

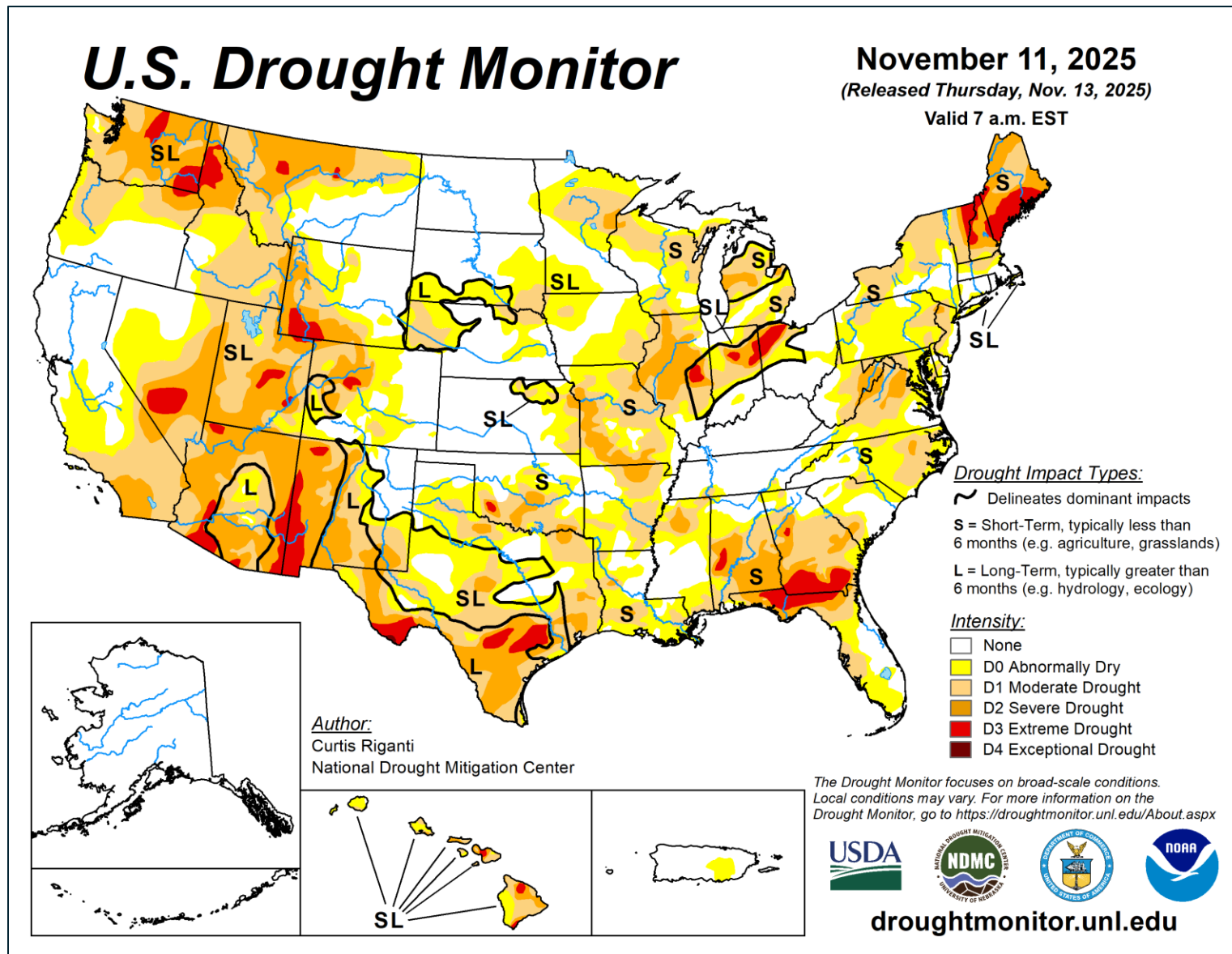
Drought Outlook Support Briefing

Climate Prediction Center/NCEP/NWS/NOAA

November 18, 2025

