WY Conditions & Outlooks:

Precipitation, Temperatures, Drought, Floods, & Everything In-between

February 15, 2024

Presentation Outline

- **Current Conditions:** Overview
  - Drought, Temperature, Precipitation, Soils, Snow Water Equivalent (SWE)
  - Reservoir Levels
- **Outlooks:**
  - Temperature & Precipitation
  - Water Supply & Flood Risk
- **Highlight of the Month:**
  - Snow Products within the WY Water & Climate Explorer
- **Questions**

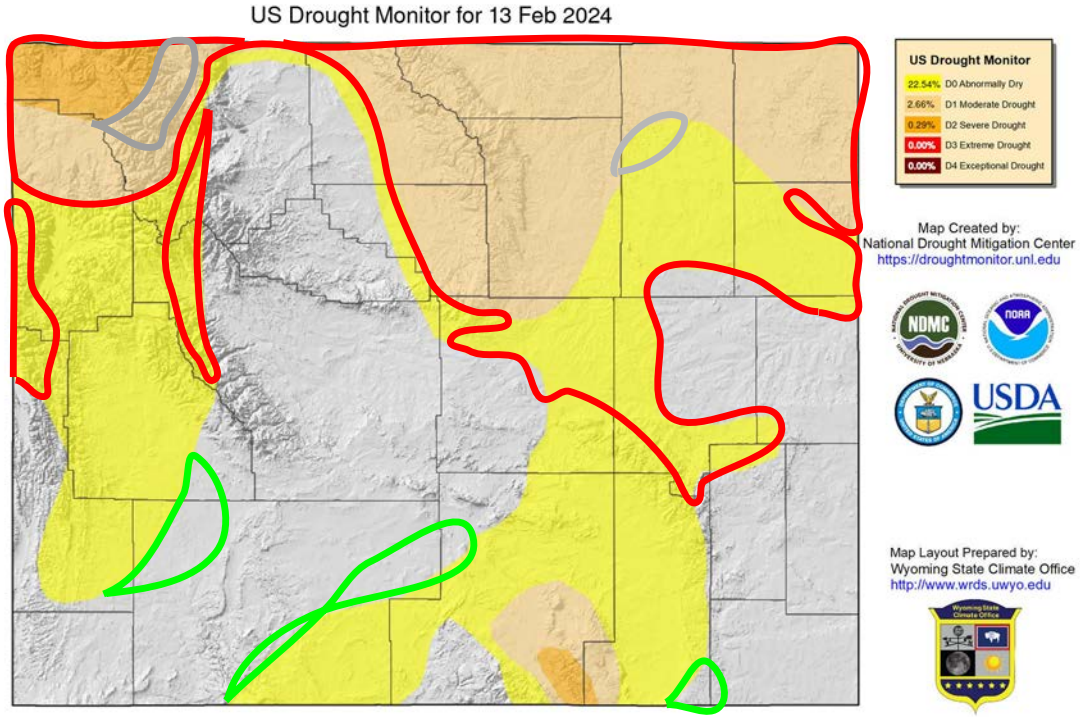
Current Conditions

US Drought Monitor for February 13, 2024

(Released Thursday, February 15th, 2024)

Valid 8 a.m. EDT

Drought Level	Percentile
None	>30
D0 (Abnormally Dry)	21 to 30
D1 (Moderate Drought)	11 to 20
D2 (Severe Drought)	6 to 10
D3 (Extreme Drought)	3 to 5
D4 (Exceptional Drought)	0 to 2



How are Drought categories assigned?
https://youtu.be/45MQ1GB-uTc

Degradations since the last webinar. Continued decline in conditions in the northern part of the state with some Improvements in the south. Gray areas are unchanged.

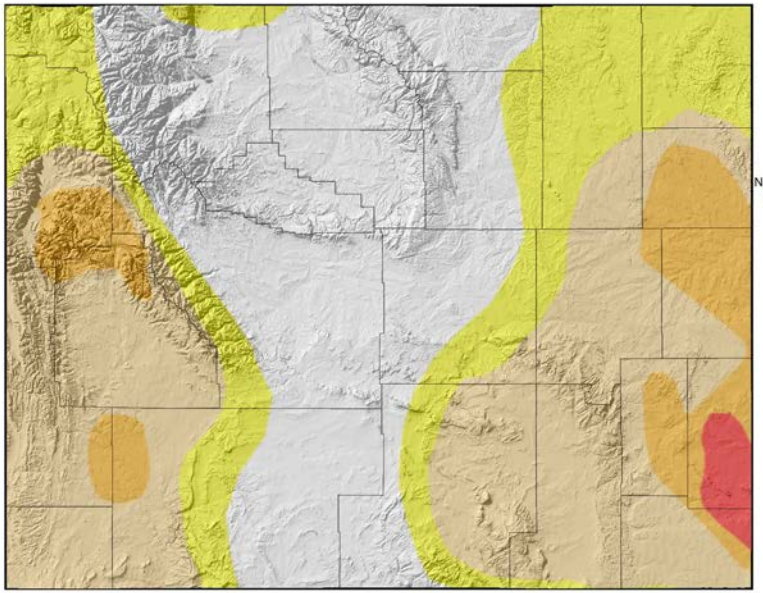
https://droughtmonitor.unl.edu

droughtmonitor.unl.edu

WRDS Water Resources Data System

One Year Ago

US Drought Monitor for 14 Feb 2023



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

Map Created by:
National Drought Mitigation Center
https://droughtmonitor.unl.edu

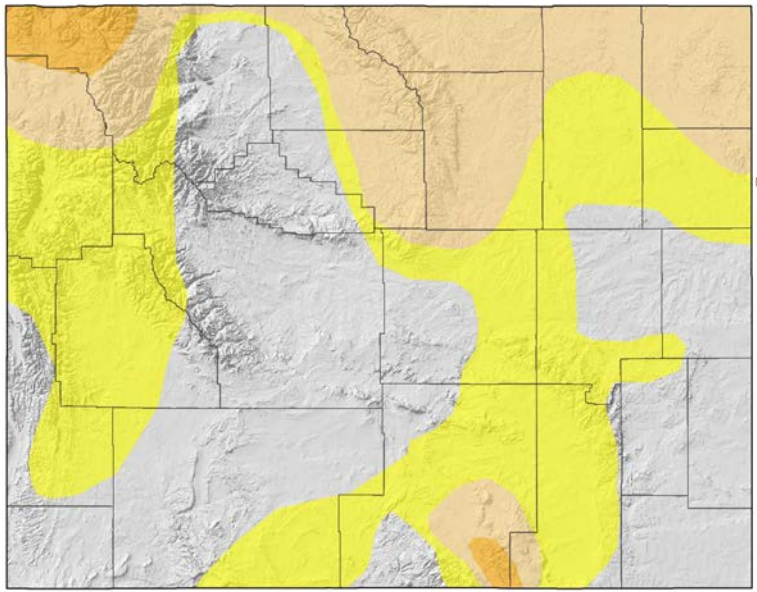
Map Layout Prepared by:
Wyoming State Climate Office
http://www.wrds.uwyo.edu

The U.S. Drought Monitor, is a weekly map of drought conditions produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted and maintained by the NDMC. http://droughtmonitor.unl.edu

Map Layout Created 27 Feb 2023 http://www.wrds.uwyo.edu

Today

US Drought Monitor for 13 Feb 2024



US Drought Monitor
- 22.54% D0 Abnormally Dry
- 2.66% D1 Moderate Drought
- 0.29% D2 Severe Drought
- 0.00% D3 Extreme Drought
- 0.00% D4 Exceptional Drought

Map Created by:
National Drought Mitigation Center
https://droughtmonitor.unl.edu

Map Layout Prepared by:
Wyoming State Climate Office
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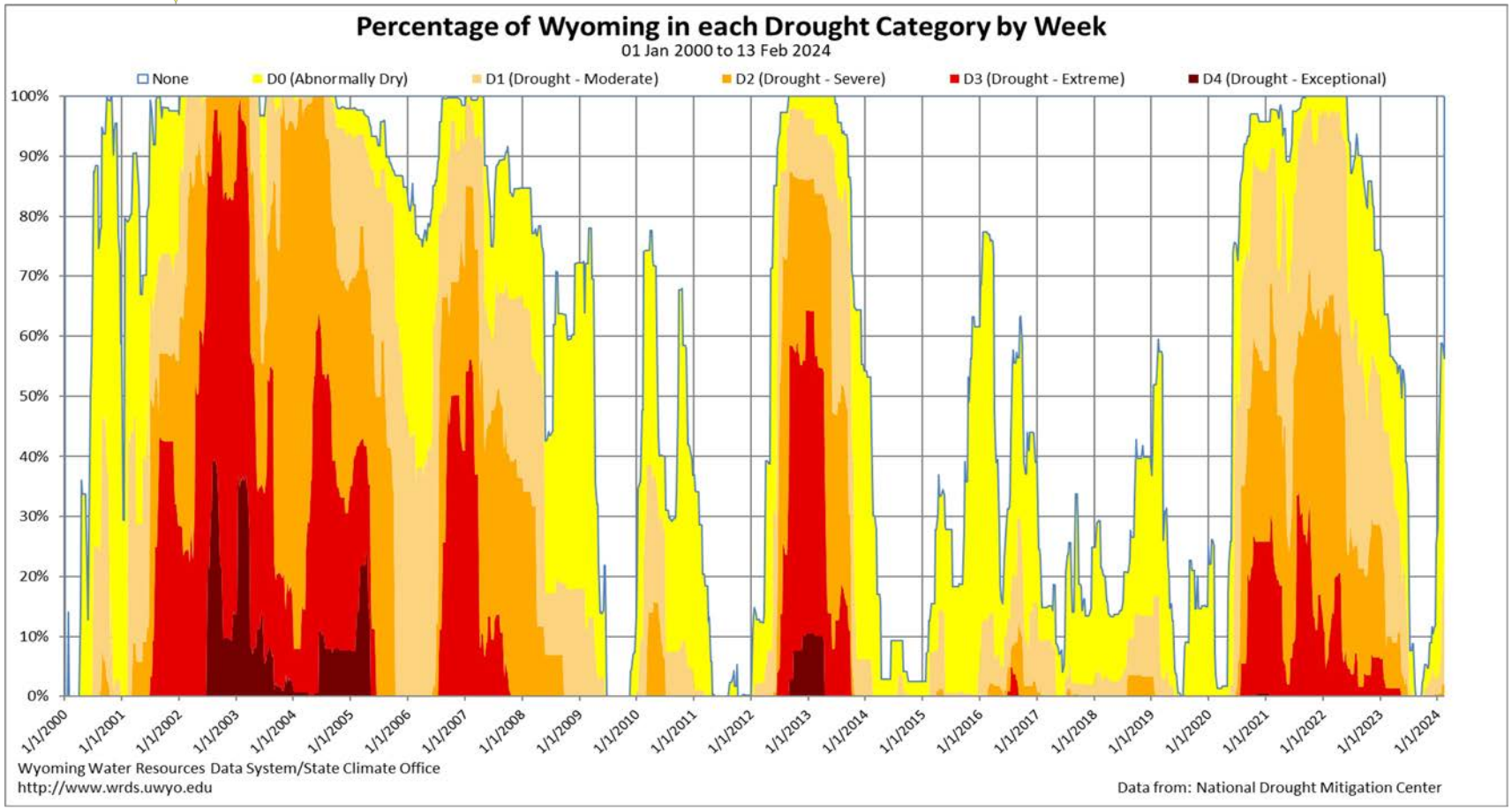
Map Layout Created 15 Feb 2024 http://www.wrds.uwyo.edu

https://droughtmonitor.unl.edu

droughtmonitor.unl.edu

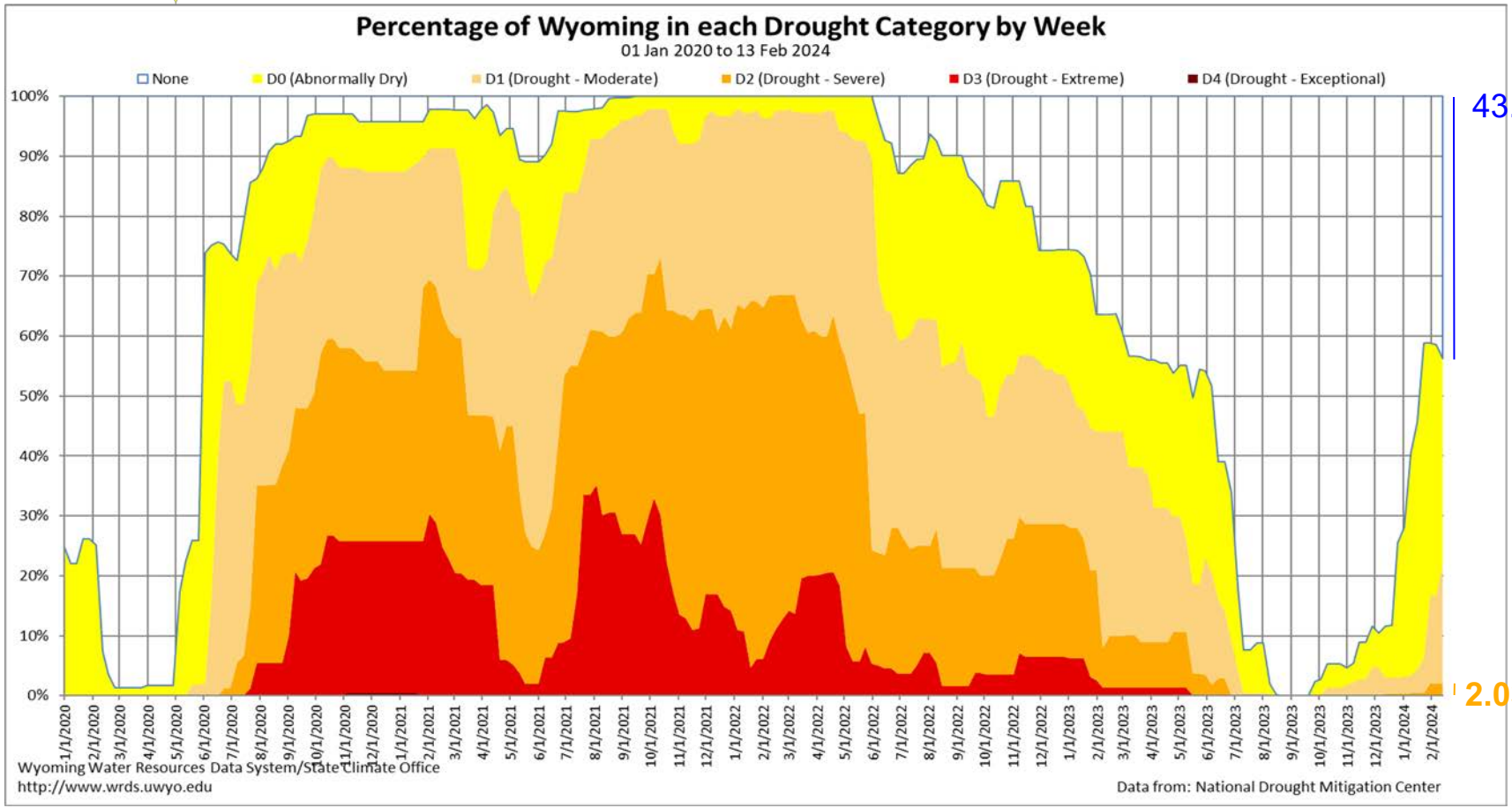
WRDS
Water Resources Data System

Wyoming Area Affected: 56.23% D0-D4 ; 21.73% D1-D4



http://www.wrds.uwyo.edu/drought/droughttimeline.html

WRDS
Water Resources Data System



http://www.wrds.uwyo.edu/drought/droughttimeline.html

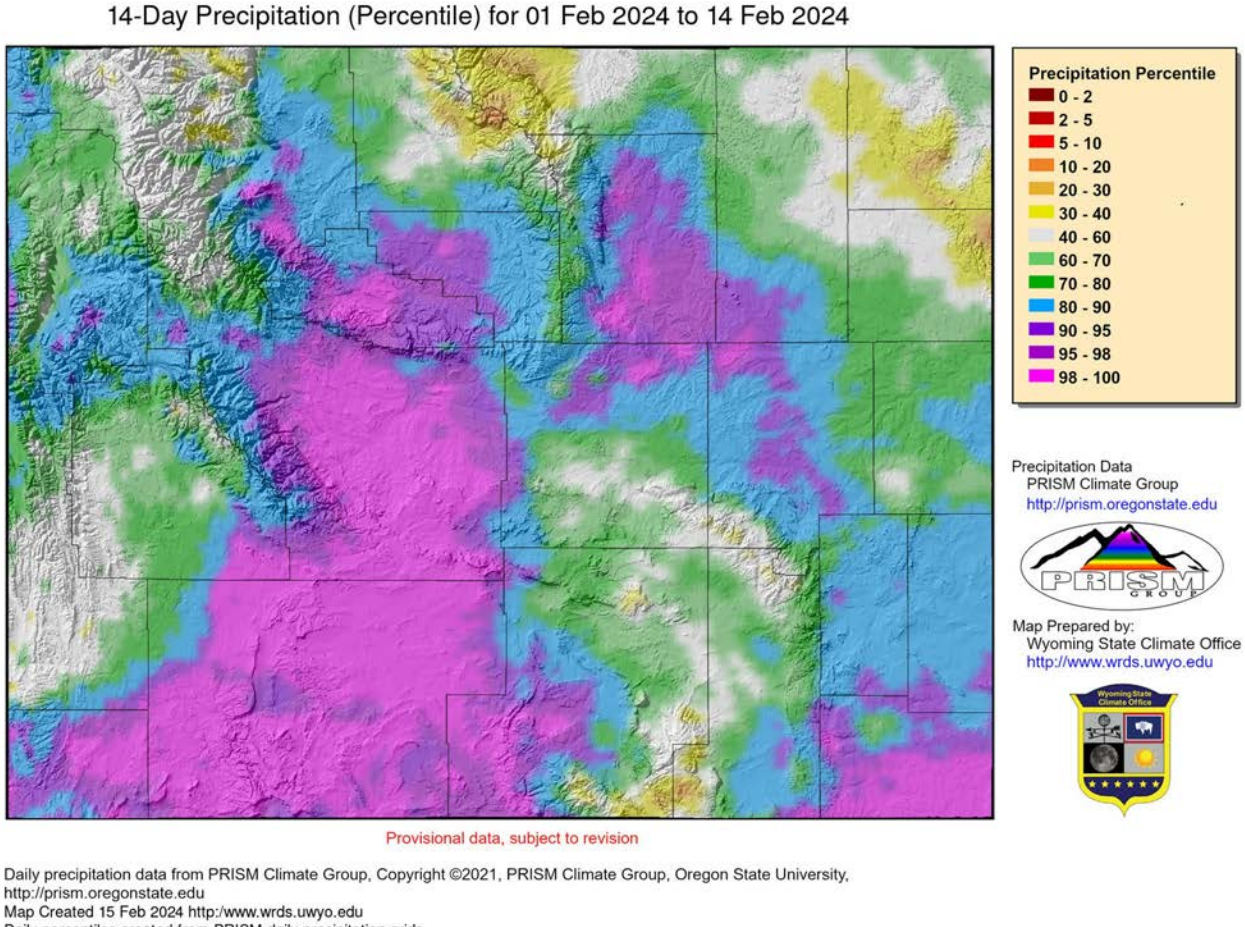
14-Day Precipitation Percentile (01 Feb 2024 to 14 Feb 2024)

Above Median:

- Much of Wyoming

Below Median (Areas of Concern):

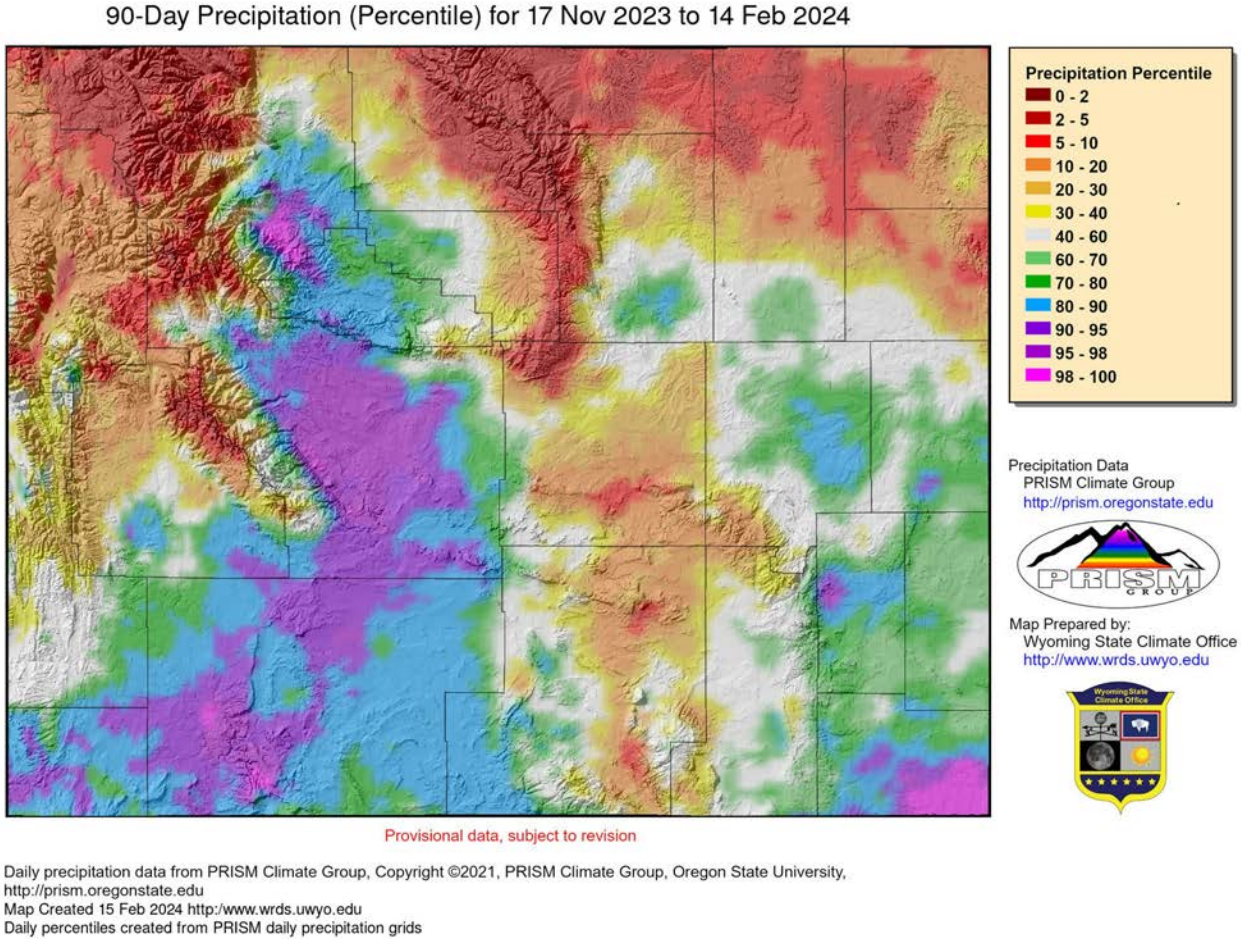
- Northern Bighorns
- Far South-Central Wyoming



90-Day Precipitation Percentile (17 Nov 2023 to 14 Feb 2024)

Above Median:
- Southwest
- Southeast

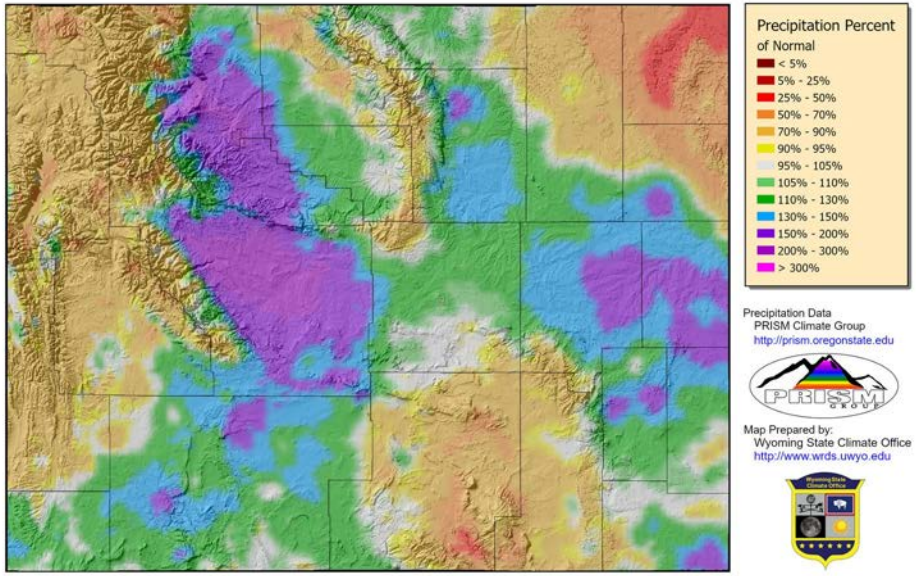
Below Median (Areas of Concern):
- Bighorns
- Northeast
- Northwest
- Natrona/Carbon Counties



“Year”-to-Date Precipitation (Percent of Average)

Current Water Year

Water-Year Precipitation (Percent of 1991-2020 Average) for 01 Oct 2023 to 14 Feb 2024

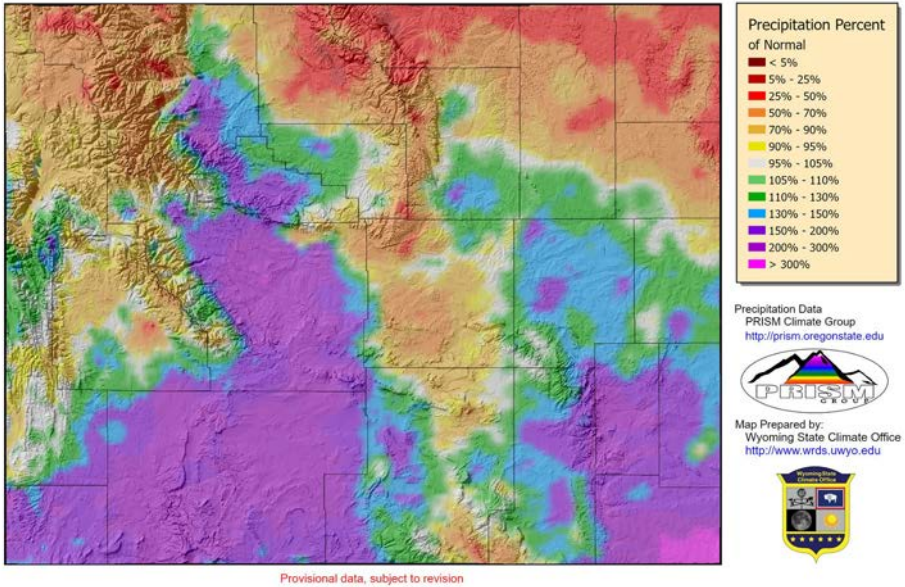


Provisional data, subject to revision

Monthly and Normal precipitation data from PRISM Climate Group, Copyright ©2024, PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu
Map Created 15 Feb 2024 http://www.wrds.uwyo.edu
Daily averages created from PRISM daily precipitation grids

Current Calendar Year

Calendar-Year Precipitation (Percent of 1991-2020 Average) for 01 Jan 2024 to 14 Feb 2024



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Map Created 15 Feb 2024 http://www.wrds.uwyo.edu
Daily averages created from PRISM daily precipitation grids

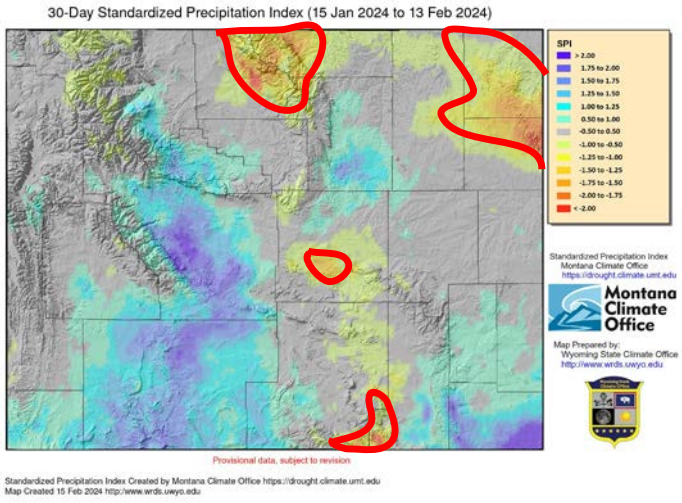
Note: a water year is October 1 through September 30 of the following year.

