Utah Water Conditions Update
(Drought Webinar)

The meeting will begin shortly

UTAH CLIMATE CENTER

NOAA

USGS science for a changing world

BUREAU OF RECLAMATION

NRCS Natural Resources Conservation Service

UDAF

UTAH DNR WATER RESOURCES

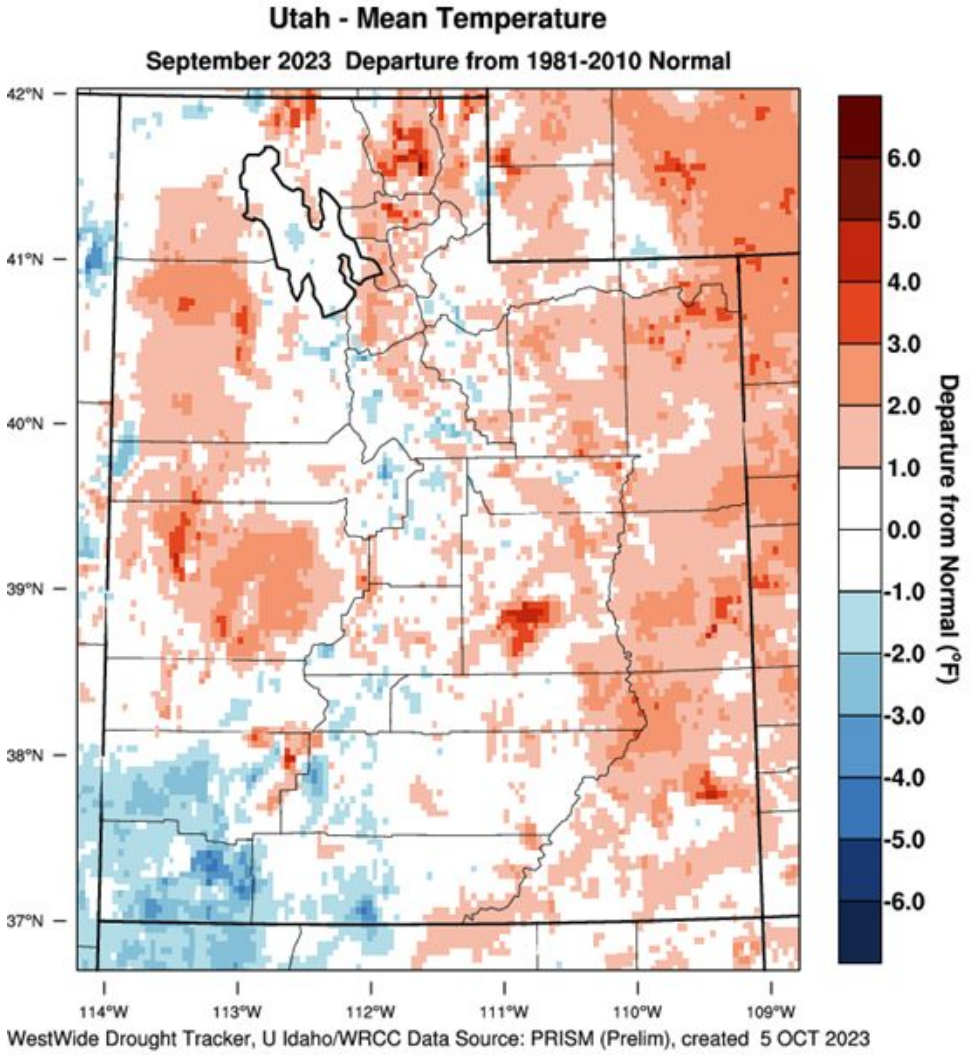
Thank you to our contributors

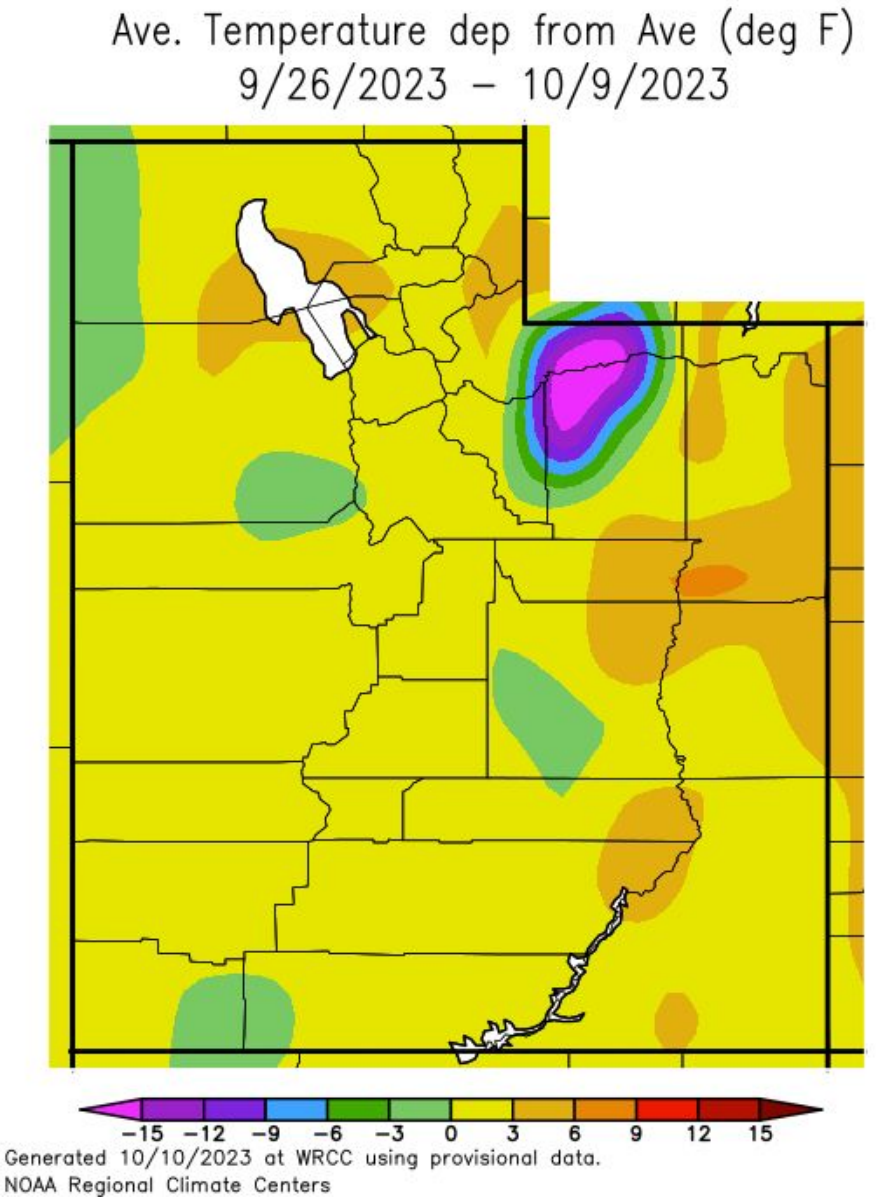
Utah Water Conditions Update

October 10, 2023

Happy New Water Year

Temperatures

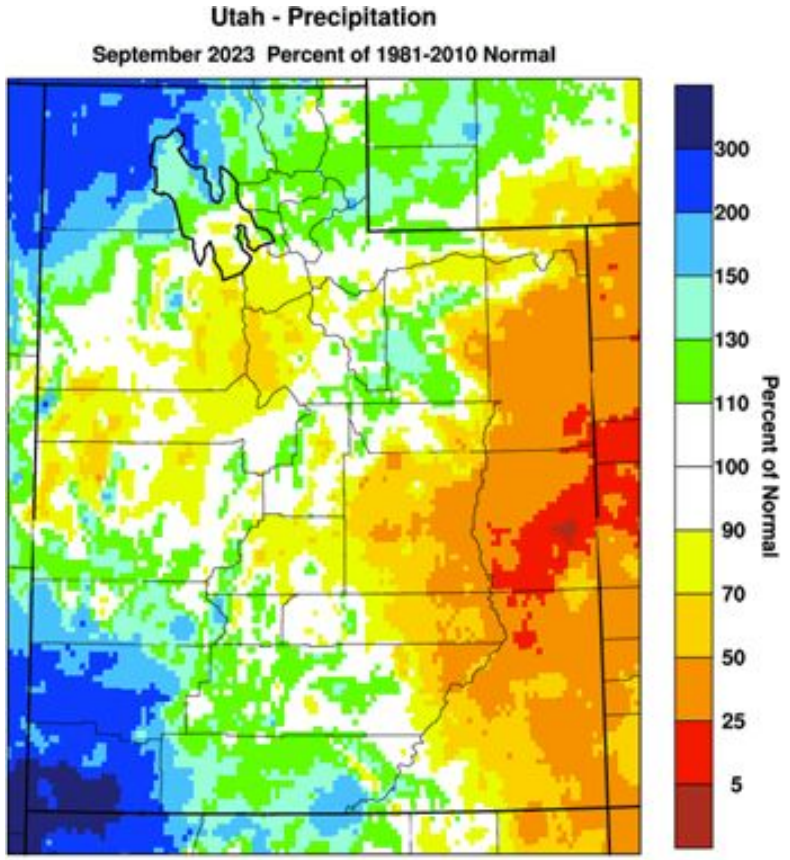


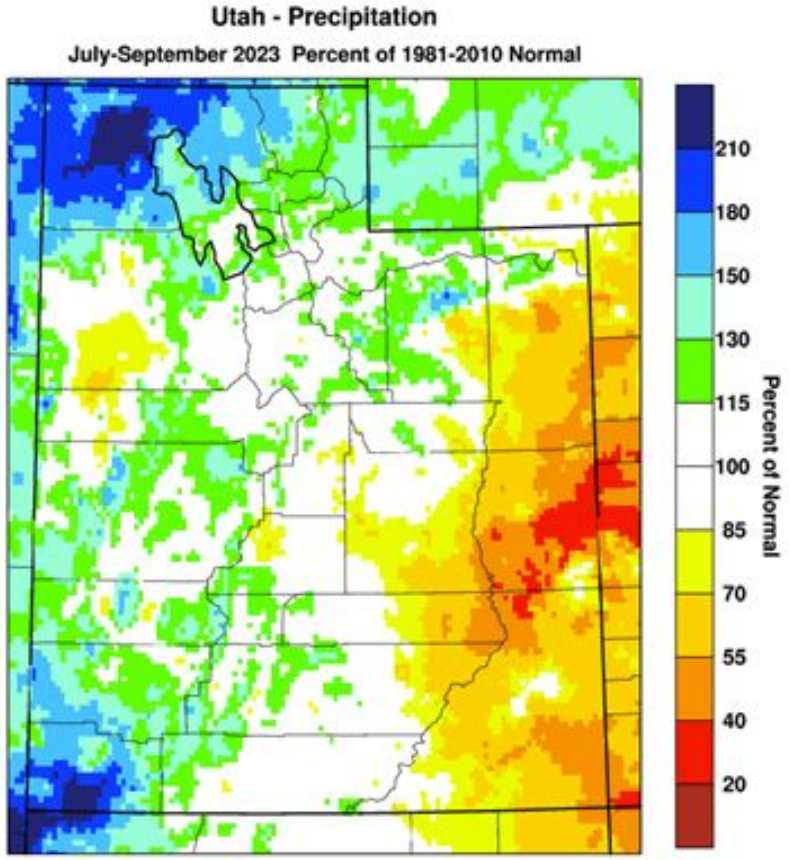


