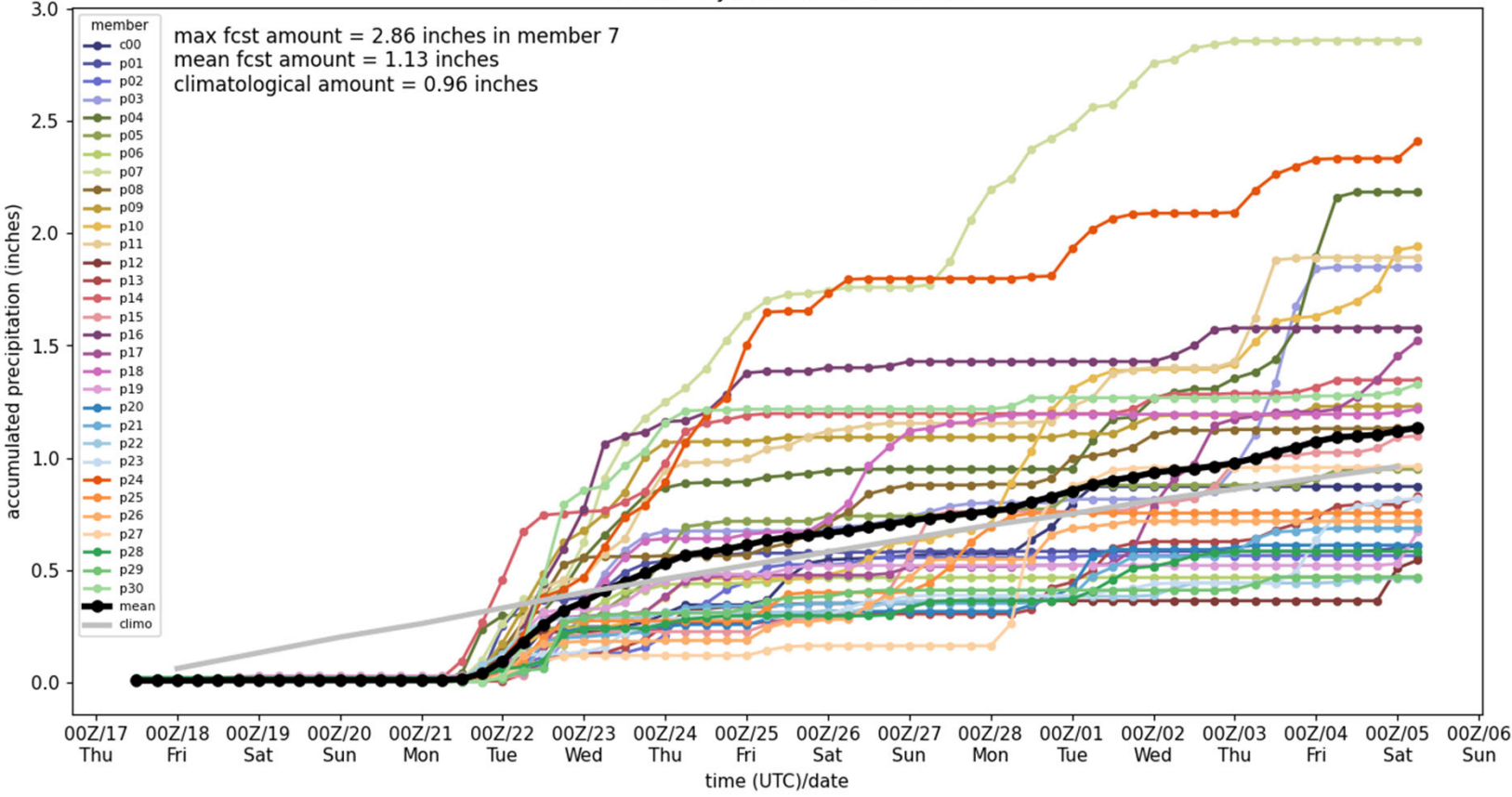
# Warming into the weekend, then a big pattern shift early next week, with extended cooler-than-average conditions

