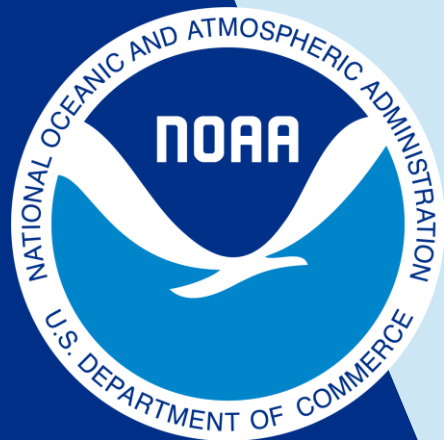


NOAA Climate Science and Services Monthly Climate Update



Karin Gleason

Climatologist, Monitoring Section Chief, NOAA National Centers for Environmental Information (NCEI)

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Service Coordination Hydrologist, NOAA California Nevada River Forecast Center

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National Oceanic and
Atmospheric Administration

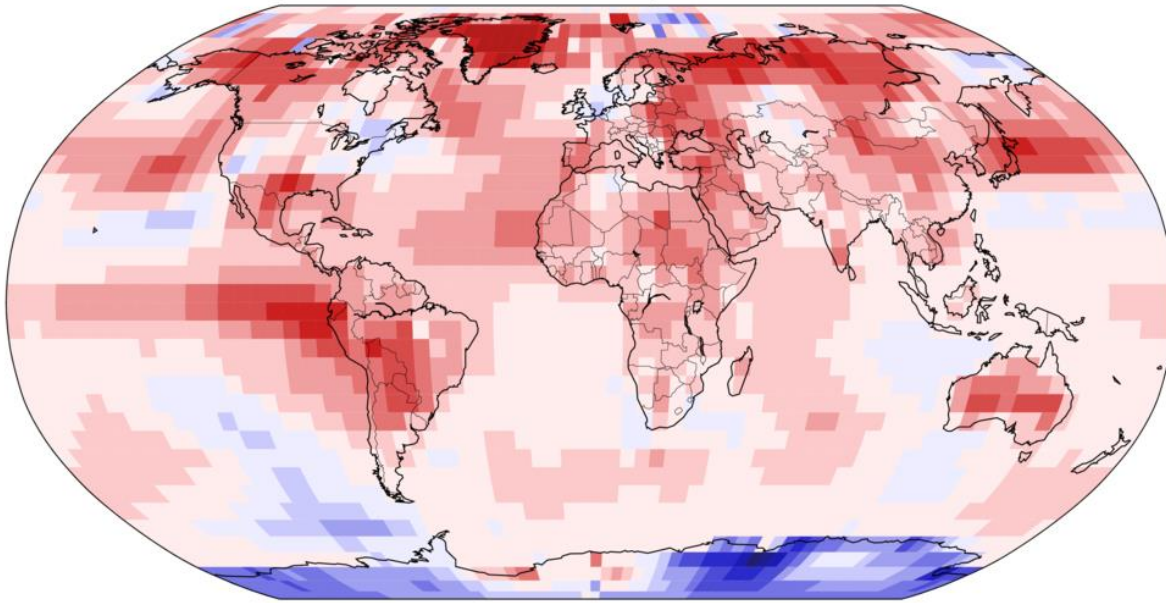
August 2023

August 2023 Global Temperature

The global temperature record dates back to 1850 (174 years)

Land & Ocean Temperature Departure from Average Aug 2023
(with respect to a 1991–2020 base period)

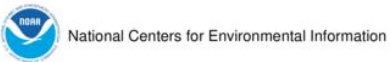
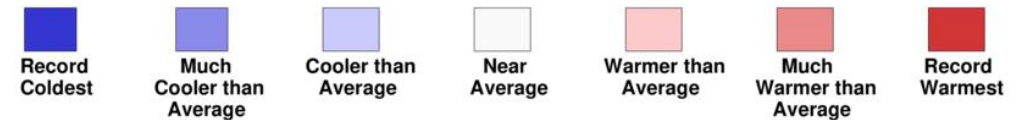
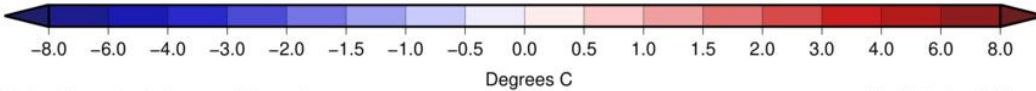
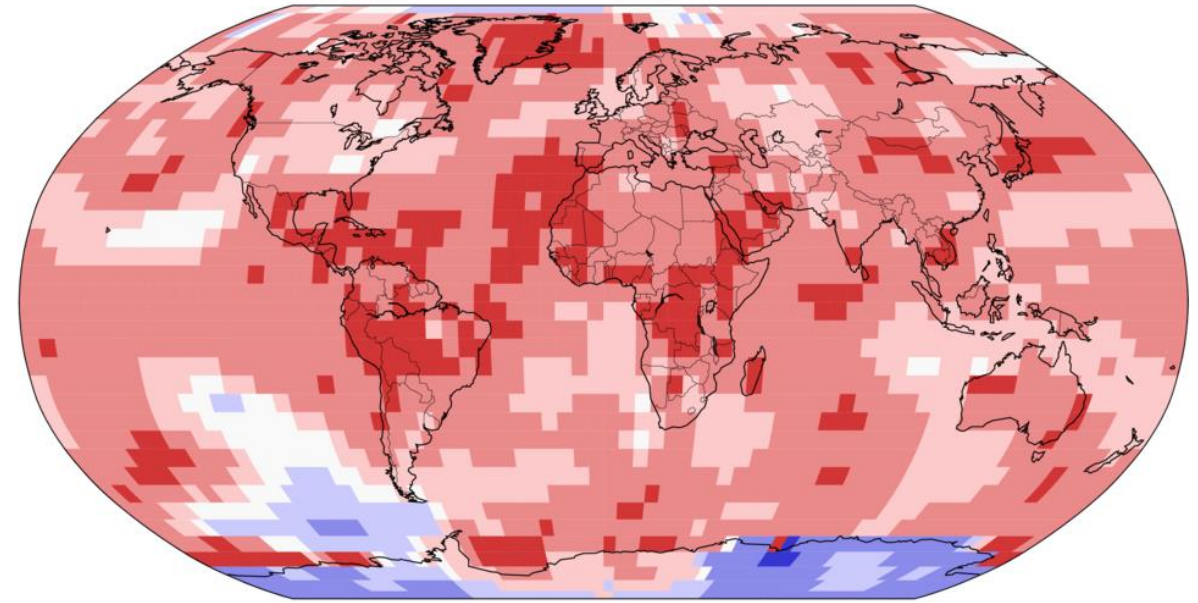
Data Source: NOAAGlobalTemp v5.1.0–20230908



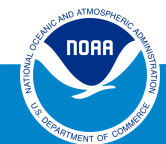
Land & Ocean Temperature Percentiles Aug 2023

NOAA's National Centers for Environmental Information

Data Source: NOAAGlobalTemp v5.1.0–20230908



Global Land & Ocean: +1.25°C / +2.25°F; warmest for August on record
Global Land-only: +1.72°C / +3.10°F; warmest for August on record
Global Ocean-only: +1.03°C / +1.85°F; warmest for August on record

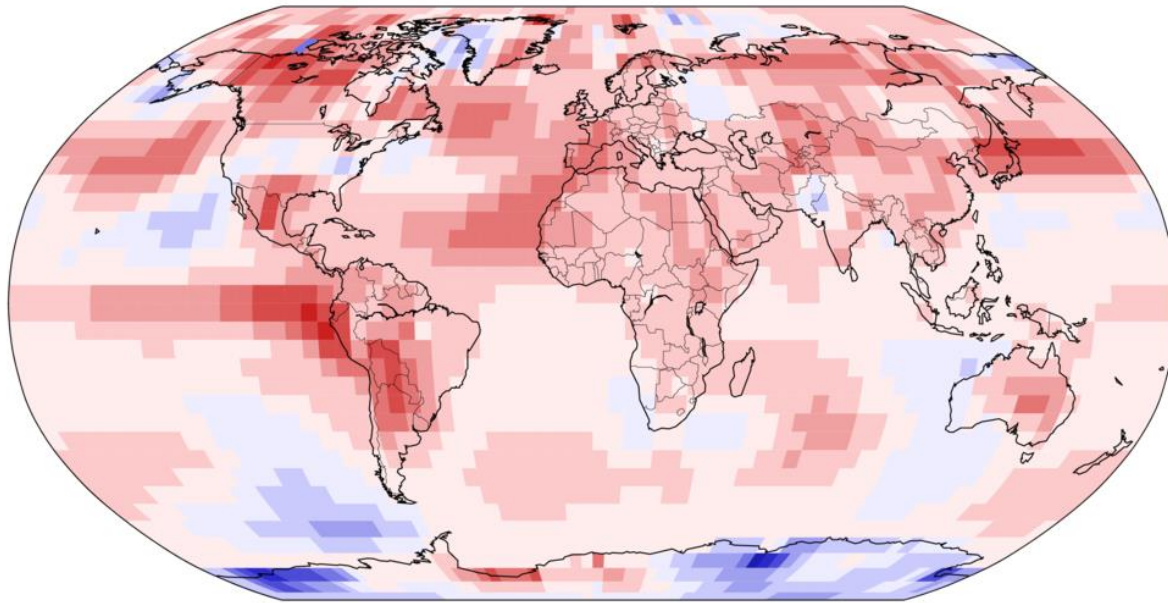


June-August 2023 Global Temperature

The global temperature record dates back to 1850 (174 years)

Land & Ocean Temperature Departure from Average Jun 2023–Aug 2023
(with respect to a 1991–2020 base period)

