



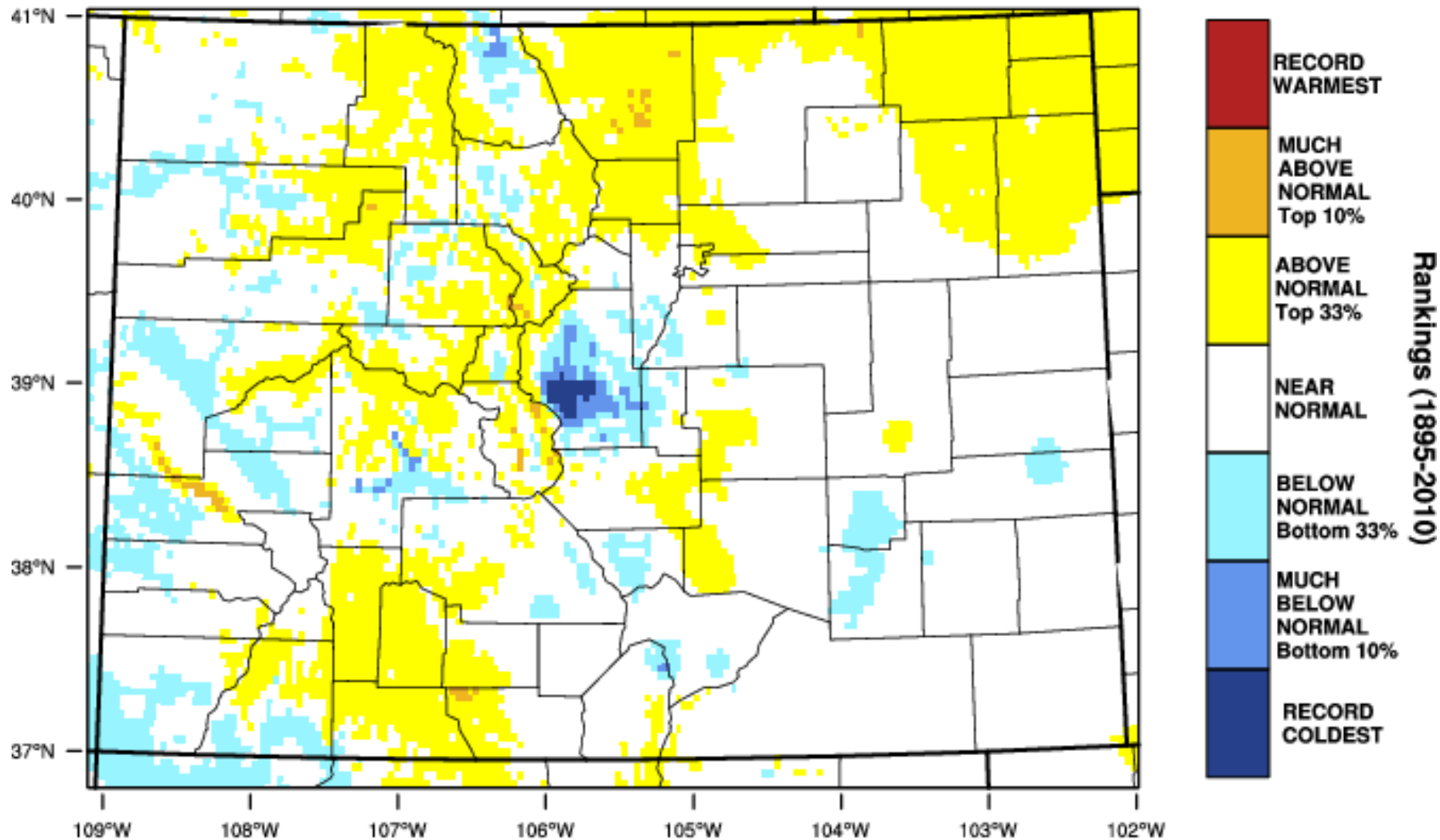
Climate Update

Peter Goble
Colorado Climate Center

**Presented to
Water Availability Task Force
January 21, 2021
Denver, CO**

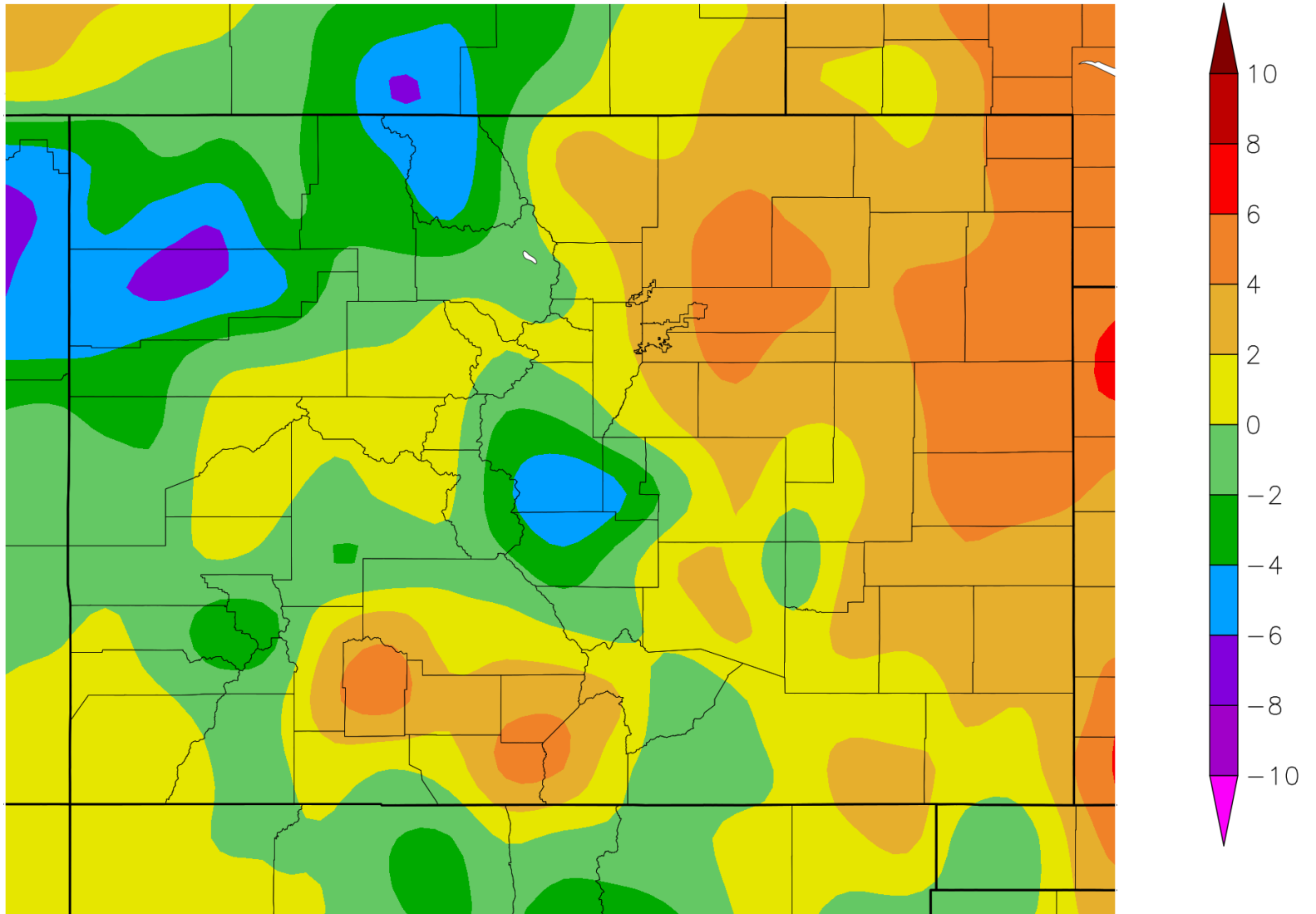
Colorado - Mean Temperature

December 2020 Percentile

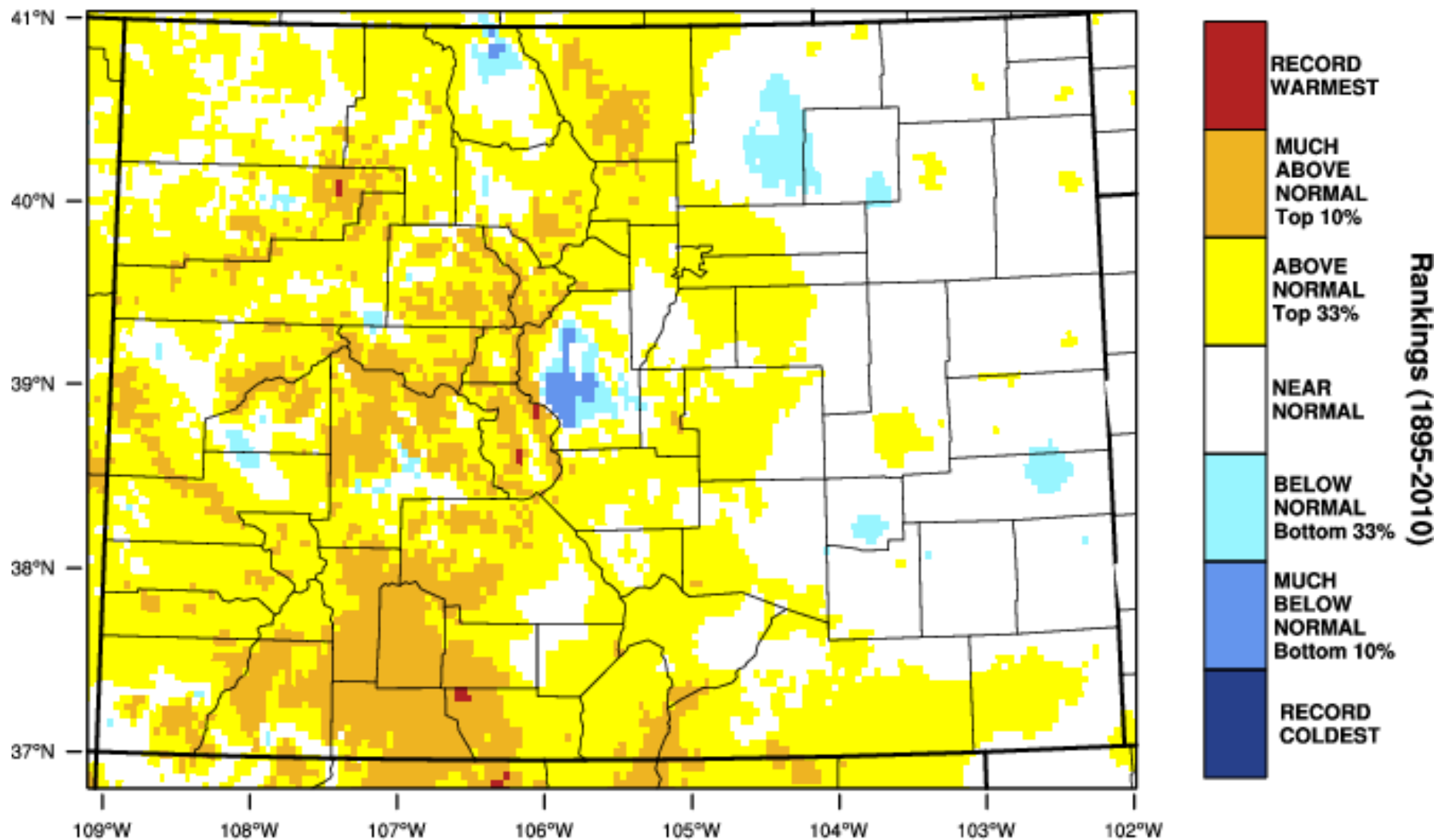


WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 JAN 2021

Departure from Normal Temperature (F) 1/1/2021 – 1/18/2021

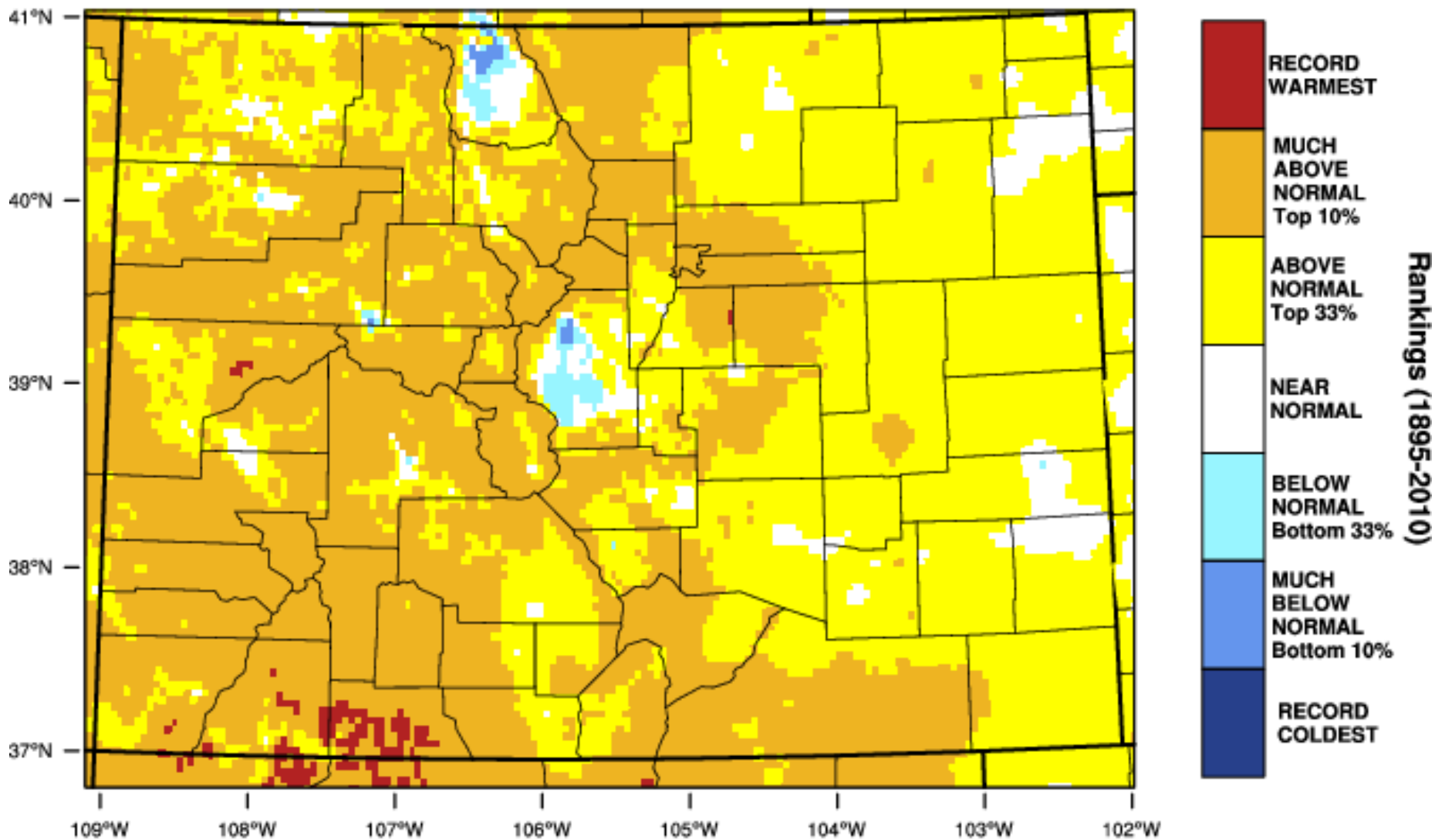


Colorado - Mean Temperature October-December 2020 Percentile



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 JAN 2021

Colorado - Mean Temperature January-December 2020 Percentile

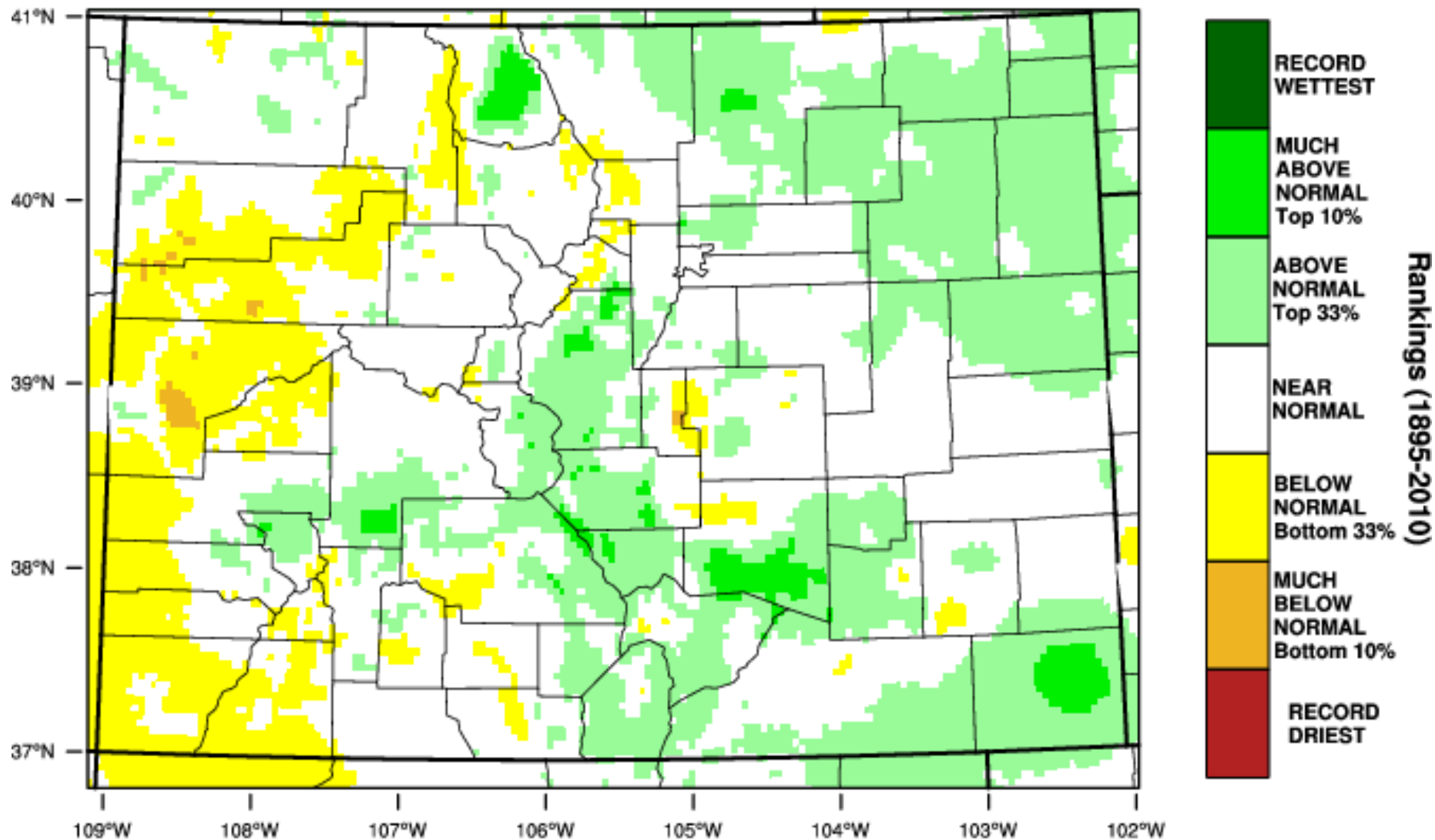


WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 JAN 2021

8th warmest year on record statewide
6 of our top eight years have occurred since 2010

