



# AGENDA

## IDAHO WATER RESOURCE BOARD

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### Upper Snake River Advisory Committee Meeting No. 2-23

Thursday, February 9, 2023

10:00 a.m. (MST)

**Meeting Location(s):**

BOISE

Water Center  
Conf. Room 549F  
322 E. Front St.

IDAHO FALLS

Eastern Regional Office  
Main Conference Room  
900 N. Skyline Drive

or

ONLINE via Zoom - [Click here to join our Zoom Meeting](#)

Dial in Option: [+1 \(253\) 215-8782](#)

Meeting ID: 860 8548 7210 Passcode: 673668

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**Brad Little**  
*Governor*

**Jeff Raybould**  
*Chairman*  
St. Anthony  
At Large

**Jo Ann Cole-Hansen**  
*Secretary*  
Lewiston  
At Large

**Dale Van Stone**  
Hope  
District 1

**Albert Barker**  
Boise  
District 2

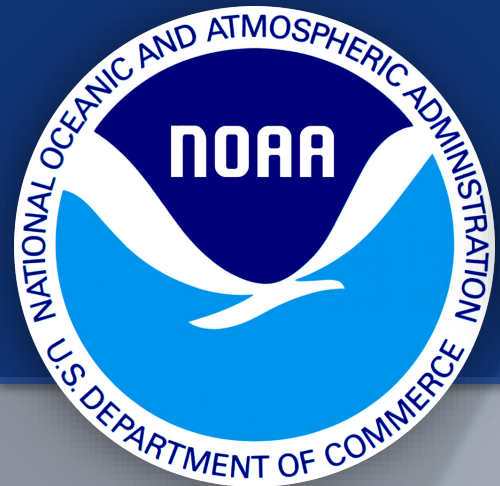
**Dean Stevenson**  
Paul  
District 3

**Brian Olmstead**  
Twin Falls  
At Large

1. Introduction and Attendance
2. Weather Forecast (NOAA)
3. Snow Pack / Streamflow Forecasts (NRCS)
4. Water Supply / Operations Update (USBR)
5. Idaho Power Company
  - a. Operations Update
  - b. Cloud Seeding Update
6. Water District 01 Briefing
7. IWRB Managed Recharge Operations
8. New Business
9. Adjourn

Committee Members – Brian Olmstead

**Americans with Disabilities:** The meeting will be held online. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email [jennifer.strange@idwr.idaho.gov](mailto:jennifer.strange@idwr.idaho.gov) or by phone at (208) 287-4800.



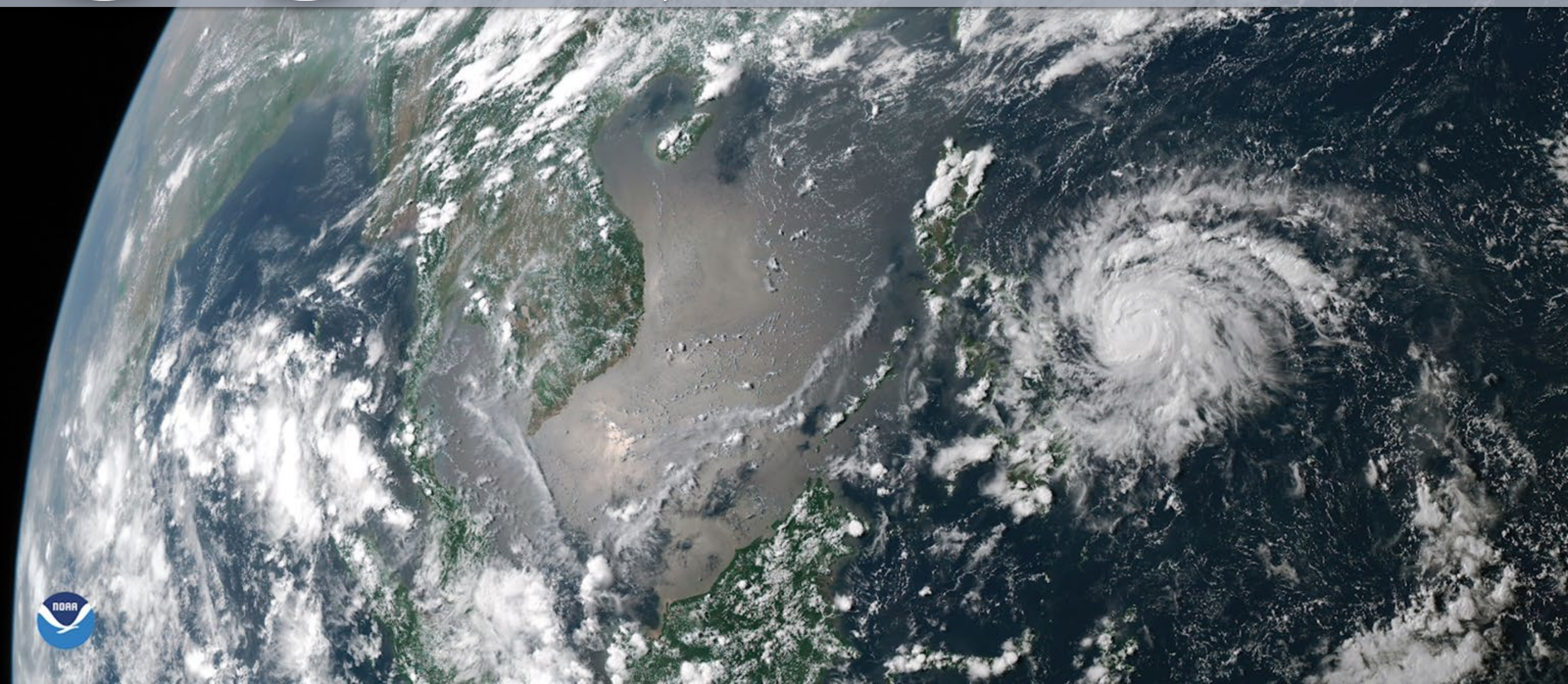
# Late Winter Outlook

Presenter: Travis Wyatt

Weather Forecast Office

Pocatello, ID

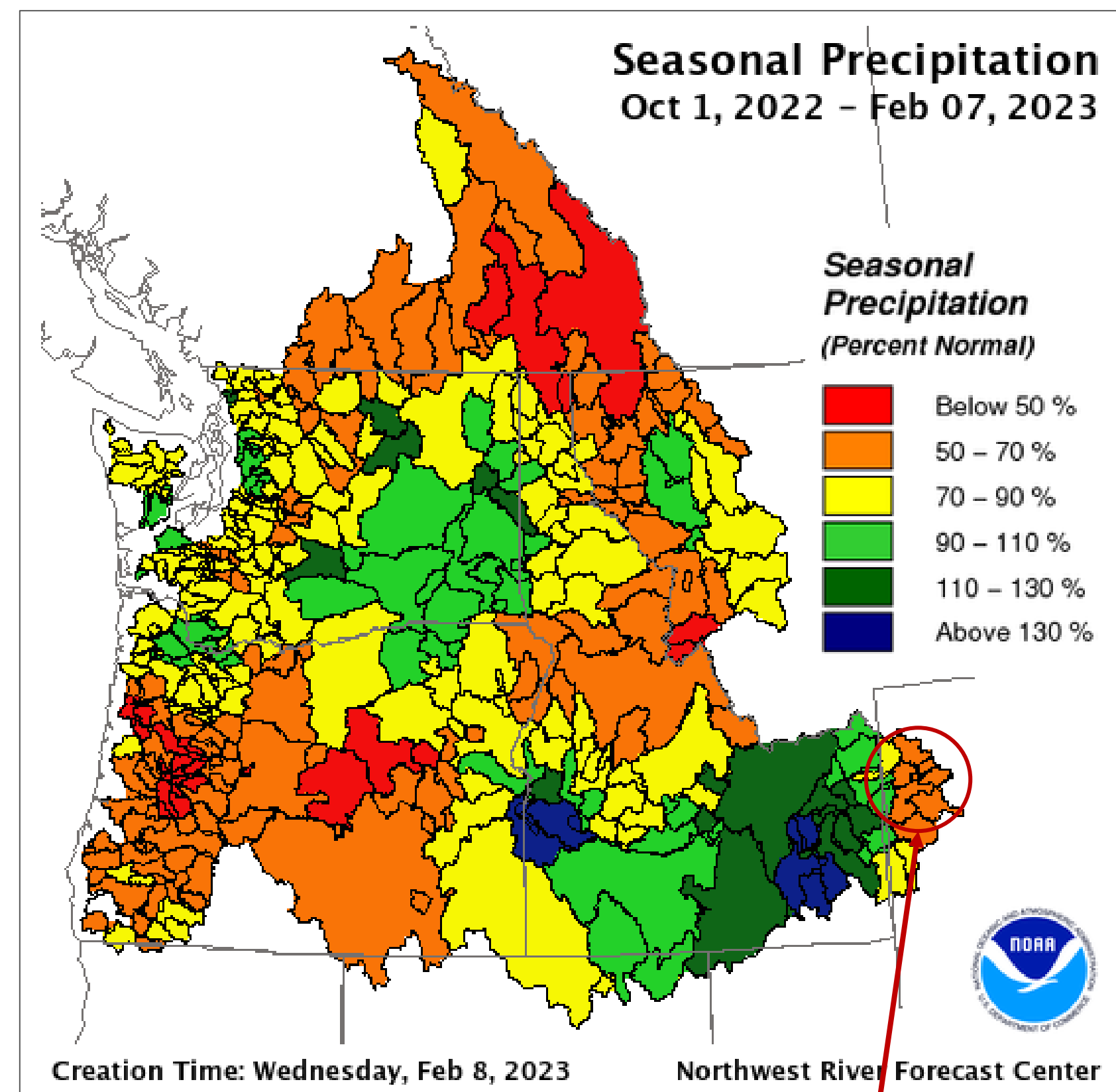
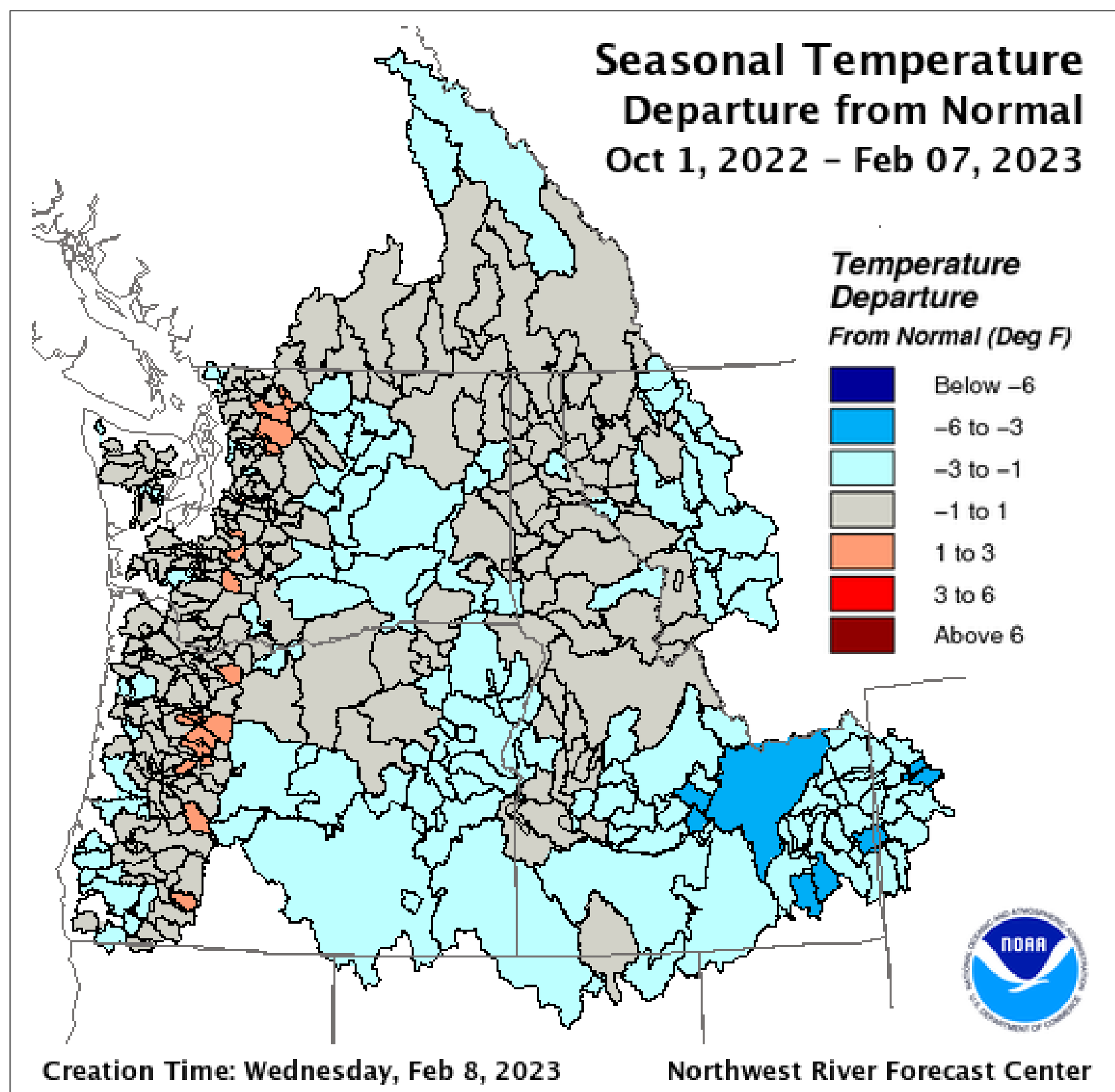
Thursday, February 9





# Cold Temps & Near Above Average Precip. Remains

Weather Forecast Office  
Pocatello, ID  
Thursday, February 9

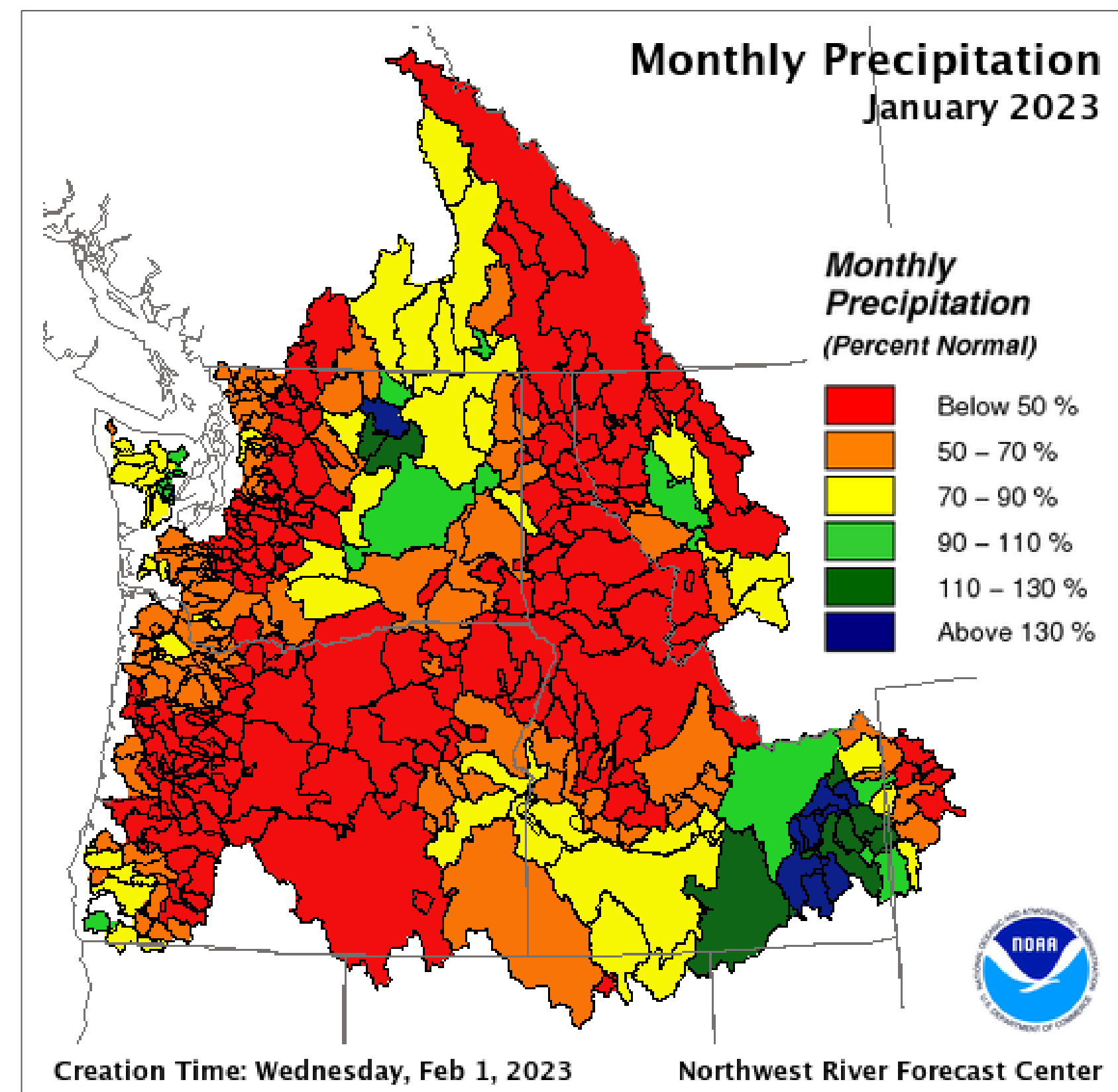
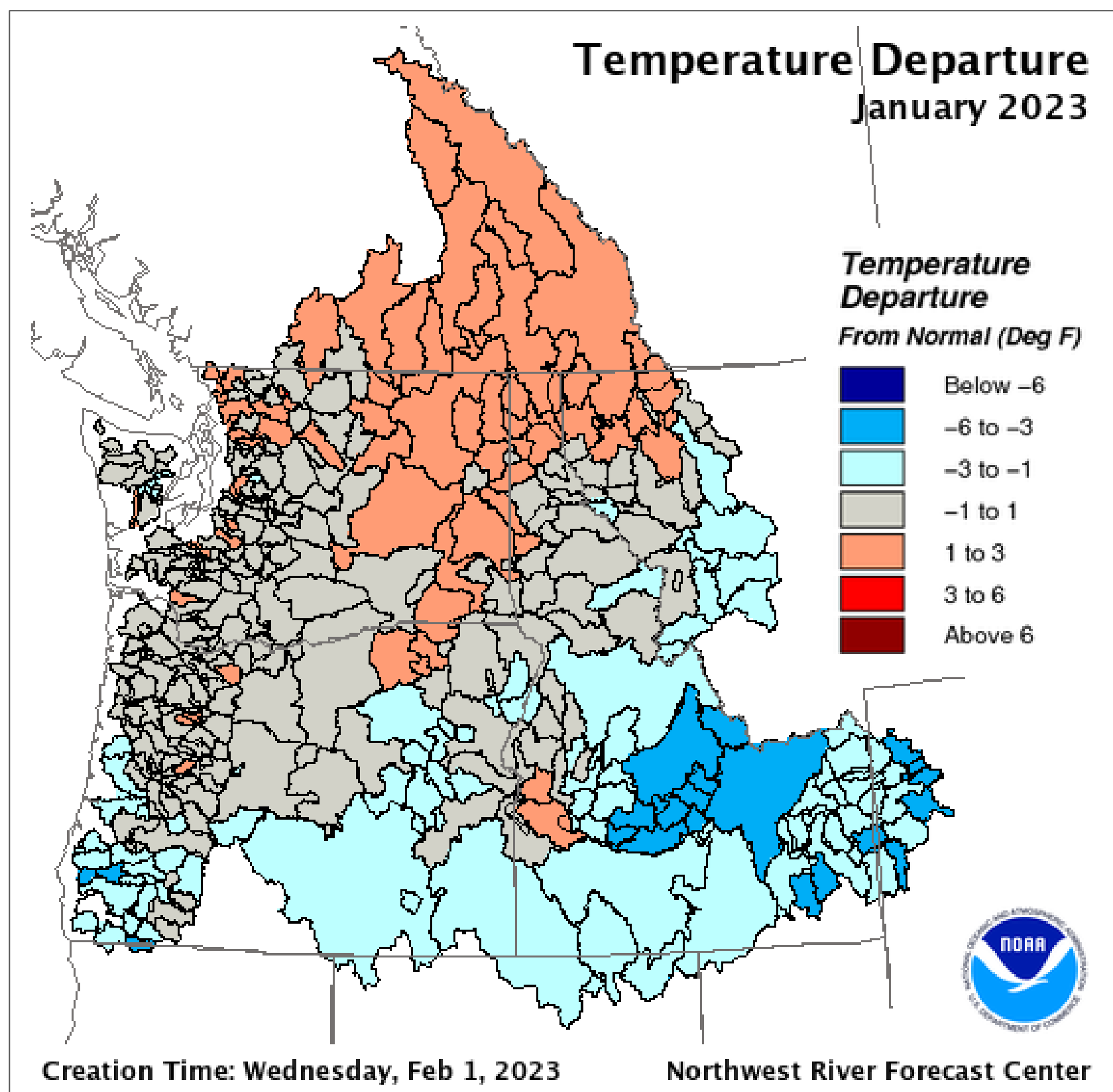


May be a little misleading



# January Remained Cold and Overall Active

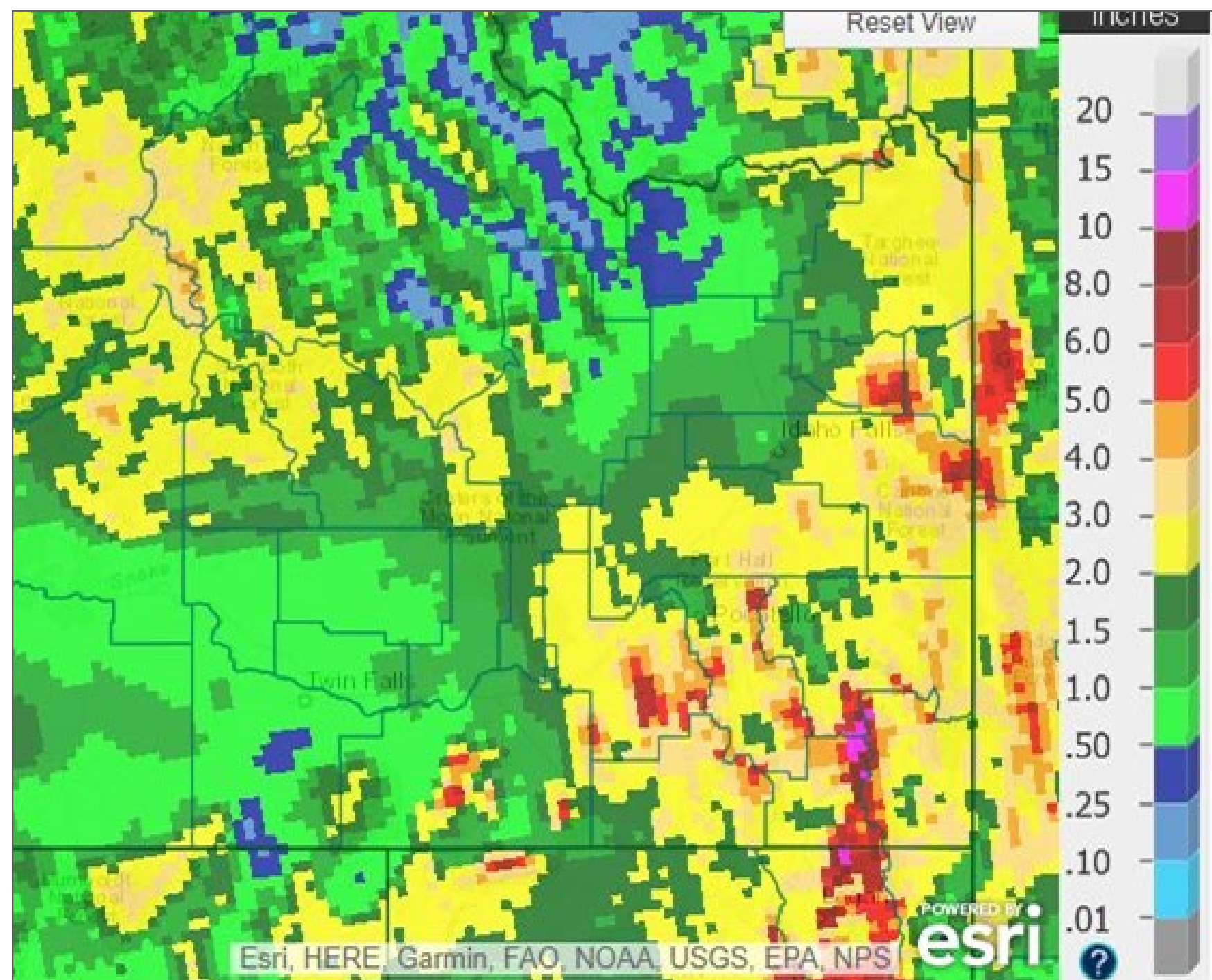
Weather Forecast Office  
Pocatello, ID  
Thursday, February 9