NCEP GEFS 2-m temperature at Denver  
init: Thursday 2022-02-17 0600 UTC

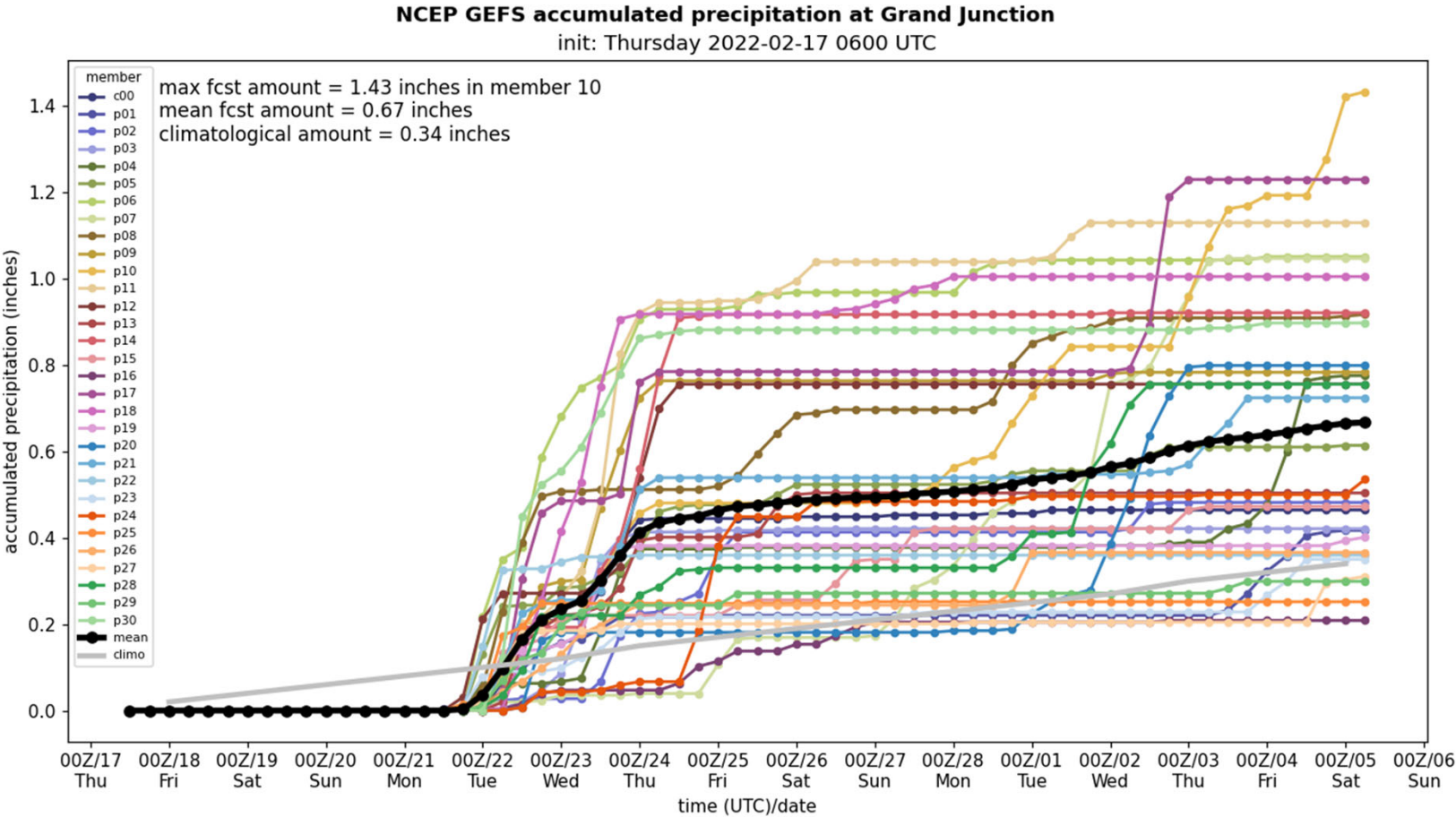


# Mountain snow pattern becomes much more active next week, though looks more like “normal” winter rather than a blockbuster storm

**NCEP GEFS accumulated precipitation at Steamboat Springs**  
init: Thursday 2022-02-17 0600 UTC



# Western slope lower elevations should get decent precip (rain?) next week



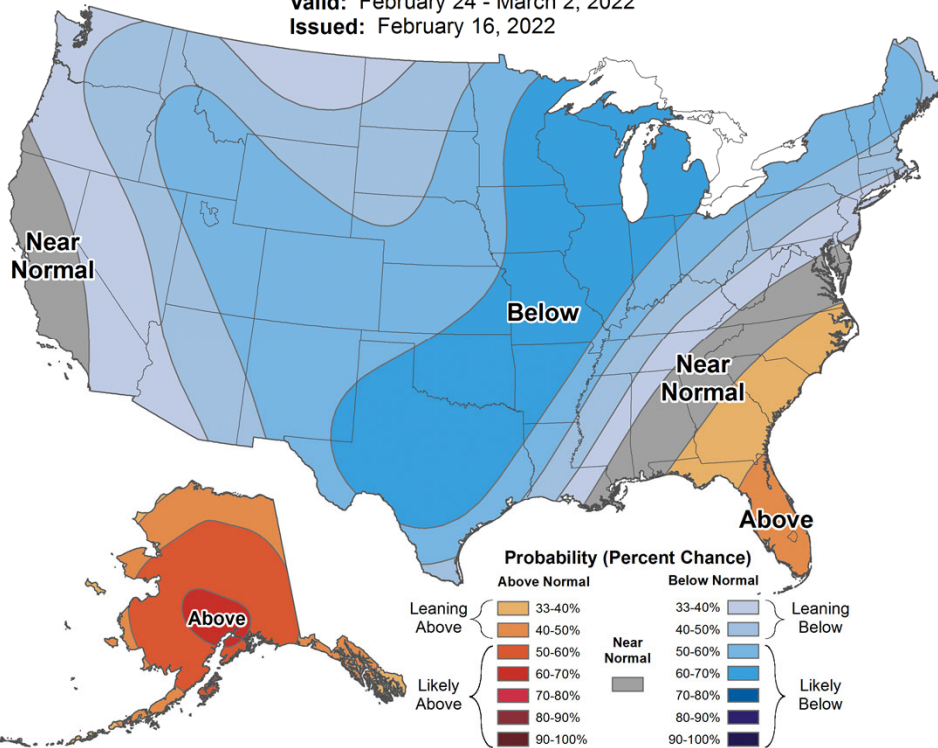
# February 24 – March 2 (after the real cold and snow early next week)