Colorado - Precipitation

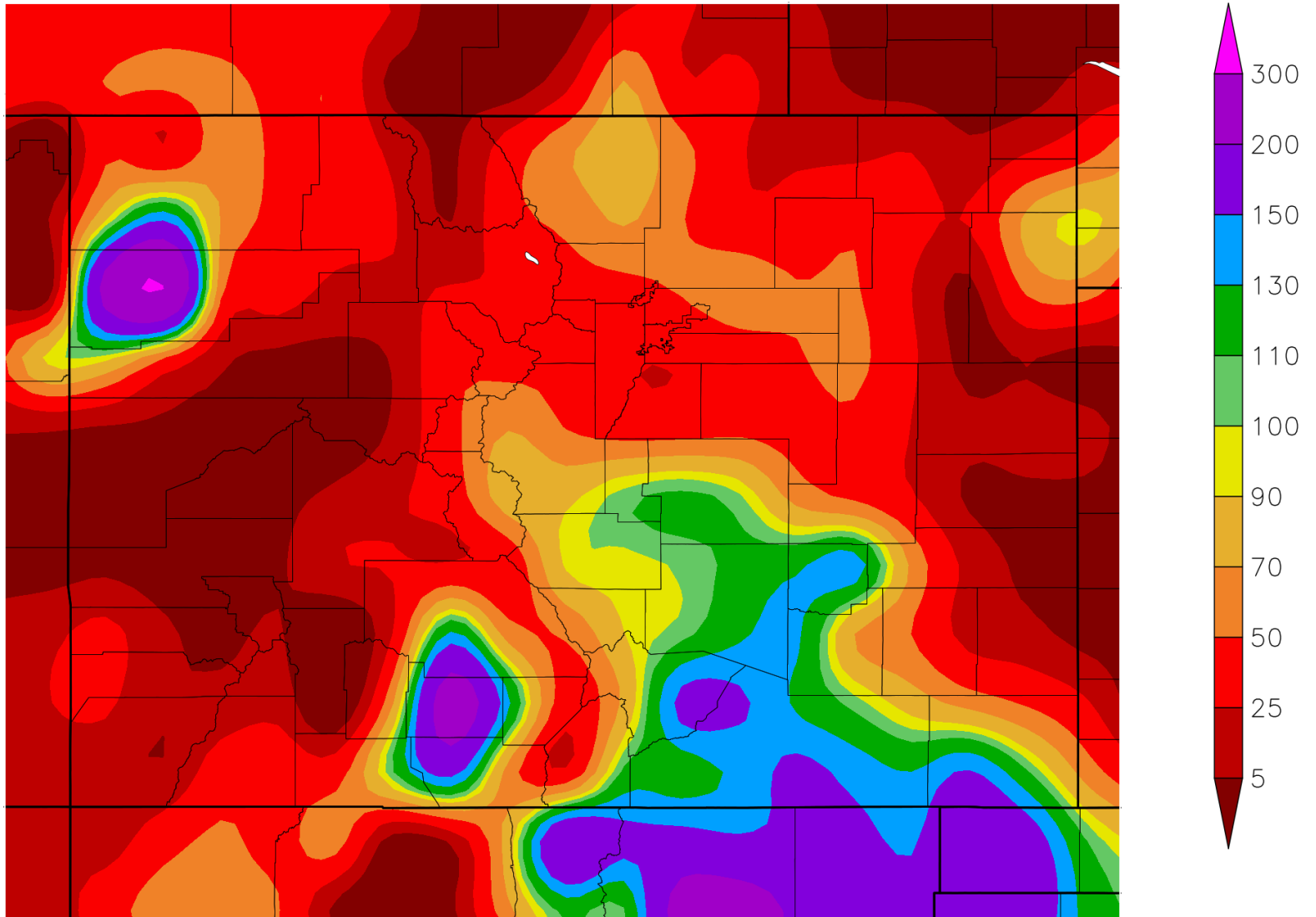
December 2020 Percentile



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 JAN 2021

Percent of Normal Precipitation (%)

1/1/2021 – 1/19/2021

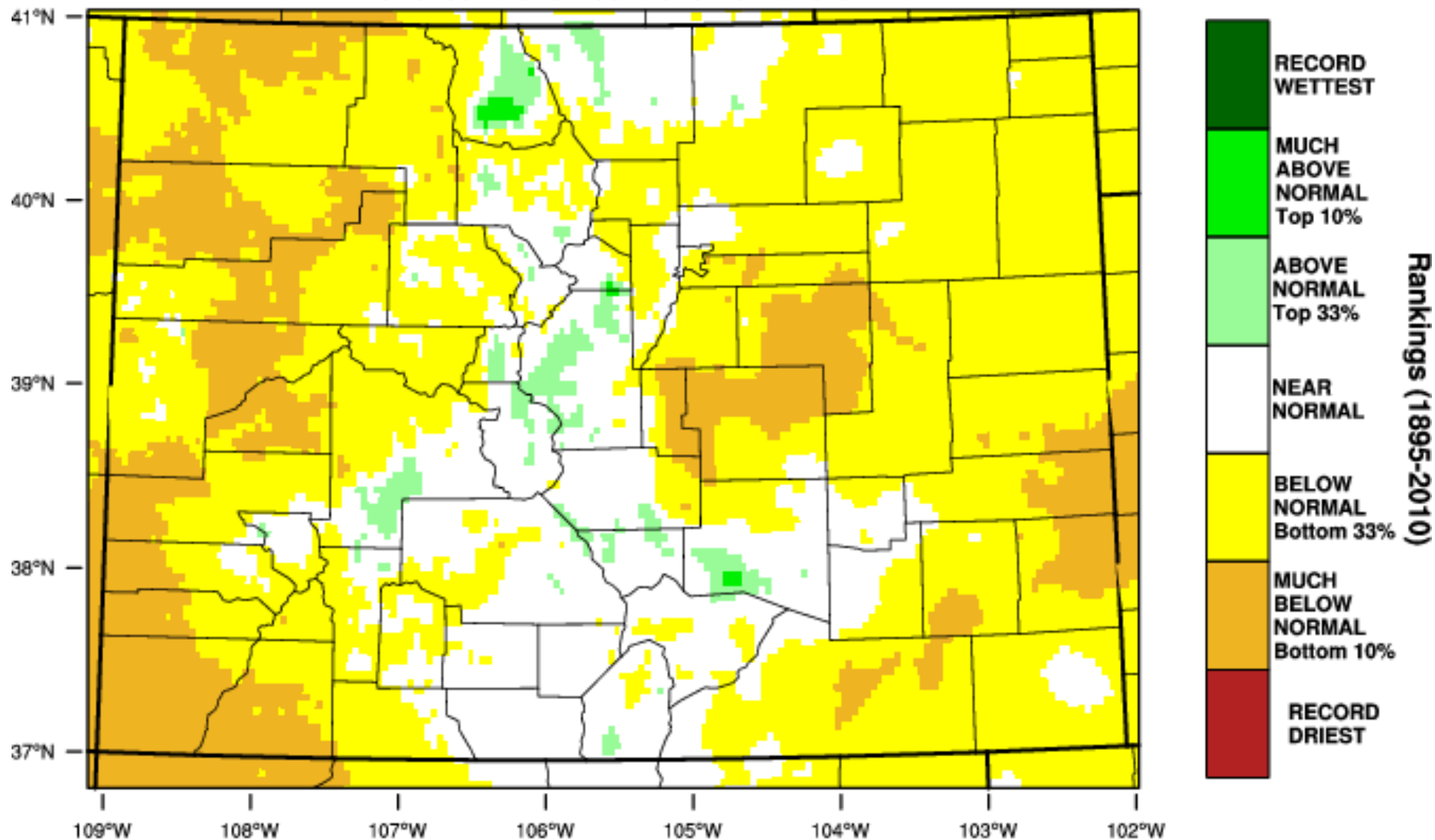


Generated 1/20/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

Colorado - Precipitation

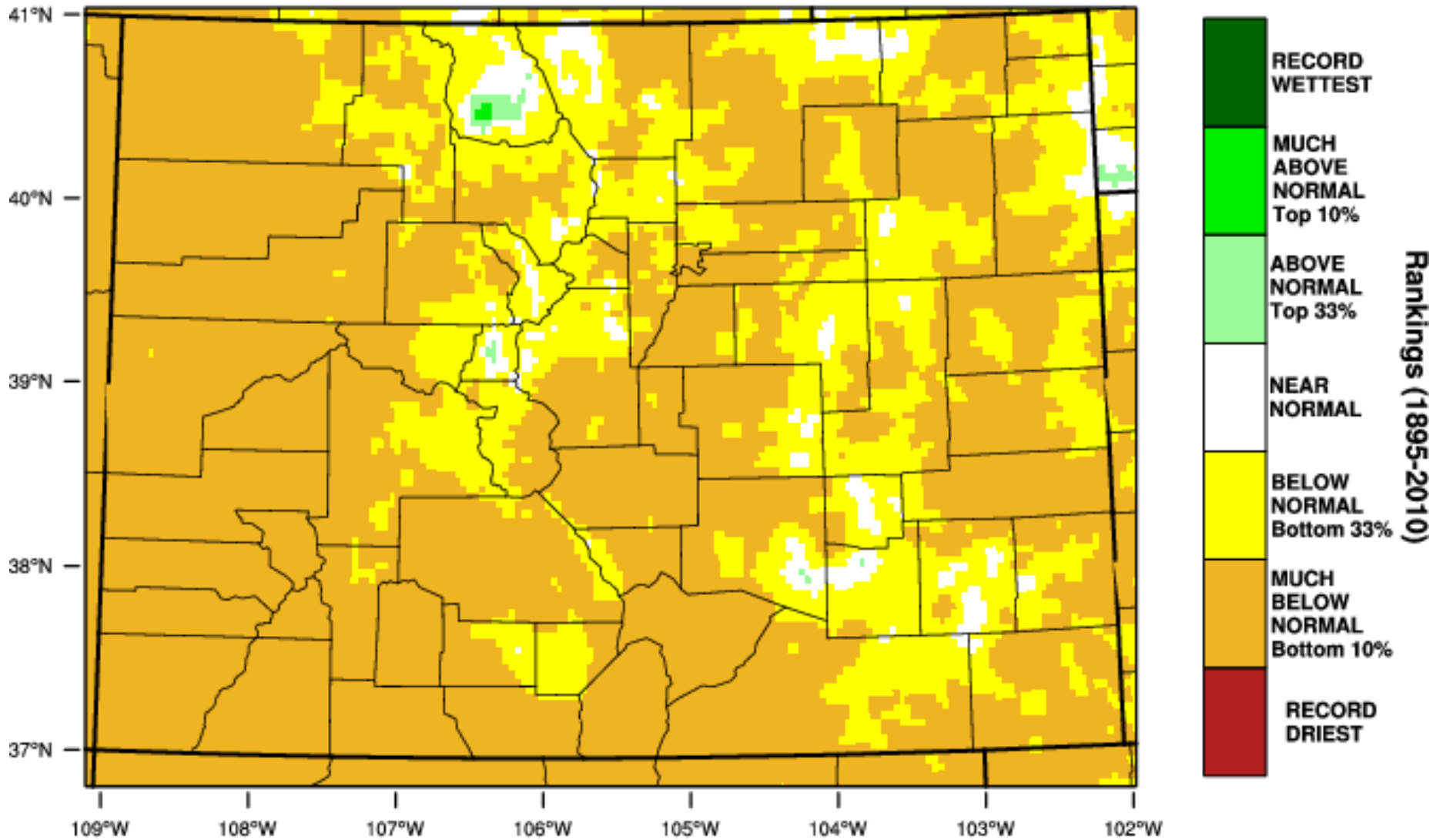
October-December 2020 Percentile



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 JAN 2021

Colorado - Precipitation

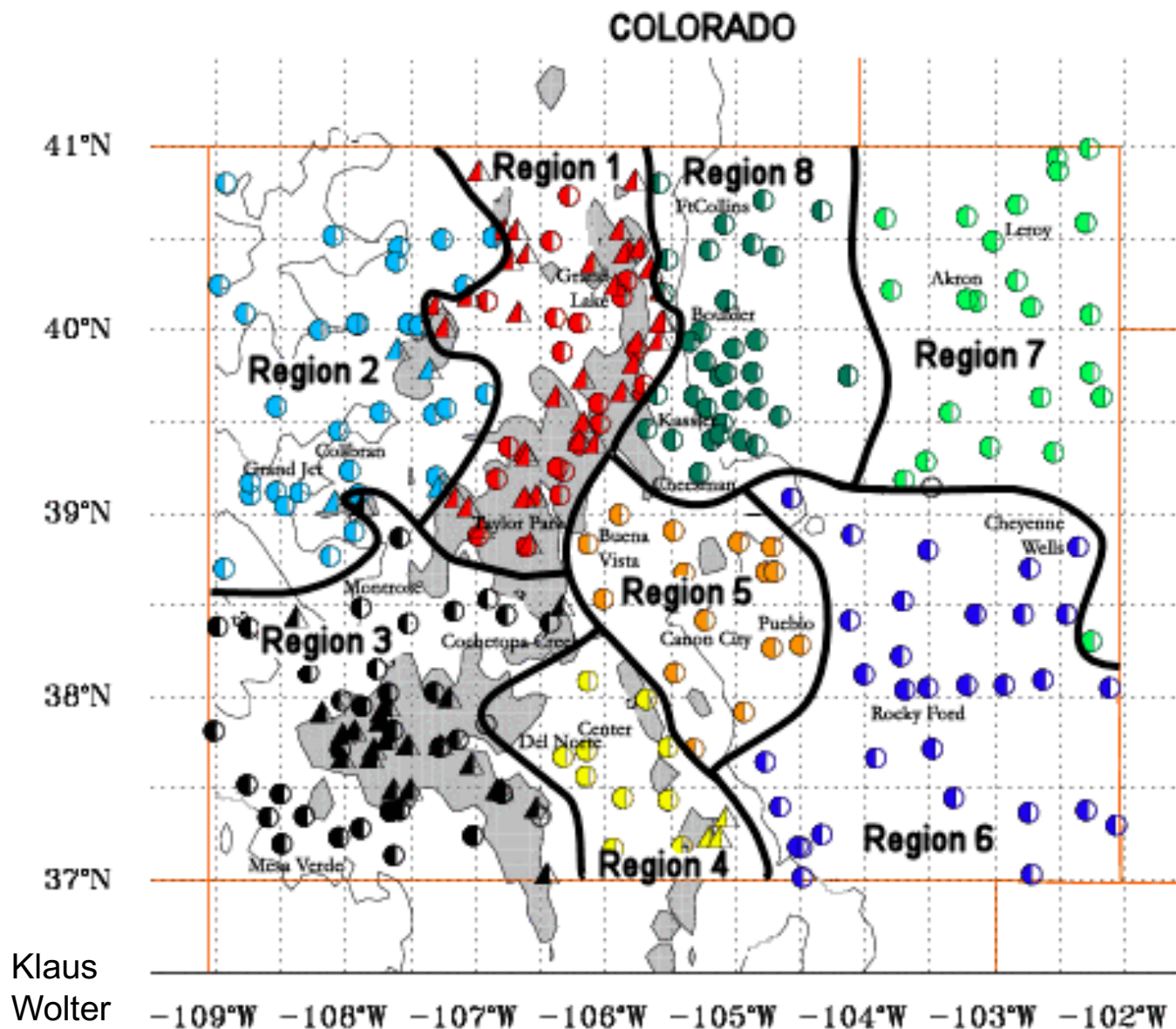
January-December 2020 Percentile



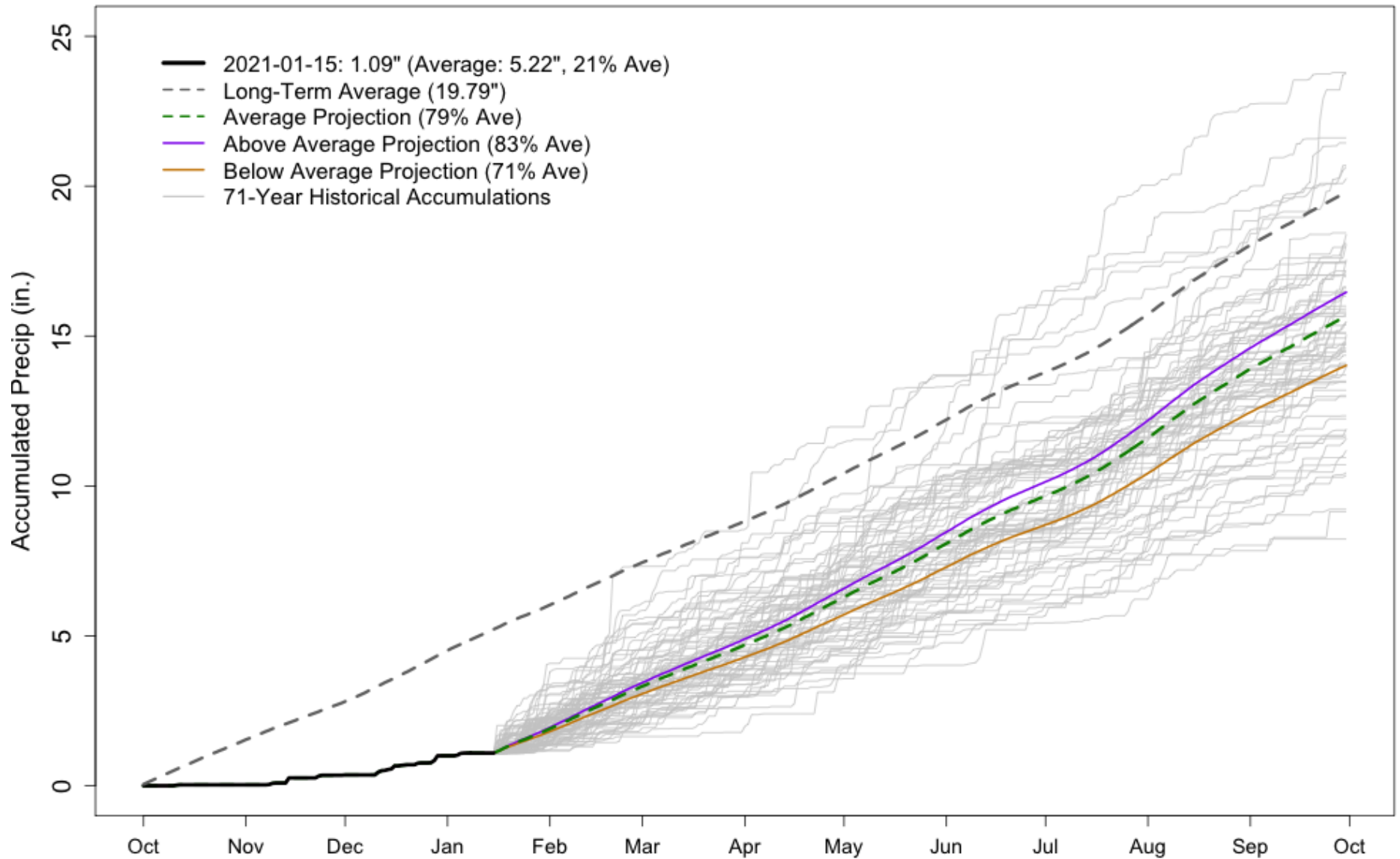
WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 JAN 2021

2nd driest calendar year on record

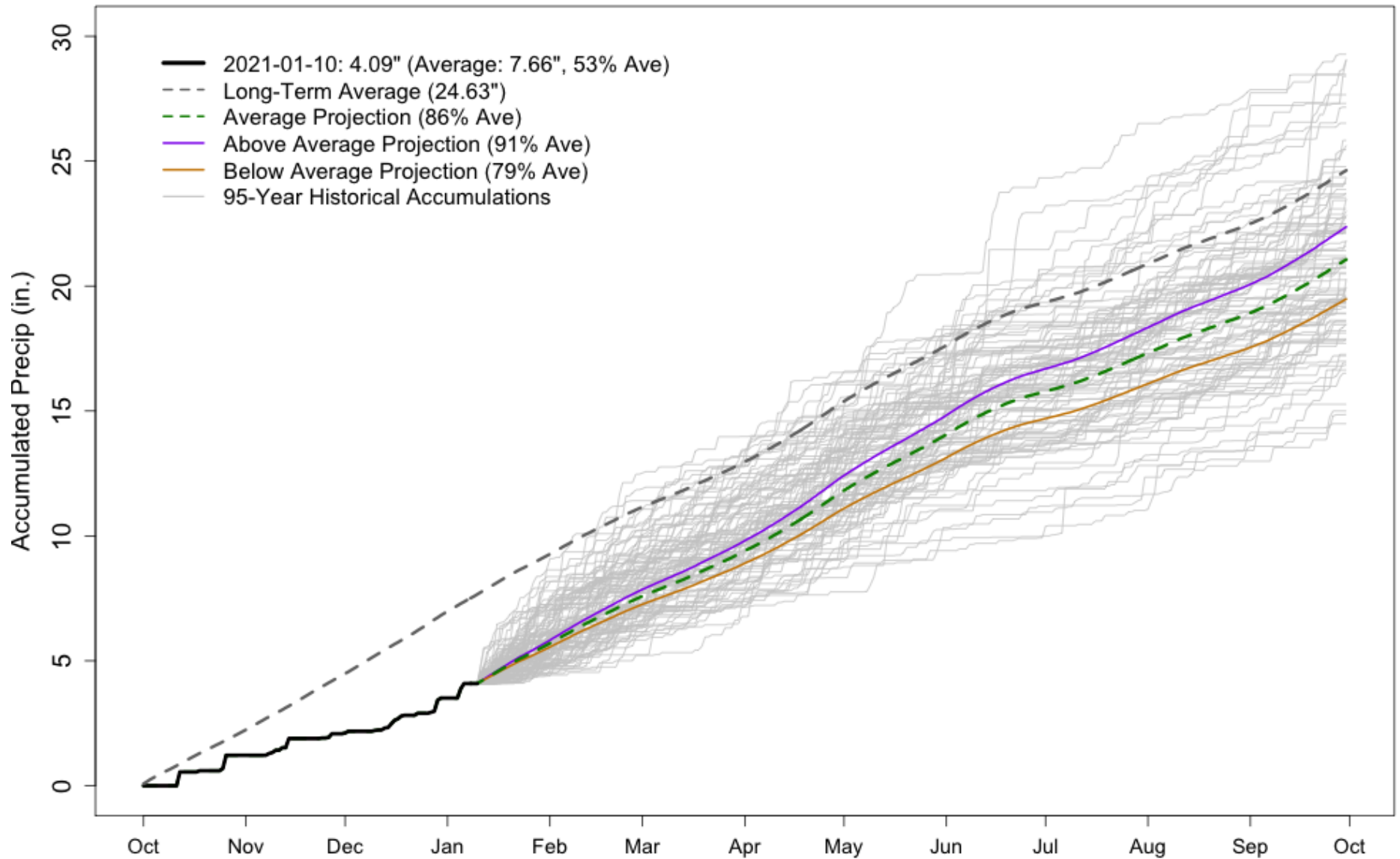
Climate divisions defined by Dr. Klaus Wolter of NOAA's Climate Diagnostic Center in Boulder, CO