WRDS
Water Resources Data System

Standardized Precipitation Index (SPI)

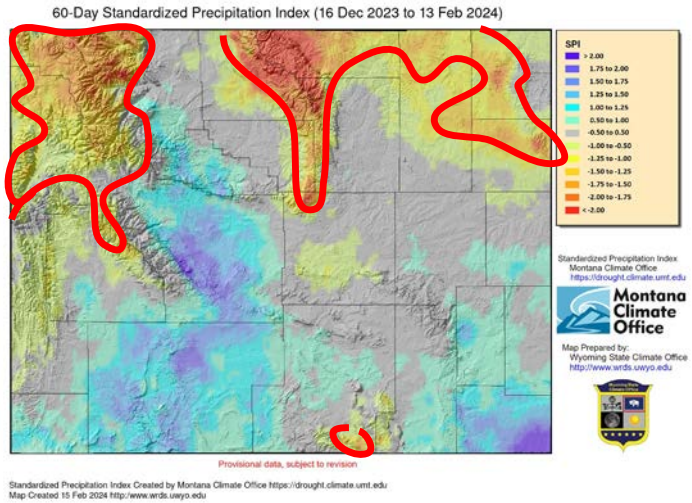
30-Day →

Jan 14 - Feb 13



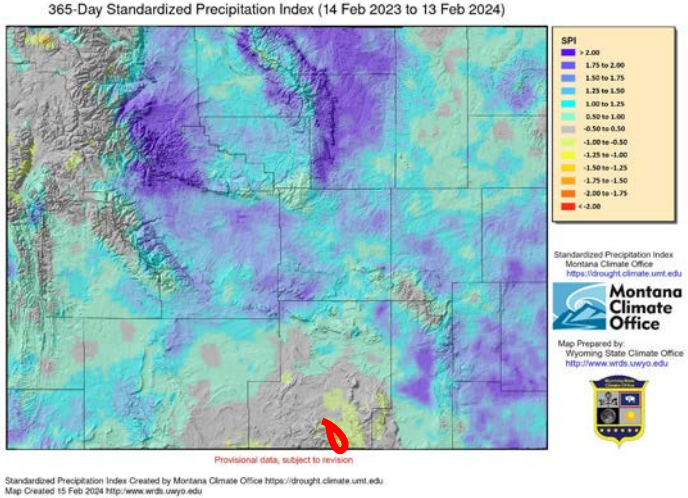
60-Day →

Dec 16 - Feb 13



Short term: North and South-Central still dry
Long term: Central and North-Central along with Southeast, wet

1-Year →

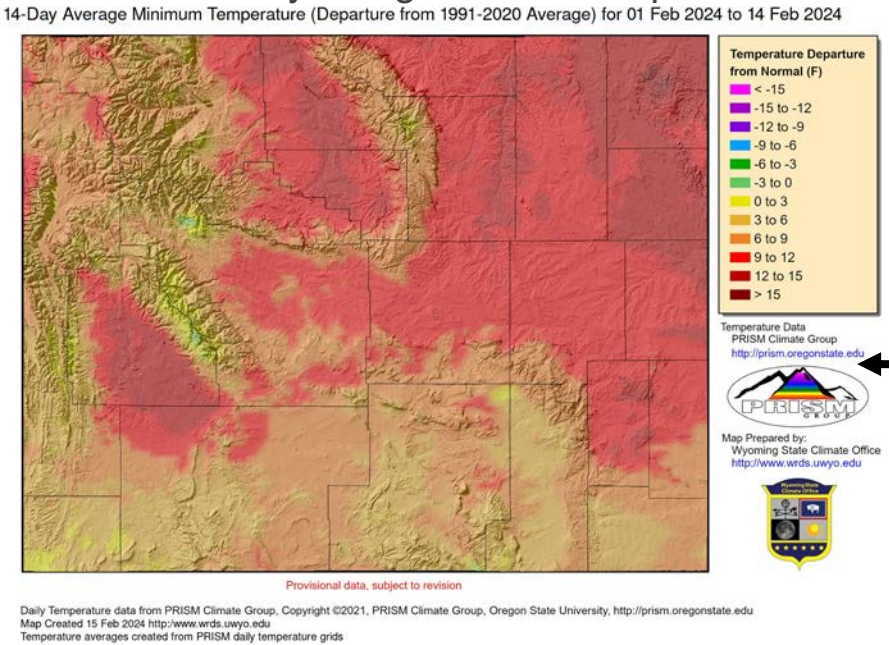


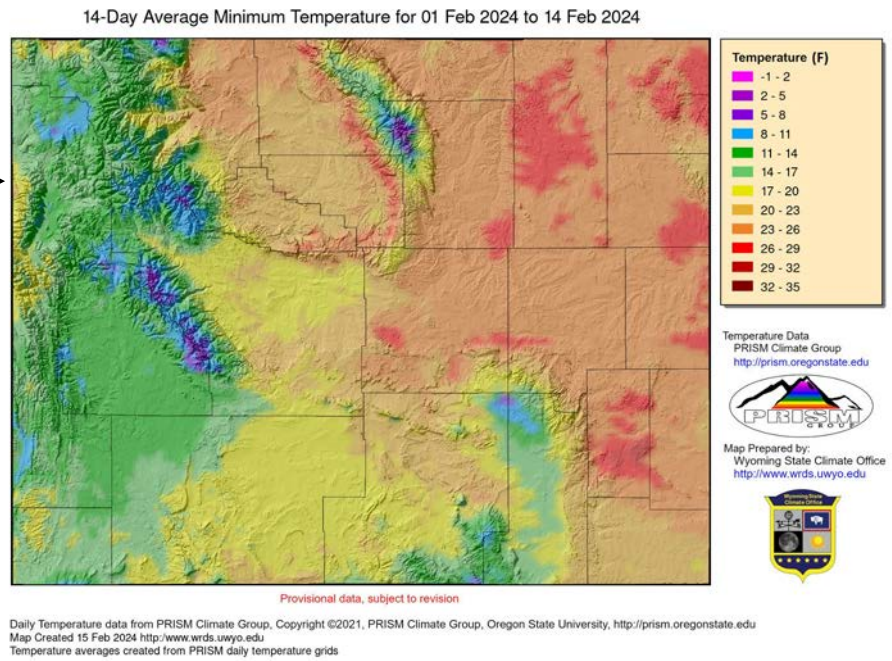
https://drought.climate.umt.edu

WRDS Water Resources Data System

14-Day Average Minimum Temperature (01 Feb to 14 Feb)

- Lows below freezing but approaching 32F in parts of NE
- Western Wyoming coolest except for BH and SM/SR





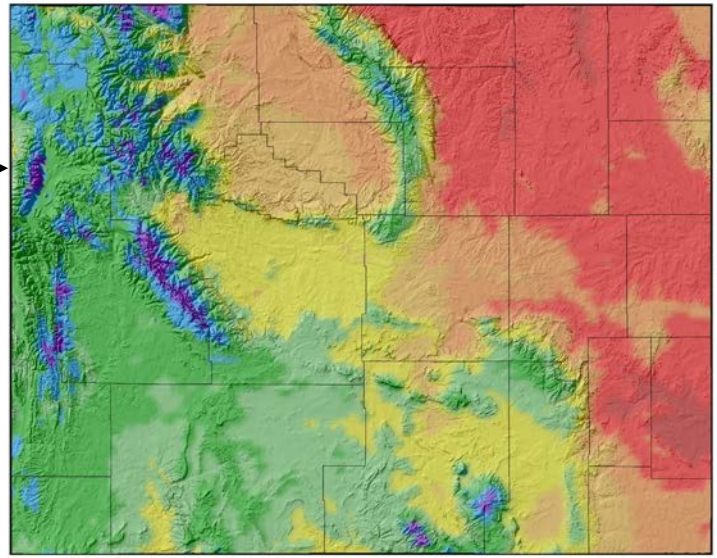
14-Day *Departure from* Normal Average Minimum Temperature

- Upper Green and NE two-thirds WY more than 10F above average
- Southern Third and generally the West coolest but still 3F to 6F above average

WRDS Water Resources Data System

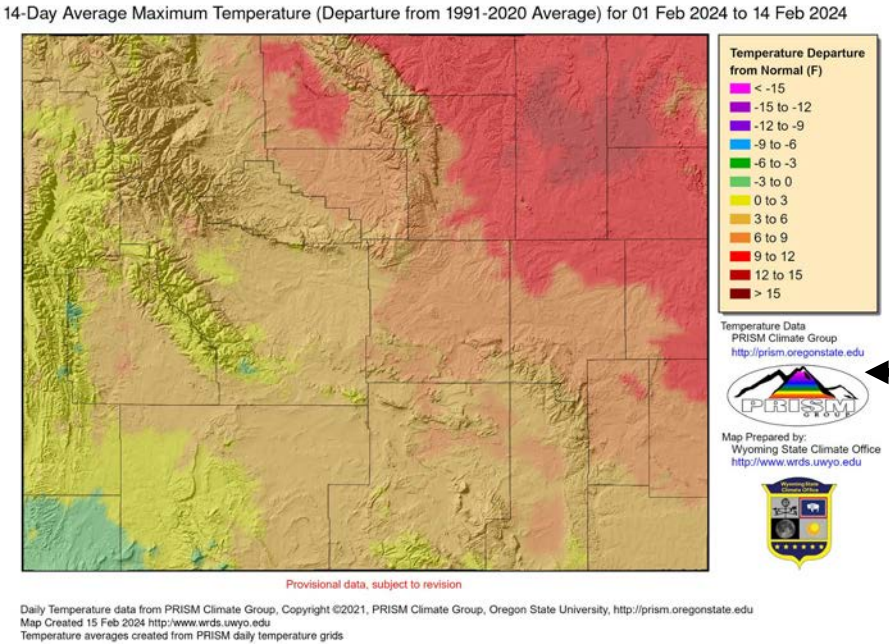
14-Day Average Maximum Temperature (01 Feb to 14 Feb)

- Highs above 32F except for higher elevations
- East/Northeast warmest, Northwest coolest



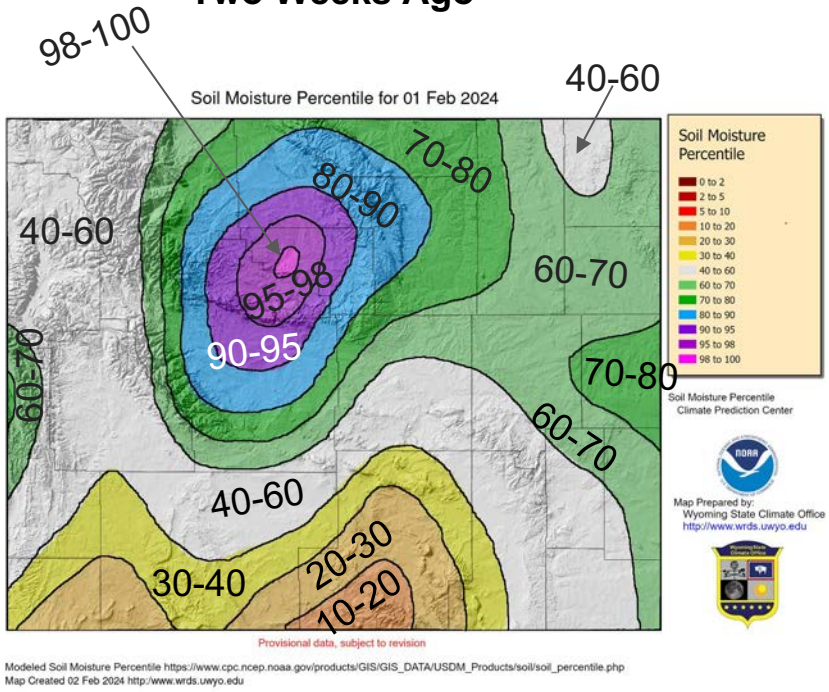
14- Day *Departure from* Normal Average Maximum Temperature

- Northeast, ~10F degrees above average
- Southwest coolest with most of Uinta County below average

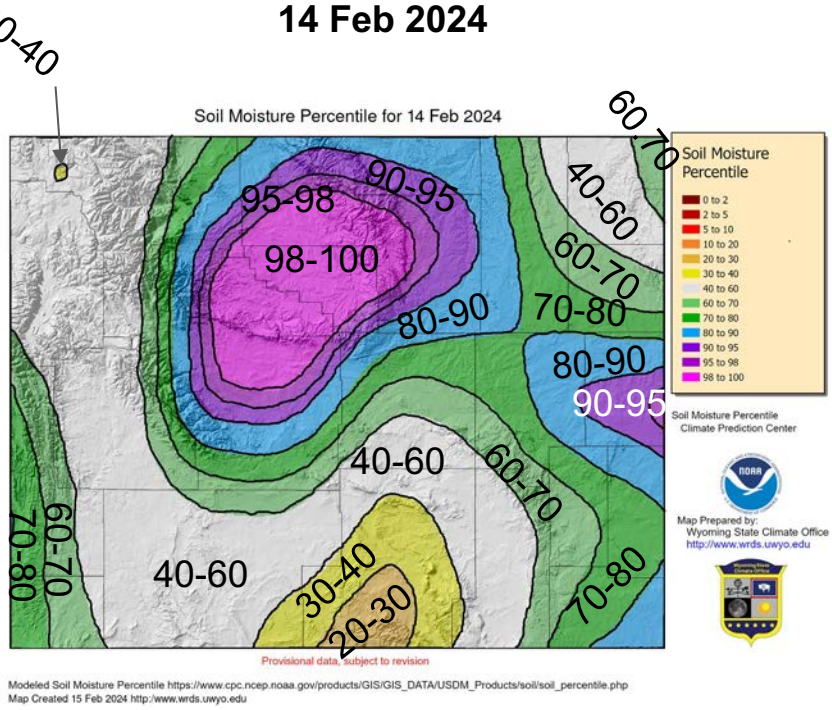


Soil Moisture Percentile

Two Weeks Ago



14 Feb 2024

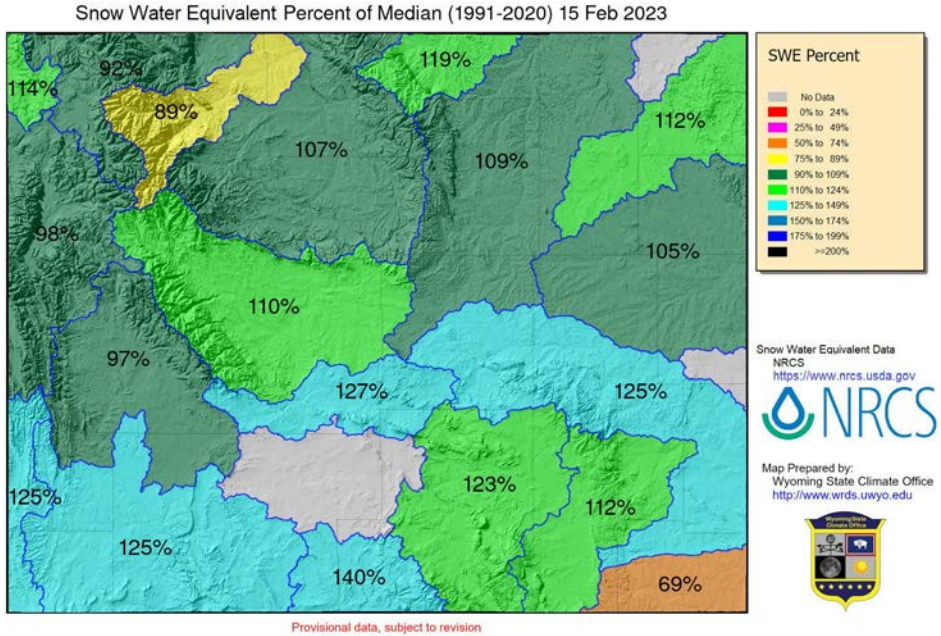


http://www.wrds.uwyo.edu/Soil/Current_SoilMoisture_Ptile.html

Improvements or status quo statewide, but with very slight degradations in a few minor areas.

Basin Snow Water Equivalent (SWE)
% of Median

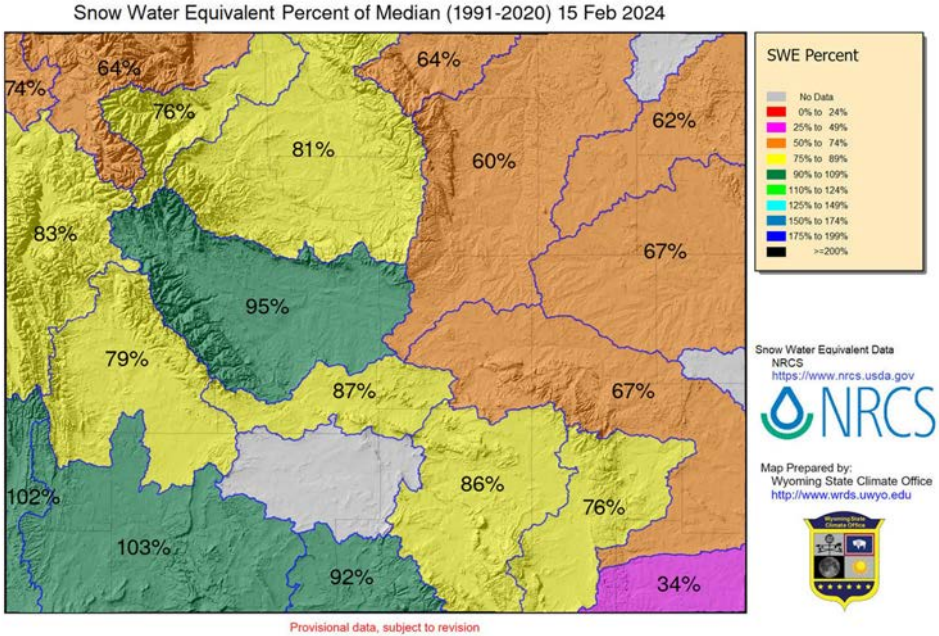
15 Feb 2023 (One Year Ago)



Basin Snow Water Equivalent Data from Natural Resources Conservation Service Water and Climate Center https://www.nrcs.usda.gov
Map created by Wyoming State Climate Office 11 Apr 2023

* Percentages denoted by an asterisk represent data that may not provide a valid measure of conditions. This is most usually seen near the end of the snow season where normal values may be very low or the melt out curve is so steep that a slight variation in days may result in abnormally high or low percentages.

15 Feb 2024



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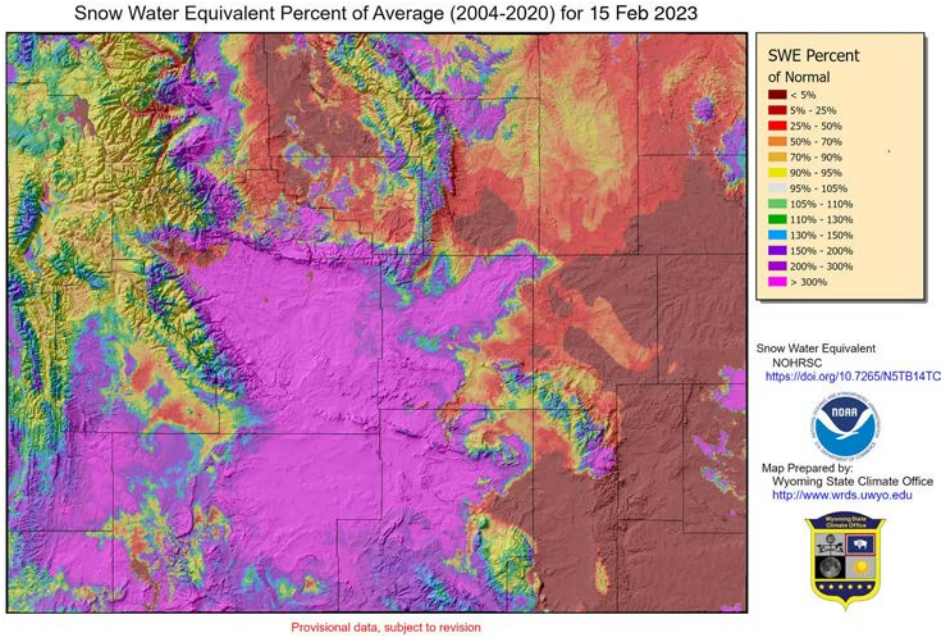
http://www.wrds.uwyo.edu/wrds/nrcs/snowmap/snowmap.html

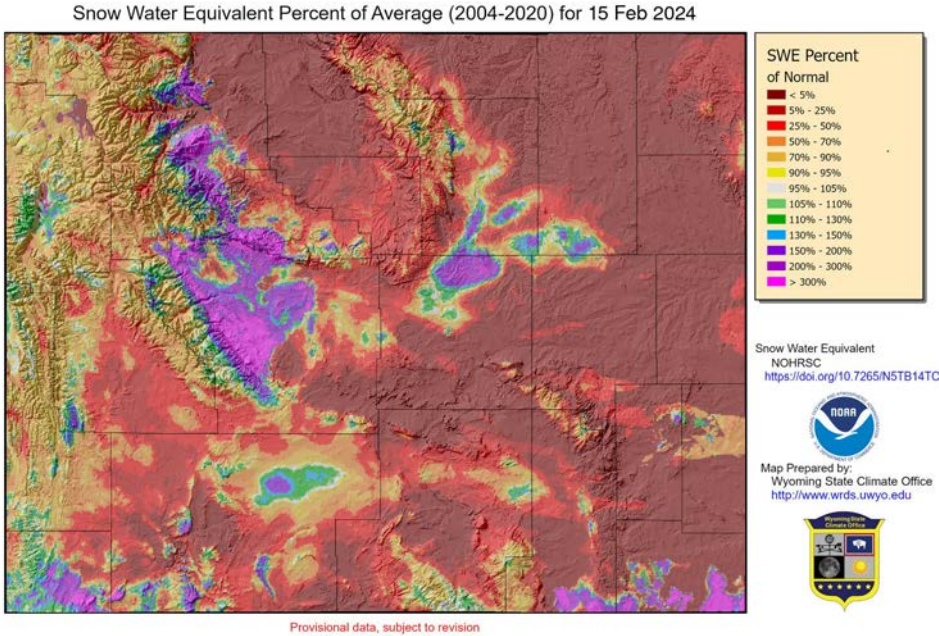
Snow Water Equivalent (SWE)
% of Average

15 Feb 2023 (One Year Ago)



Modelled Snow Water Equivalent from National Operational Hydrologic Remote Sensing Center. 2004. Snow Data Assimilation System (SNODAS) Data Products at NSIDC, Version 1. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center.
doi: https://doi.org/10.7265/N5TB14TC.
Daily Percentiles and Percentages created by Wyoming State Climate Office
Map created 15 Feb 2023

15 Feb 2024

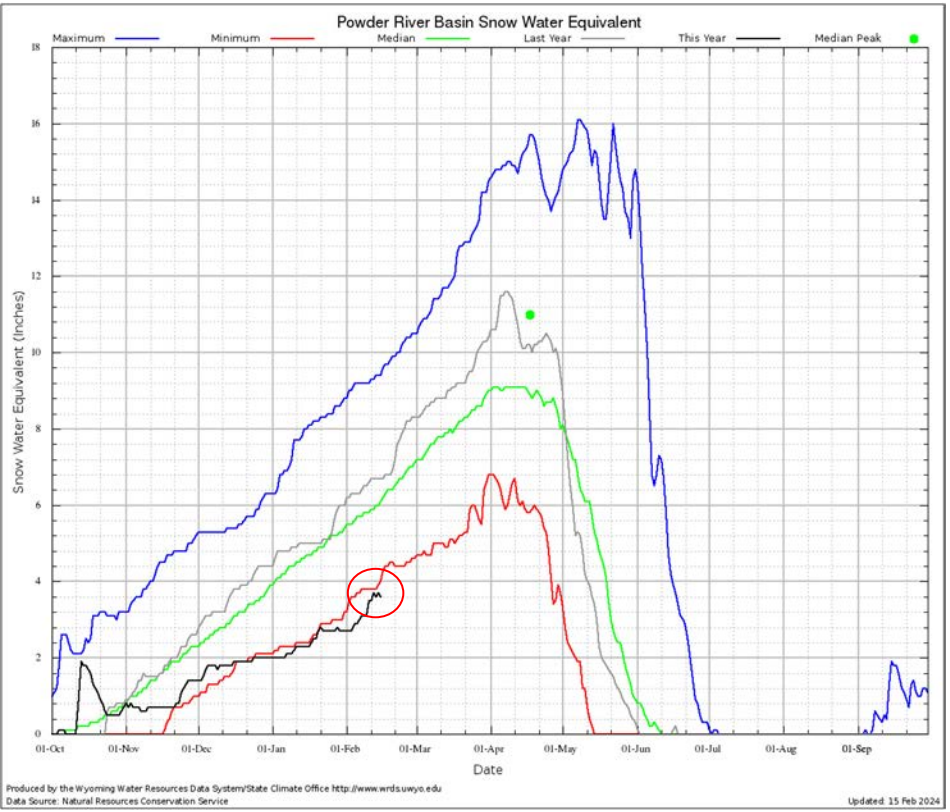


Modelled Snow Water Equivalent from National Operational Hydrologic Remote Sensing Center. 2004. Snow Data Assimilation System (SNODAS) Data Products at NSIDC, Version 1. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center.
doi: https://doi.org/10.7265/N5TB14TC.
Daily Percentiles and Percentages created by Wyoming State Climate Office
Map created 15 Feb 2024

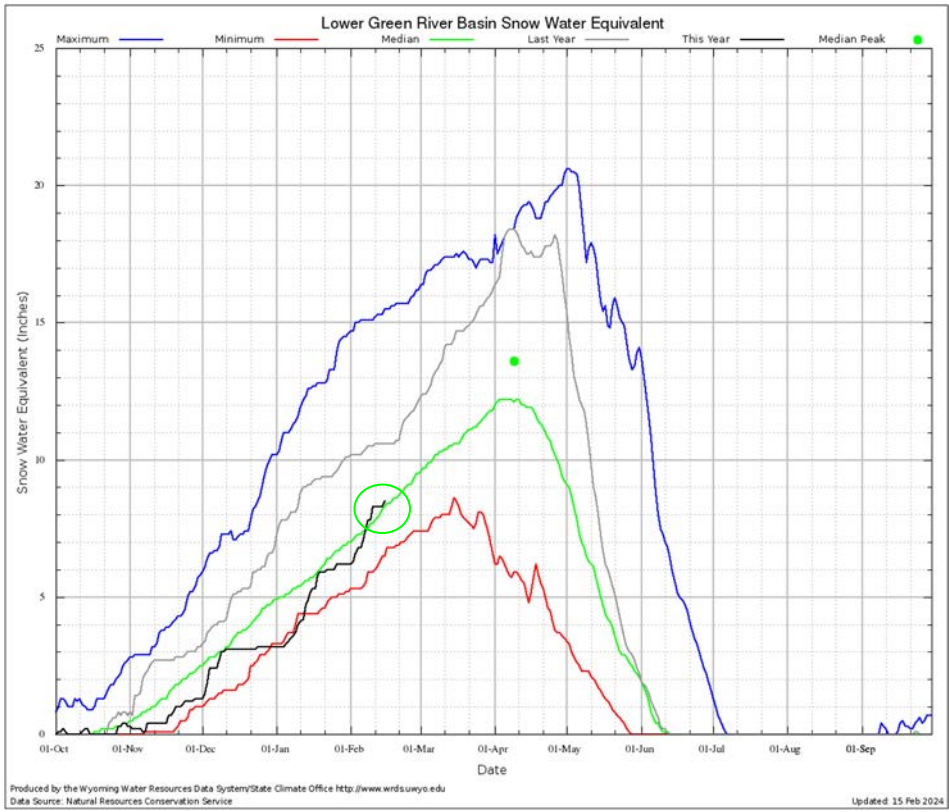
http://www.wrds.uwyo.edu/Snow/SWE-Prcnt-Current.html

Basin Snow Water Equivalent (SWE)
% of Median

Powder River Basin



Lower Green River Basin



http://www.wrds.uwyo.edu/Snow/BasinStatus.html

WRDS Water Resources Data System

Today's Snow Water Equivalent in Inches Compared to Historical Ranges

Red indicates current SWE value is **less** than this statistic
Blue indicates current SWE value is **greater** than this statistic
Purple indicates current SWE value is **equal** to this statistic
Click Column Headers to Sort