Data Source: NOAAGlobalTemp v5.1.0–20230908



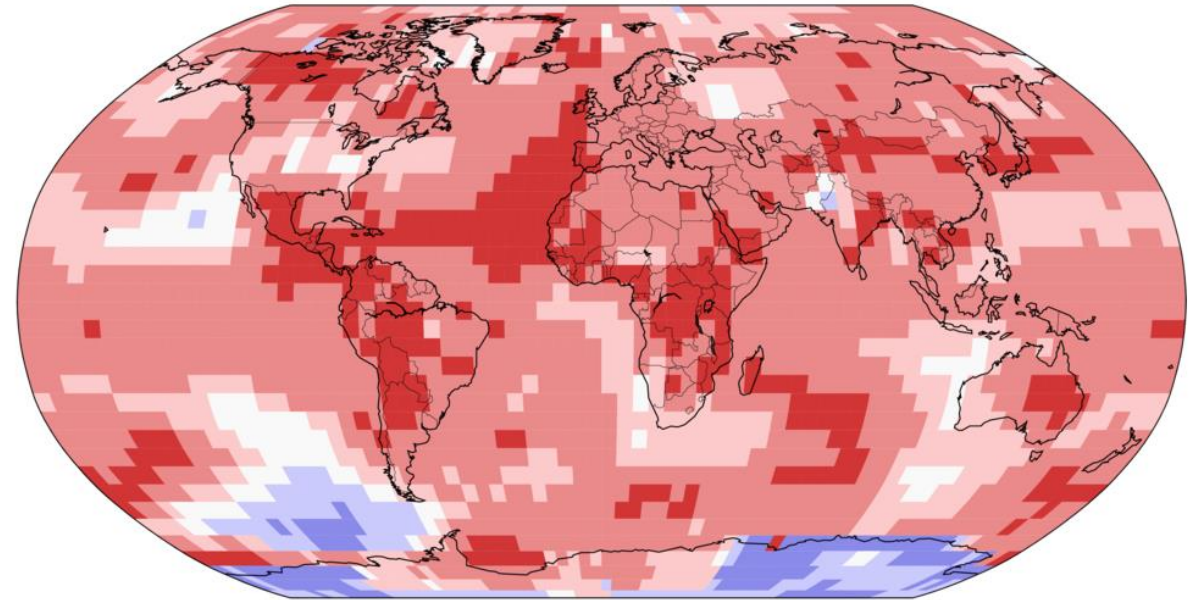
-8.0 -6.0 -4.0 -3.0 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 3.0 4.0 6.0 8.0
Degrees C
7 Map Projection: Robinson



Land & Ocean Temperature Percentiles Jun 2023–Aug 2023

NOAA's National Centers for Environmental Information

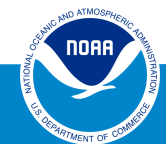
Data Source: NOAAGlobalTemp v5.1.0–20230908



Record Coldest Much Cooler than Average Cooler than Average Near Average Warmer than Average Much Warmer than Average Record Warmest



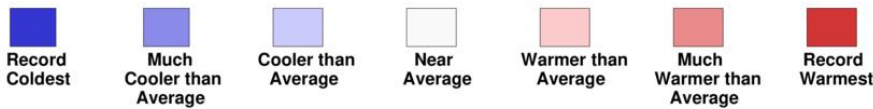
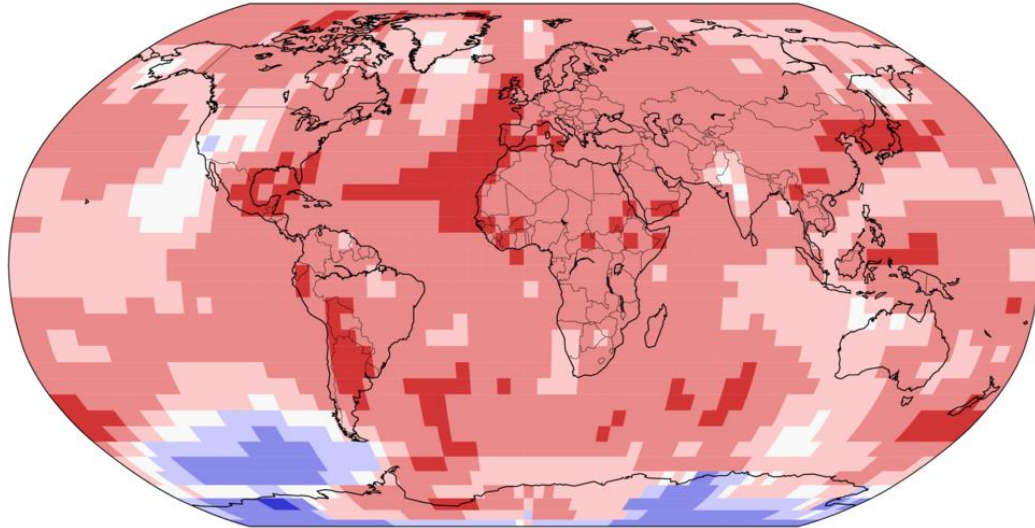
Global Land & Ocean: +1.15°C / +2.07°F; warmest Jun-Aug on record
Global Land-only: +1.51°C / +2.72°F; warmest Jun-Aug on record
Global Ocean-only: +0.99°C / +1.78°F; warmest Jun-Aug on record



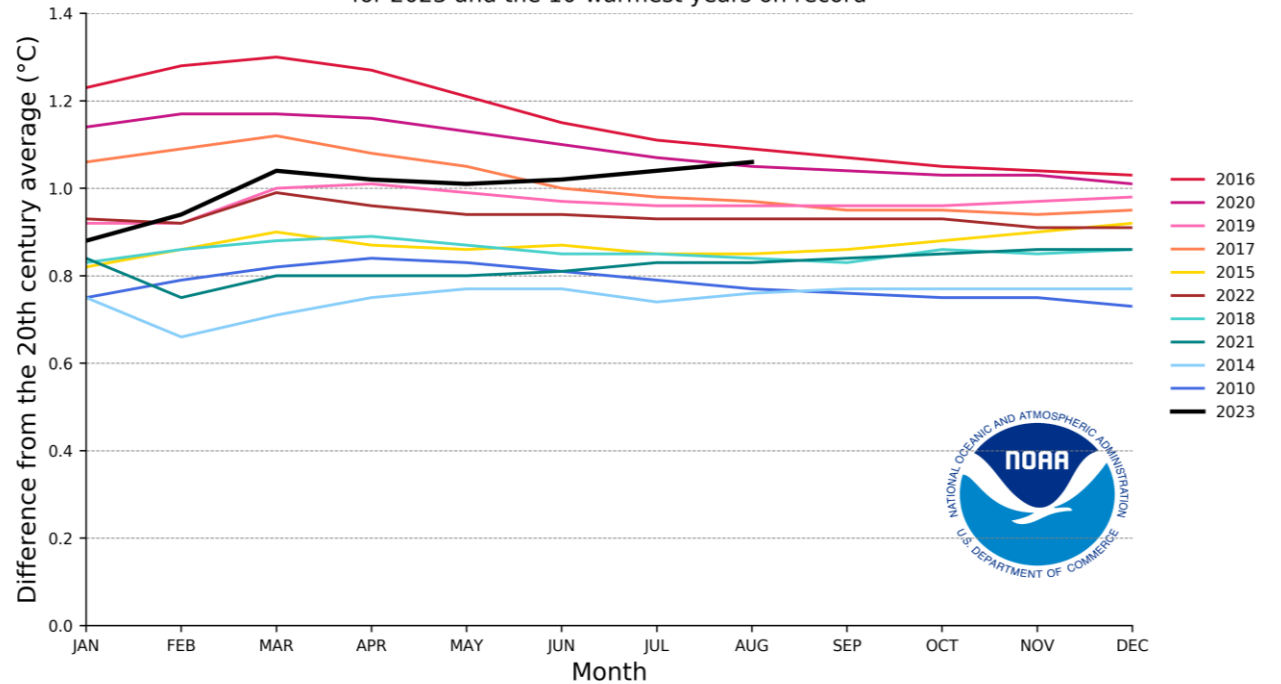
January-August Global Temperature

The global temperature record dates back to 1850 (174 years)

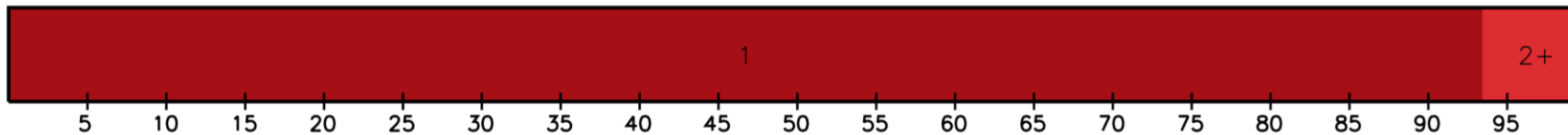
Land & Ocean Temperature Percentiles Jan–Aug 2023
 NOAA's National Centers for Environmental Information
 Data Source: NOAAGlobalTemp v5.1.0–20230908



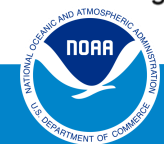
Global Year-to-Date Temperature Anomalies
 for 2023 and the 10-warmest years on record



Global Land & Ocean: +1.06°C (1.91°F); the **2nd-warmest** January-August on record



~95% chance of warmest or 2nd warmest year



Contiguous U.S. August 2023

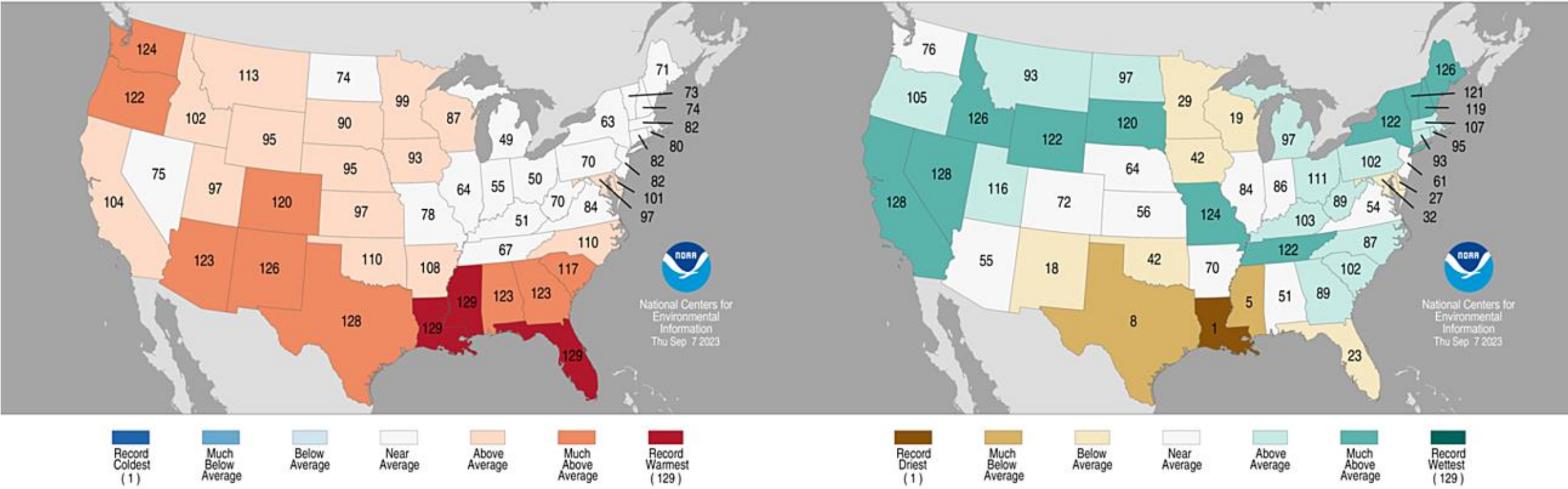
The U.S. temperature record dates back to 1895 (129 years)