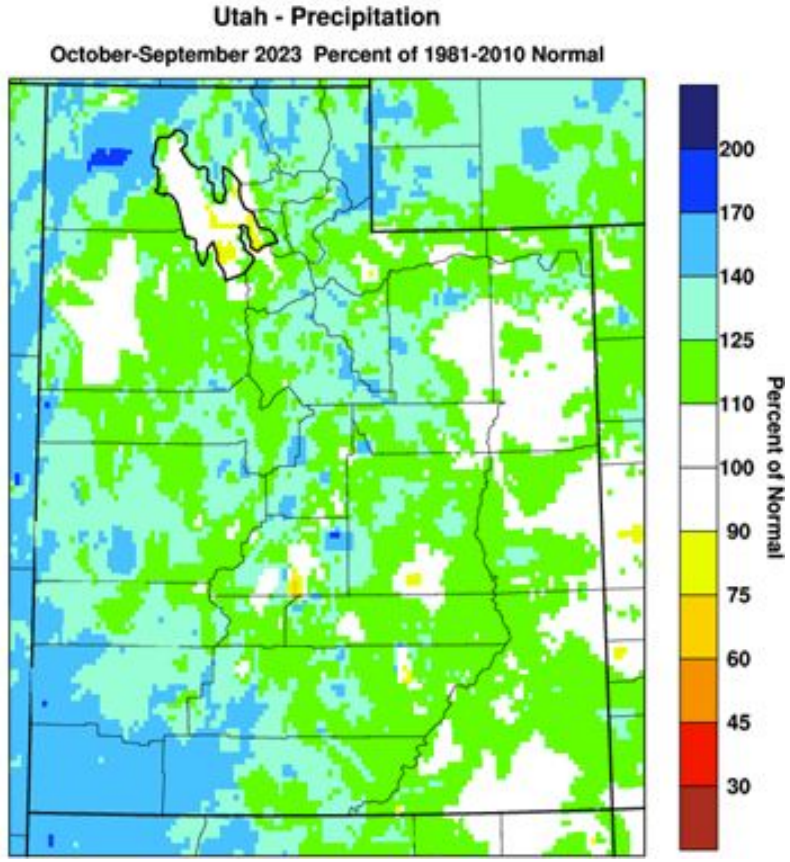
Agency - Utah Climate Center

Presenter - Jon Meyer

Precipitation

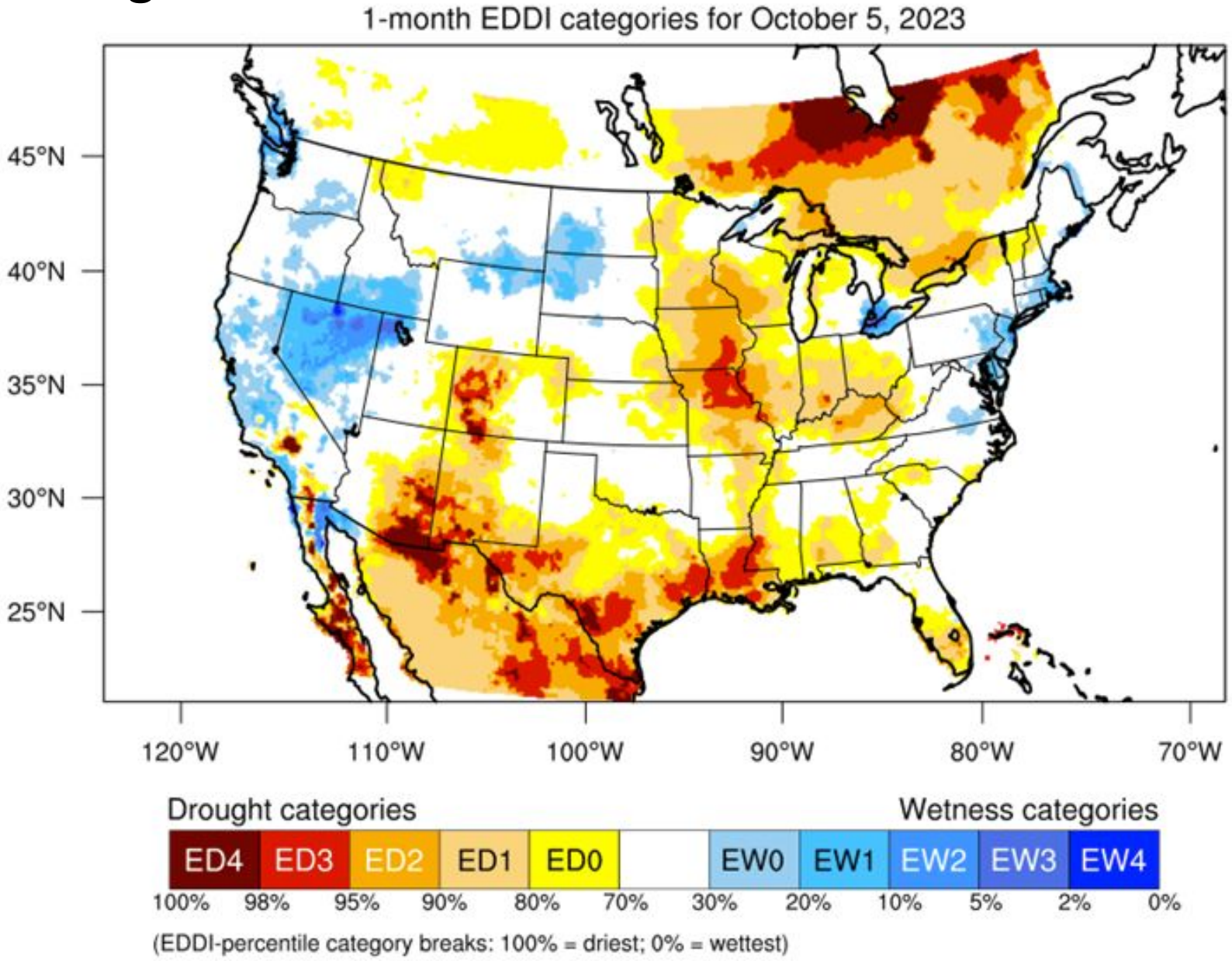






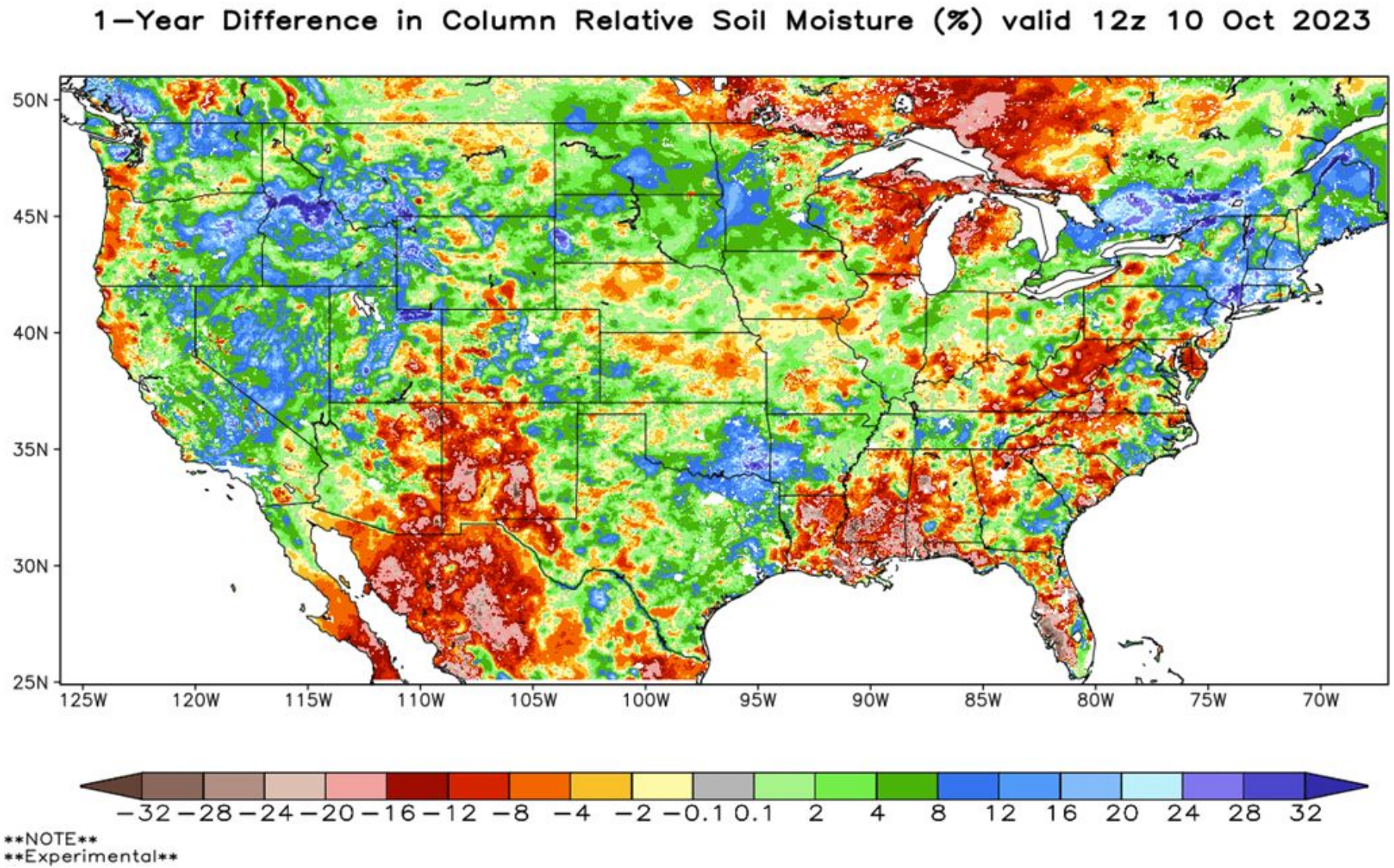
Agency - Utah Climate Center
Presenter - Jon Meyer

Evaporative Demand Drought Index



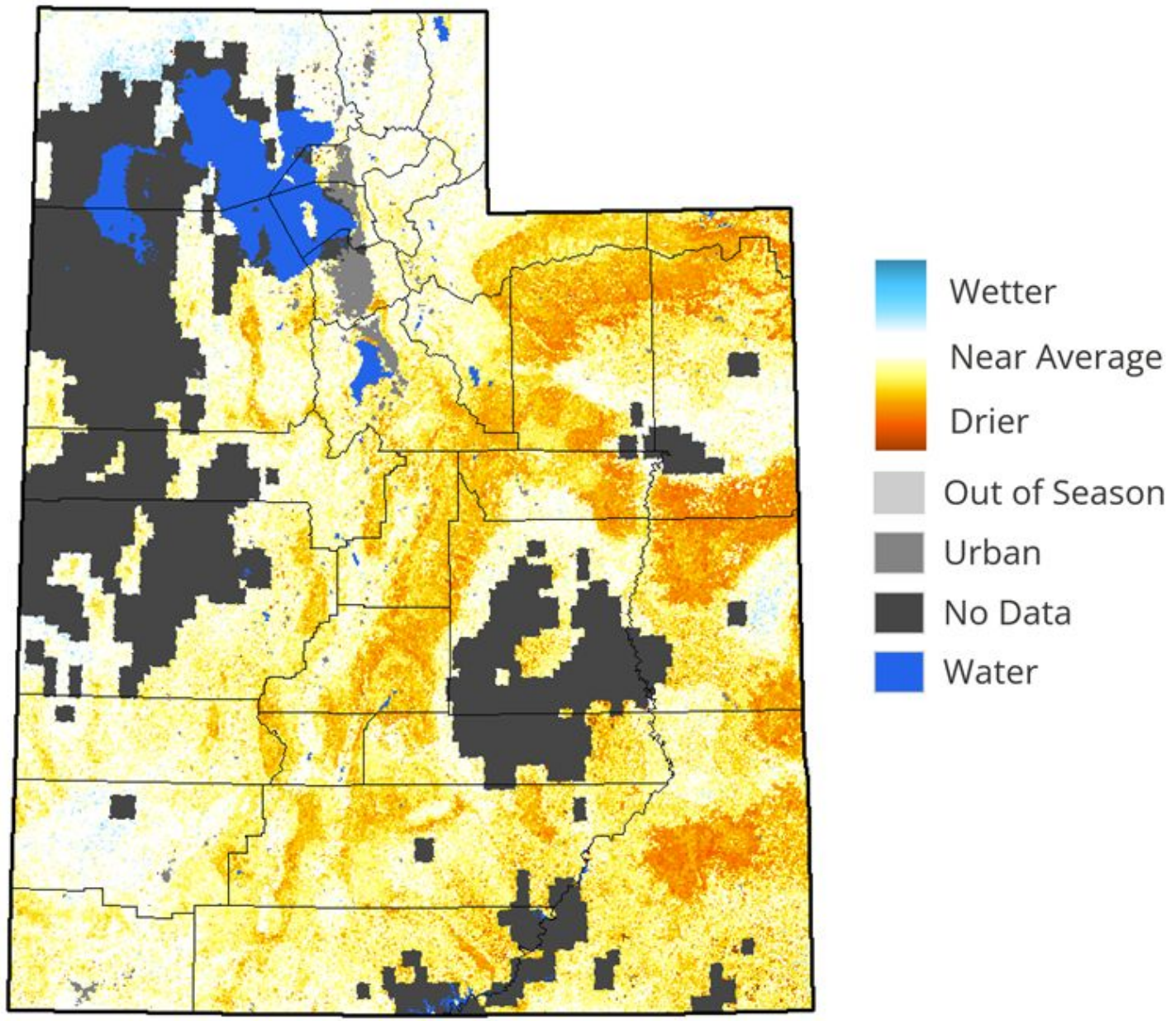
Agency - Utah Climate Center
Presenter - Jon Meyer

Year-over-year soil moisture changes



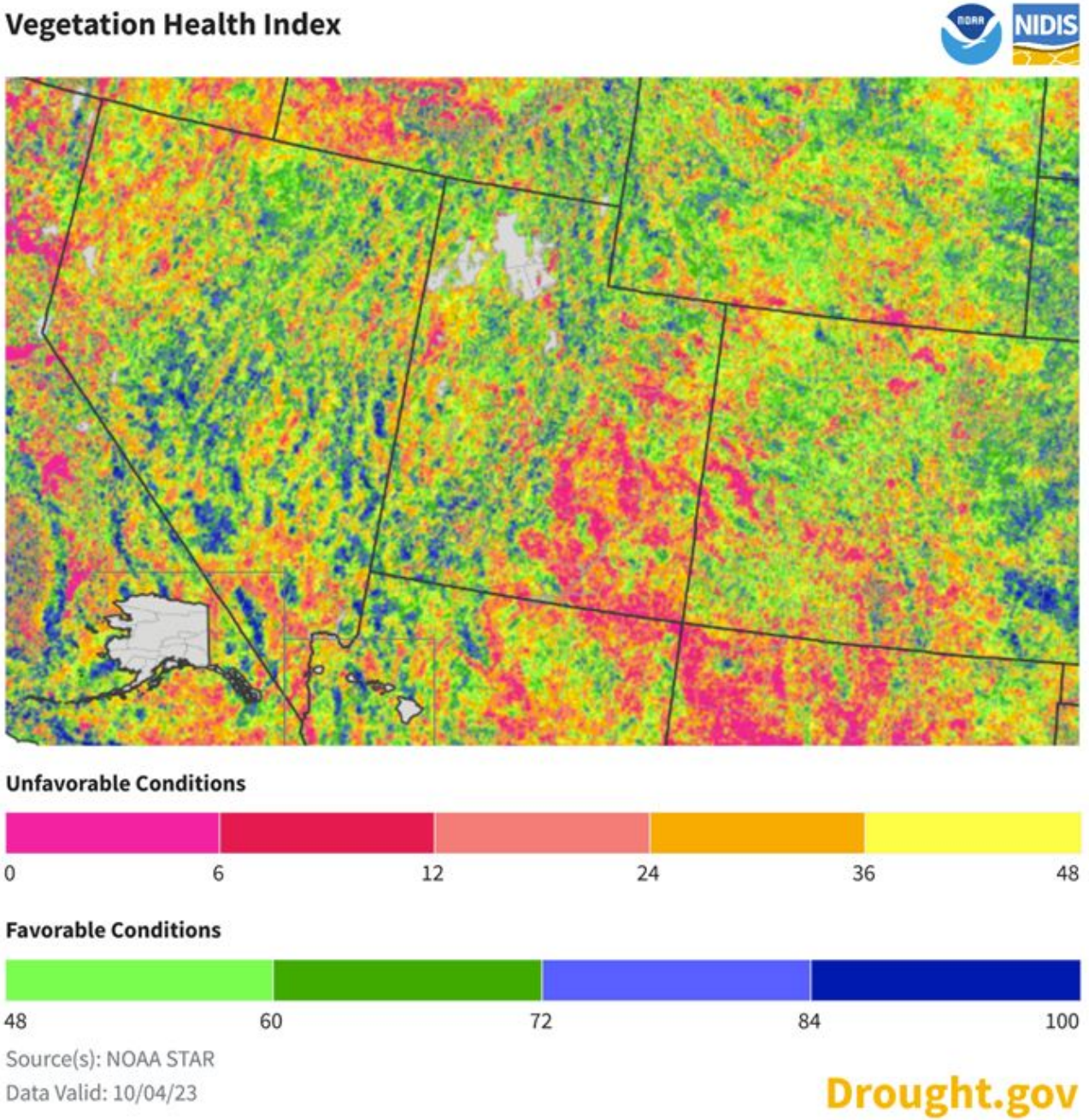
Agency - Utah Climate Center
Presenter - Jon Meyer