<http://www.cpc.ncep.noaa.gov/products/Drought>

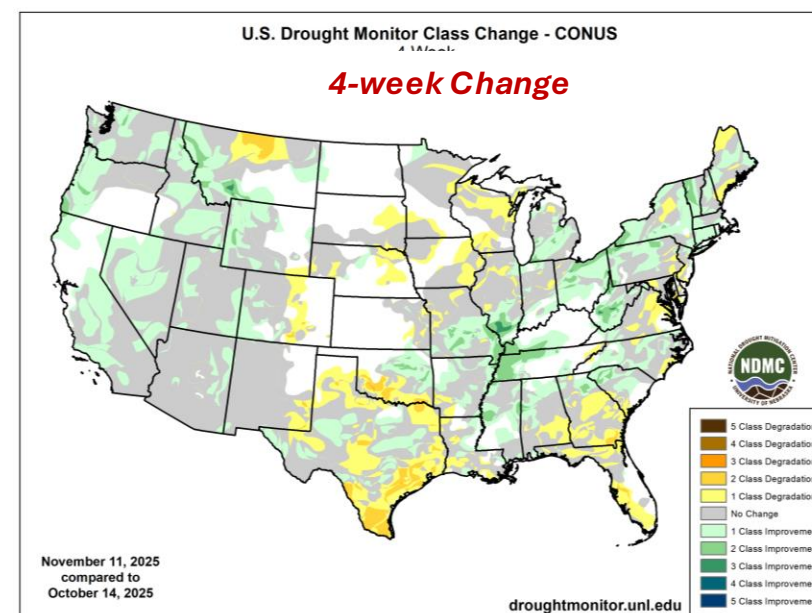
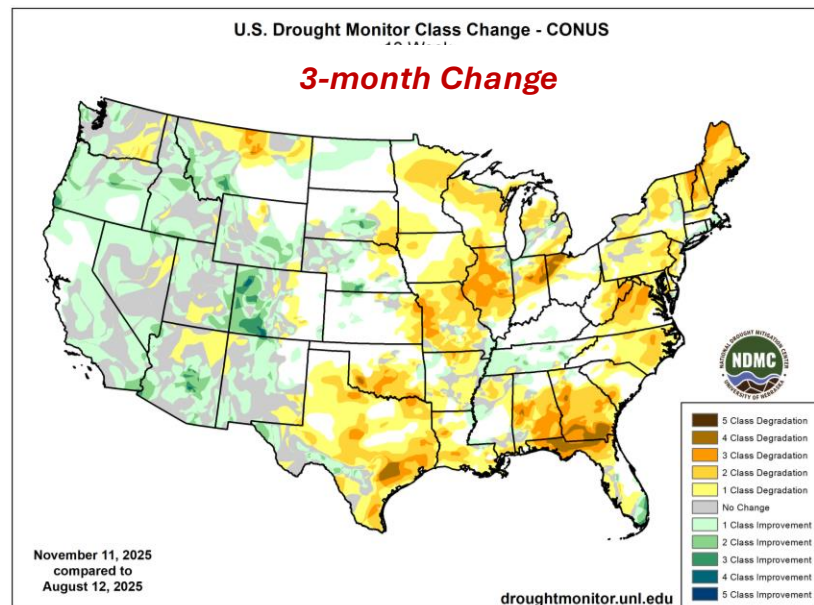