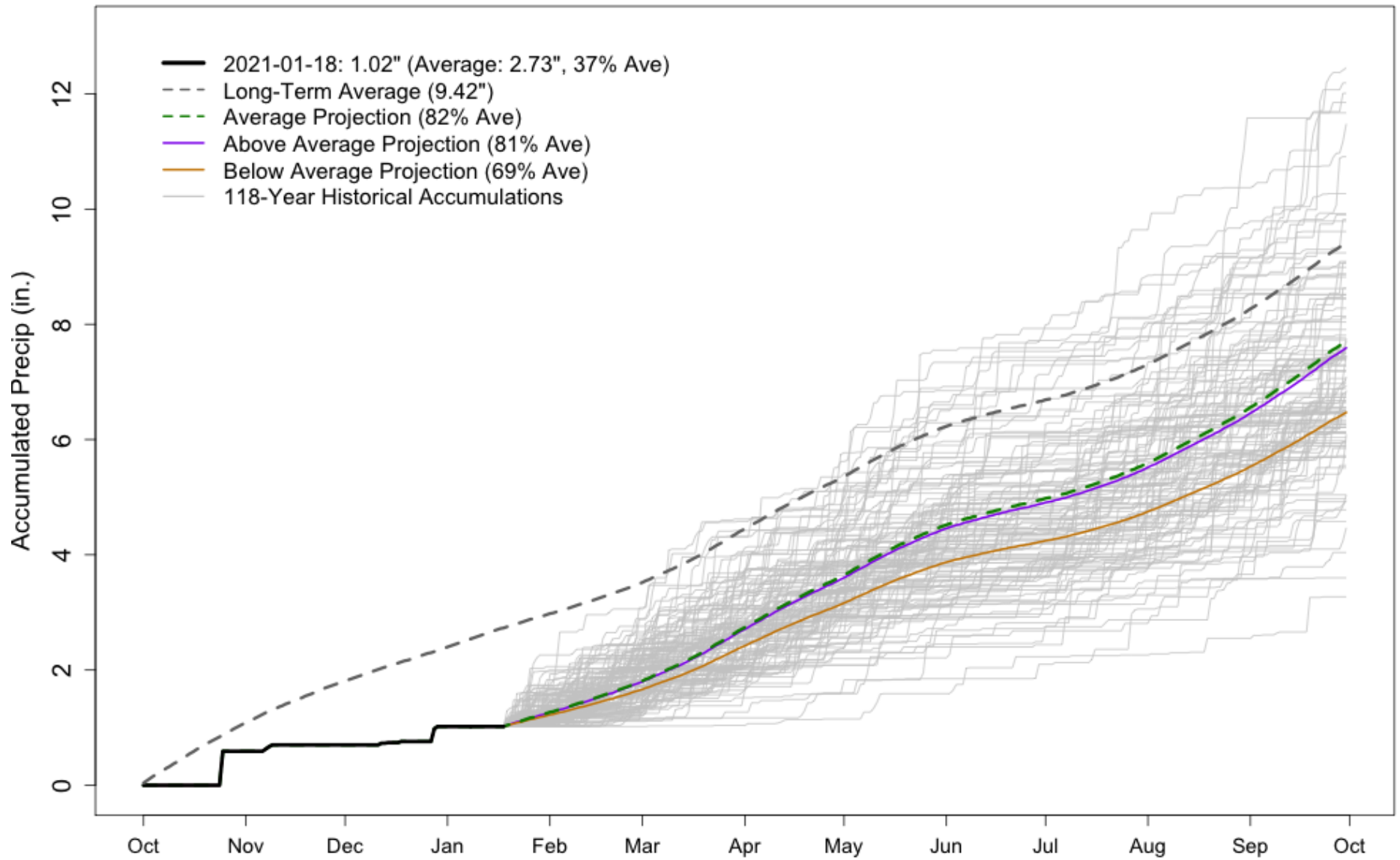
GRAND LAKE 1 NW WY2021 Precipitation Projections



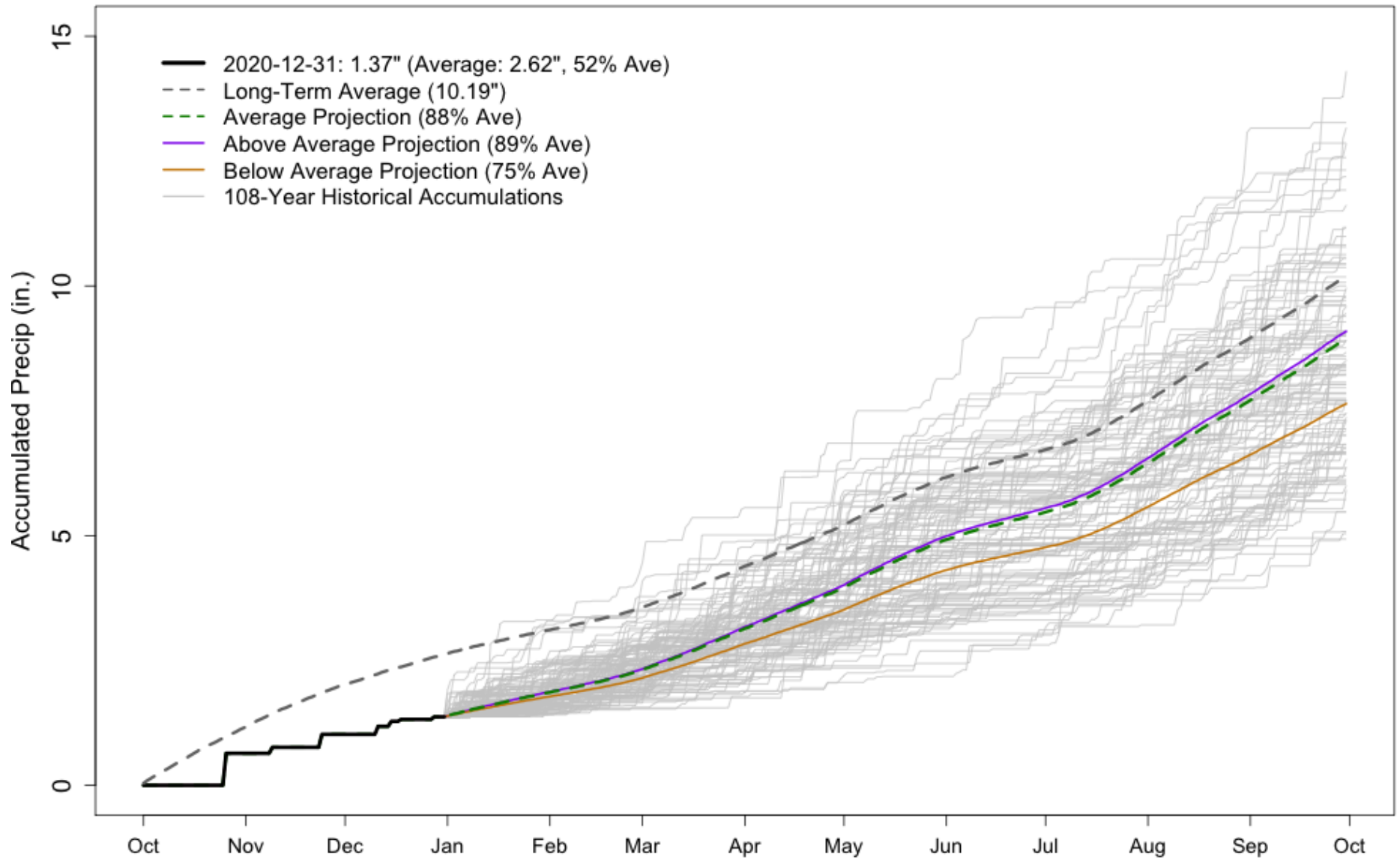
STEAMBOAT SPRINGS WY2021 Precipitation Projections



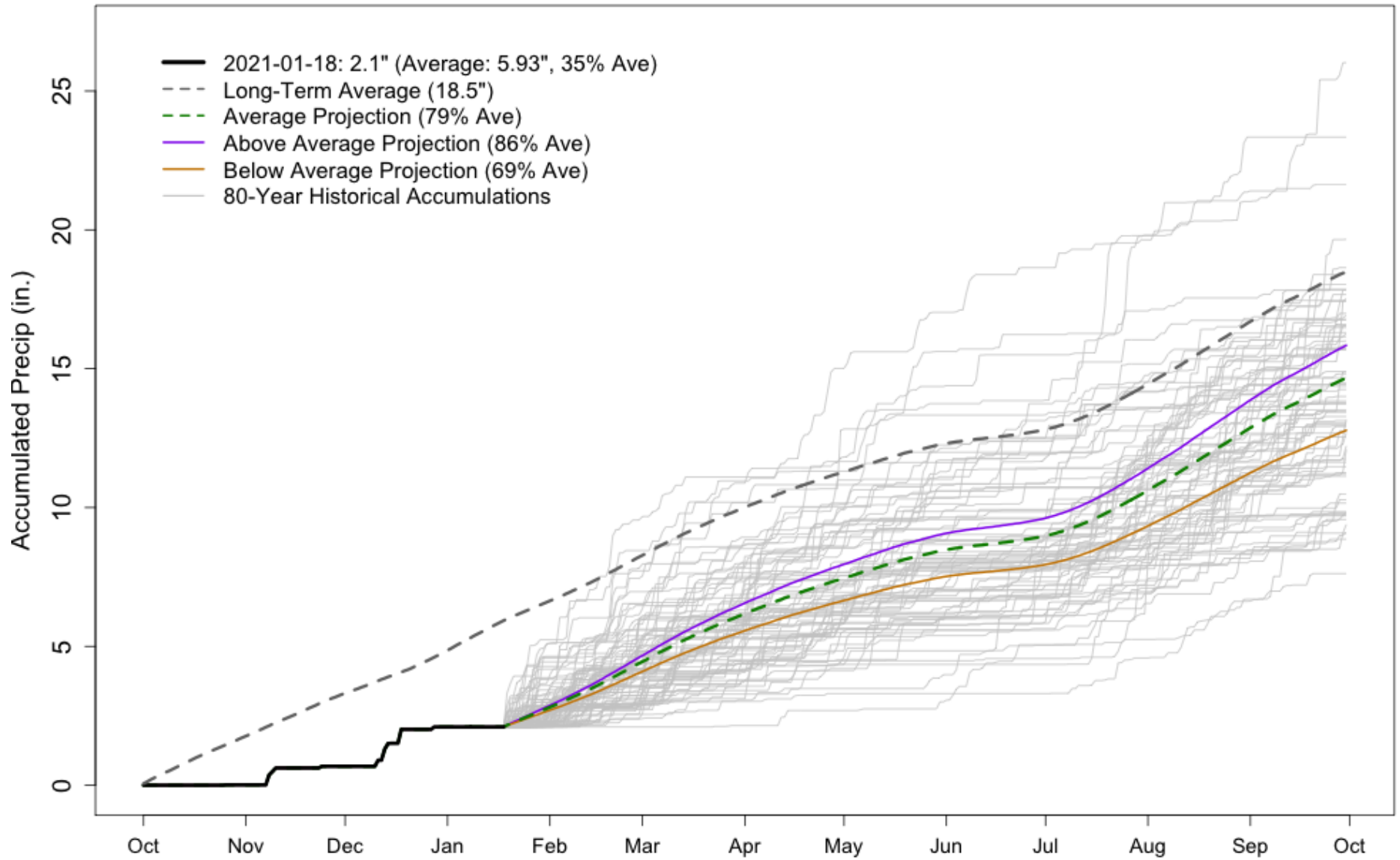
GRAND JUNCTION WALKER FIELD WY2021 Precipitation Projections



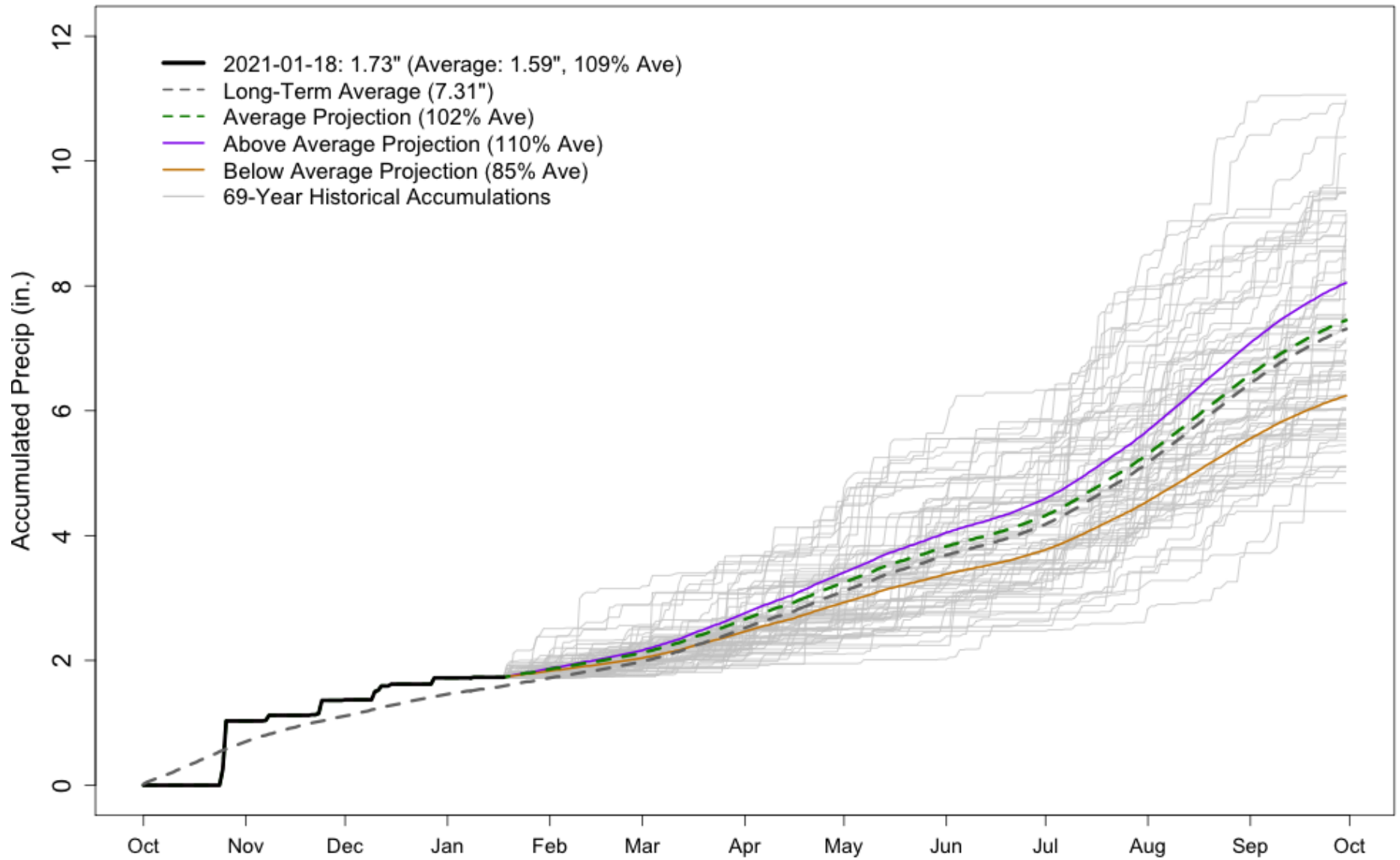
MONTROSE NO 2 WY2021 Precipitation Projections



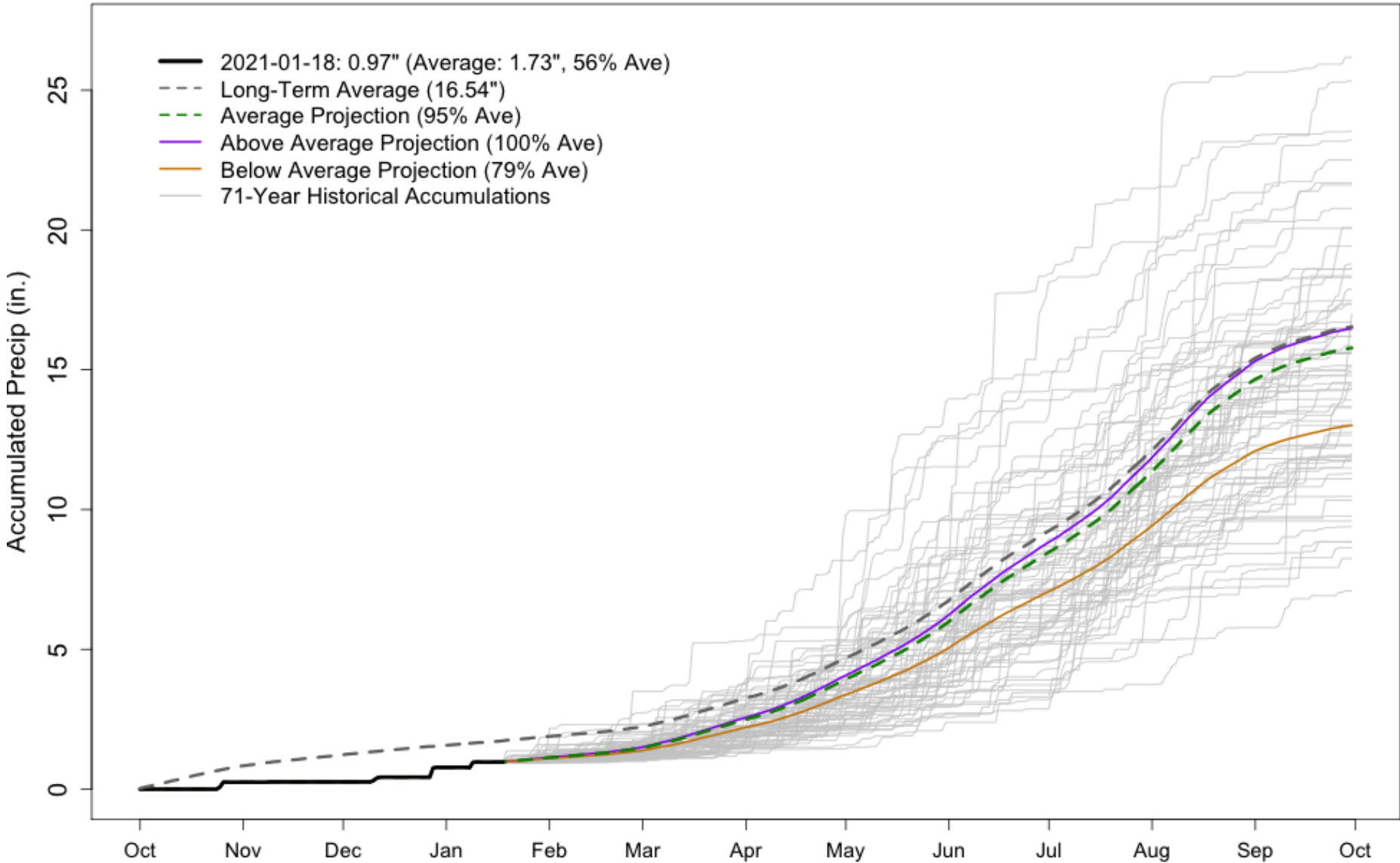
MESA VERDE NP WY2021 Precipitation Projections



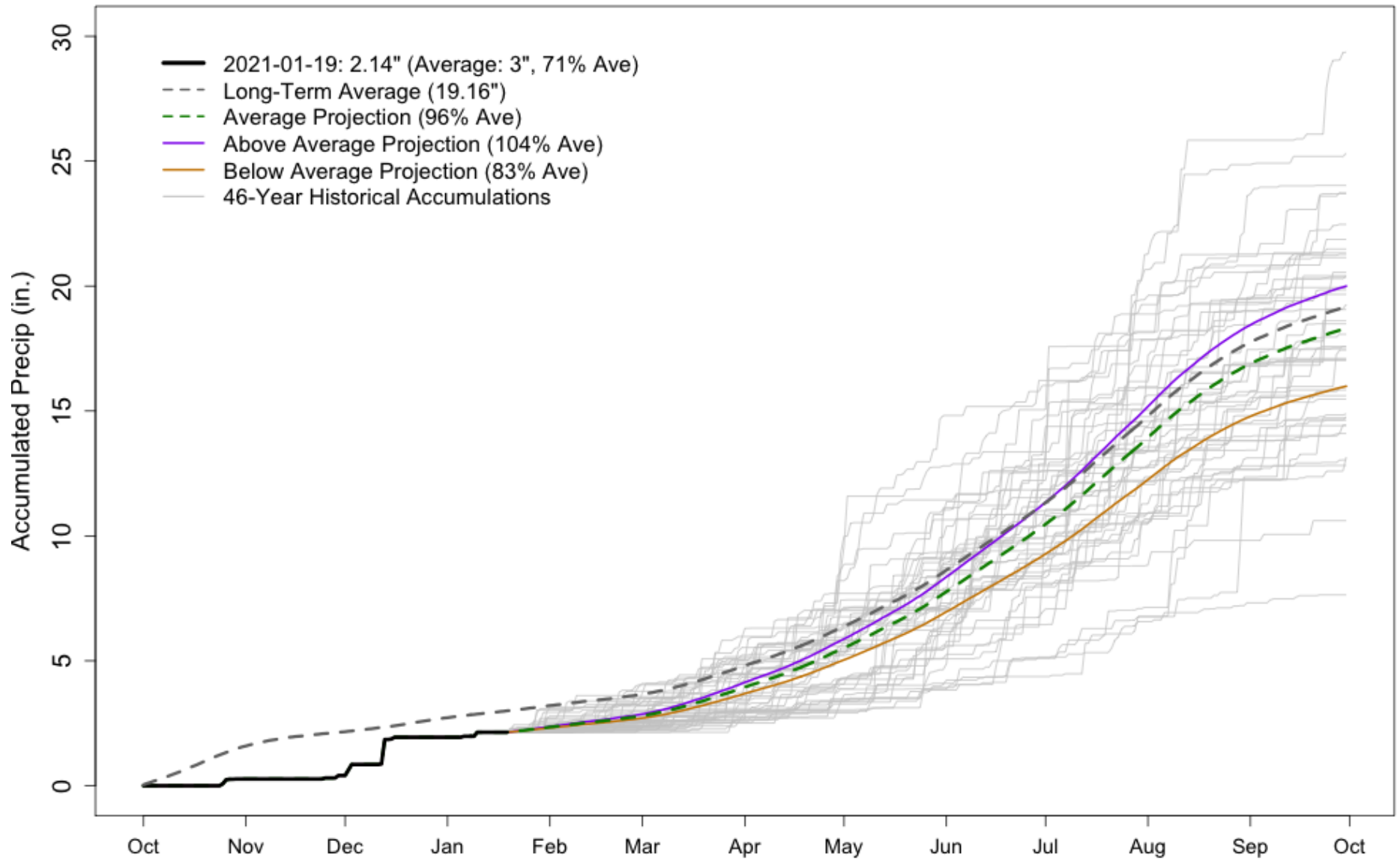
ALAMOSA-BERGMAN FIELD WY2021 Precipitation Projections