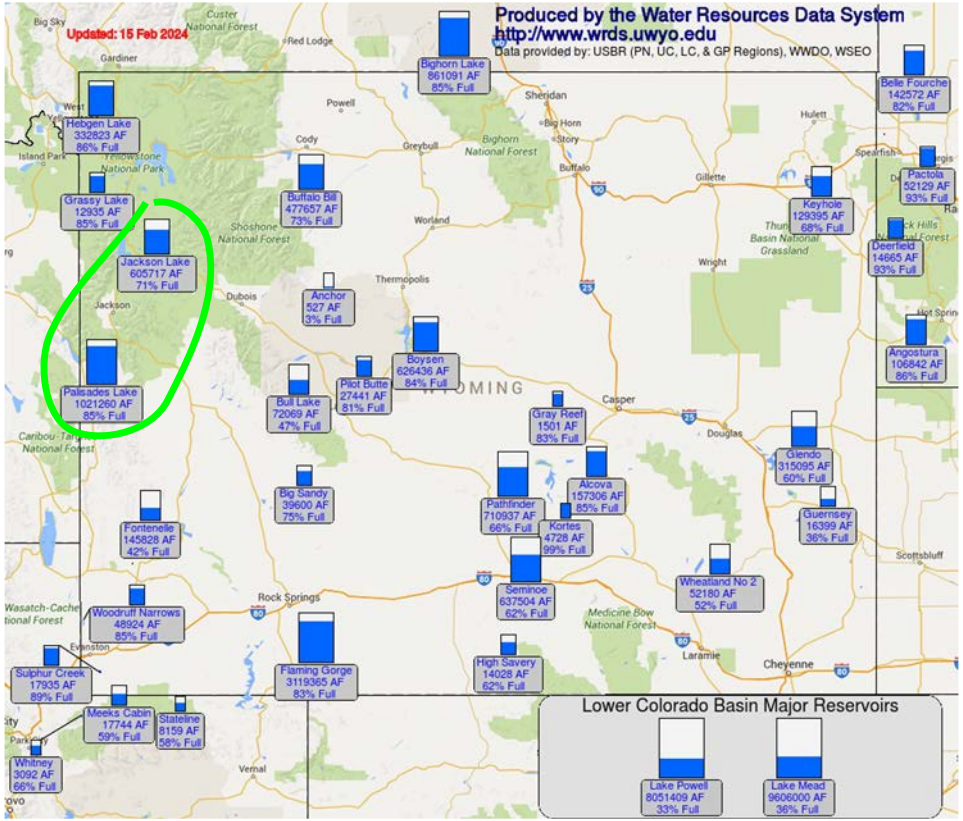
Basin Click to View Chart	Date	Today SWE (inches)	Today SWE % of Median	Minimum SWE (in)	10th Percentile (inches)	30th Percentile Inches	Median (inches)	70th Percentile (inches)	90th Percentile (inches)	Maximum (inches)	Last Year SWE (inches)	Last Year SWE % of Median
Belle Fourche	15 Feb 2024	3.0	61	2.6	3.5	4.1	4.9	5.4	6.8	9.2	5.5	112
Bighorn	15 Feb 2024	6.0	85	4.7	5.7	6.5	7.1	7.9	9.2	10.7	7.3	103
Cheyenne	15 Feb 2024	3.6	68	2.6	3.7	4.7	5.3	5.8	7.5	9.2	5.6	106
Laramie	15 Feb 2024	7.9	77	5.4	8.0	9.2	10.3	11.2	13.7	17.1	11.3	110
Little Snake	15 Feb 2024	13.3	92	8.8	10.3	12.3	14.5	16.2	18.5	24.3	20.3	140
Lower Green	15 Feb 2024	8.5	102	6.5	7.1	7.5	8.3	9.5	11.3	15.5	10.6	128
Lower North Platte	15 Feb 2024	4.8	67	3.8	5.3	6.6	7.2	8.9	9.8	14.0	9.0	125
Madison	15 Feb 2024	11.3	73	5.8	11.4	13.8	15.4	18.2	22.0	32.6	17.5	114
Powder	15 Feb 2024	3.6	59	4.0	5.1	5.7	6.1	7.1	7.8	9.4	6.7	110
Shoshone	15 Feb 2024	9.4	76	6.9	9.7	11.2	12.3	13.9	18.1	23.4	11.0	89
Snake	15 Feb 2024	12.5	83	9.6	10.8	13.4	15.1	16.7	19.7	28.1	14.9	99
South Platte	15 Feb 2024	2.0	34	1.1	2.5	3.7	5.8	6.3	7.0	8.7	4.2	72
Sweetwater	15 Feb 2024	7.7	87	6.0	6.8	7.8	8.9	10.4	13.9	20.1	11.4	128
Tongue	15 Feb 2024	4.5	62	4.1	6.1	7.0	7.2	8.3	9.5	12.2	7.9	110
Upper Bear	15 Feb 2024	11.5	102	7.5	8.9	9.9	11.3	14.2	18.2	24.0	14.3	127
Upper Green	15 Feb 2024	8.6	79	7.2	8.9	10.0	10.9	12.3	16.9	23.1	10.7	98
Upper North Platte	15 Feb 2024	12.6	81	10.4	12.5	14.3	15.5	17.3	20.2	25.9	19.0	123
Wind	15 Feb 2024	8.0	95	6.2	7.2	8.0	8.4	9.9	12.3	15.8	9.2	110
Yellowstone	15 Feb 2024	9.9	64	9.0	12.0	13.3	15.4	16.8	20.8	28.6	14.1	92

Data from Natural Resources Conservation Service SnoTel Network

http://www.wrds.uwyo.edu/Snow/BasinStatus.html

WY Reservoirs

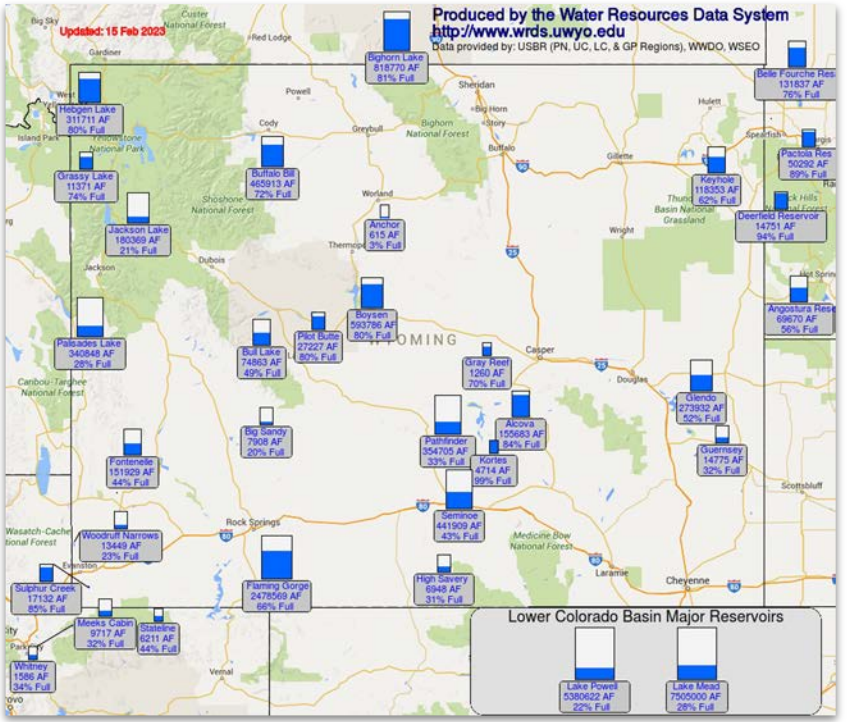
Today, February 15, 2024



http://www.wrds.uwyo.edu/surface_water/teacups.html

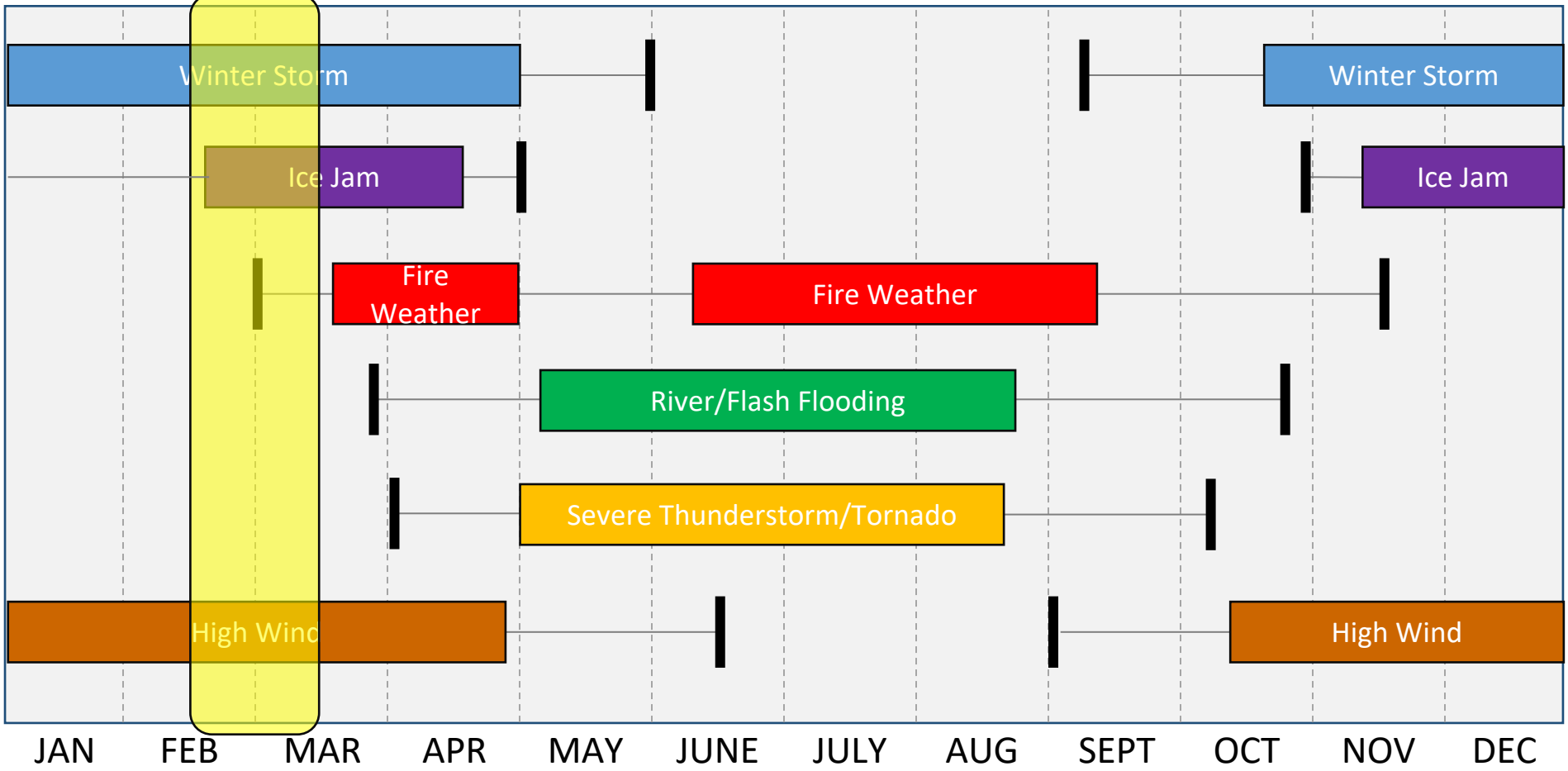
- All reservoirs at (or within a percentage point or two) or above where they were this time last year.
- Most are approximately 50-90% full.

Last Year, Feb 15, 2023



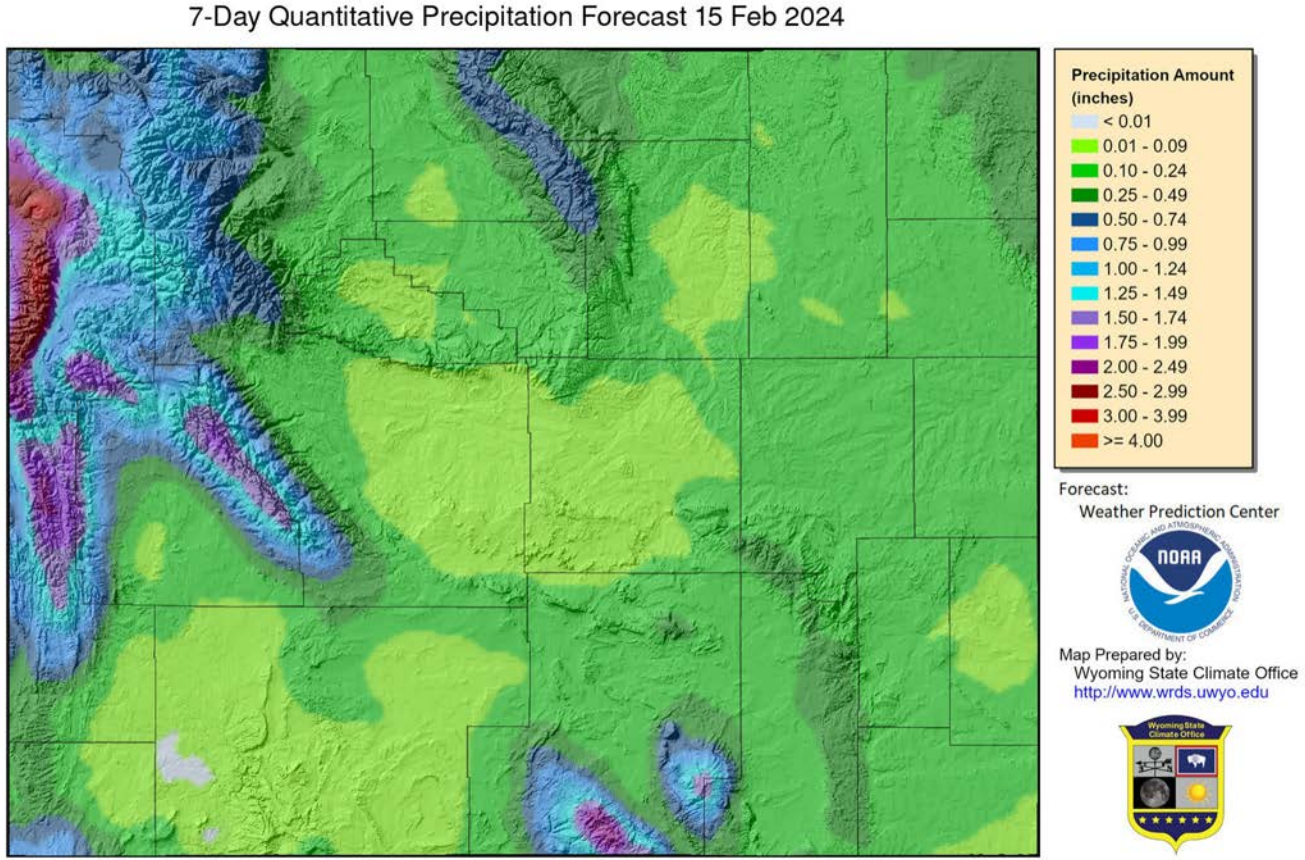
Weather Info & Forecasts

NWS Wyoming Typical Hazard Calendar



7-Day Total Precipitation Forecast

(Feb 15 - Feb 22)

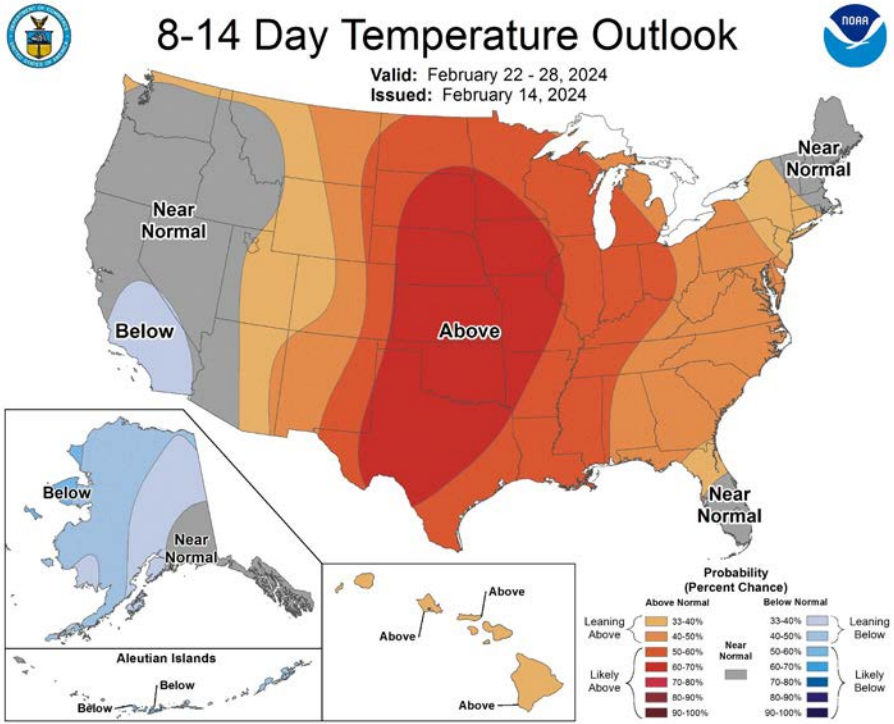


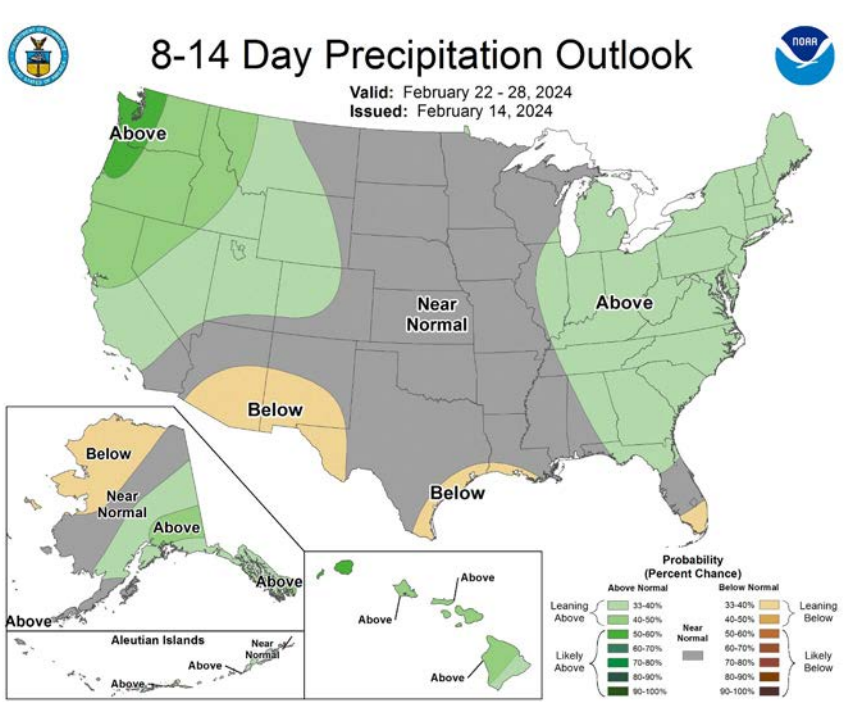
- Multiple rounds of light to moderate mountain snow in the west
- Higher peaks in the west could see heavy snow
- Periods of light snow elsewhere, but <0.25”

https://bit.ly/7_dayQPForecast

8-14 Day Outlooks
(Feb 22 - Feb 28)

https://bit.ly/CPC8_14Day





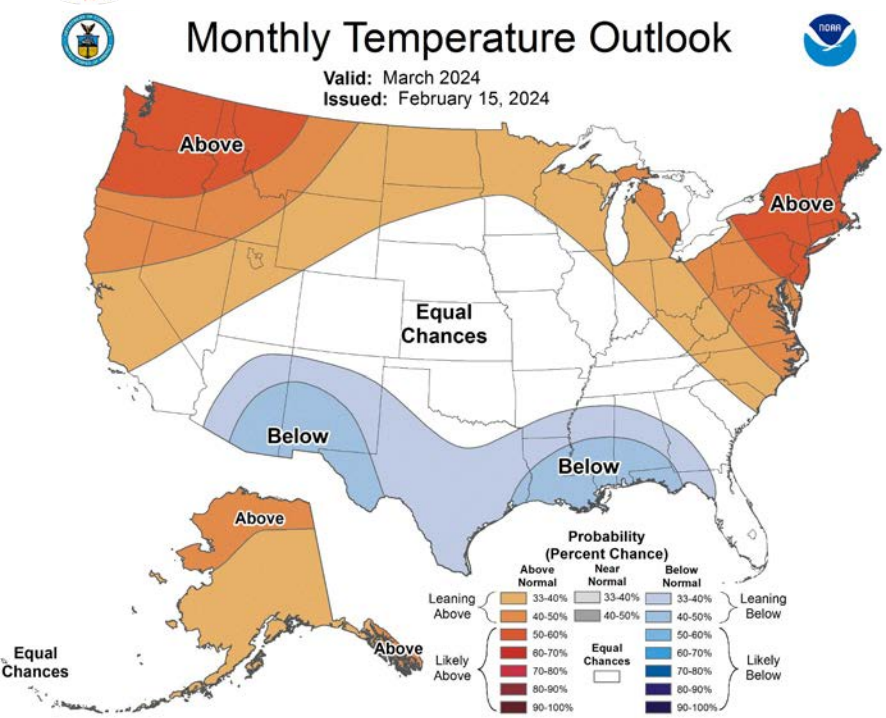
- Leaning to above normal temps statewide

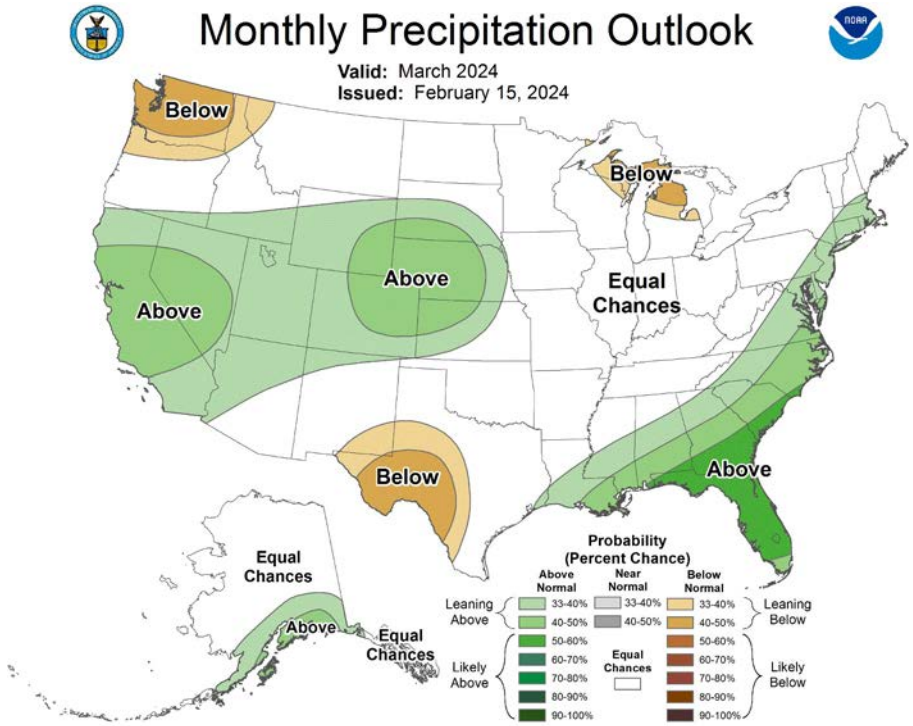
- Leaning toward above normal precipitation
- Climatology is the best forecast for far East

1-Month Outlooks

(March)

cpc.ncep.noaa.gov/products/predictions/30day/



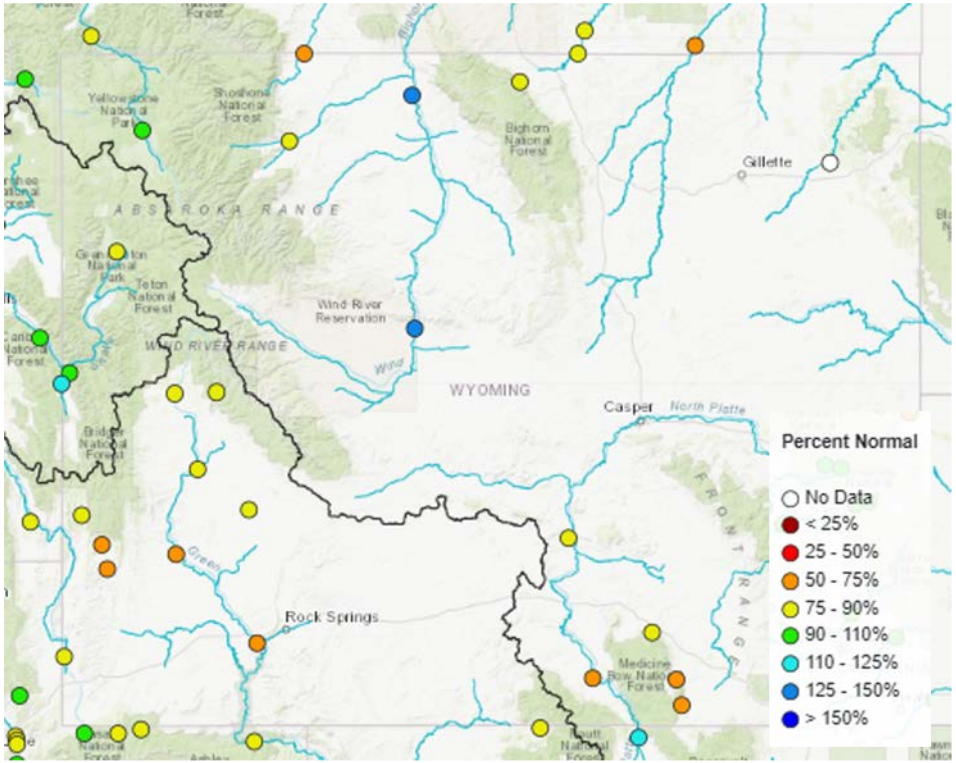


- Lean toward above normal temperatures, except the southeast corner of Wyoming

- Leaning toward above normal precipitation
- Southeast corner above normal indicated

Wyoming Water Supply Outlook: 2024

As of February 14th, 2024



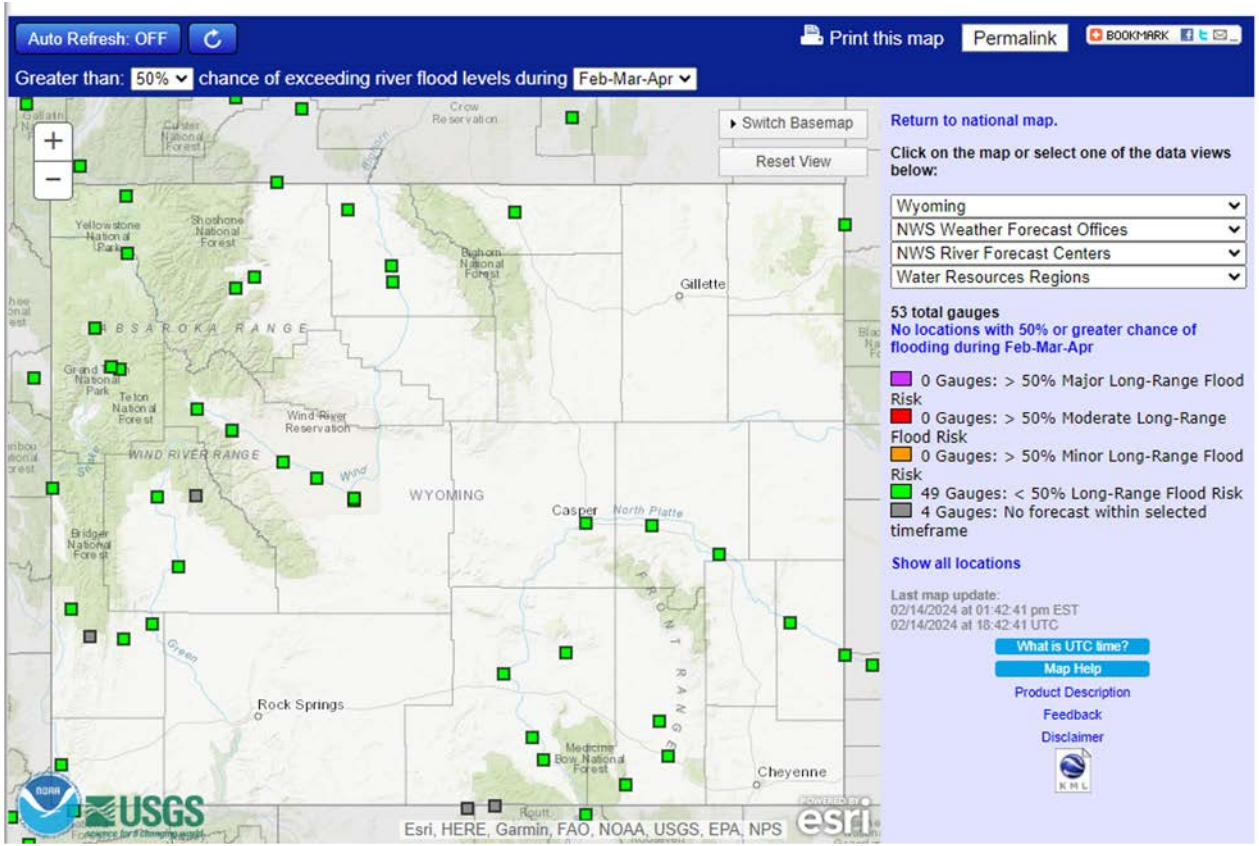
https://www.cbrfc.noaa.gov/wsup/graph/west/map/esp_map.html

Seasonal snowmelt-driven runoff is forecasted to be below normal in most areas.