Quick-DRI



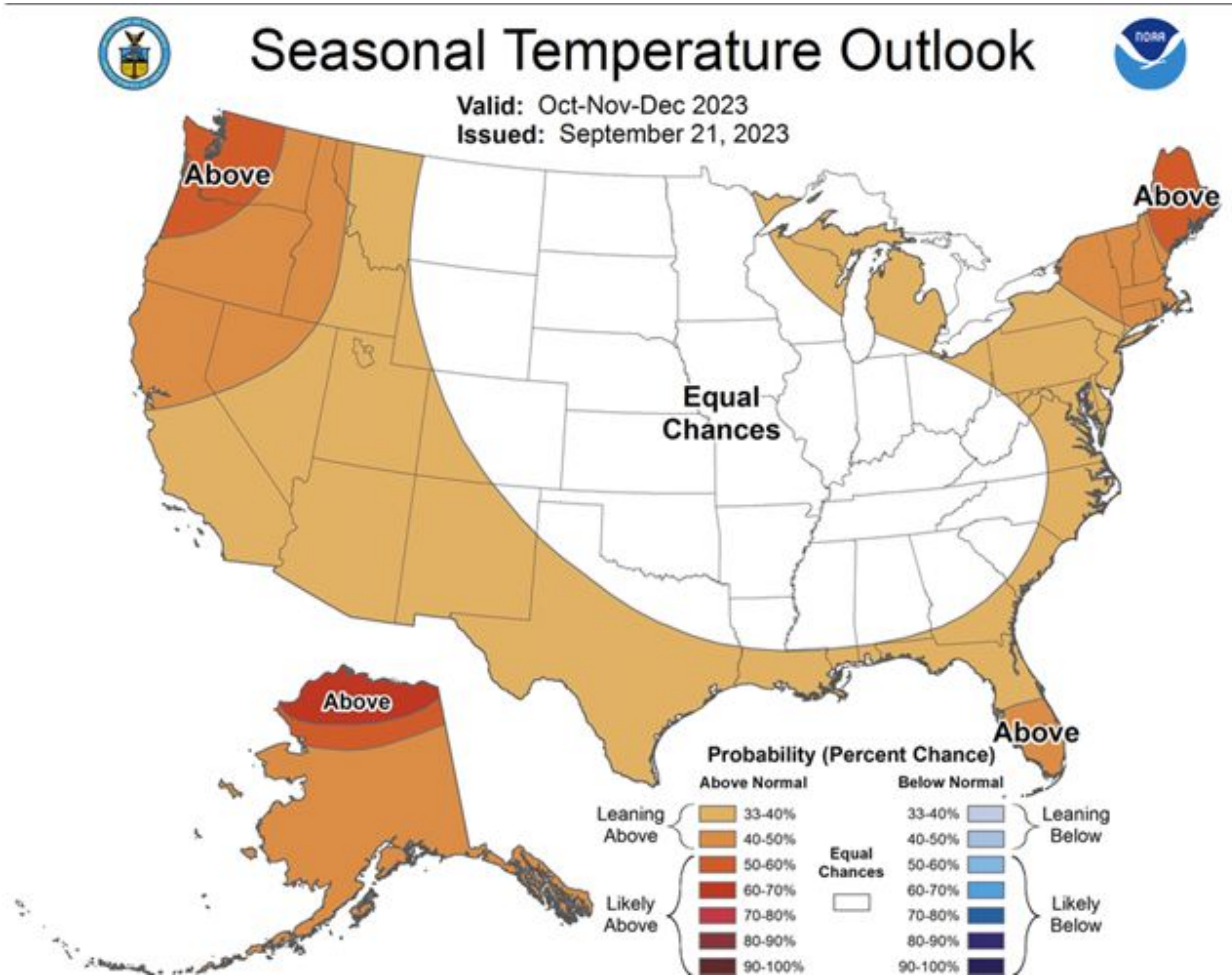
Agency - Utah Climate Center
Presenter - Jon Meyer

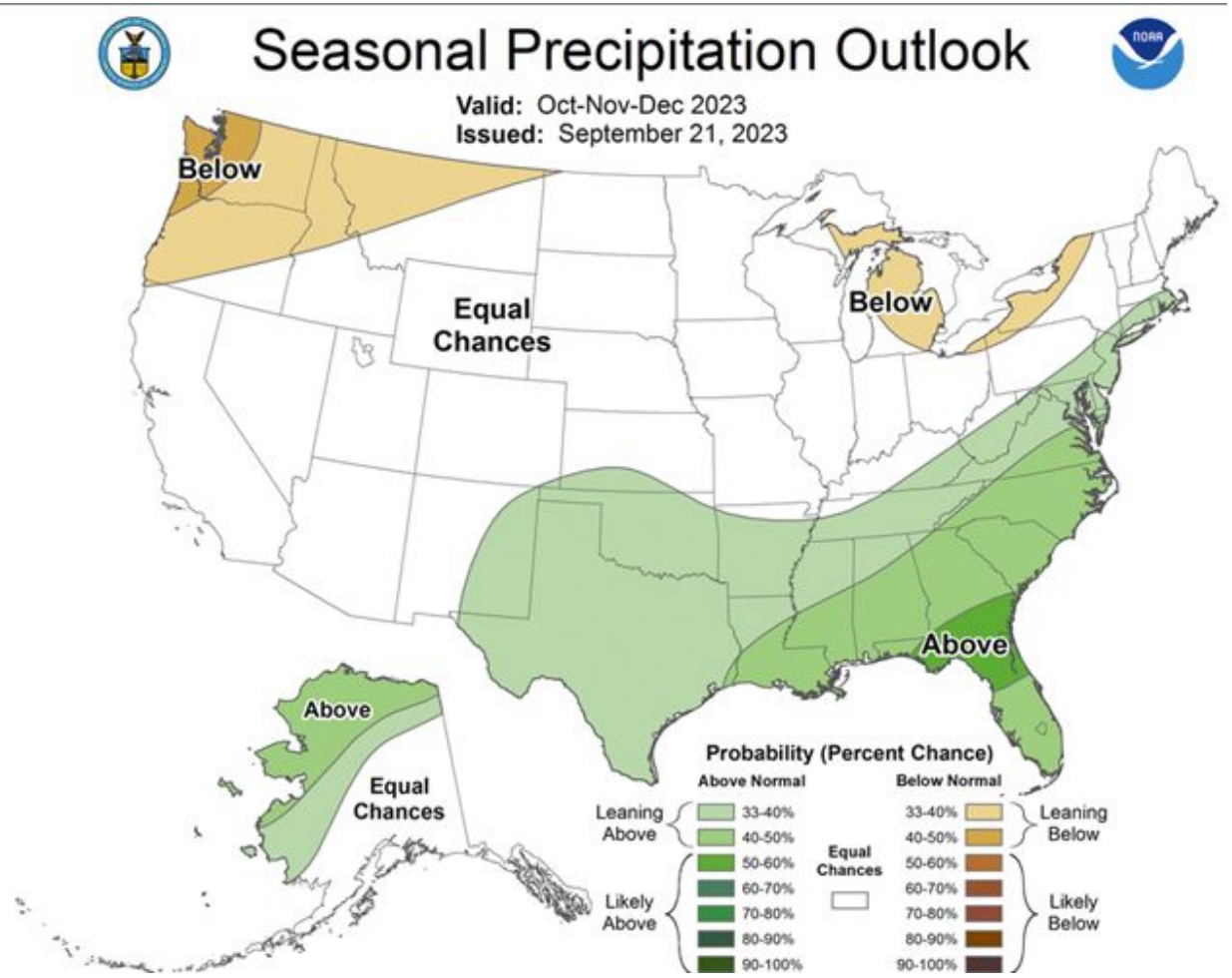
Vegetation Conditions



Agency - Utah Climate Center
Presenter - Jon Meyer

Three-month Outlook





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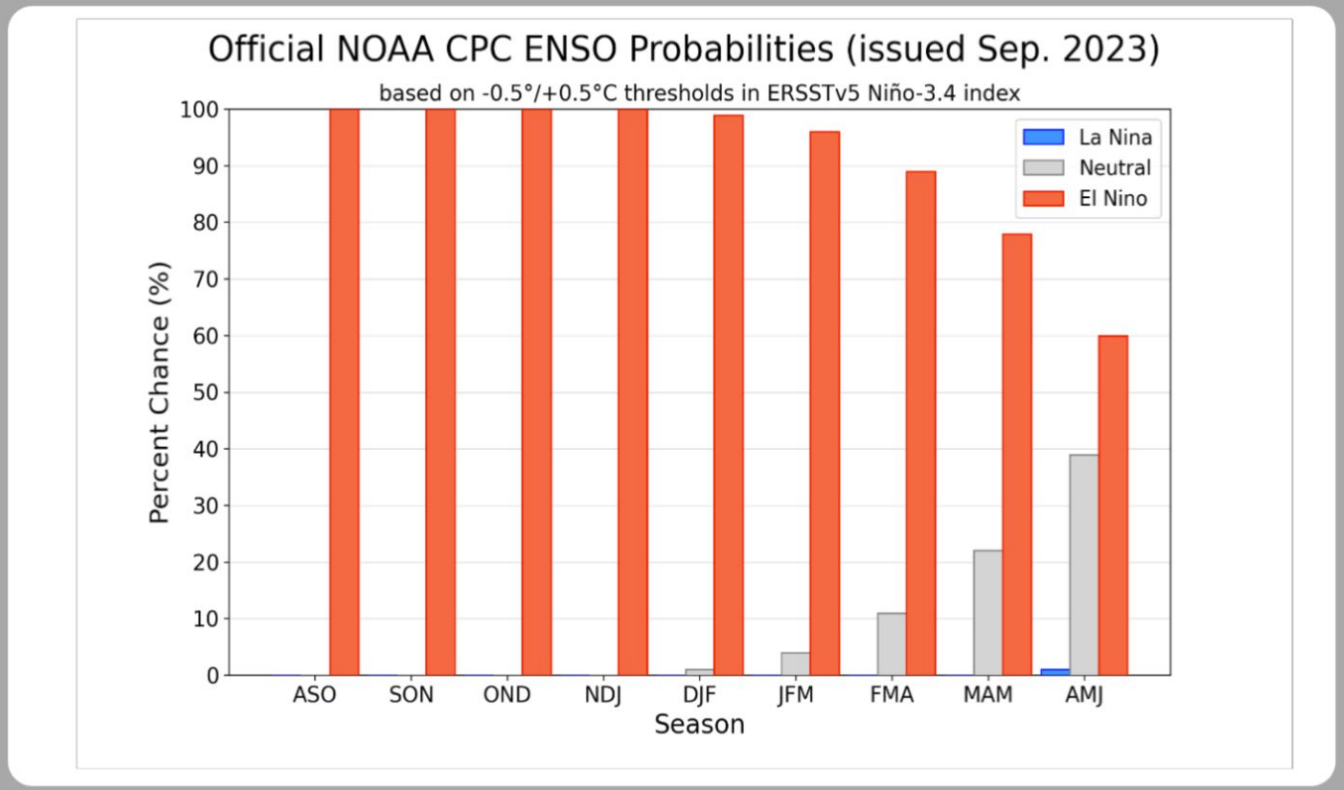
Presenter - Jon Meyer

El Nino has arrived (predicted to be strong)

El Niño is favored through Northern Hemisphere winter 2023-24, with chances exceeding 95% through January-March 2024.



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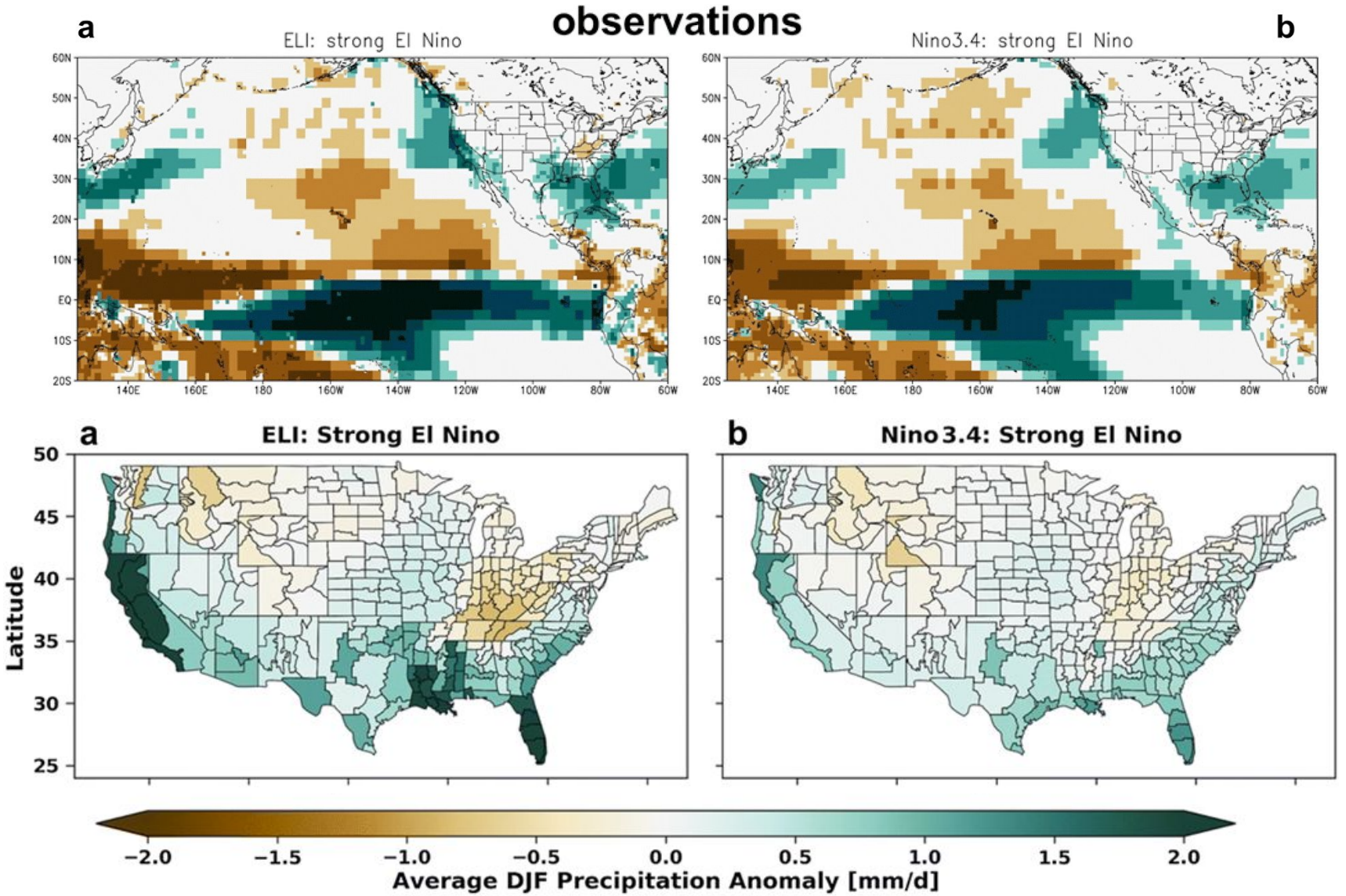
Presenter - Jon Meyer