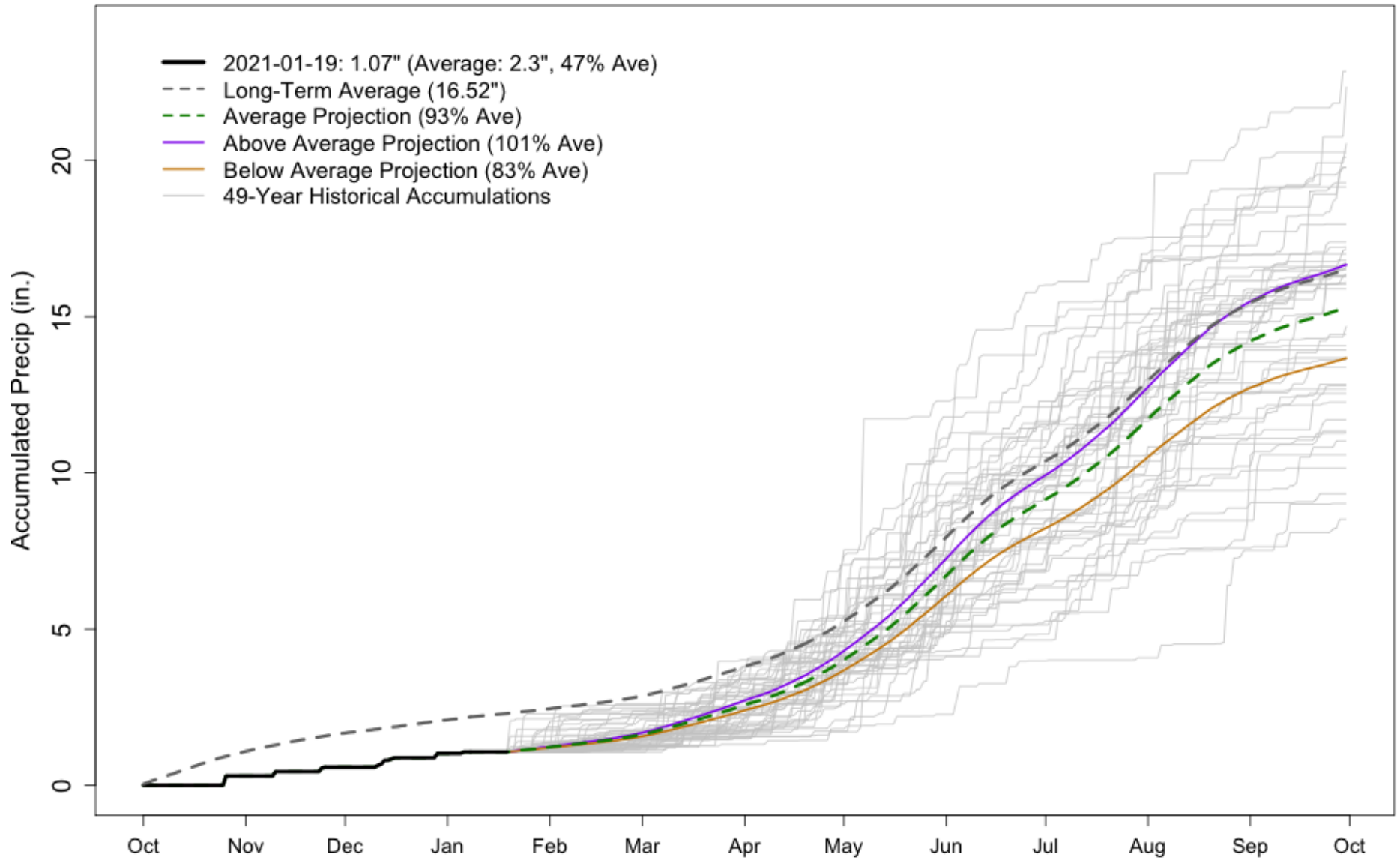
COLORADO SPRINGS MUNICIPAL AP WY2021 Precipitation Projections



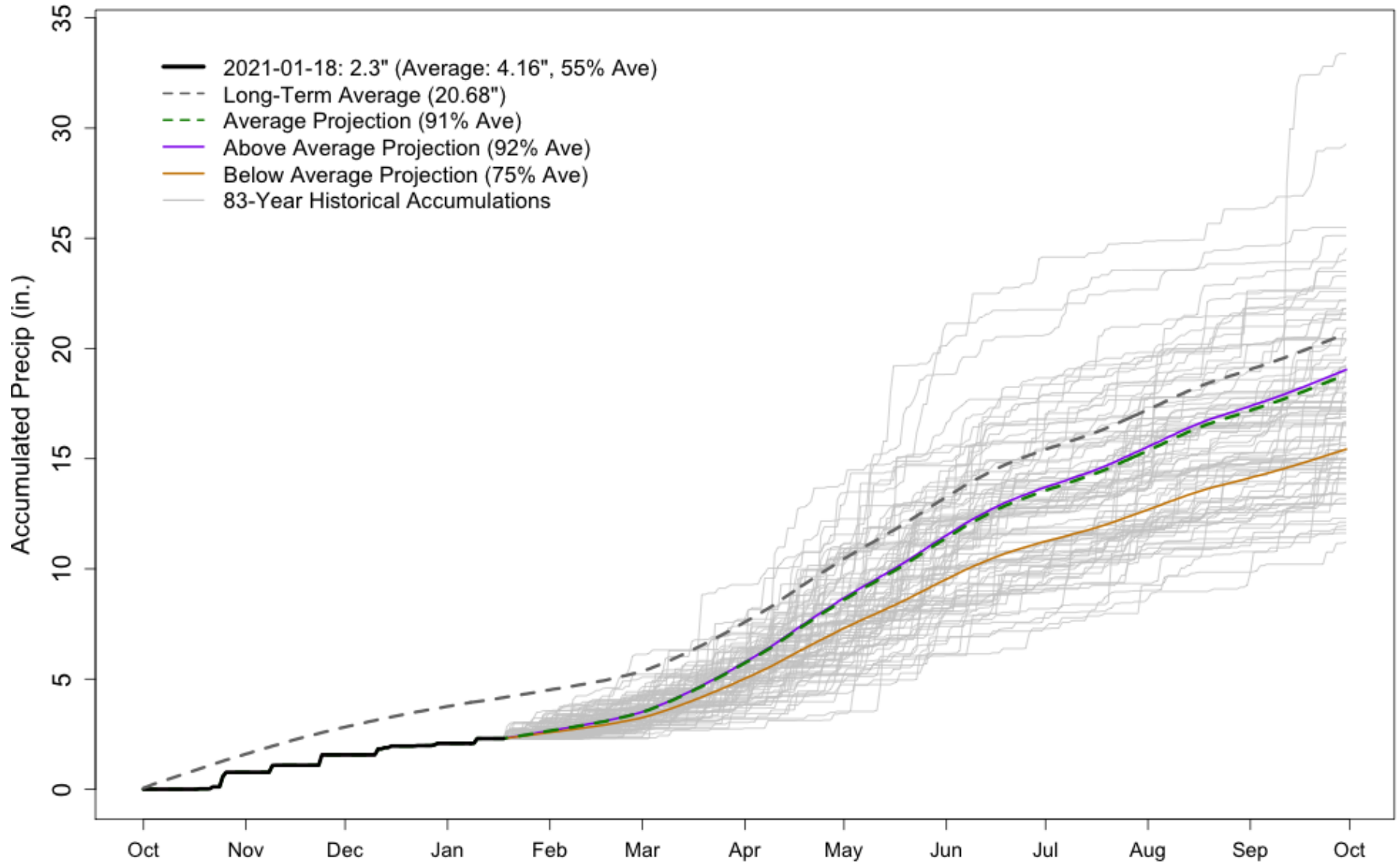
WALSH 1 W WY2021 Precipitation Projections



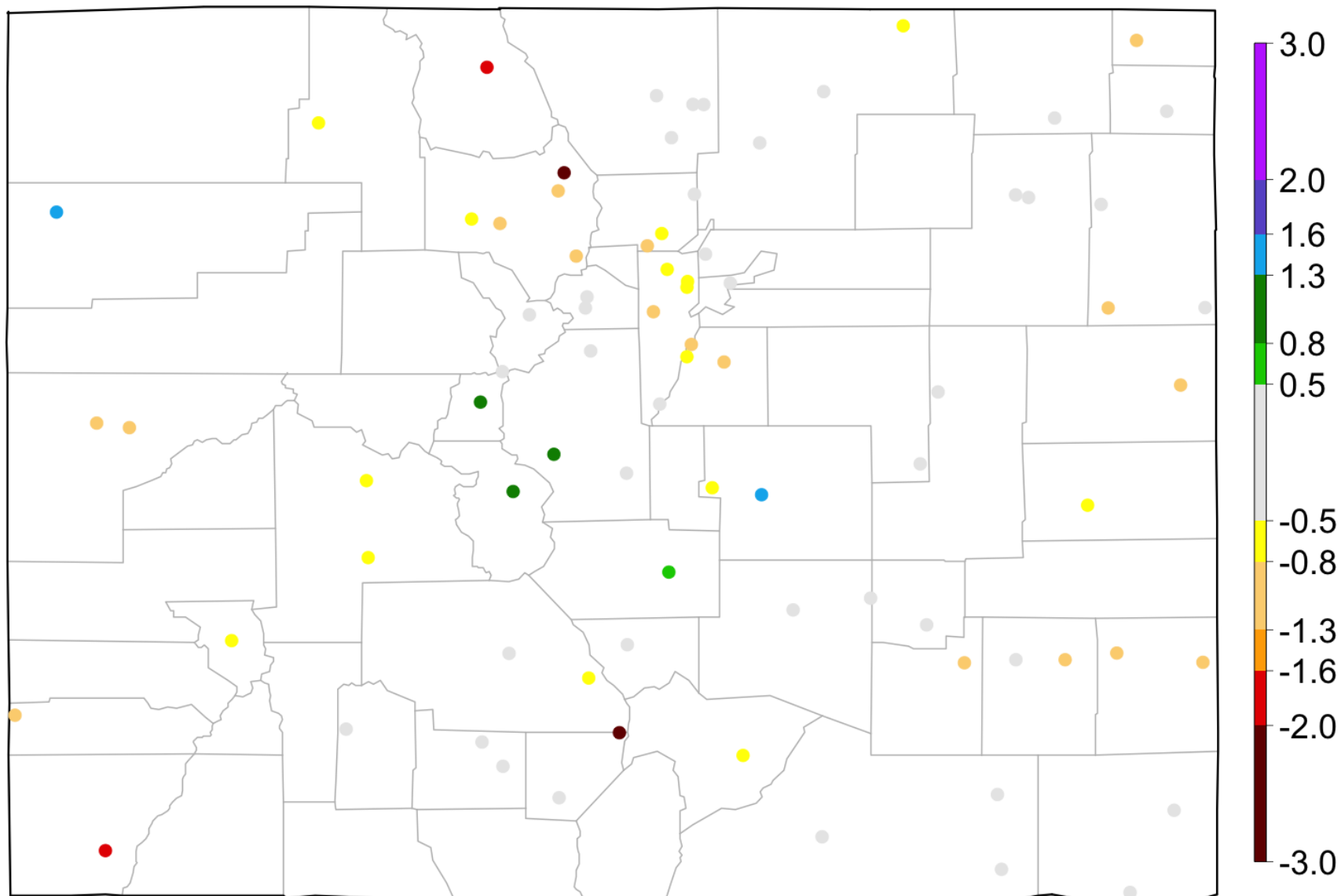
AKRON 4 E WY2021 Precipitation Projections



BOULDER WY2021 Precipitation Projections

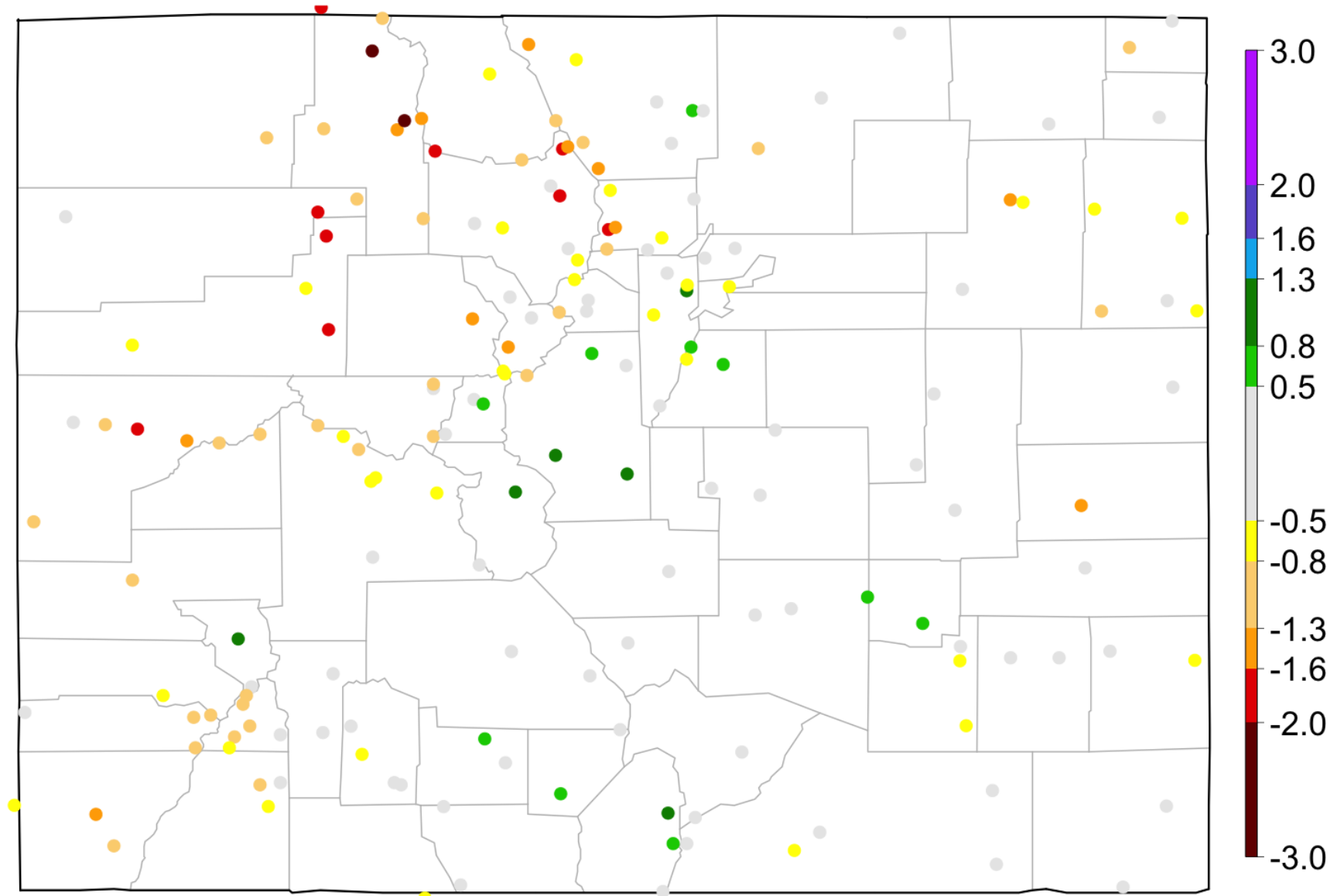


30-day SPI: 2020/12/18 - 2021/01/16



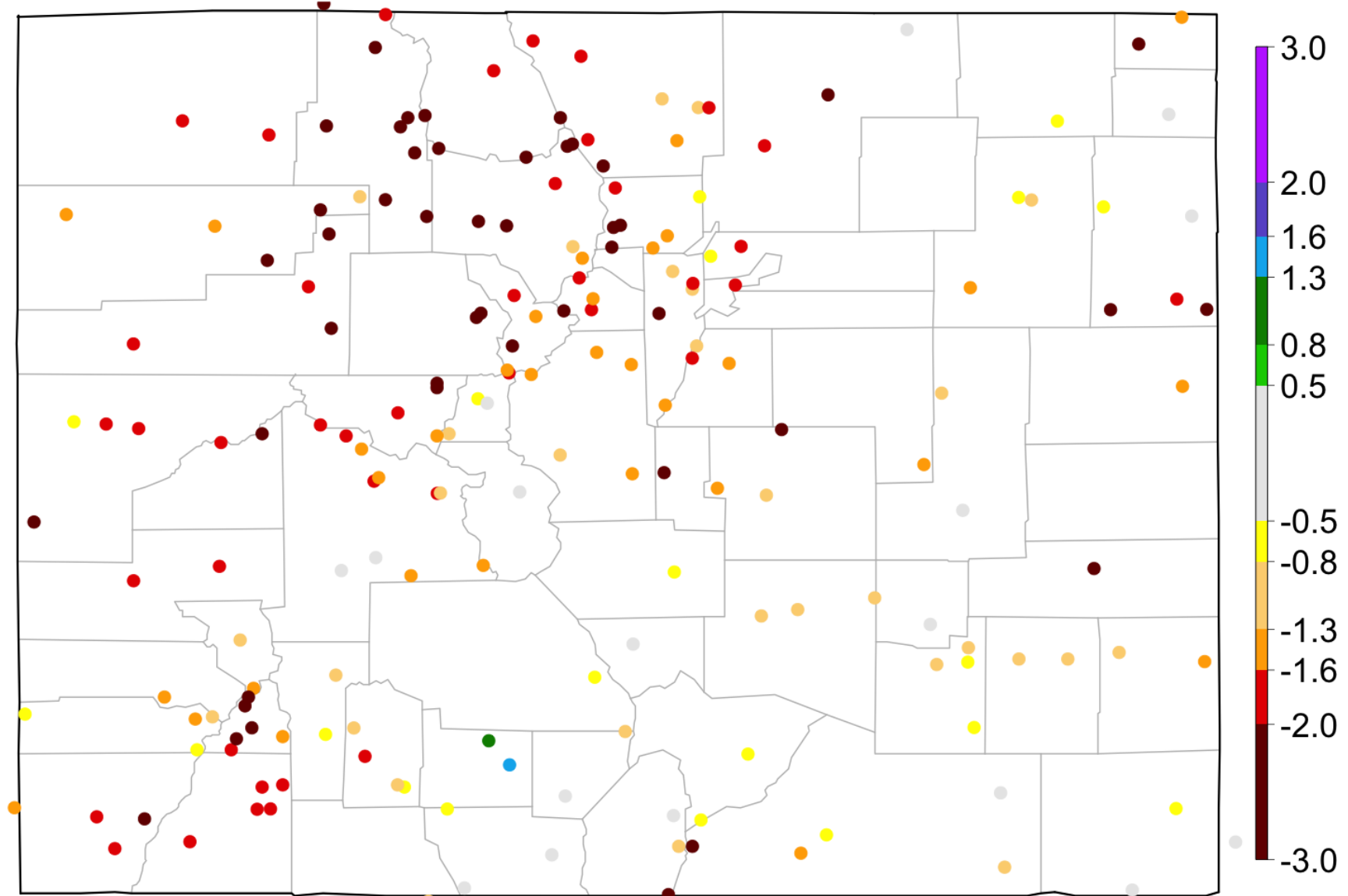
Data from High Plains Regional Climate Center and ACIS

