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Talk Outline

- A Look Back at the 2024 Forecast
- The State of the Climate
 - 2024 Global to Regional Perspective
- Current Conditions
- Summary and Winter to Spring Forecast

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Climate Forecast **2024** – Hit or Miss?

- Globally a top 5 warmest year ... **a hit**
- Continued strong climate variability ... **a hit**
- West - spring frost risk high ... **partial hit**
- Drought concerns: PNW ↓, CA ↓ ... **a miss, then a hit**
- West - warmer growing season ... **a hit**
- El Niño to La Niña shift ... **slow, but in place now**

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State of the Climate 2024 Global to Regional Perspective

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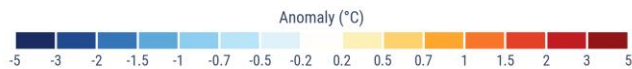
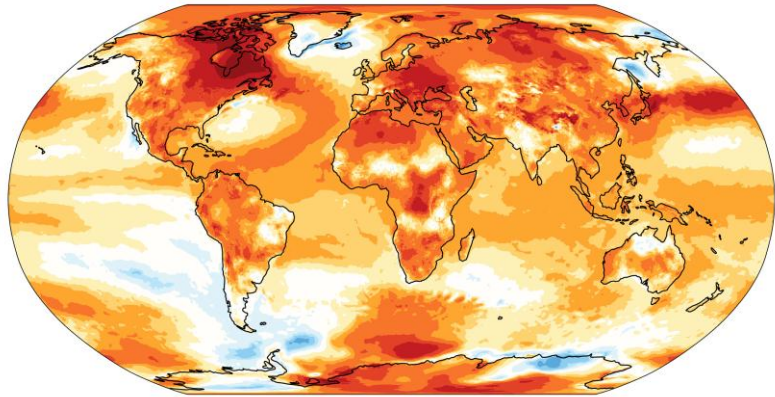
Global Temperature Departures 2024

- 2024 was the warmest year on record (+2.88°F) and the last 10 years the warmest ever
- 50th consecutive year with temperatures above average
- 2024 ocean heat content at a record high
- 2024 also was the Arctic's warmest year ever, has warmed 4 times the rate of the rest of the globe



Surface air temperature anomalies in 2024

Data: ERA5 • Reference period: 1991–2020 • Credit: C3S/ECMWF



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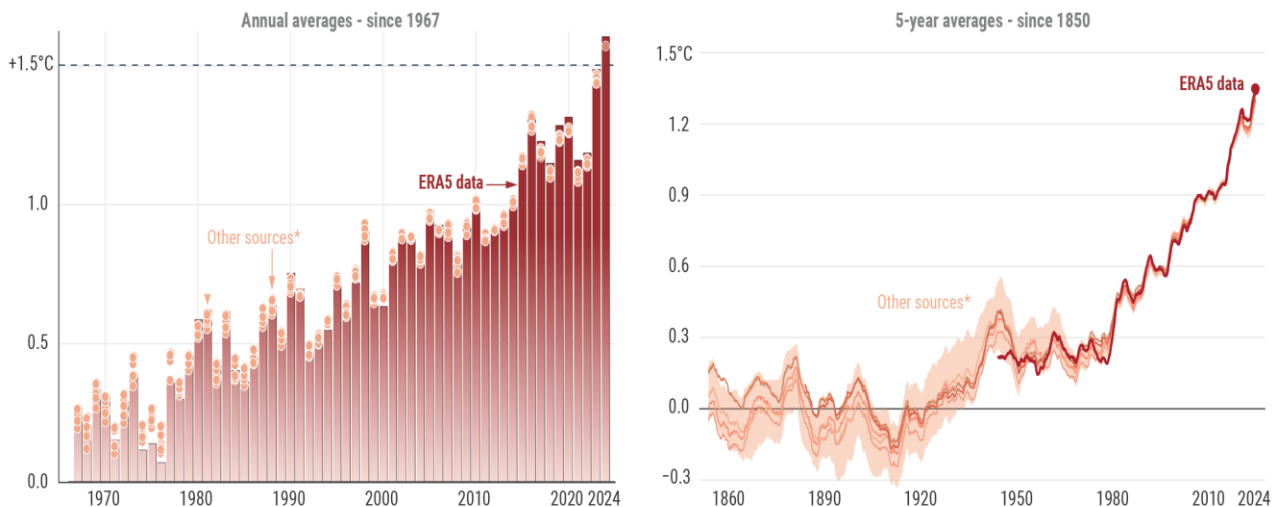


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Global surface temperature increase above pre-industrial

Reference period: pre-industrial (1850–1900) • Credit: C3S/ECMWF



*Other sources include JRA-3Q, GISTEMPv4, NOAA GlobalTempv6, Berkeley Earth and the HadCRUT5 ensemble mean. Shading shows the range of the HadCRUT5 ensemble.