El Nino doesn't provide much predictability to Utah

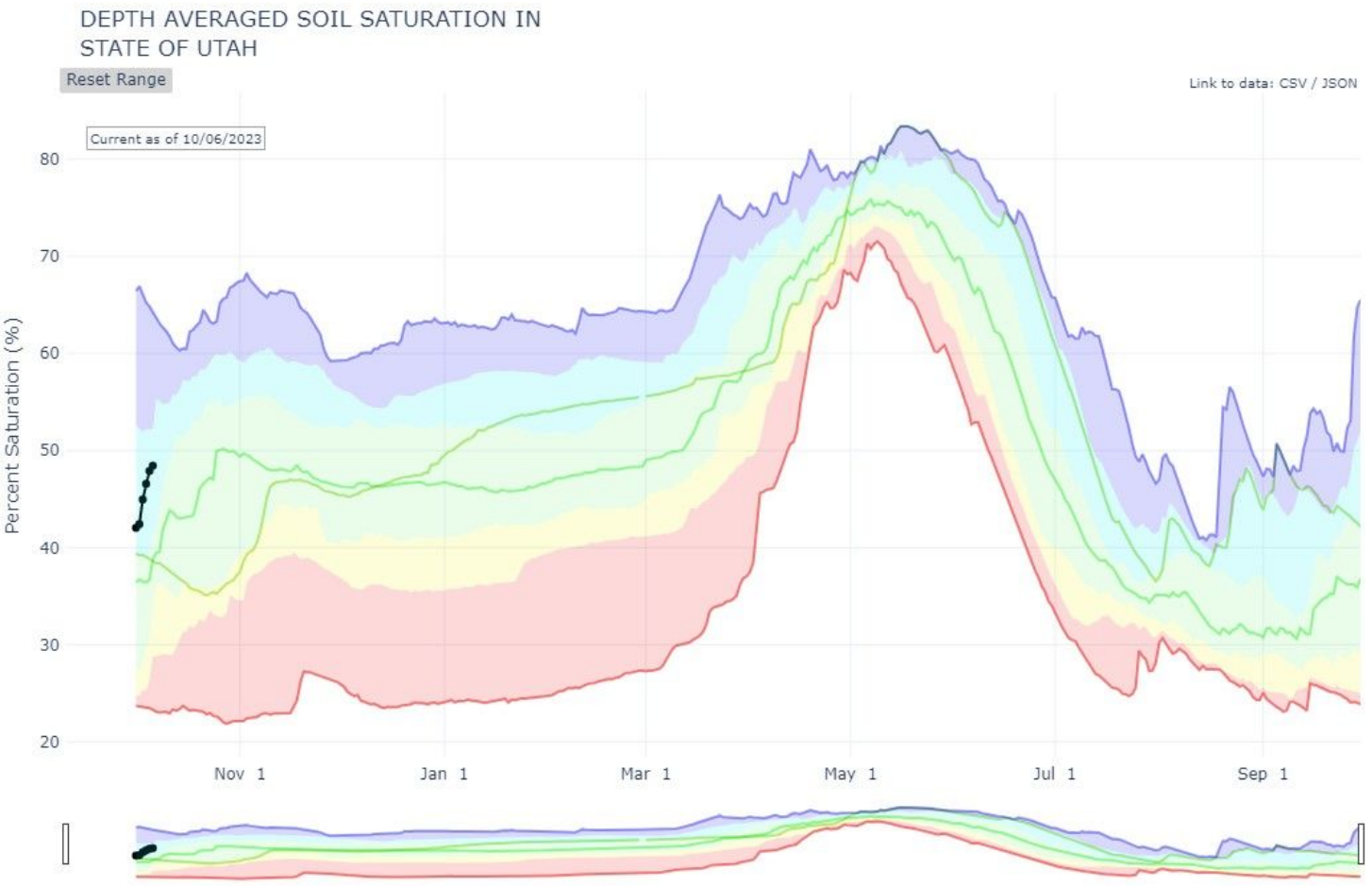


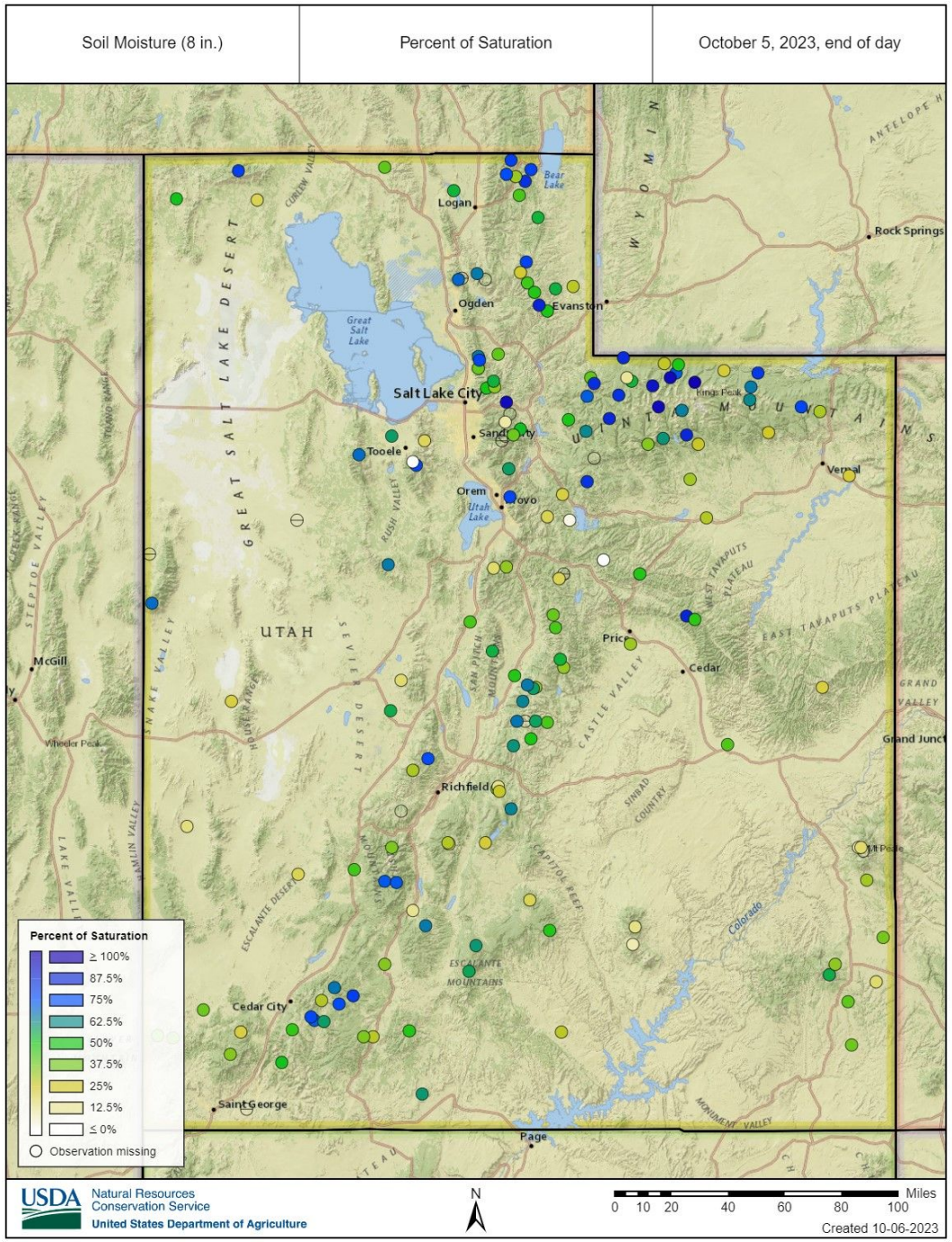
Observed precipitation anomalies (mm/day) averaged DJF relative to the 1979–2016 period from the US Climate Divisional Dataset for composites according to strong El Niño events as defined by **a** ELI and **b** the Niño3.4 index and strong La Niña events as defined by **c** ELI and **d** the Niño3.4 index.

Agency - Utah Climate Center
Presenter - Jon Meyer

Patricola, C.M., O'Brien, J.P., Risser, M.D. *et al.* Maximizing ENSO as a source of western US hydroclimate predictability. *Clim Dyn* **54**, 351–372 (2020). https://doi.org/10.1007/s00382-019-05004-8