Statewide Average Temperature Ranks

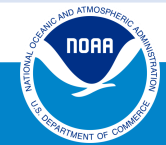
August 2023
Period: 1895–2023

Statewide Precipitation Ranks

August 2023
Period: 1895–2023



Temperature: 74.4°F, +2.3°F; 9th warmest
Precipitation: 2.74 inches, +0.12 inch; near average



Contiguous U.S. June-August 2023

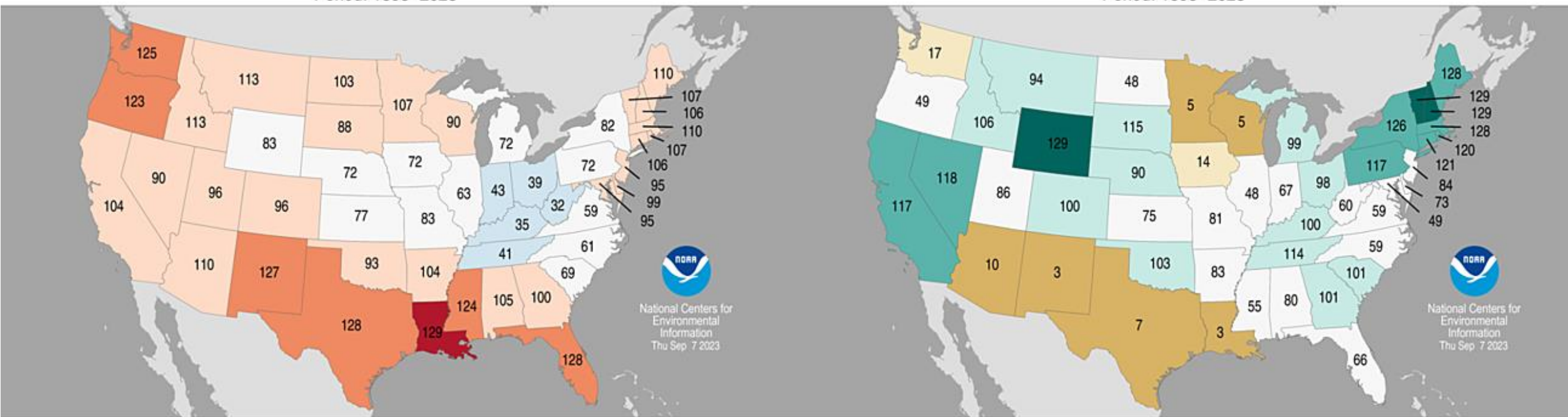
The U.S. temperature record dates back to 1895 (129 years)

Statewide Average Temperature Ranks

June – August 2023
Period: 1895–2023

Statewide Precipitation Ranks

June – August 2023
Period: 1895–2023



Temperature: 73.0°F, +1.6°F; 15th warmest
Precipitation: 8.35 inches, +0.03 inch; near average



Contiguous U.S. January-August 2023

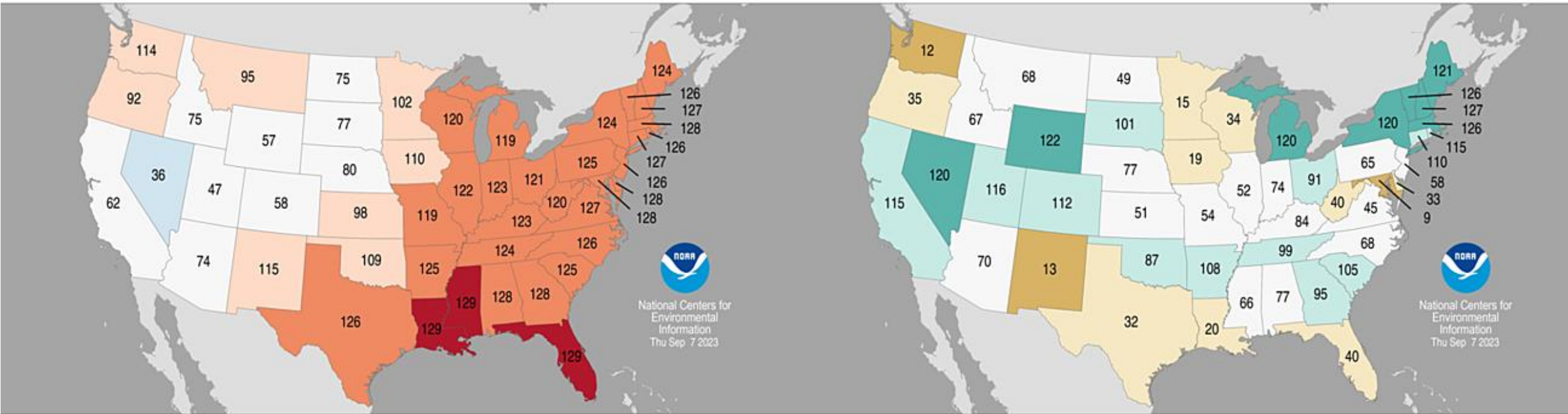
The U.S. temperature record dates back to 1895 (129 years)

Statewide Average Temperature Ranks

January – August 2023
Period: 1895–2023

Statewide Precipitation Ranks

January – August 2023
Period: 1895–2023



Temperature: 55.6°F, +1.8°F; 13th warmest
Precipitation: 21.19 inches, +0.48 inch; near average



Current U.S. Drought

~37.8% of the contiguous U.S. is in drought

Drought conditions lessened/
diminished: Southwest

Drought conditions expanded/
intensified:

Northwest, Northern Tier, central
Plains, Upper Midwest, Great
Lakes, Mid-Atlantic, Deep South

Outside the contiguous U.S.:

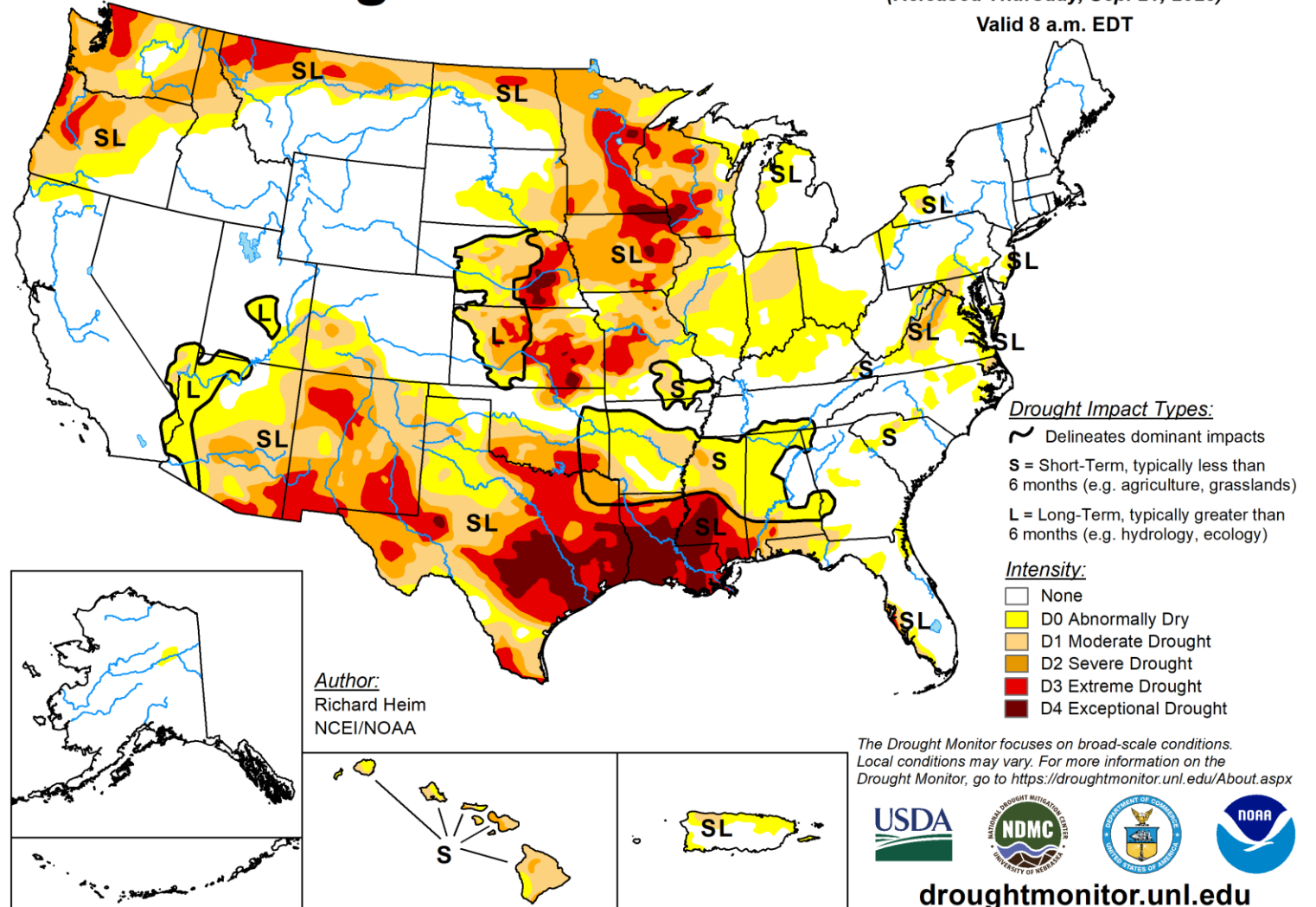
Drought coverage expanded/
intensified across Hawaii, was
eliminated in Alaska, and is less
intense across Puerto Rico