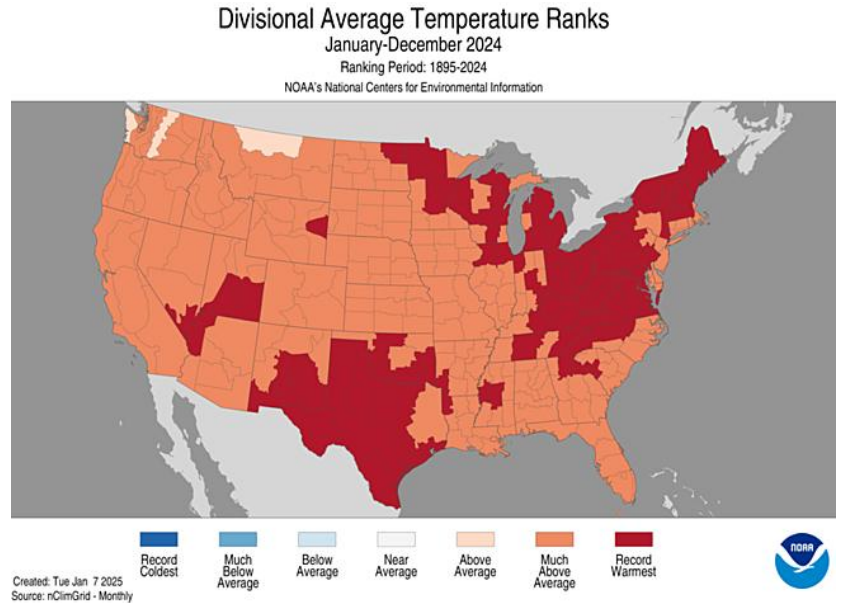
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US Temperature Departures 2024

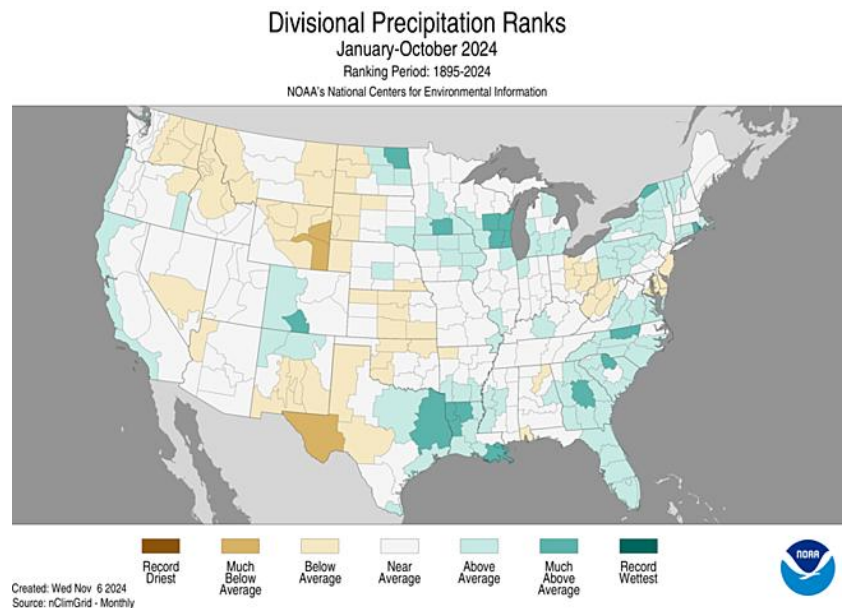
- CONUS 3.5°F above its long-term average in 2024
- Warmest year on record
- 41st consecutive year CONUS above average
- Tmin up slightly more than Tmax in 2024