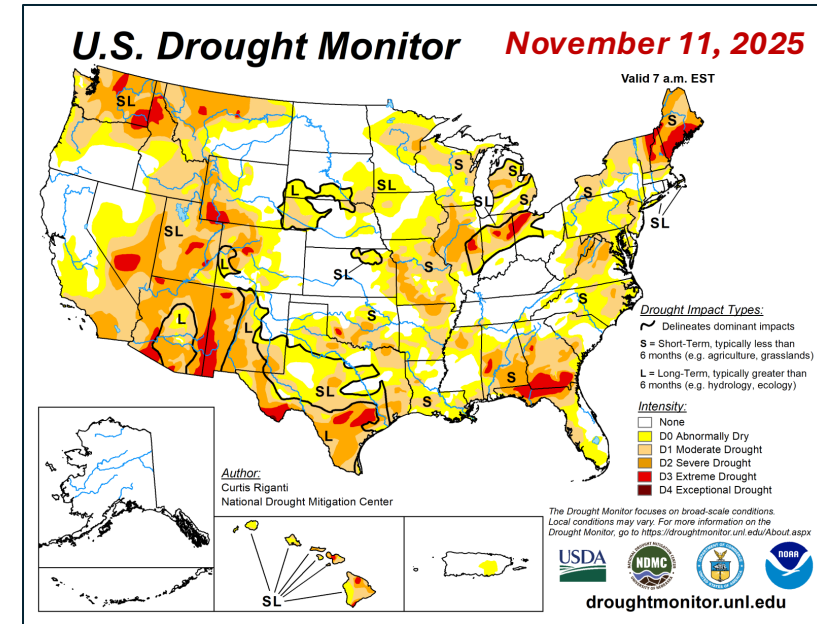
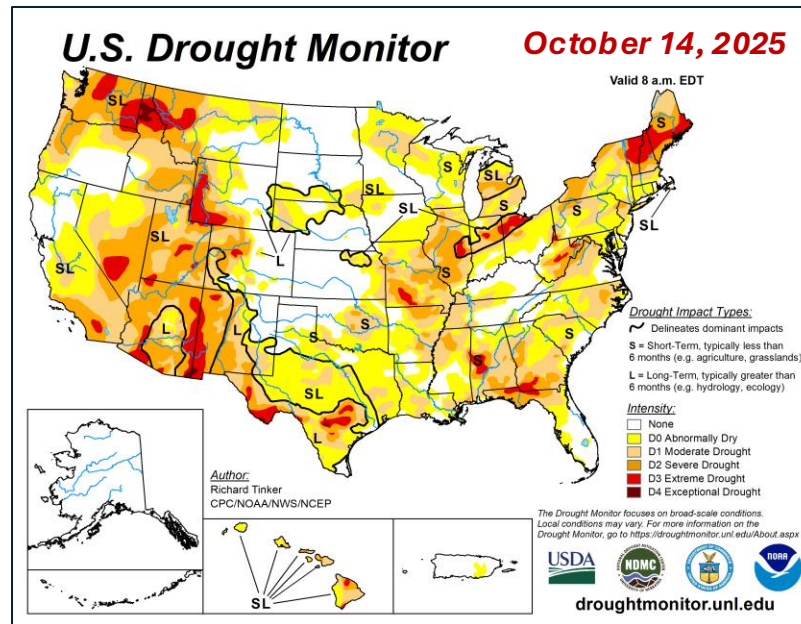
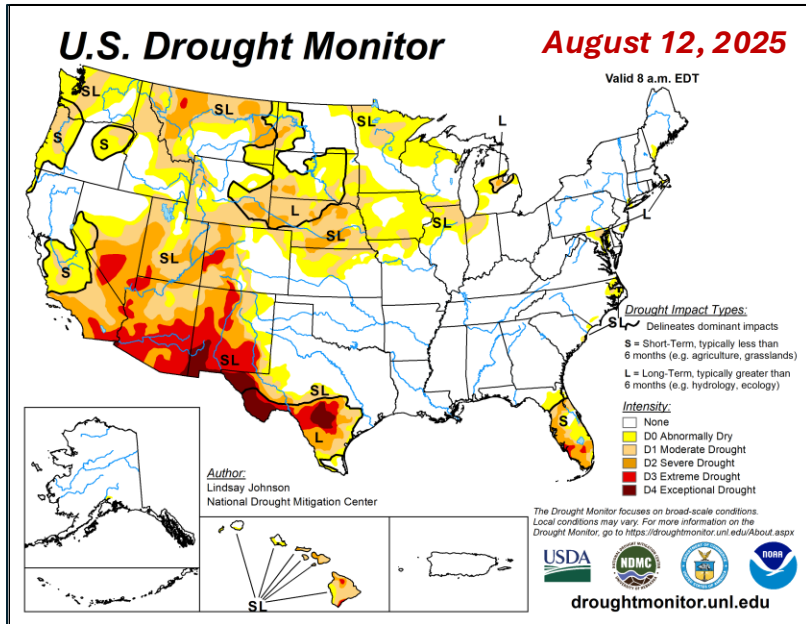
Current Drought Conditions