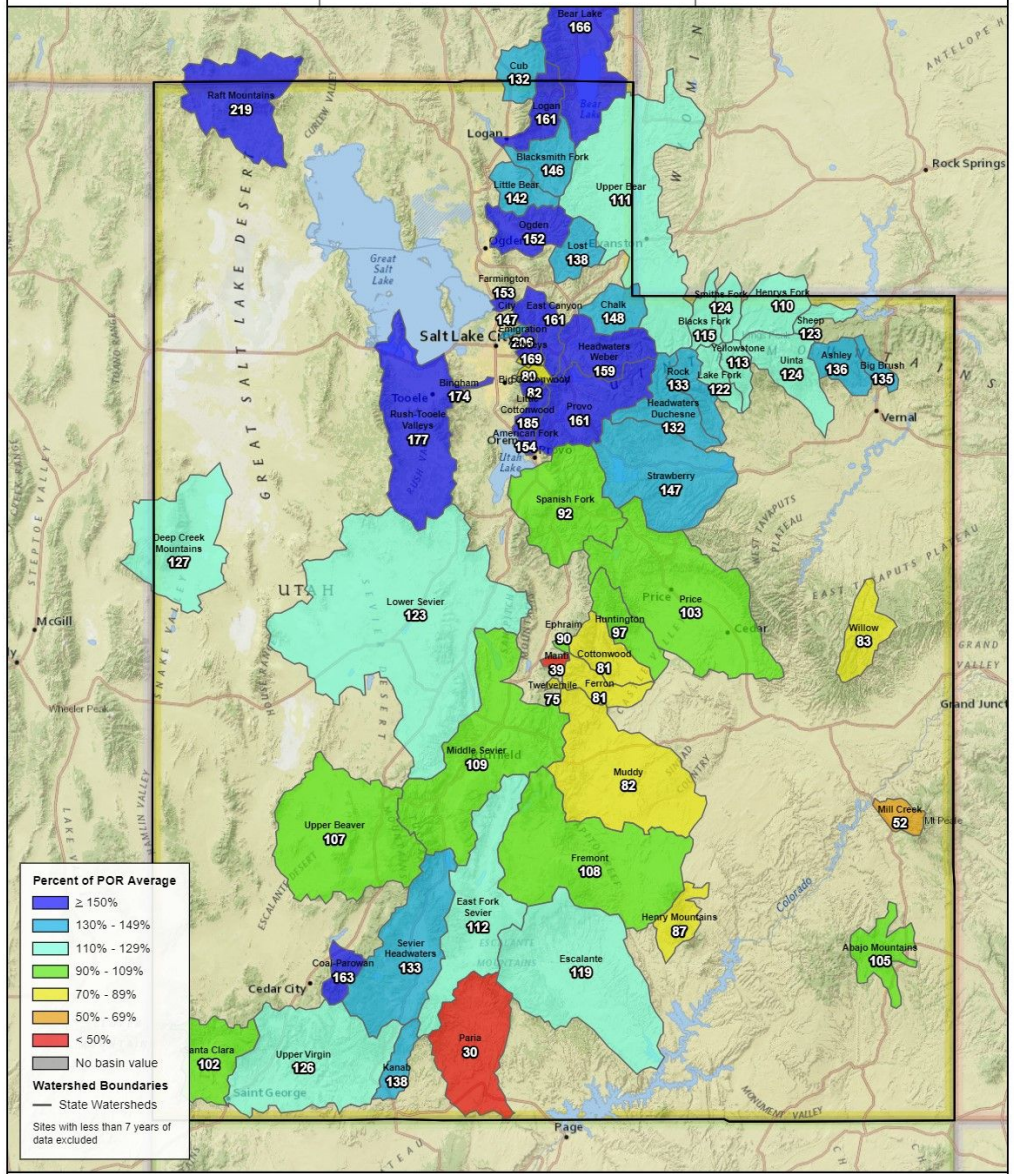
Soil Moisture



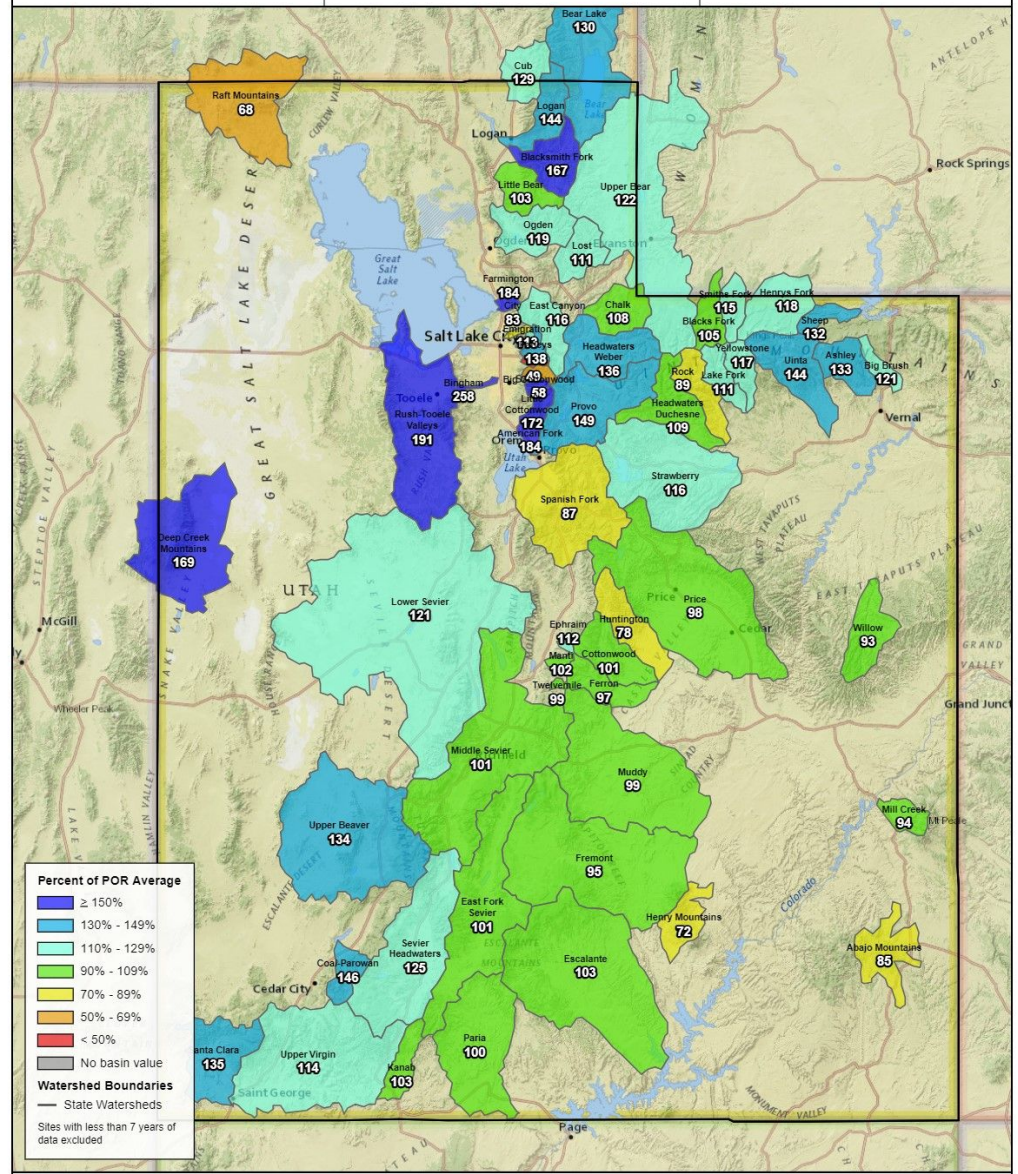


Agency - NRCS Snow Survey
Presenter - Jordan Clayton

Soil Moisture (2 in.) | Percent of POR Average | October 5, 2023, end of day

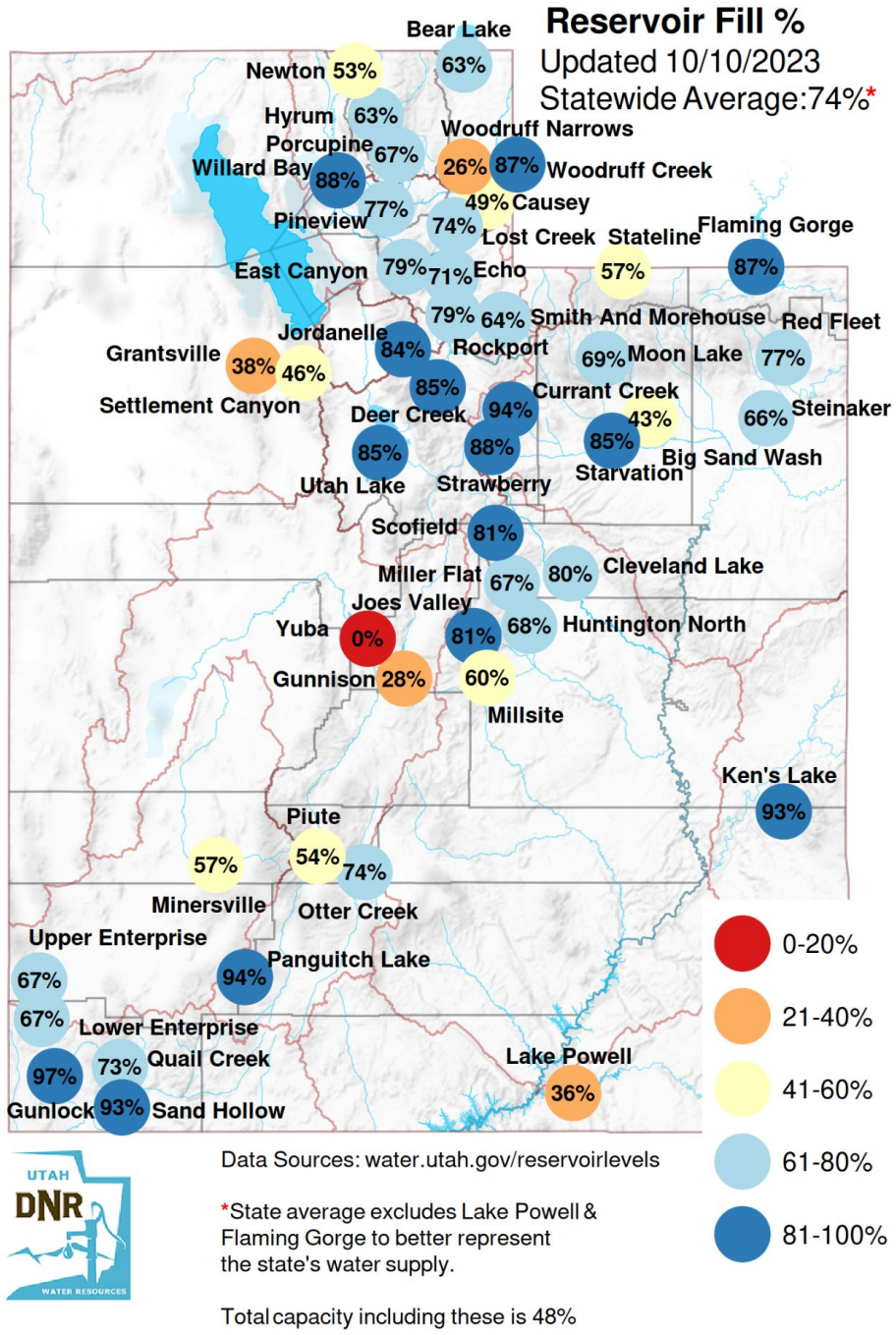


Soil Moisture (20 in.) | Percent of POR Average | October 5, 2023, end of day



Yuba Lake had spillway work done this summer

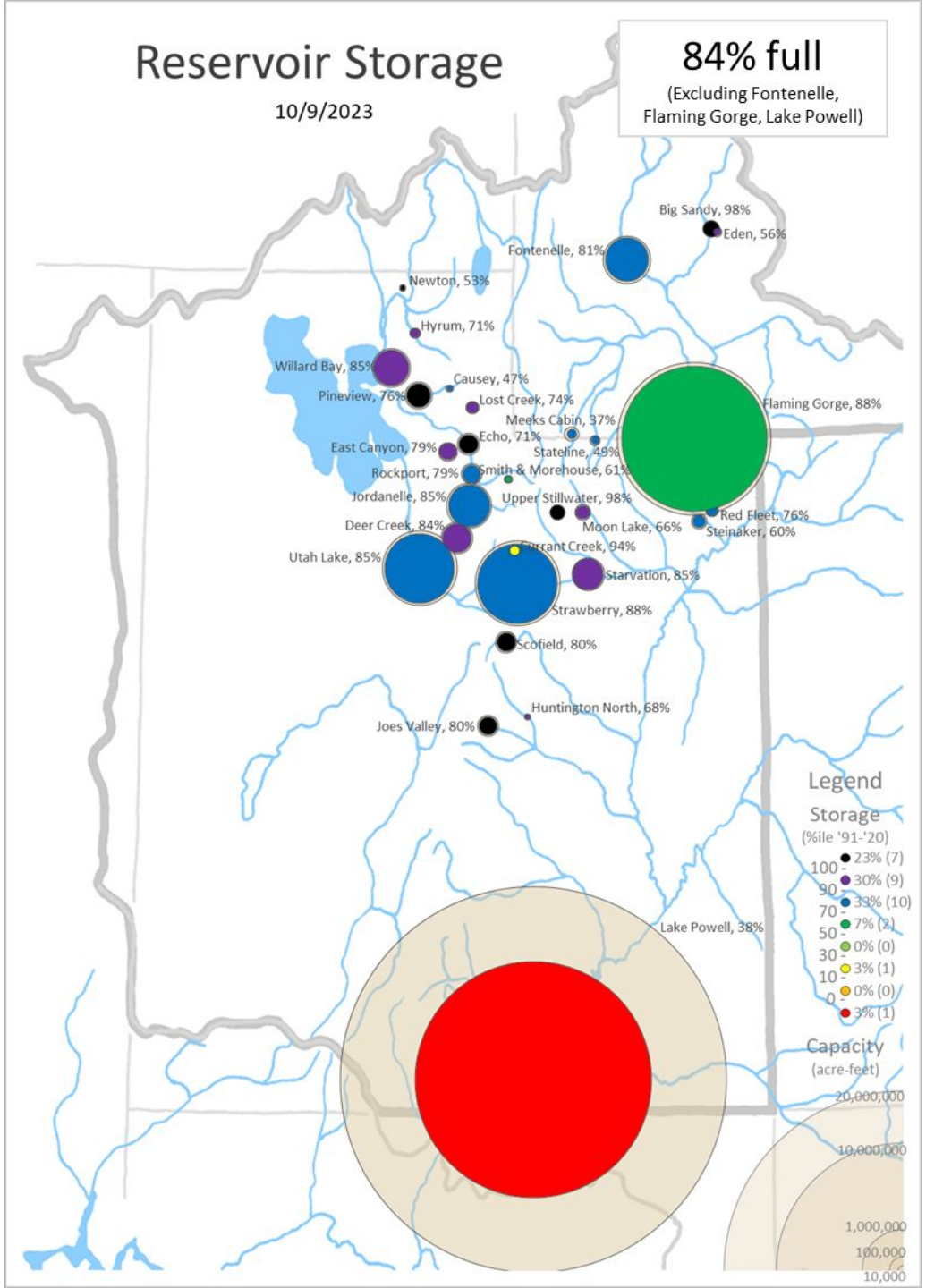
Gunnison, Grantsville and Woodruff Narrows (21-40%) are higher than typical for this time of year



Agency - Division of Water Resources
Presenter - Laura Haskell

Reservoir Levels

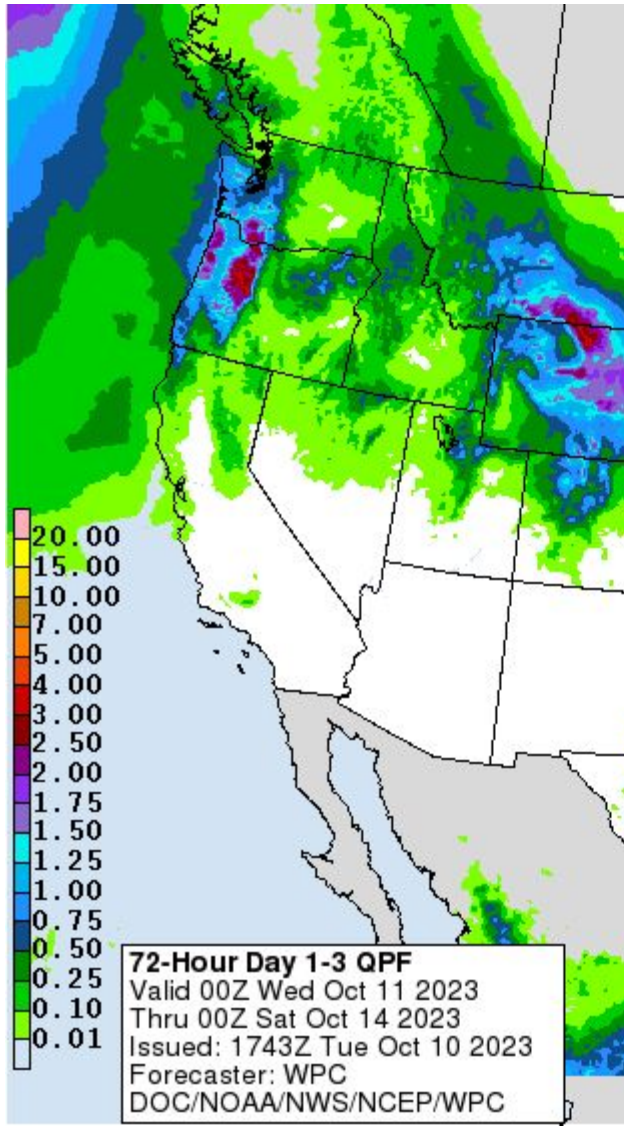
- Water Year end/beginning
  - High water use ending
  - Fall/winter storage beginning
- Very high carryover storage
  - 84% full (excl. Font, FG, LP)
    - last year: 52% full
    - median (23-years): ~62% full
  - ~All reservoirs >70th percentile
  - 2024 Outlook
    - Dry: we have good storage
    - Wet: water to Powell, GSL