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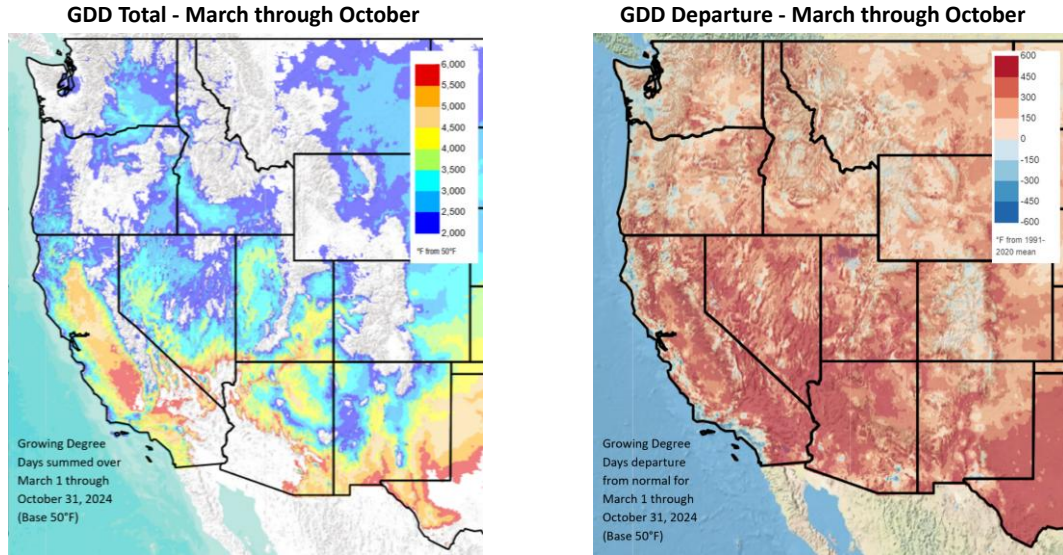
US Precipitation Departures 2024

- CONUS slightly wetter than average in 2024, but large differences across the country
- Tropical inputs substantial in E. Texas, Florida, and Southeast
- Dry in W. Texas, N. Rockies, Plains, and inland PNW



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2024 Growing Degree-Days

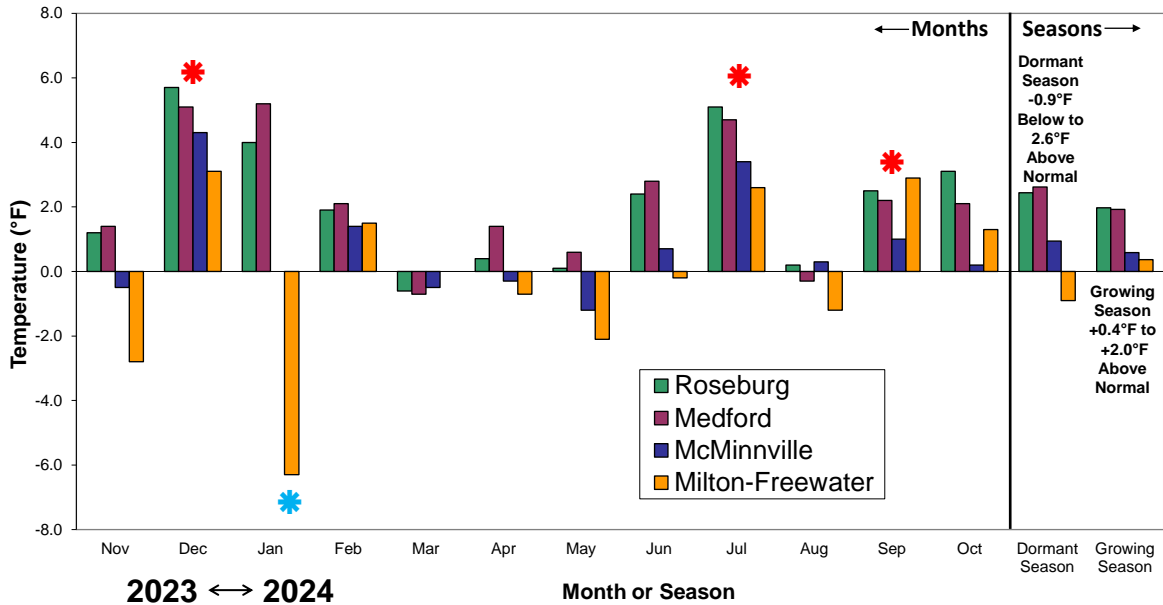


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Oregon 2023-24 Weather/Climate Summary