U.S. Drought Monitor November 11, 2025

- **CONUS**
 - 44% of area in drought (D1-D4), 70% of area in D0-D4.
 - Drought continued in Southwest, Pacific northwest, and Texas.
 - Short-term drought in eastern CONUS.
- **Alaska:** Drought free
- **Hawaii:** D0-D3 conditions
- **Puerto Rico:** D0 in the East

Recent Drought Evolution



CONUS

- 3-month Change
 - Improvement in the West
 - Degradation in the East
- 1-month Change
 - Improvement in most of CONUS.

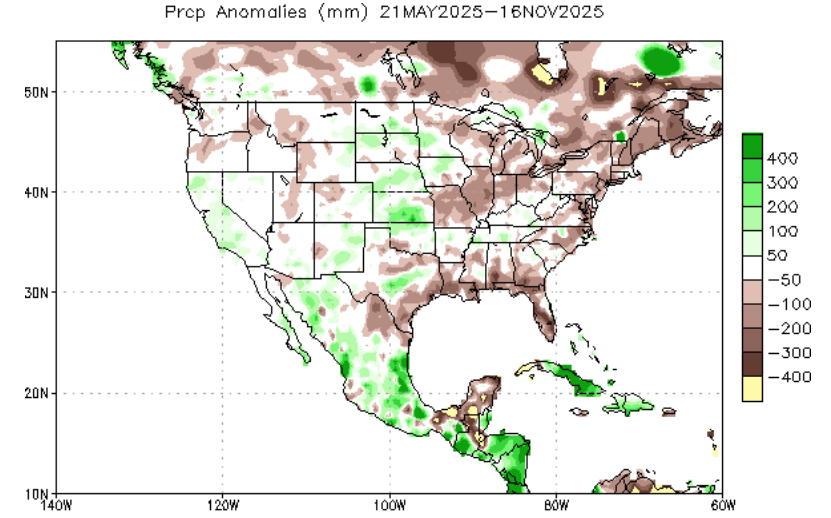
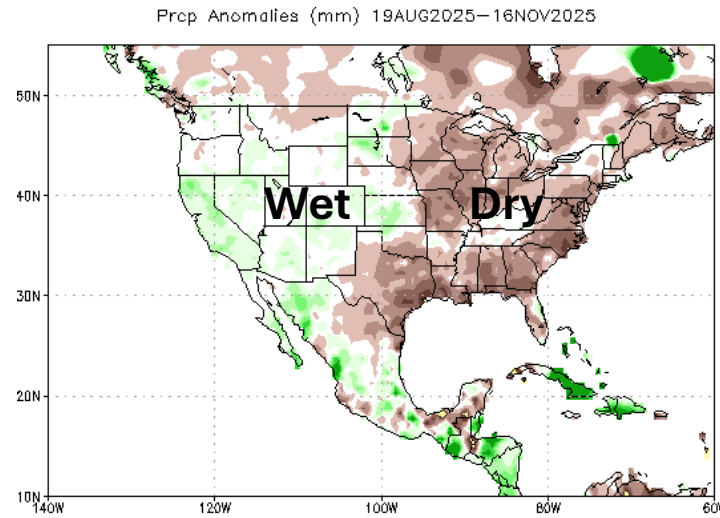
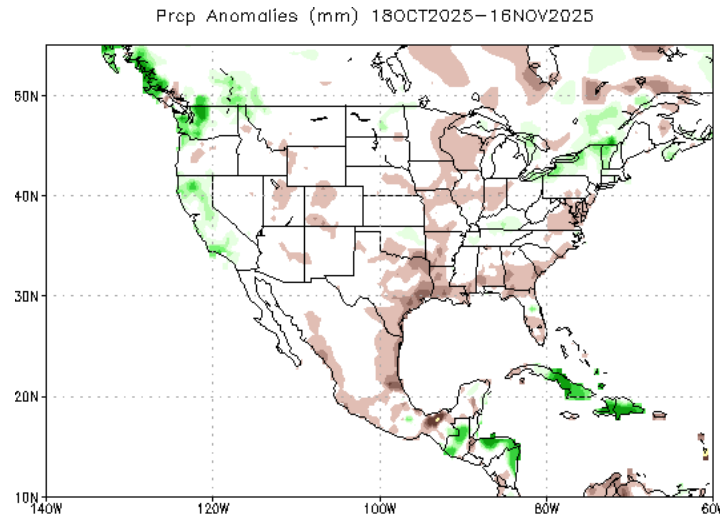
Alaska: Drought free