This graphic depicts the NWS water supply outlook locations, colored by the percent of seasonal volumetric normal. Forecast points within the Colorado River Basin in southwest Wyoming span April - July. Other points span April - September. Many Wyoming stations are projected to see lower-than-normal volumes this season.

There's still uncertainty in these forecasts, and conditions may change.

Wyoming Flood Potential Update



No flooding is expected through March.

This graphic depicts NWS forecast locations over Wyoming. All gages are currently projected to stay below flood stage through March (green squares).

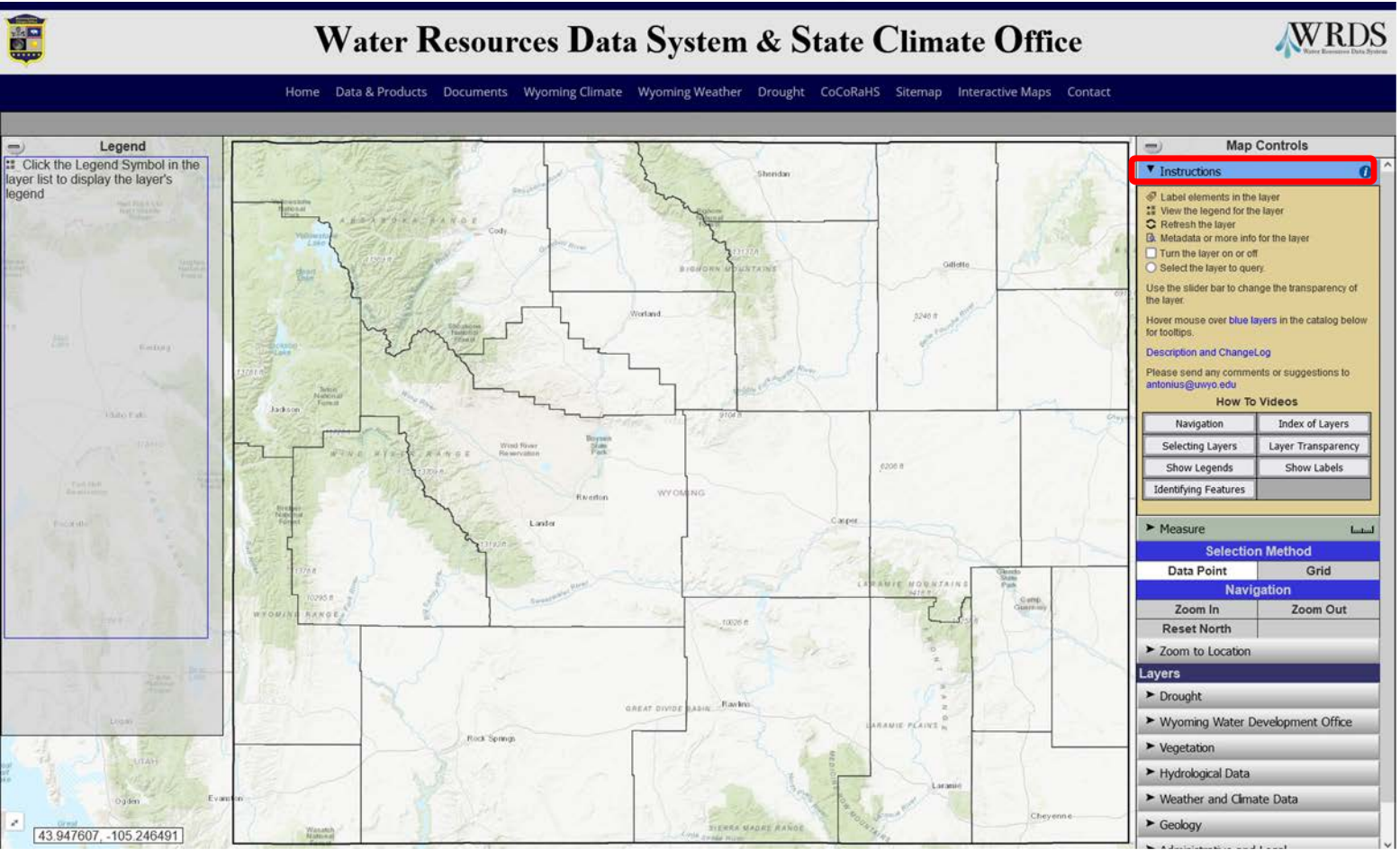
Note that river ice action is NOT accounted for in our river forecast model.

The National Hydrologic Assessment will be issued on March 21, 2024.

Highlight of the Month: Snow Products within the WY Water & Climate Explorer

Wyoming Water and Climate Explorer

http://www.wrds.uwyo.edu/wace/wacehome.html



Wyoming Water and Climate Explorer

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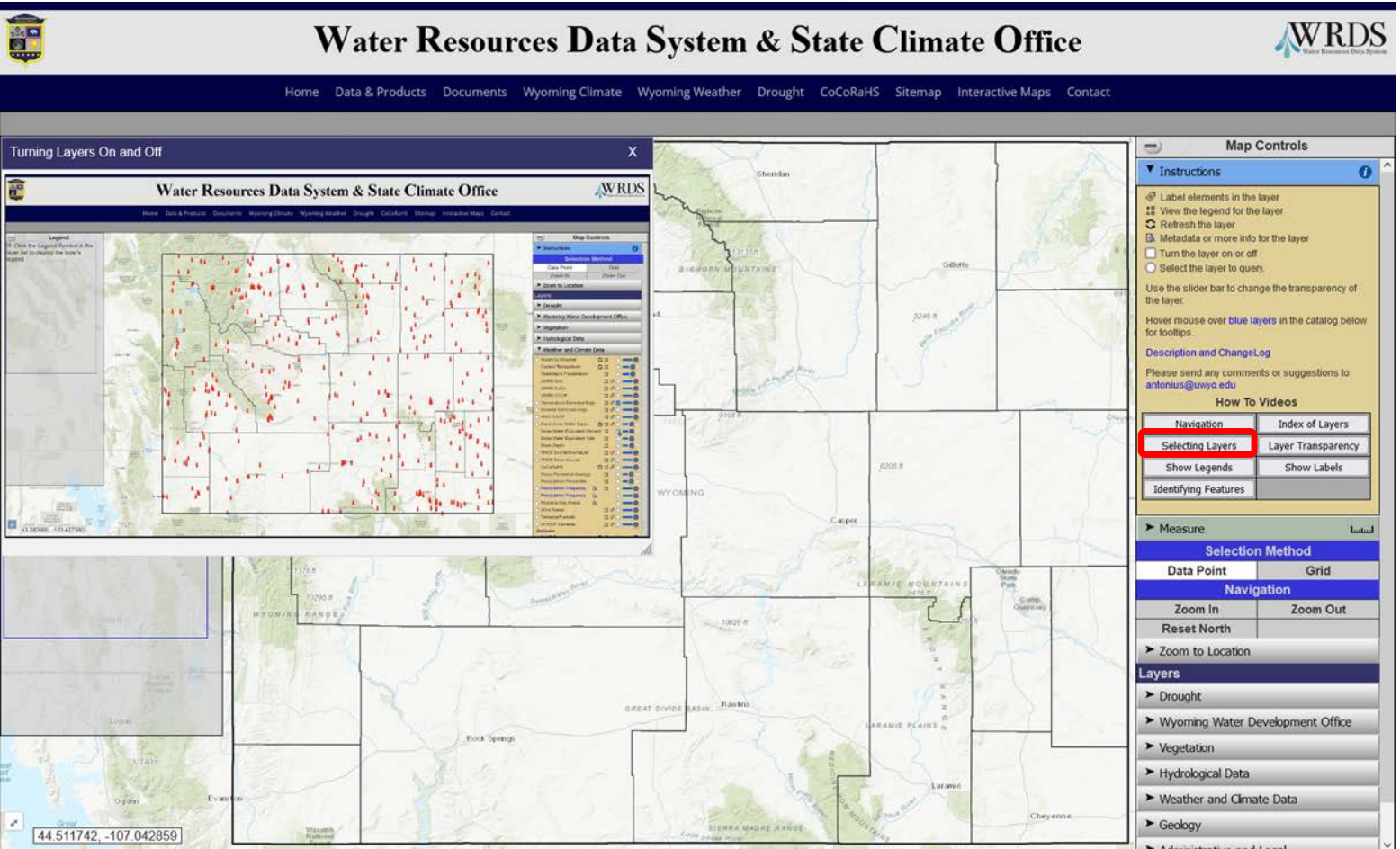

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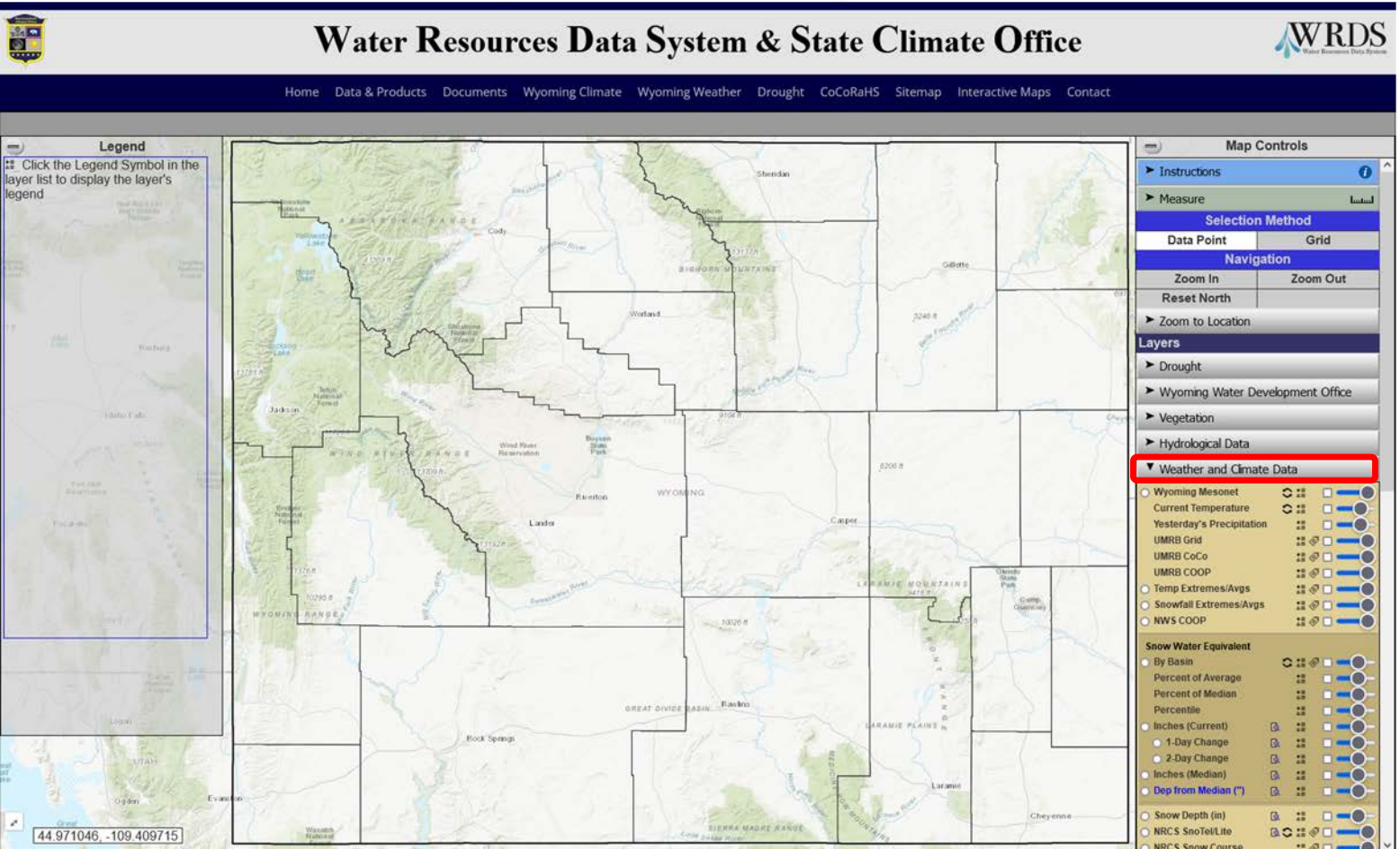

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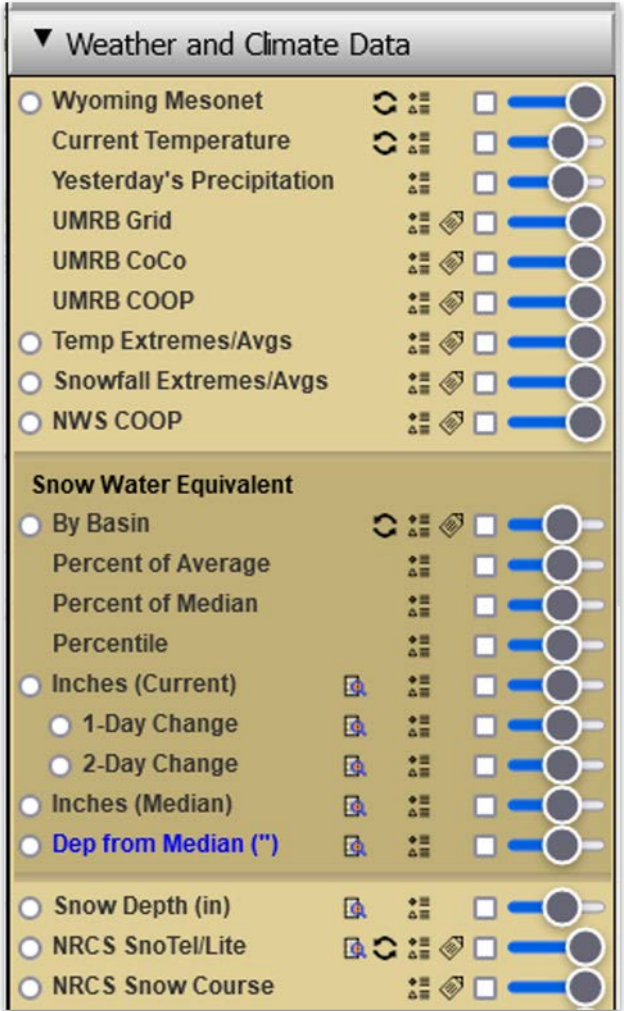

Label elements in the layer
View the legend for the layer
Refresh the layer
Metadata or more info for the layer
Turn the layer on or off
Select the layer to query.

Use the slider bar to change the transparency of the layer.

Hover mouse over blue layers in the catalog below for tooltips.

Description and ChangeLog

Please send any comments or suggestions to antonius@uwyo.edu

How To Videos

Navigation	Index of Layers
Selecting Layers	Layer Transparency
Show Legends	Show Labels
Identifying Features	

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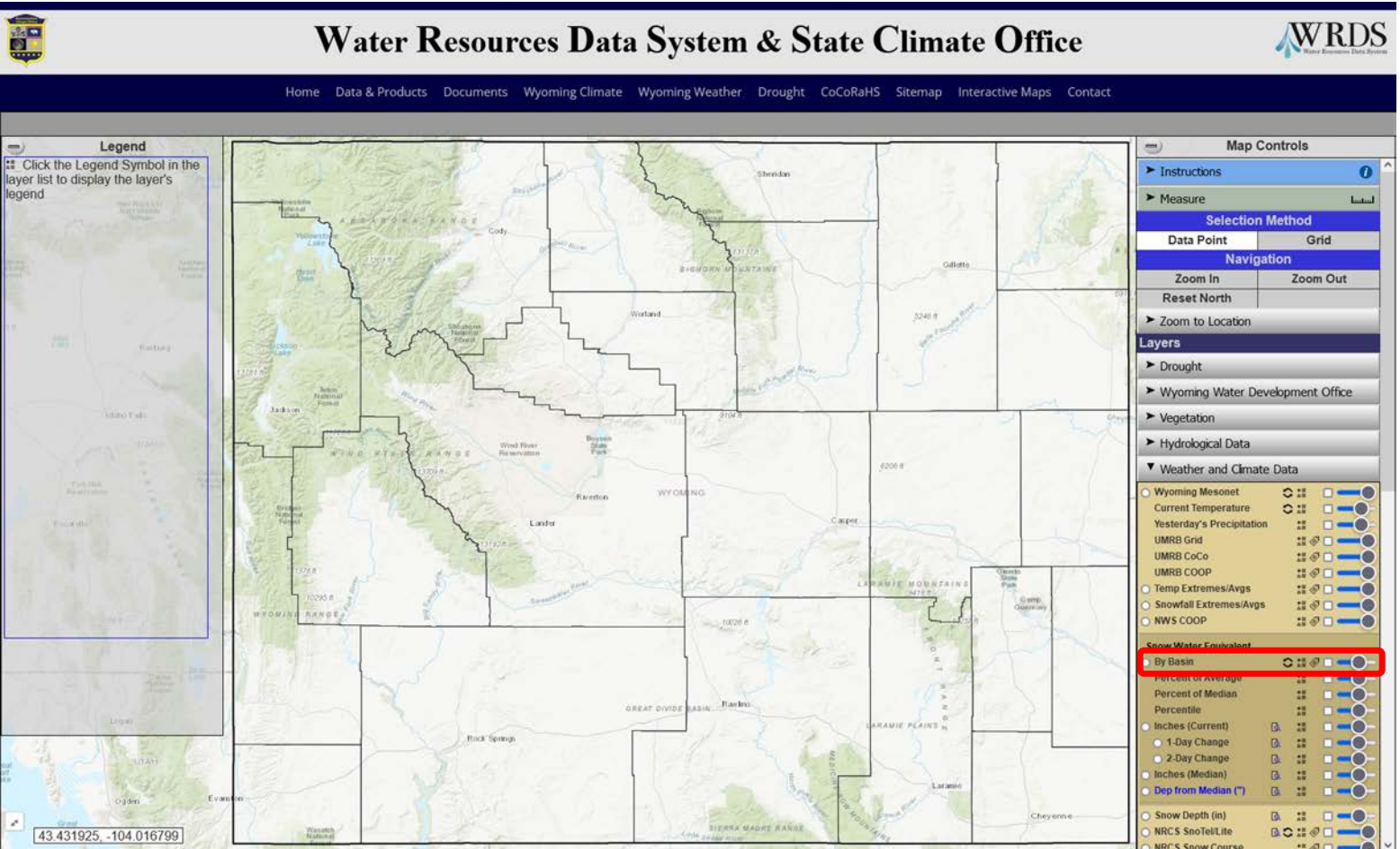

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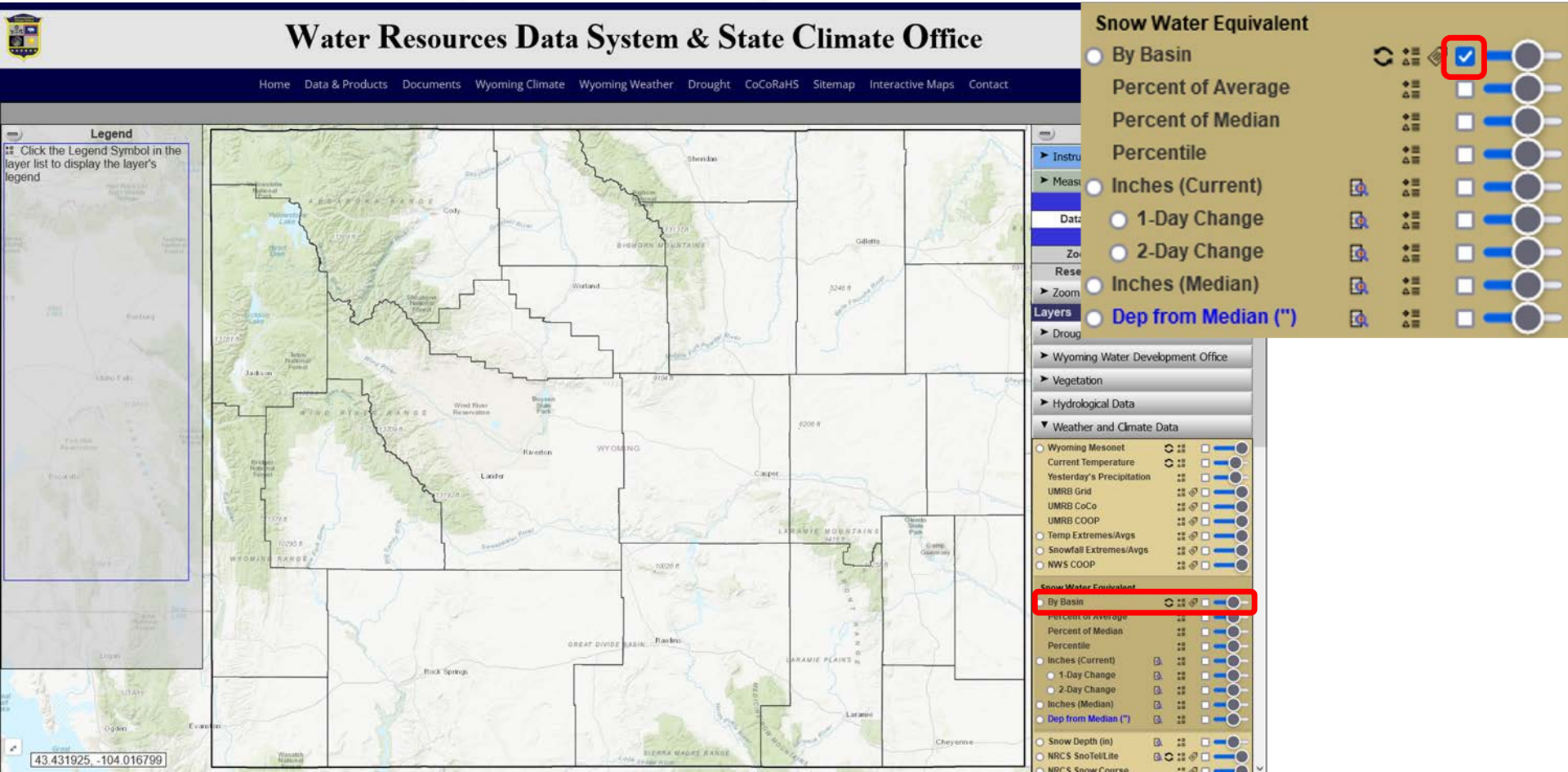

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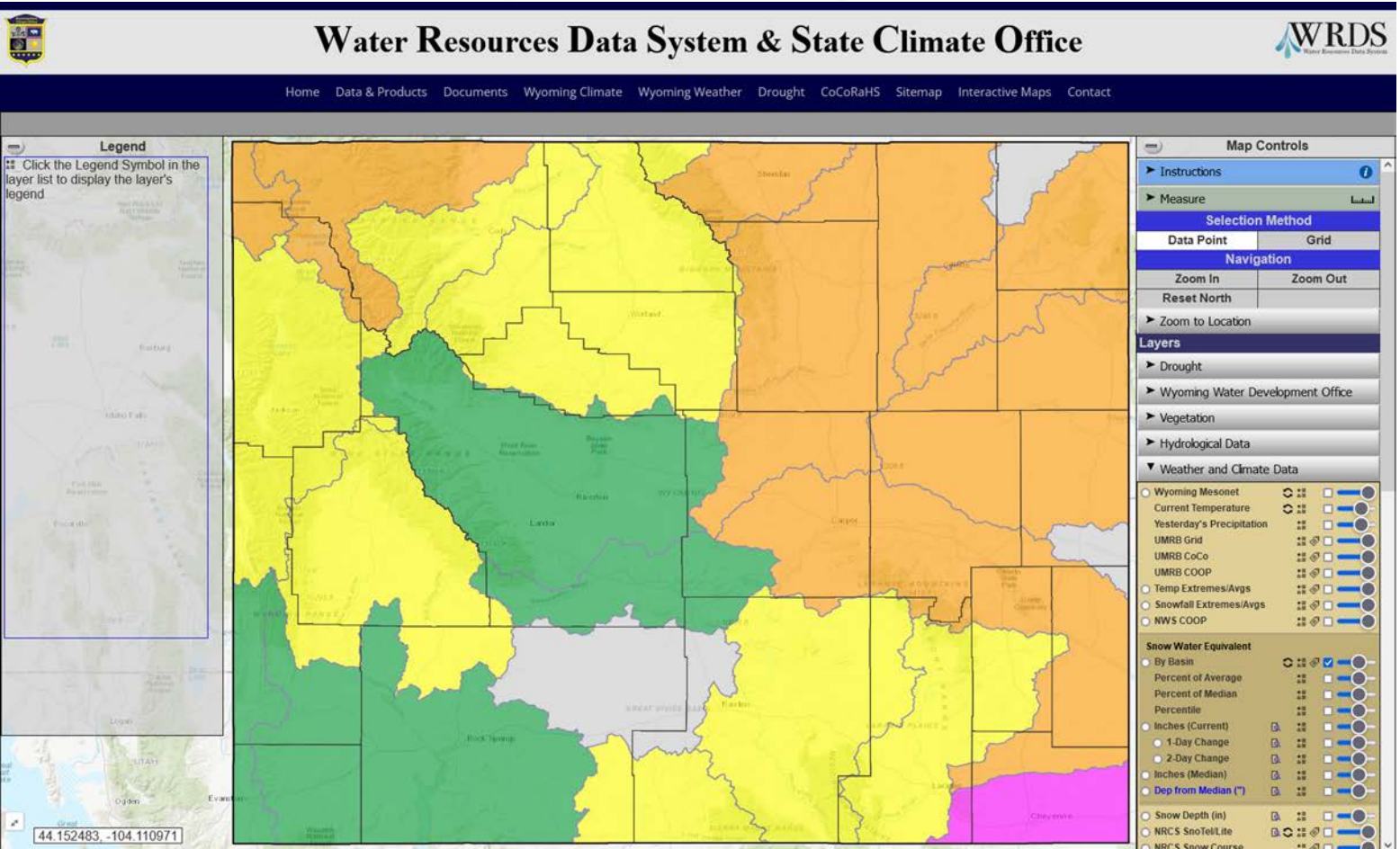