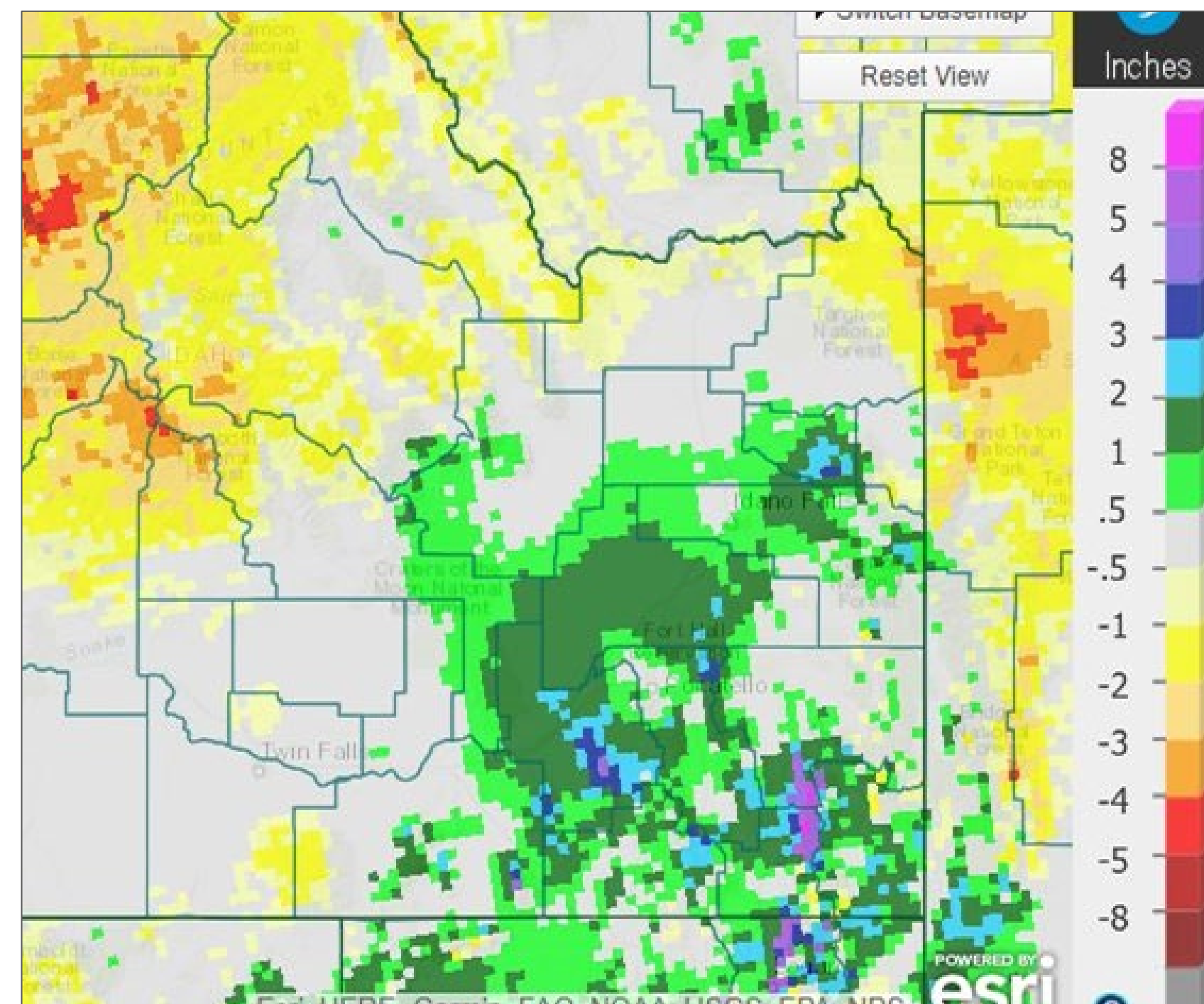


# Last 30 Days Precipitation

Weather Forecast Office  
Pocatello, ID  
Thursday, February 9



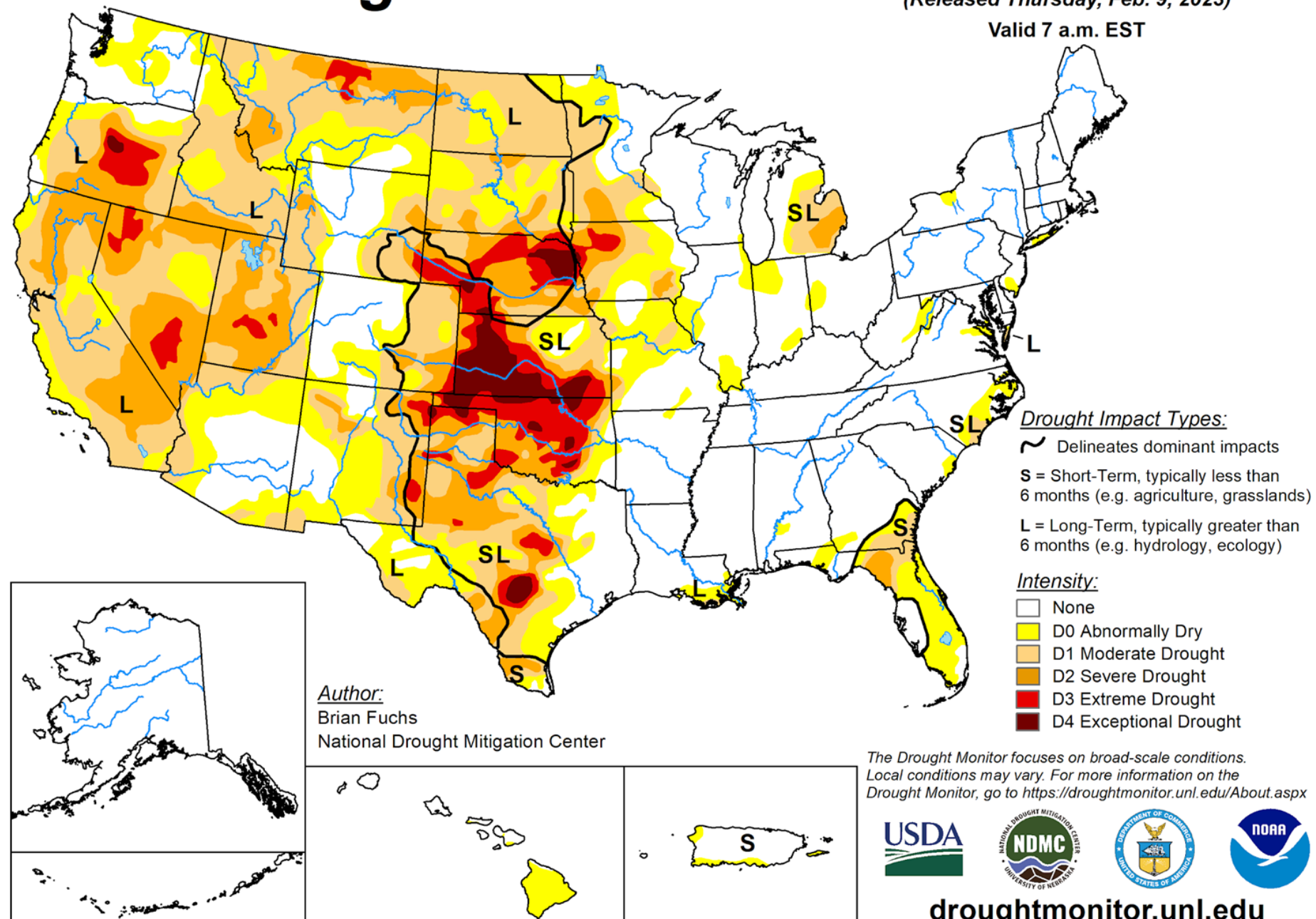
Precipitation over the last 30 Days



Precipitation departure over the last 30 days

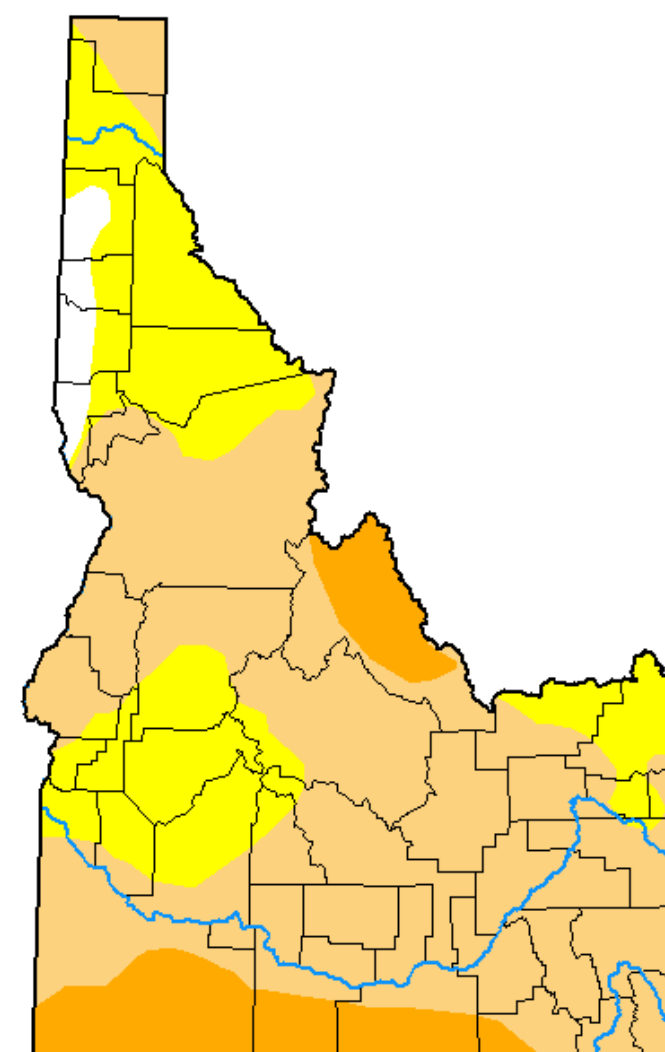
## U.S. Drought Monitor

February 7, 2023  
(Released Thursday, Feb. 9, 2023)  
Valid 7 a.m. EST

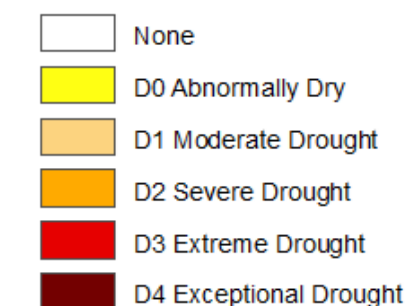


## U.S. Drought Monitor Idaho

February 7, 2023  
(Released Thursday, Feb. 9, 2023)  
Valid 7 a.m. EST



### Intensity:



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:

Brian Fuchs  
National Drought Mitigation Center



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



Weather Forecast Office  
Pocatello, ID  
Thursday, February 9

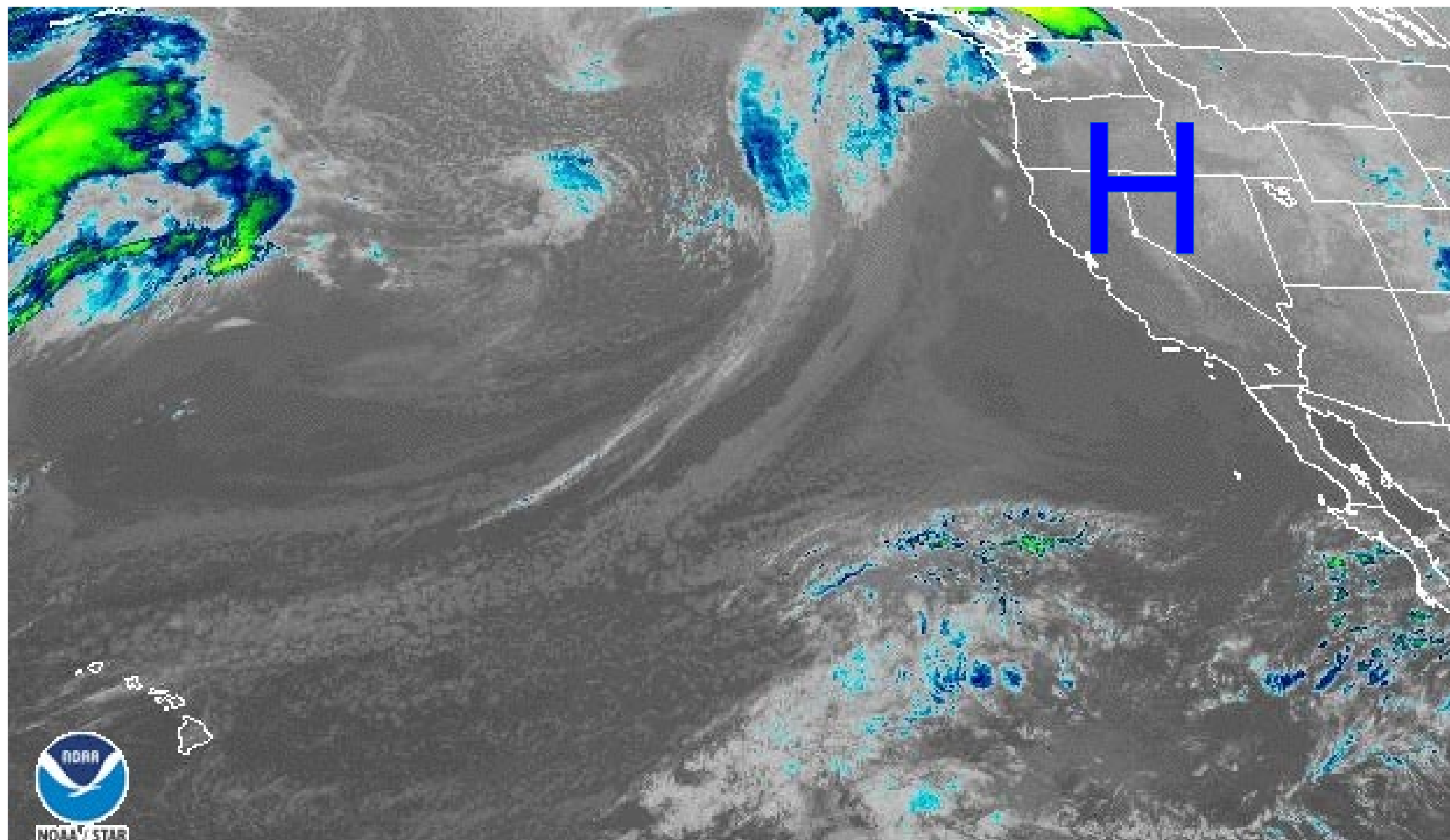
# Looking Ahead: Short Term Forecast





# Current Satellite

Weather Forecast Office  
Pocatello, ID  
Thursday, February 9



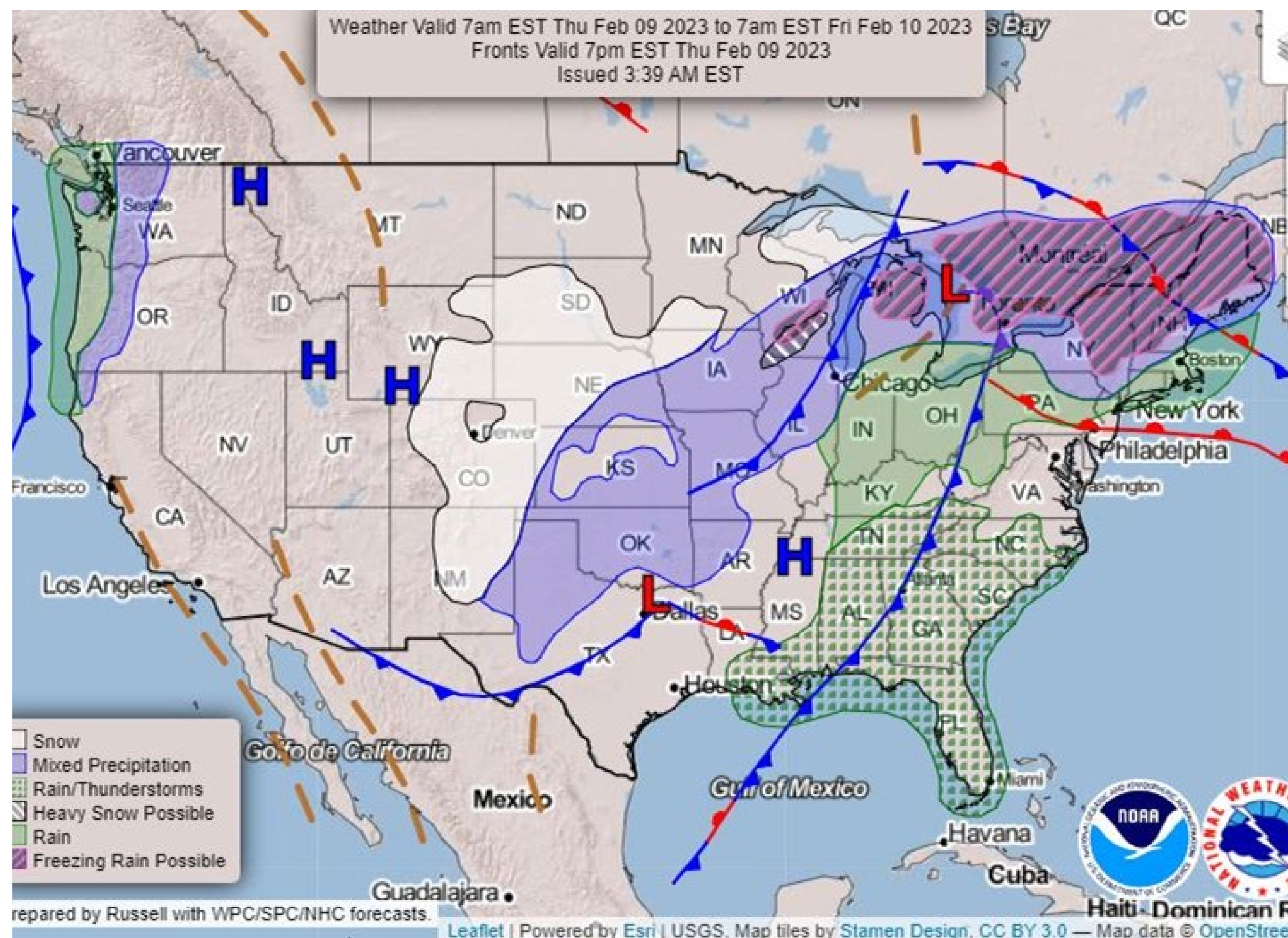
09 Feb 2023 11:16Z - NOAA/NESDIS/STAR - PACUS - Band 13



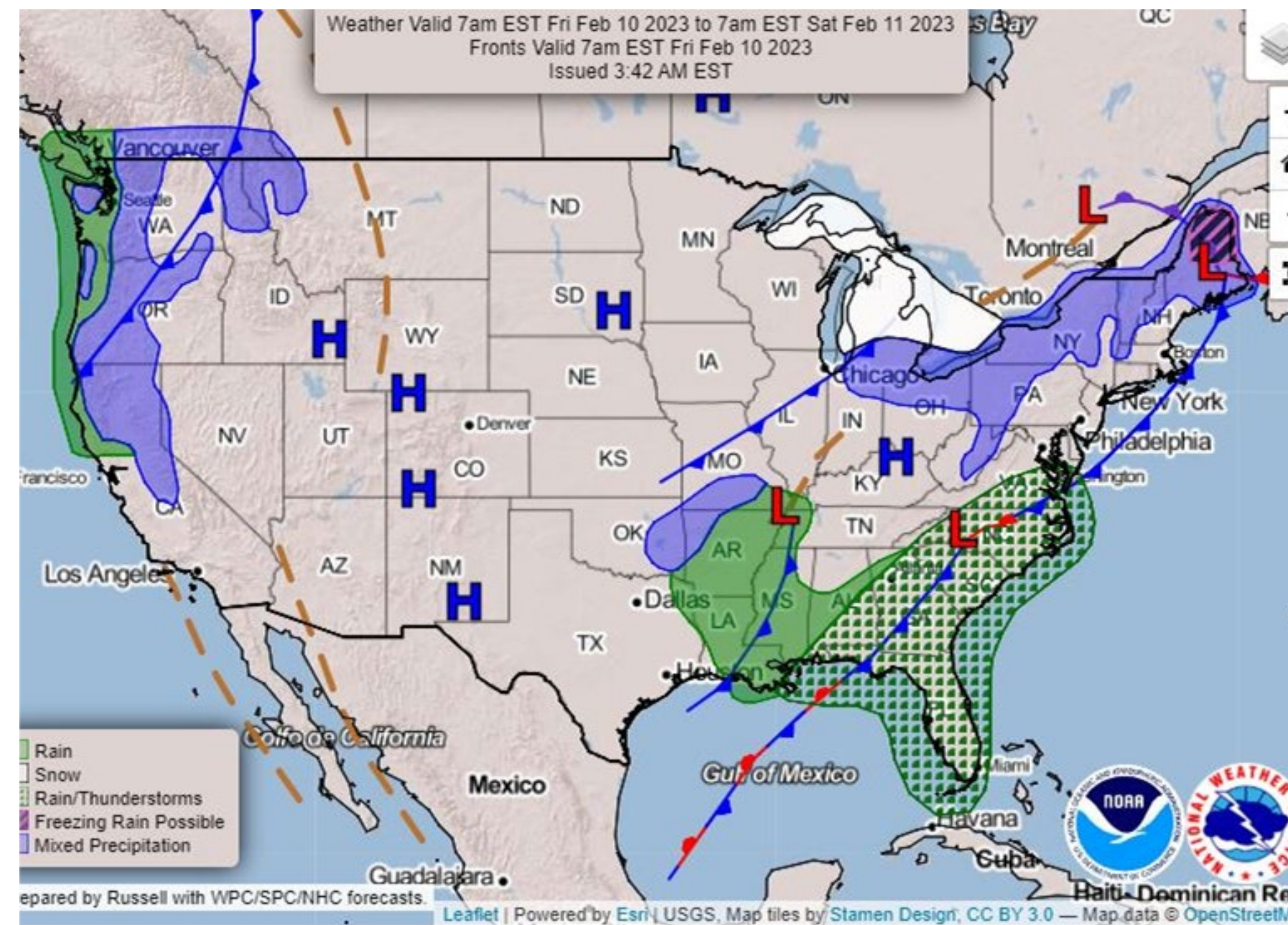
# Upcoming Weather Pattern

Weather Forecast Office  
Pocatello, ID  
Thursday, February 9

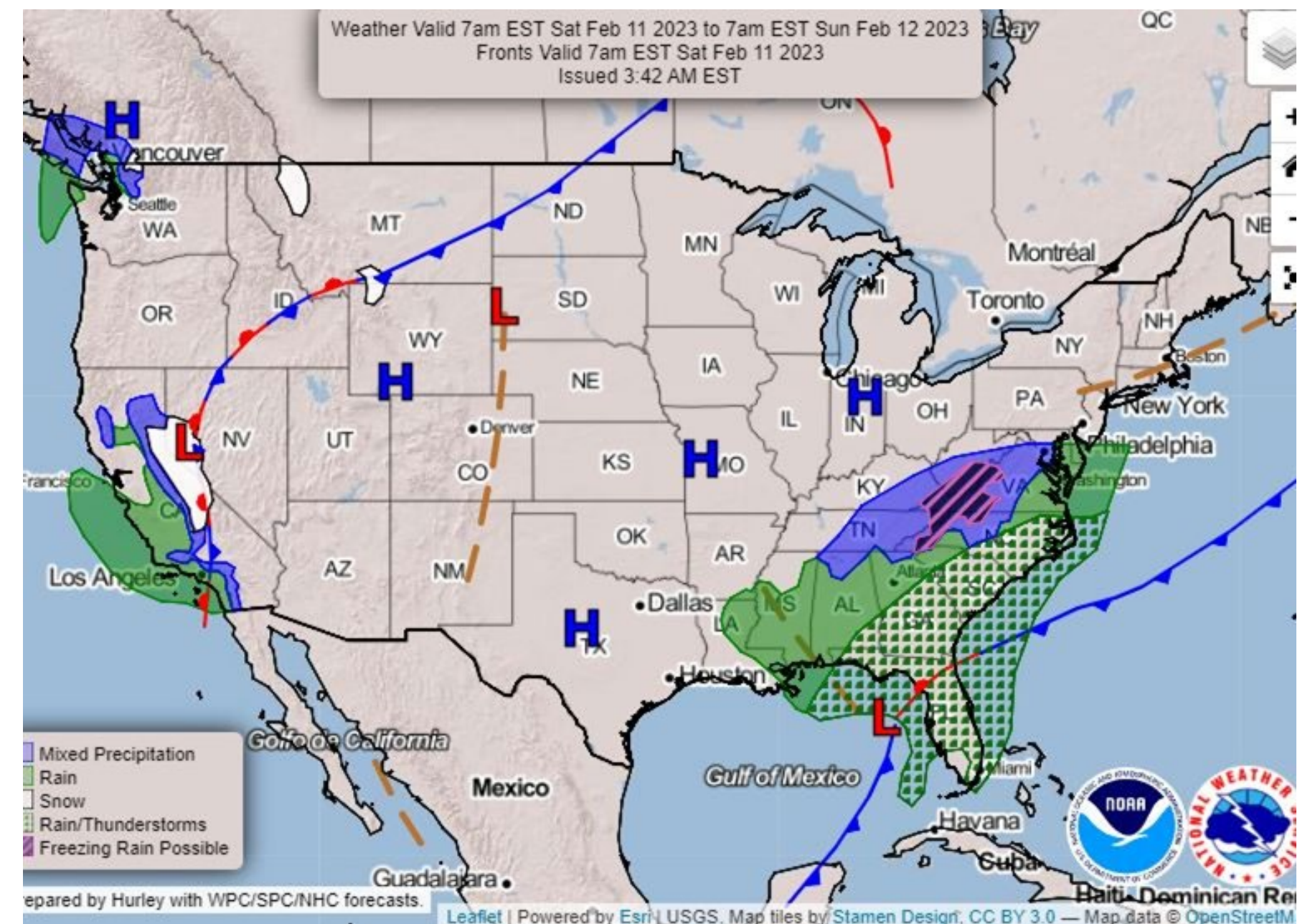
## Today



## Friday



## Saturday





# Short Term Forecast

Weather Forecast Office  
Pocatello, ID  
Thursday, February 9

## High Elevation Forecast (Teton Pass)

### Extended Forecast for 4 Miles W Wilson WY

Today	Tonight	Friday	Friday Night	Saturday	Saturday Night	Sunday	Sunday Night	Monday
								