## 8-14 Day Temperature Outlook



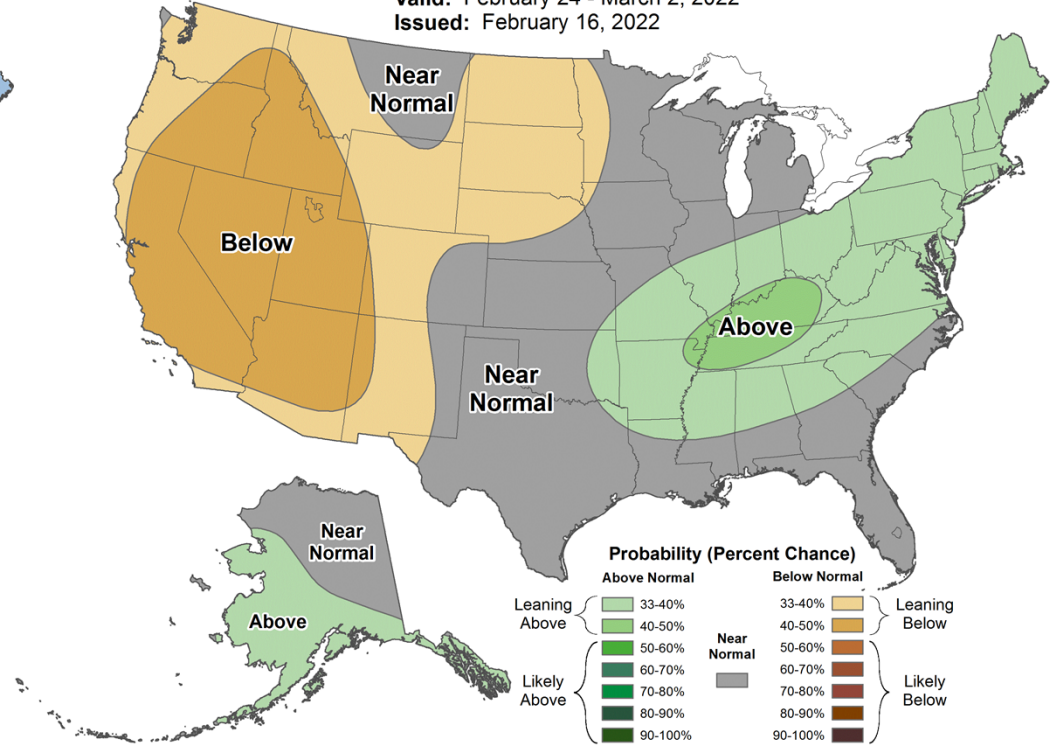
Valid: February 24 - March 2, 2022  
 Issued: February 16, 2022