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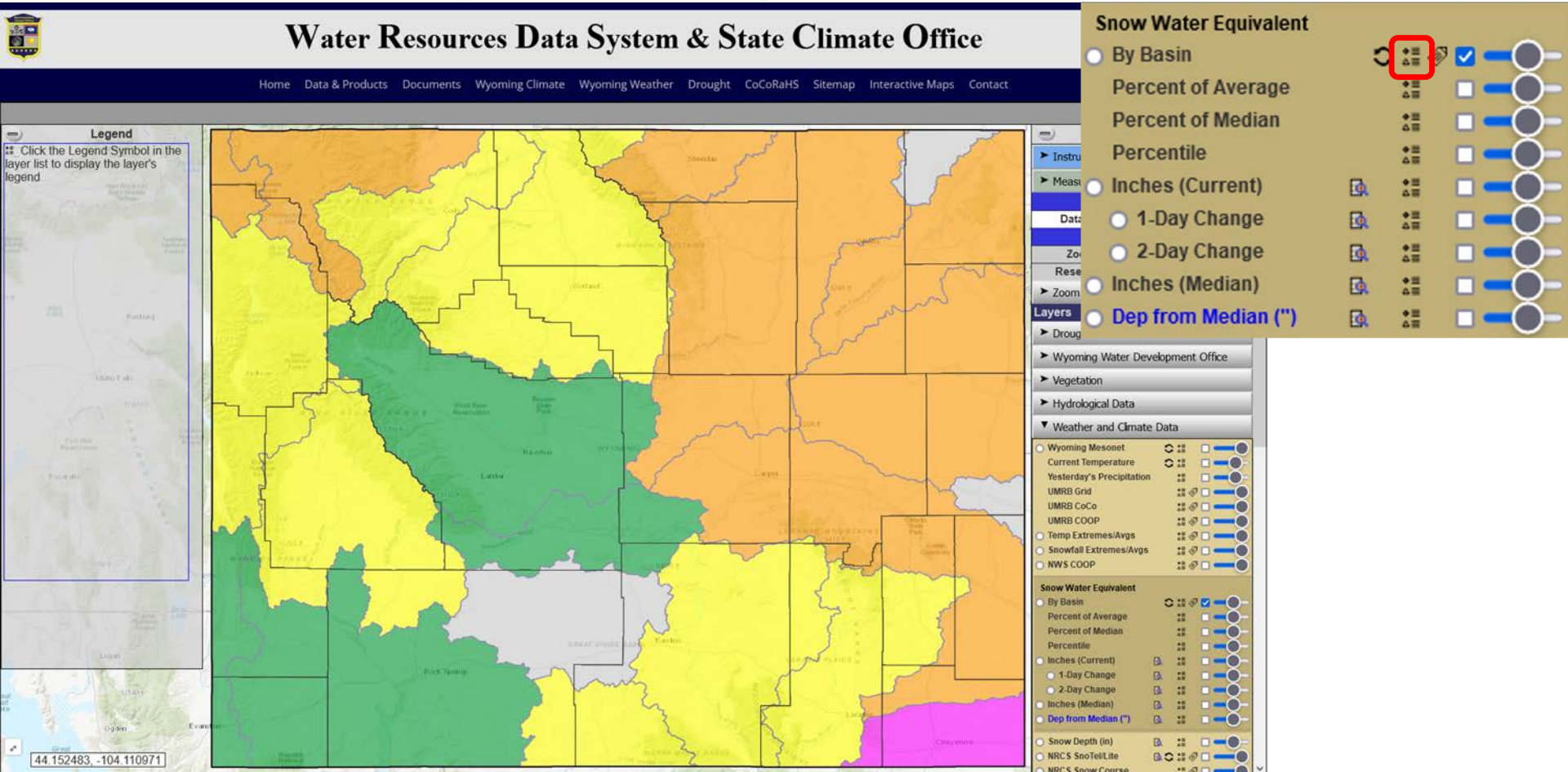

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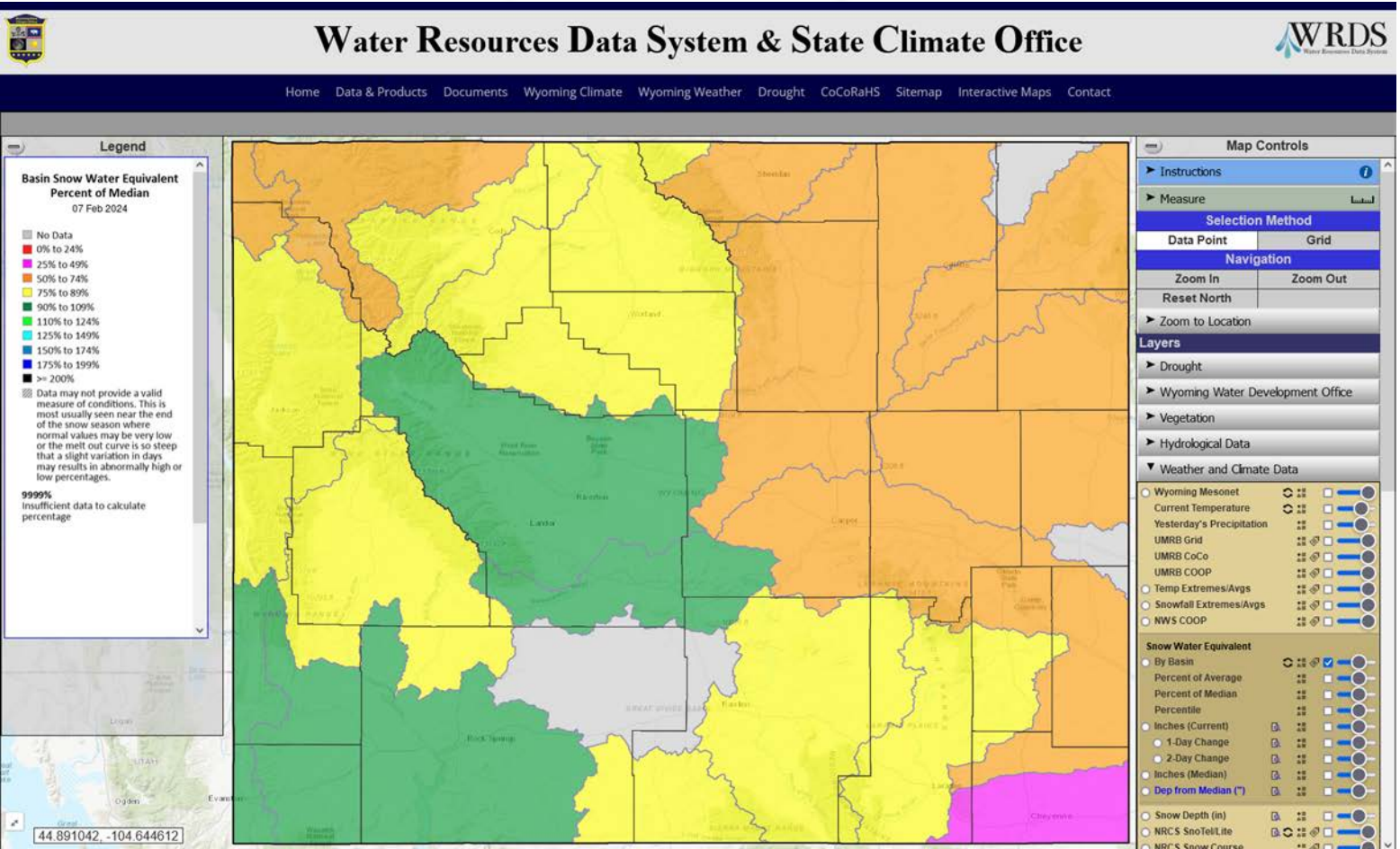

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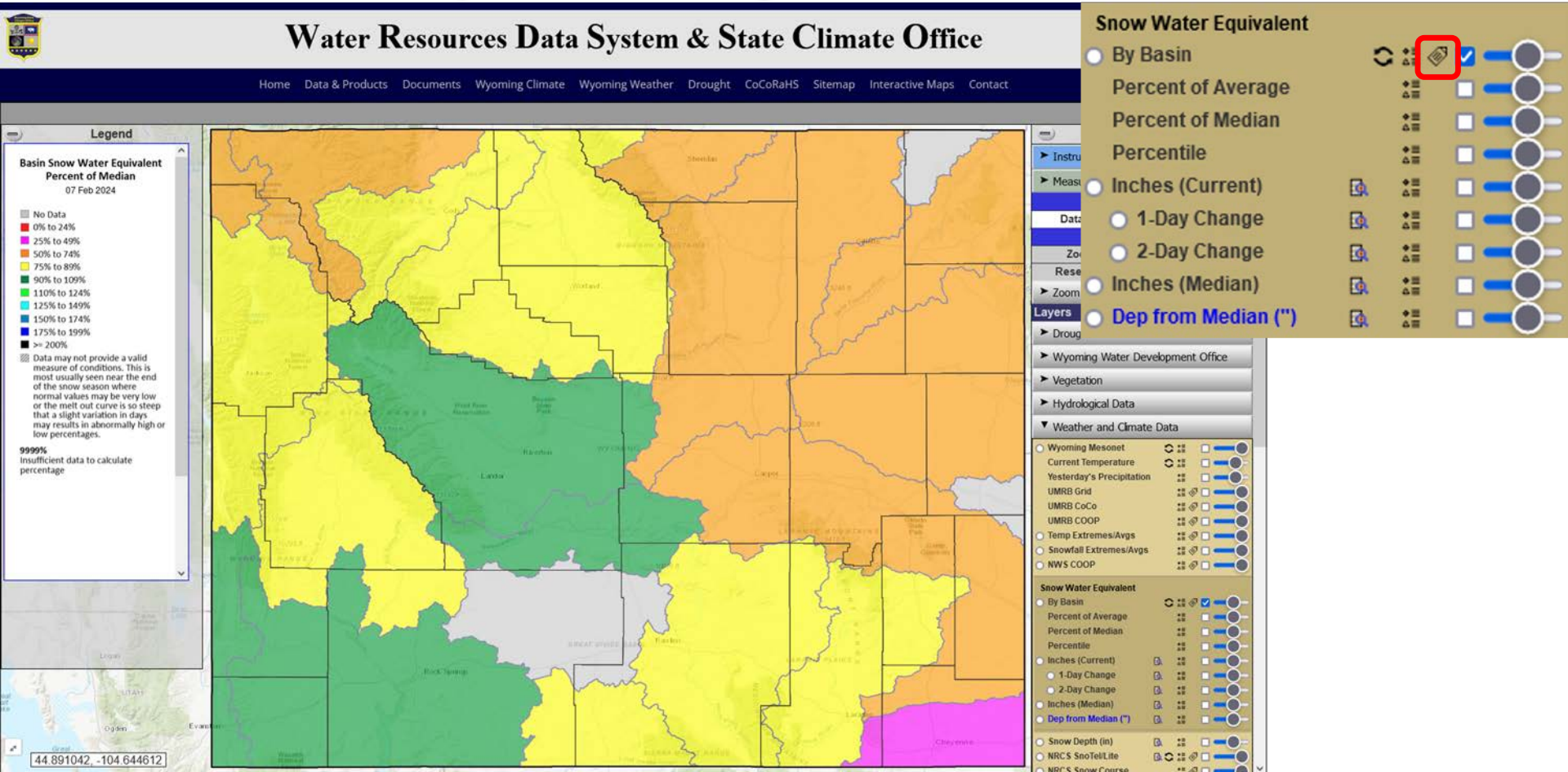

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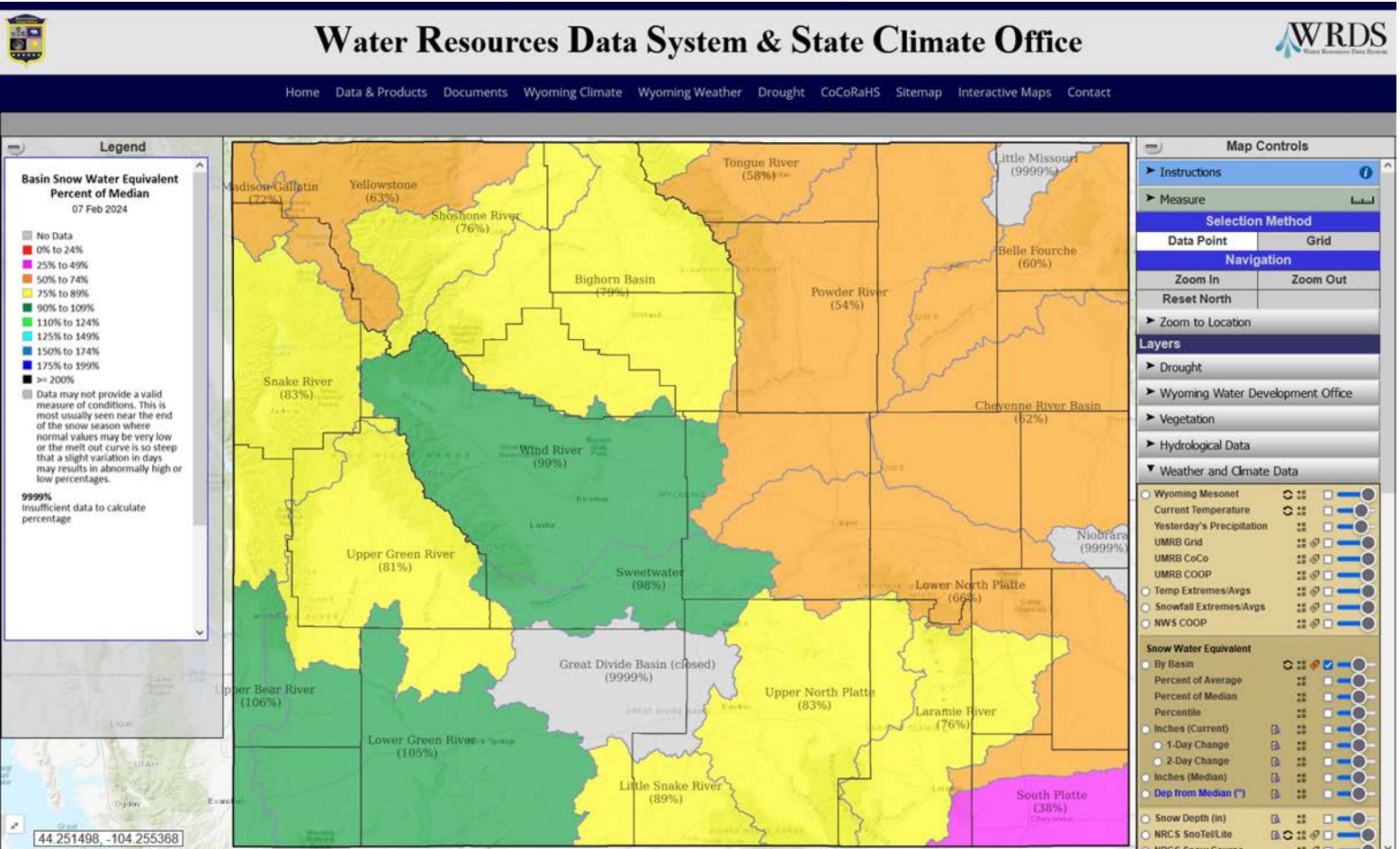

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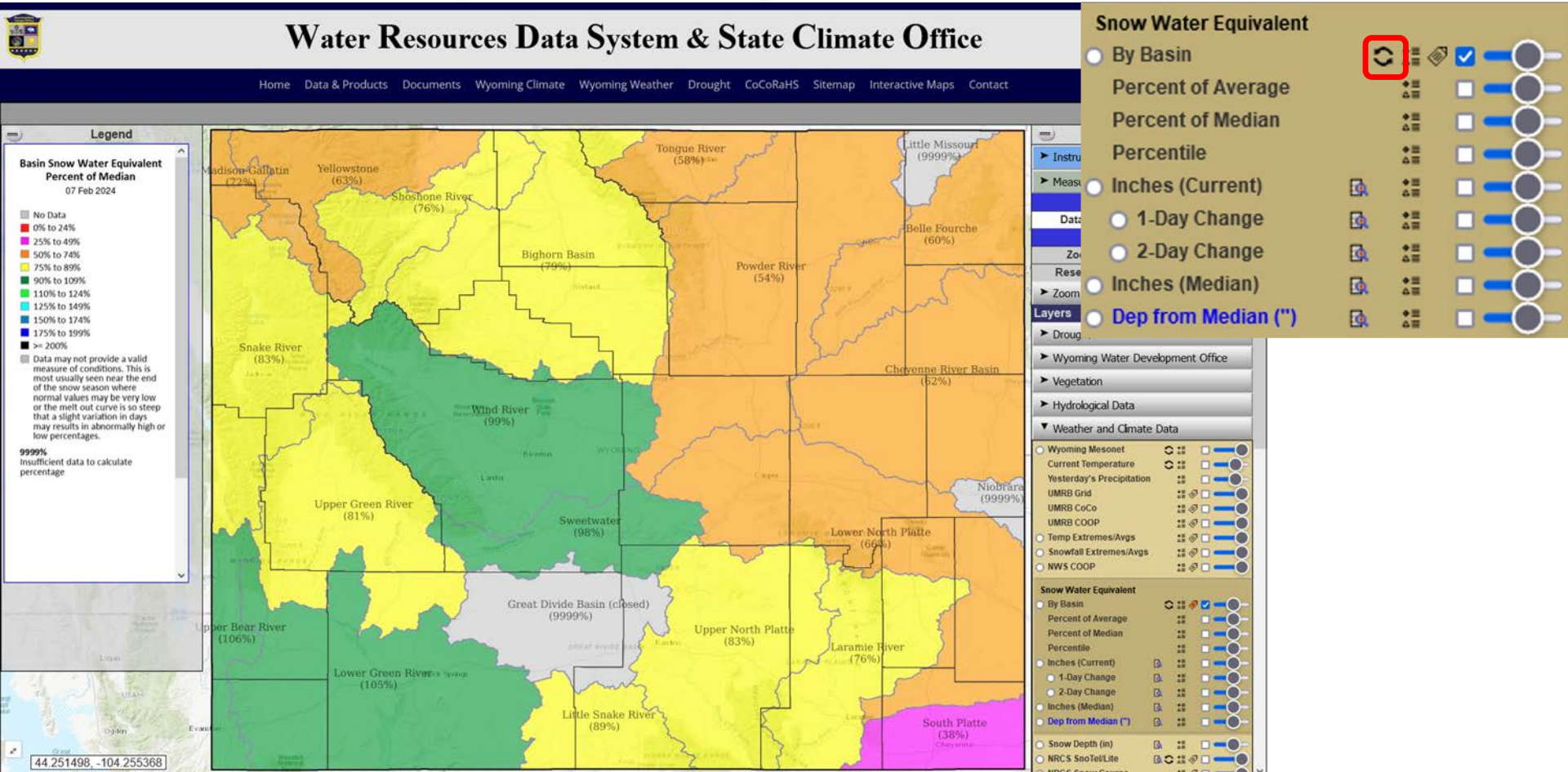

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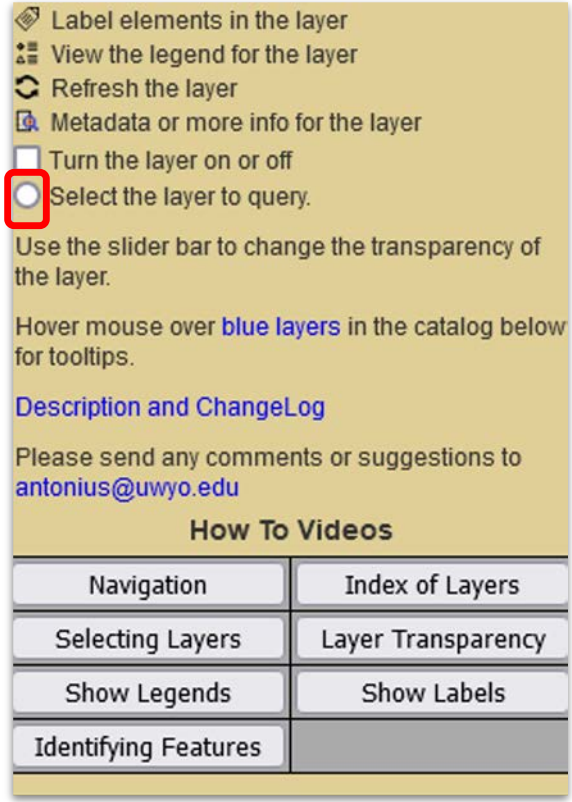

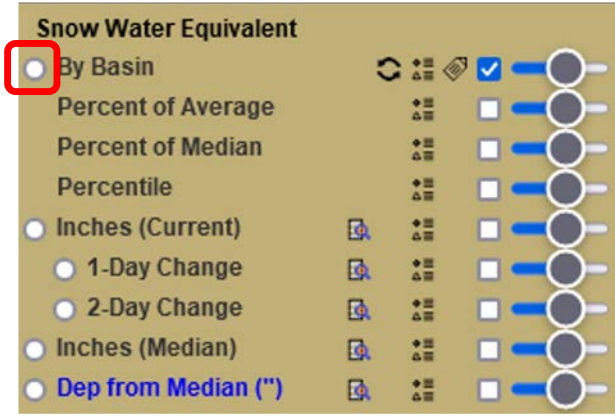

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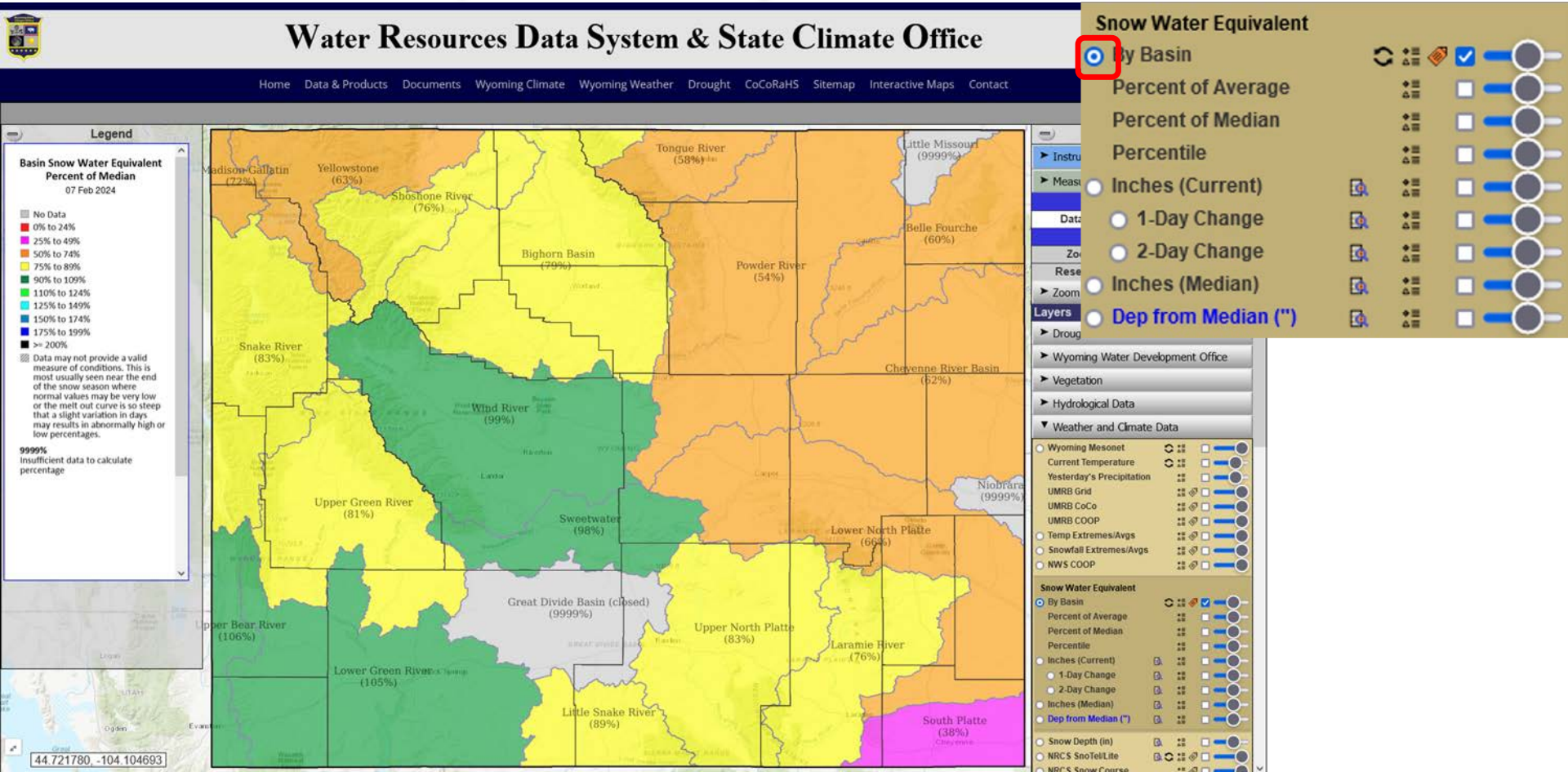

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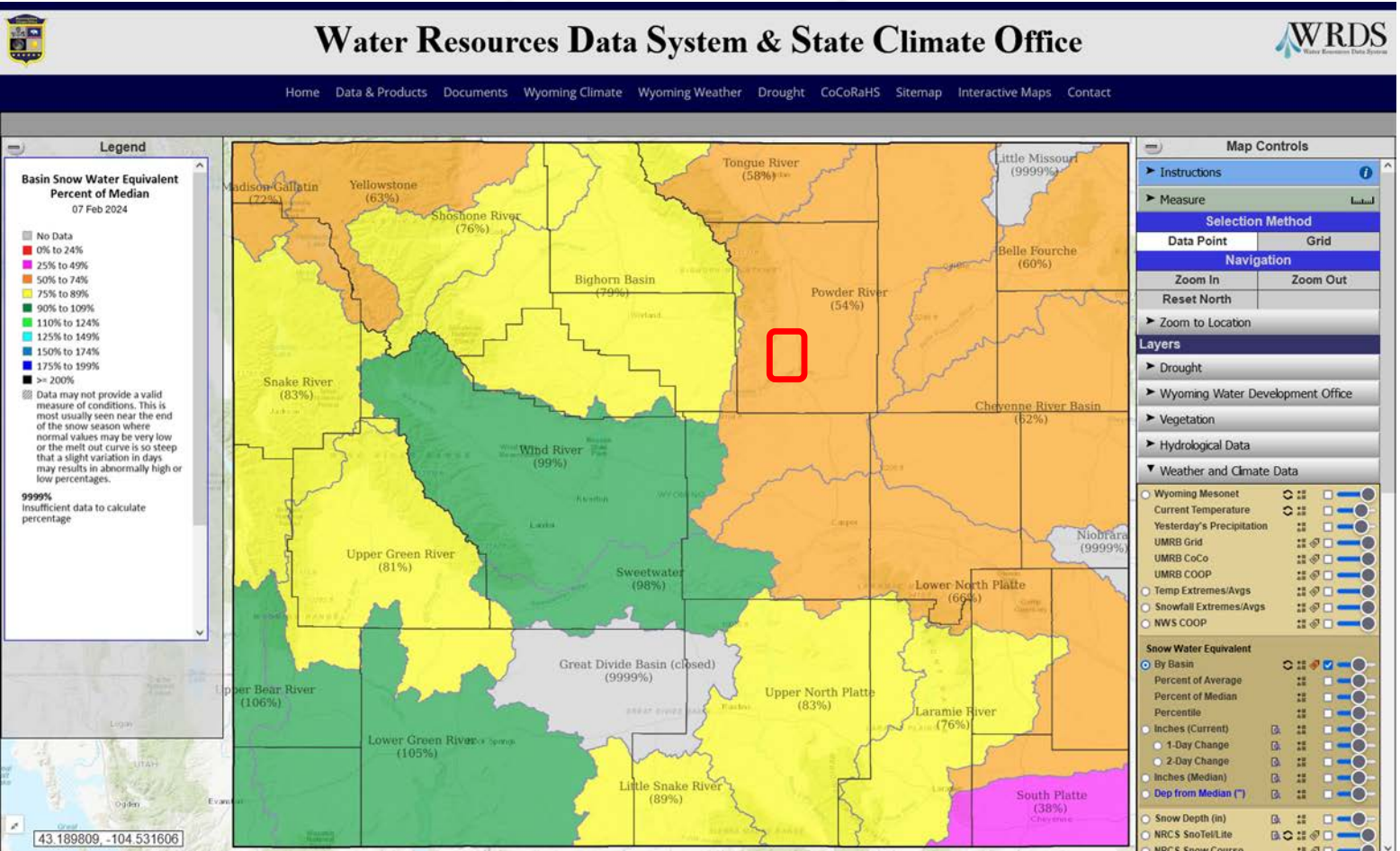