Sunny	Clear	Sunny	Partly Cloudy	Partly Sunny	Mostly Cloudy	Mostly Sunny	Partly Cloudy	Slight Chance Snow Showers
High: 18 °F	Low: 7 °F	High: 28 °F	Low: 13 °F	High: 29 °F	Low: 11 °F	High: 25 °F	Low: 10 °F	High: 24 °F

## Low Elevation Forecast (Pocatello)

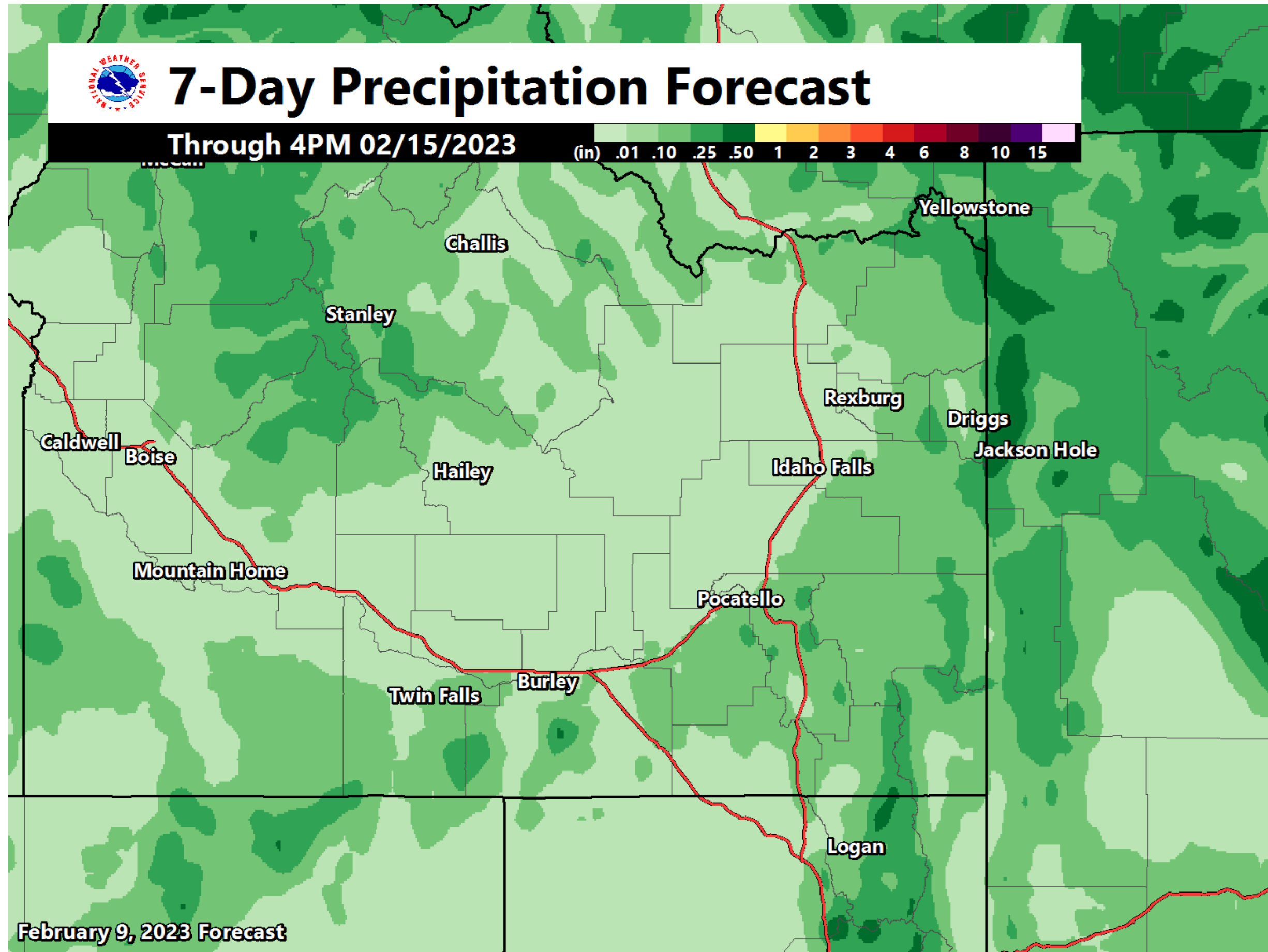
### Extended Forecast for Pocatello ID

Today	Tonight	Friday	Friday Night	Saturday	Saturday Night	Sunday	Sunday Night	Monday
								
Sunny	Mostly Clear	Sunny	Increasing Clouds	Partly Sunny	Partly Cloudy	Partly Sunny	Partly Cloudy	Partly Sunny
High: 31 °F	Low: 15 °F	High: 36 °F	Low: 17 °F	High: 35 °F	Low: 15 °F	High: 32 °F	Low: 15 °F	High: 35 °F



# 7 Day Precipitation Forecast - Monday-Tuesday

Weather Forecast Office  
Pocatello, ID  
Thursday, February 9

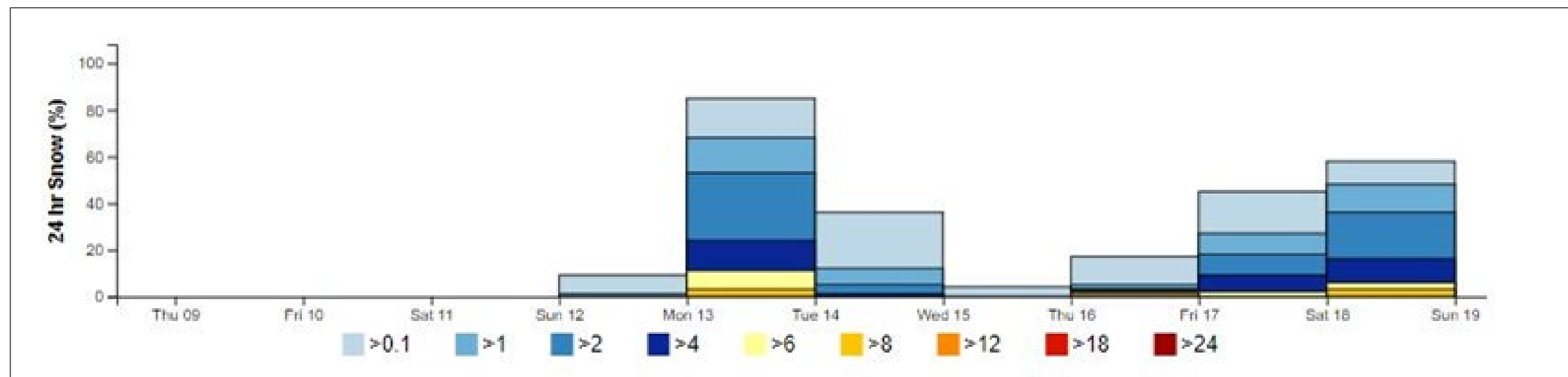




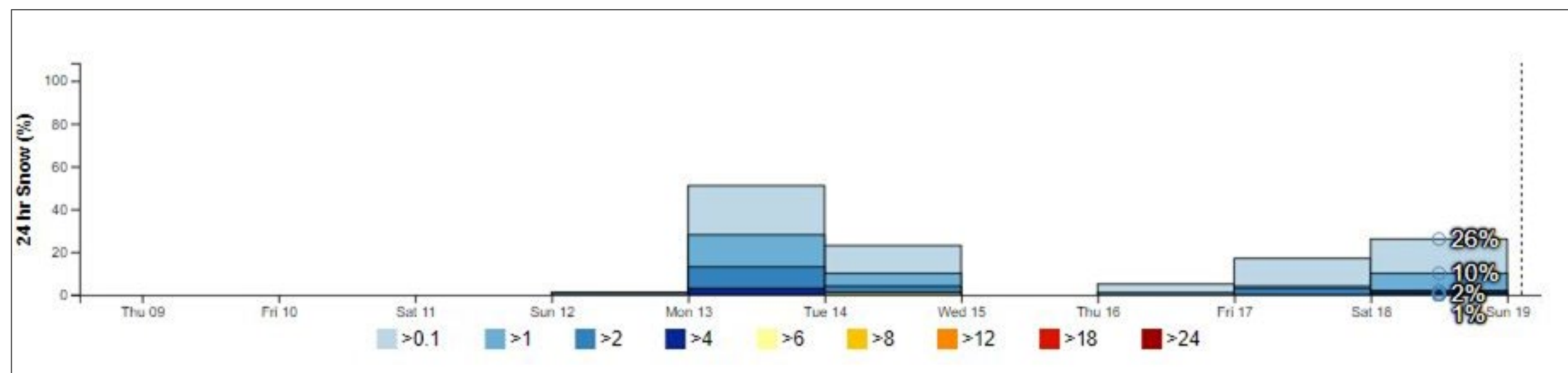
# 7 Day Snow Forecast

Weather Forecast Office  
Pocatello, ID  
Thursday, February 9

## Teton Pass



## Pocatello





# Middle of February

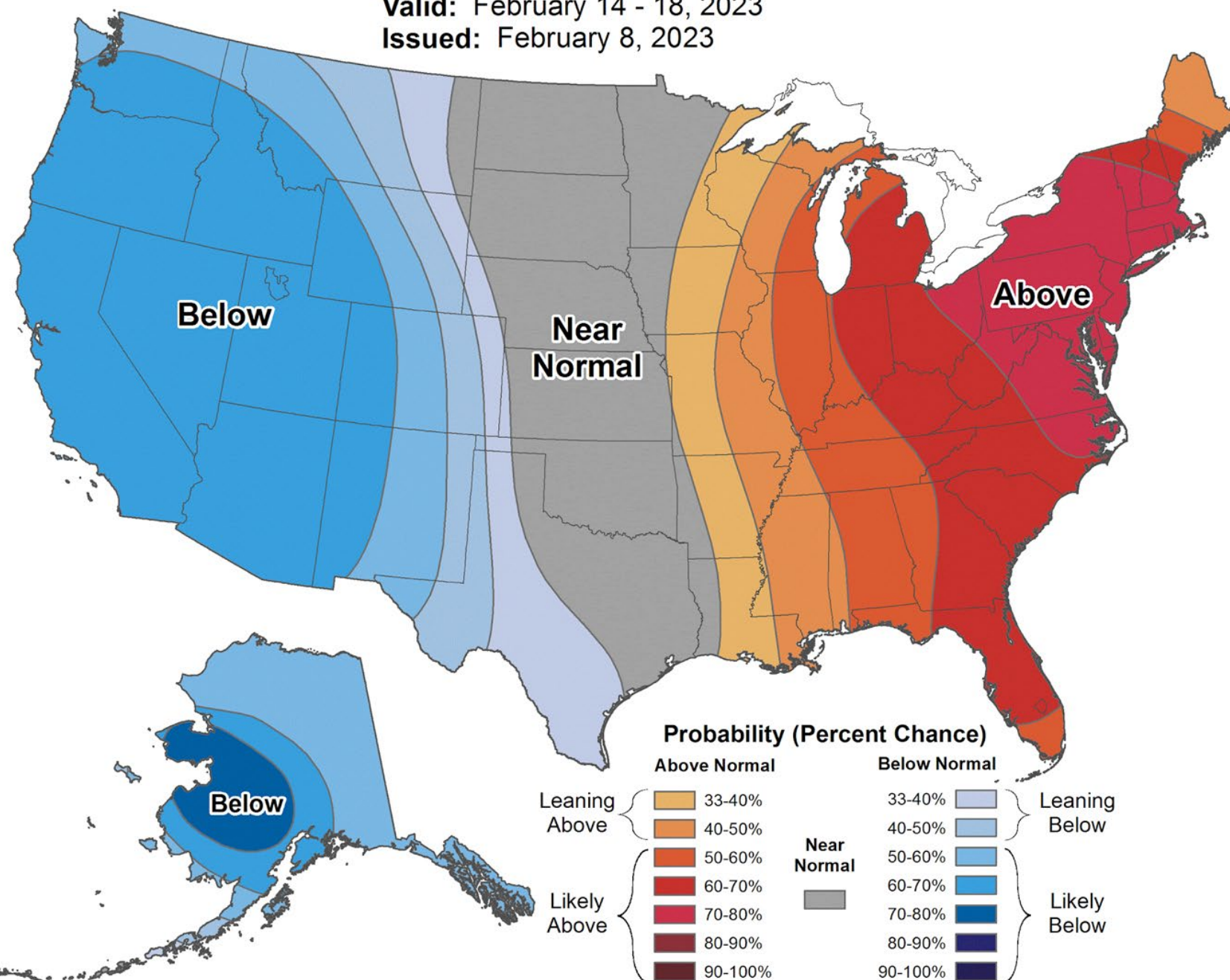
Weather Forecast Office  
Pocatello, ID  
Thursday, February 9



## 6-10 Day Temperature Outlook



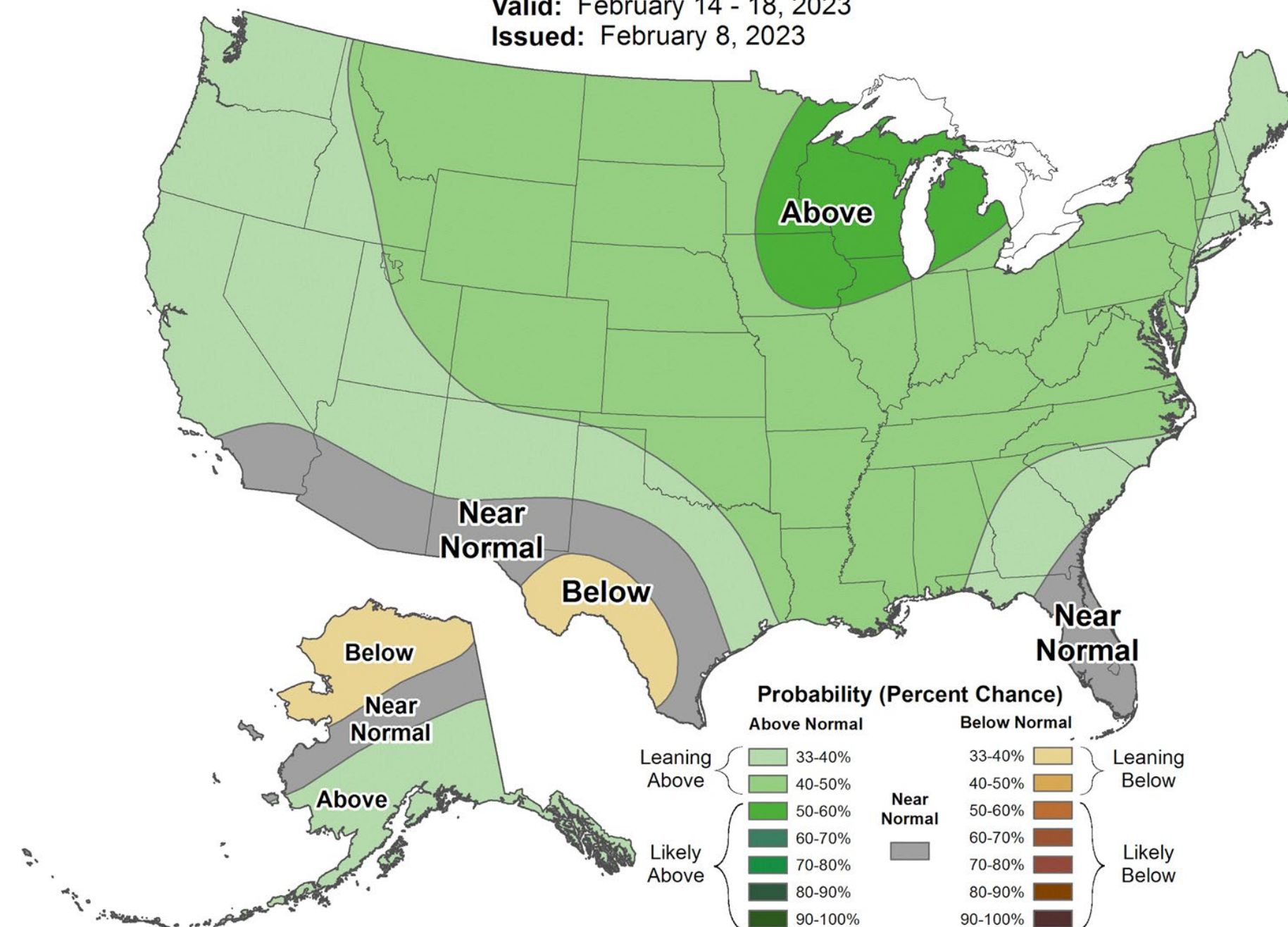
Valid: February 14 - 18, 2023  
Issued: February 8, 2023



## 6-10 Day Precipitation Outlook



Valid: February 14 - 18, 2023  
Issued: February 8, 2023

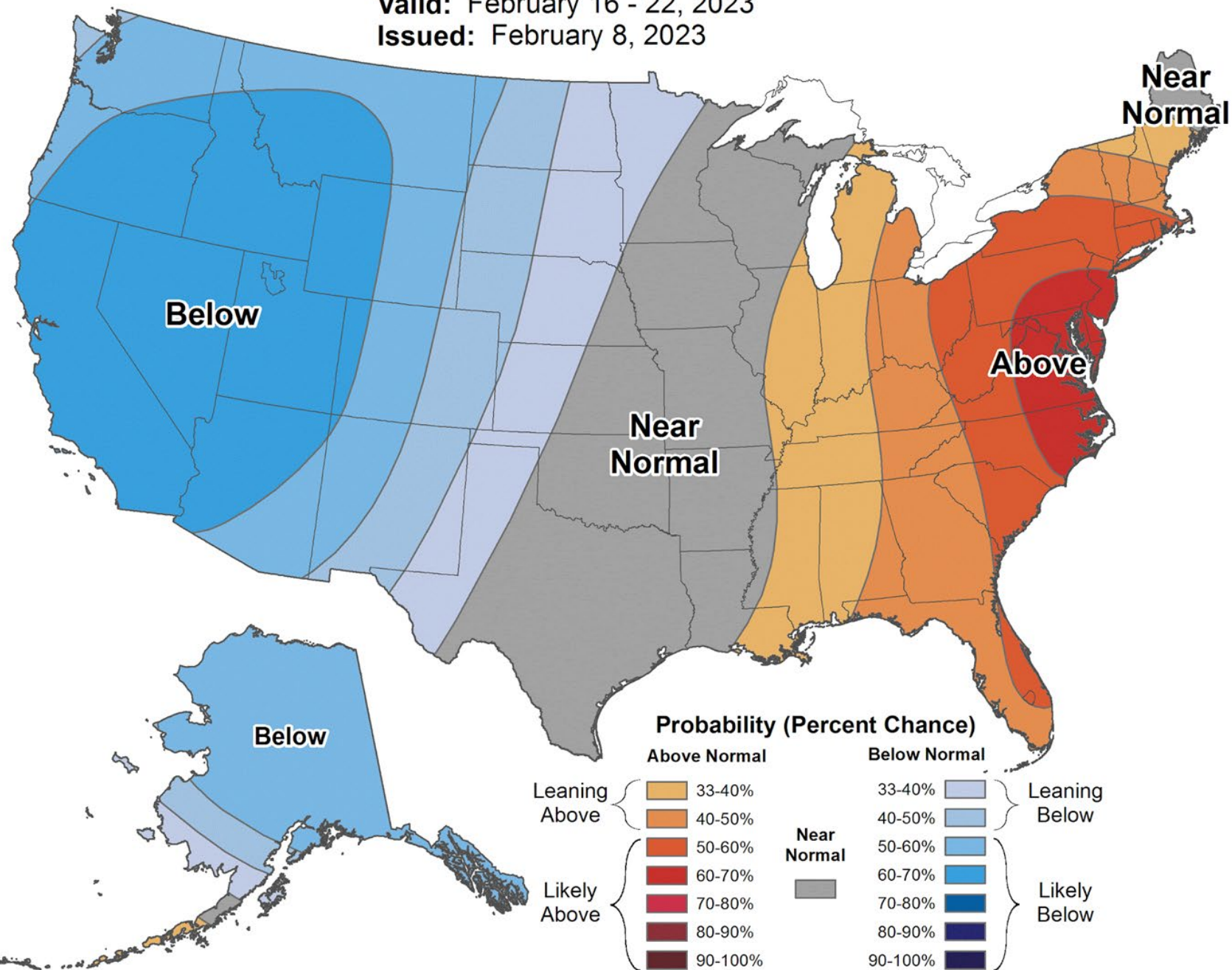




## 8-14 Day Temperature Outlook



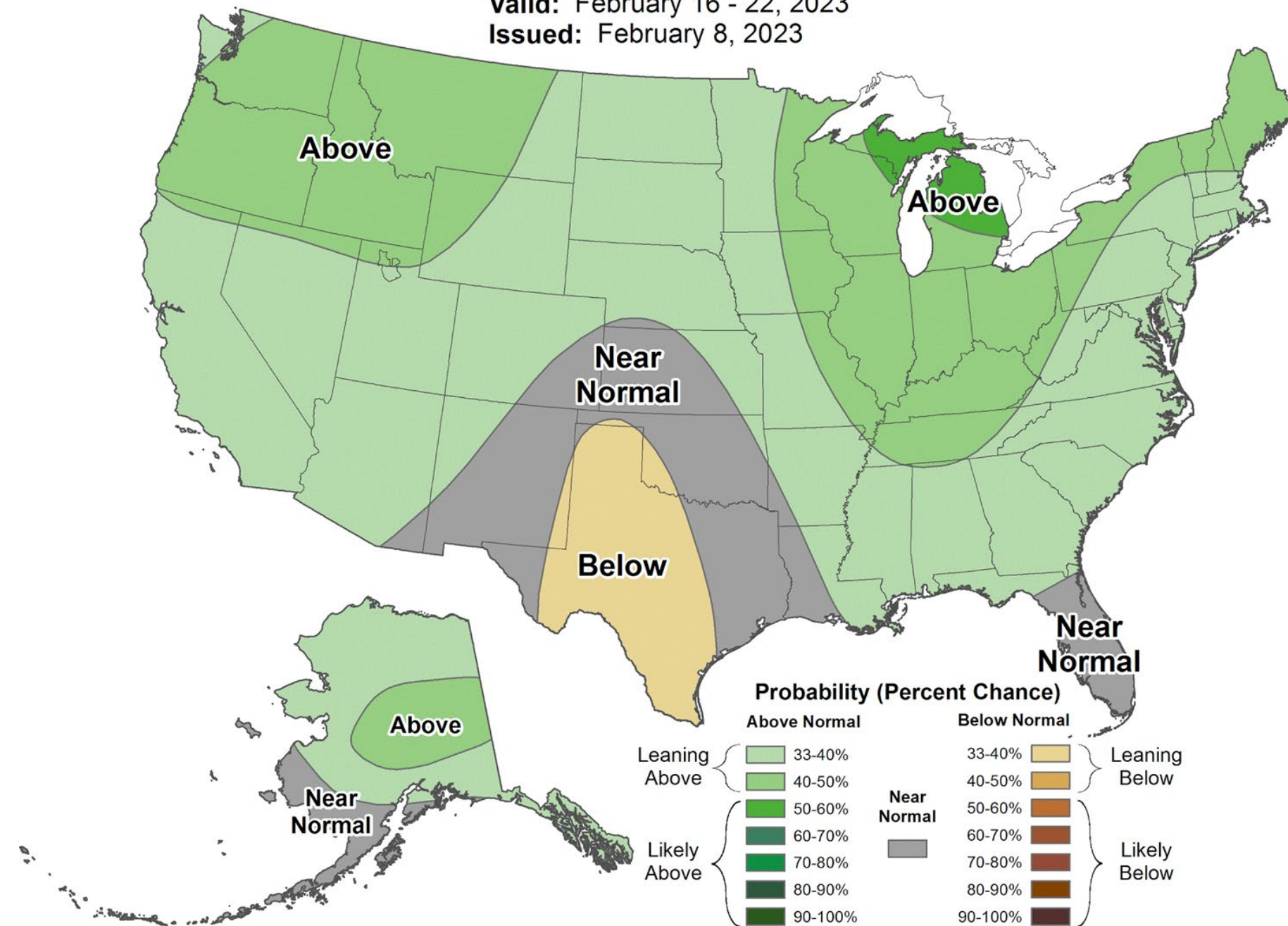
Valid: February 16 - 22, 2023  
Issued: February 8, 2023