U.S. Drought Monitor

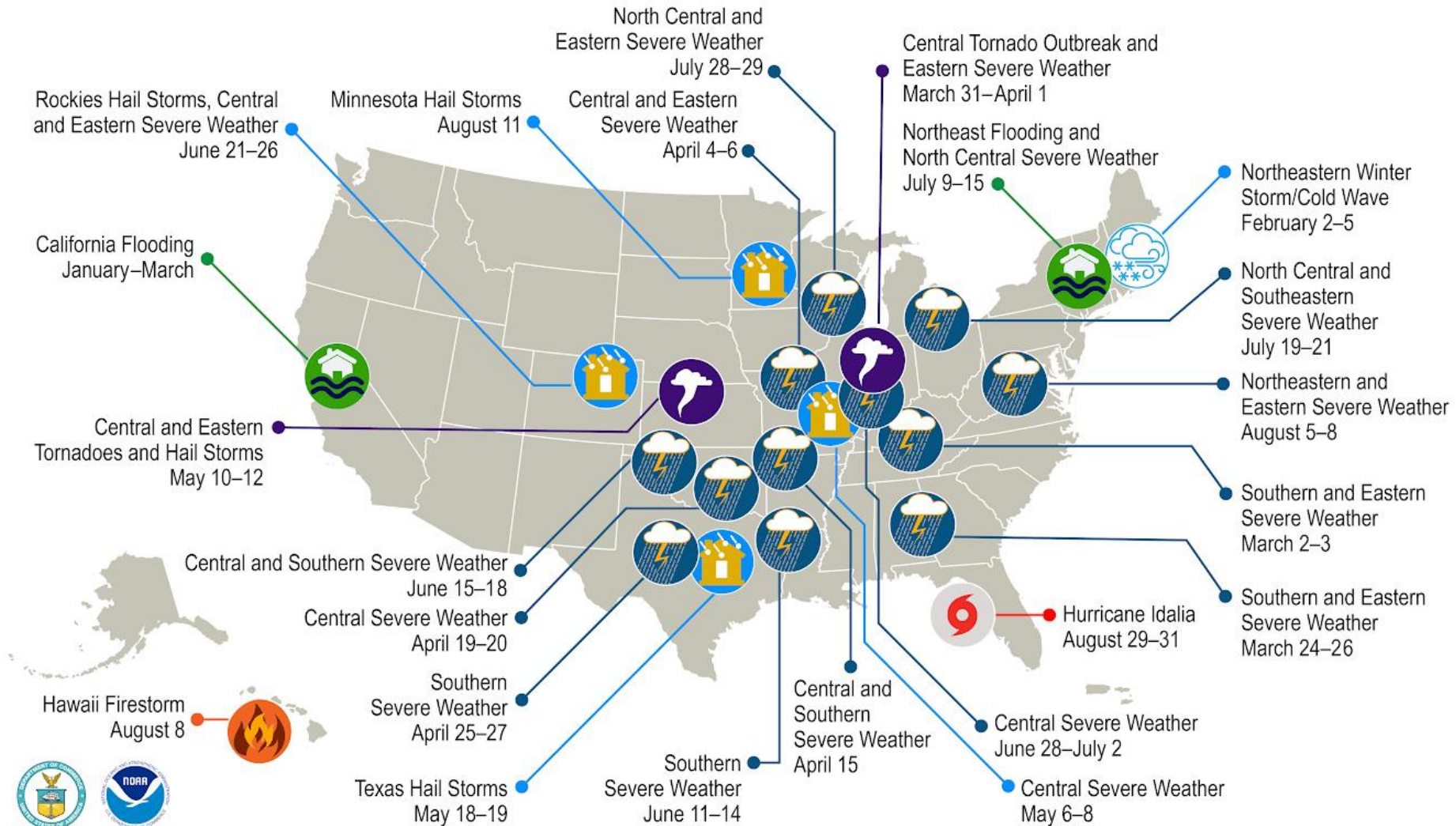
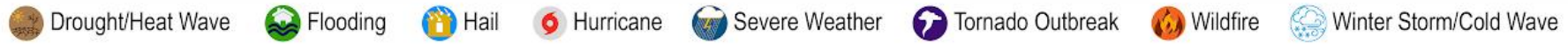
September 19, 2023

(Released Thursday, Sep. 21, 2023)

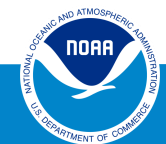
Valid 8 a.m. EDT



Billion Dollar Weather & Climate Disasters

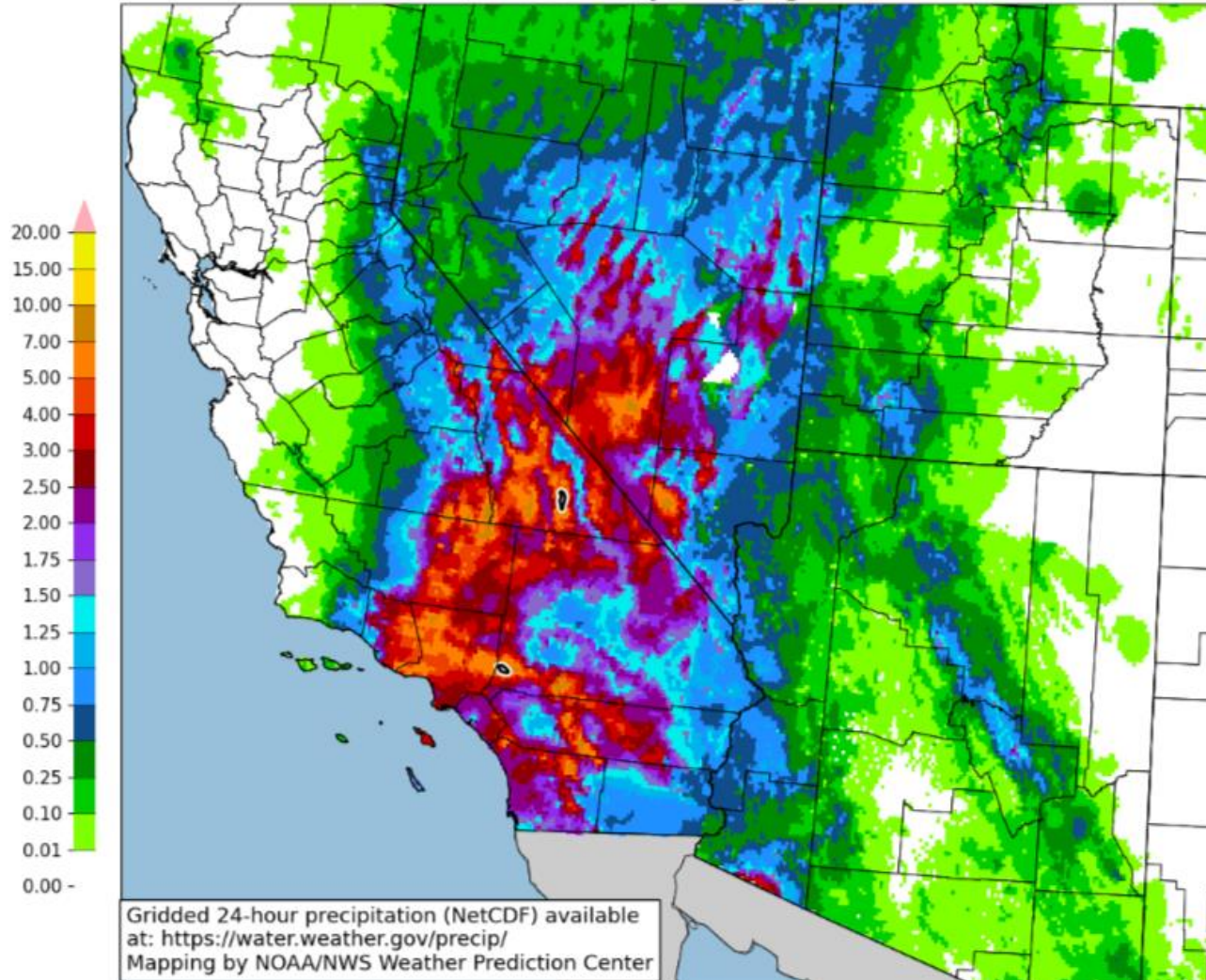


This map denotes the approximate location for each of the 23 separate billion-dollar weather and climate disasters that impacted the United States through August 2023.



Hurricane Hilary 2-Day Precipitation Totals

2-day accumulated precipitation (inches) ending 5 am PDT, Aug. 21, 2023
(10-inch isohyet highlighted)

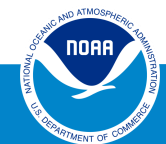
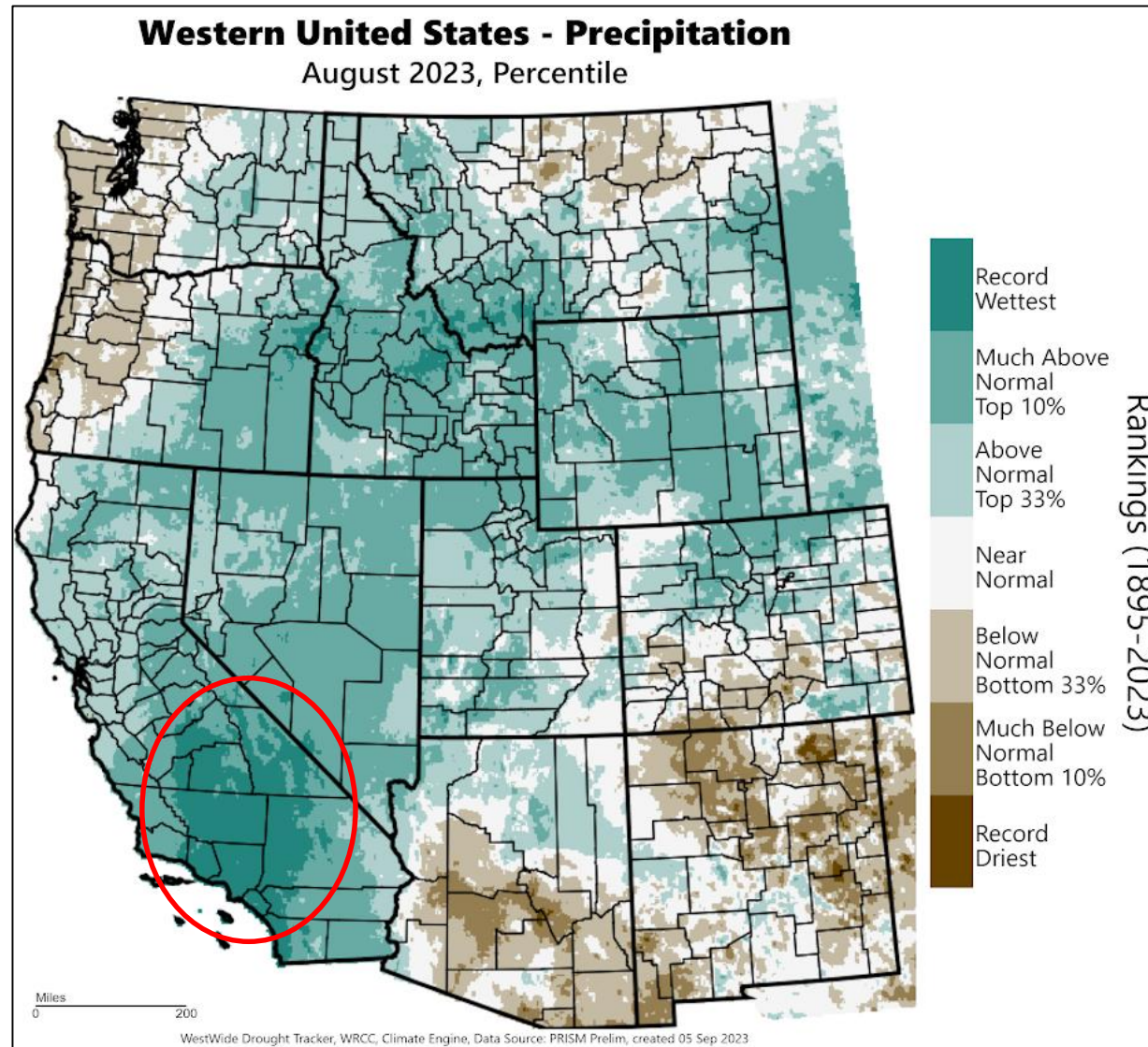