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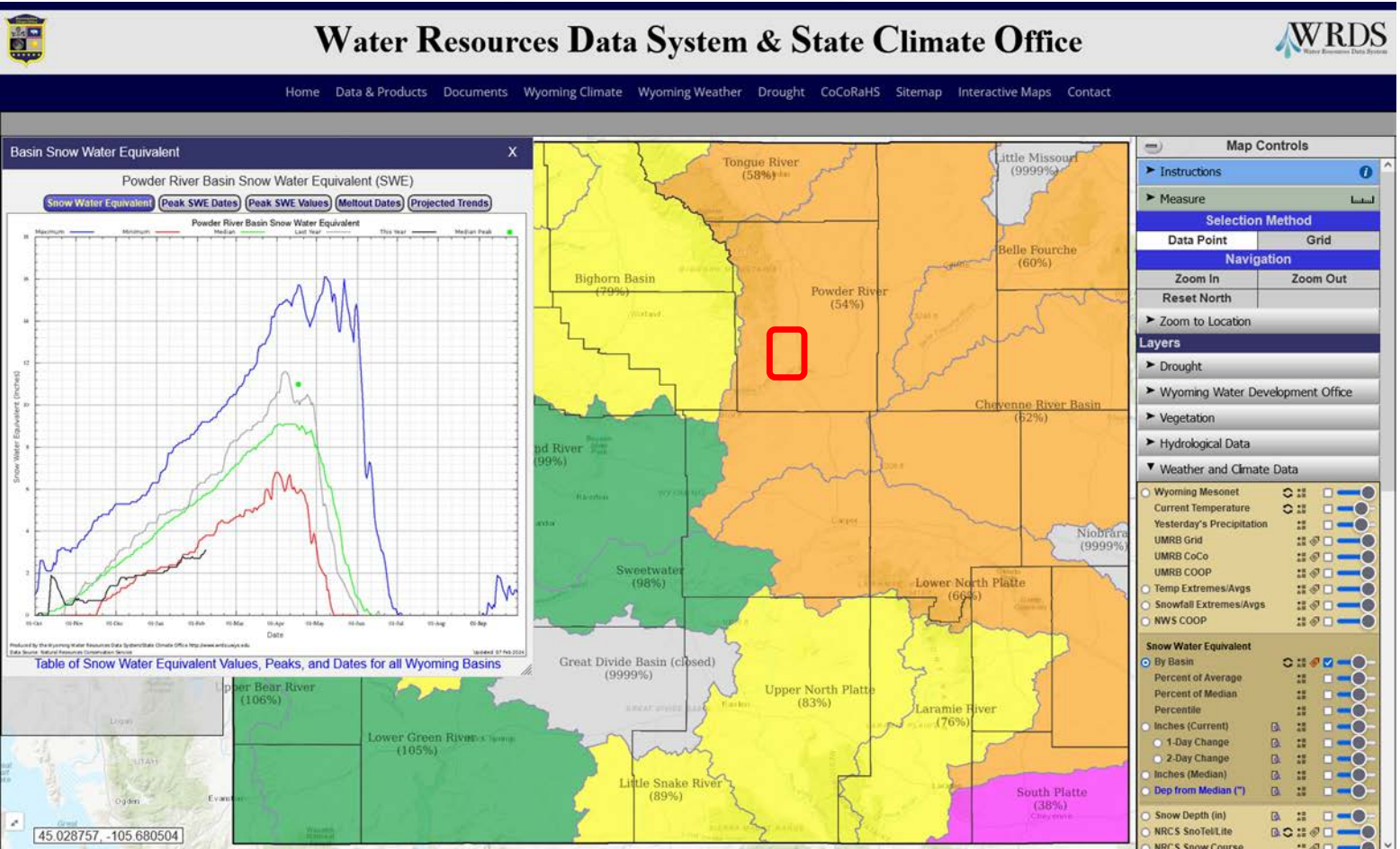

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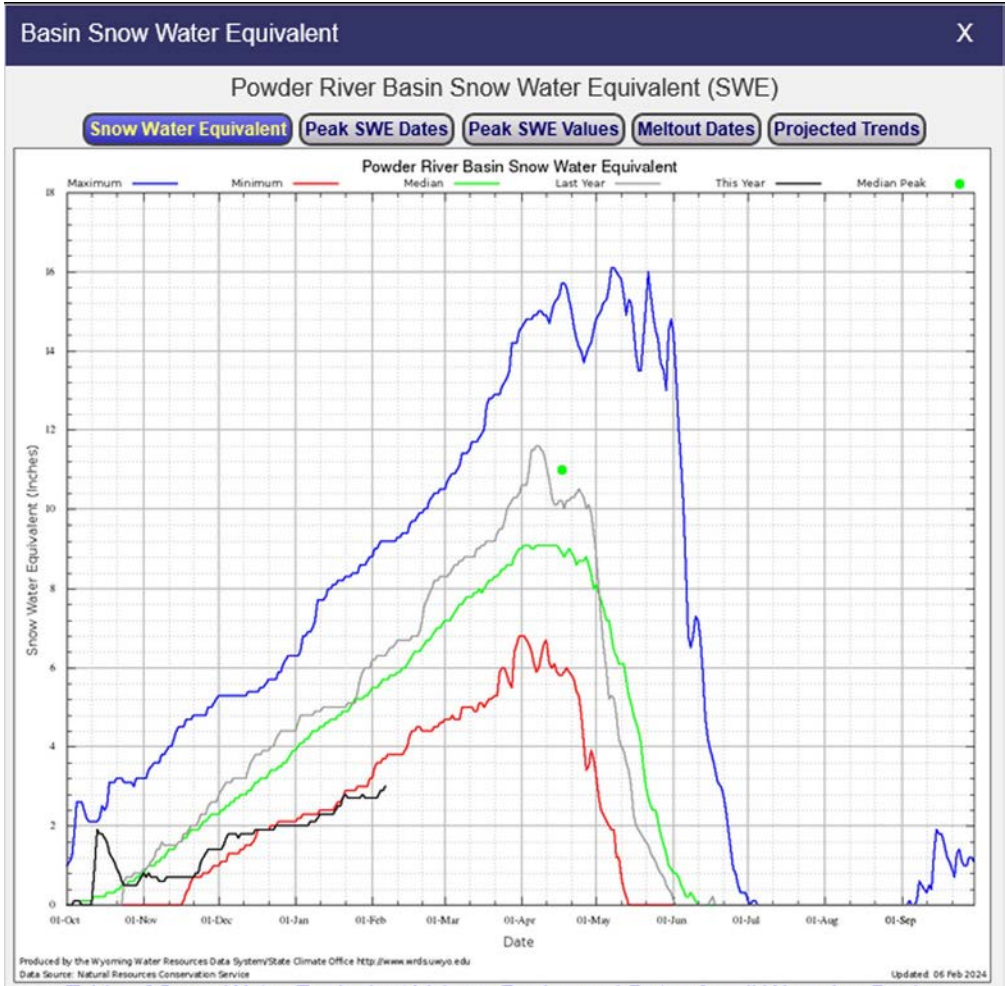

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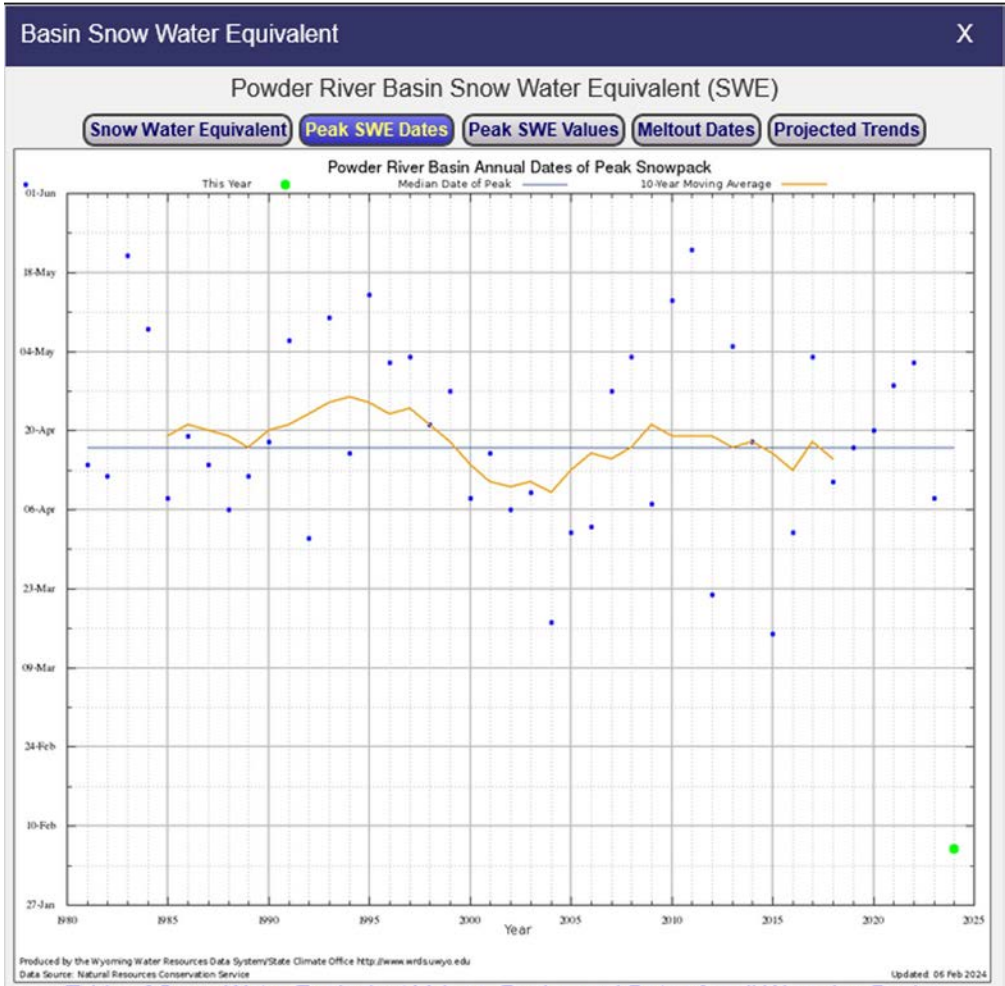

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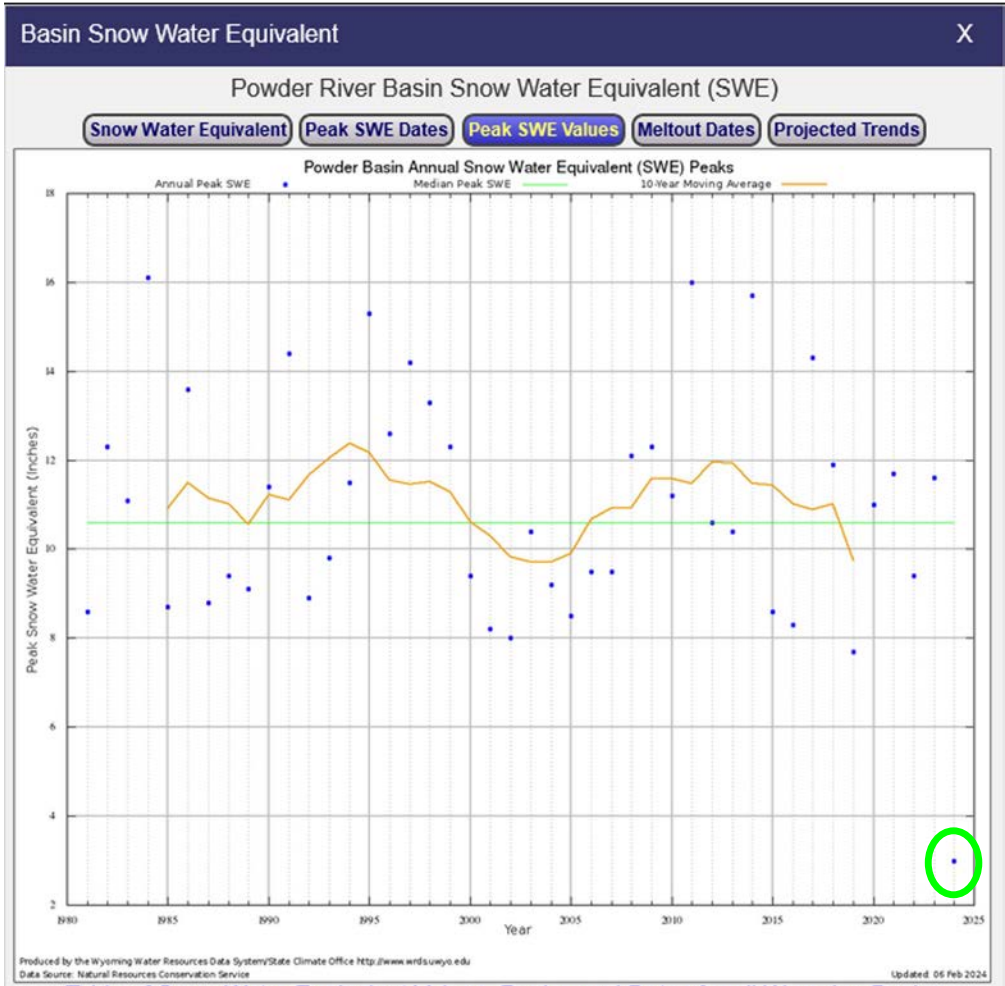

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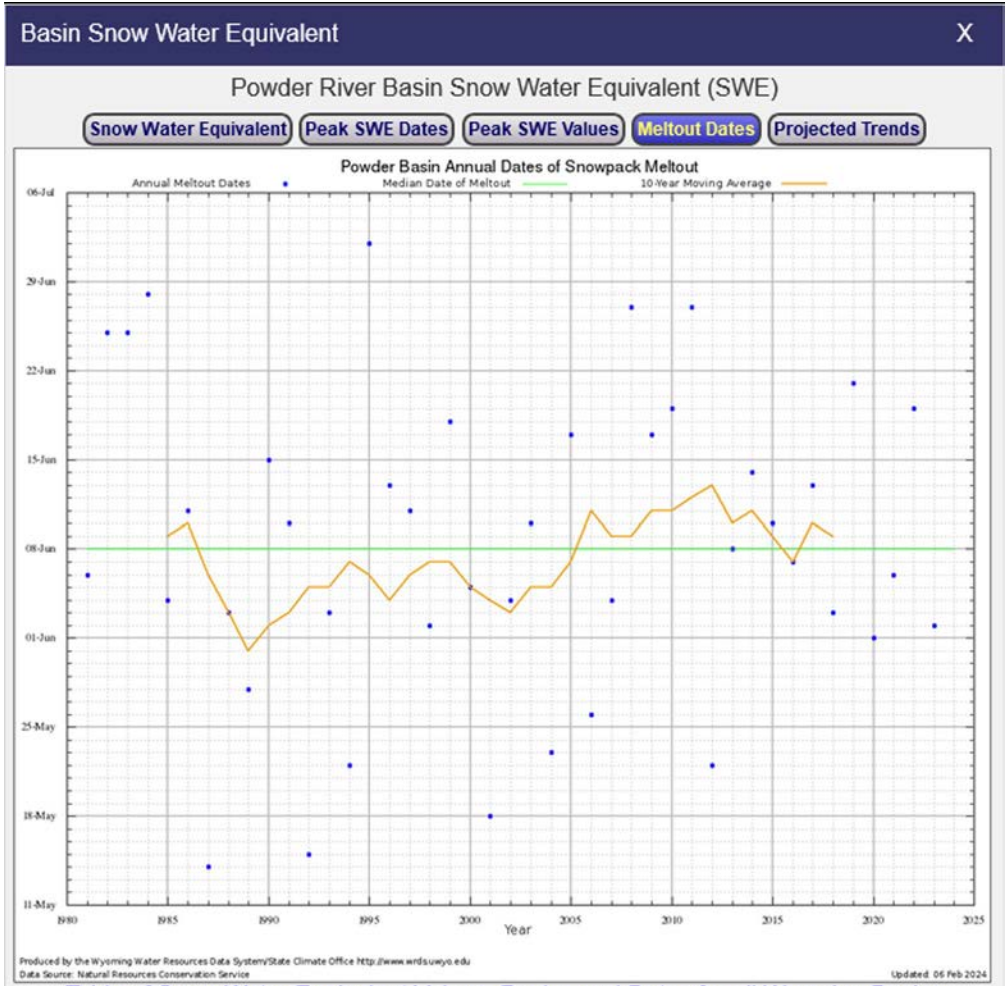

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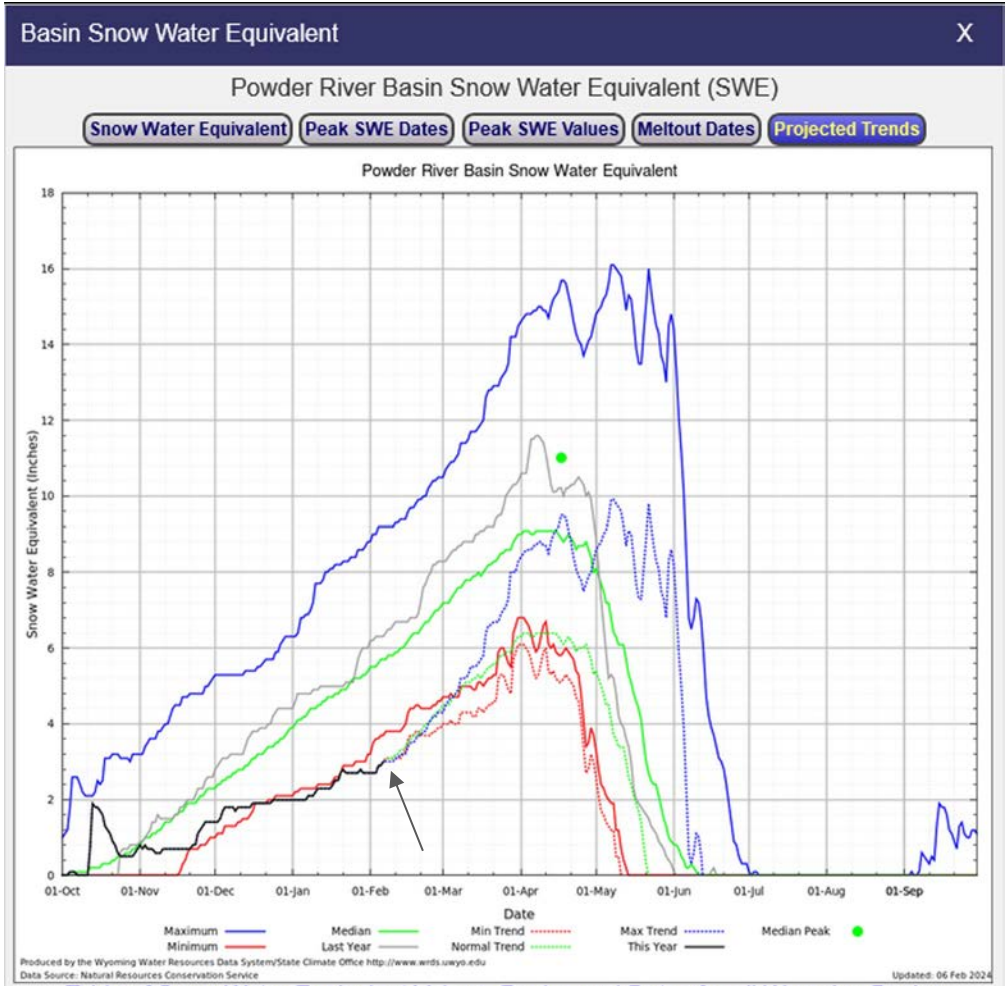

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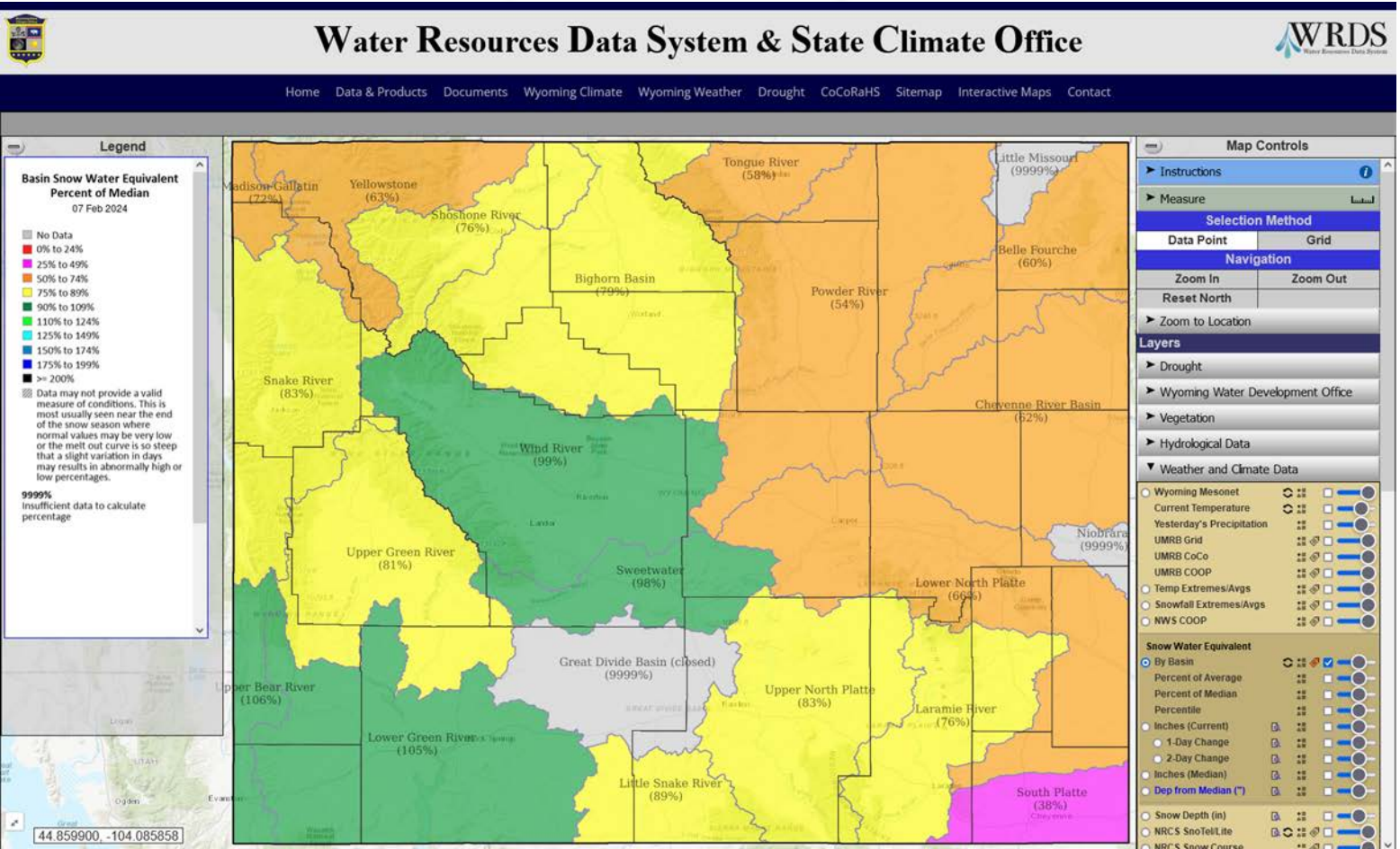

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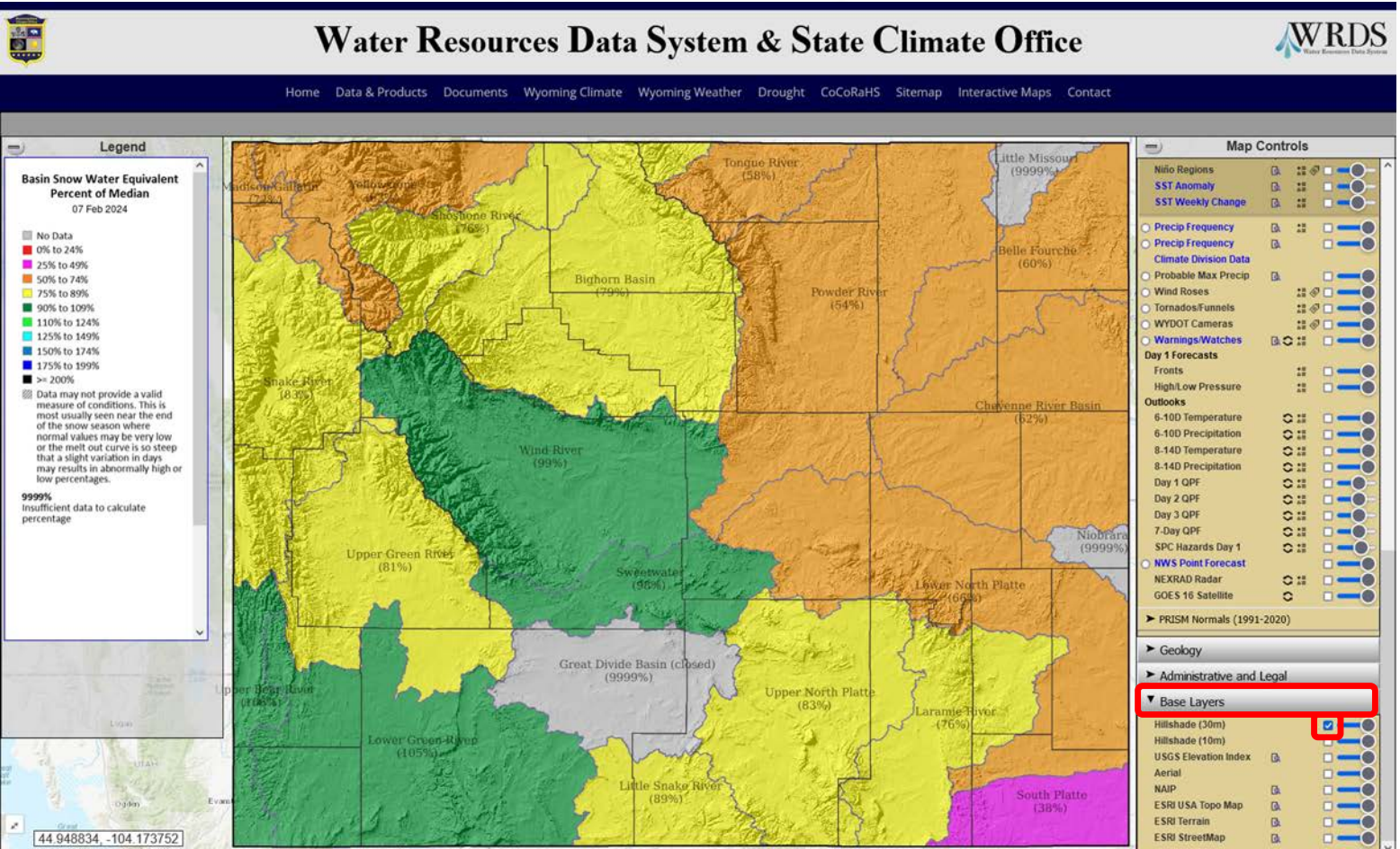

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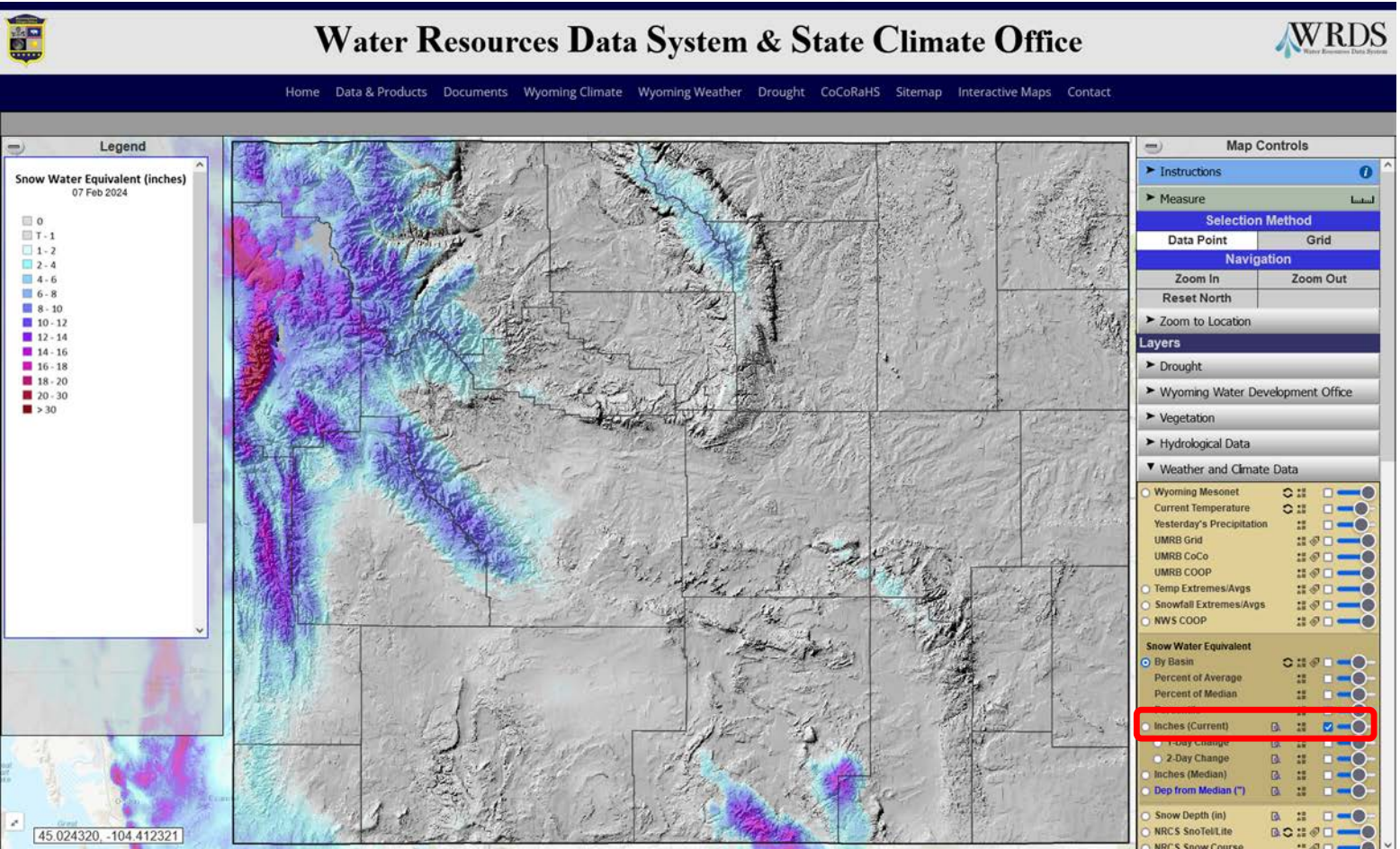