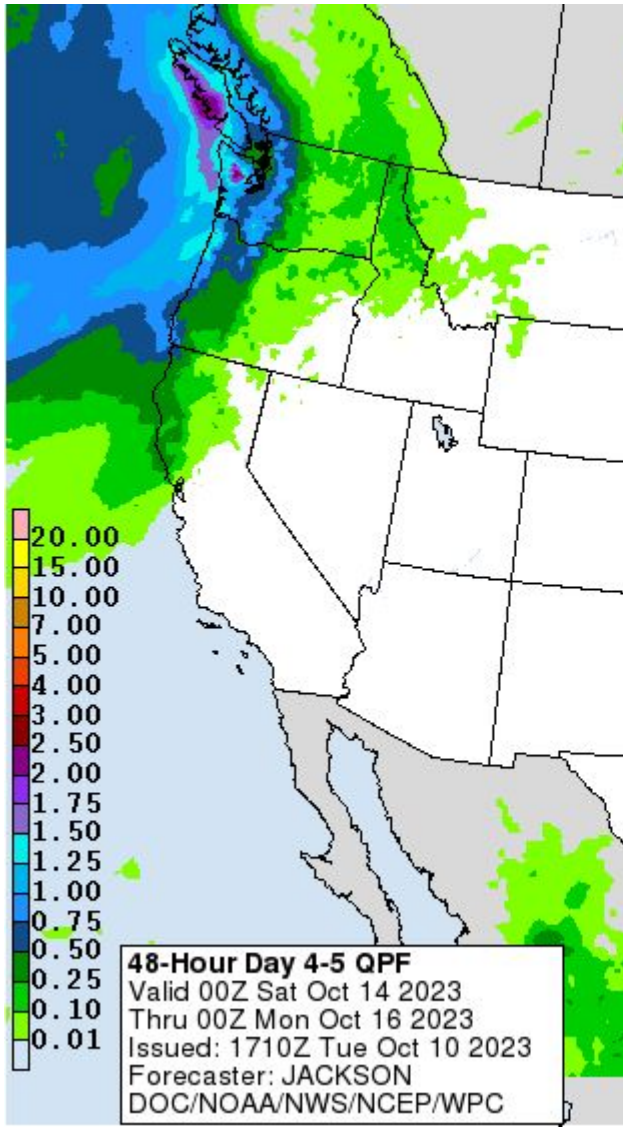


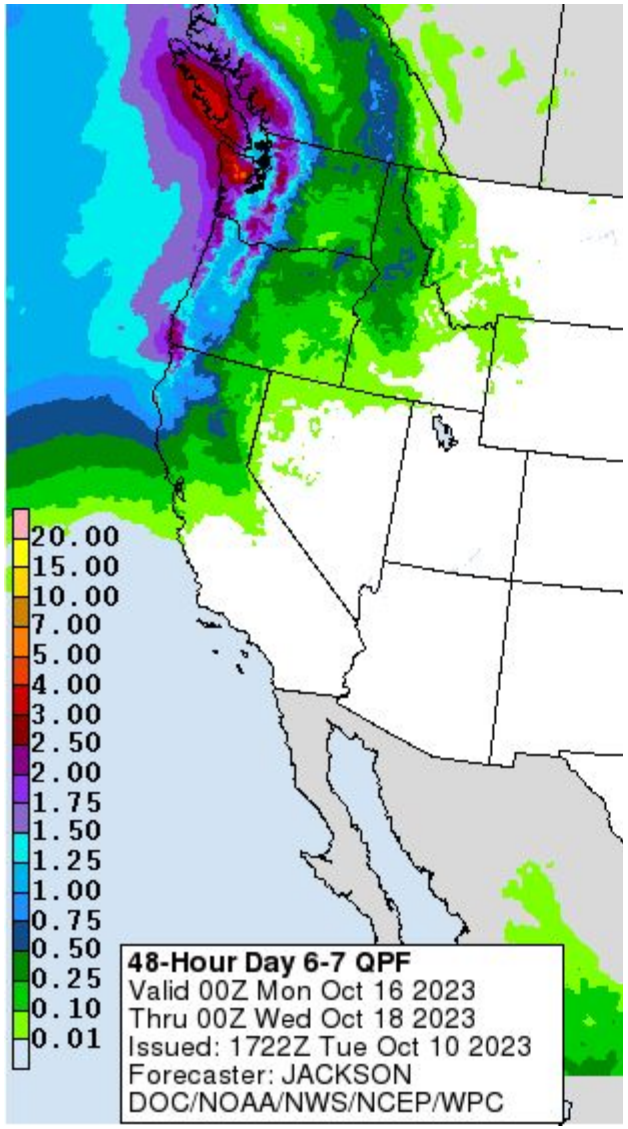
Agency - BOR
Presenter - Gary Henrie

BUREAU OF RECLAMATION

Weather Forecast Office Utah Day 1-7 Outlook



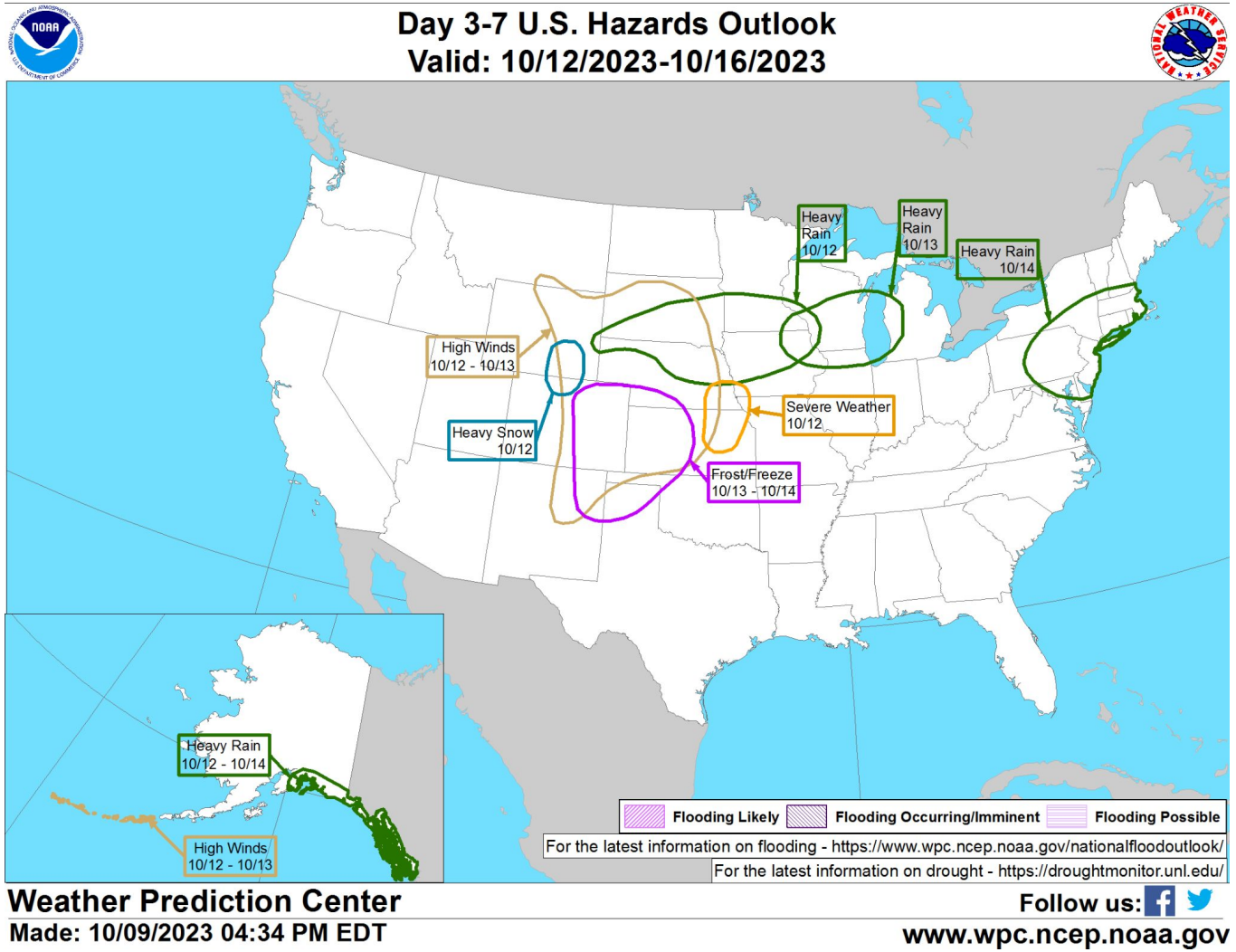




Agency - National Weather Service Weather Forecast Office

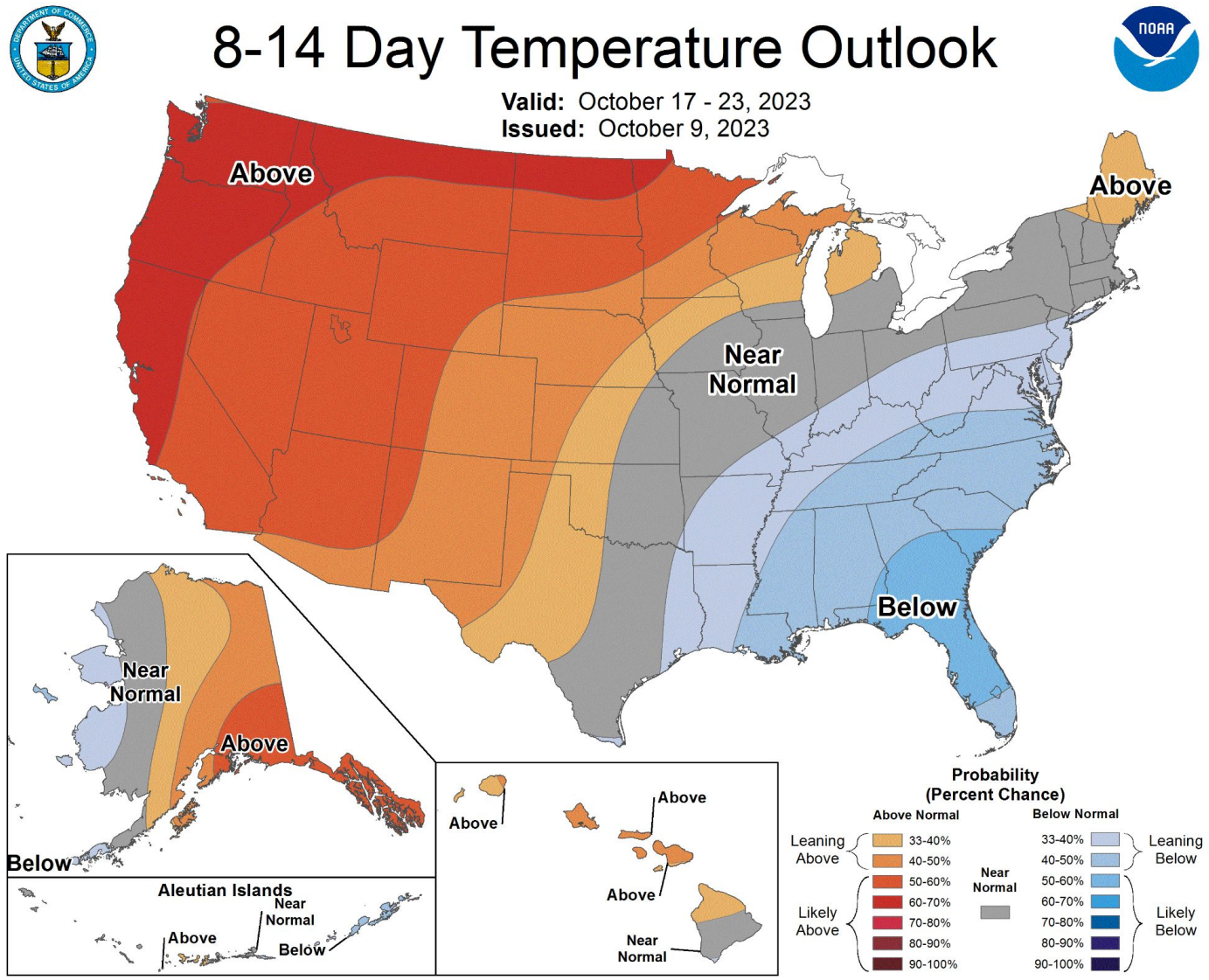
Presenter - Glen Merrill

Weather Prediction Center U.S. Day 3-7 Hazards Outlook



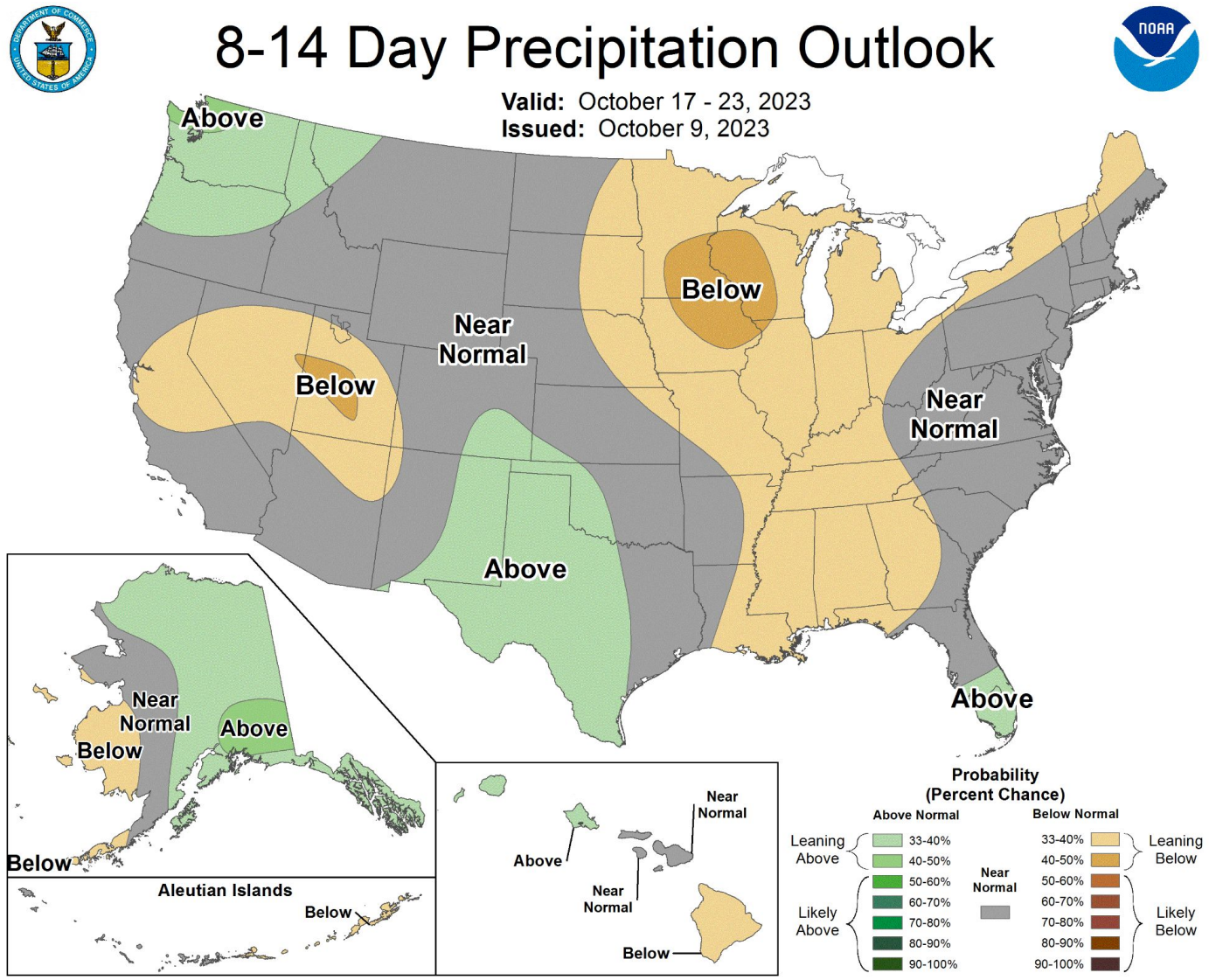
Agency - National Weather Service Weather Forecast Office
Presenter - Glen Merrill

Climate Prediction Center 8 to 14 Day Outlooks - Temperature



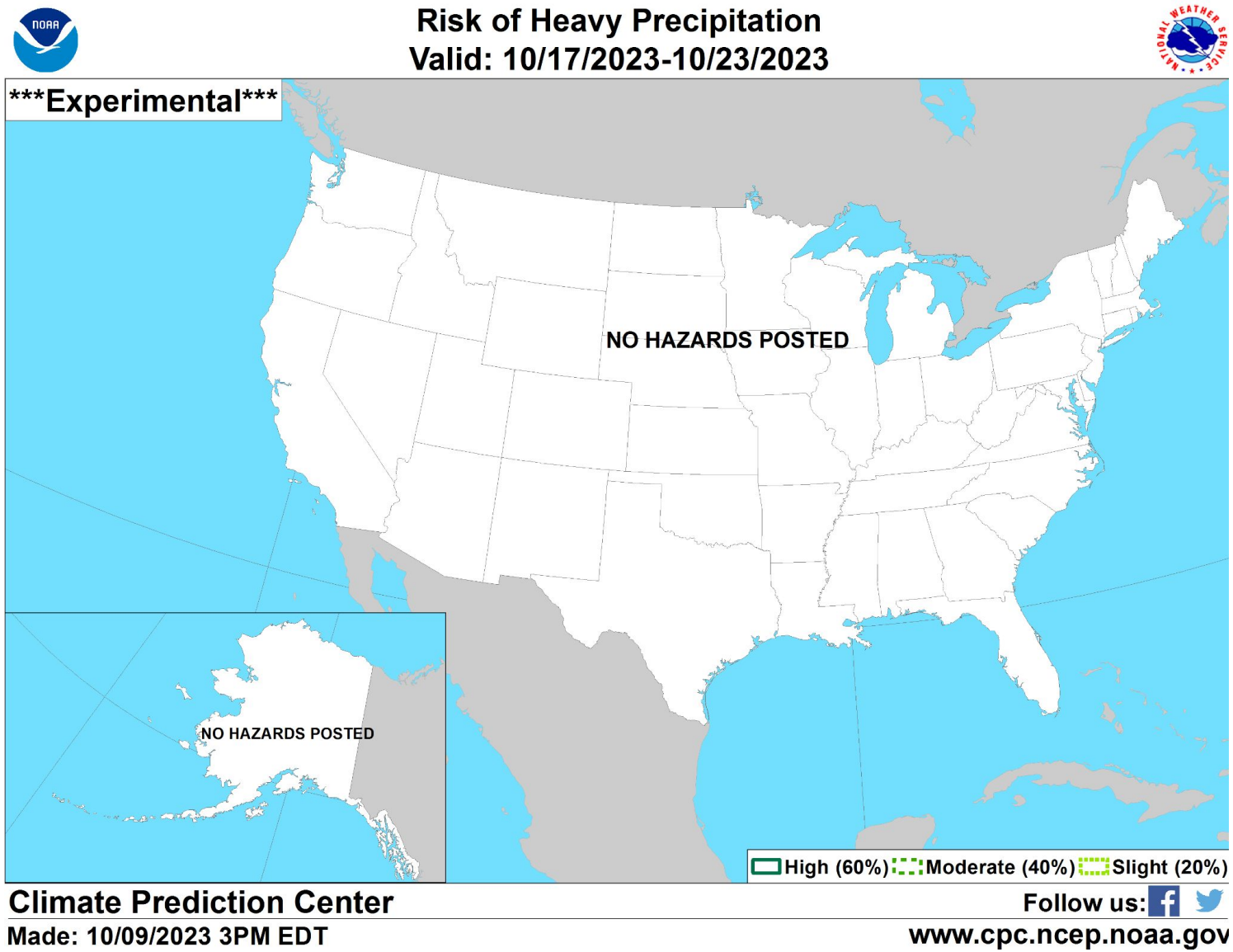
Agency - National Weather Service Weather Forecast Office
Presenter - Glen Merrill