Annual Precipitation Normals

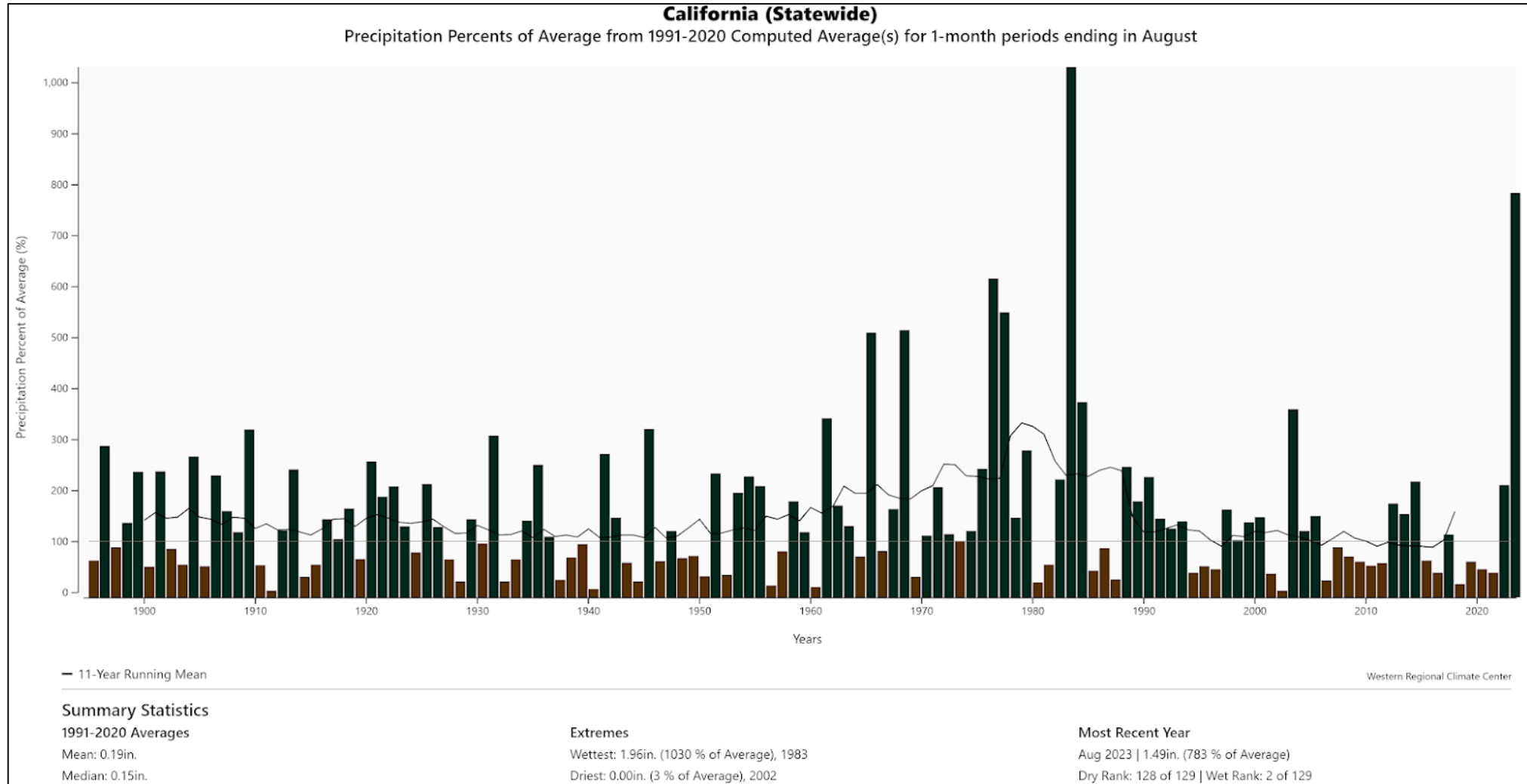


- Many desert areas in Southern CA average 0-5 inches annually
- Many of these locations saw annual precipitation totals exceeded in 48 hours during Hilary
- Some graphics related to this in CW3E's Hilary write-up:
<https://cw3e.ucsd.edu/cw3e-event-summary-hurricane-hilary-20-21-august-2023/>

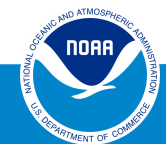
August 2023 Precipitation Percentiles



California Statewide August Precipitation



- Aug 2023 second highest in CA history
- Aug 1983 is the highest (influenced by Hurricane Ismael)

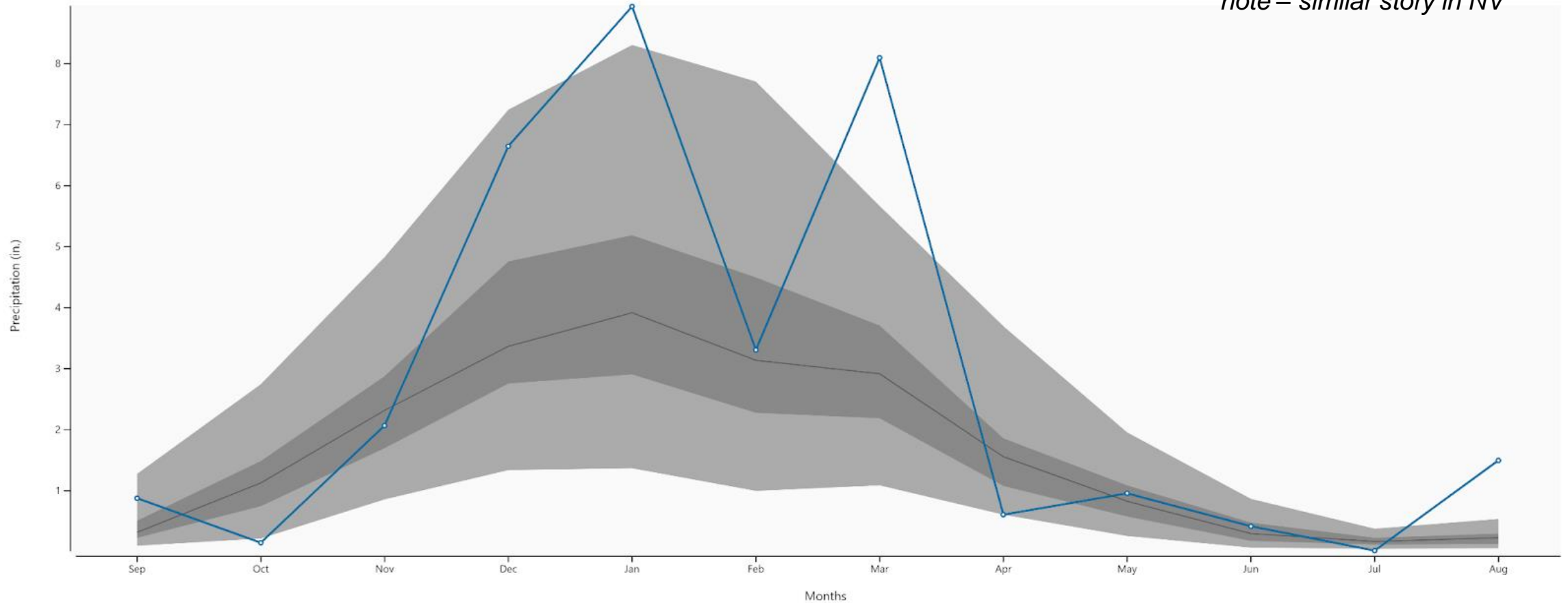


California Statewide Monthly Precipitation

California (Statewide)

12-Month Summary of Precipitation for Sep 2022 to Aug 2023

**note – similar story in NV*



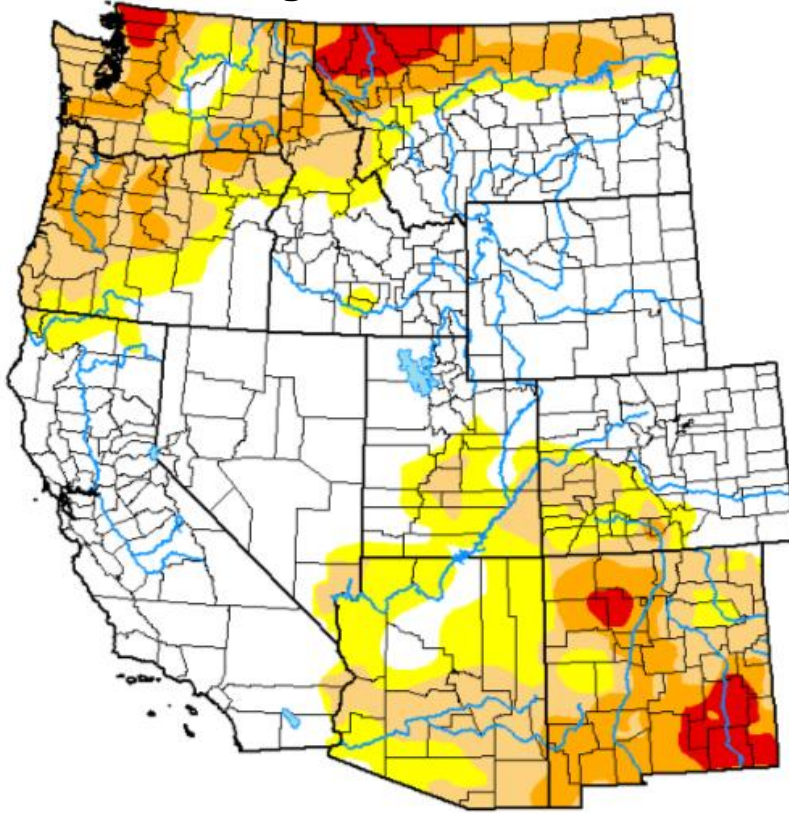
- Monthly Precipitation
- Monthly Average (1895-Present)
- 33rd - 66th Percentile
- 10th - 90th Percentile