Hawaii: D0-D3 persisted

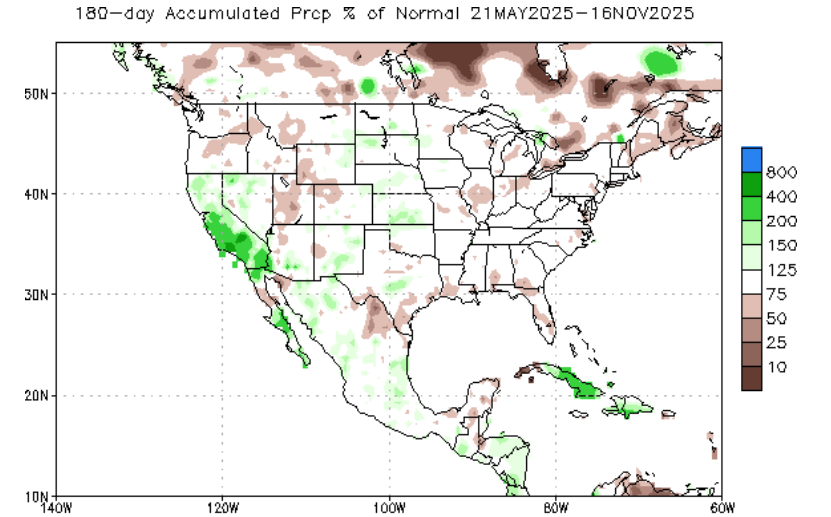
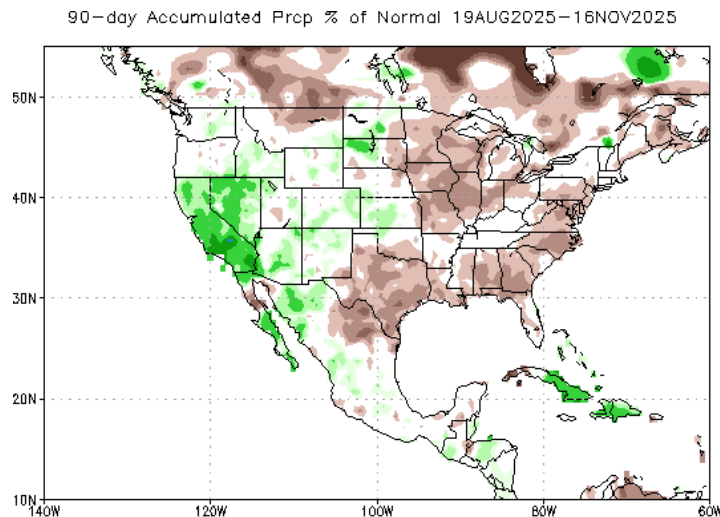
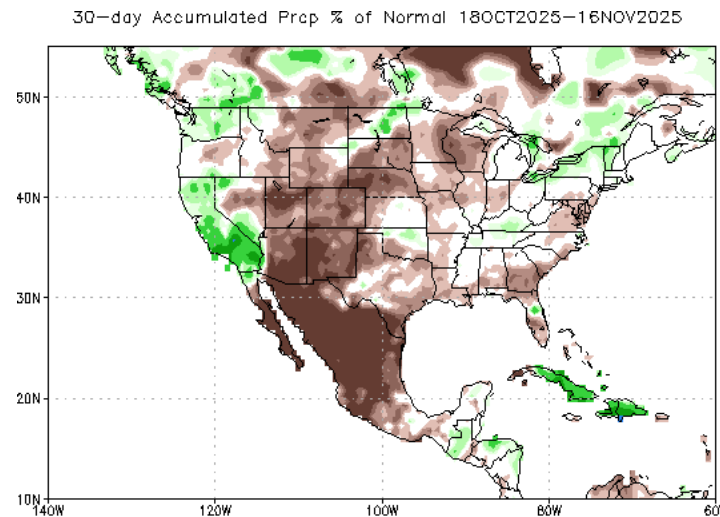
Puerto Rico: D0 in the East