## 8-14 Day Precipitation Outlook



Valid: February 16 - 22, 2023  
Issued: February 8, 2023



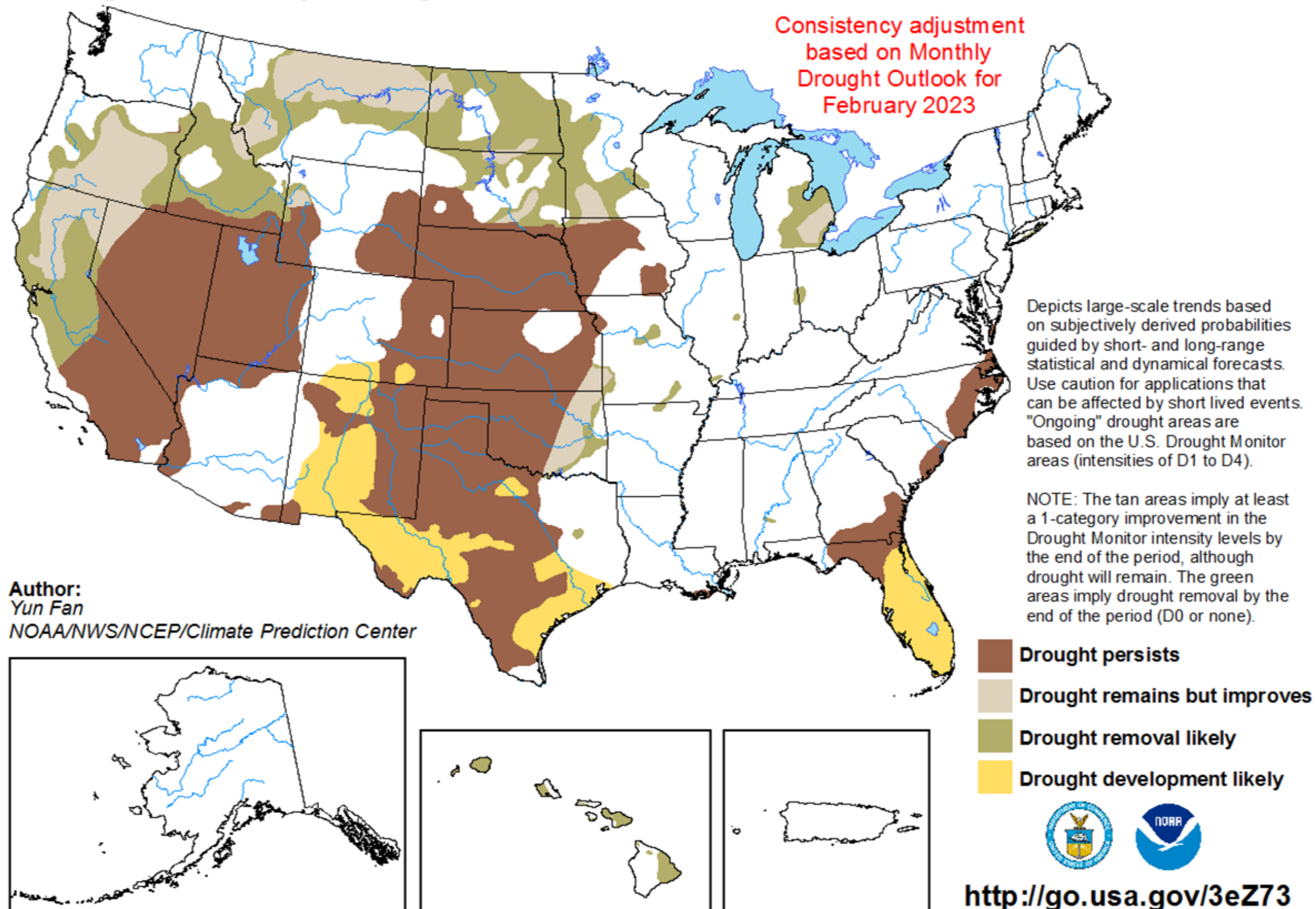


# Seasonal Drought Outlook

Weather Forecast Office  
Pocatello, ID  
Thursday, February 9

## U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for February 1 - April 30, 2023  
Released January 31, 2023



<http://go.usa.gov/3eZ73>



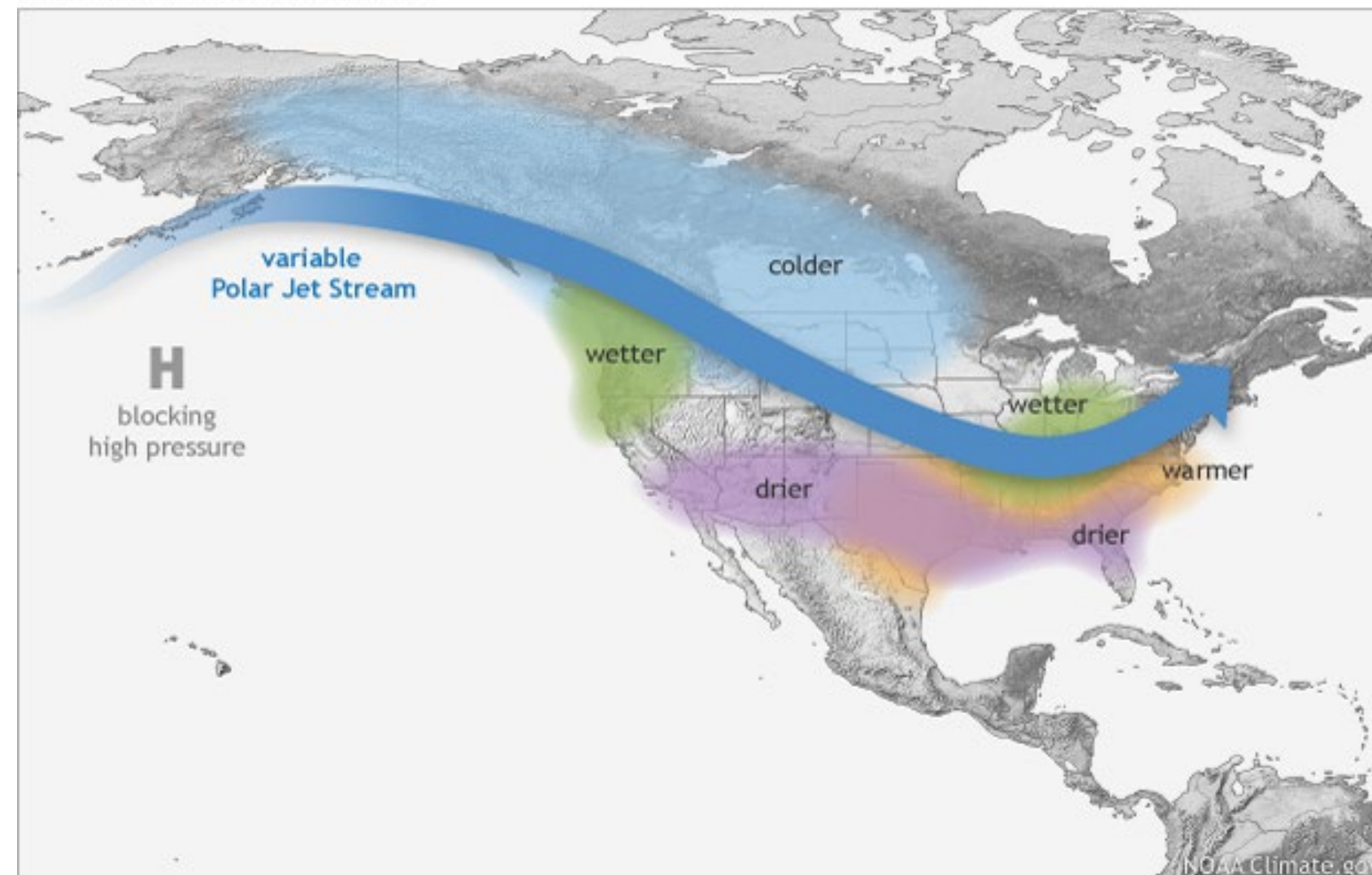
Weather Forecast Office  
Pocatello, ID  
Thursday, February 9

# Looking Ahead: Seasonal Outlook

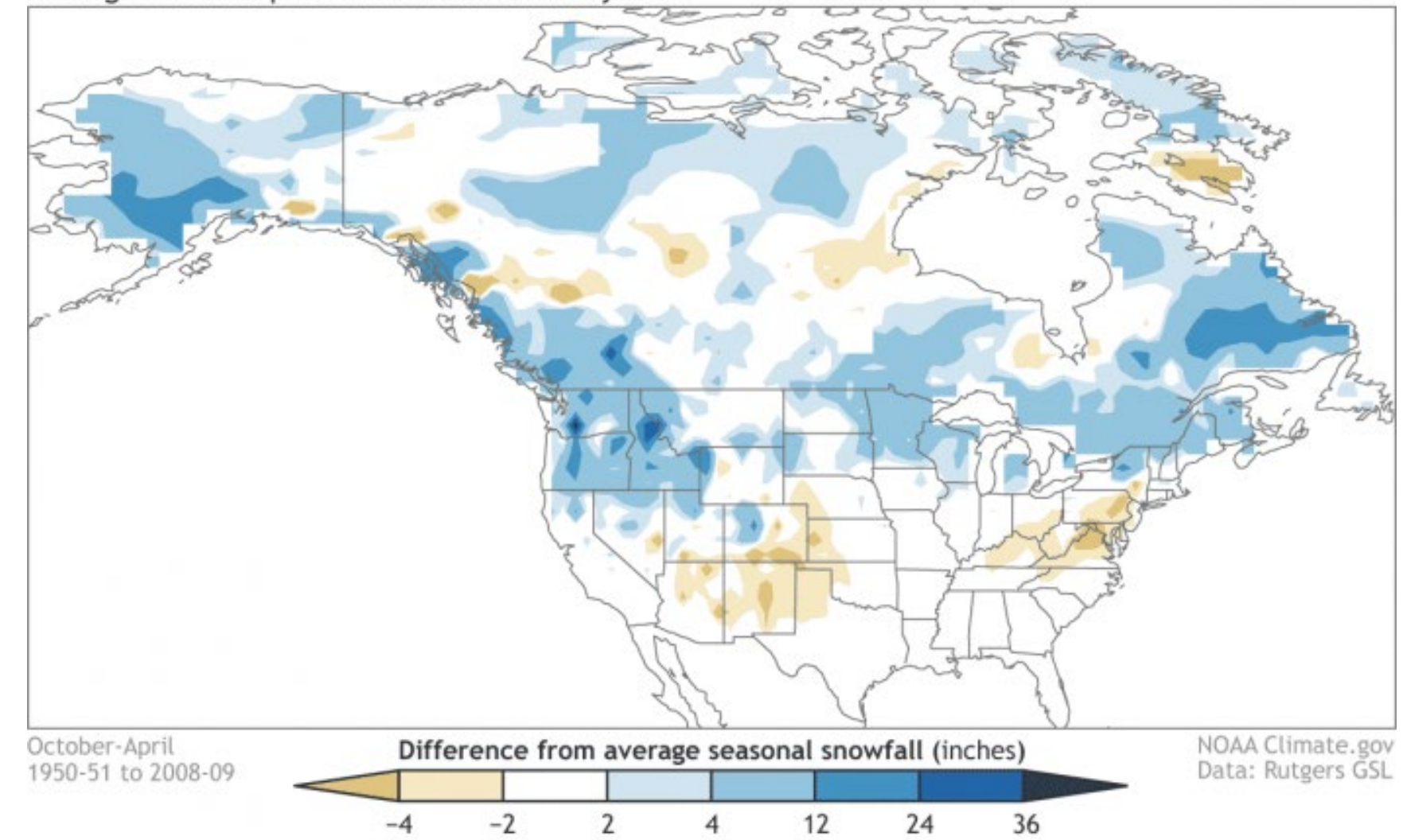


## La Nina Conditions

WINTERTIME LA NIÑA PATTERN



Average snowfall patterns for all La Niña years



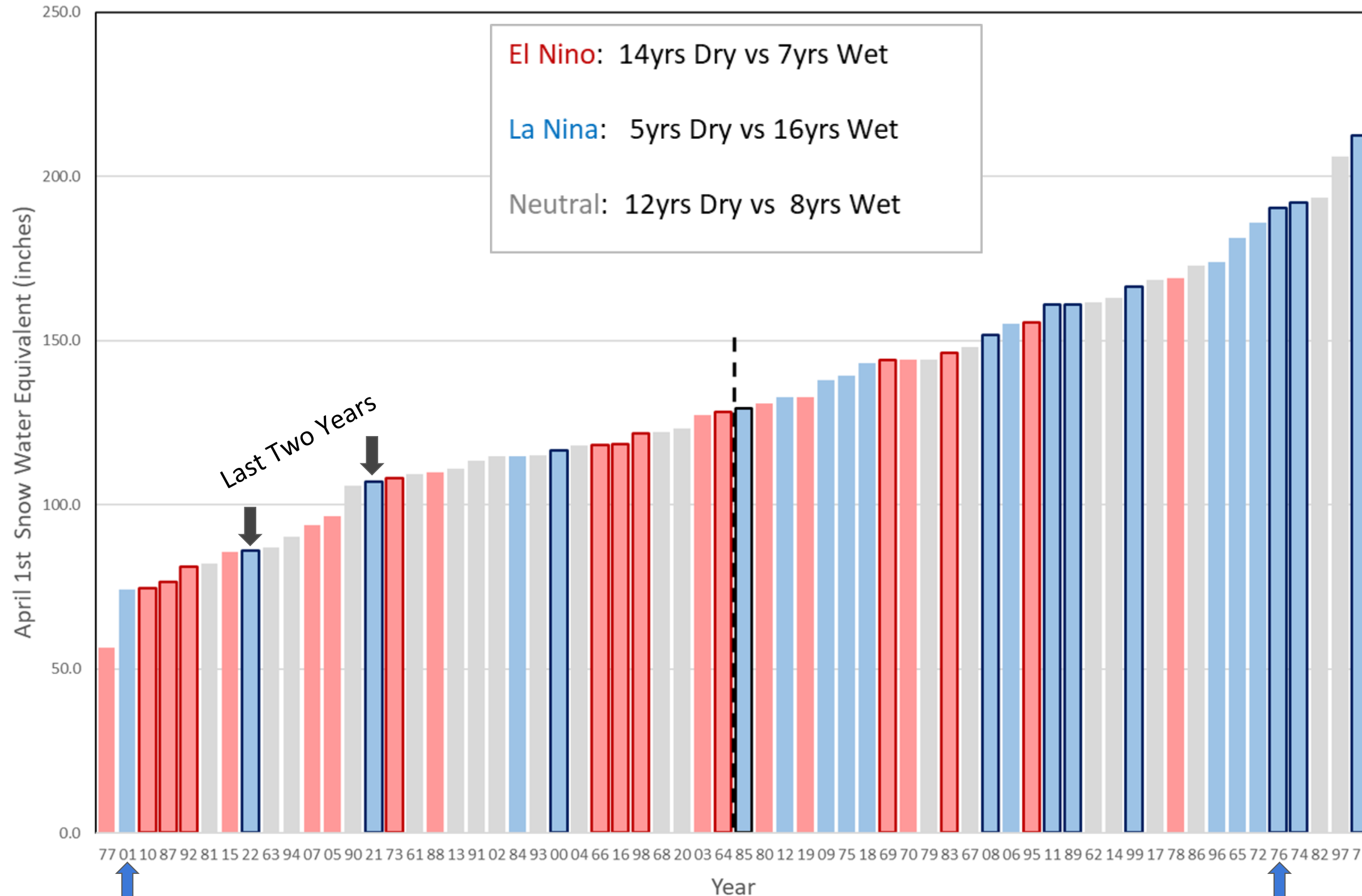


# April 1st SWE during ENSO Phases

Weather Forecast Office  
Pocatello, ID  
Thursday, February 9

## April 1st Total Snow Water Equivalent

Snake River Basin above Jackson Lake

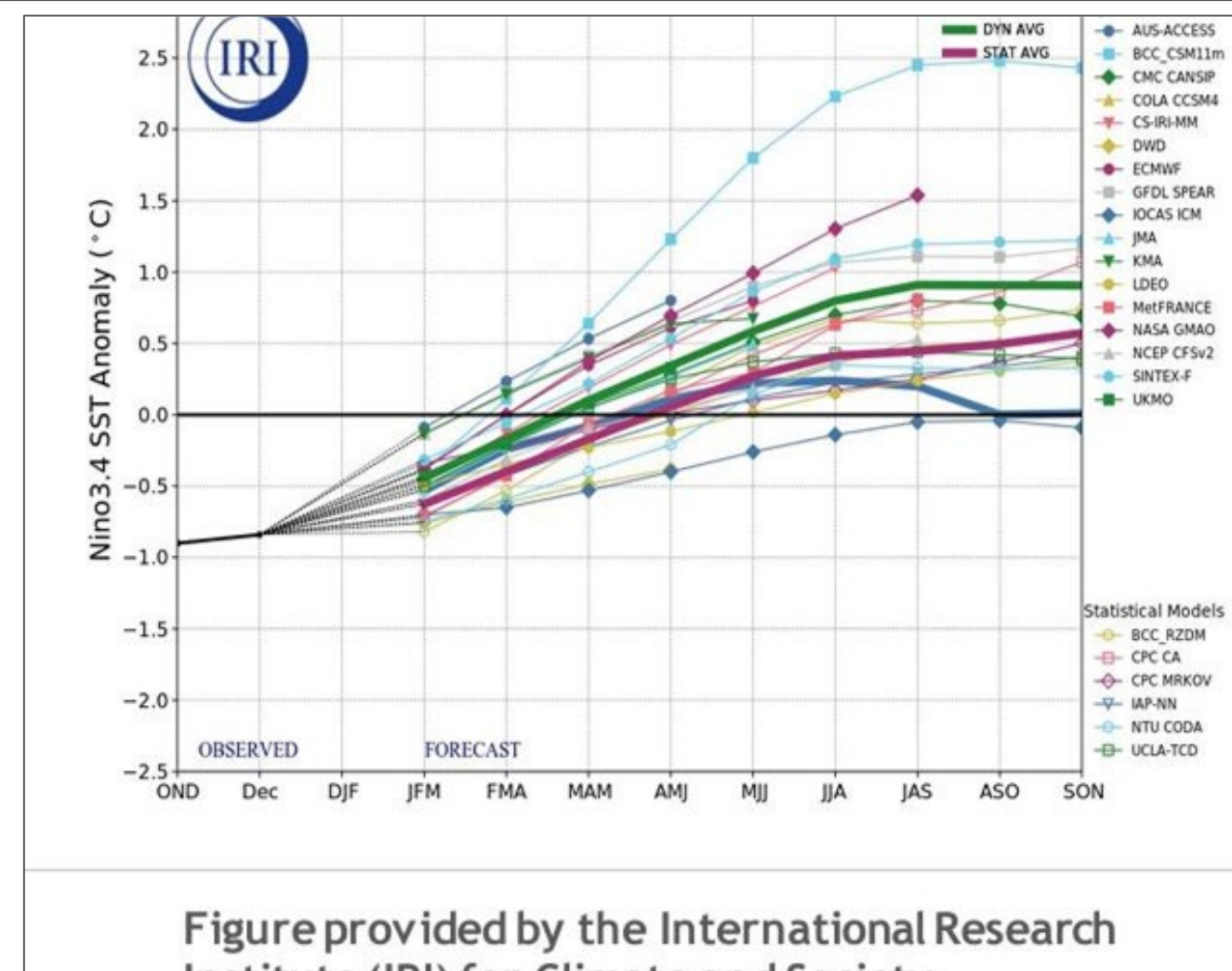


La Nina generally favors wetter conditions

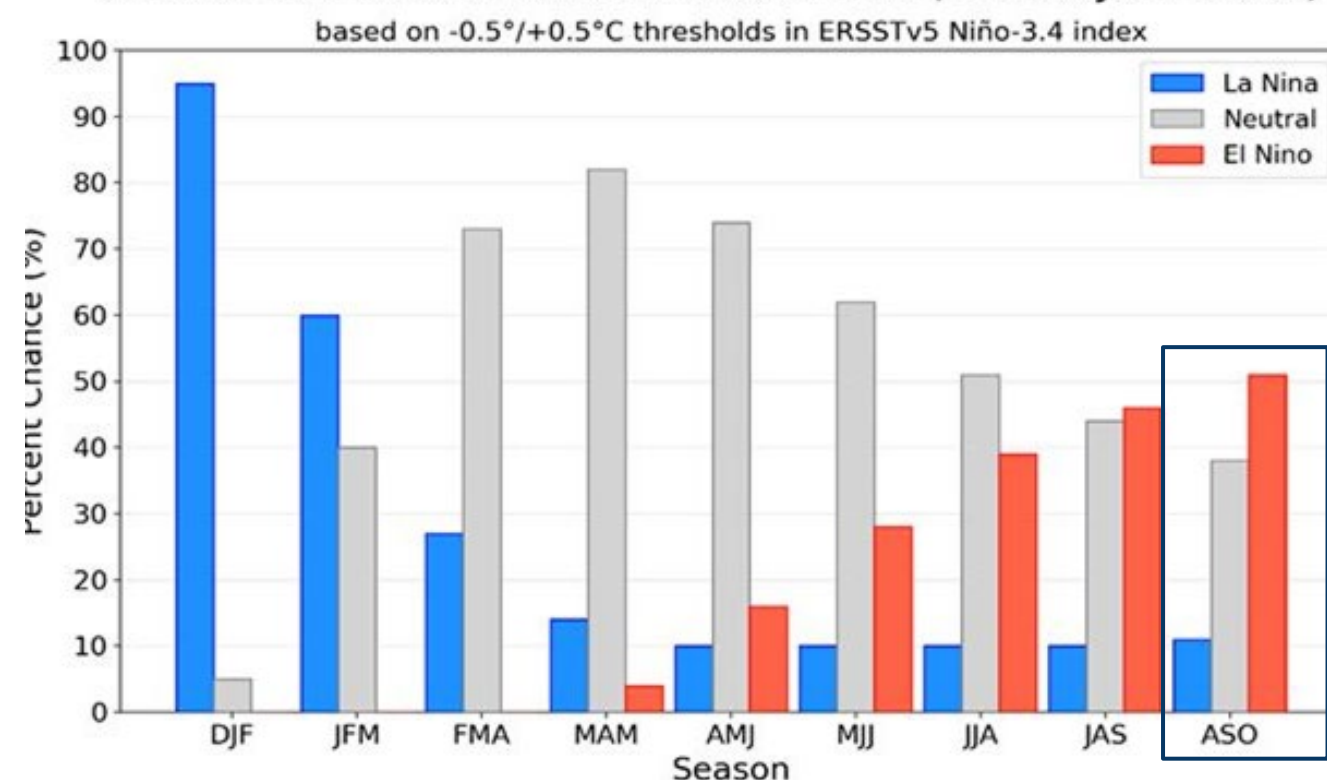
Triple-dip La Ninas

Oceanic Nino Indices

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2010	1.5	1.2	0.8	0.4	-0.2	-0.7	-1.0	-1.3	-1.6	-1.6	-1.6	-1.6
2011	-1.4	-1.2	-0.9	-0.7	-0.6	-0.4	-0.5	-0.6	-0.8	-1.0	-1.1	-1.0
2012	-0.9	-0.7	-0.6	-0.5	-0.3	0.0	0.2	0.4	0.4	0.3	0.1	-0.2
2013	-0.4	-0.4	-0.3	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.3
2014	-0.4	-0.5	-0.3	0.0	0.2	0.2	0.0	0.1	0.2	0.5	0.6	0.7
2015	0.5	0.5	0.5	0.7	0.9	1.2	1.5	1.9	2.2	2.4	2.6	2.6
2016	2.5	2.1	1.6	0.9	0.4	-0.1	-0.4	-0.5	-0.6	-0.7	-0.7	-0.6
2017	-0.3	-0.2	0.1	0.2	0.3	0.3	0.1	-0.1	-0.4	-0.7	-0.8	-1.0
2018	-0.9	-0.9	-0.7	-0.5	-0.2	0.0	0.1	0.2	0.5	0.8	0.9	0.8
2019	0.7	0.7	0.7	0.7	0.5	0.5	0.3	0.1	0.2	0.3	0.5	0.5
2020	0.5	0.5	0.4	0.2	-0.1	-0.3	-0.4	-0.6	-0.9	-1.2	-1.3	-1.2
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1	-1.0	-0.9	-0.8	-0.9	-1.0	-1.0	-0.9	-0.8



Official NOAA CPC ENSO Probabilities (issued Jan. 2023)



La Nina is coming to an end:

A transition from La Nina to ENSO-neutral is most likely during the February-April 2023

By March-May 2023, the chance for ENSO-neutral is 82%.