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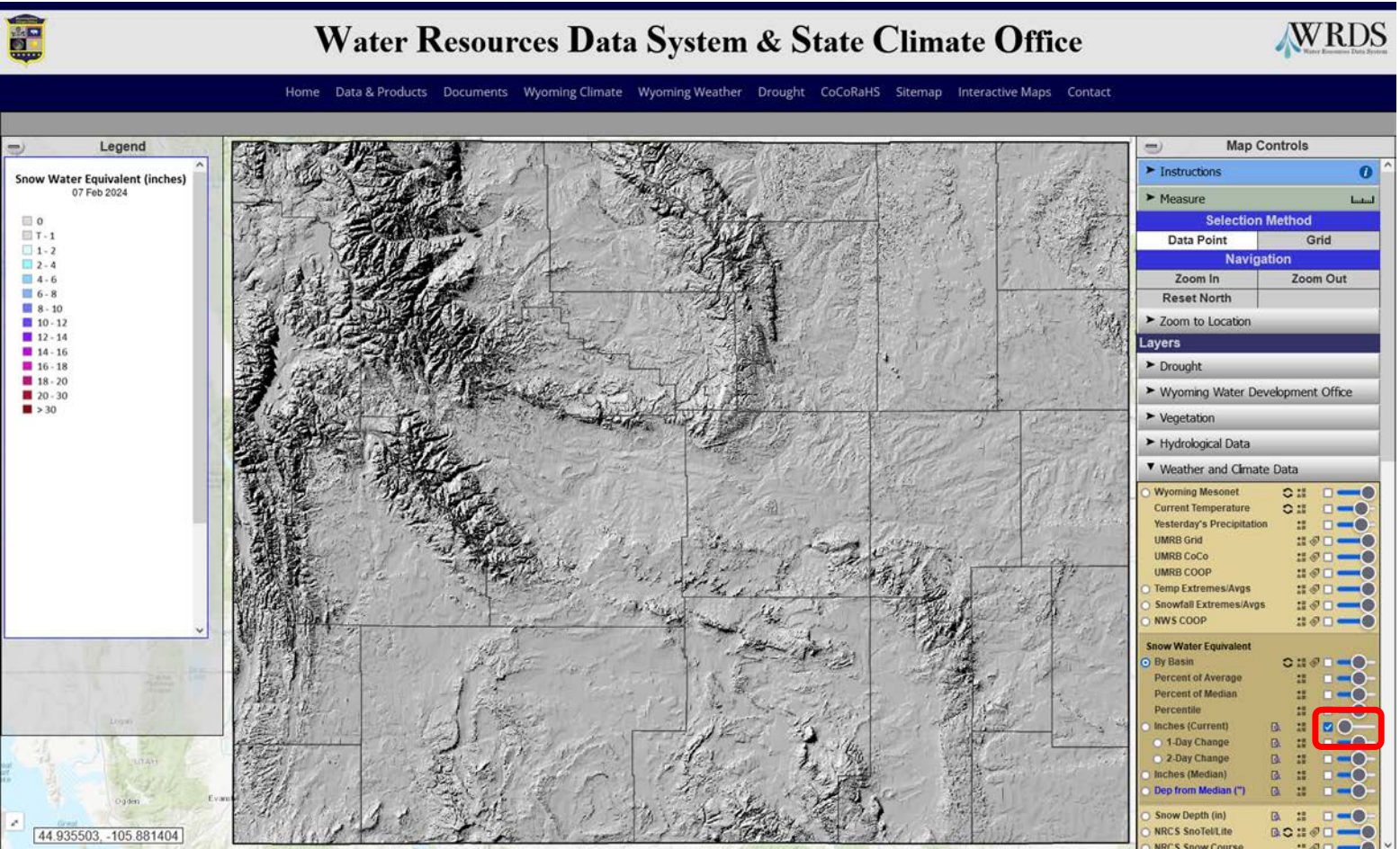

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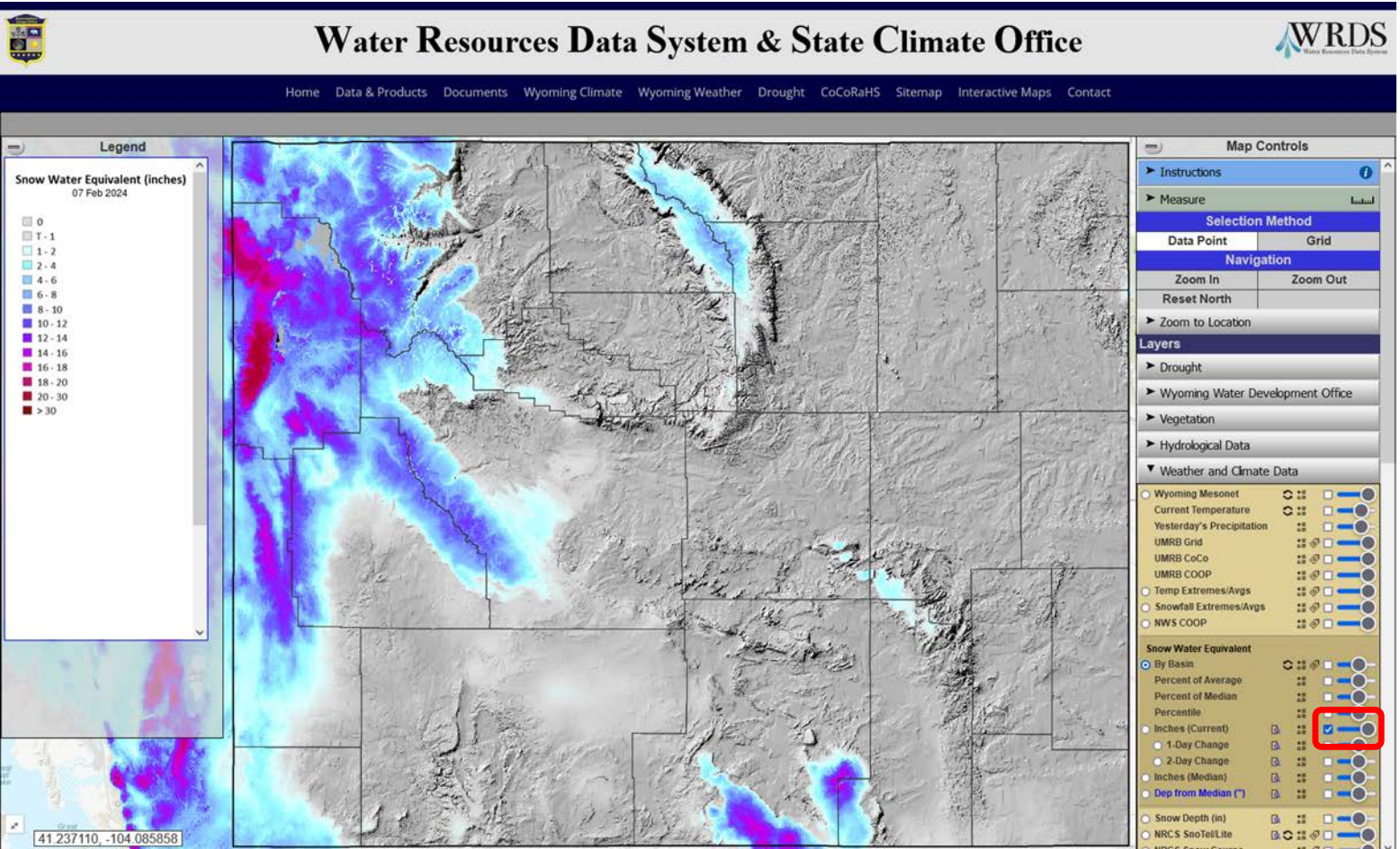

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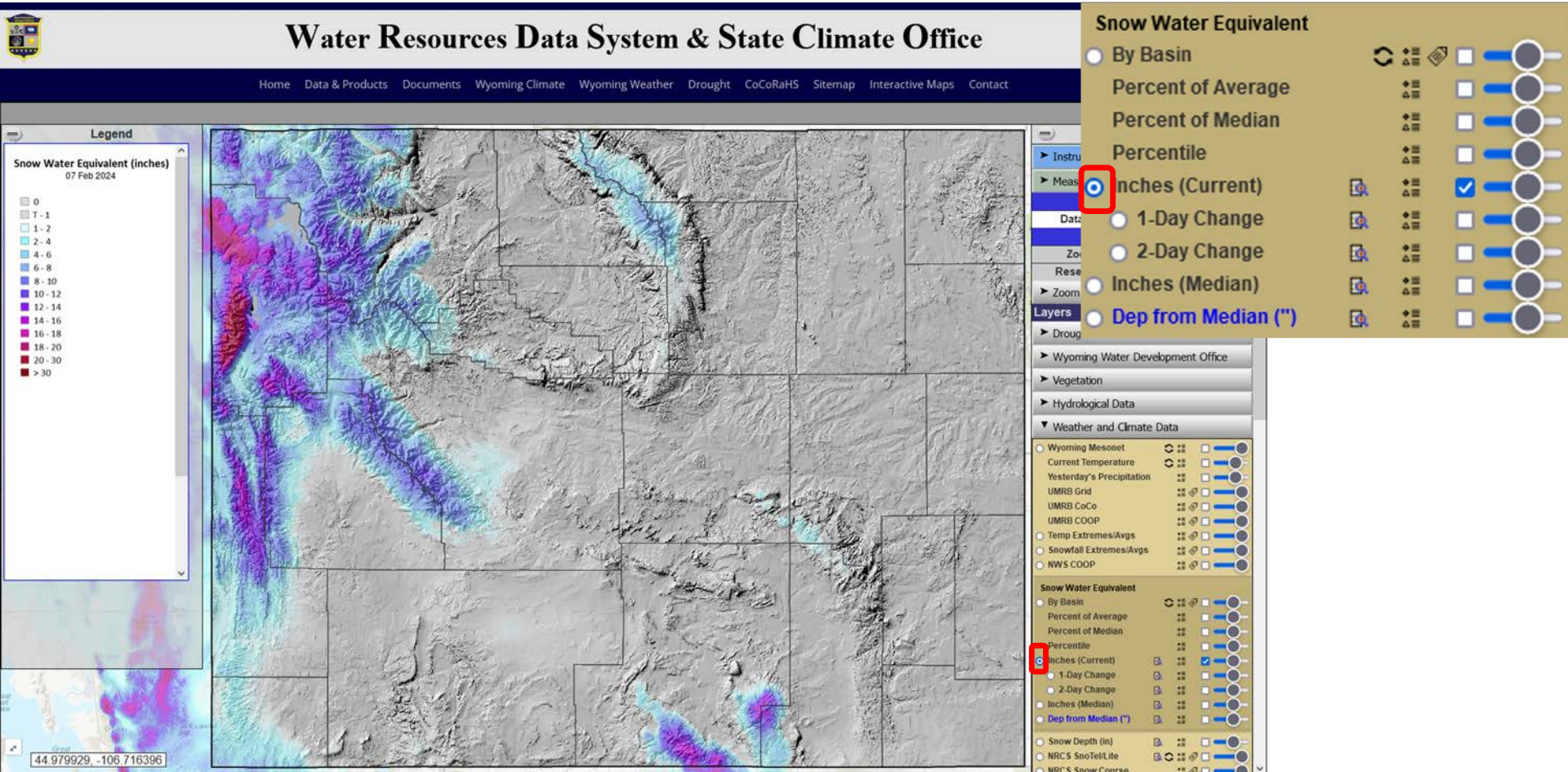

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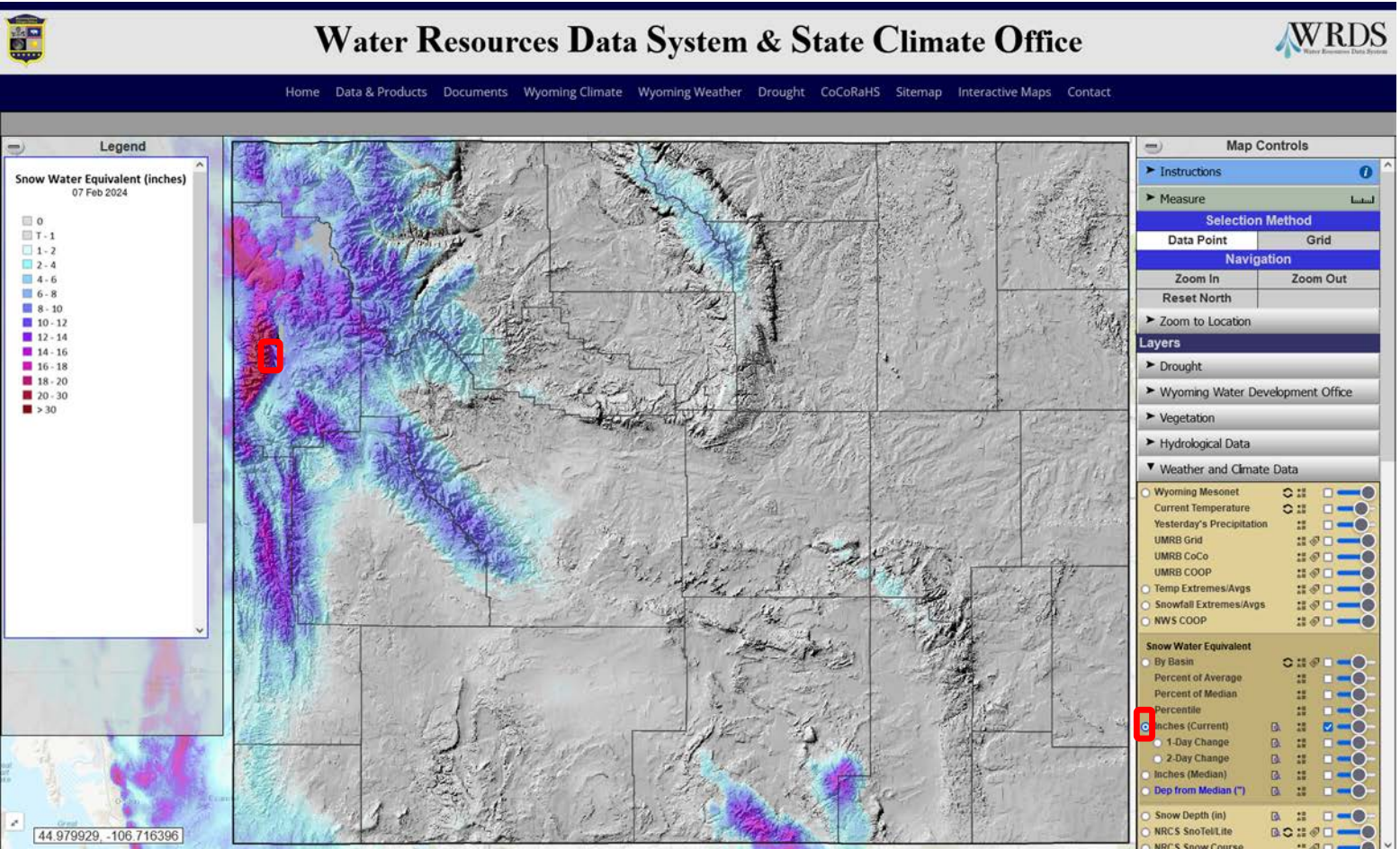

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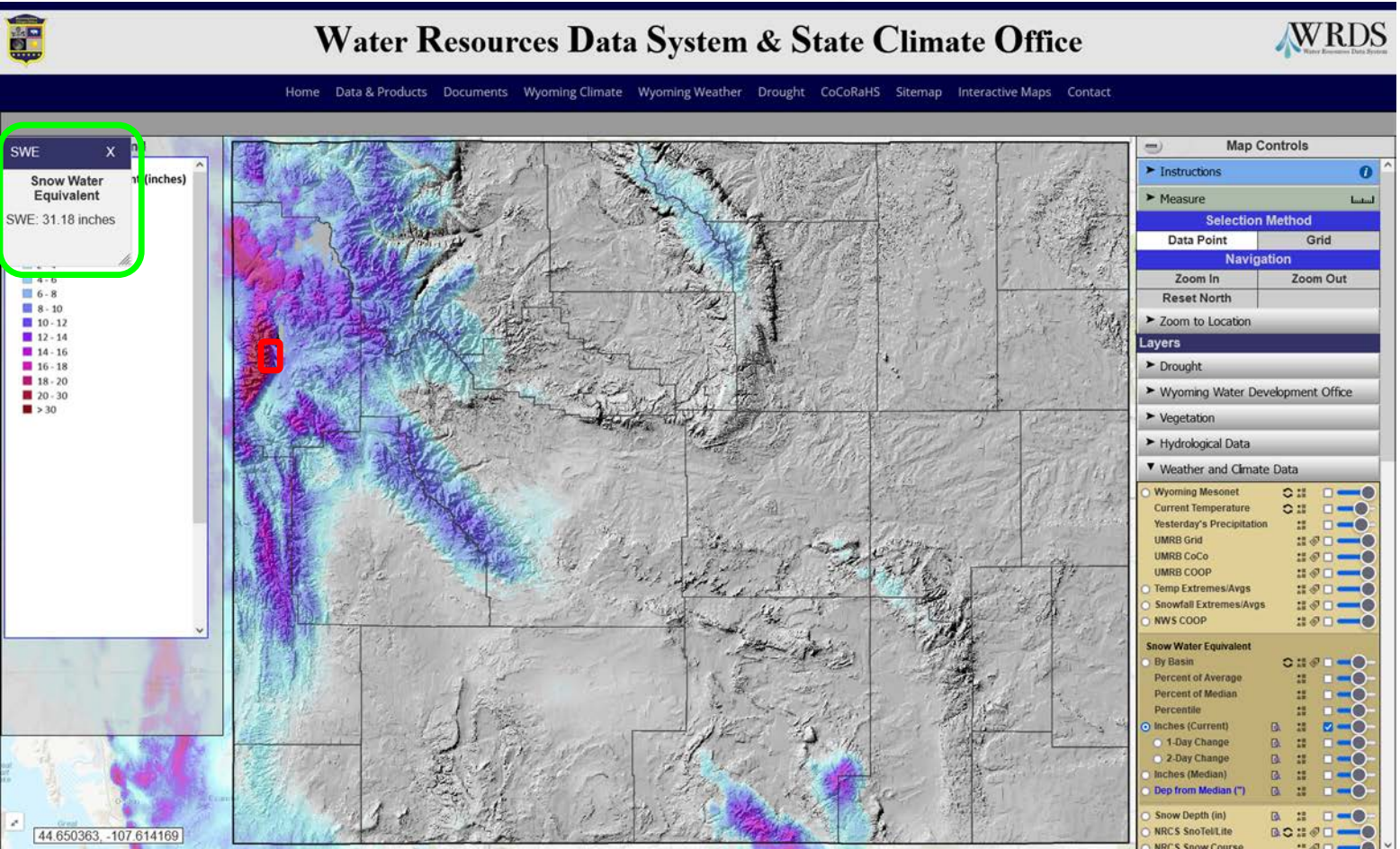

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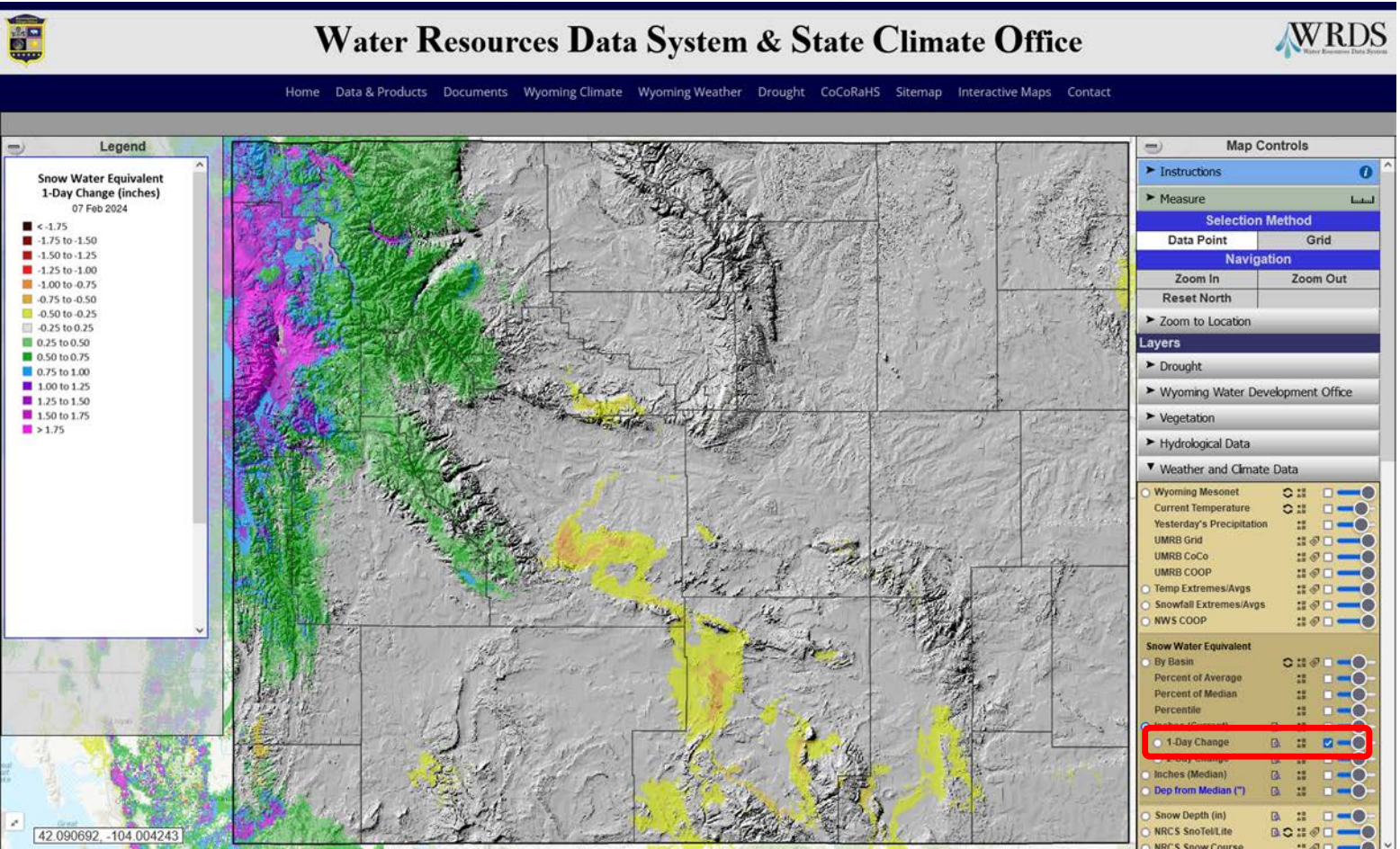

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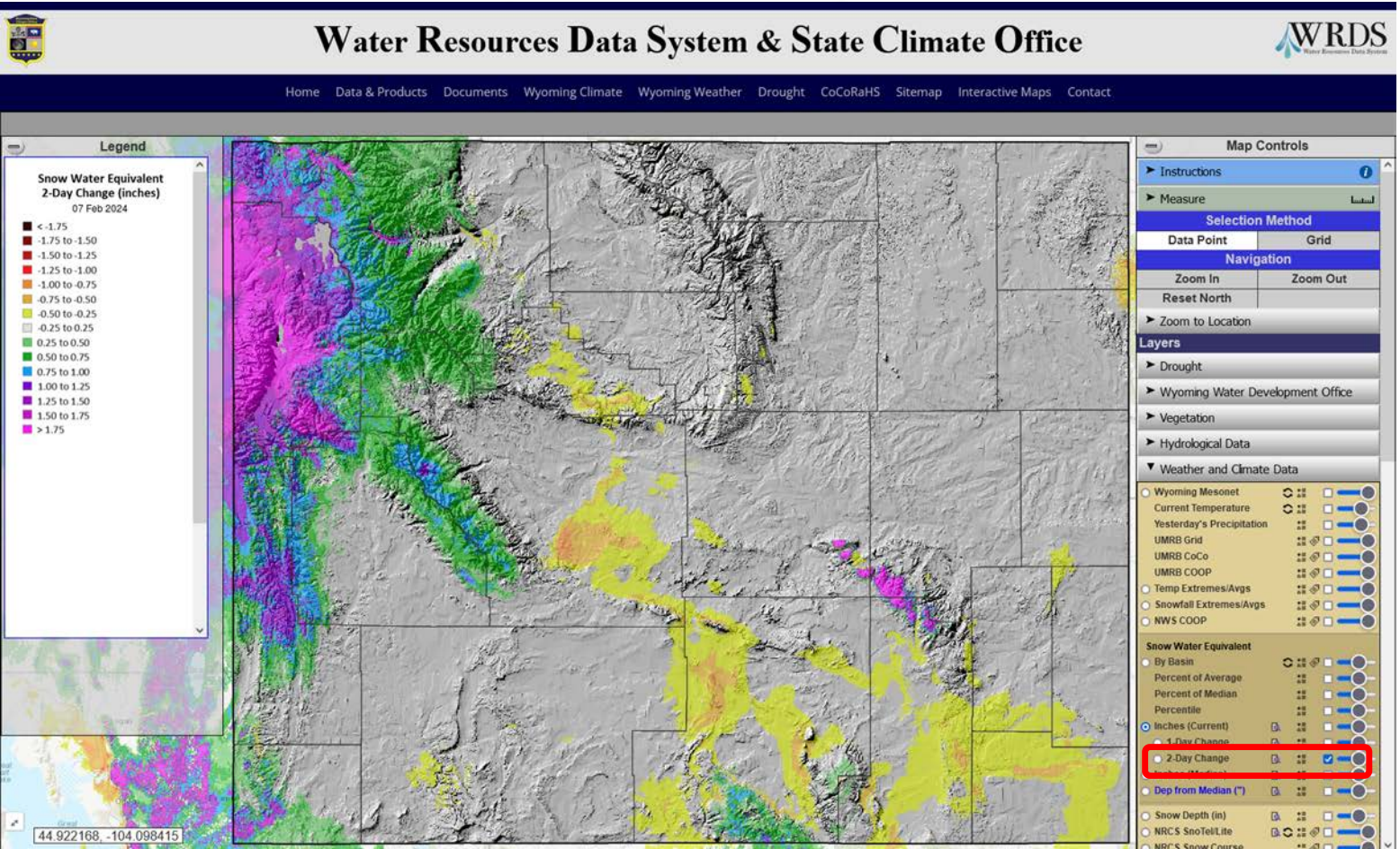