Western Regional Climate Center

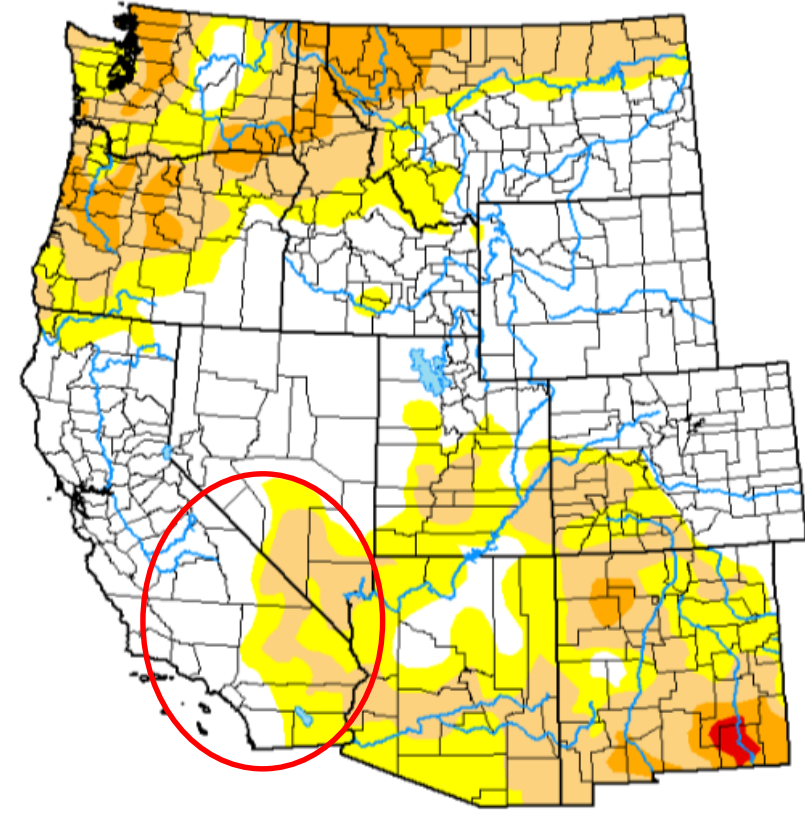


Drought Changes

August 29th, 2023

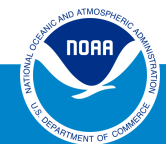


August 15th, 2023

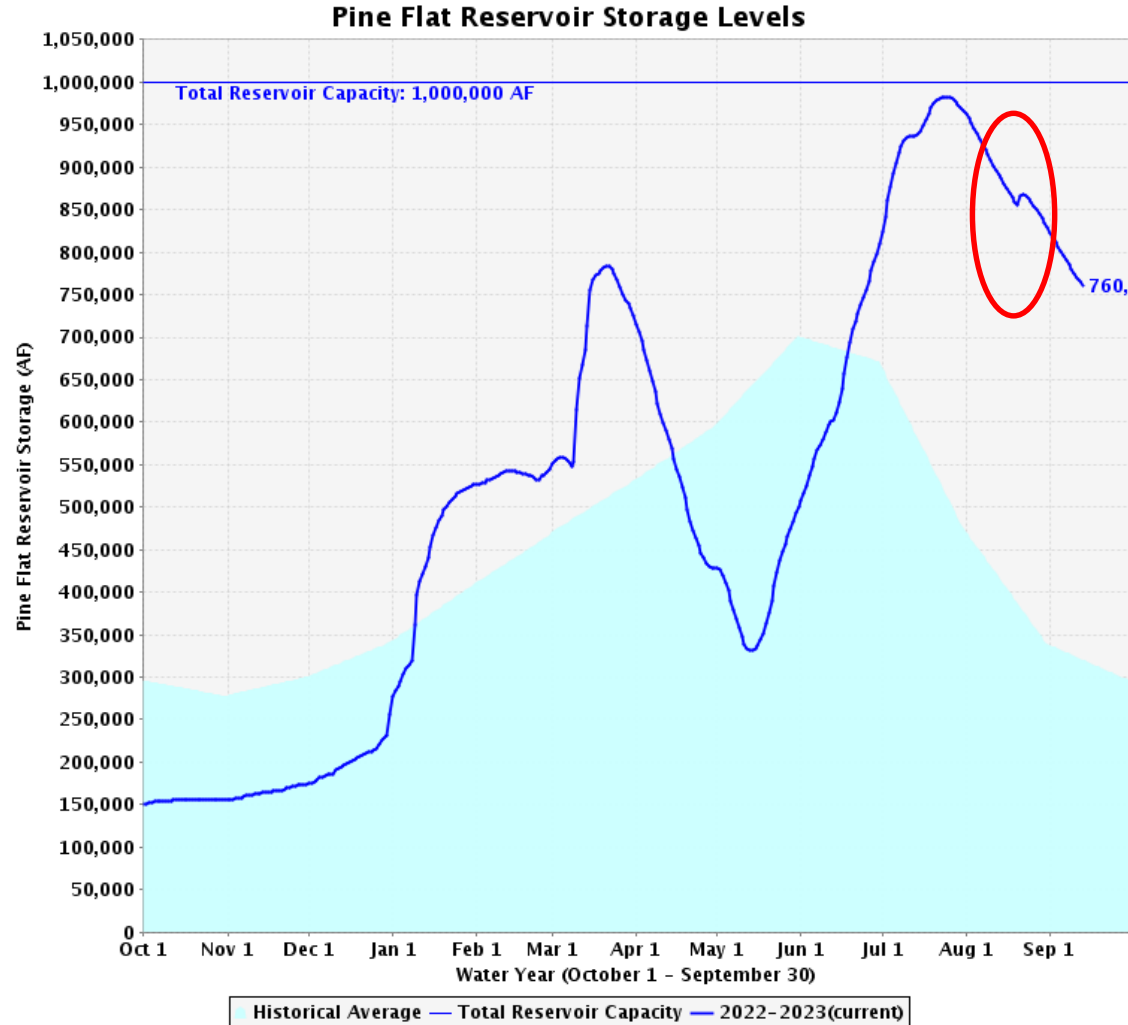


Drought Classification

- | | | |
|-----------------------|----------------------|--------------------------|
| None | D2 (Severe Drought) | D4 (Exceptional Drought) |
| D0 (Abnormally Dry) | D3 (Extreme Drought) | No Data |
| D1 (Moderate Drought) | | |

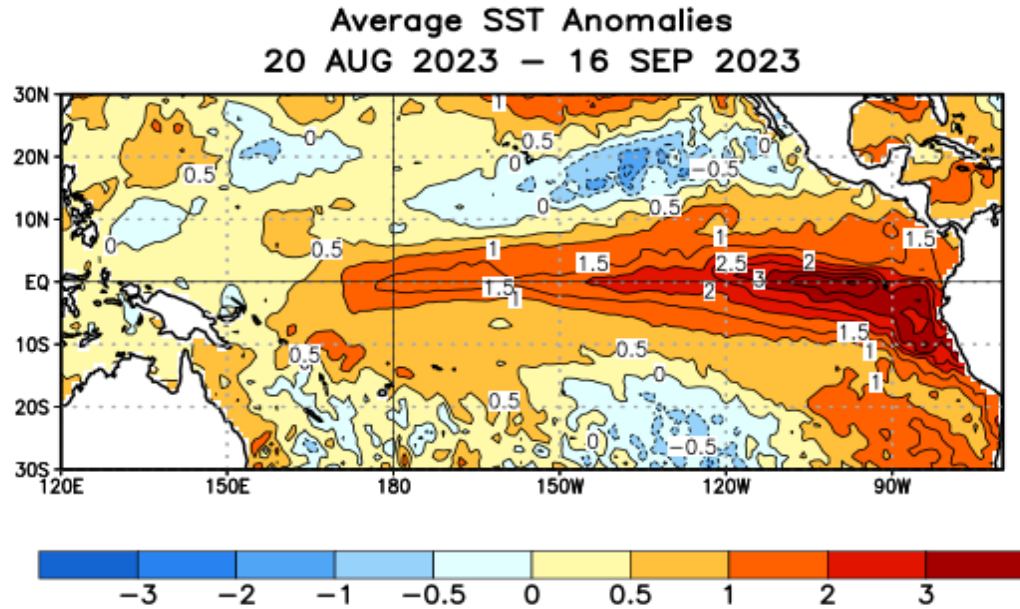


Water Resource Impacts



- CA record snowpack had reservoirs well above normal prior to Hilary
- Increased storage due to Hilary was minimal
- Minimal water resource impacts in other regions as well (like the Pacific NW)

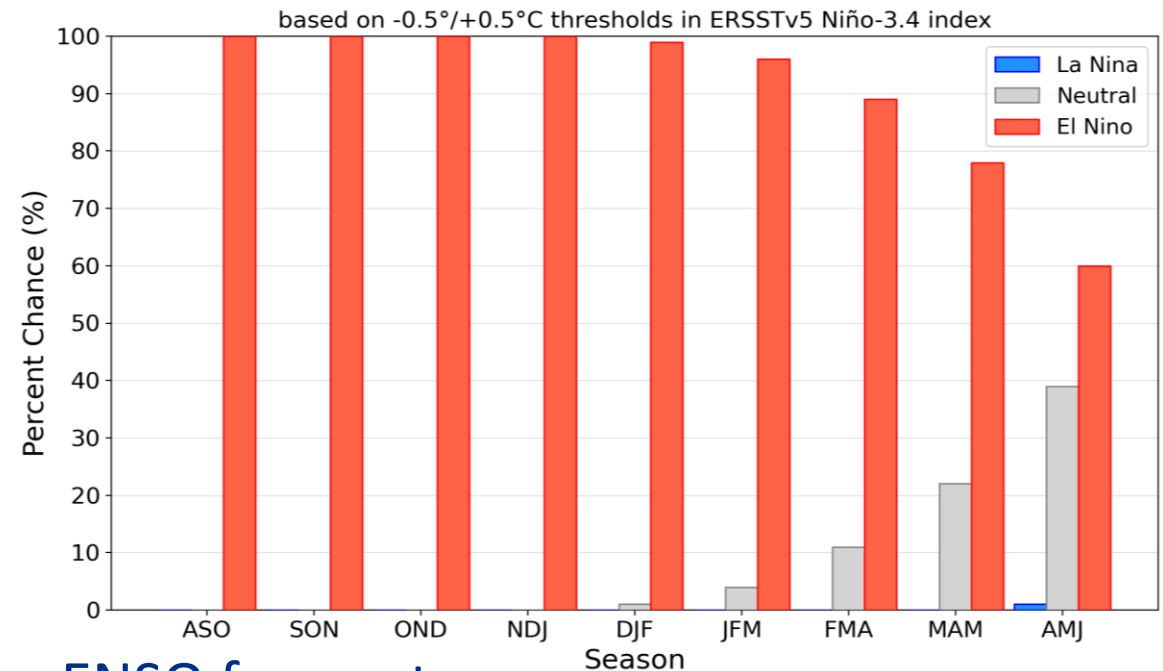
Sea Surface Temperatures and ENSO



- Sea surface temperatures

- Above average sea surface temperatures observed across most of the Pacific Ocean near the equator
- The oceanic and atmospheric observations currently reflect El Niño conditions