90-day SPI: 2020/10/19 - 2021/01/16



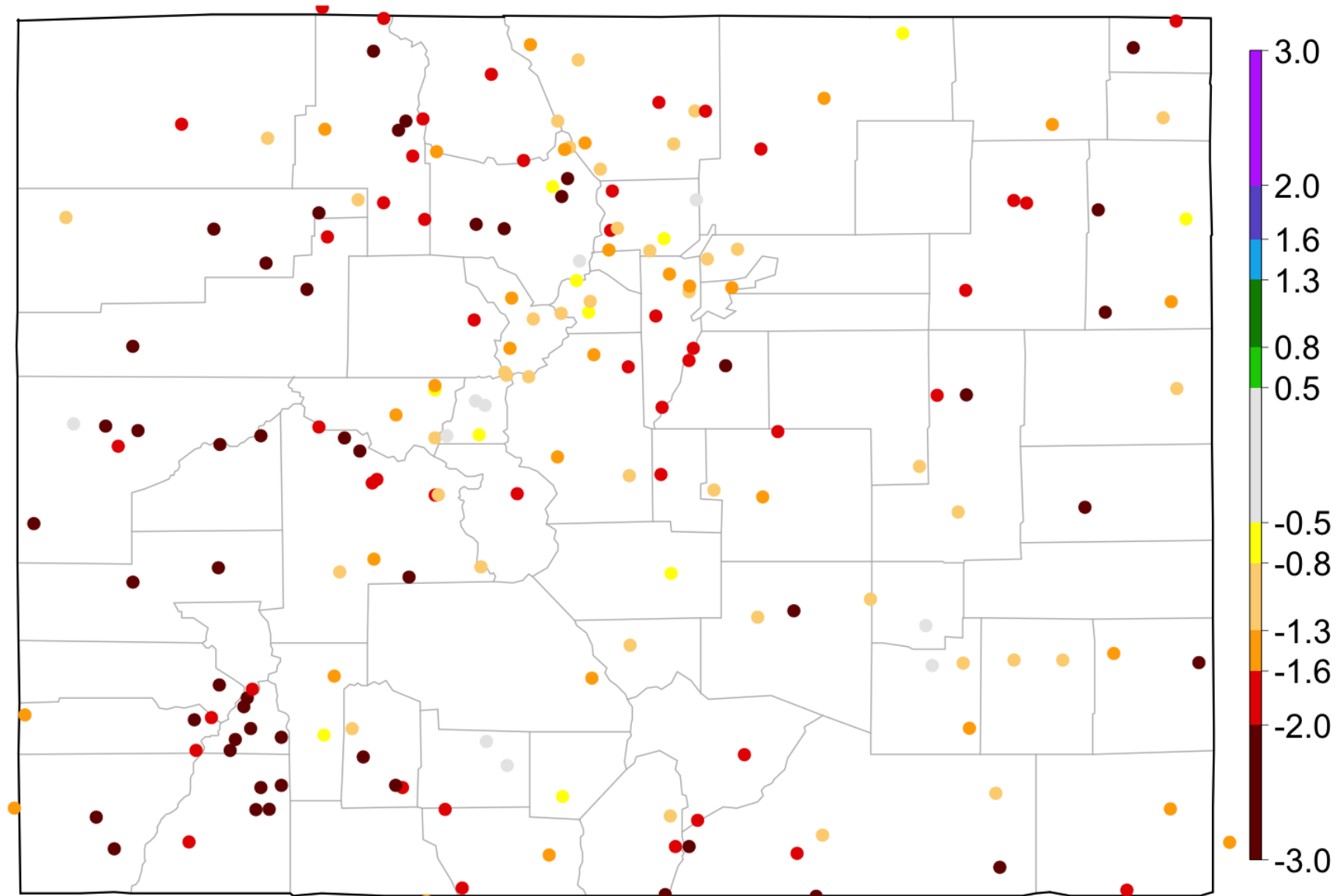
Data from High Plains Regional Climate Center and ACIS

6-month SPI: 2020/07/17 - 2021/01/16



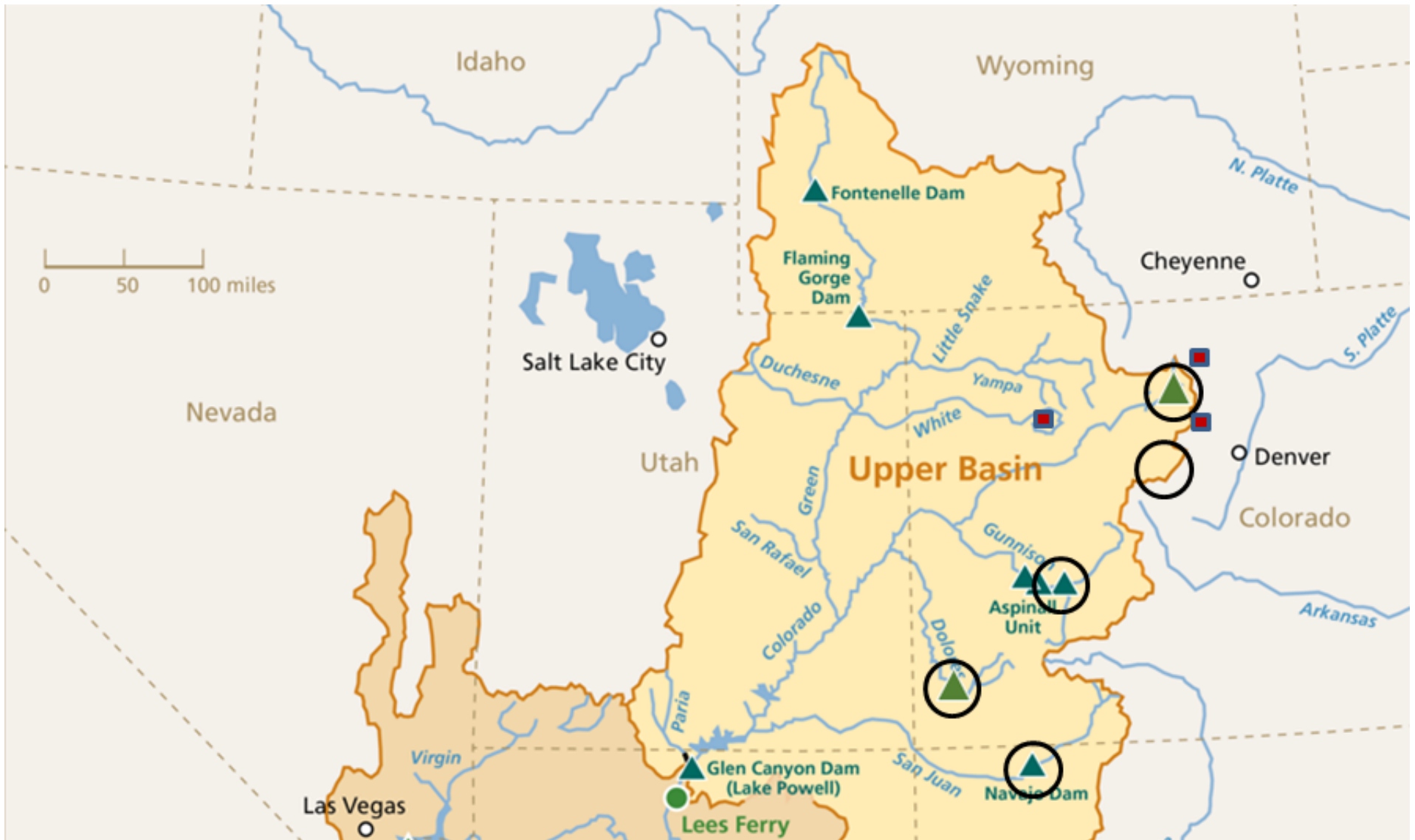
Data from High Plains Regional Climate Center and ACIS

12-month SPI: 2020/01/17 - 2021/01/16

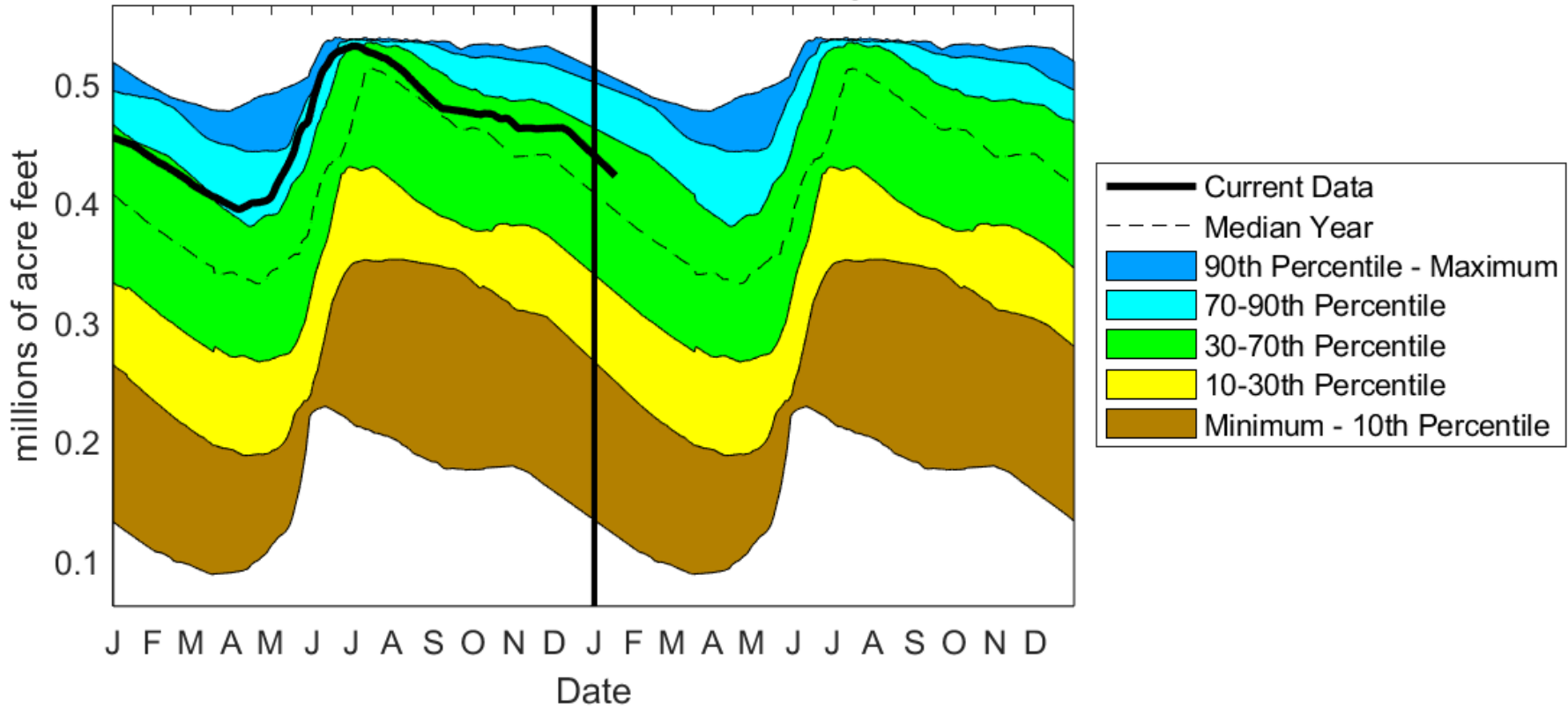


Data from High Plains Regional Climate Center and ACIS

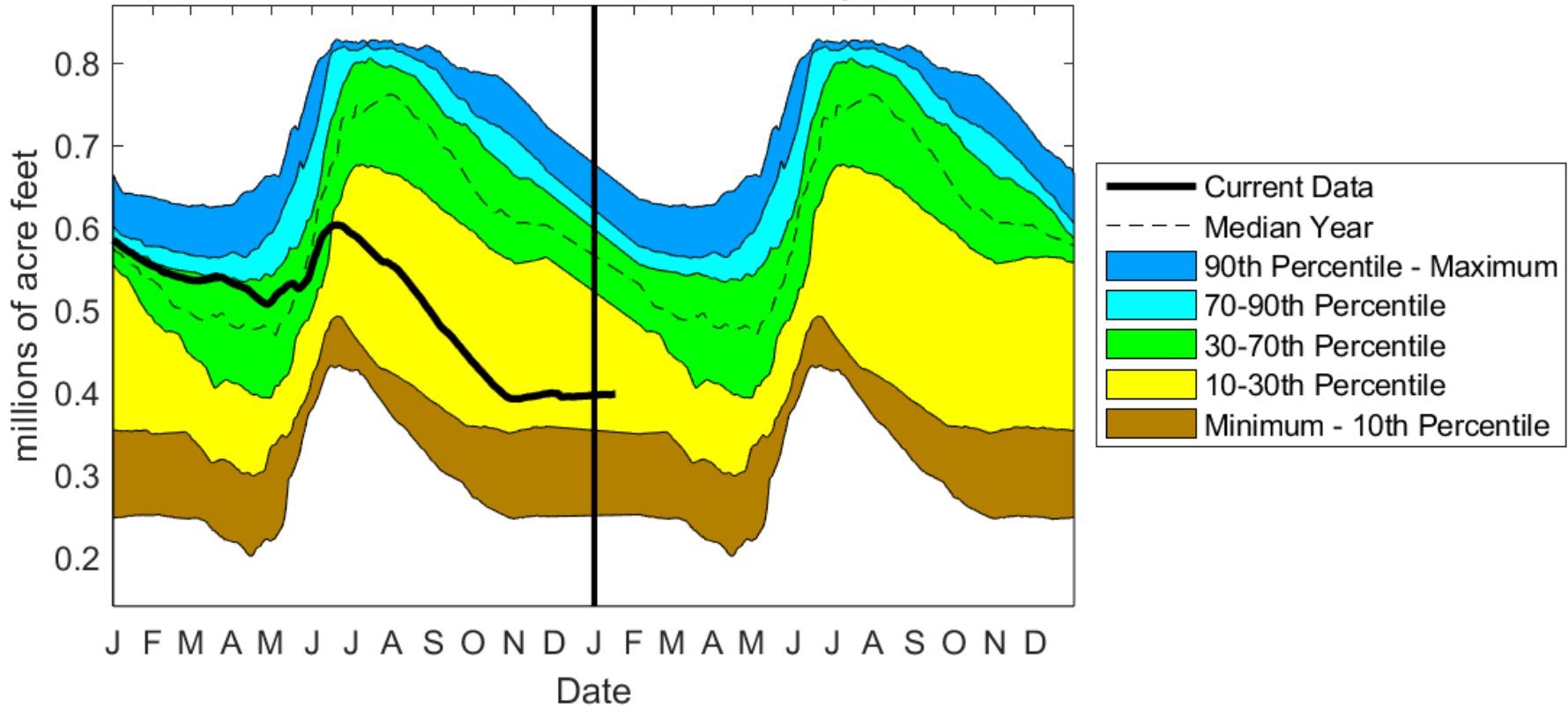
Reservoir and Soils Update



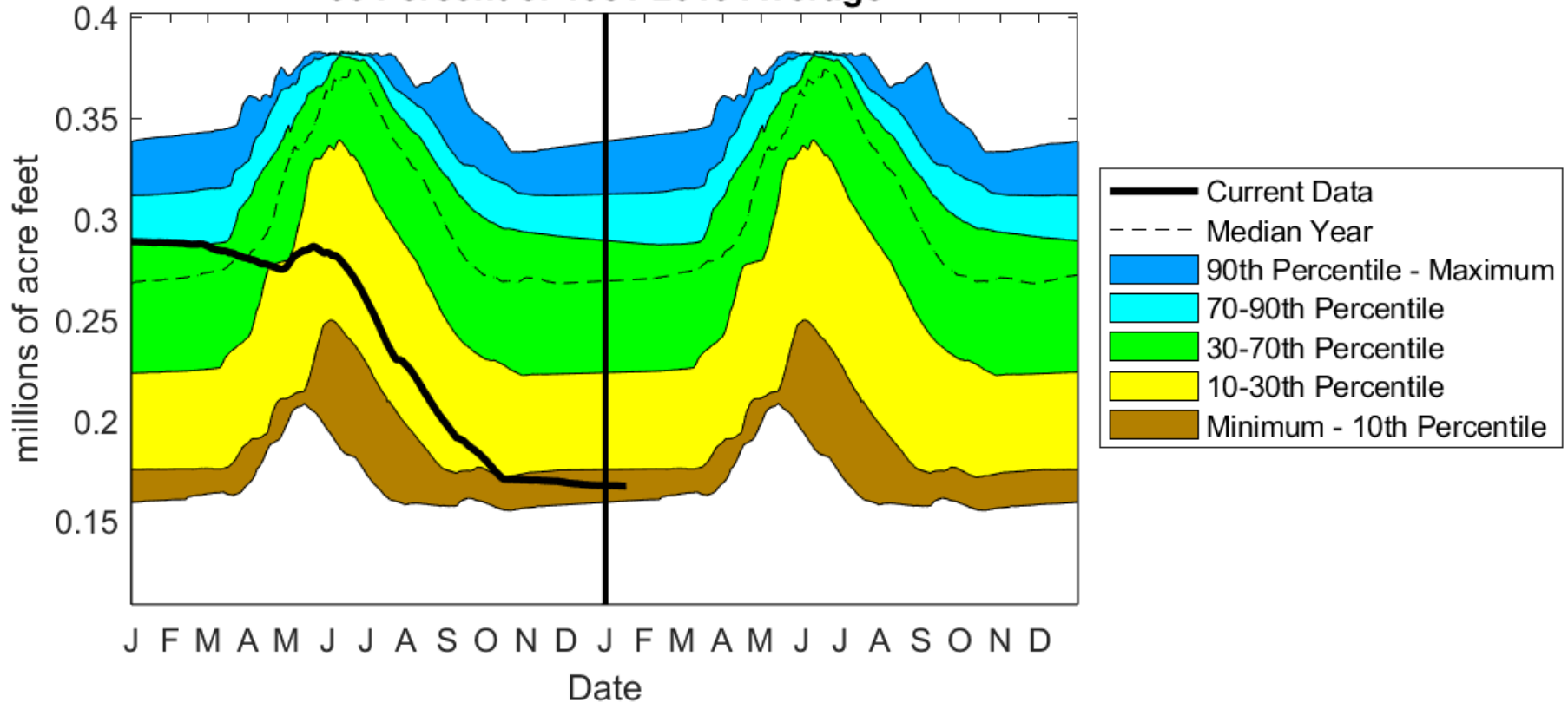
Lake Granby Level 01/17/2021
112 Percent of 1981-2019 Average



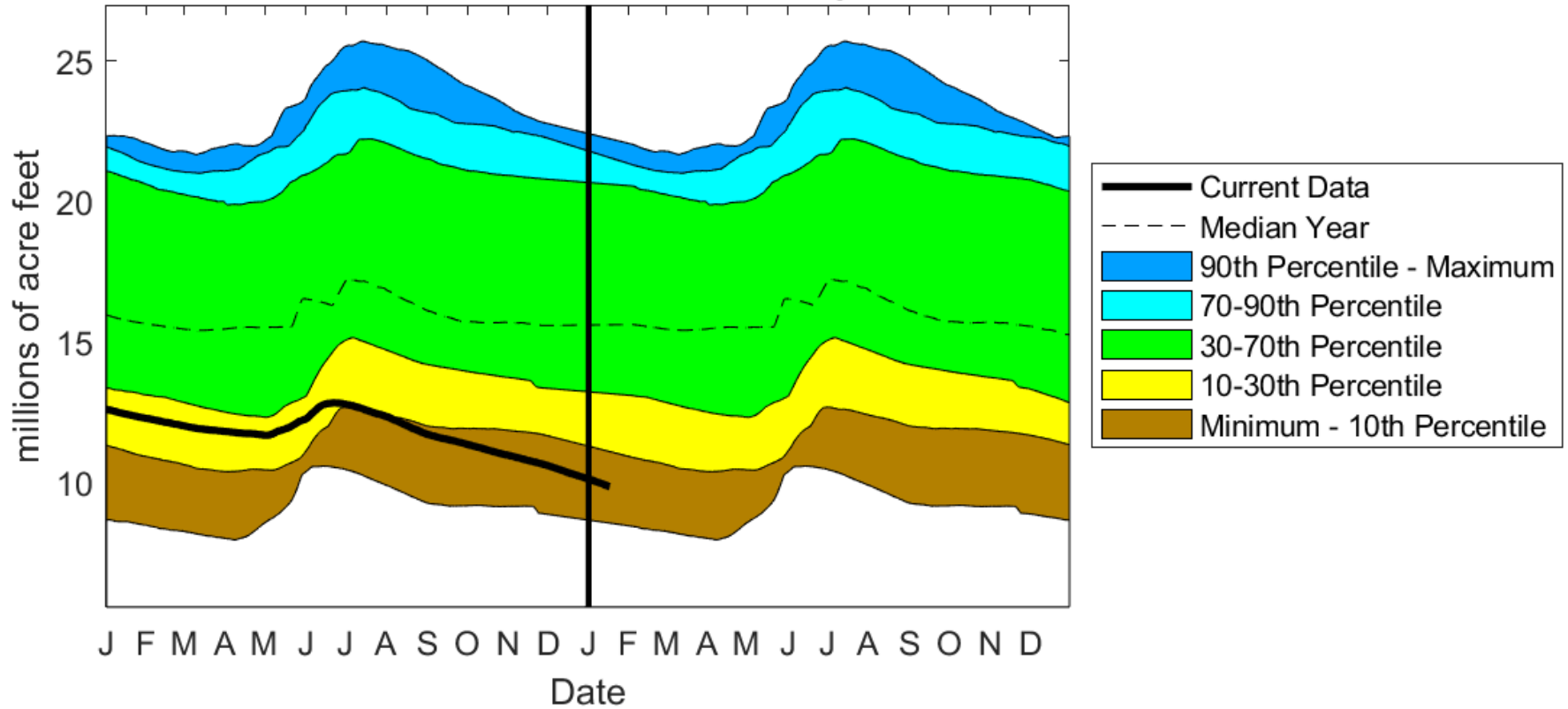
Blue Mesa Reservoir Level 01/17/2021
77 Percent of 1981-2019 Average