Precipitation

Anomalies



% of Normal



1-month

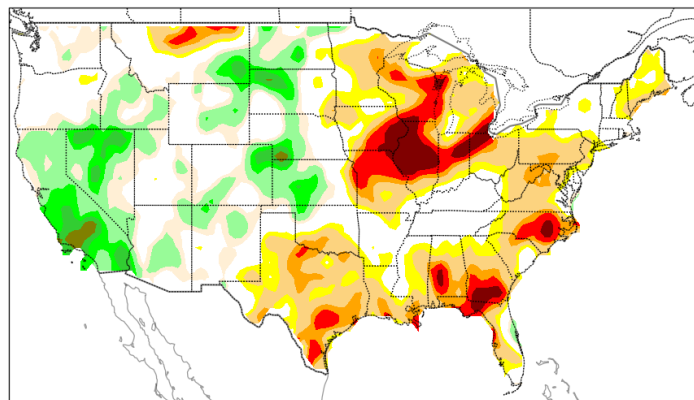
3-month

6-month

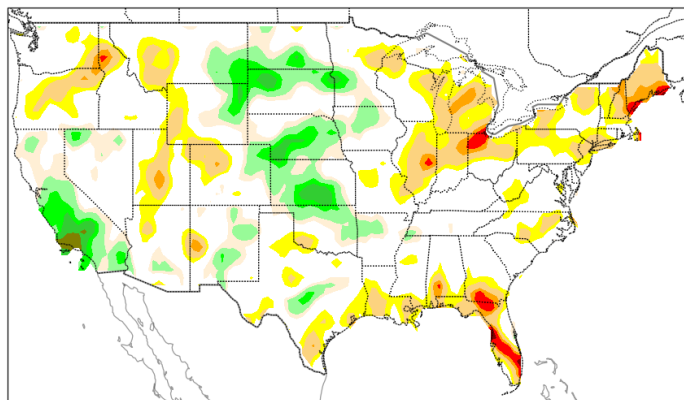
Standardized Precipitation Index (SPI)