## 8-14 Day Precipitation Outlook



Valid: February 24 - March 2, 2022  
 Issued: February 16, 2022





# La Niña still in place, but starting to wane

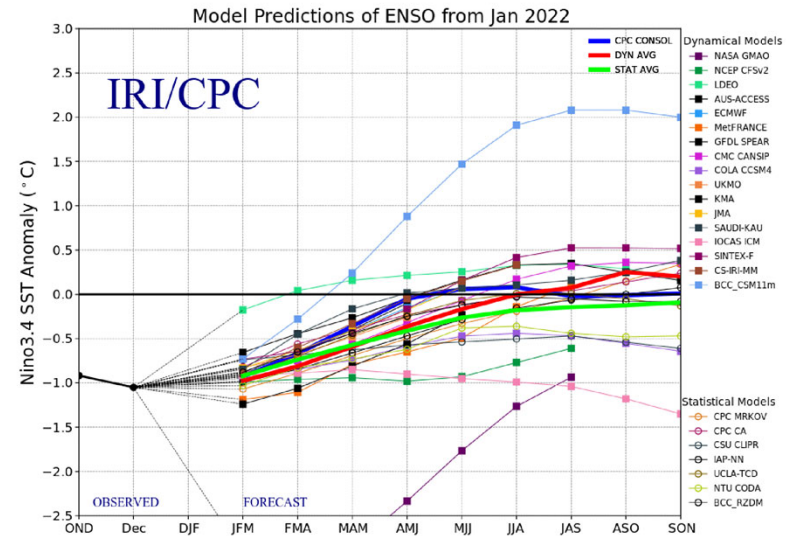
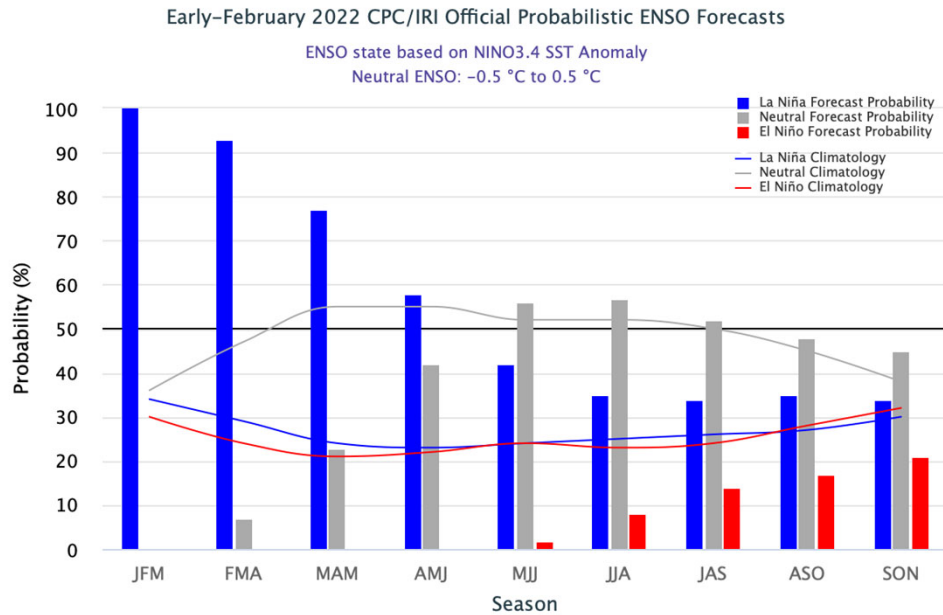
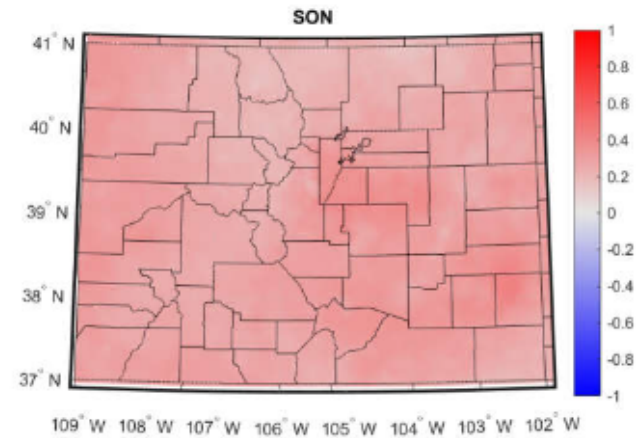
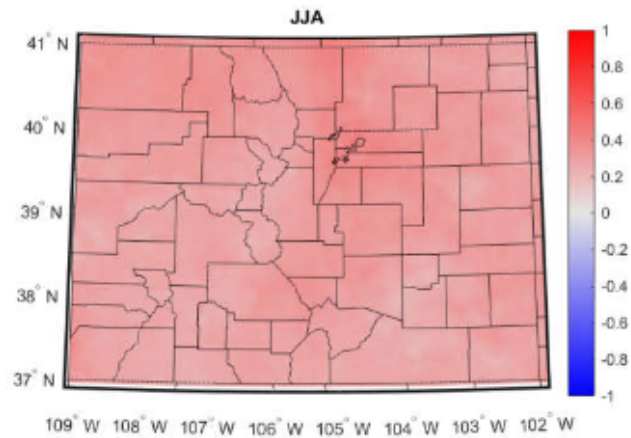
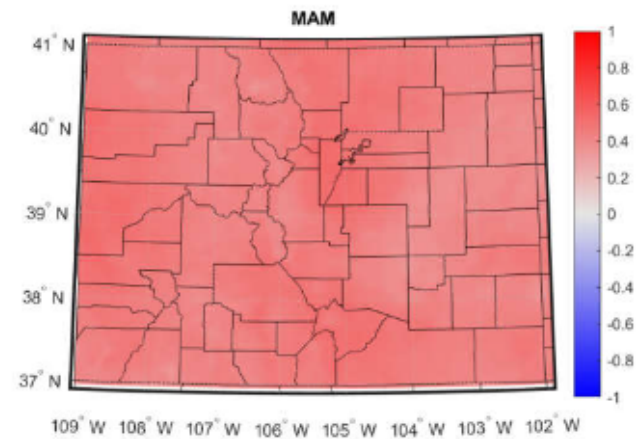
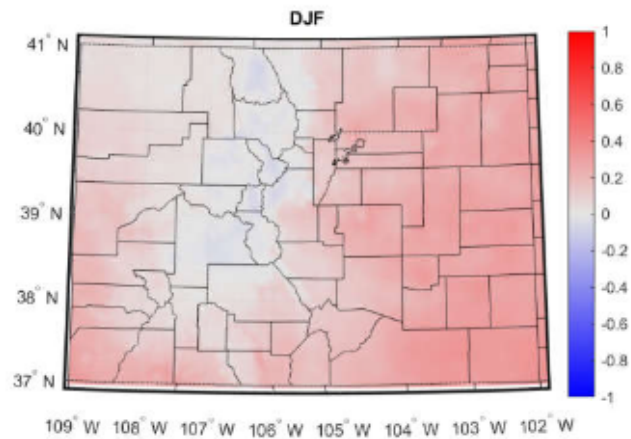


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $120^{\circ}\text{W}$ - $170^{\circ}\text{W}$ ). Figure updated 19 January 2022.