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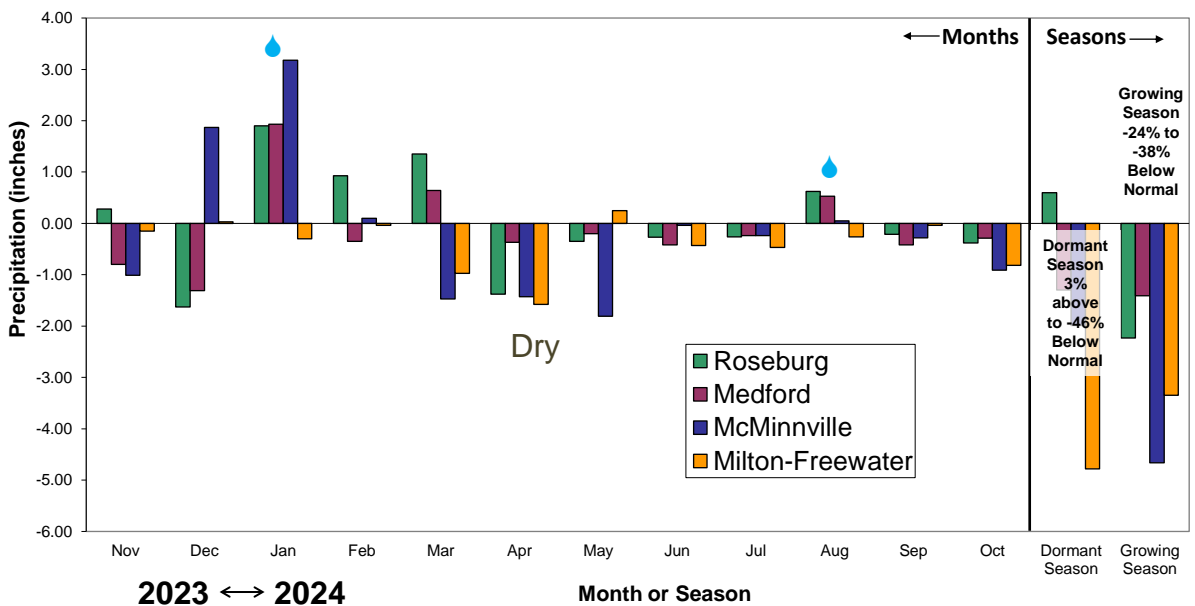
2023-24 Regional Temperature Departures from Normal



Summation of daily temperature departures by month, the dormant period (Nov-Mar) and the growing season (Apr-Oct) compared to the 1991-2010 climate normals from the NWS stations (www.noaa.gov)

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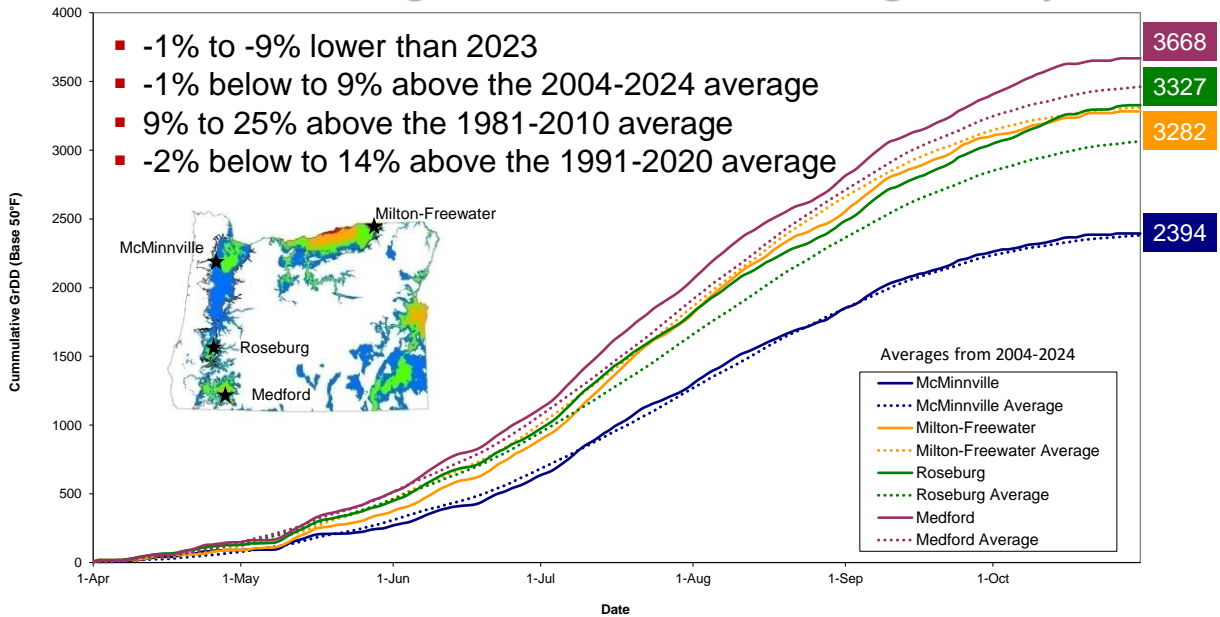
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Summation of daily precipitation departures by month, the dormant period (Nov-Mar) and the growing season (Apr-Oct) compared to the 1991-2010 climate normals from the NWS stations (www.noaa.gov)