Official NOAA CPC ENSO Probabilities (issued Sep. 2023)



- ENSO forecast

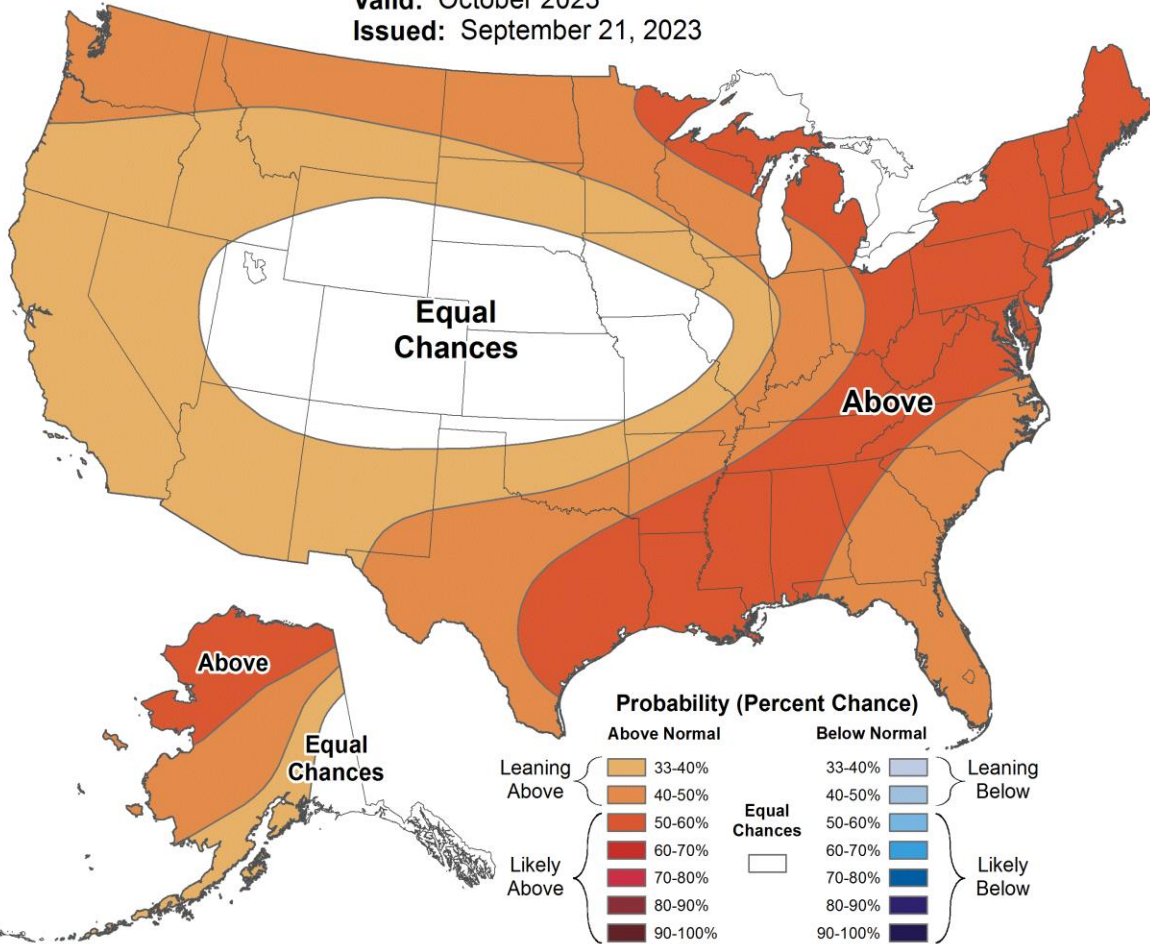
- El Niño conditions expected to continue through the upcoming Winter
- Greater than 95 percent chance of El Niño through January-February-March
- Around a 70 percent chance of strong El Niño by November-December-January

Monthly Forecast (October)