McPhee Reservoir Level 01/17/2021 66 Percent of 1981-2019 Average

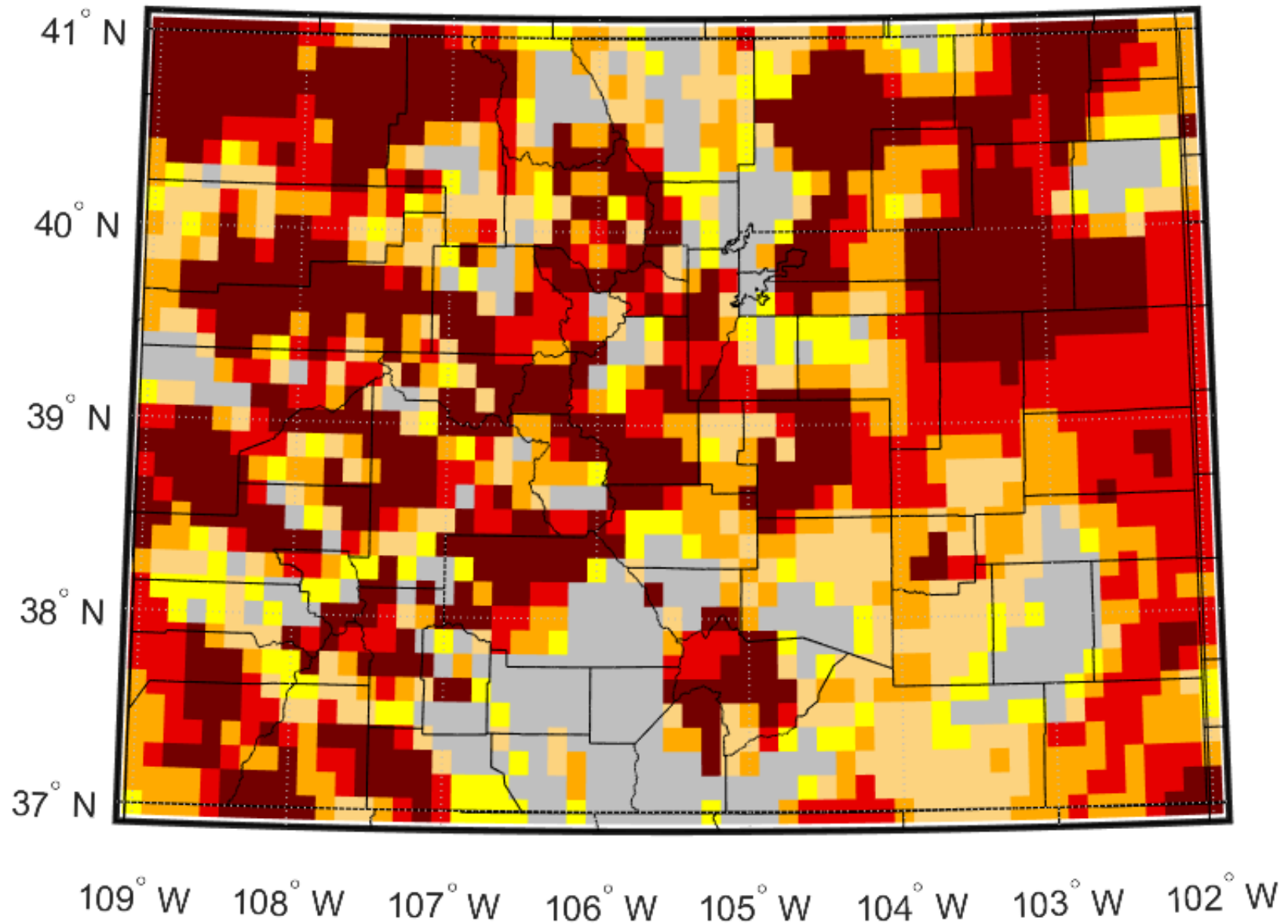


Lake Powell Level 01/17/2021 60 Percent of 1981-2019 Average



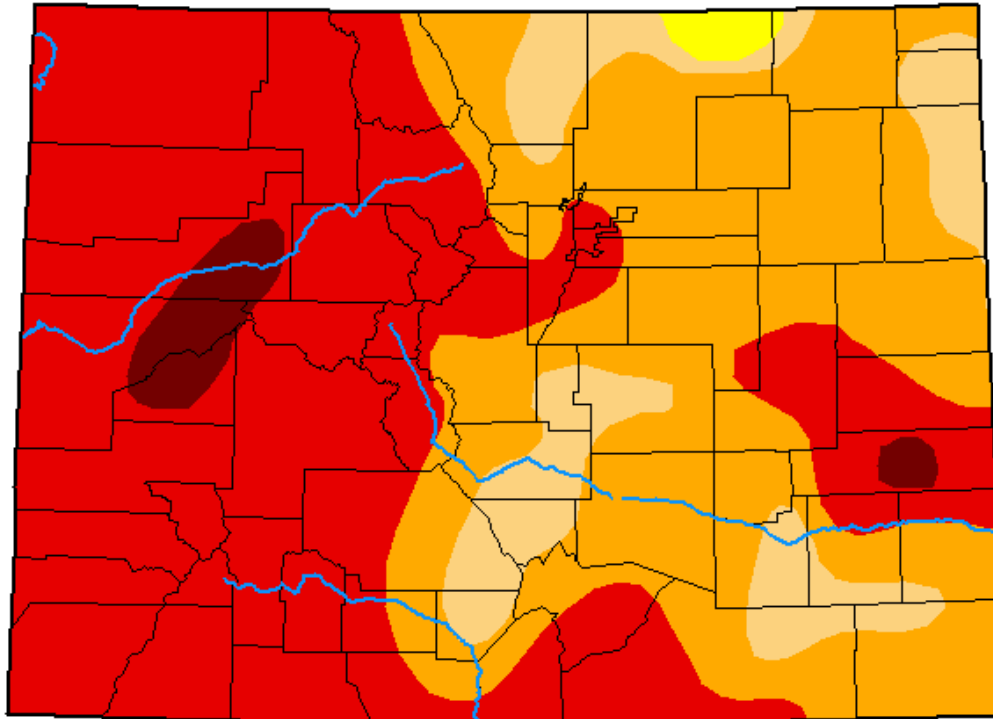
Top Meter Soil Moisture Drought Category

01/13/2021



U.S. Drought Monitor Colorado

September 29, 2020
(Released Thursday, Oct. 1, 2020)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	99.29	89.35	52.88	2.64
Last Week <i>09-22-2020</i>	0.00	100.00	98.61	87.77	50.10	0.38
3 Months Ago <i>06-30-2020</i>	15.67	84.33	67.96	56.23	34.07	1.37
Start of Calendar Year <i>12-31-2019</i>	31.72	68.28	51.19	20.11	0.00	0.00
Start of Water Year <i>10-01-2019</i>	30.14	69.86	27.53	0.00	0.00	0.00
One Year Ago <i>10-01-2019</i>	30.14	69.86	27.53	0.00	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:

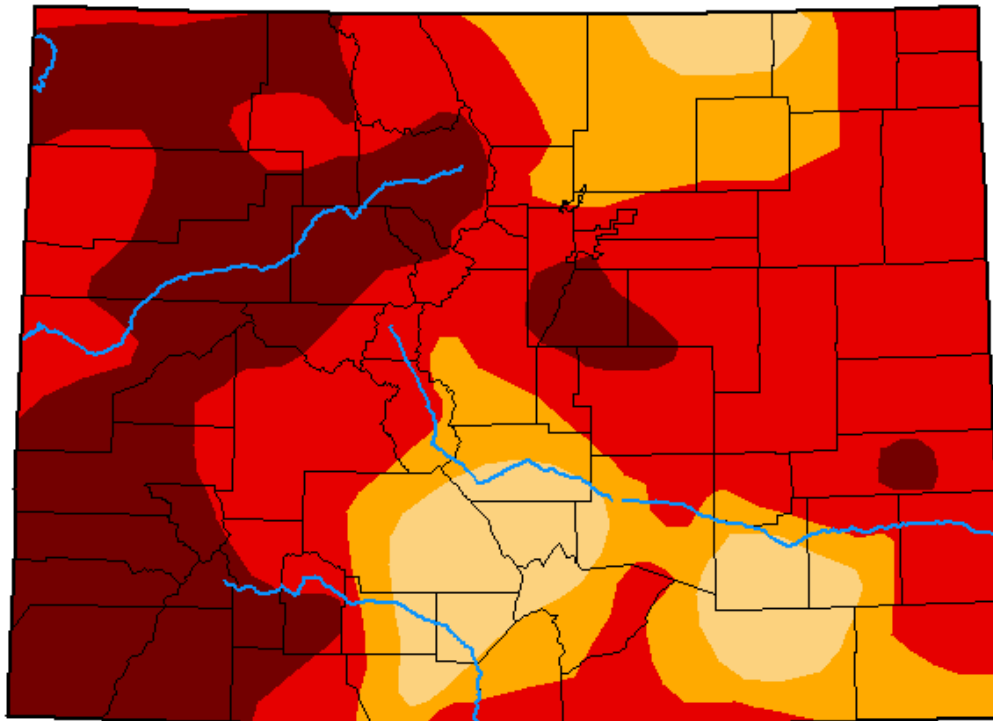
Brad Rippey
U.S. Department of Agriculture



droughtmonitor.unl.edu

U.S. Drought Monitor Colorado

January 12, 2021
(Released Thursday, Jan. 14, 2021)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	91.03	73.63	27.59
Last Week <i>01-05-2021</i>	0.00	100.00	100.00	93.73	76.17	27.60
3 Months Ago <i>10-13-2020</i>	0.00	100.00	100.00	97.23	59.23	16.72
Start of Calendar Year <i>12-29-2020</i>	0.00	100.00	100.00	93.73	76.17	27.60
Start of Water Year <i>09-29-2020</i>	0.00	100.00	99.29	89.35	52.88	2.64
One Year Ago <i>01-14-2020</i>	31.72	68.28	51.19	13.84	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
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- 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>

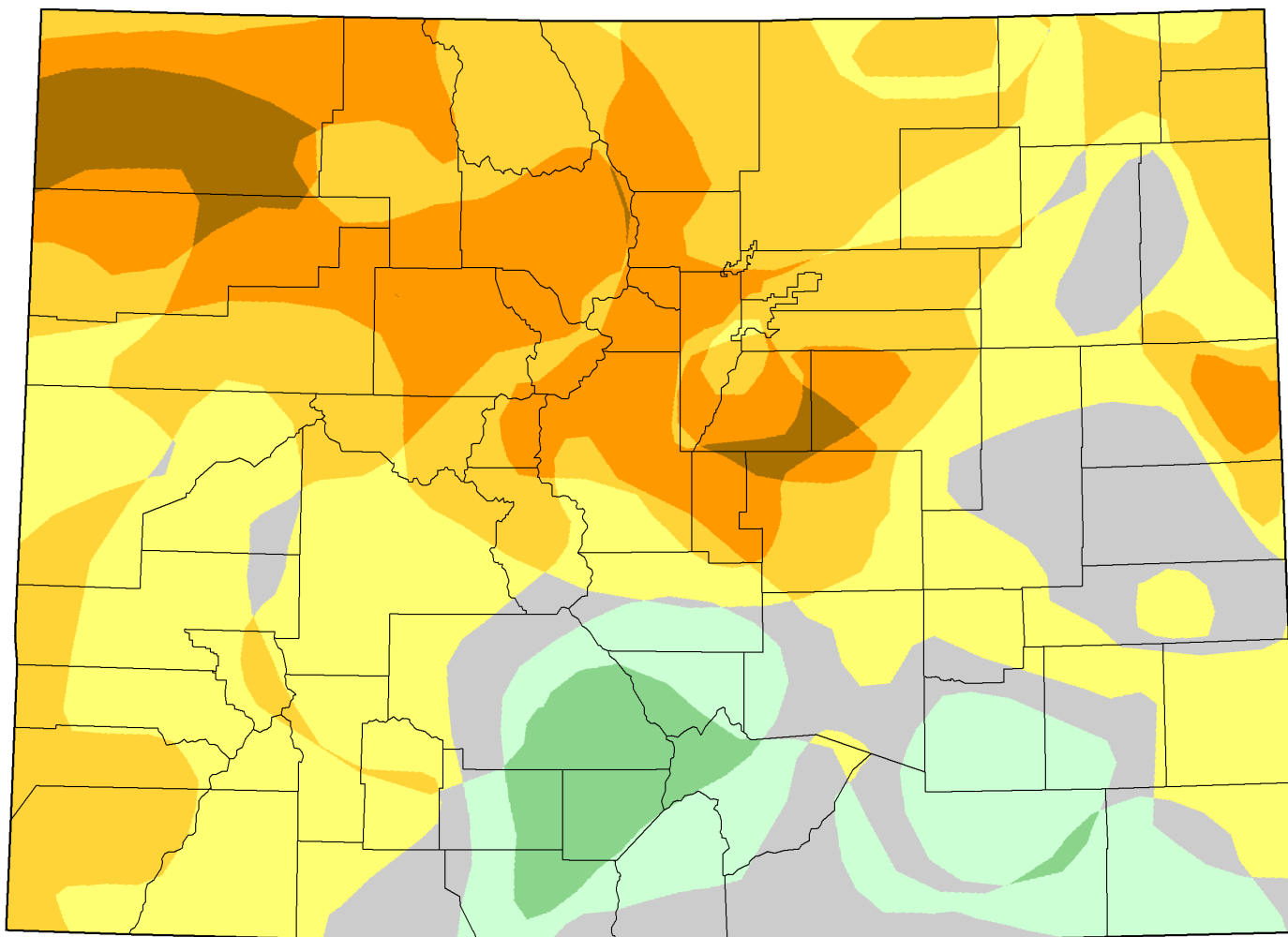
Author:

Deborah Bathke
National Drought Mitigation Center



droughtmonitor.unl.edu

U.S. Drought Monitor Class Change - Colorado 6 Months



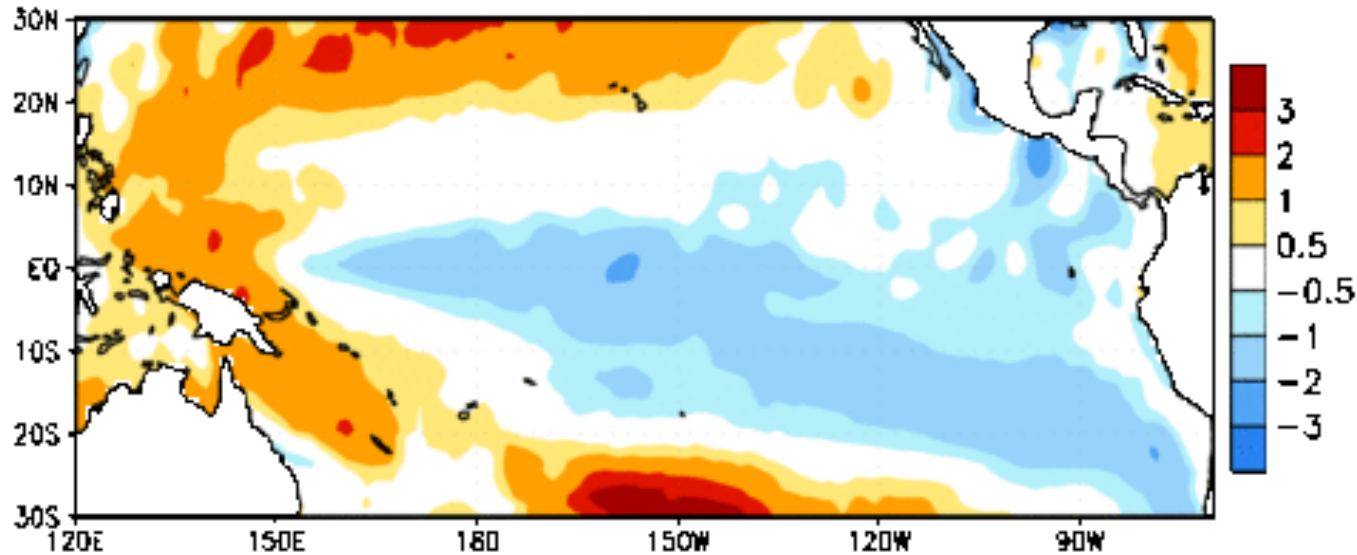
January 12, 2021
compared to
July 28, 2020

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

Current Sea Surface Temperature Pattern

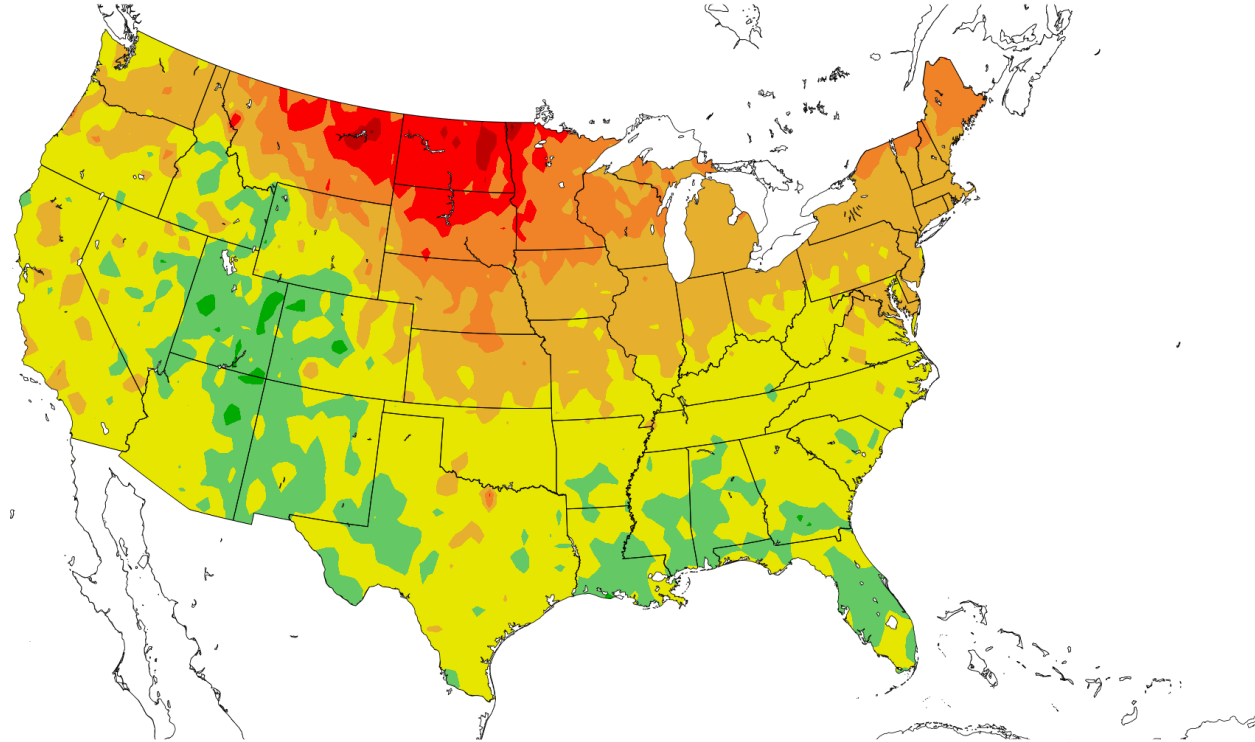
Week centered on 13 JAN 2021
SST Anomalies (°C)



- La Niña in effect
- Winter not behaving like a La Niña
- Signal Waning

La Niña? Are You Sure?