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2024 Growing Season Cumulative Degree-Days



This chart represents the 2022 cumulative growing degree-days compared to the average for 2004-2022 for the growing season (Apr-Oct) from the NWS stations (www.noaa.gov)

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2024 Vintage Observations

- Winter Freeze east, ice storm in Gorge/WV
- Phenology average to slightly early
- Decent fruit set, heat induced shatter
- July heat slowed growth, Sept heat sunburn
- Disease, bird/pest pressure average to down
- Yields average to down by 10-30%
- Excellent fruit quality, wines showing well

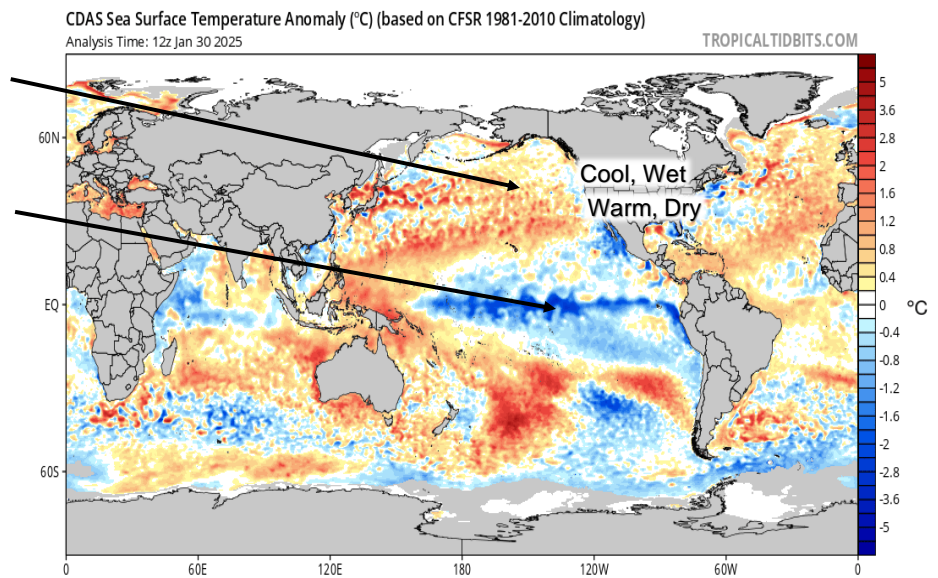
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Current Conditions

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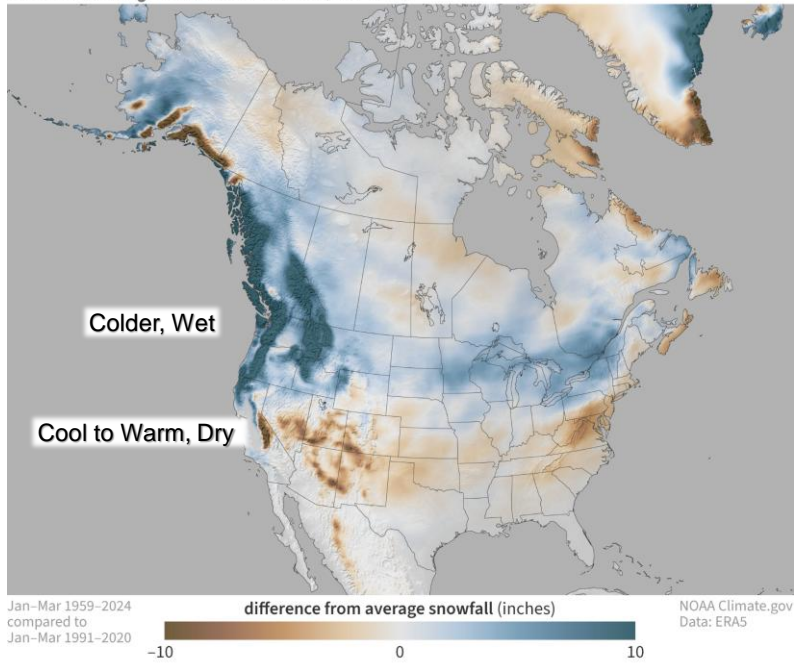
Current Sea Surface Temperatures