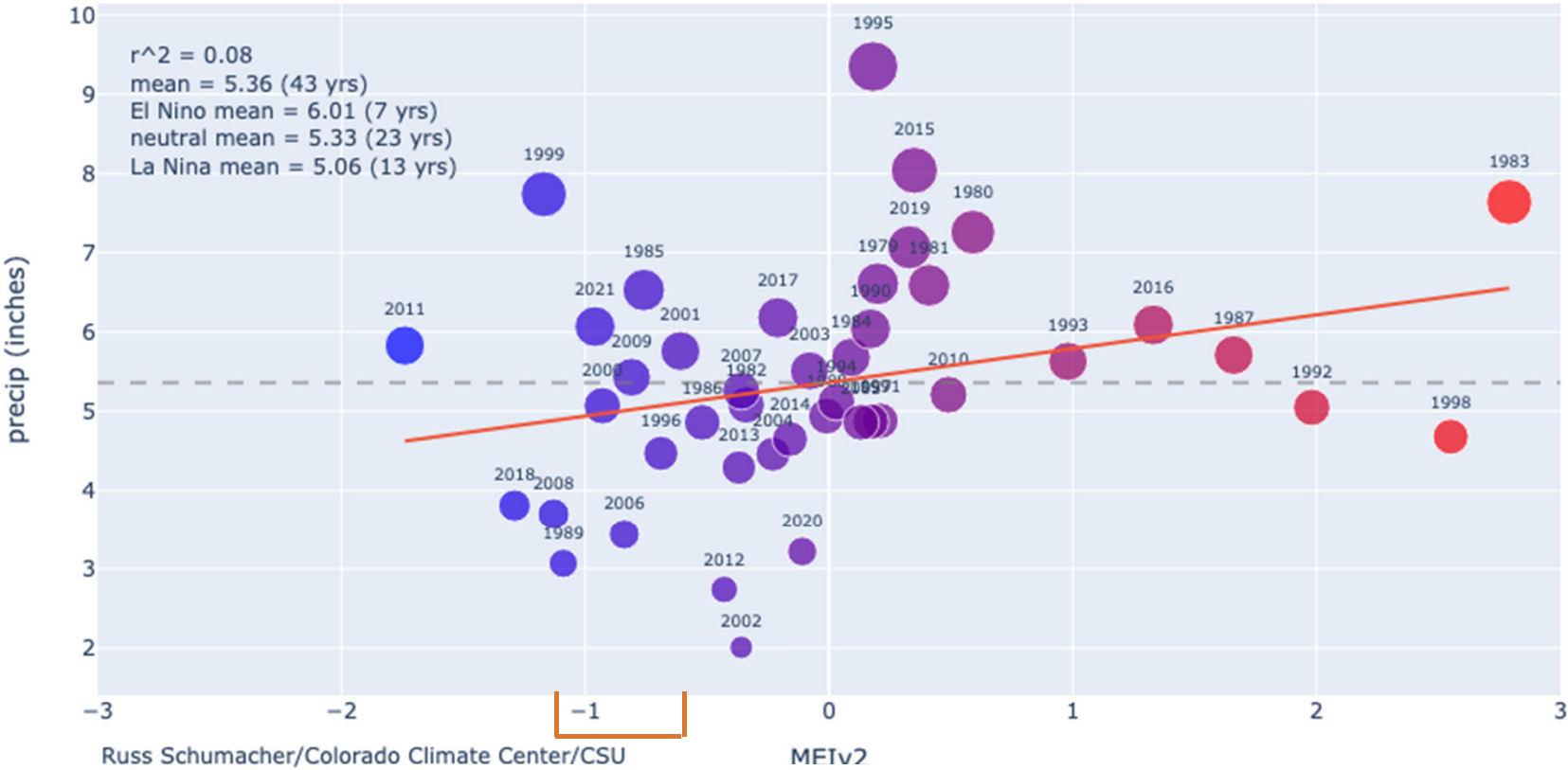
La Niña is likely to continue through the spring (77% chance), and then transition to ENSO-neutral by summer