The last time we went from La Nina to El Nino the next winter was 2018



# 3 to 4 Week Outlooks

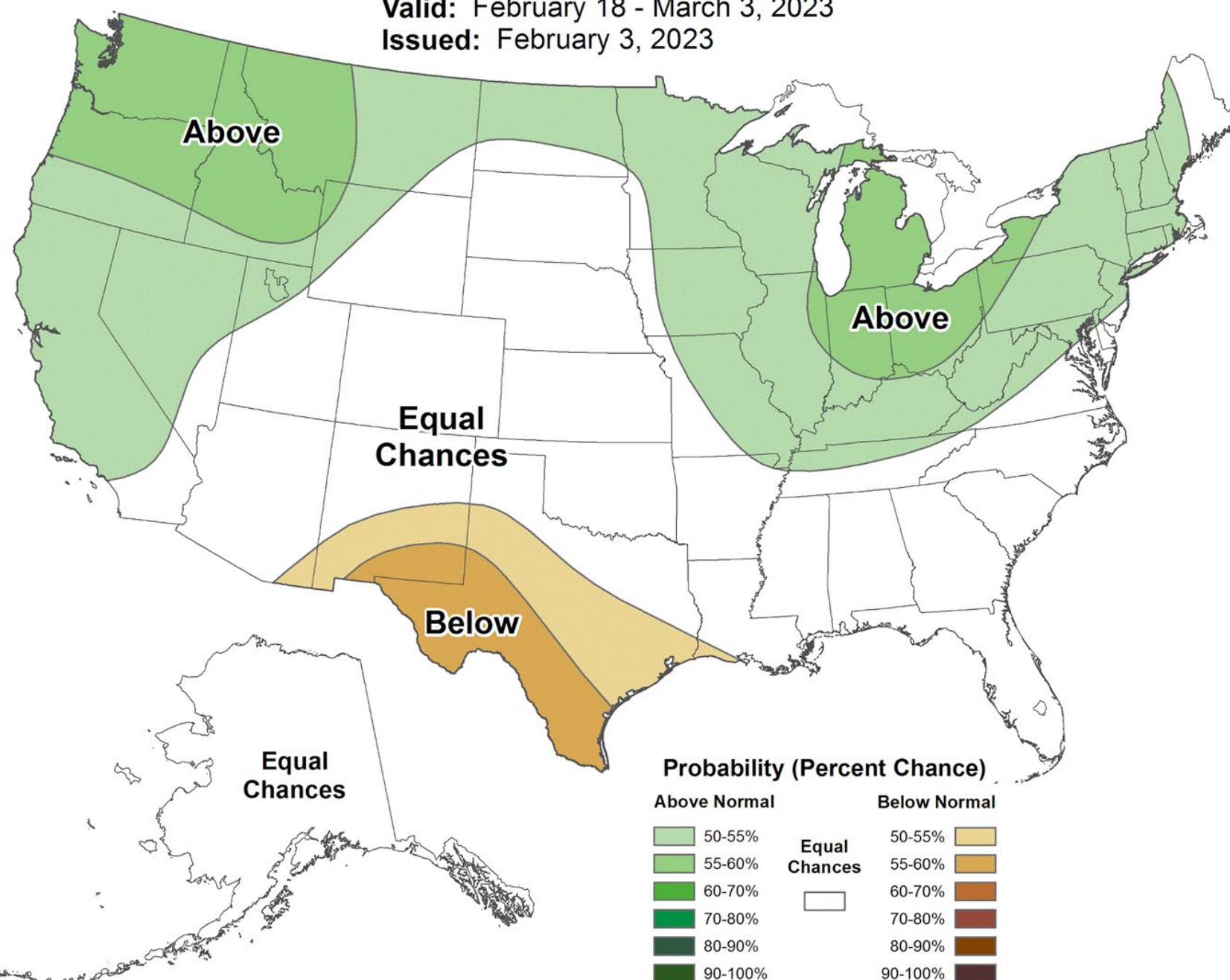
Weather Forecast Office  
Pocatello, ID  
Thursday, February 9



## Weeks 3-4 Precipitation Outlook



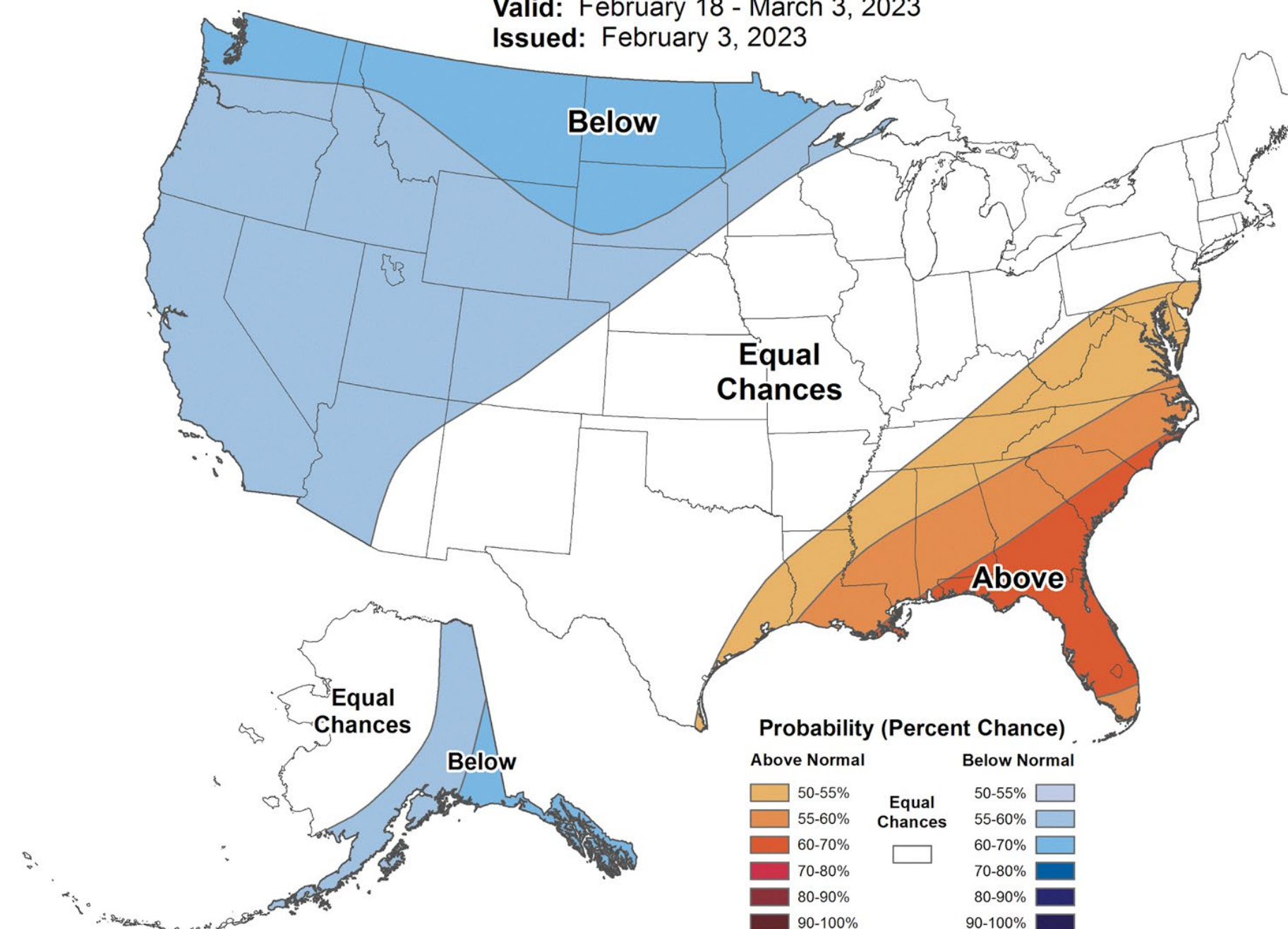
Valid: February 18 - March 3, 2023  
Issued: February 3, 2023



## Weeks 3-4 Temperature Outlook



Valid: February 18 - March 3, 2023  
Issued: February 3, 2023

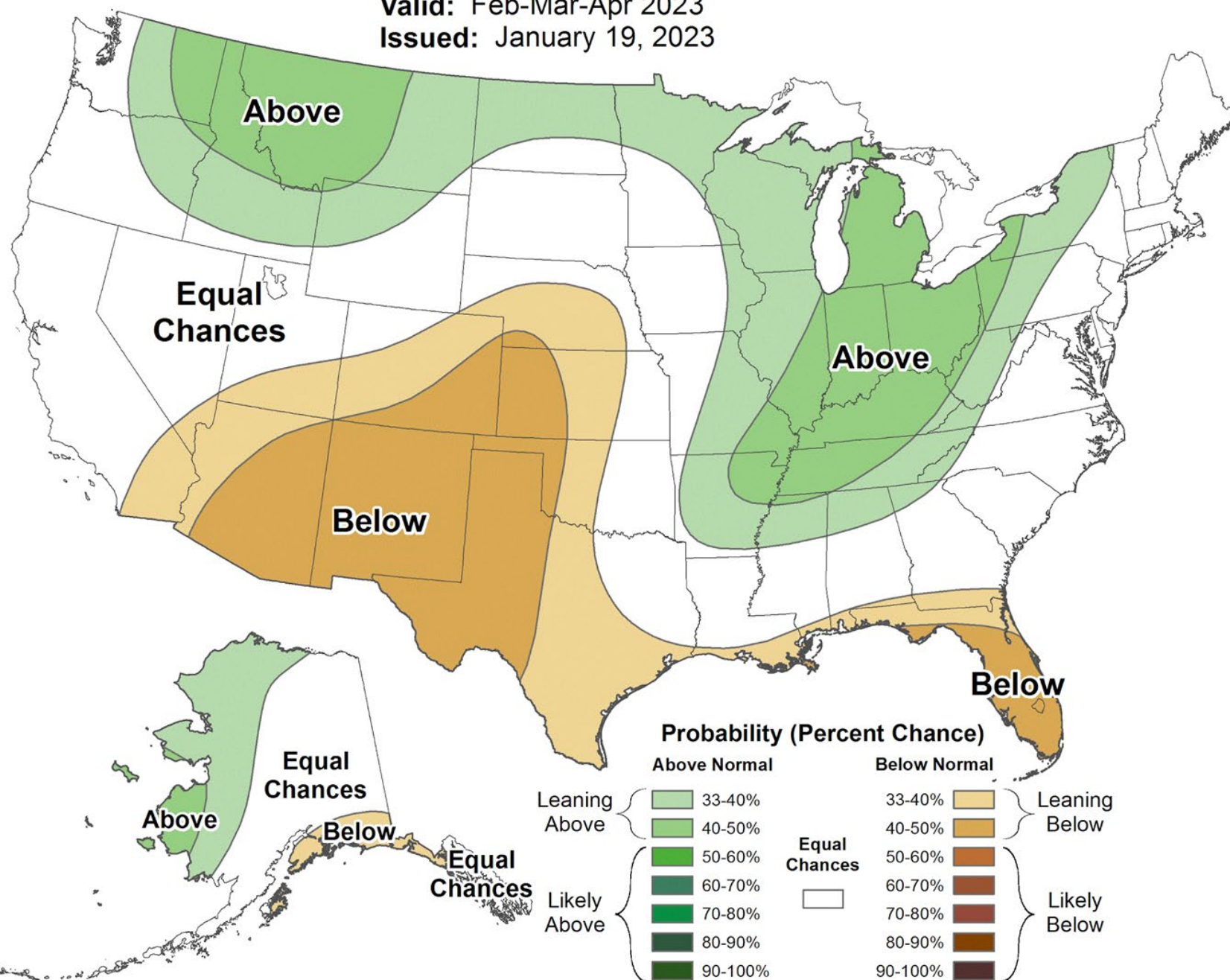




## Seasonal Precipitation Outlook



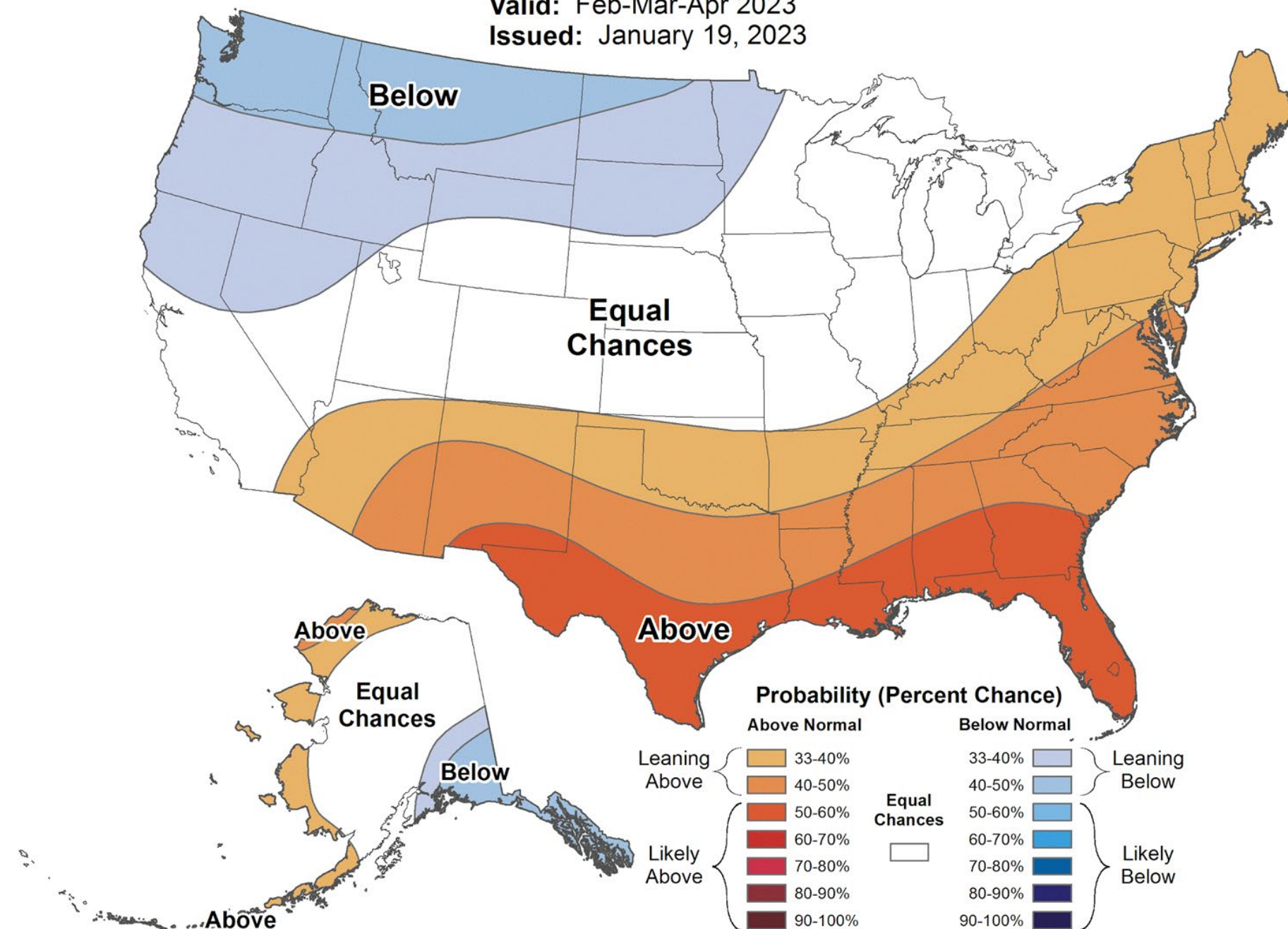
Valid: Feb-Mar-Apr 2023  
Issued: January 19, 2023



## Seasonal Temperature Outlook



Valid: Feb-Mar-Apr 2023  
Issued: January 19, 2023





# 3 Month Precipitation Outlook

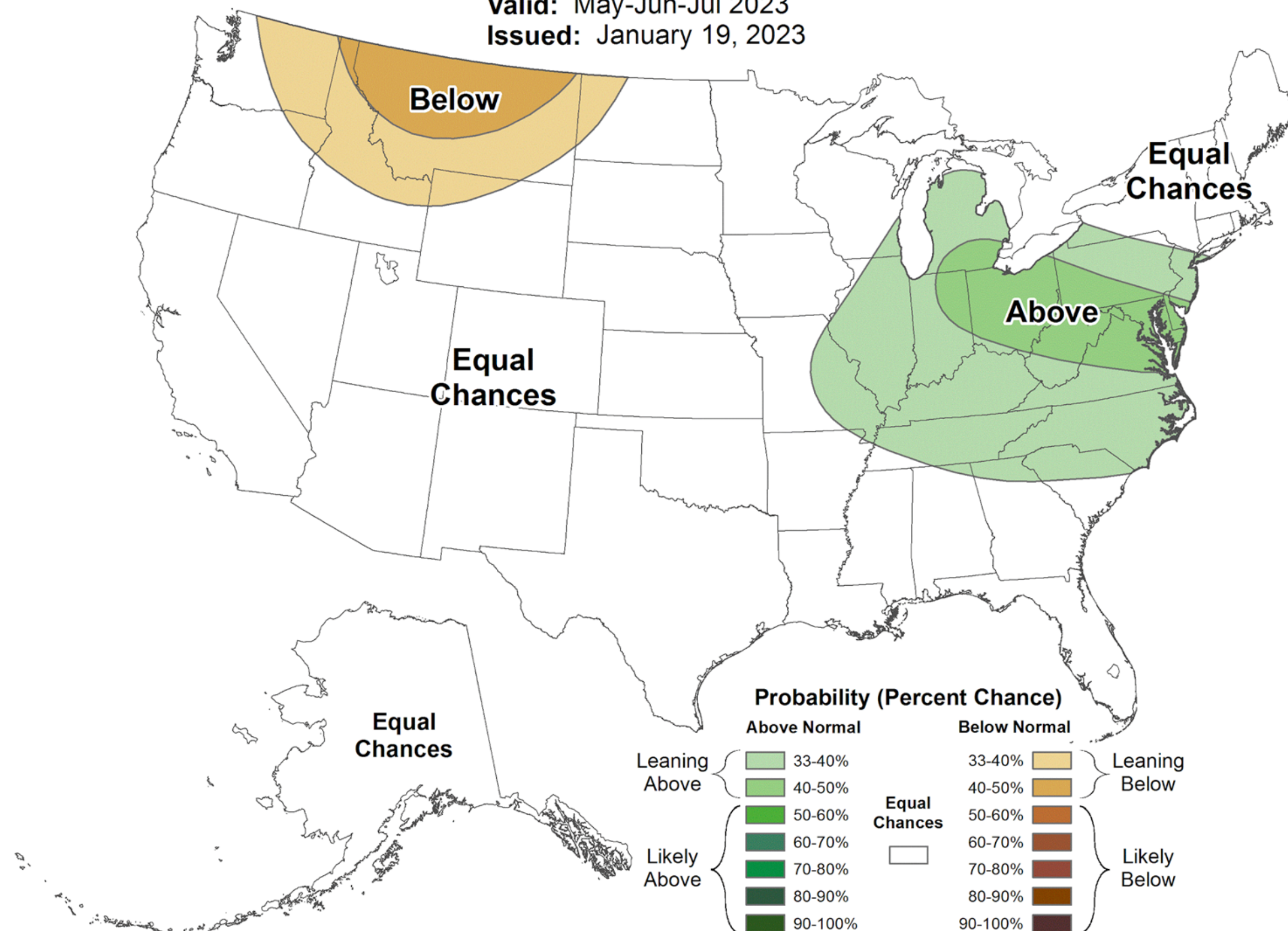
Weather Forecast Office  
Pocatello, ID  
Thursday, February 9



## Seasonal Precipitation Outlook



Valid: May-Jun-Jul 2023  
Issued: January 19, 2023





# 3 Month Temperature Outlook

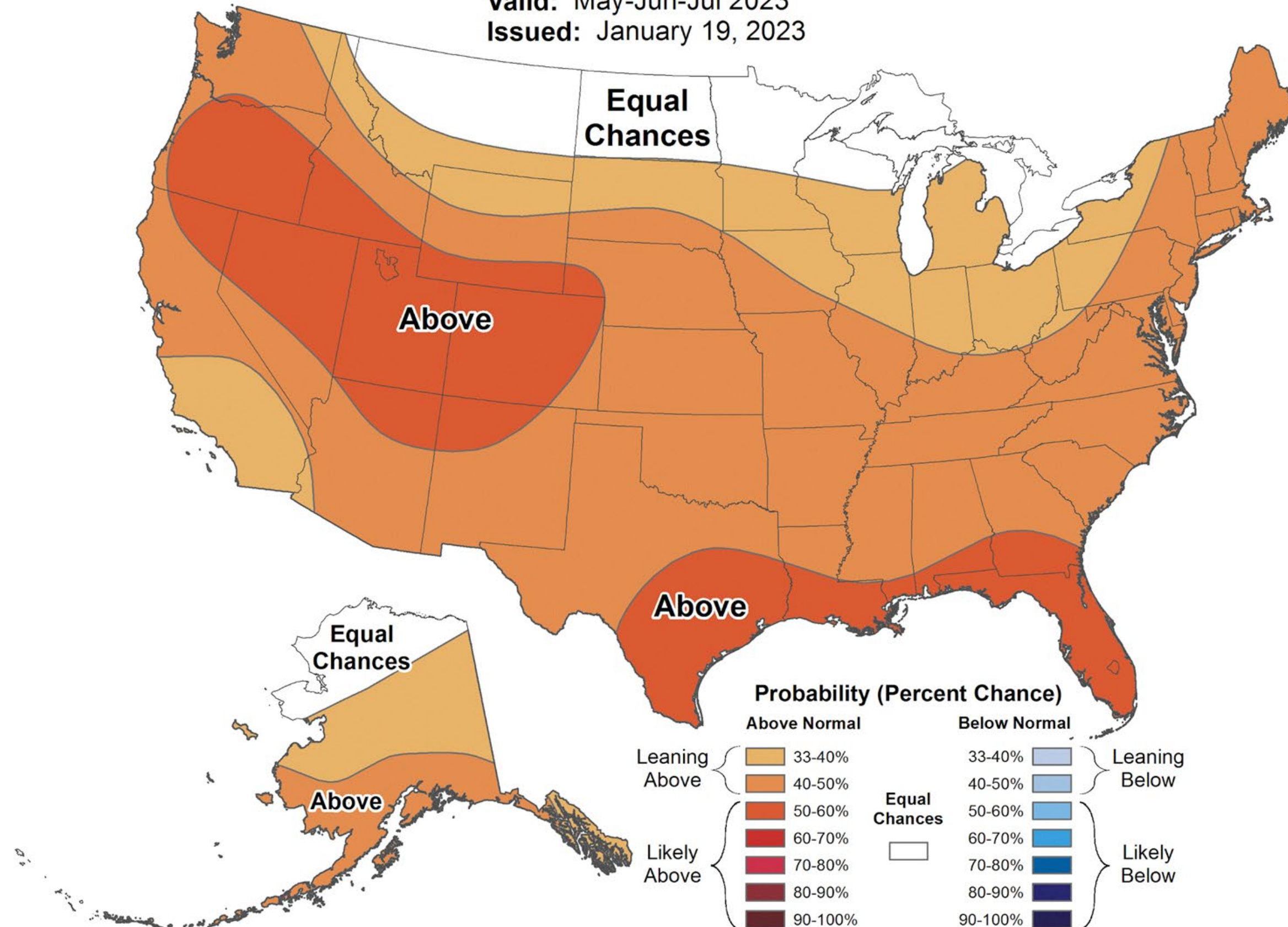
Weather Forecast Office  
Pocatello, ID  
Thursday, February 9



## Seasonal Temperature Outlook



Valid: May-Jun-Jul 2023  
Issued: January 19, 2023





# Thank You Any Questions?



[pocatello.weather@noaa.gov](mailto:pocatello.weather@noaa.gov)



208-233-0834



[weather.gov/pocatello](https://weather.gov/pocatello)