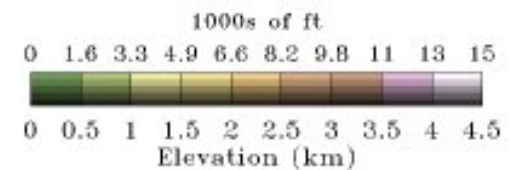
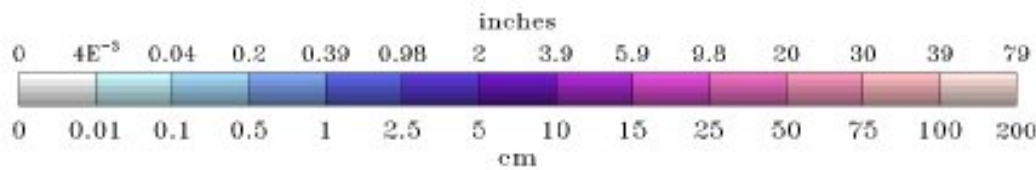
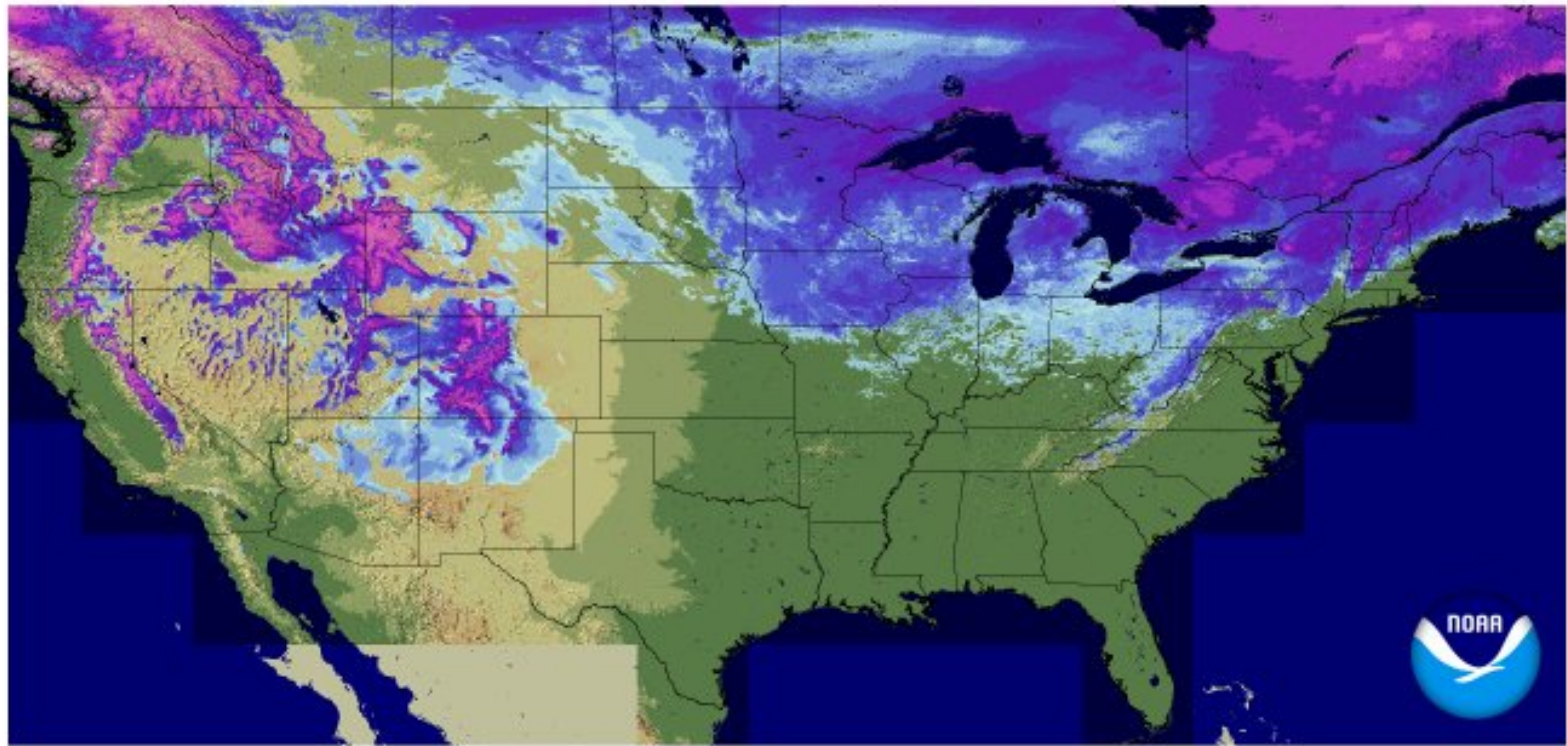
Departure from Normal Temperature (F)
11/21/2020 – 1/19/2021



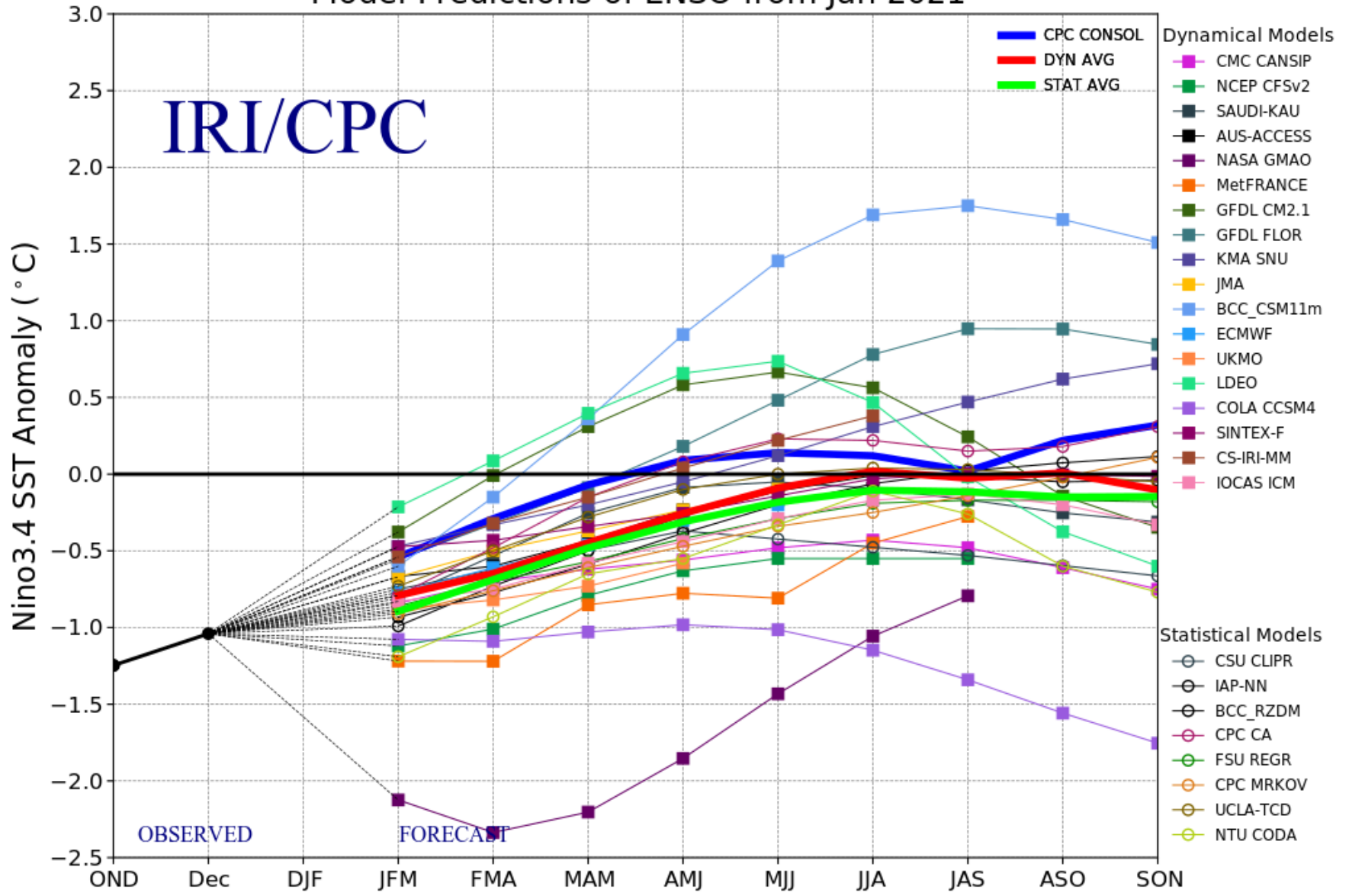
La Niña? Are You Sure?

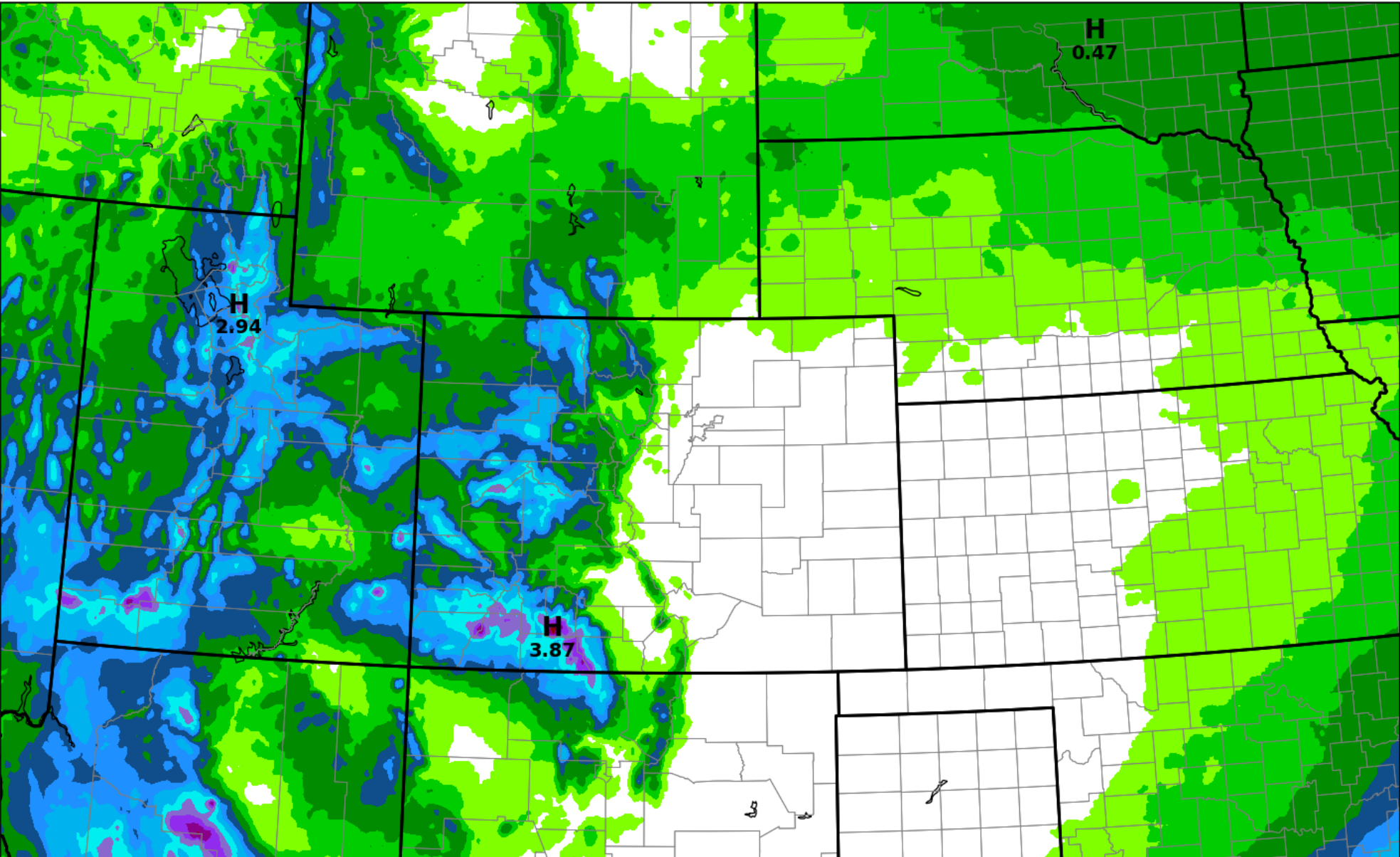
Snow Water Equivalent

2021-01-20 06 UTC

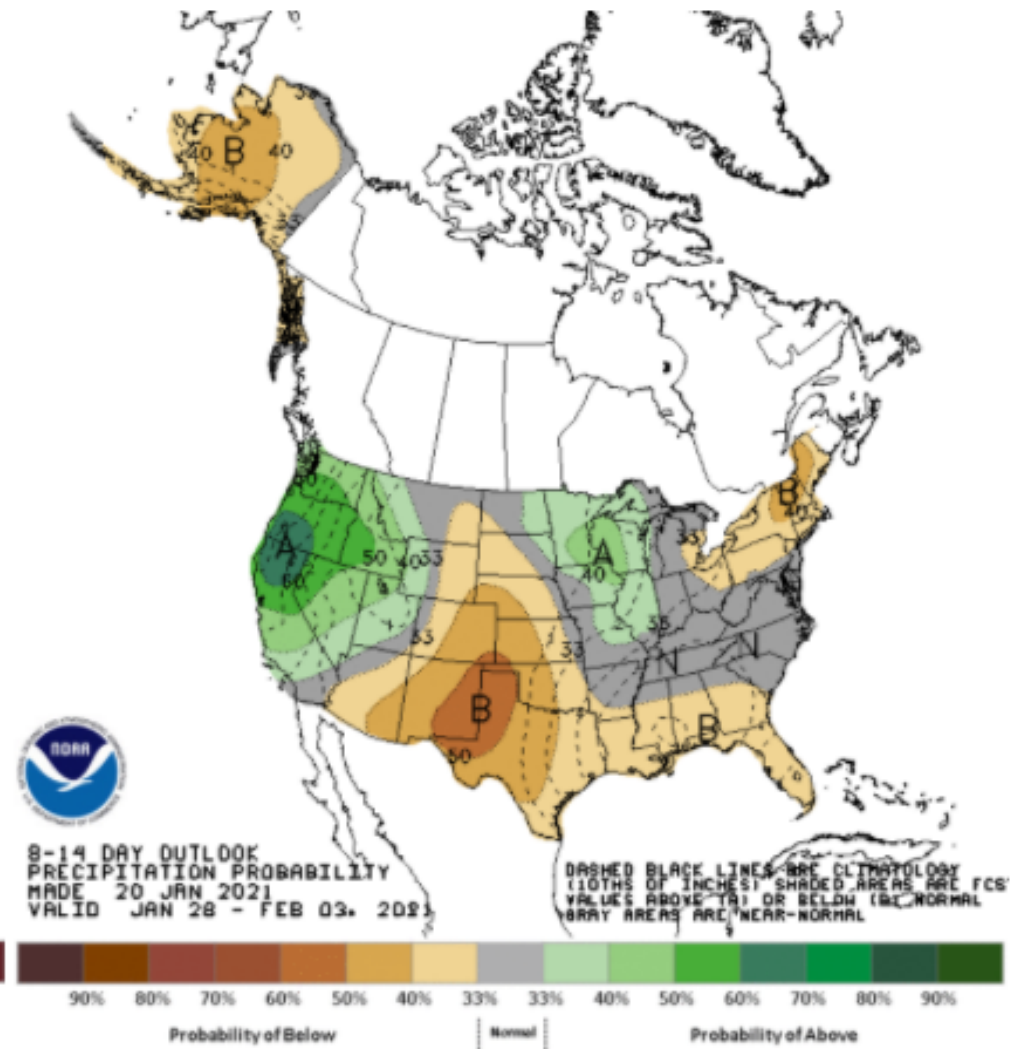
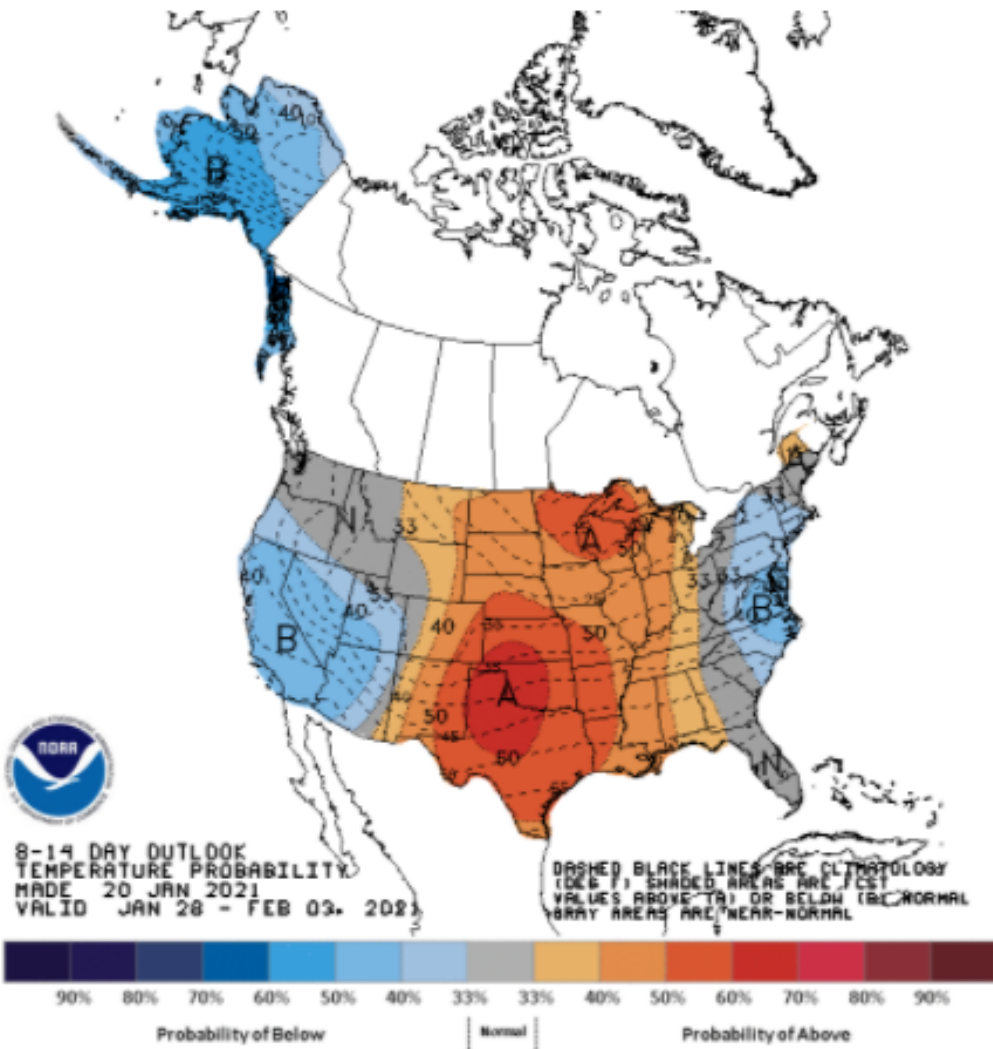


Model Predictions of ENSO from Jan 2021

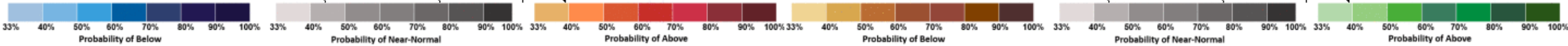
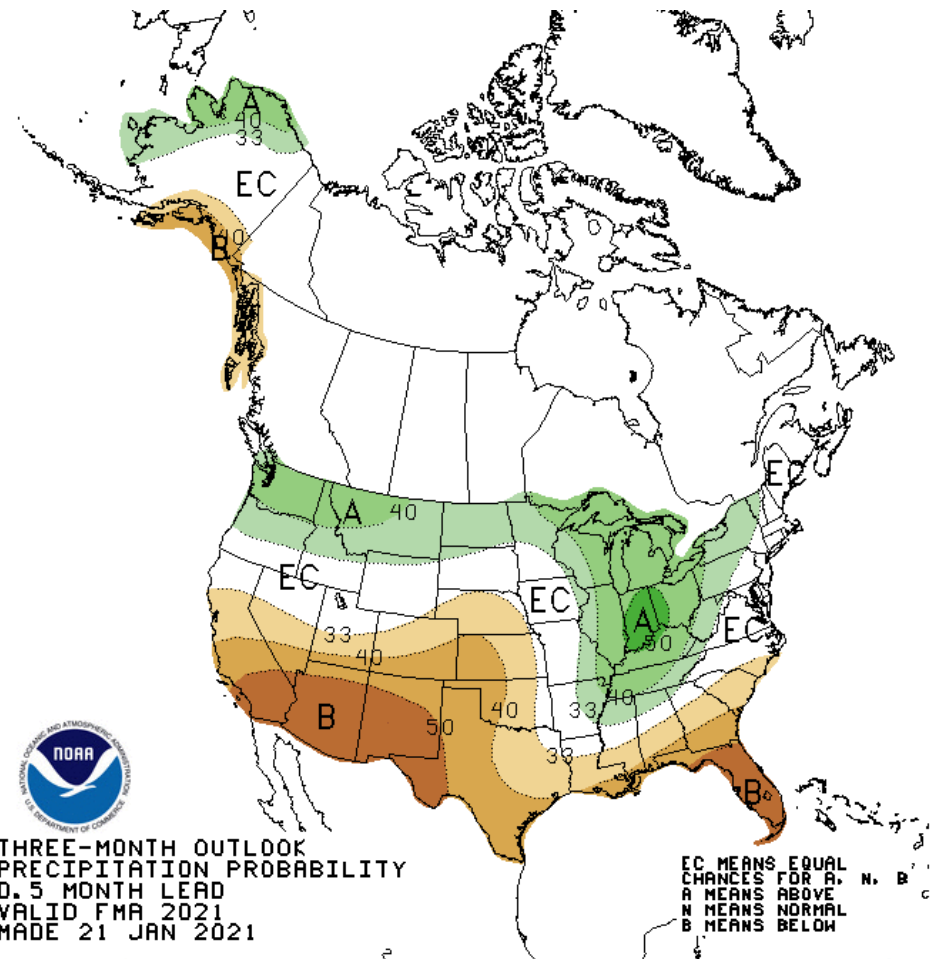
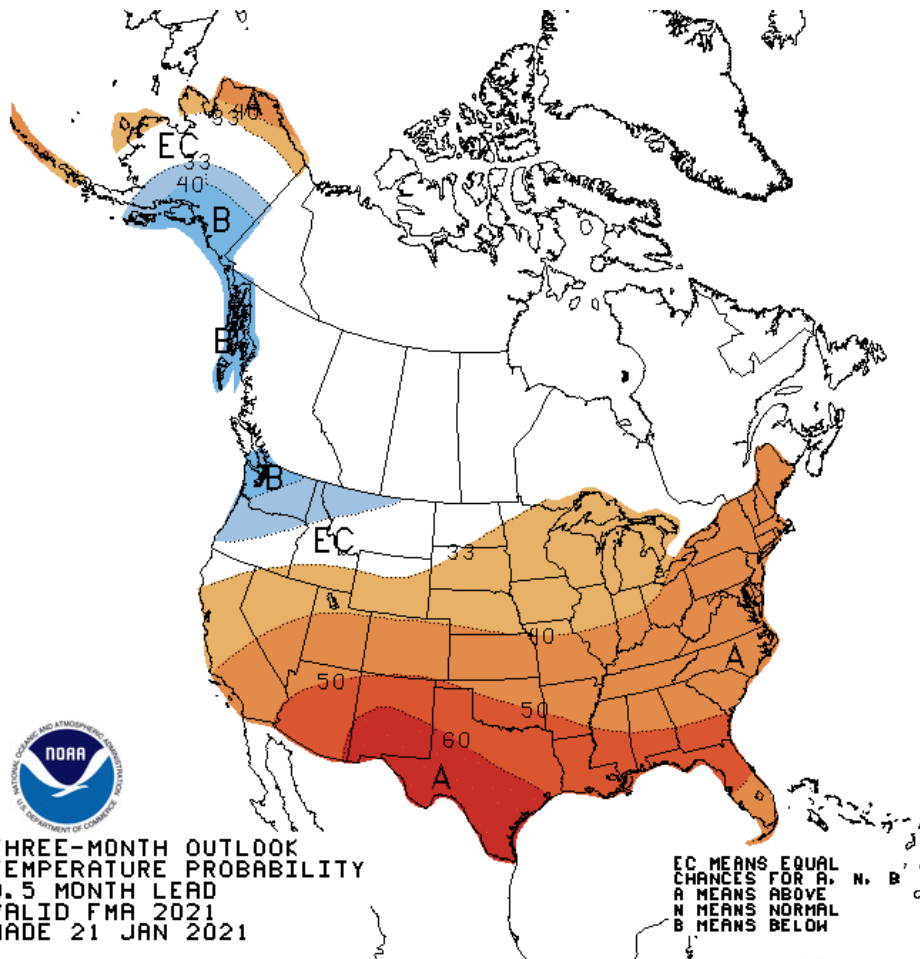