## Correlation Between ENSO MEI and Seasonal Precipitation Accumulation (1981-2020)



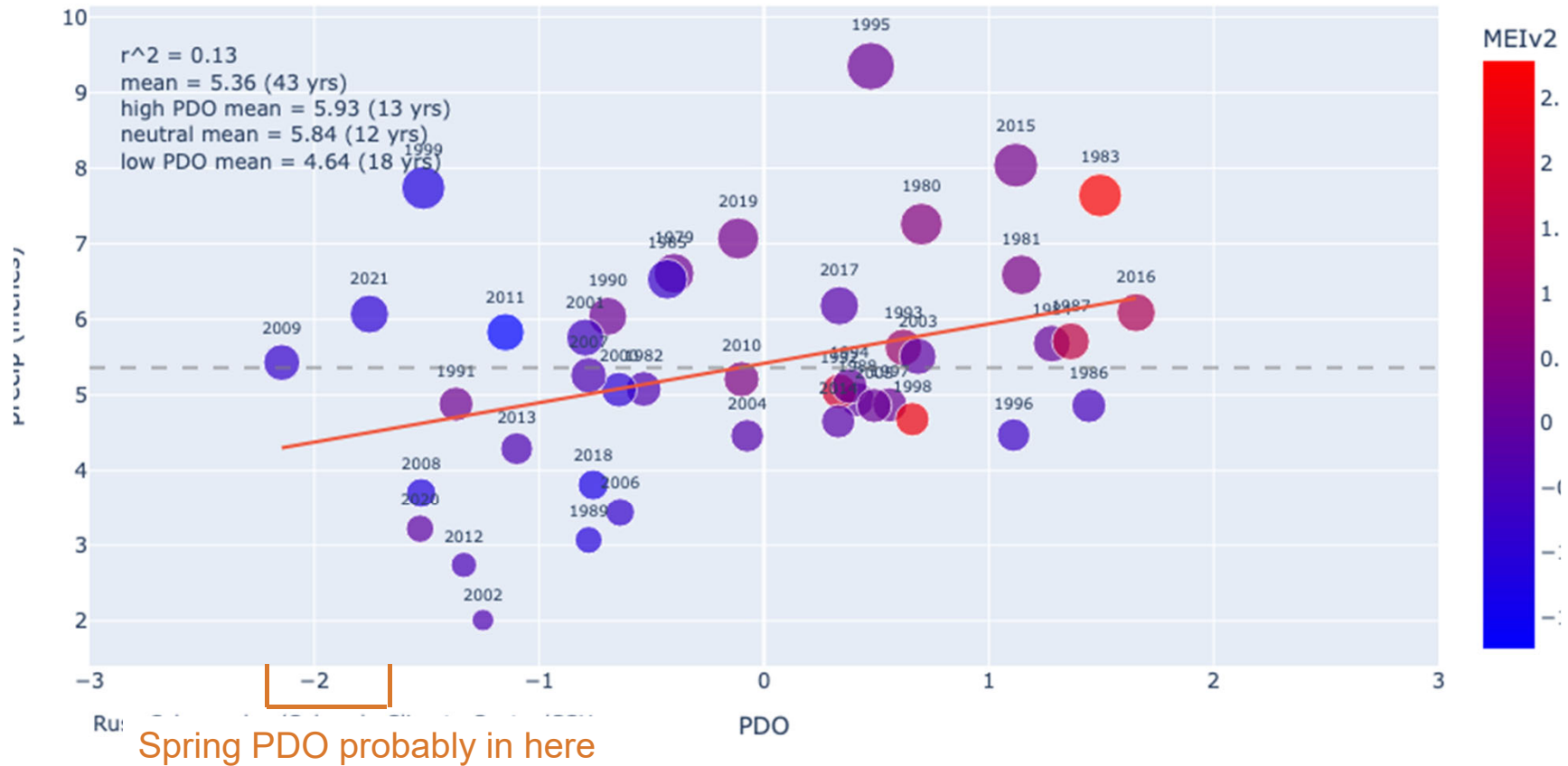
Colorado statewide average precipitation vs multivariate ENSO index, March - May