# Water Supply Update

*Upper Snake River Advisory Committee  
February 08, 2023*

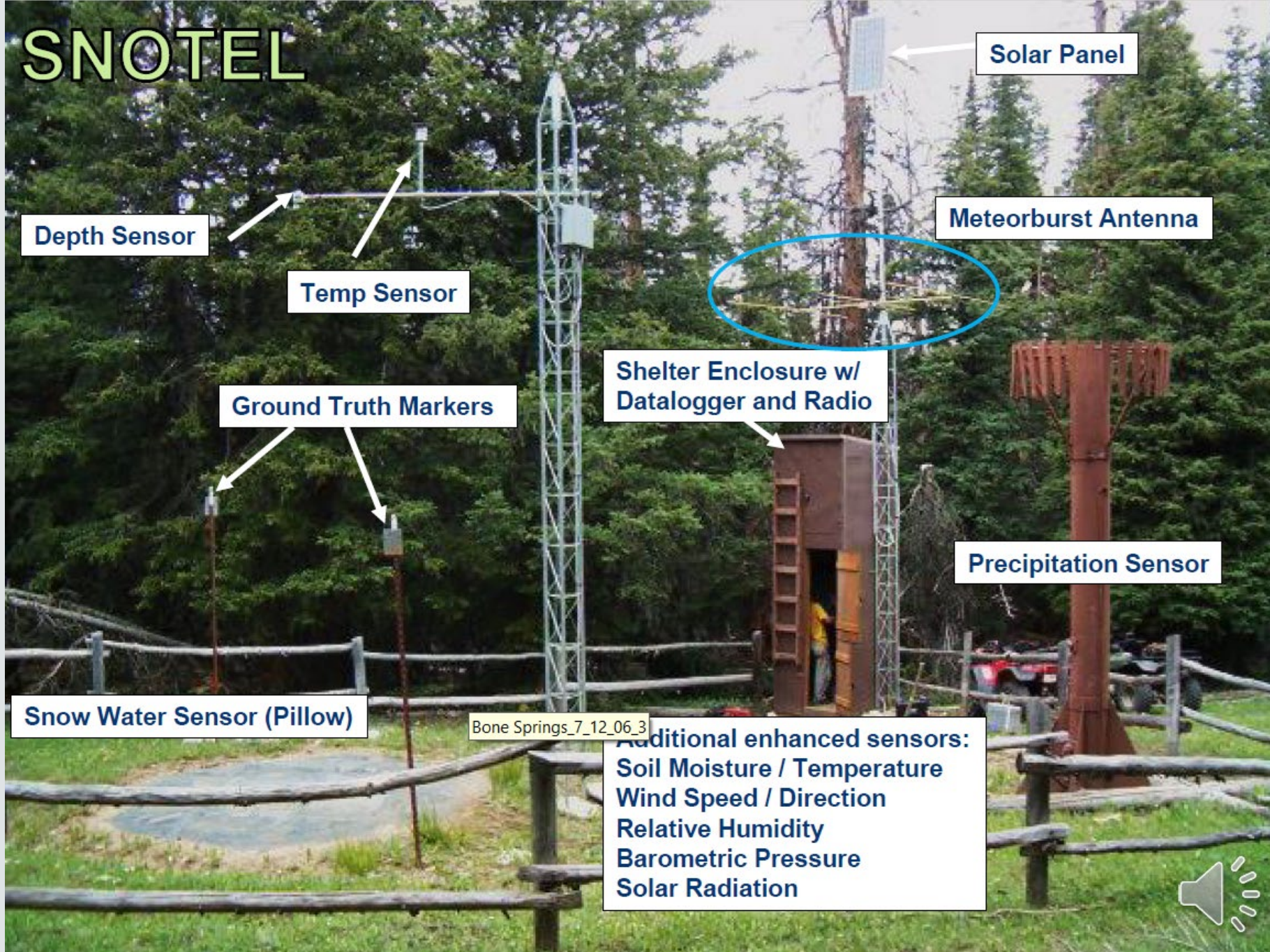


Presented by Erin  
Whorton



# Water Year Total Precipitation

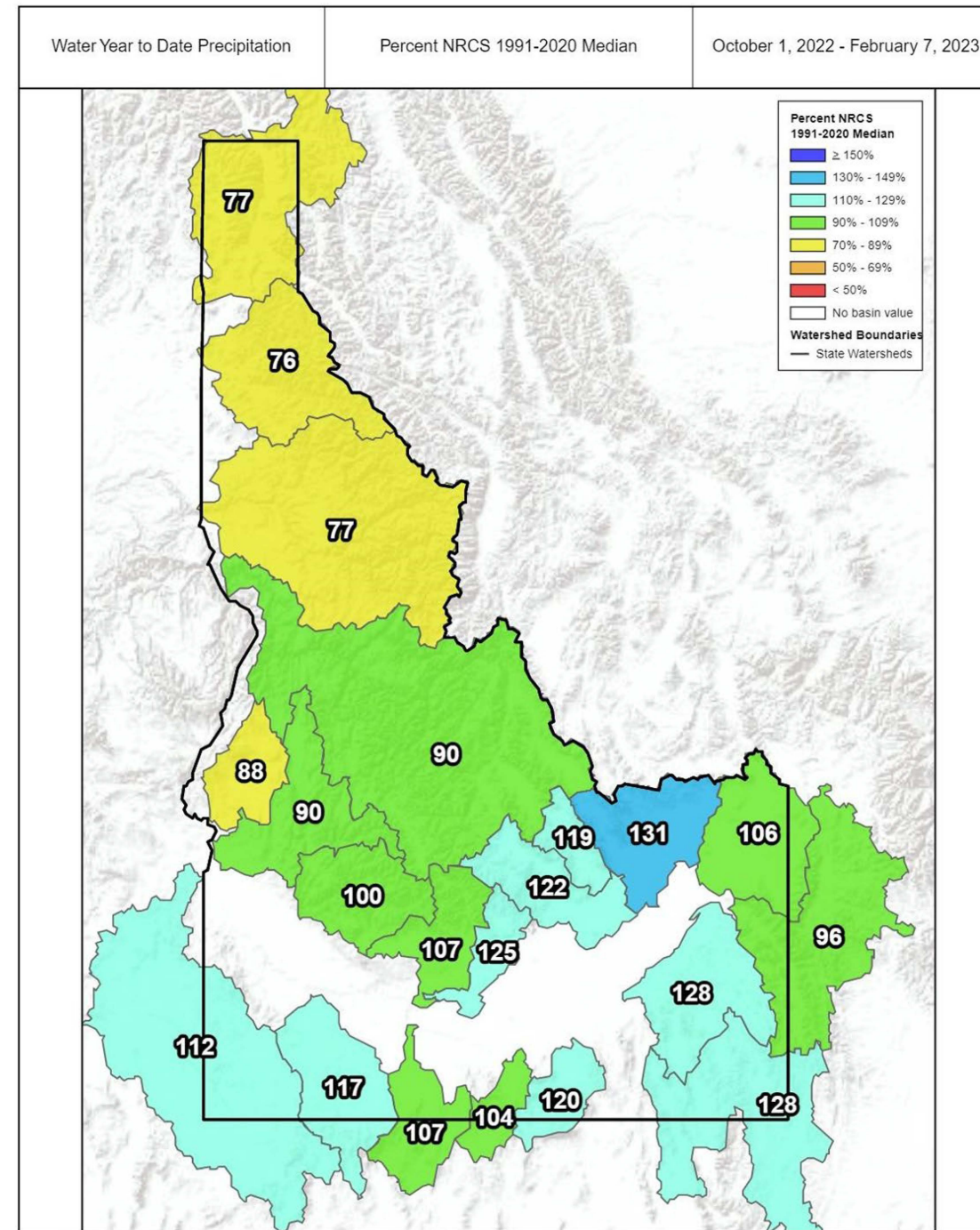
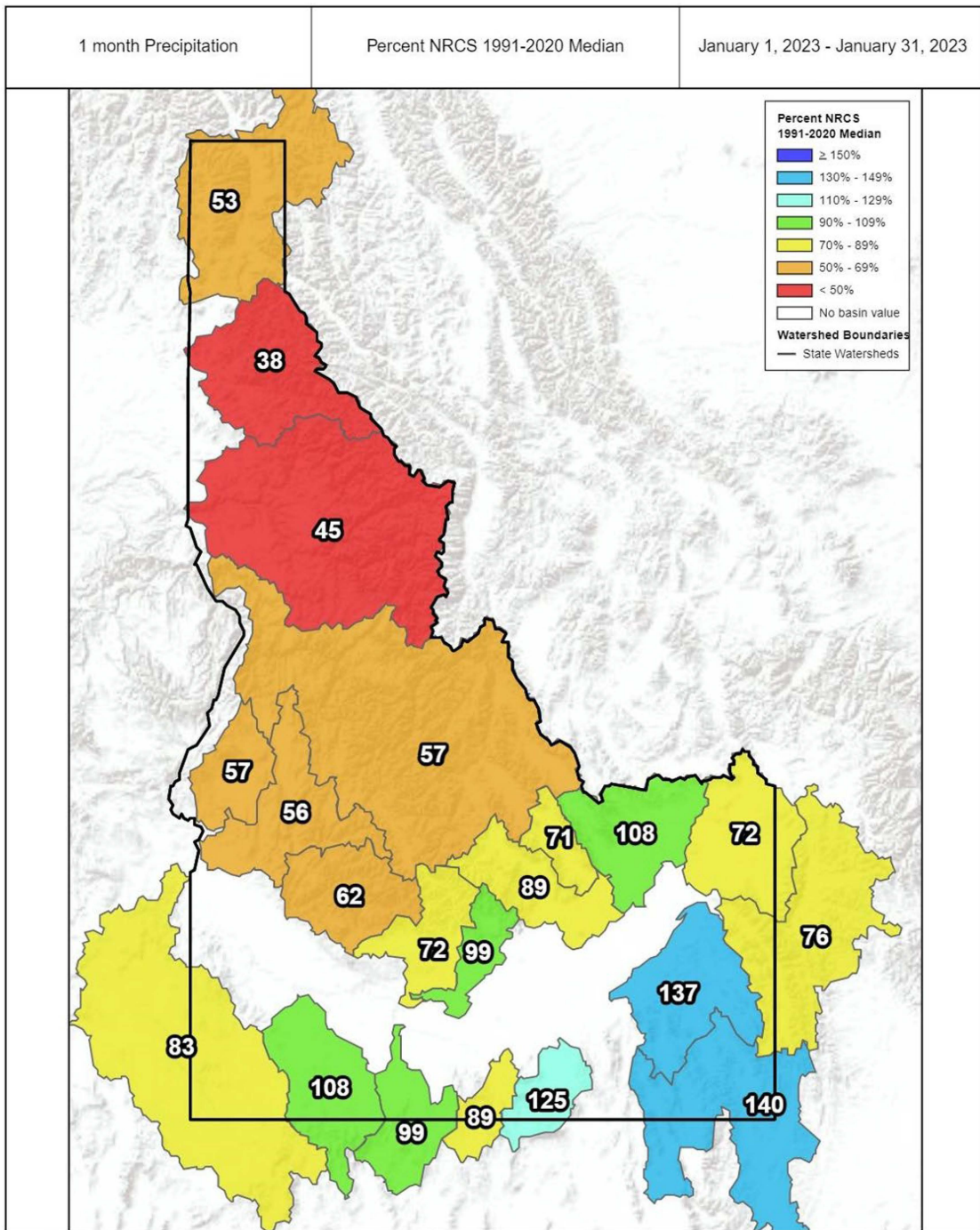
# SNOTEL



A closer look at a SNOTEL site



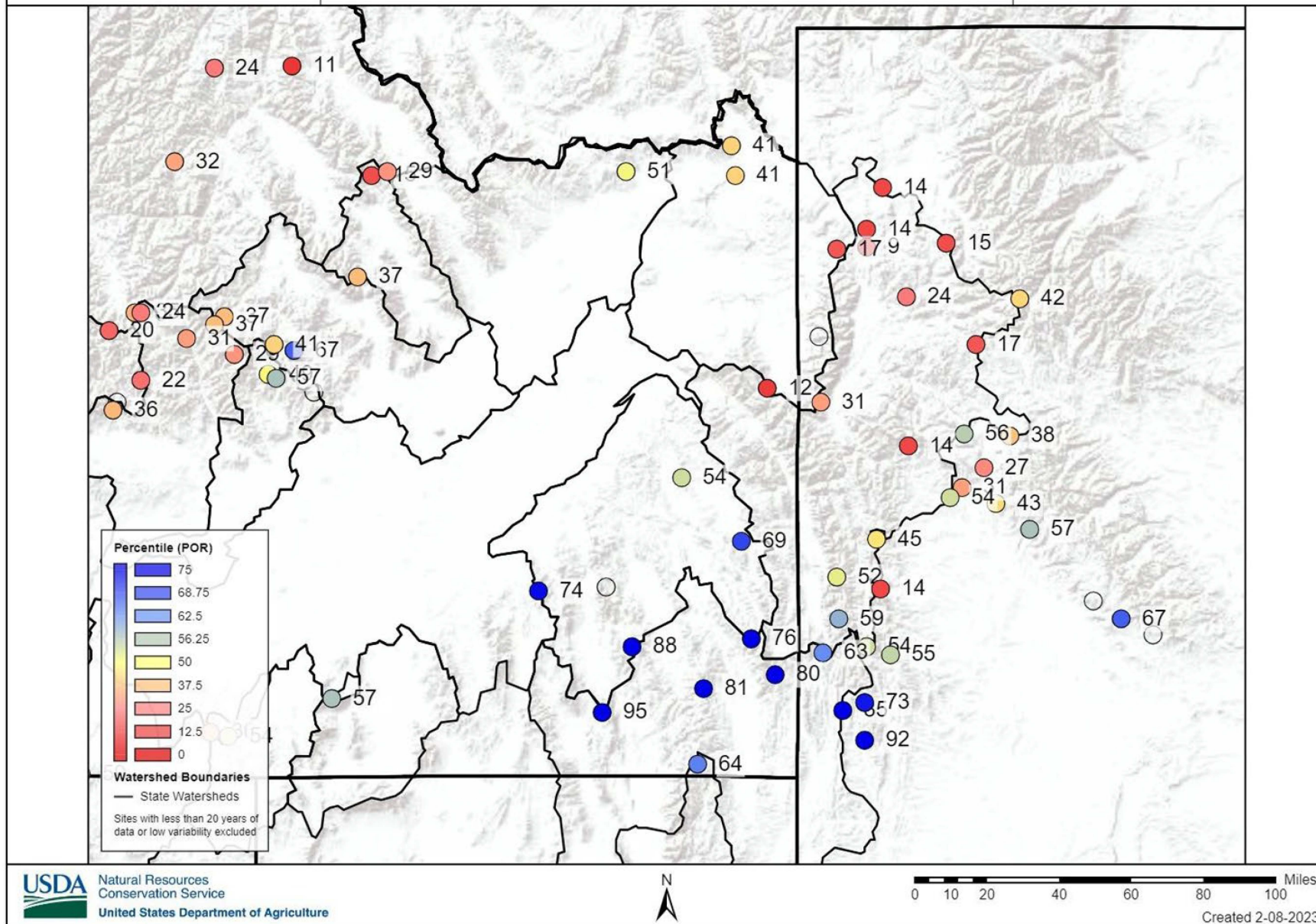
**SNOTEL sites look quite different in the winter!**



1 month Precipitation

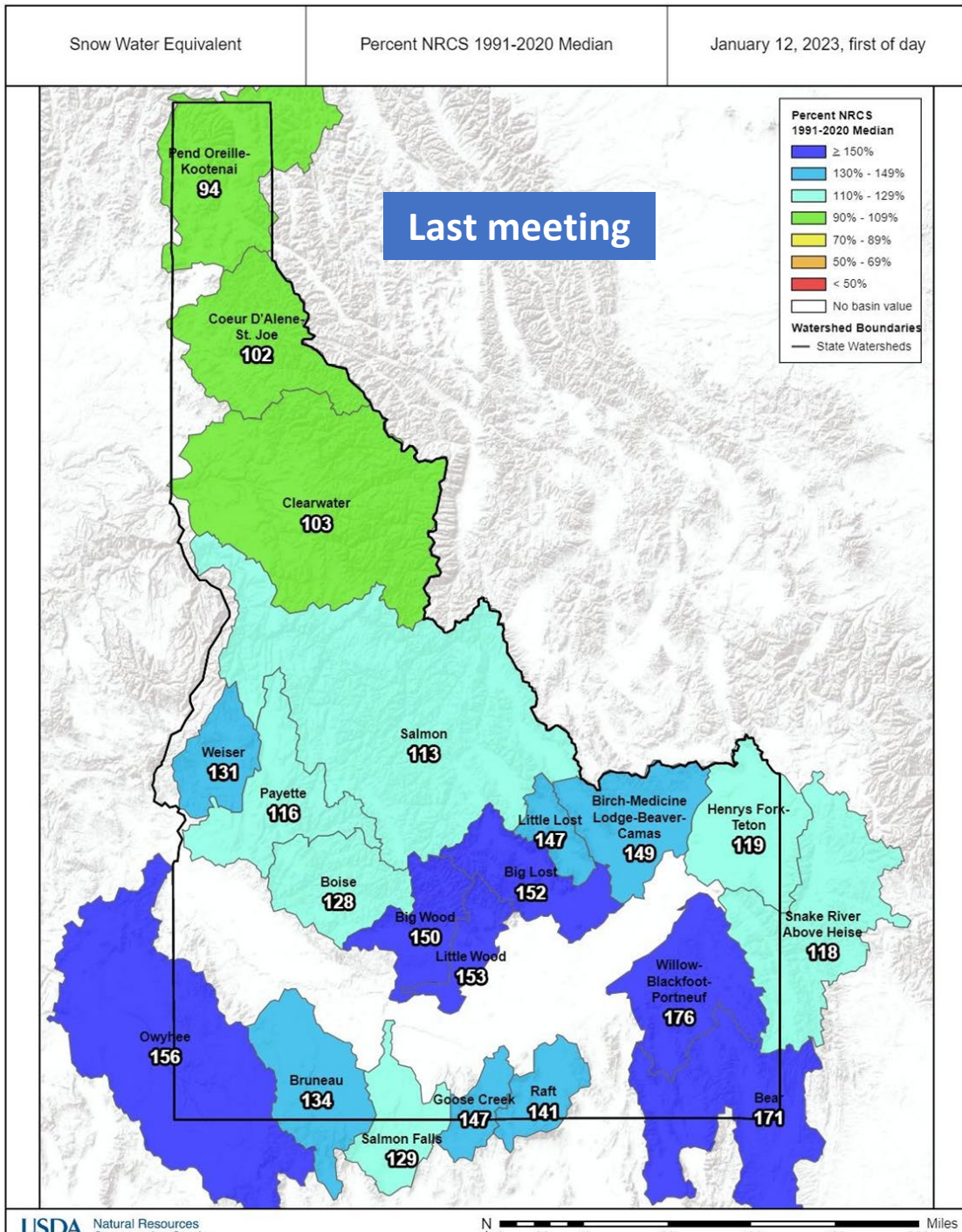
Percentile (POR)

January 1, 2023 - January 31, 2023



# Snowpack





# SNOW WATER EQUIVALENT IN SNAKE RIVER ABOVE HEISE

Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 02/08/2023:  
% of Median - 104%  
% Median Peak - 67%  
Days Until Median Peak - 63  
Percentile - 52

Snow Water Equivalent (in.)

2023 @ 104% on Feb 8th

2022 @ 89% on Feb 8th

- ✱ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2023 (22 sites)
- 2022 (22 sites)
- 2021 (22 sites)
- 2020 (22 sites)
- 2019 (22 sites)
- 2018 (22 sites)
- 2017 (22 sites)
- 2016 (22 sites)
- 2015 (21 sites)
- 2014 (21 sites)
- 2013 (22 sites)
- 2012 (22 sites)
- 2011 (22 sites)
- 2010 (22 sites)
- 2009 (22 sites)
- 2008 (22 sites)
- 2007 (22 sites)
- 2006 (22 sites)
- 2005 (22 sites)
- 2004 (22 sites)



# SNOW WATER EQUIVALENT PROJECTIONS IN SNAKE RIVER ABOVE HEISE

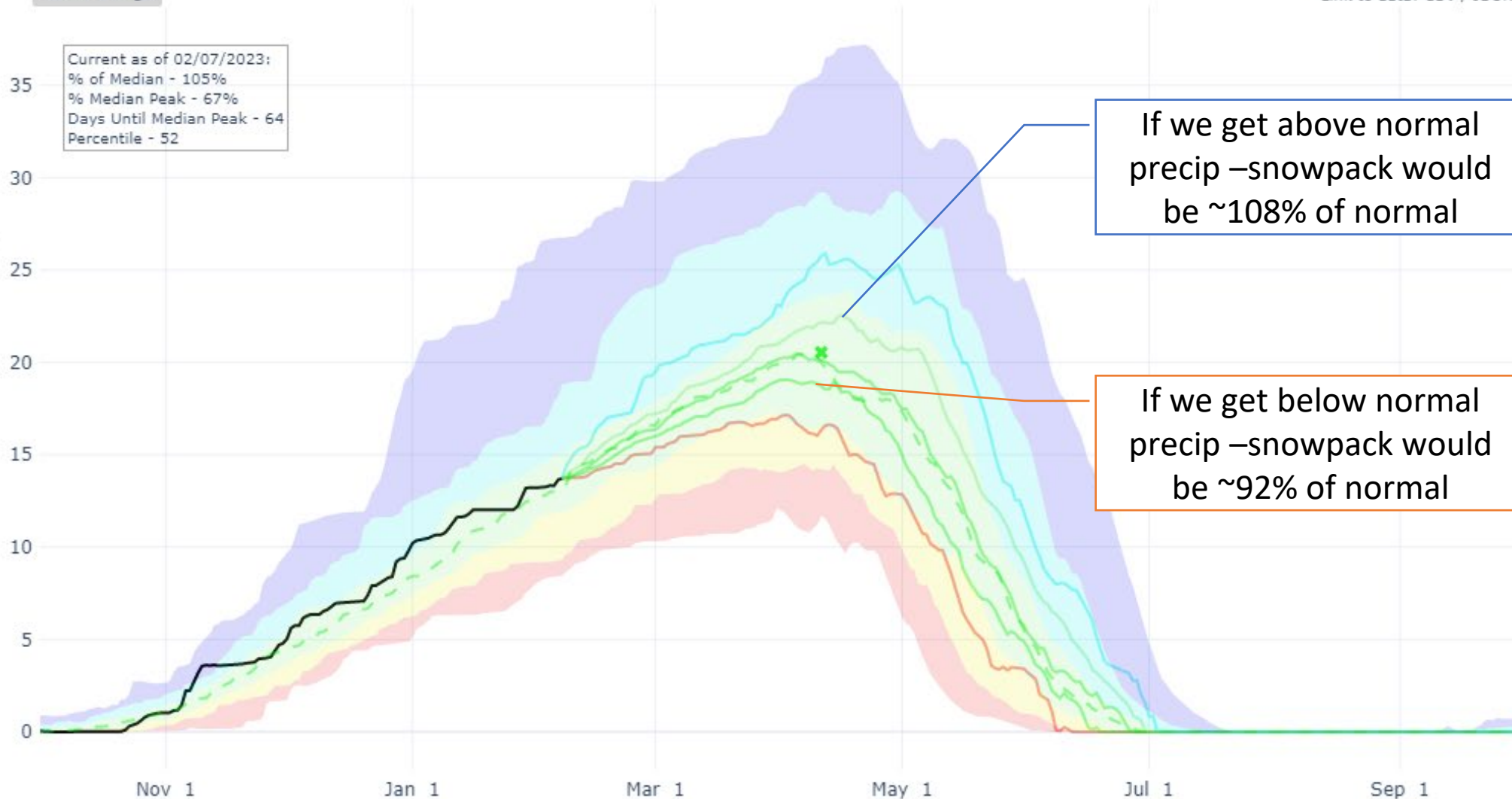
Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 02/07/2023:  
% of Median - 105%  
% Median Peak - 67%  
Days Until Median Peak - 64  
Percentile - 52

Snow Water Equivalent (in.)

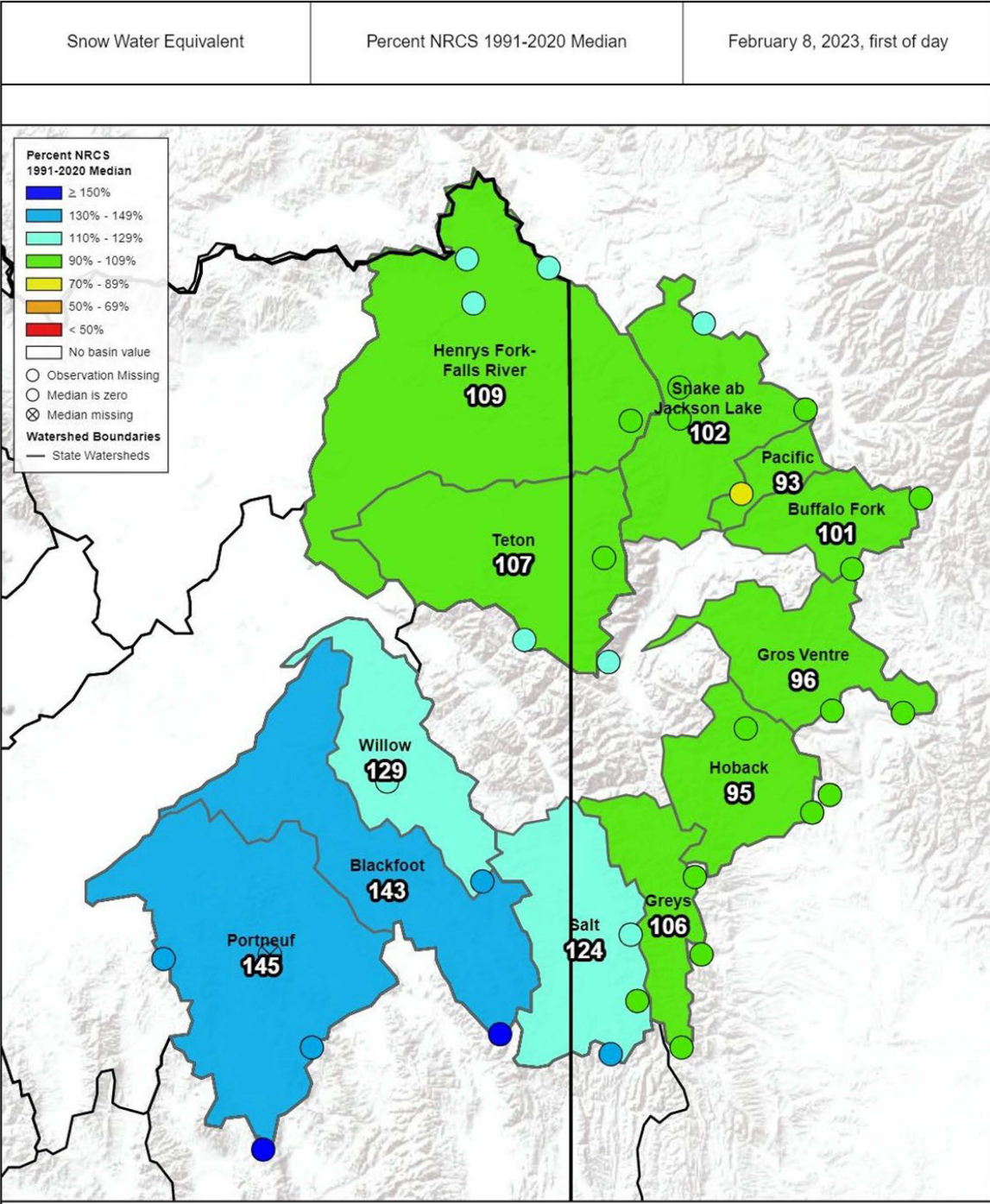
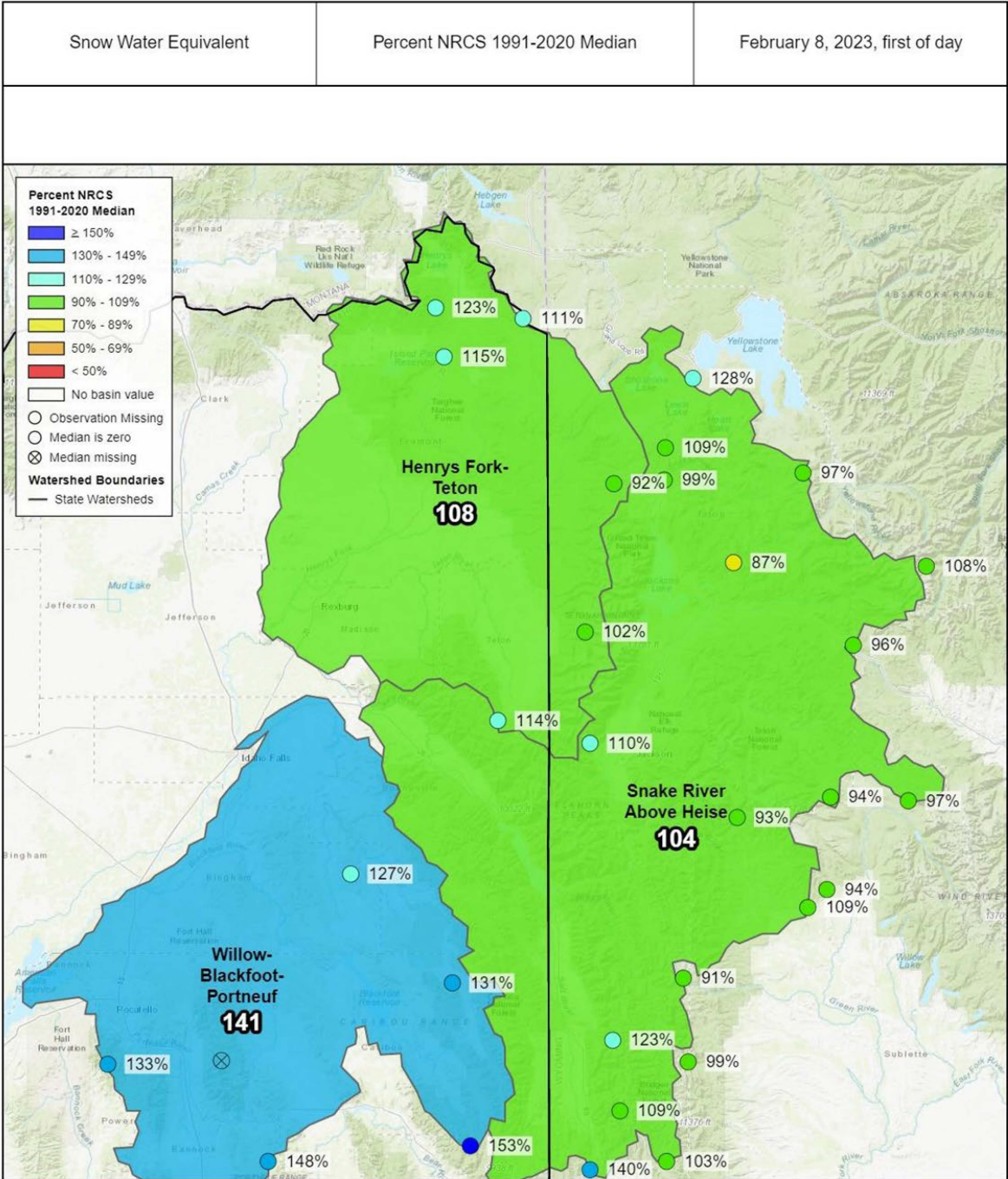