- Continued strong negative PDO conditions in the North Pacific
- Tropics now in a La Niña, but likely a weak, short duration event
- PDO-La Niña appear to be more in phase over the winter
- Most forecasts are pointing to the PNW being cool and wet



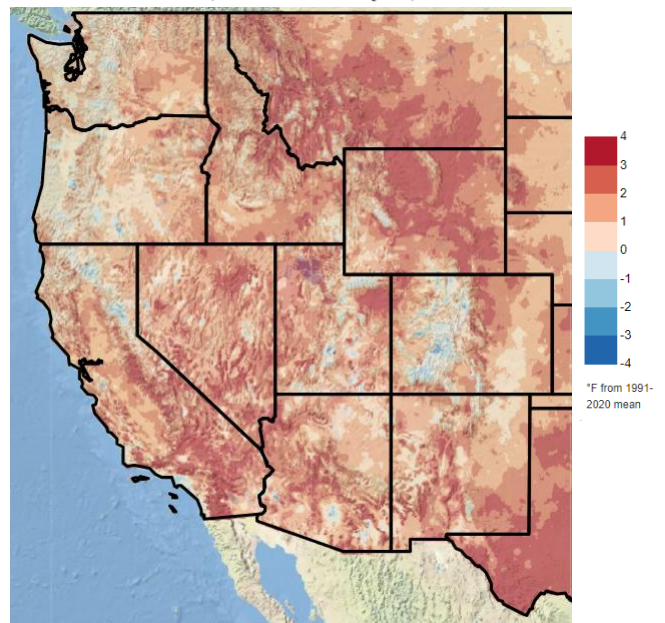
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Snowfall during all La Niña winters (Jan-Mar)



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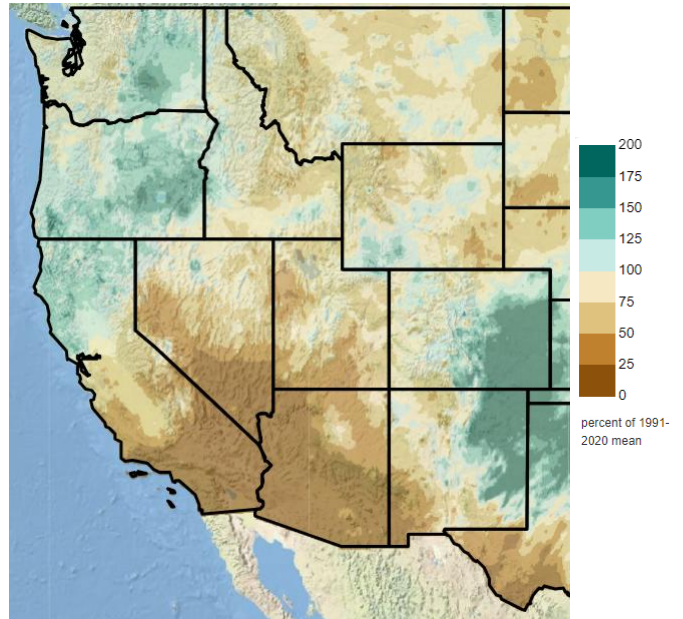
- Temperatures close to those expected from a weak La Niña winter, large influence from the North Pacific driving the differences

Water Year Mean Temperature Departure from Normal
October 1, 2024 to January 30, 2025

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- Temperatures close to those expected from a weak La Niña winter, large influence from the North Pacific driving the differences
- General pattern of wet north, dry south typical of a La Niña winter

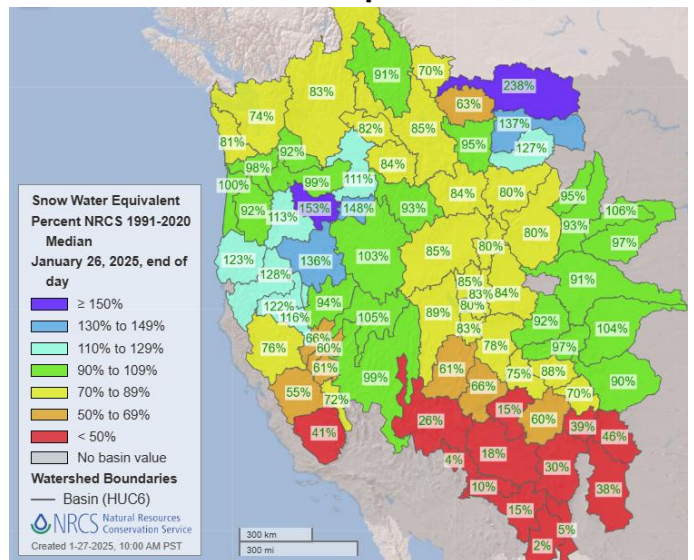
**Water Year Precipitation Percent of Normal
October 1, 2024 to January 30, 2025**