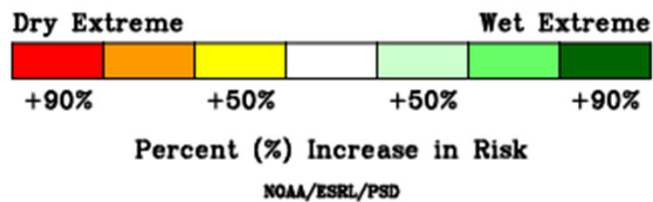
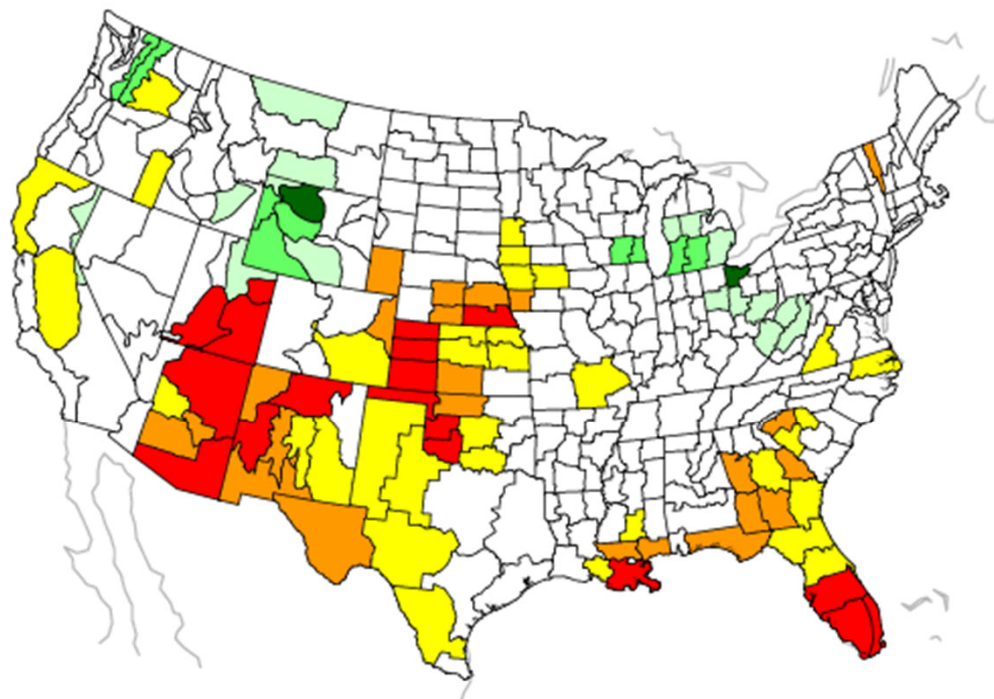
Source: Spring ENSO probably in here



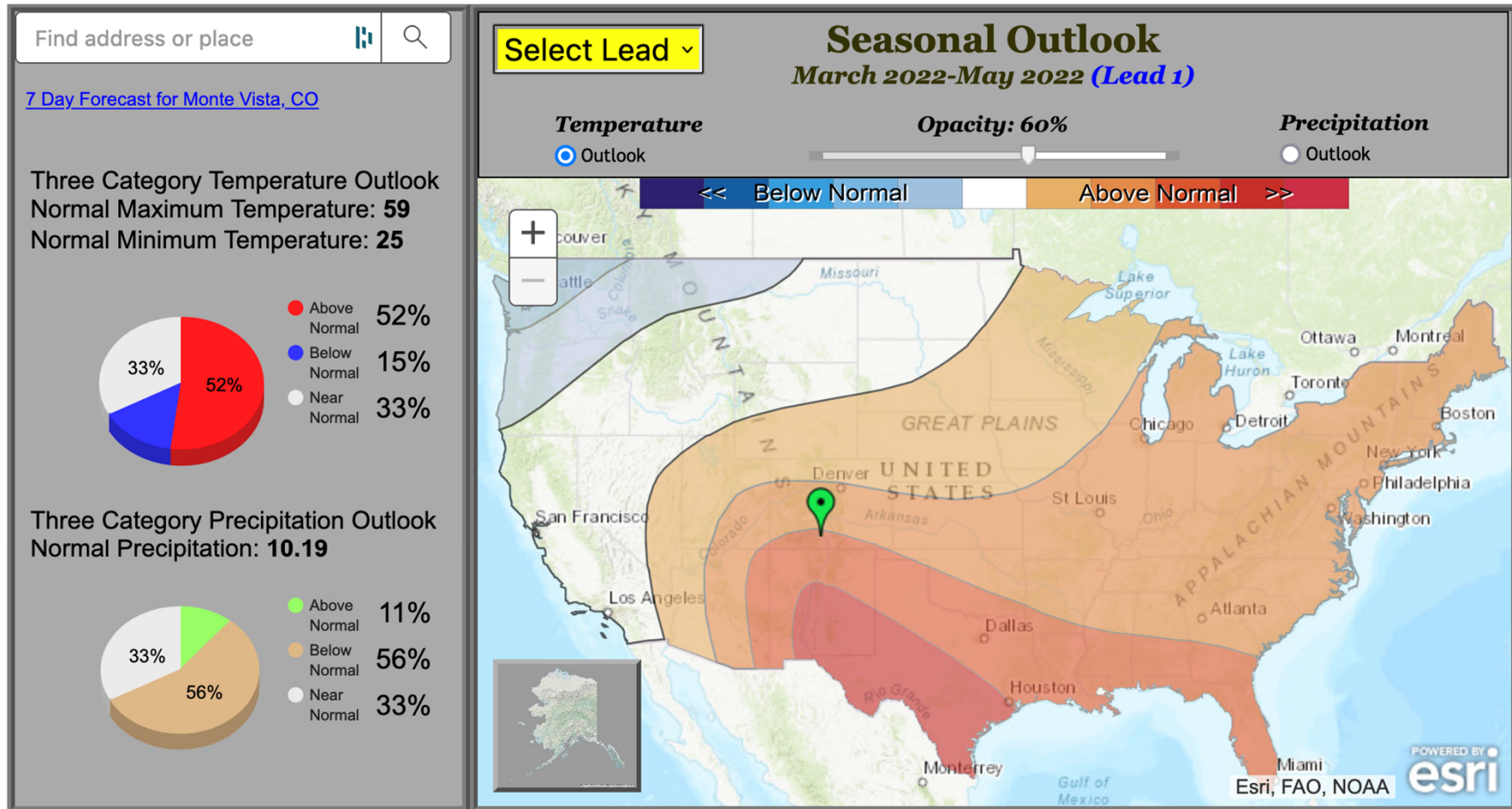
### Colorado statewide average precipitation vs Pacific Decadal Oscillation index, March - May