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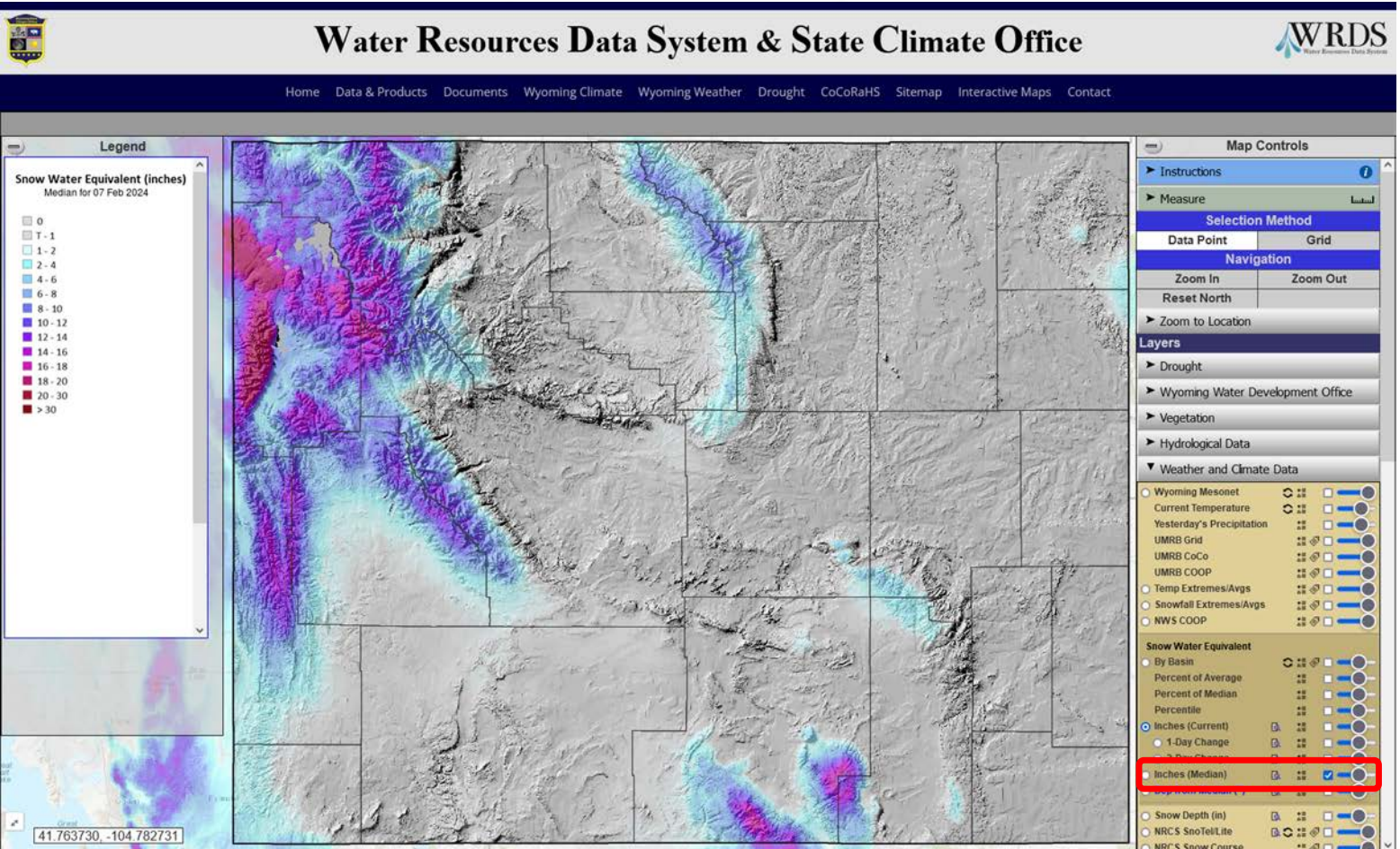

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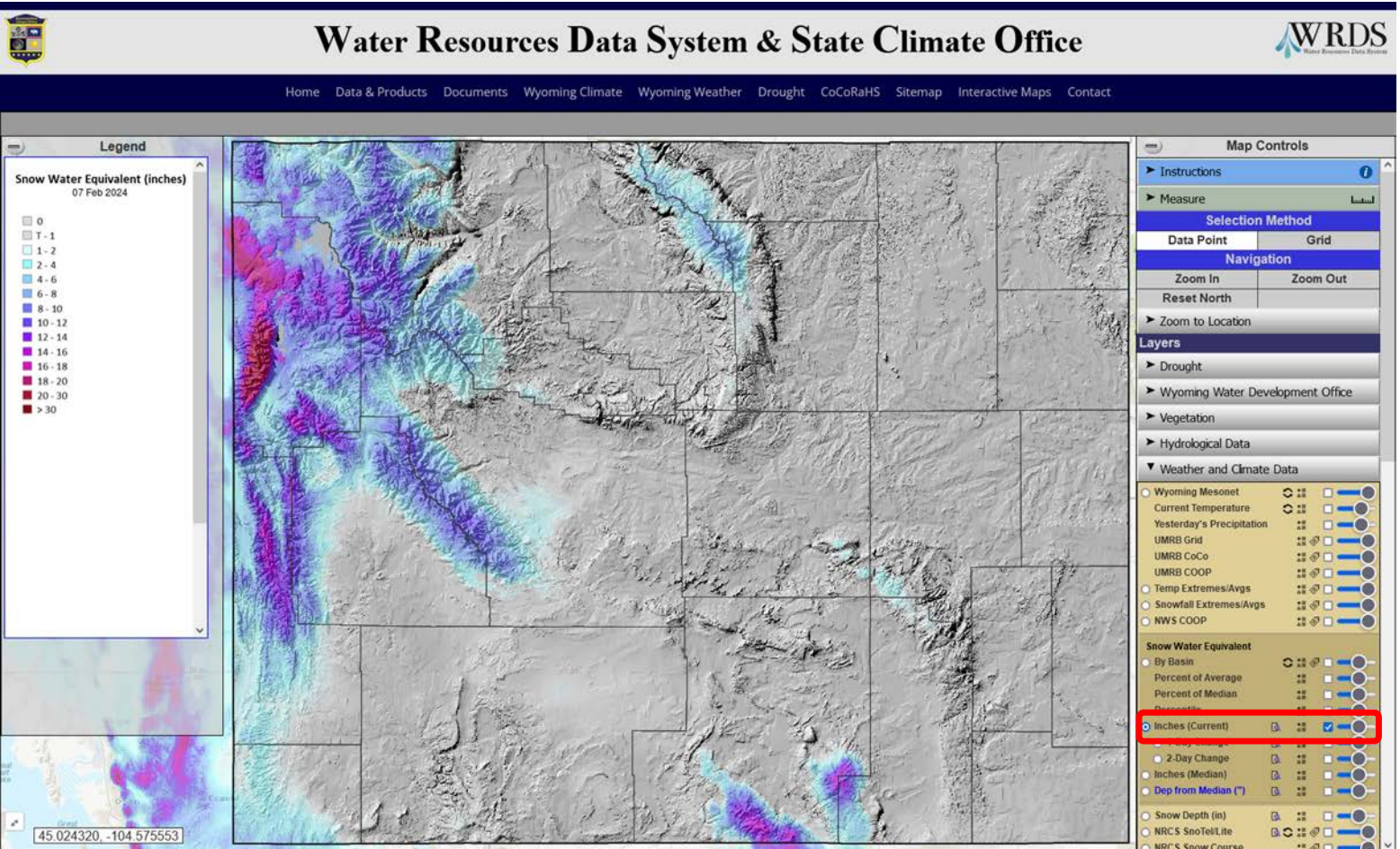

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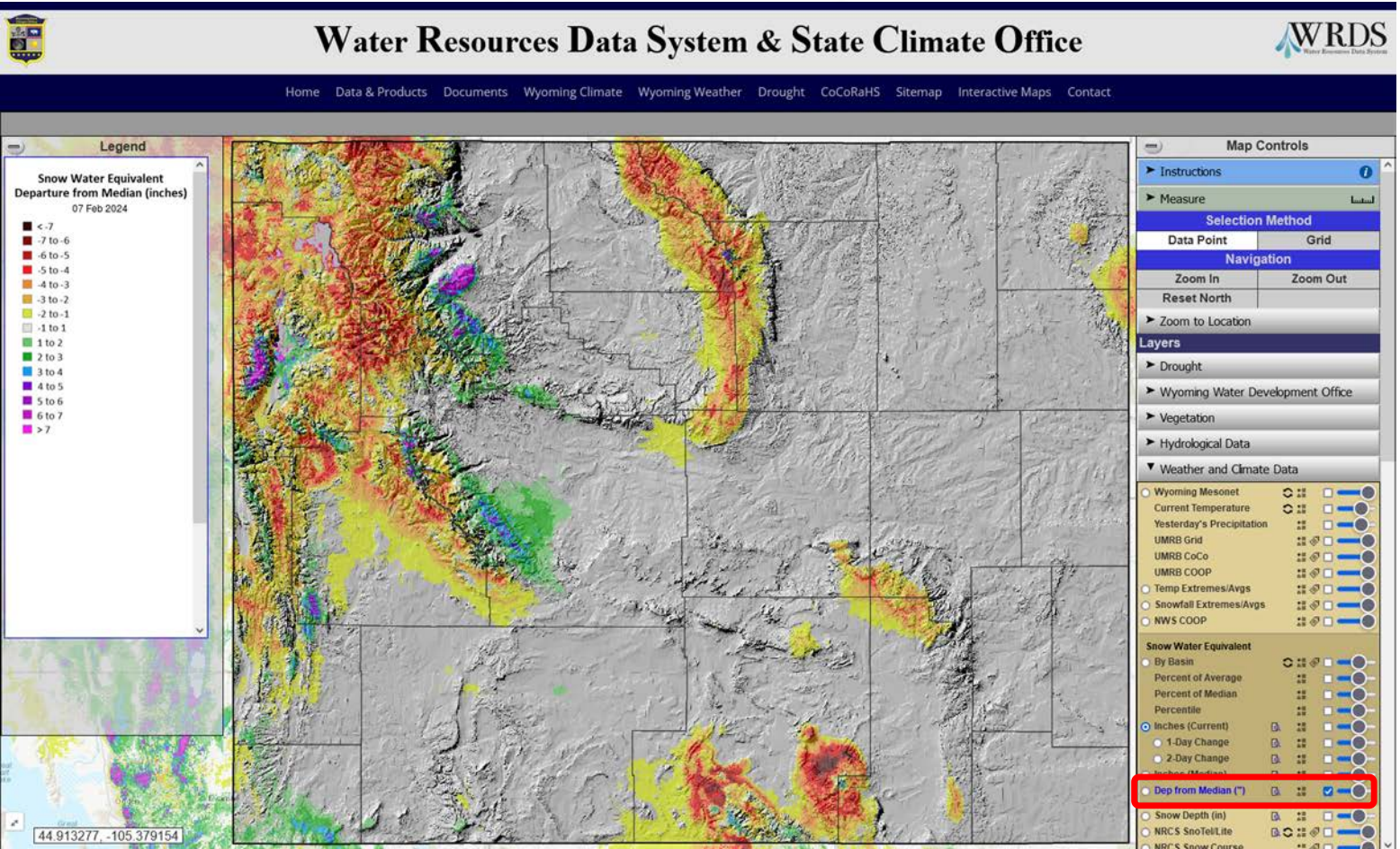

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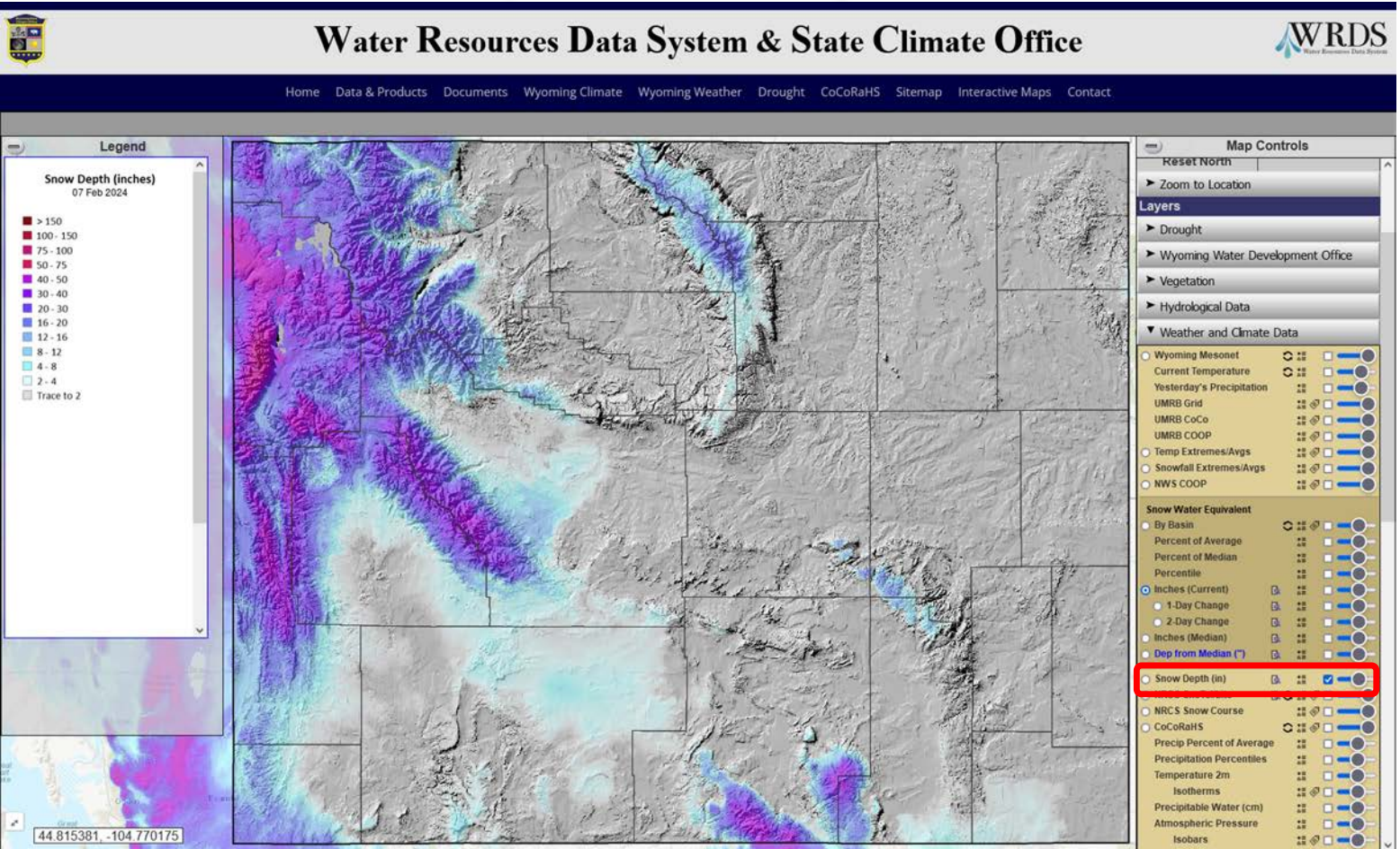

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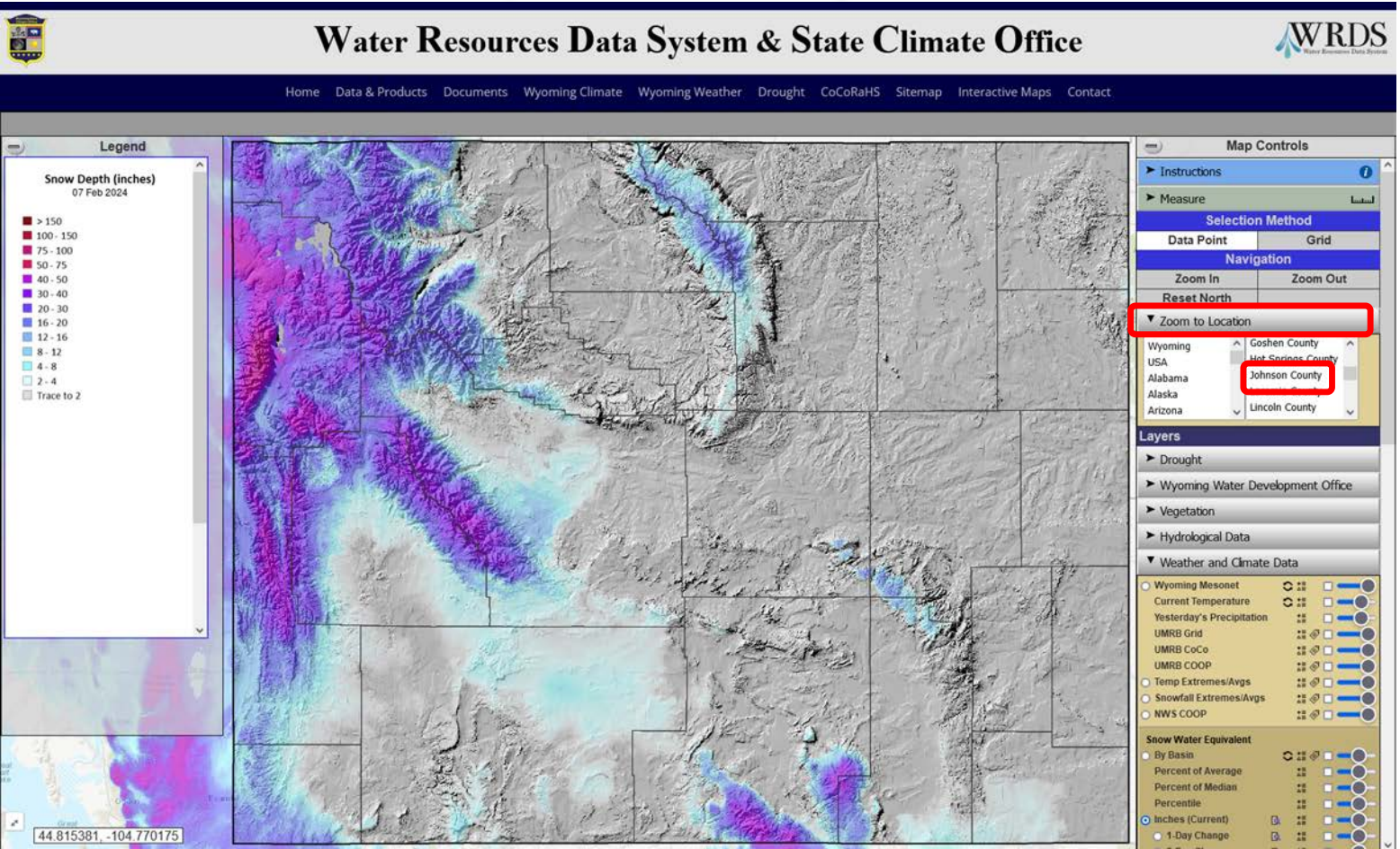

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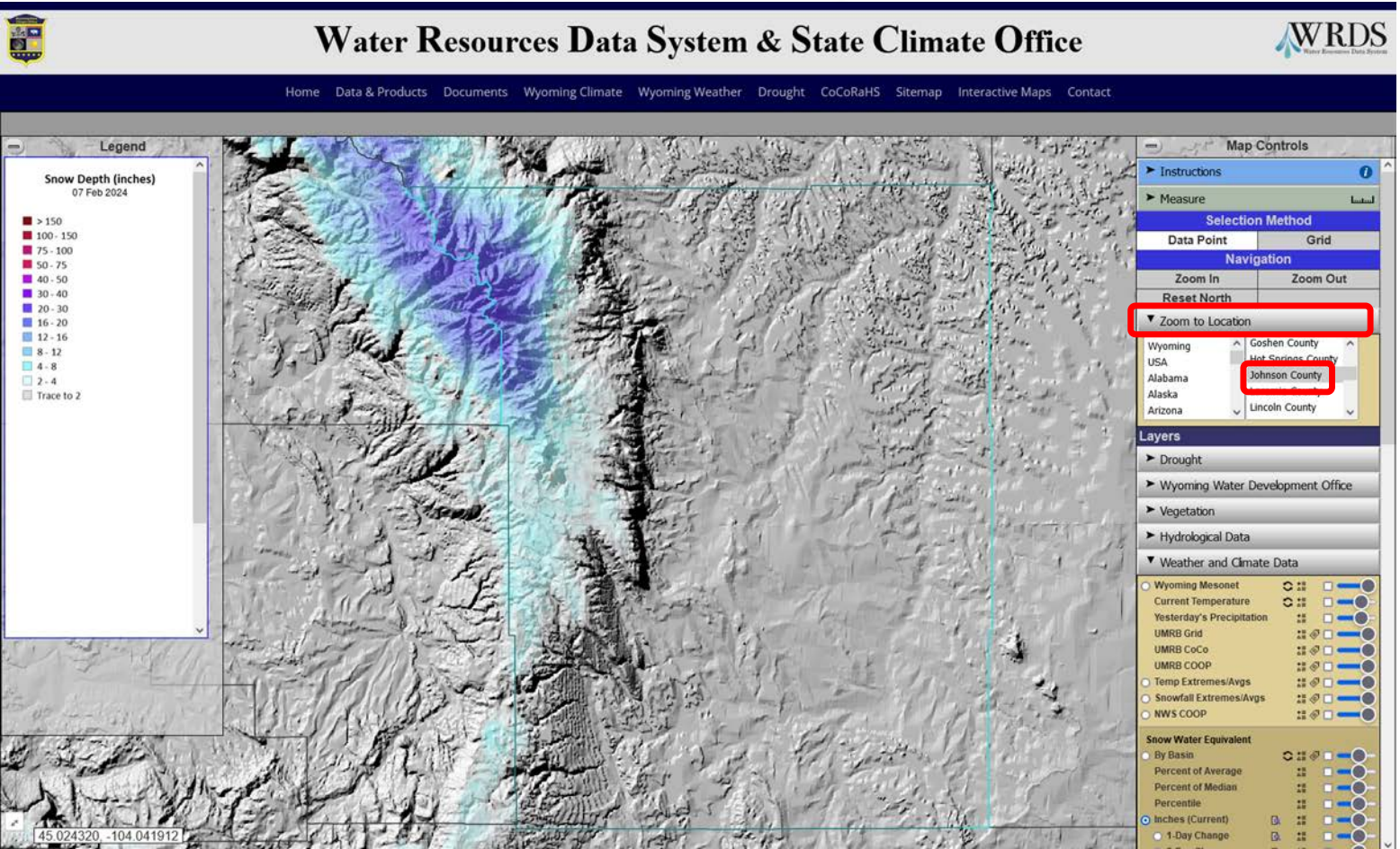

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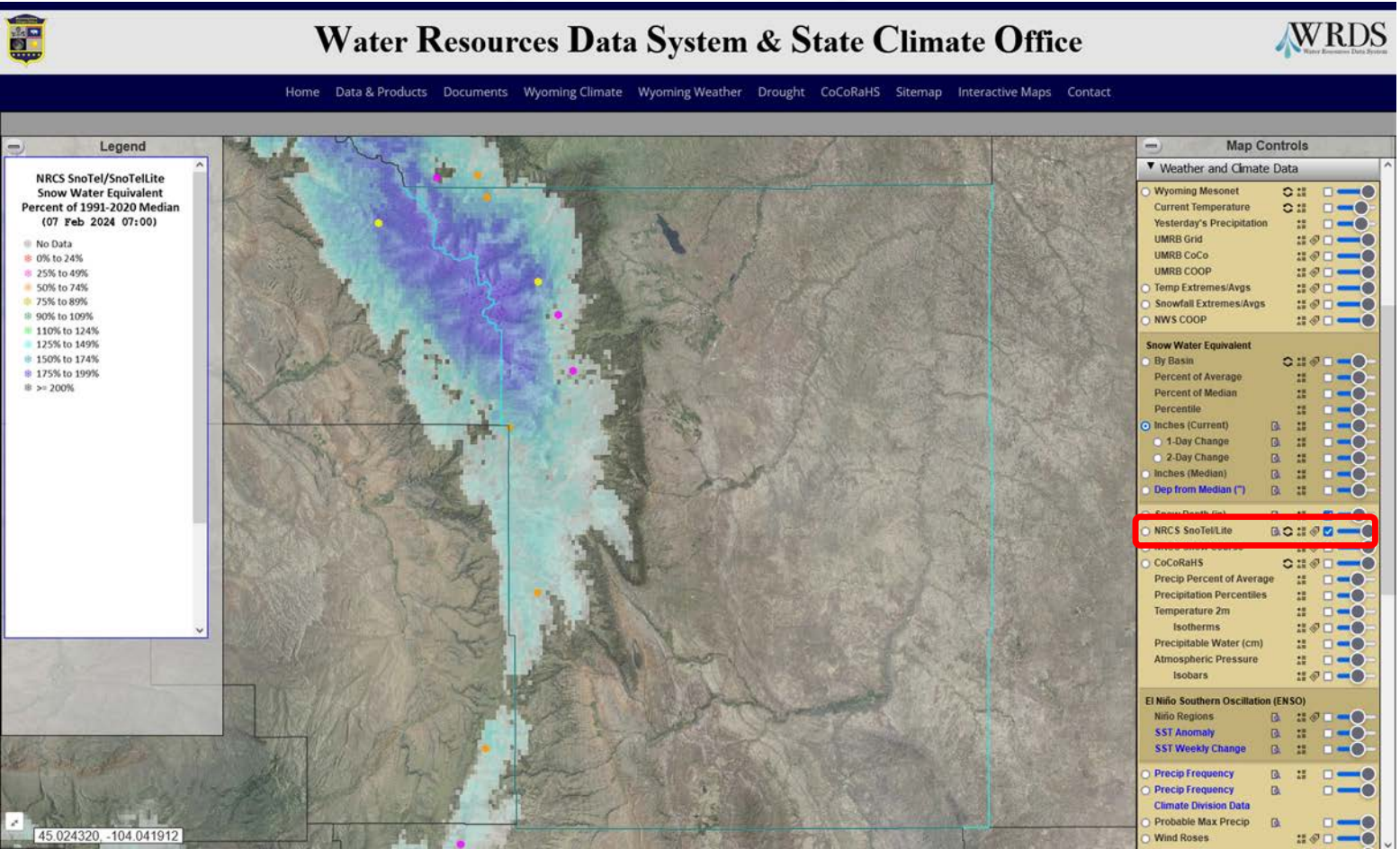

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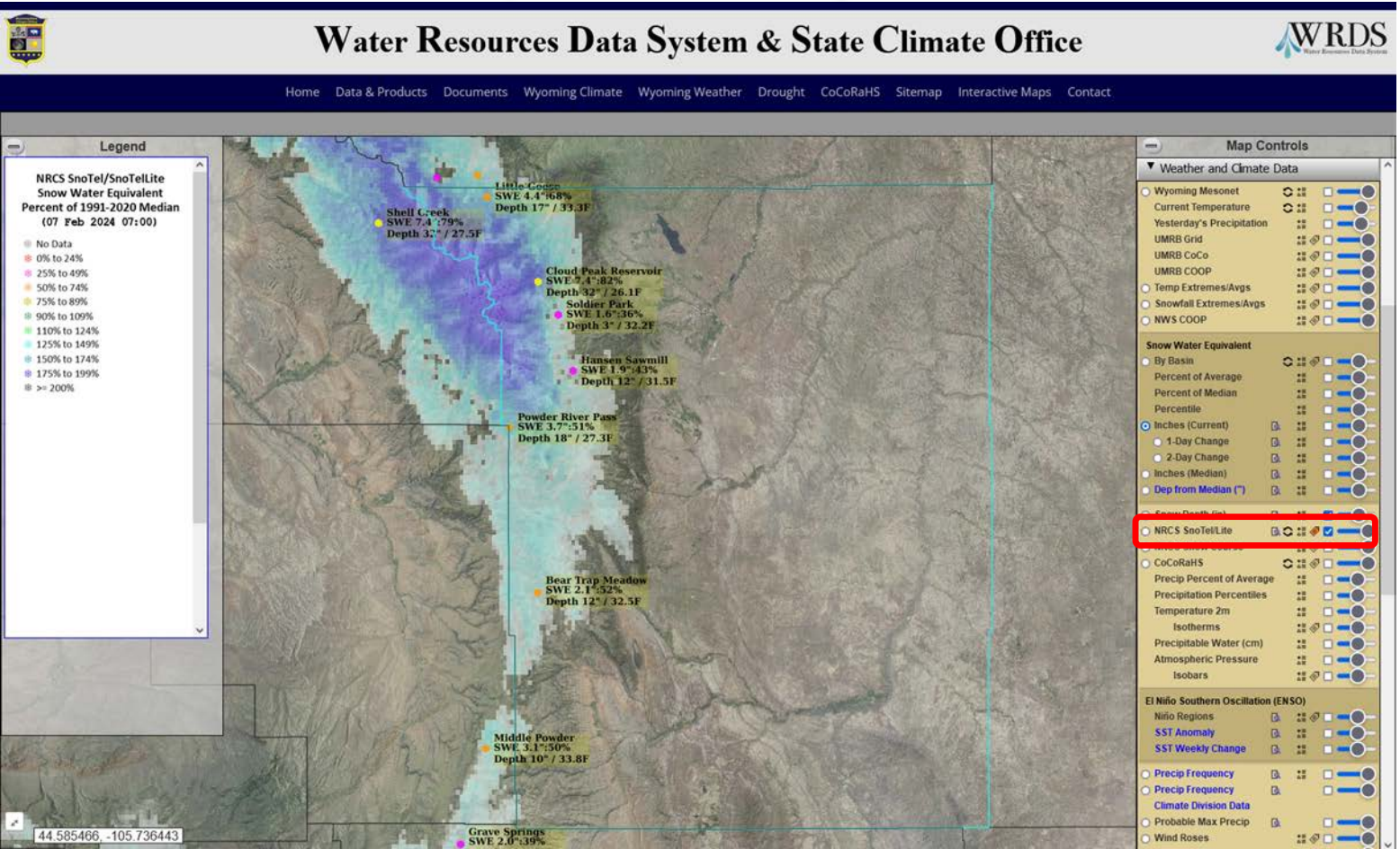

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Get Involved!

Submit a *Condition Monitoring Observer Report*

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Become a *CoCoRaHS volunteer*
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The WY Conditions Monitoring Team (WCMT) organized and hosted this webinar. The WCMT is a collaborative effort of state, federal, tribal, and university partners that monitor conditions & impacts throughout WY weekly – and communicate this info to the U.S. Drought Monitor & others.

Learn more at:
https://drought.wyo.gov

Thank you!
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