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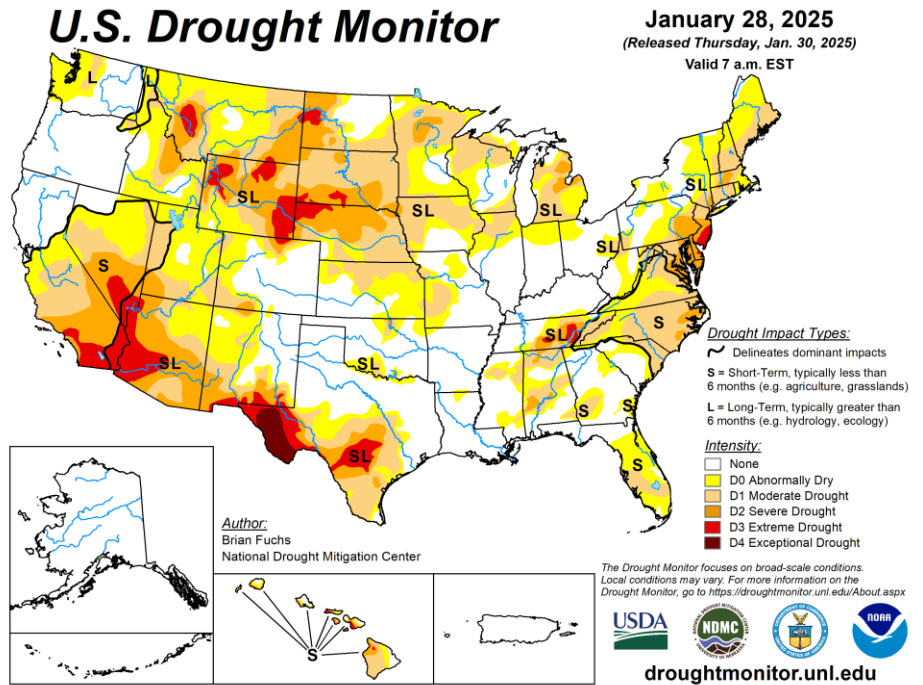
- Temperatures close to those expected from a weak La Niña winter, large influence from the North Pacific driving the differences
- General pattern of wet north, dry south typical of a La Niña winter
- Mixed SWE situation across the west, dry January lowered amounts for many

**Western US Snotel
Current Snow Water Equivalent % of Normal**



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- Drought footprint across CONUS was nearly 90% three months ago, now at 65%
- ~18% of CONUS in severe to exceptional drought
- PNW has recovered, Rockies and southwest have increased



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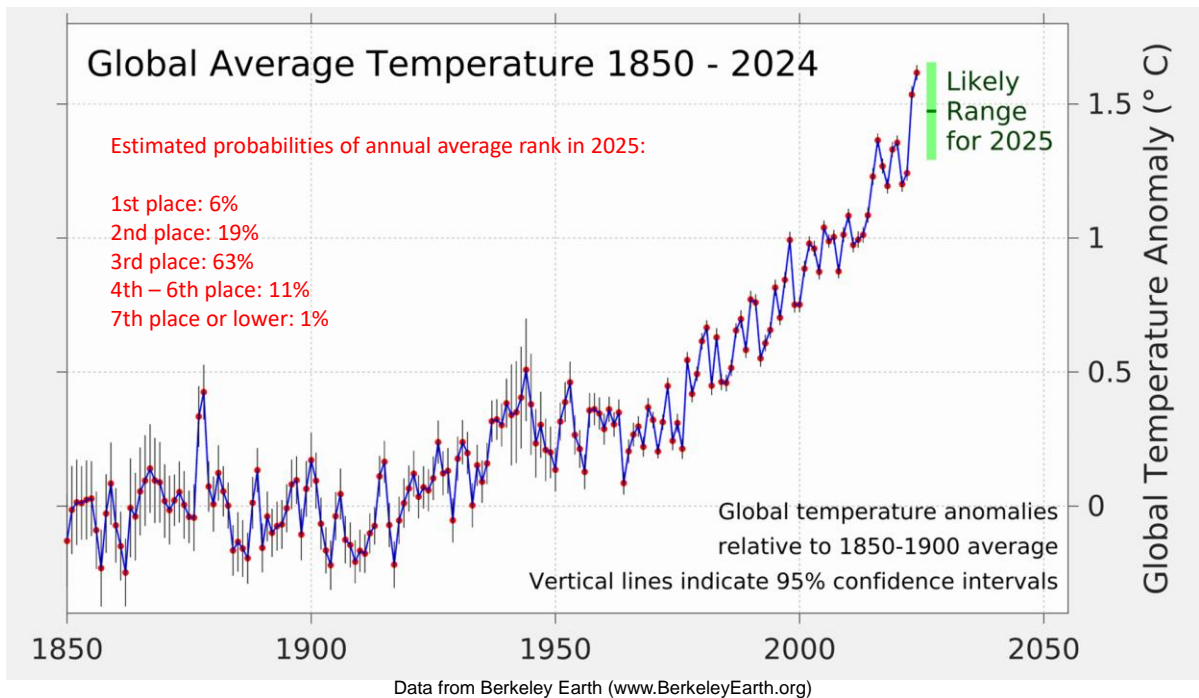
Summary and Forecast