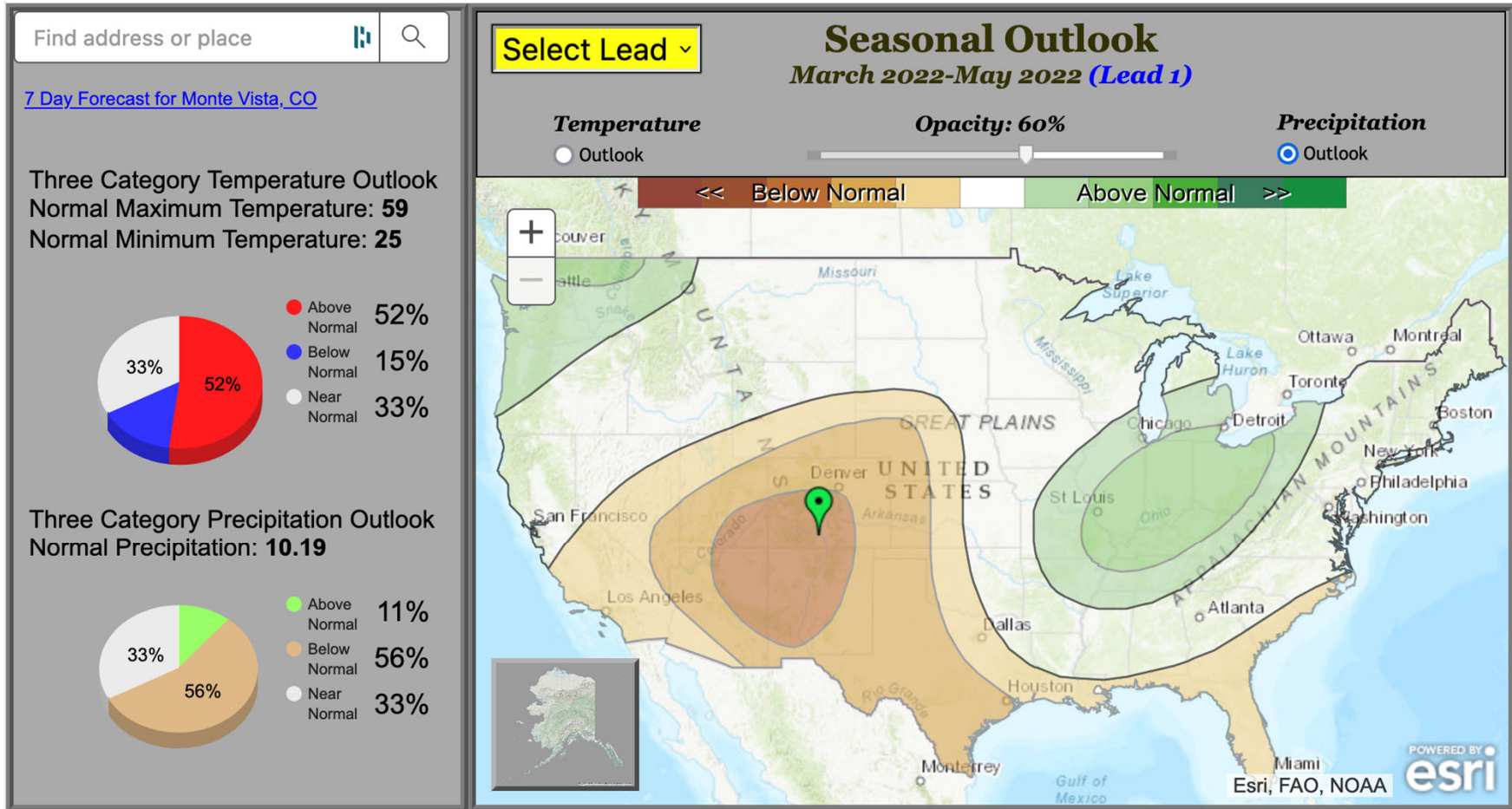
### MAM Precipitation During La Nina Increased Risk of Wet or Dry Extremes



# March-April-May outlook



# March-April-May outlook



# Takeaways

- Recent snow along the Front Range has been very welcome, but the mountains have had very little snow since the huge storm cycle of late December/early January
- With snowpack back near/below normal in most basins, less optimism for a good runoff year
- Pattern shift coming next week, with an extended period of cool conditions and potential for mountain snow
- La Niña continues, but is expected to weaken by summer. But in the meantime, outlooks tilt toward a warm, dry spring





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russ.schumacher@colostate.edu](http://climate.colostate.edu/russ.schumacher@colostate.edu)

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