If we get above normal precip –snowpack would be ~108% of normal

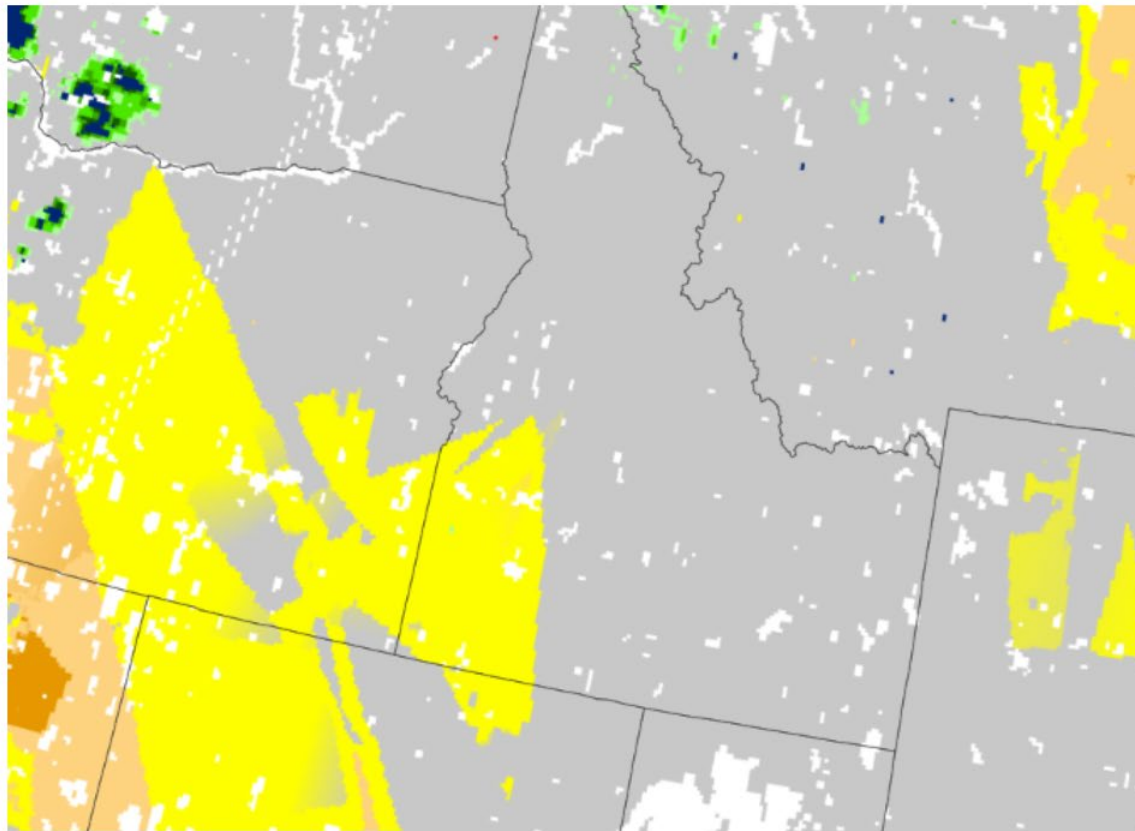
If we get below normal precip –snowpack would be ~92% of normal

- ✱ Median Peak SWE
- Median (POR)
- Median ('91-'20)
- Stats. Shading
- Max Proj
- 90% Proj
- 70% Proj
- 50% Proj
- 30% Proj
- 10% Proj
- Min Proj
- 2023 (22 sites)
- 2022 (22 sites)
- 2021 (22 sites)
- 2020 (22 sites)
- 2019 (22 sites)
- 2018 (22 sites)
- 2017 (22 sites)
- 2016 (22 sites)
- 2015 (21 sites)
- 2014 (21 sites)
- 2013 (22 sites)
- 2012 (22 sites)
- 2011 (22 sites)
- 2010 (22 sites)
- 2009 (22 sites)





20 cm Soil Moisture Percentile



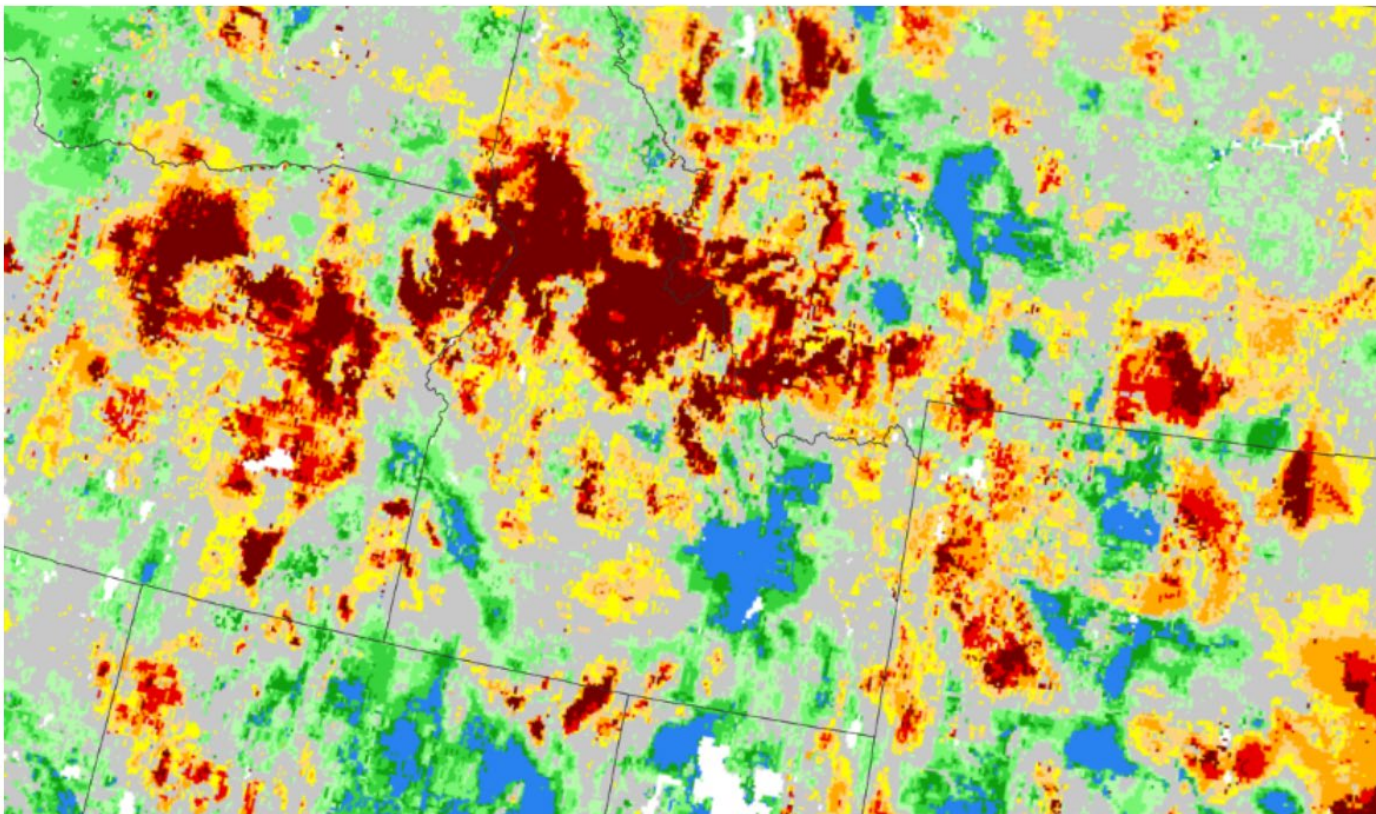
20 cm Soil Moisture Percentile



Source(s): NationalSoilMoisture.com

Updates Daily - 02/05/23

Current Soil Moisture Conditions: 0-100 cm Soil Moisture Percentile



0-100 cm Soil Moisture Percentile



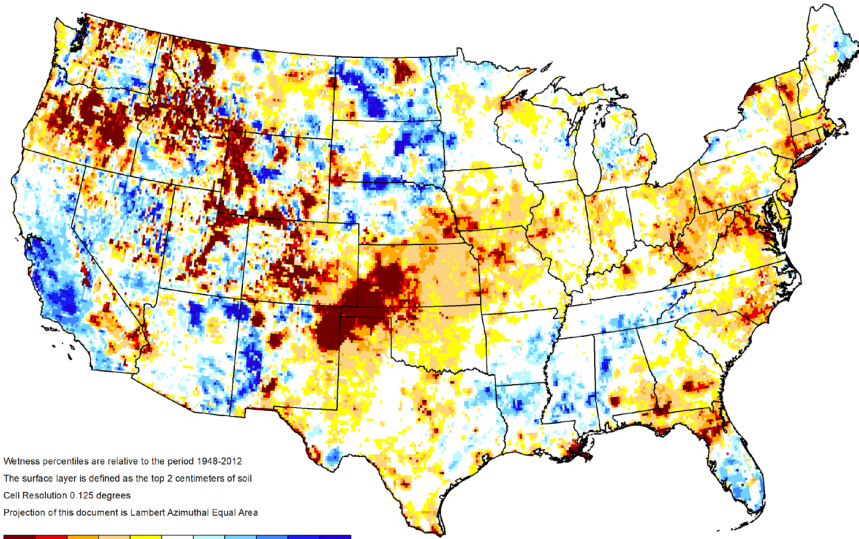
Source(s): NASA

Updates Daily - 02/08/23

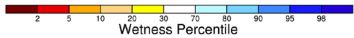


## GRACE-Based Surface Soil Moisture Drought Indicator

February 06, 2023



Wetness percentiles are relative to the period 1948-2012  
The surface layer is defined as the top 2 centimeters of soil  
Cell Resolution 0.125 degrees  
Projection of this document is Lambert Azimuthal Equal Area

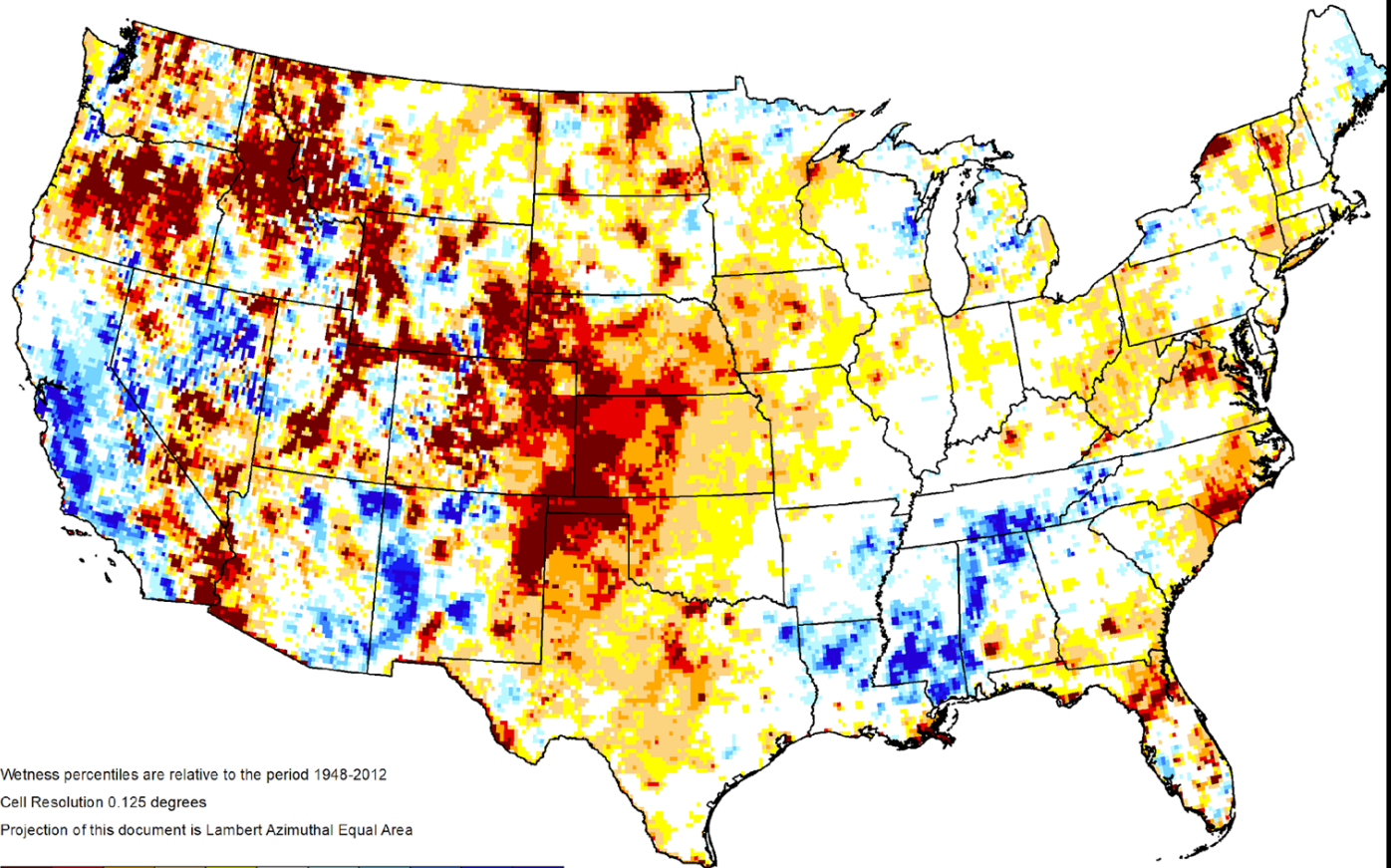


<https://nasagrace.unl.edu>

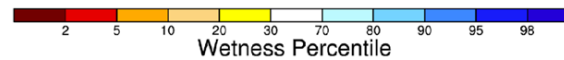


## GRACE-Based Shallow Groundwater Drought Indicator

February 06, 2023



Wetness percentiles are relative to the period 1948-2012  
Cell Resolution 0.125 degrees  
Projection of this document is Lambert Azimuthal Equal Area

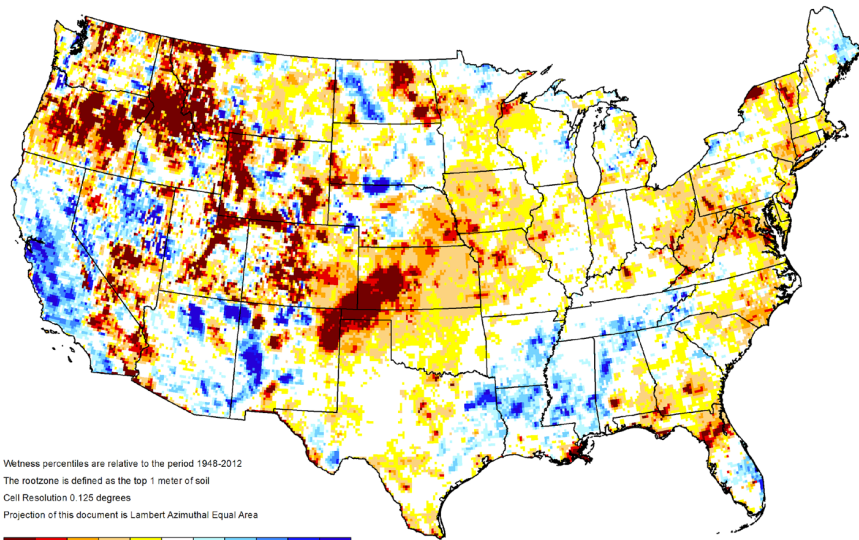


<https://nasagrace.unl.edu>



## GRACE-Based Root Zone Soil Moisture Drought Indicator

February 06, 2023



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



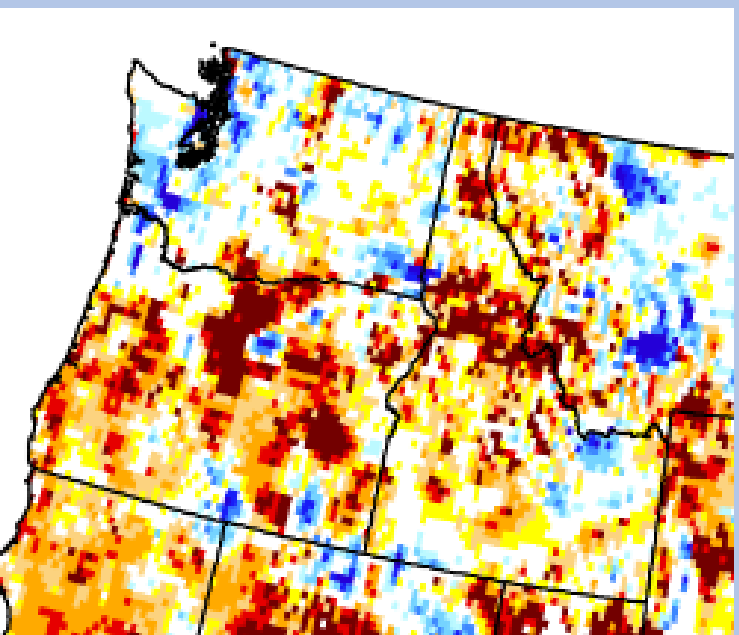
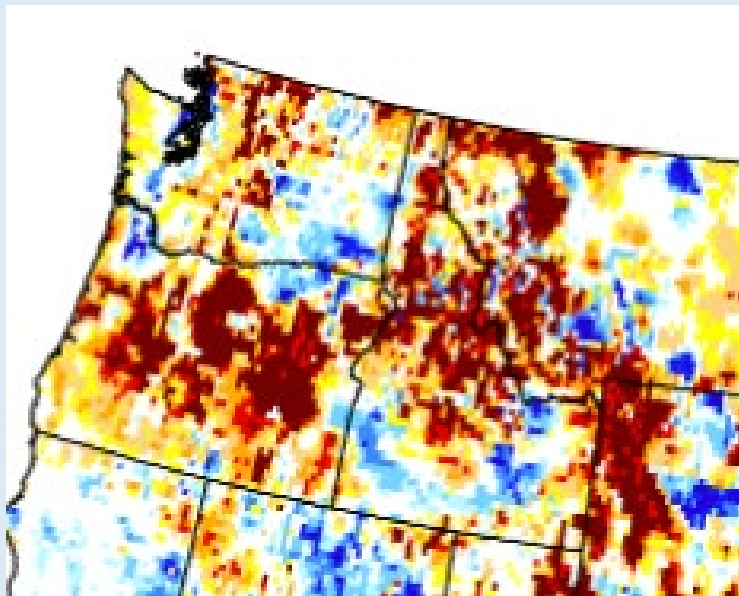
<https://nasagrace.unl.edu>

This data source shows dry soils from the surface down into the shallow groundwater level

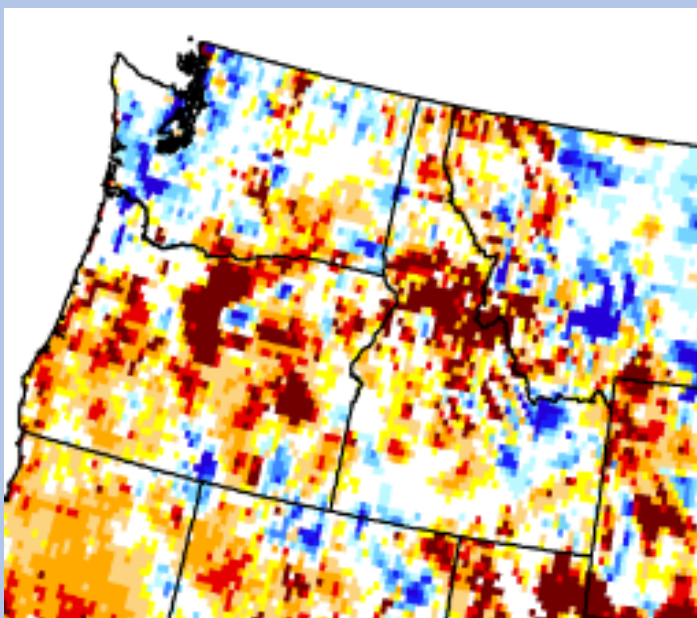
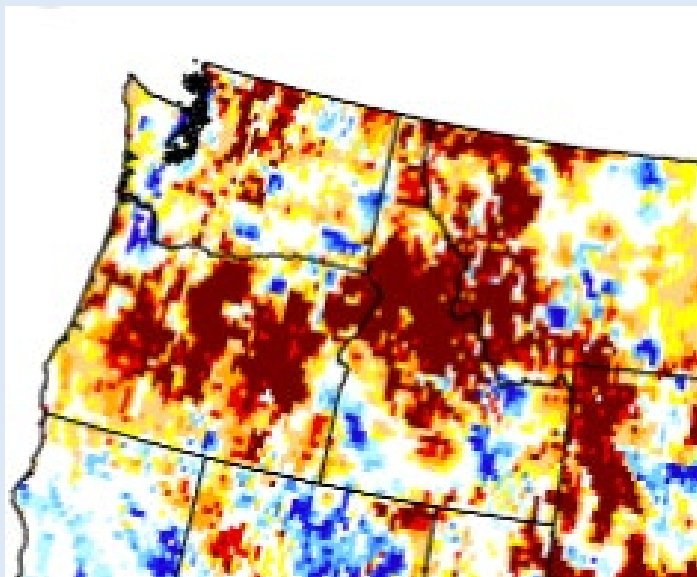
Feb. 2023

Feb. 2021

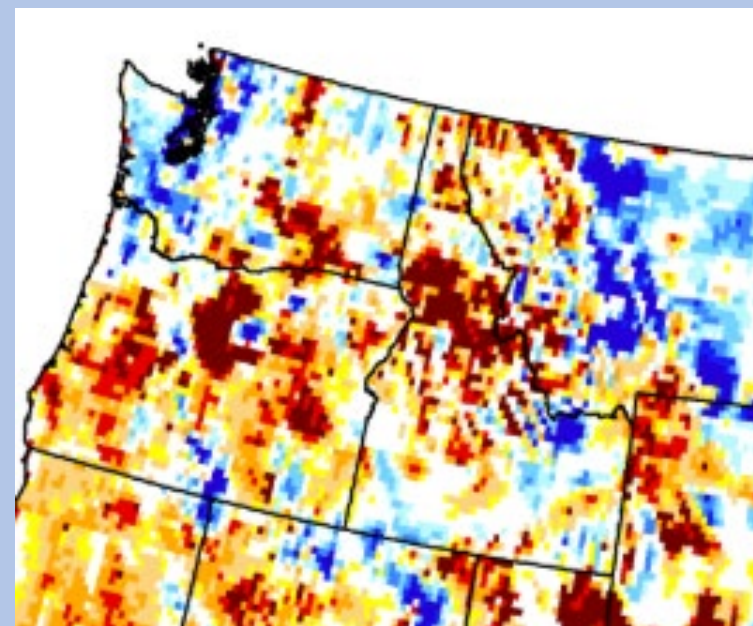
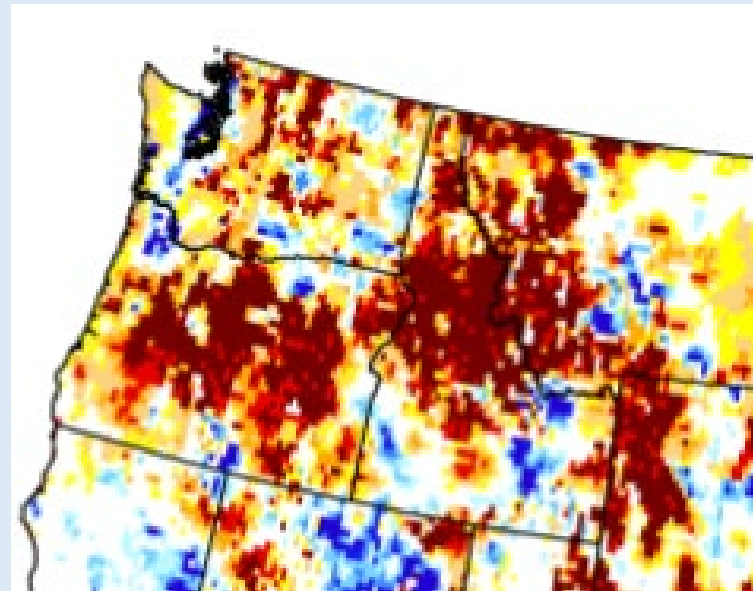
## Soil Surface