Climate Prediction Center 8 to 14 Day Outlooks - Precipitation



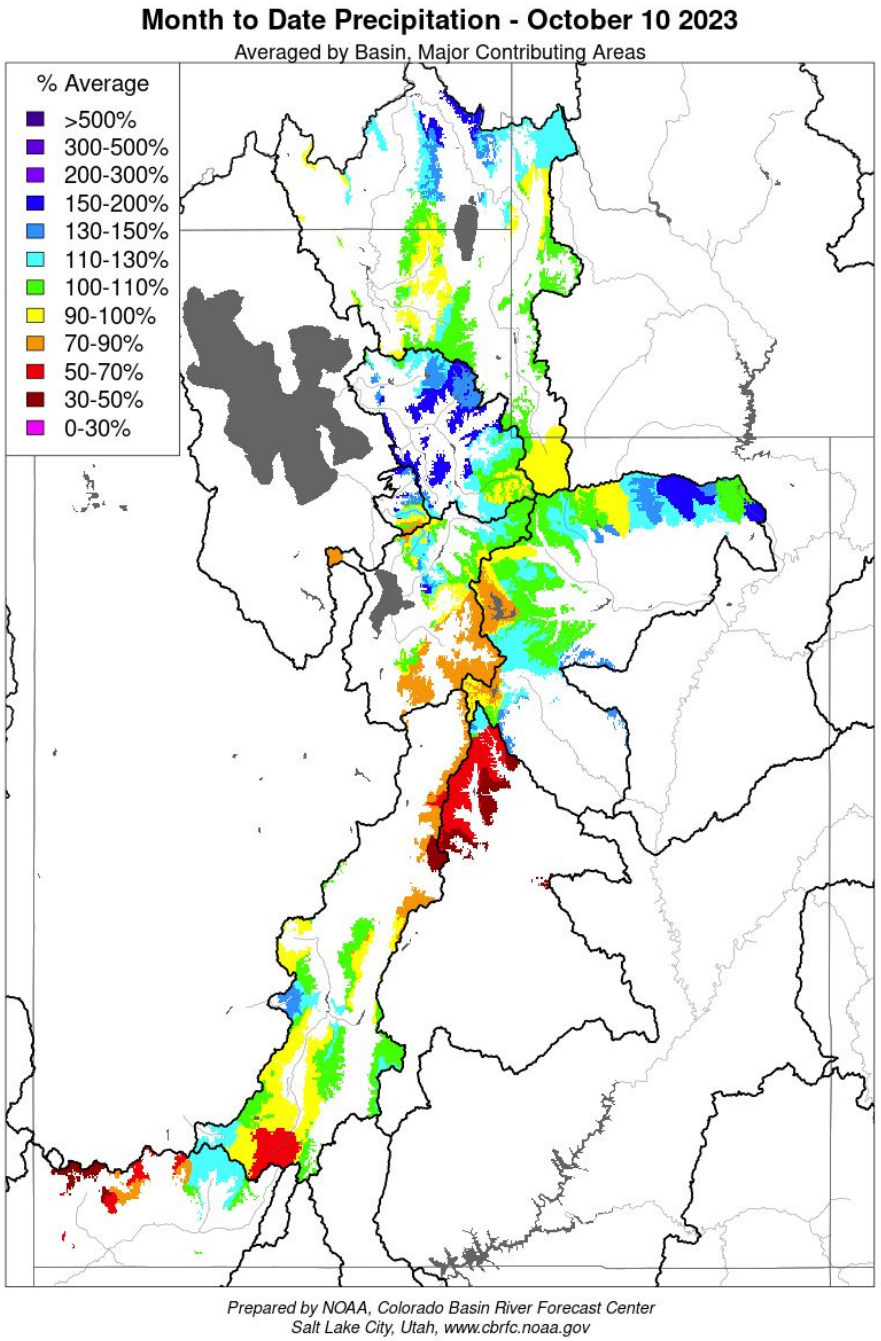
Agency - National Weather Service Weather Forecast Office
Presenter - Glen Merrill

Climate Prediction Center U.S. Week-2 Hazards Outlook



Agency - National Weather Service Weather Forecast Office

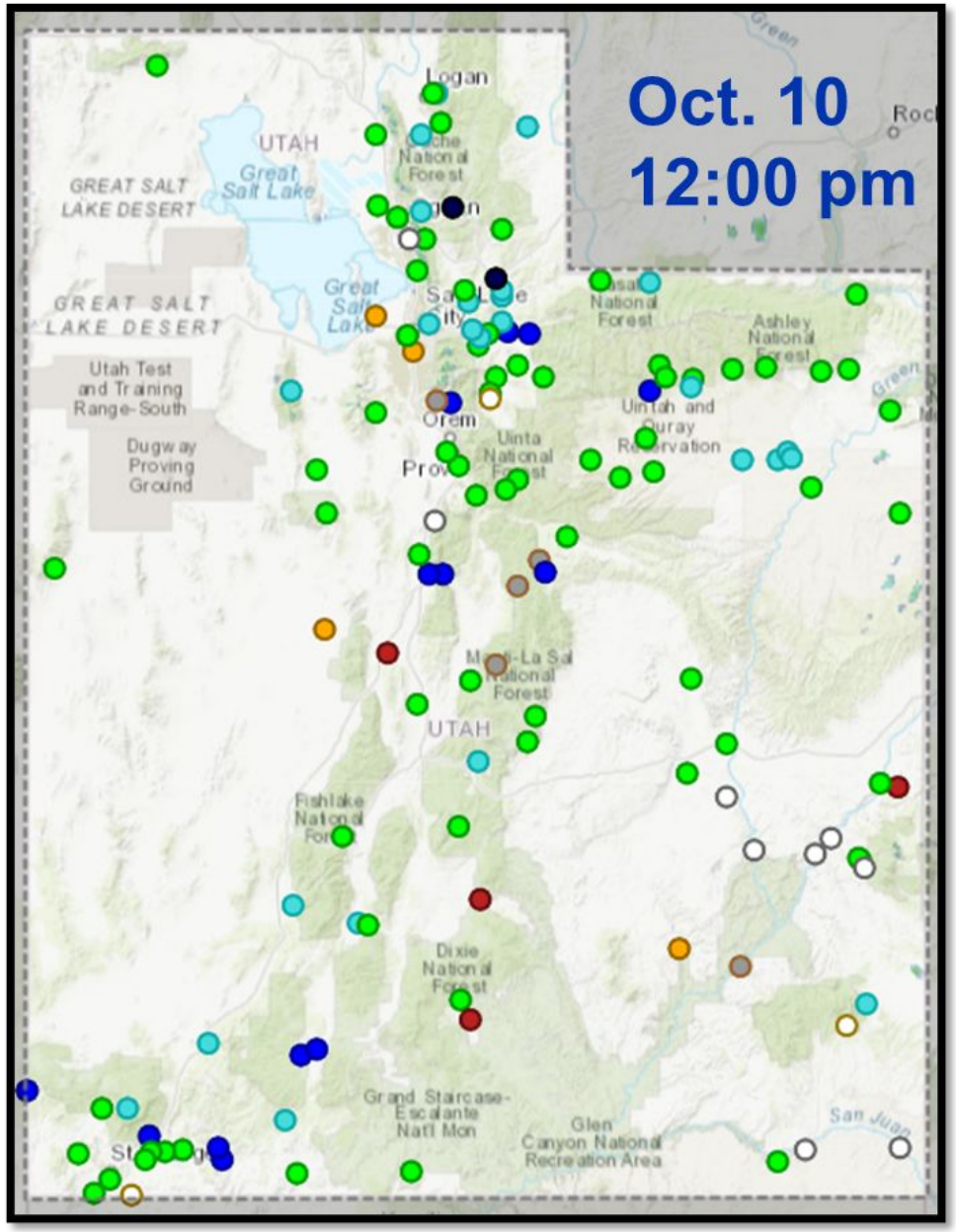
Presenter - Glen Merrill



Nice start to the water year, especially in areas that we feel contribute significantly to runoff. We're currently working on assessing our soil moisture states now that irrigation season is slowing down and we still have gage information before the gages start to freeze.

We're planning on having a stakeholder engagement meeting on November 9th, and the registration form can be found here:
https://forms.gle/cHPxAULw8tLQHoUs5
Or e-mail me at paul.miller@noaa.gov and I'll send you the information.

Current Streamflow Conditions



***Sites must have at least 10 years of streamflow record to be ranked on this graphic**

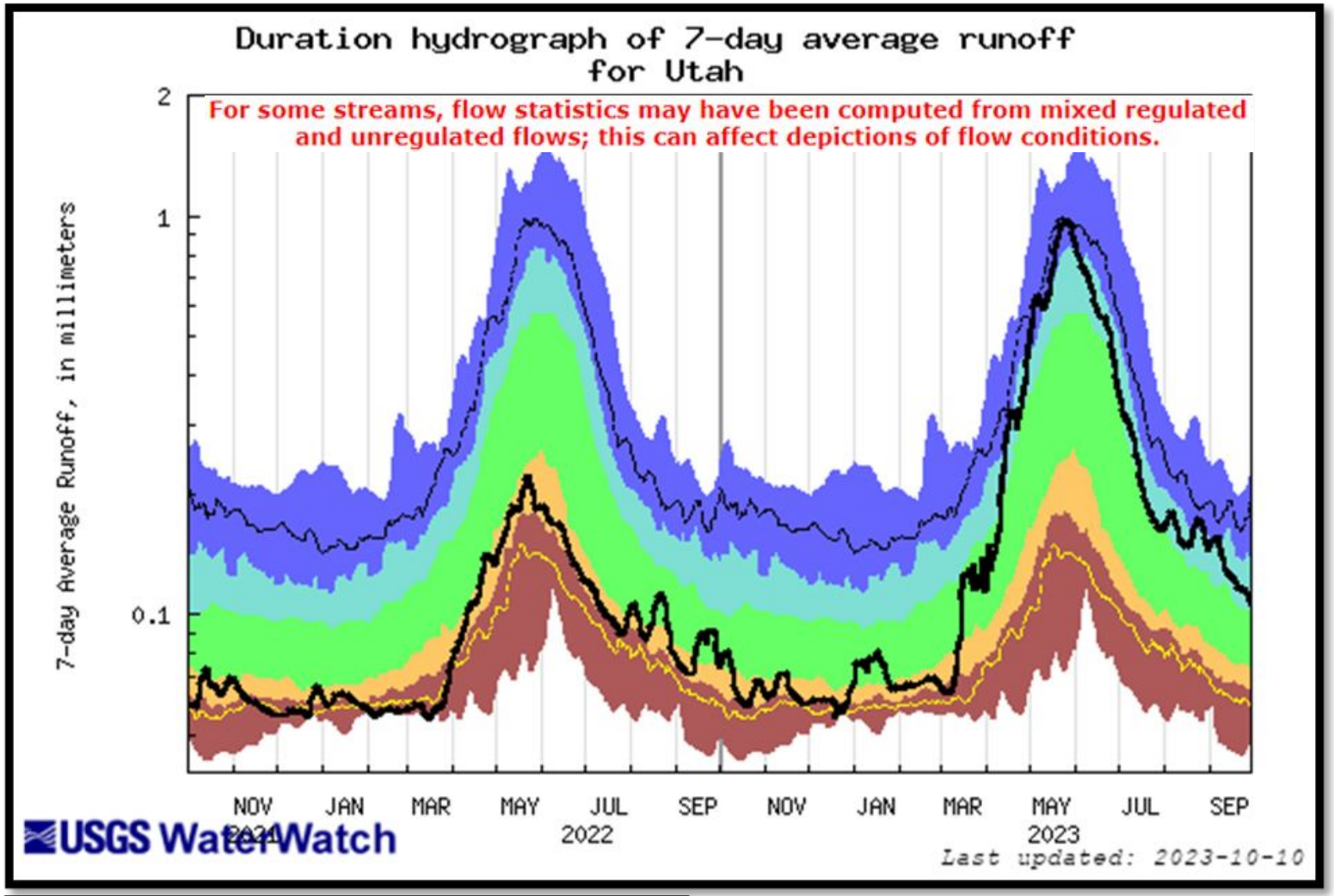
Day-of-Year Status	Sep. 12 % Gages	Oct. 10 % Gages
All-time high for this day-of-year	1.4%	1.4%
Much above normal for this day-of-year	9.4%	9.4%
Above normal for this day-of-year	27.5%	18.8%
Normal for this day-of-year	43.5%	52.2%
Below normal for this day-of-year	6.5%	2.9%
Much below normal for this day-of-year	2.2%	2.9%
All-time low for this day-of-year	0.0%	0.0%
Not ranked - insufficient record	8.0%	8.7%

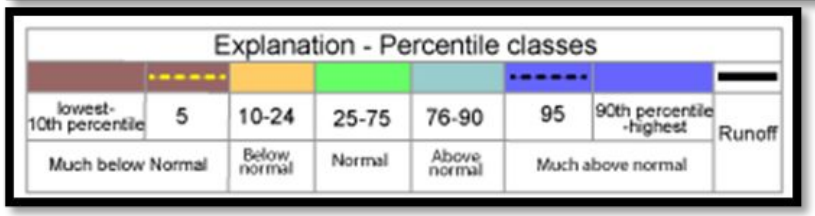
Provisional data, subject to revision

Agency - USGS Utah WSC
Presenter - Ryan Rowland

USGS science for a changing world

Utah Area-Based Runoff Duration Hydrograph





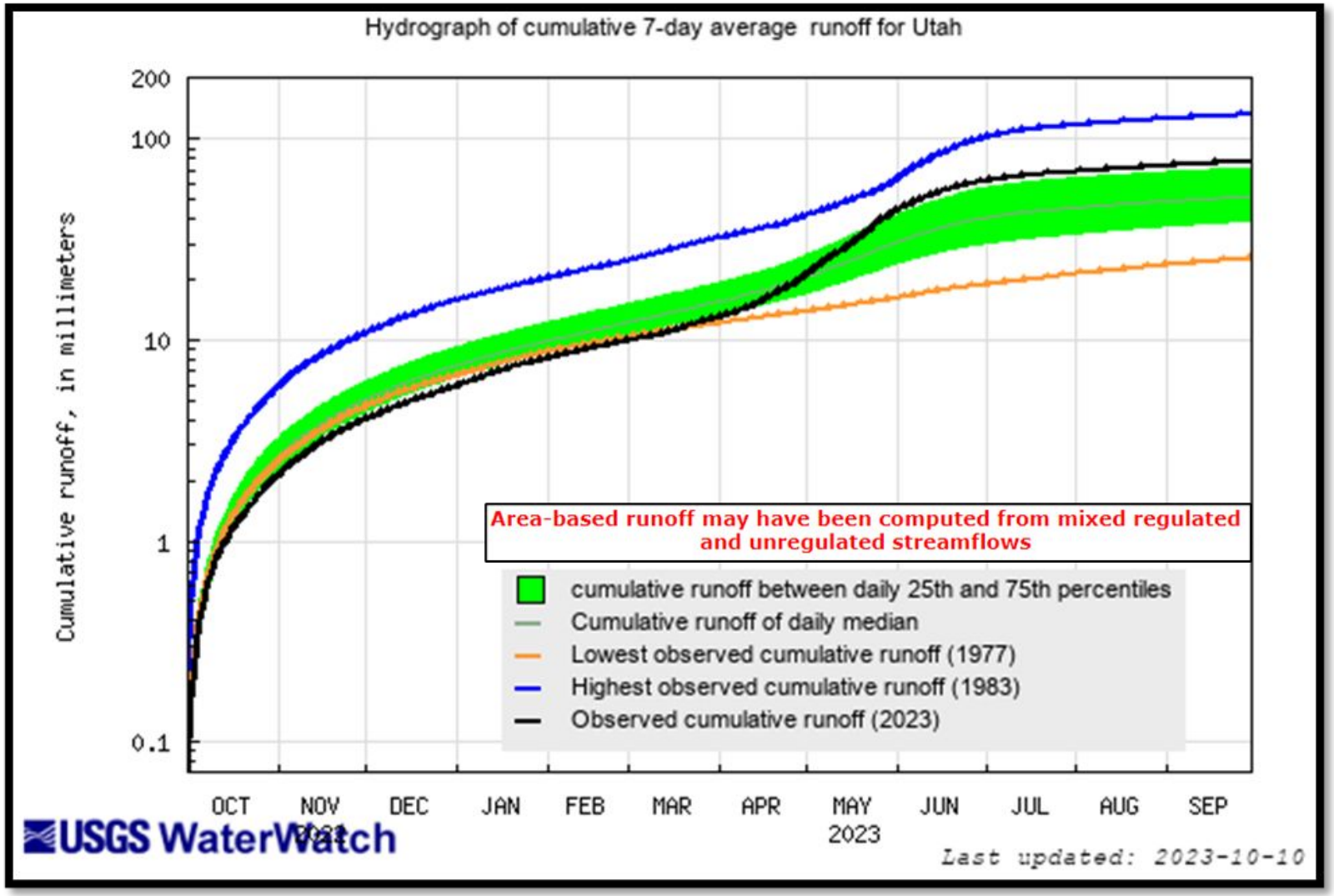
Provisional data, subject to revision

- **The Runoff Duration Hydrograph is a graphical presentation of area-based runoff (the black line) calculated as a weighted average of HUC 8-runoff, plotted over the long-term statistics of runoff for each day or month of the year for each area.**