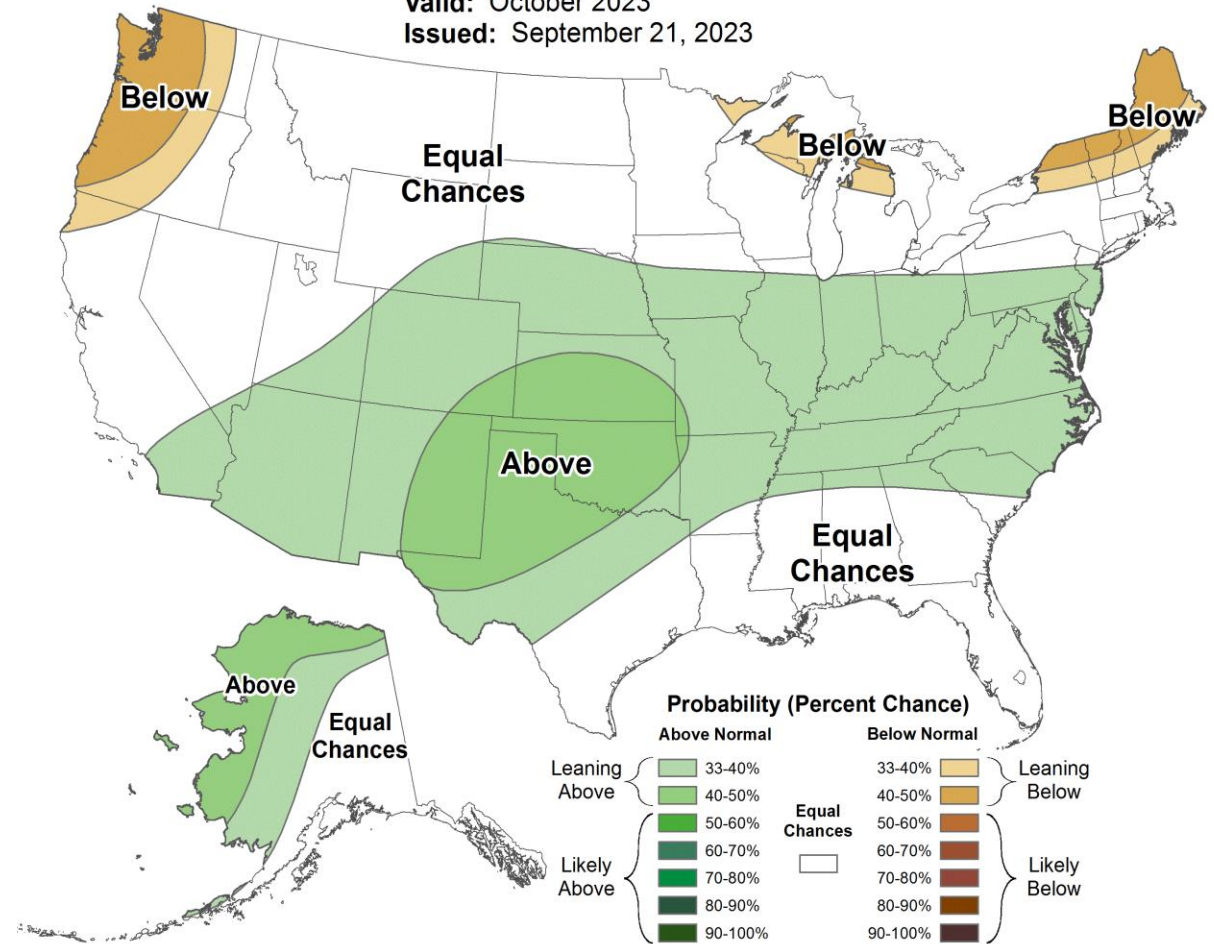
Monthly Temperature Outlook

Valid: October 2023
 Issued: September 21, 2023



Monthly Precipitation Outlook

Valid: October 2023
 Issued: September 21, 2023

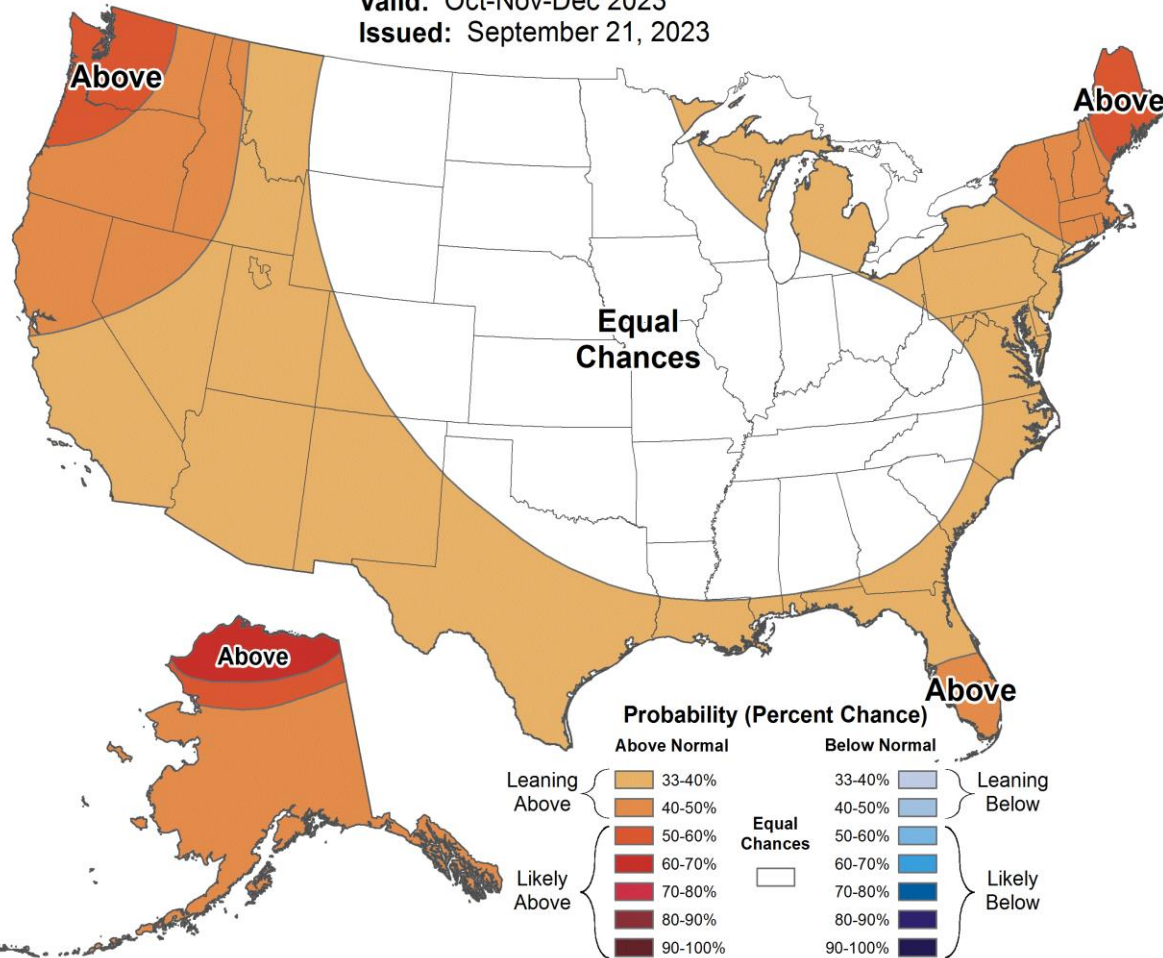


Three-Month Forecast (Oct, Nov, Dec)



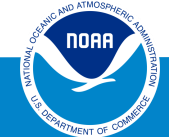
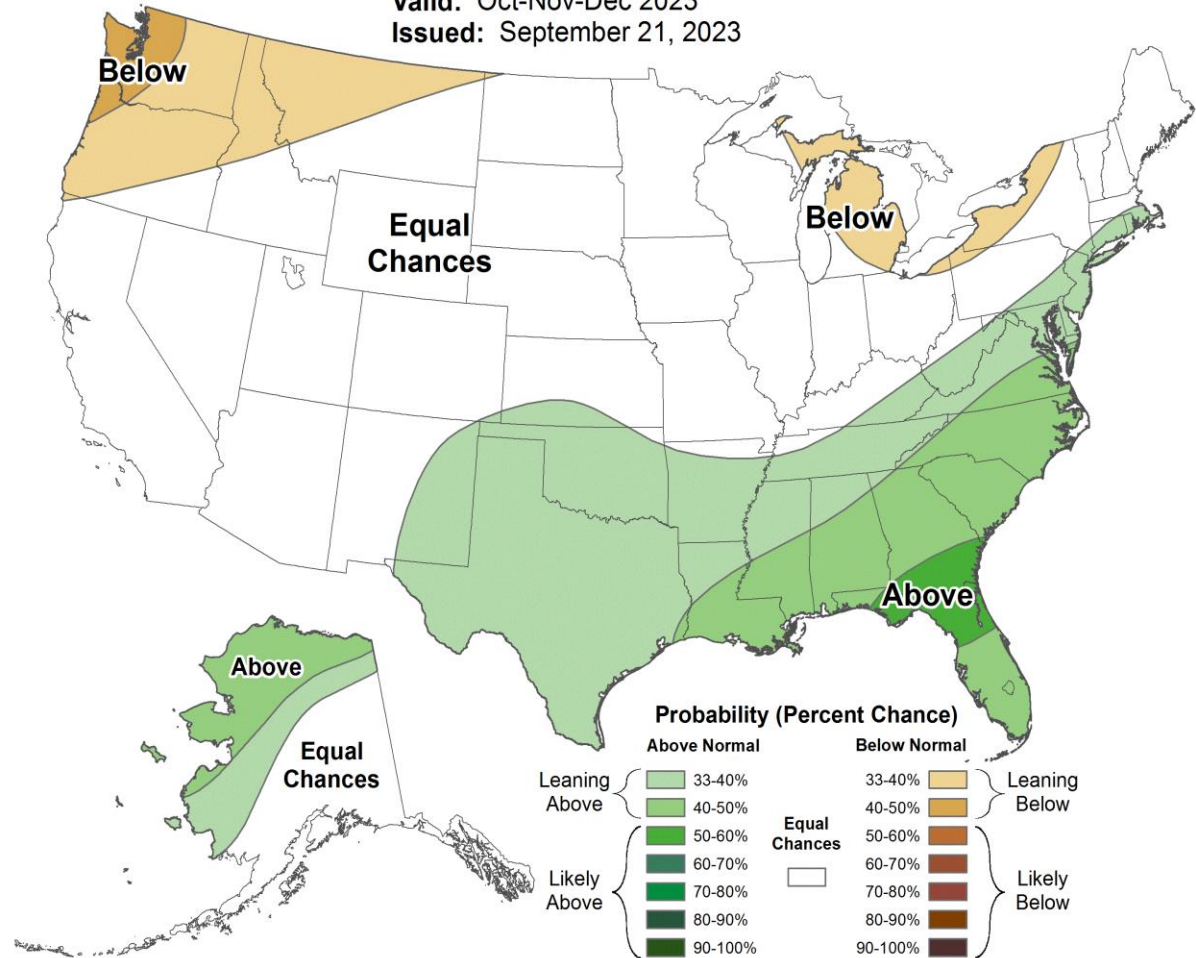
Seasonal Temperature Outlook

Valid: Oct-Nov-Dec 2023
Issued: September 21, 2023



Seasonal Precipitation Outlook

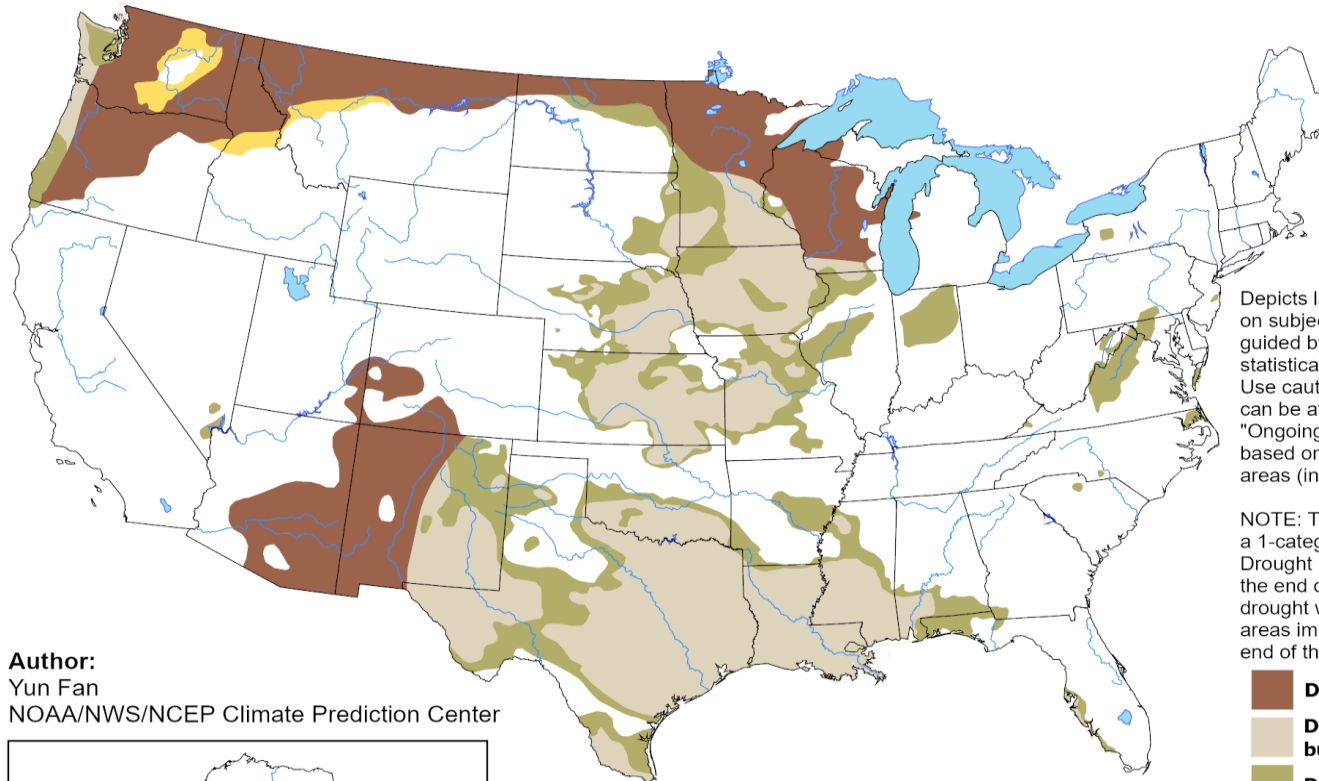
Valid: Oct-Nov-Dec 2023
Issued: September 21, 2023



Drought Outlook

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

Valid for September 21 - December 31, 2023
Released September 21, 2023

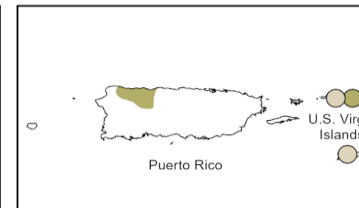
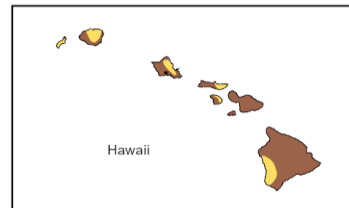


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

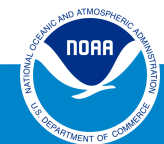
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists
- Drought remains, but improves
- Drought removal likely
- Drought development likely
- No drought

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NOAA/NWS/NCEP Climate Prediction Center



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



For More Information



Today's presentation:

- <https://www.ncei.noaa.gov/access/monitoring/monthly-report/briefings>

NOAA's National Centers for Environmental Information: www.ncei.noaa.gov

- Monthly climate reports (U.S. & Global): <https://www.ncei.noaa.gov/access/monitoring/monthly-report/>
- Dates for upcoming reports: <https://www.ncei.noaa.gov/access/monitoring/dyk/monthly-releases>

NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov

U.S. Drought Monitor: www.drought.gov

Climate portal: www.climate.gov

NOAA media contacts: john.jones-bateman@noaa.gov, 202-424-0929 (NOAA/NESDIS PAO)