## Root Zone



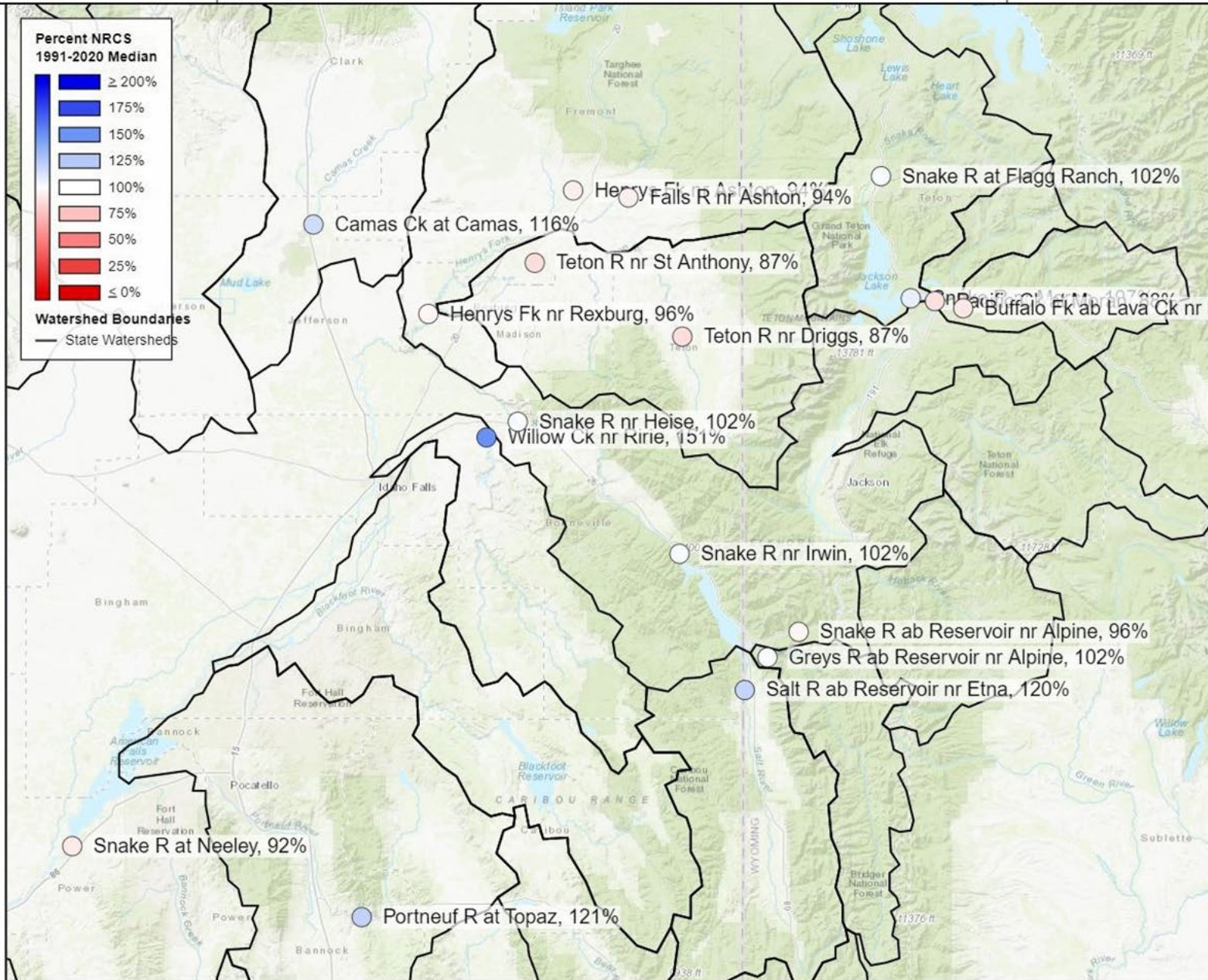
## Shallow Groundwater



Forecast Volume,  
50% Exceedance Probability

Percent NRCS 1991-2020 Median

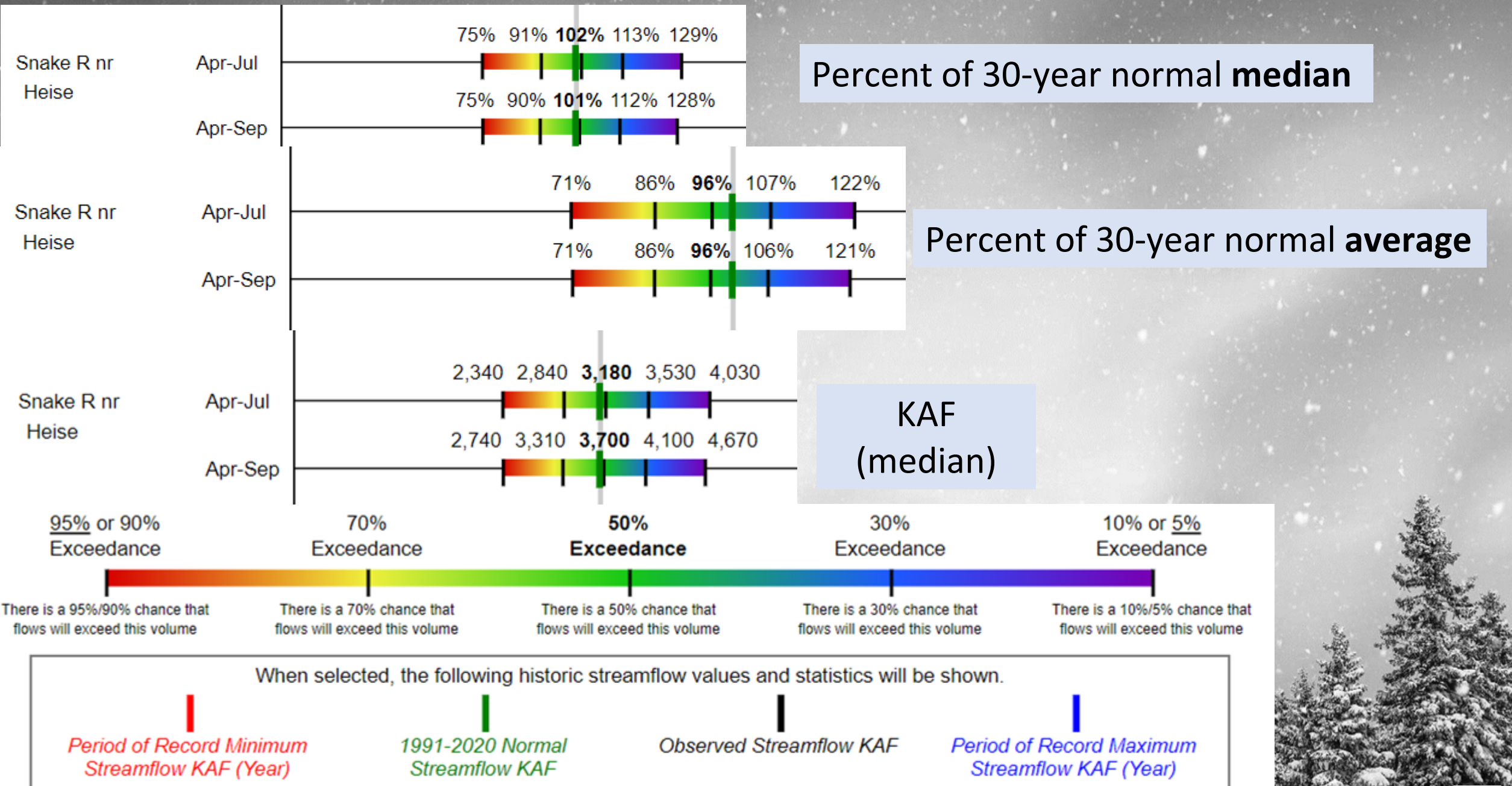
Primary Period, February 1, 2023



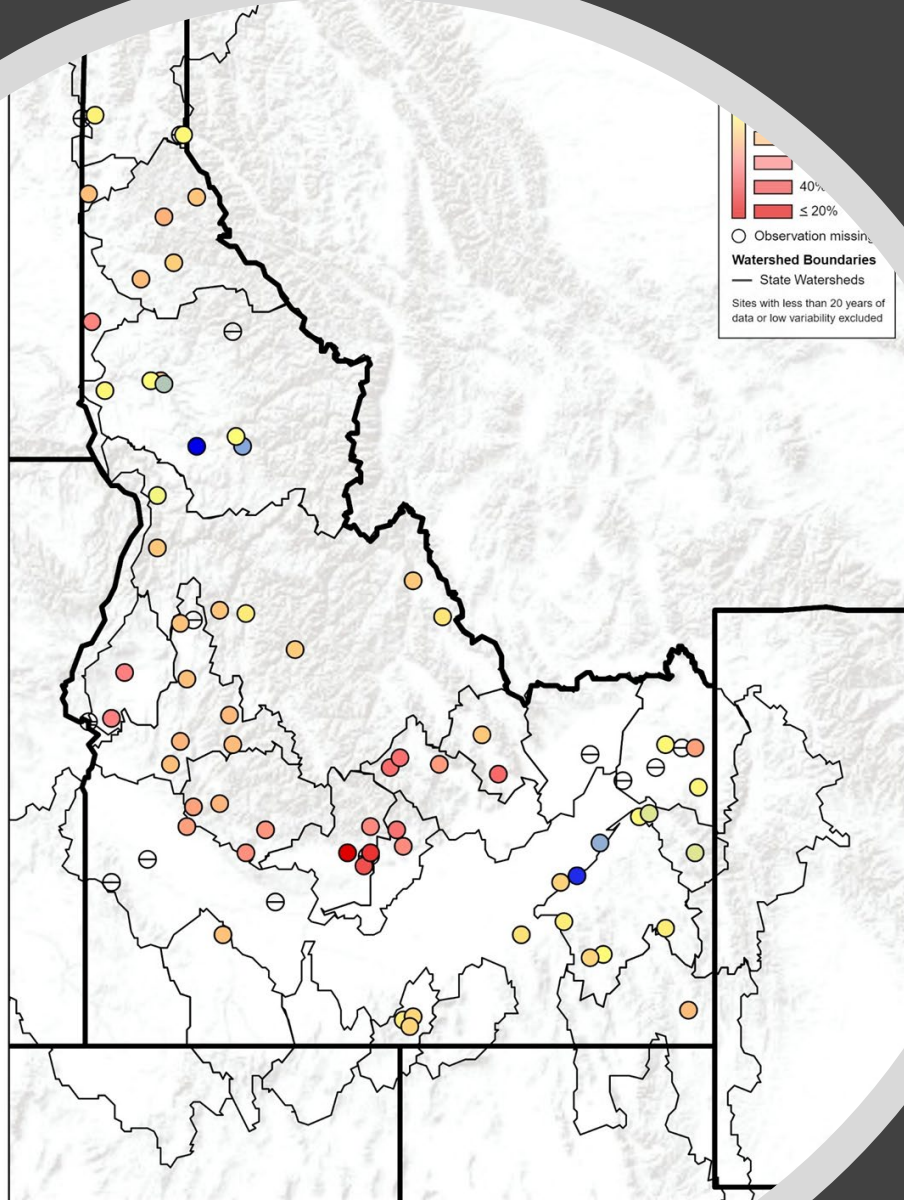
~ 300 KAF decrease in  
Snake River above Heise  
forecast from last month

Current forecast is for  
~181 KAF less than  
'normal' for the April –  
September time period

# Streamflow Volume Forecasts February 1



# Thank you!



[Idaho Snow Survey - NRCS](#)



Erin Whorton




[erin.whorton@usda.gov](mailto:erin.whorton@usda.gov)



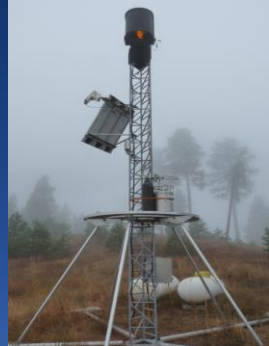
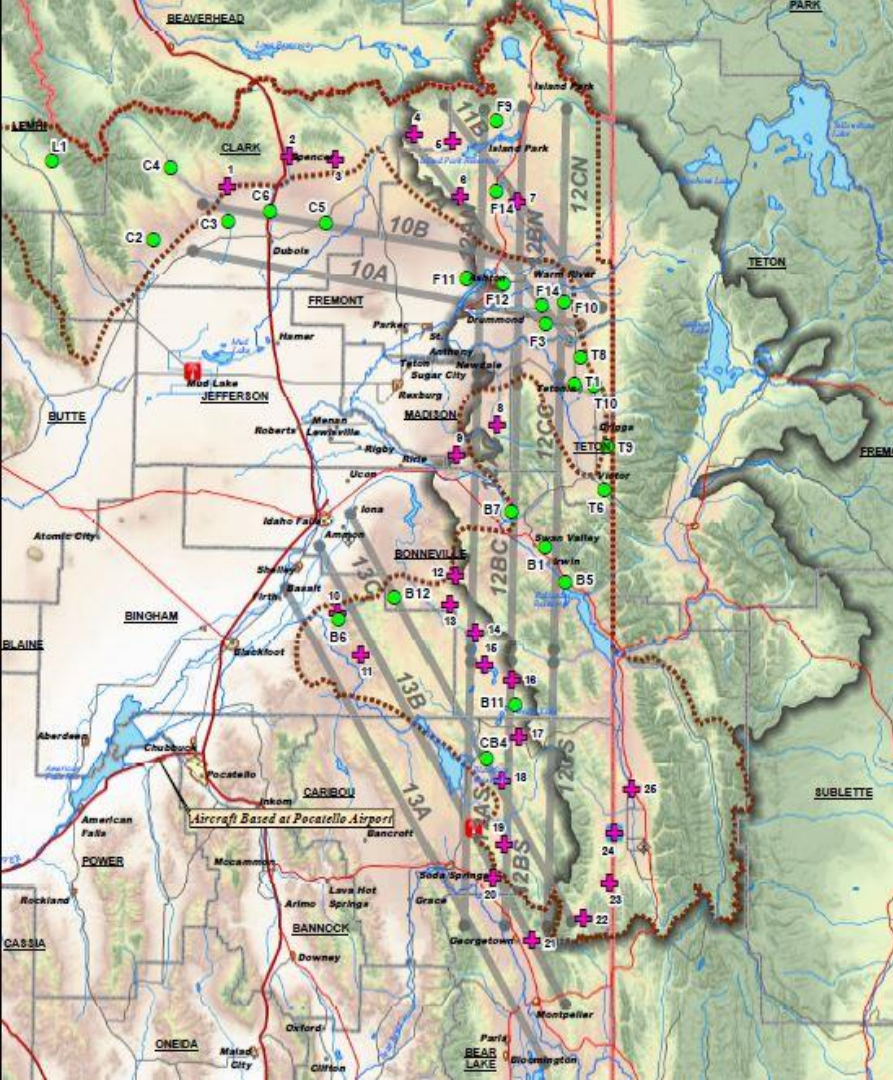
208-685-6983





# Upper Snake River Advisory Committee Meeting Feb 9, 2023

Melinda Meadows



### Upper Snake

- 25 IPC Remote Ground Generators
- 1 Aircraft
- 25 Let It Snow Manual Ground Generators

### Entire Program

- High Resolution WRF Weather Model
- WRF-WxMod Module
- High Resolution Precipitation gauges and other Wx instruments

WY 2023  
Idaho Collaborative  
Cloud Seeding  
Program

## Upper Snake Cloud Seeding Operations WY2023

	7 Years of Operation (WY2016-22)			WY2023
	Max	Jan Mean	Min	Jan
<b>Central Mountains</b>				
Number of Generator Hours	1313	548	72	453
Number of Flight Hours	82	46	16	21
Number of BIPs	511	237	49	53
Number of EJs	4117	1741	438	204
Number of Total Days Where Seeding Occurred	19	11	6	8
Number of Days That Ground Seeding Occurred	16	8	4	5
Number of Days That Airborne Seeding Occurred	16	8	4	6

	7 Years of Operation (WY2016-22)			WY2023
	Max	Jan Mean	Min	Jan
<b>Upper Snake</b>				
Number of Generator Hours	996	449	273	307
Number of Flight Hours	34	16	5	10
Number of BIPs	230	77	2	68
Number of EJs	664	296	0	257
Number of Total Days Where Seeding Occurred	17	10	6	7
Number of Days That Ground Seeding Occurred	16	9	5	5
Number of Days That Airborne Seeding Occurred	9	5	2	2



**Questions?**



# IWRB Managed Recharge Program

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## Upper Snake River Advisory Committee Meeting

**Neal Farmer**

Recharge Program

February 9, 2023

# Total Natural Flow Water Recharged

86,817 af (provisional)

IWRB Recharge - Oct 15 to Feb. 6

## Diversion Rate

Median: 355 cfs

Max: 661 cfs

AFRD2

55,308 AF  
162 cfs

Twin Falls

NSCC

10,656 AF

TFCC

11,463 AF  
27 cfs

SWID

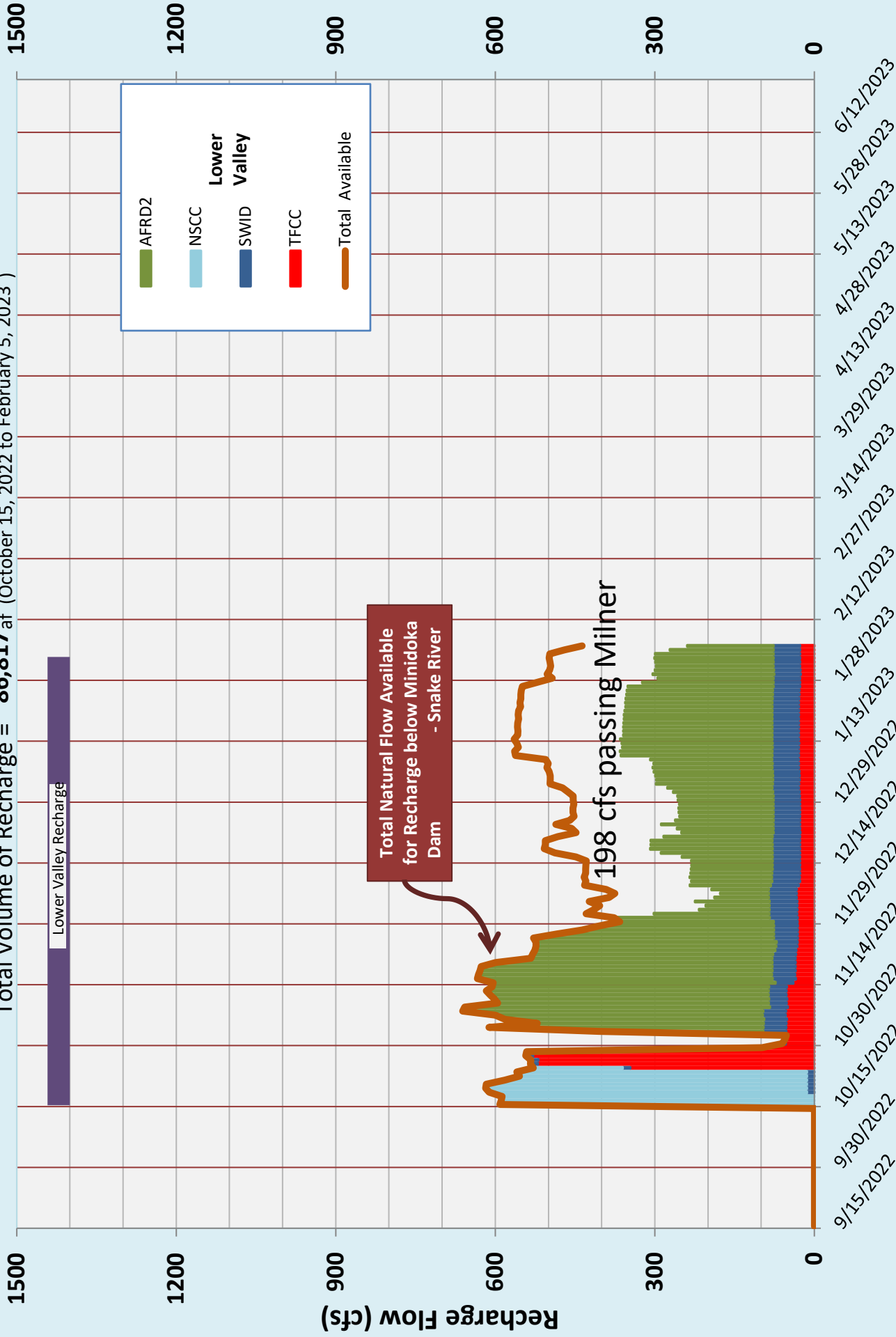
9,389 AF  
~50 cfs



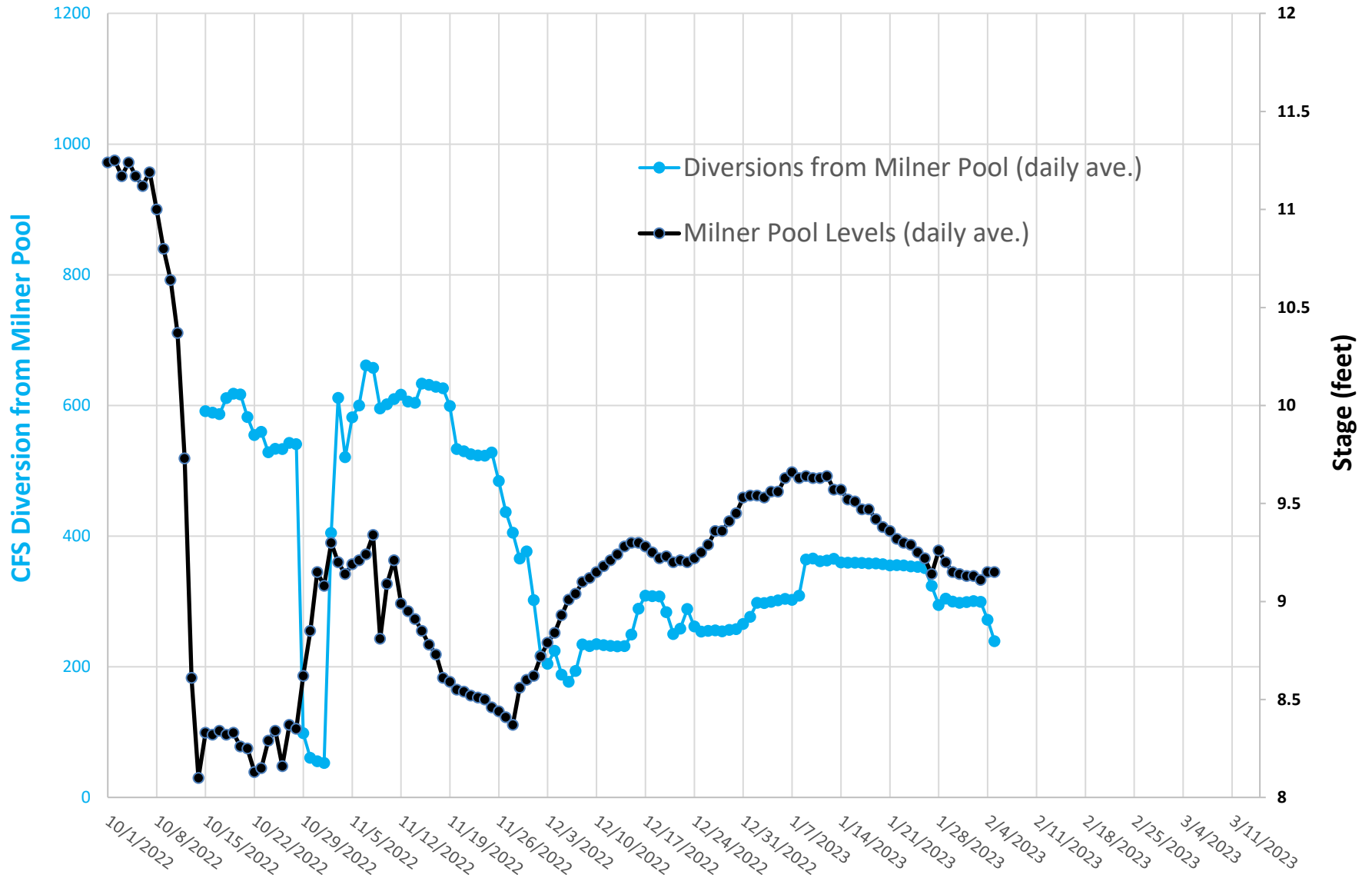
0 5 10 Miles

# IWRB Natural Flow Recharge - 2022/2023 Season

Total Volume of Recharge = 86,817 af (October 15, 2022 to February 5, 2023 )



Milner Reservoir Pool Levels/Diversions



## Questions