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Overall Global Forecast

- 2025 likely to end up as a top five warmest year on record globally

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Overall Global Forecast

- 2025 likely to end up as a top five warmest year on record globally
- Persistence in the climate system means warming will likely continue
- A warmer climate also is more variable, pointing to substantial variability in weather/climate factors

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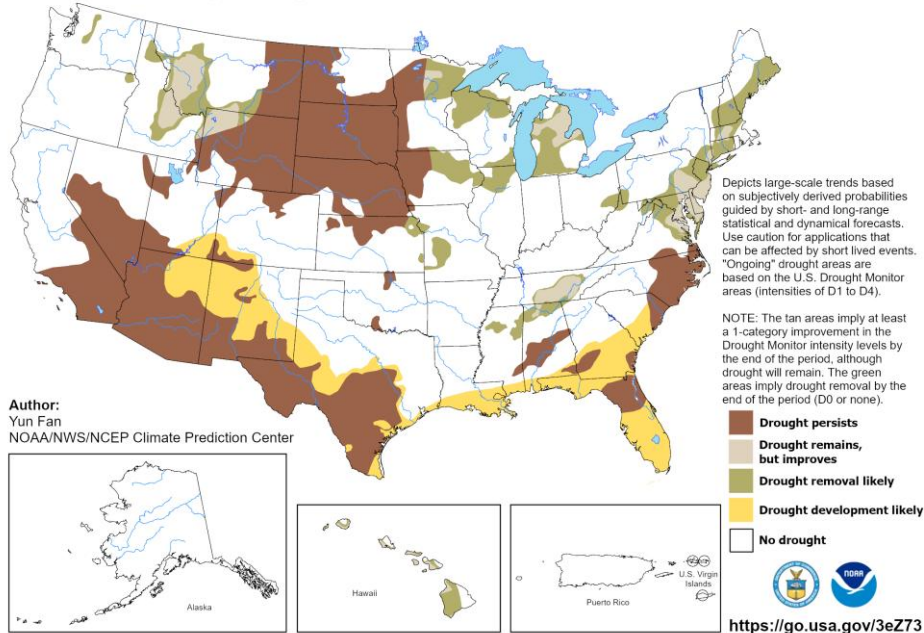
Overall Drought Forecast

- Spatial extent of drought in the US has contracted in some regions, expanded in others
- Northern California into the PNW likely to stay out of drought for the time being, other western regions not likely to see any improvement

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

Valid for January 16 - April 30, 2025
Released January 16, 2025



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Overall Drought Forecast

- Spatial extent of drought in the US has contracted in some regions, expanded in others
- Northern California into the PNW likely to stay out of drought for the time being, other western regions not likely to see any improvement
- Extreme Arctic warming likely to continue influencing greater mid-latitude climate variability

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Summary and Winter/Spring Forecast

- La Niña in place but likely a weak and short event
- North Pacific SST likely to stay in a strong negative PDO for most of 2025
- North and Tropical Pacific are in phase, as such ...
- Current conditions and forecast models are tilting the odds in favor of;
 - PNW cool to cold and wet over the rest of the winter and likely into the spring; frost risk increased
 - California cool to average and likely dry

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Thank You!

Gregory V. Jones, PhD.
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