Agency - USGS Utah WSC
Presenter - Ryan Rowland

USGS science for a changing world

Utah Cumulative Area-Based Runoff Hydrograph



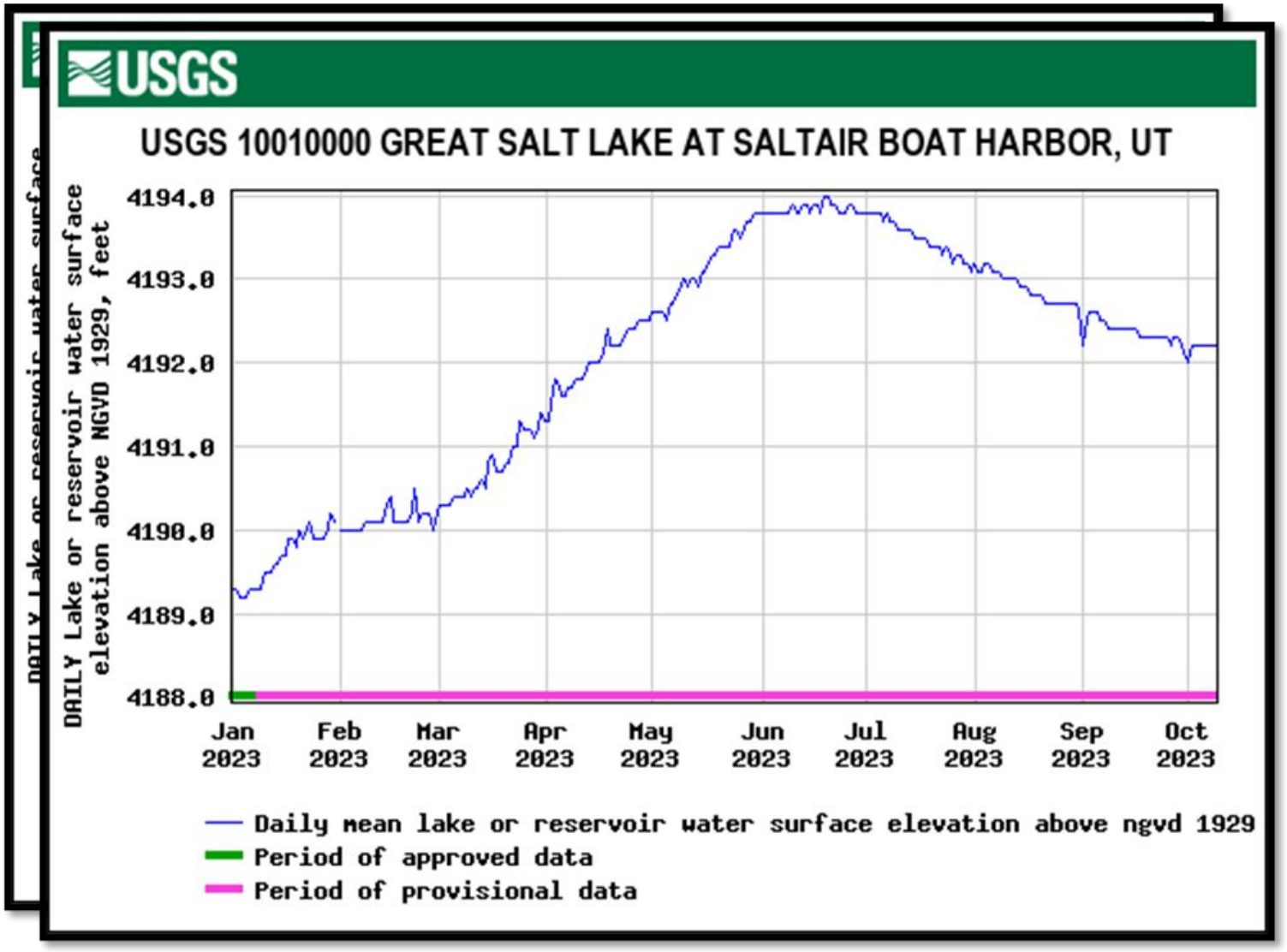
Provisional data, subject to revision

- **The Cumulative Runoff Duration Hydrograph is a graphical presentation of cumulative daily area-based runoff (the black line), plotted over the cumulative long-term statistics of runoff for each day or month of the year for each area.**
- **Area-based runoff is calculated as a weighted average of HUC8-runoff.**

Agency - USGS Utah WSC
Presenter - Ryan Rowland

USGS science for a changing world

Great Salt Lake Water Surface Elevation – South Arm

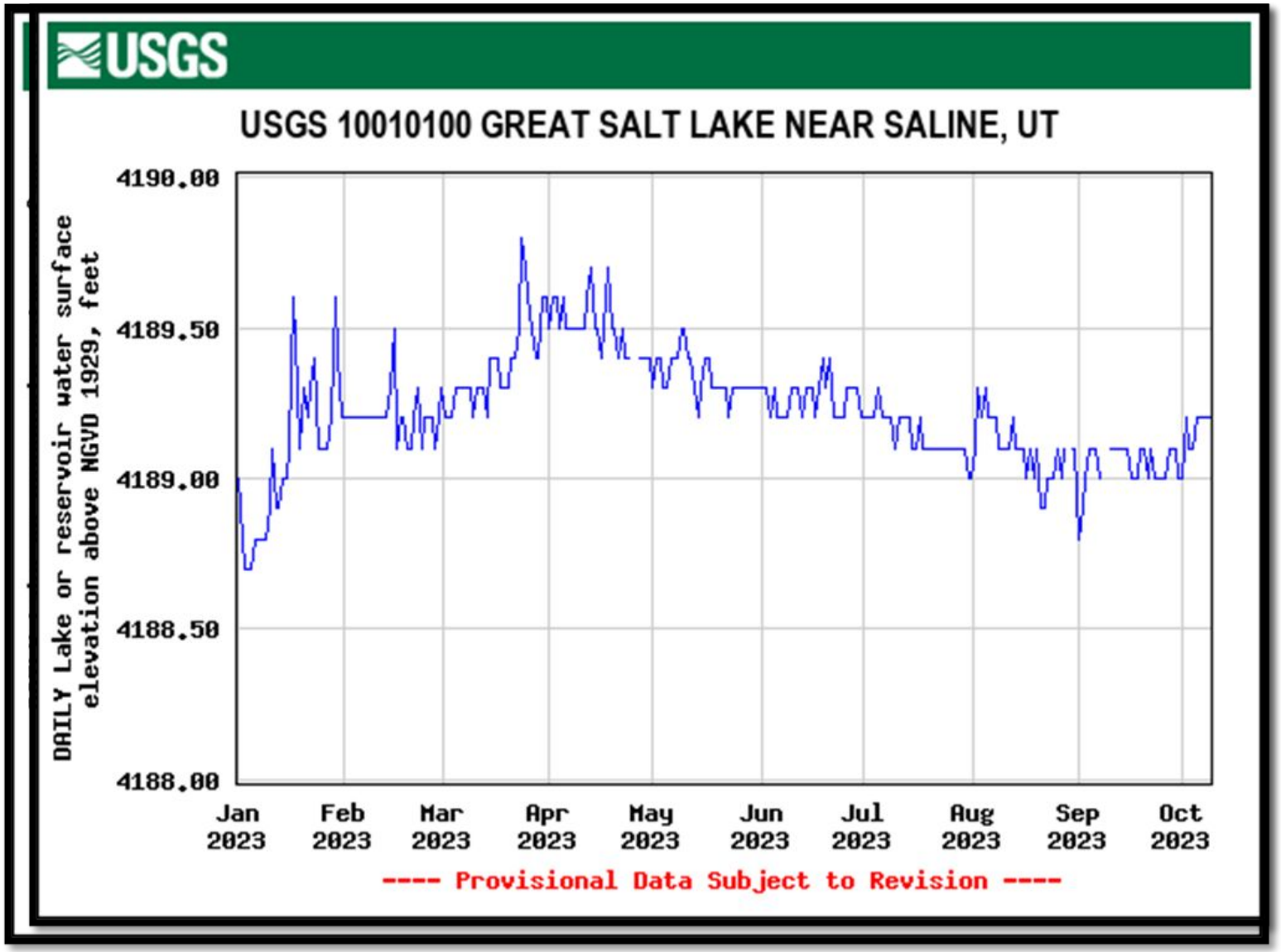


- Daily value 10/9/2023 = 4,192.2’
- Daily value 9/11/2023 = 4,192.4’
- Peaked at 4,194.0’ on 6/19 and 6/20/2023
- Berm at causeway breach raised to 4,192’ 2/9/2023

Agency - USGS Utah WSC
Presenter - Ryan Rowland

USGS science for a changing world

Great Salt Lake Water Surface Elevation – North Arm



- Daily value 10/9/2023 = 4,189.2’
- Daily value 9/11/2023 = 4,189.1’
- Peaked at 4,189.8’ on 3/24/2023

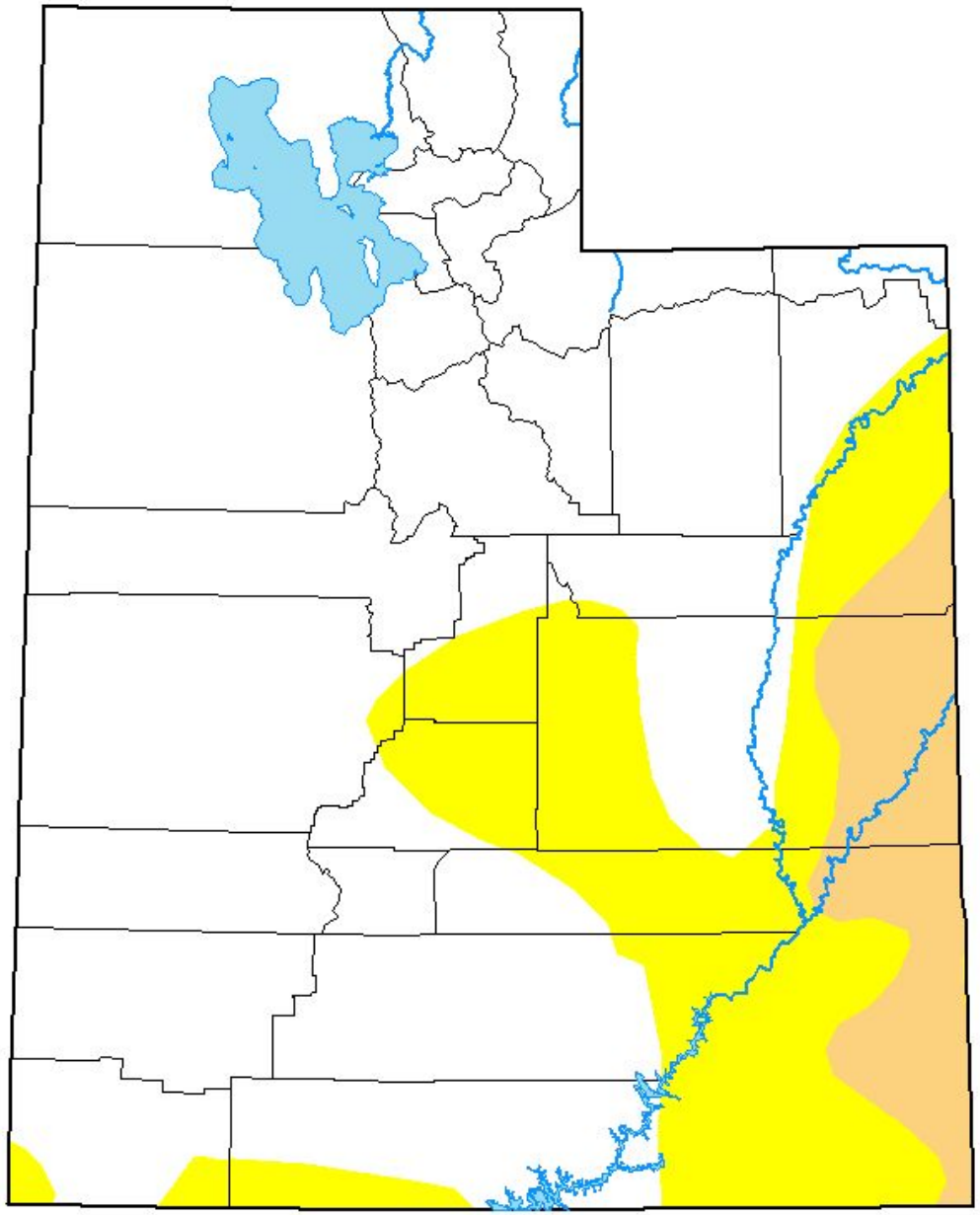
Agency - USGS Utah WSC
Presenter - Ryan Rowland

USGS science for a changing world

Colorado River Basin Forecast Center

Working on getting our soil moisture model states as representative as we can get and we'll publish those in mid-November. Also planning a stakeholder engagement meeting that folks can register for on the link provided.

We're off to a nice start very early in the water year, especially in areas that we feel like contribute significantly to runoff, but obviously, it's still extremely early in the year.



October 3, 2023

(Released Thursday, Oct. 5, 2023)

Valid 8 a.m. EDT

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

PHOTOS WANTED!

To report on conditions between meetings:

Submit a report on CMOR drought website
Email Lhaskell@utah.gov
email drought@utah.gov