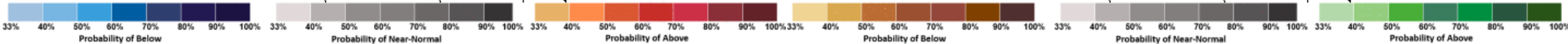
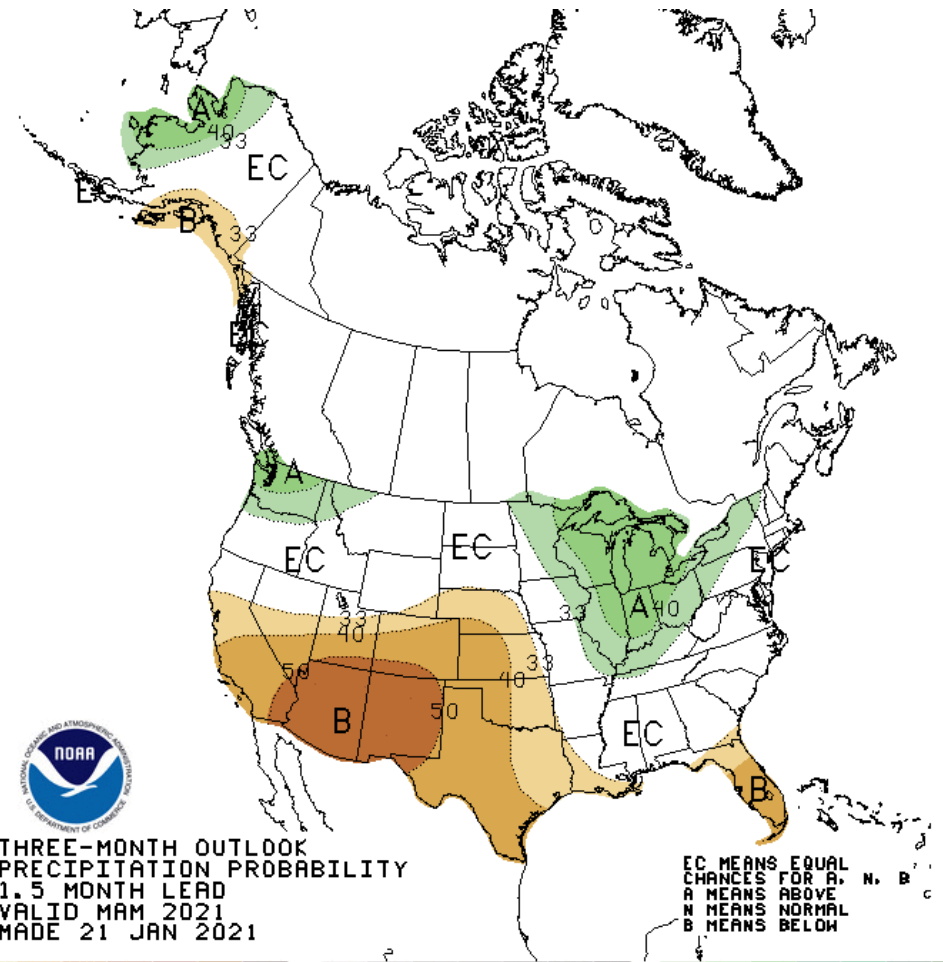
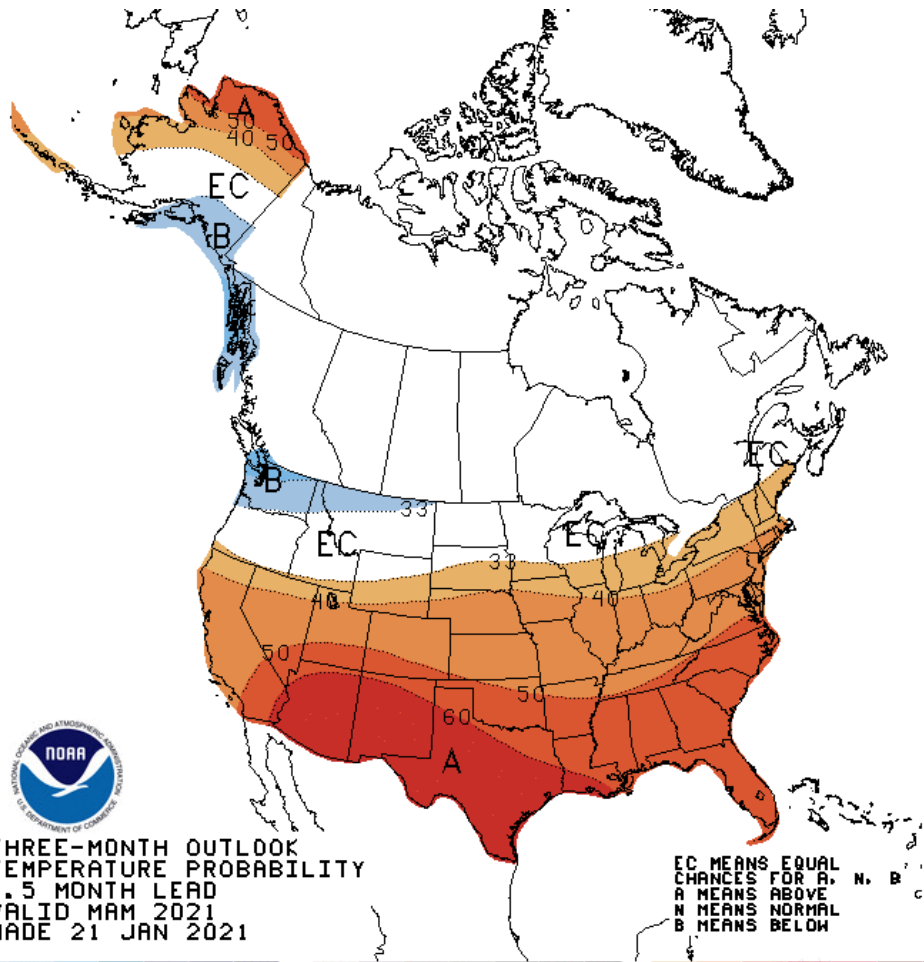
8-14 Day Outlook



FMA Outlook (warm/dry favored to continue)



March-May Outlooks: La Niña springs aren't often wet

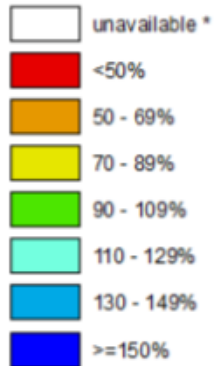


Colorado
SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Jan 20, 2021

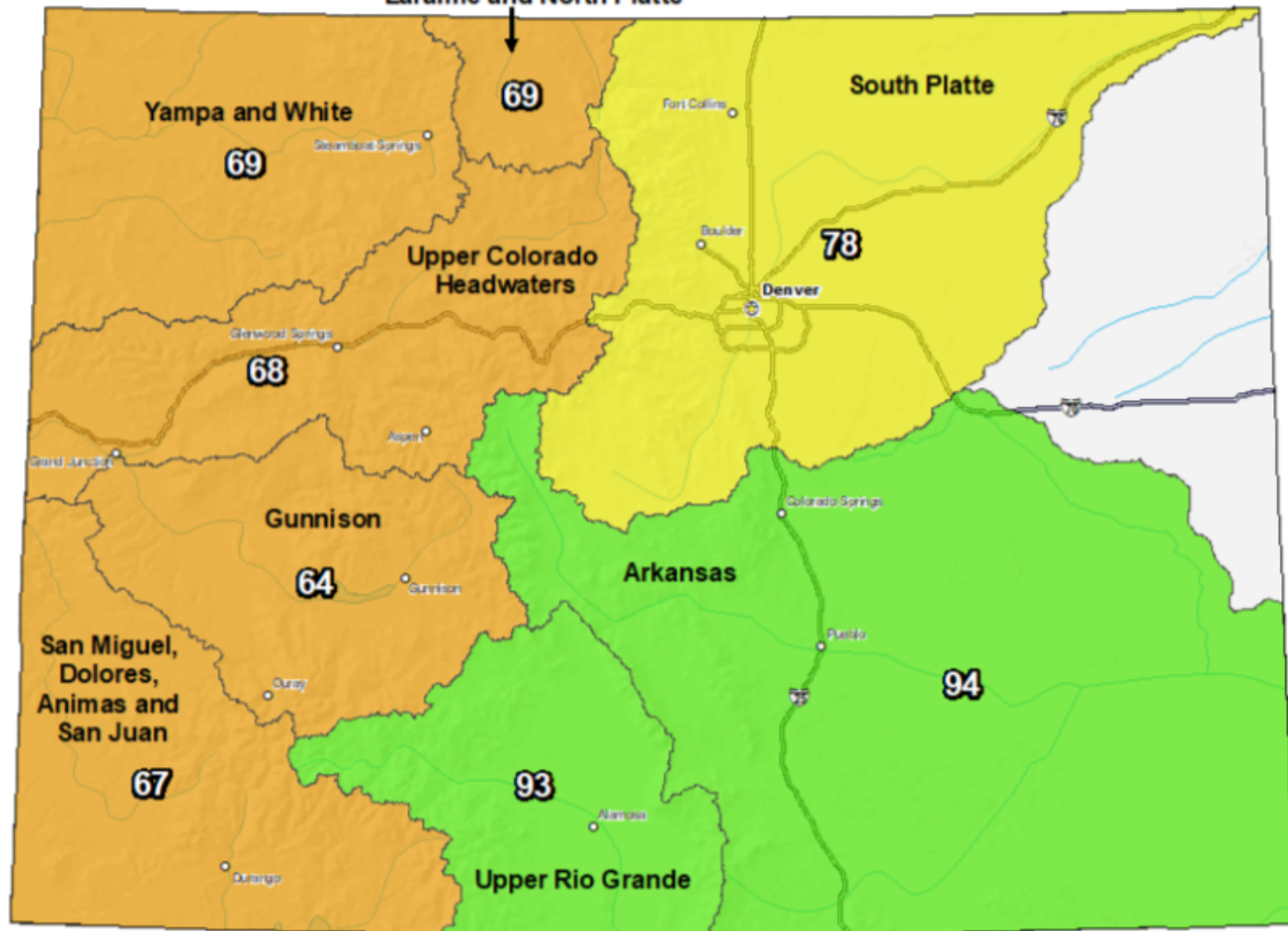
Laramie and North Platte

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



* Data unavailable at time of posting or measurement is not representative at this time of year

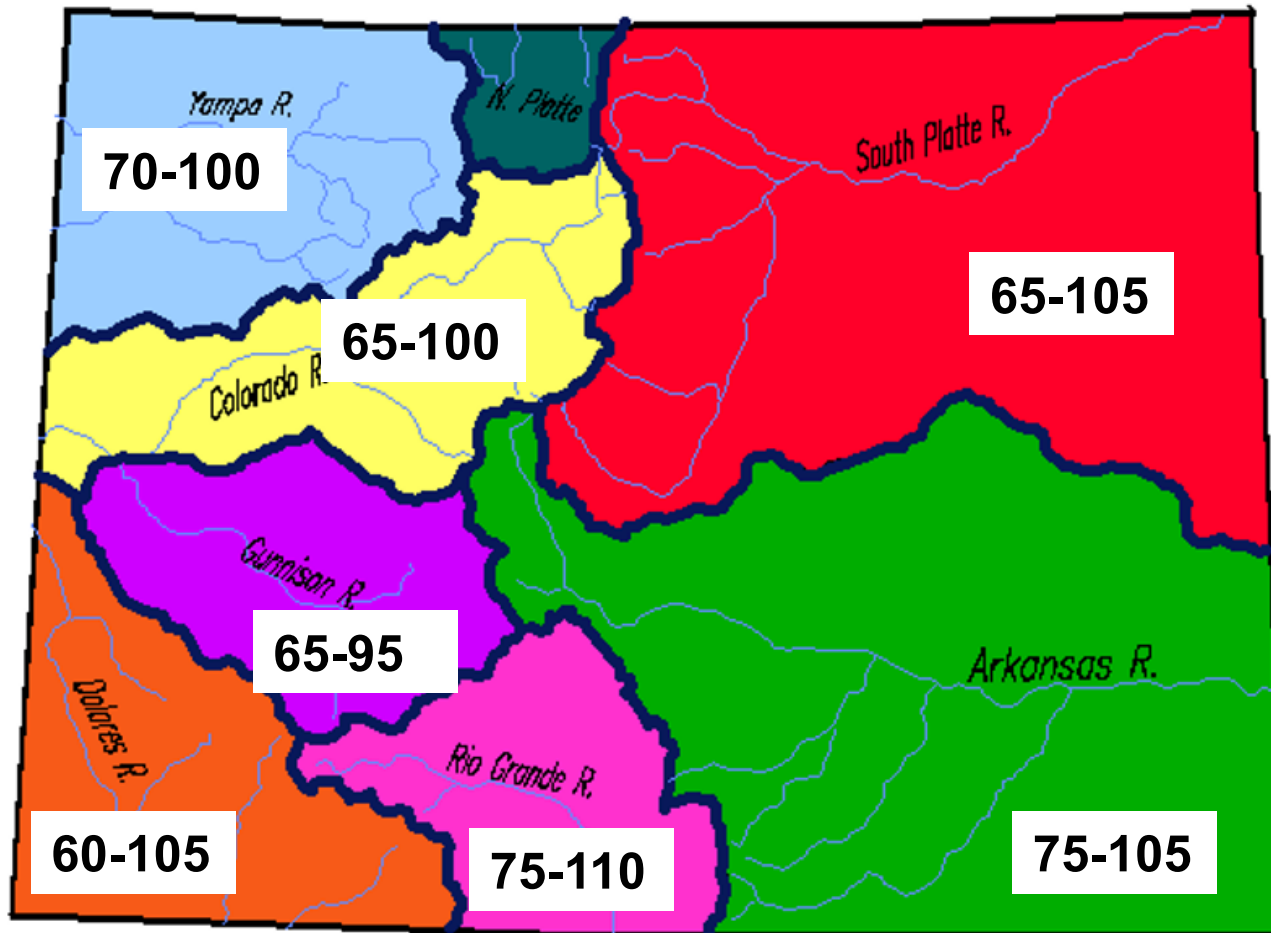
*Provisional Data
 Subject to Revision*



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:
 USDA/NRCS National Water and Climate Center
 Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

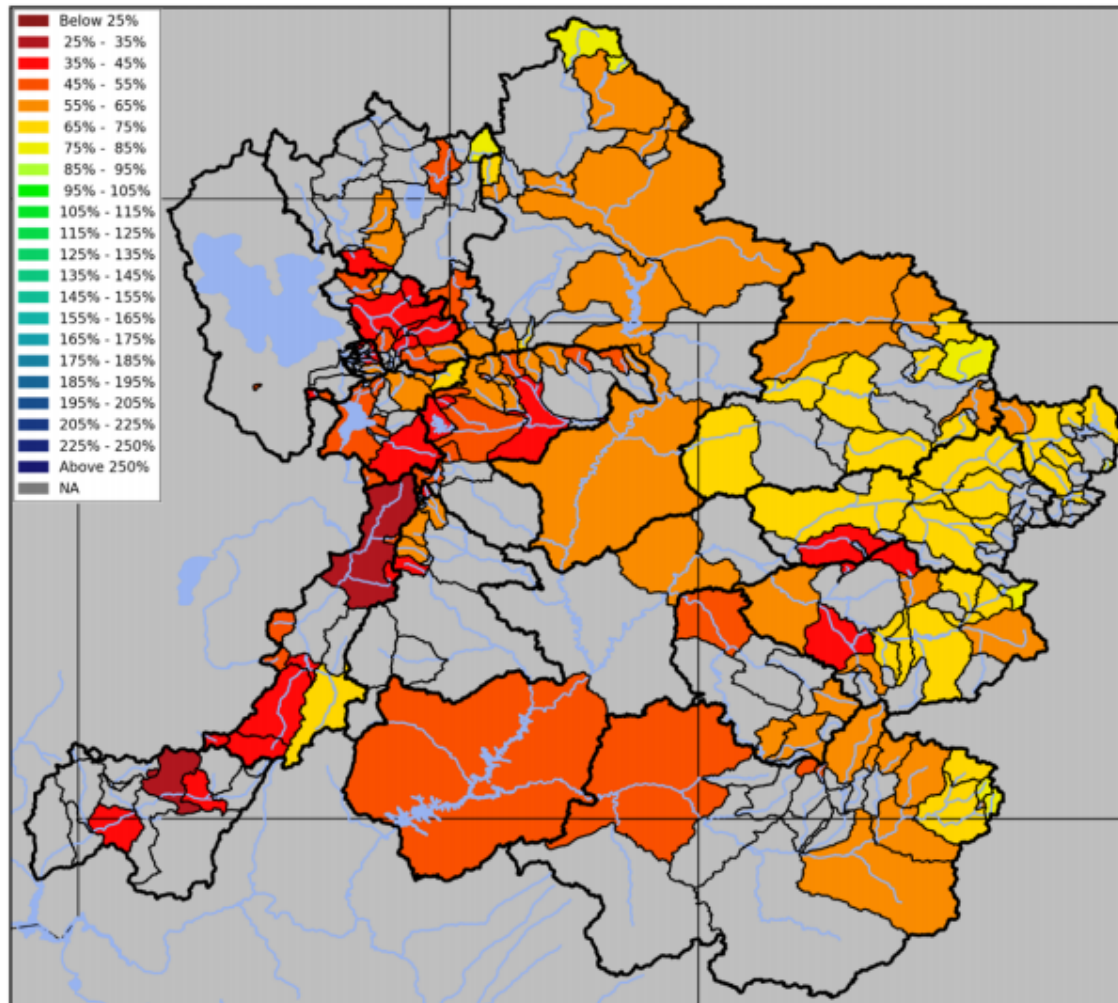
Peak Snowpack Projection 20-80th percentile range



- Snowpack likely to peak well below normal
- This does not cover the true range of variability
- More variability in southern basins
- The seasonal forecast leads us to expect numbers closer to the low end of the range

Colorado Basin River Forecast Center

Seasonal Water Supply Forecasts



CBRFC favors additional streamflow reductions based on dry fall soils

Upper Colorado, Great, Virgin River Basins: Jan 2021 April-July forecast volumes as a percent of 1981-2010 average (50% exceedance probability forecast).

Takeaways

- Colorado remains firmly in the clutches of drought. Impacts to this point have been largely agricultural and ecological, but the hydrologic impacts may be imminent
- December was fairly normal, but January has reverted to warm and dry. Current snowpack is well on the low end of normal with some immediate relief in sight for the southern Rockies
- We remain in a La Niña pattern, but this La Niña has not been typical. La Niña in winter is supposed to be a good thing for NW CO snowpack
- La Niña springs tend to lean dry, and rarely see a wet extreme
- We should be prepared for a low runoff year

Colorado Climate Center

Thanks, and let's keep in touch!

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Becky Bolinger – becky.bolinger@colostate.edu

Zach Schwalbe – zach.Schwalbe@colostate.edu

Viewing this, and previous WATF Briefings:

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