Real-time Standardized Precipitation Index (SPI) Valid: 16Nov2025

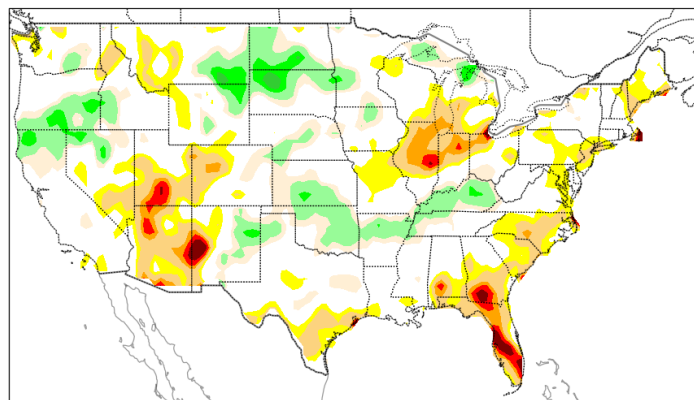
SPI3



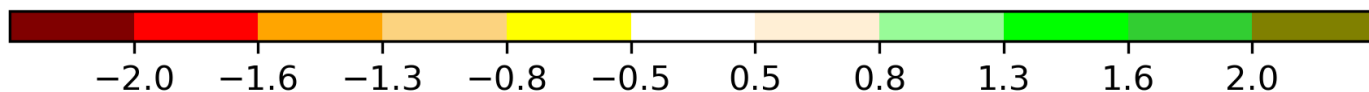
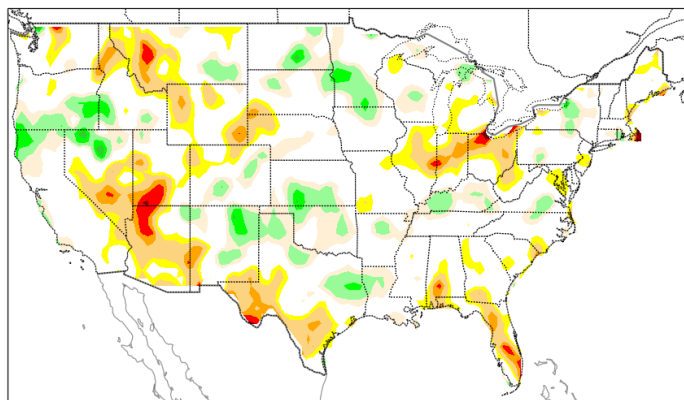
SPI6



SPI12



SPI24



SPI (through November 16, 2025)
Meteorological drought

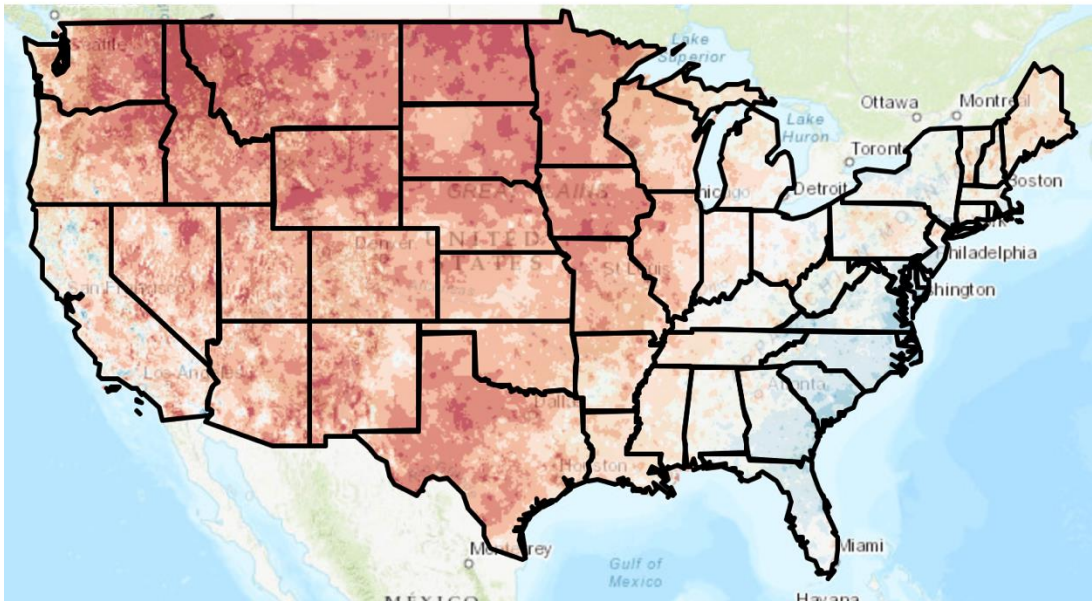
Short-term meteorological drought
in much of eastern CONUS.

Long-term meteorological drought
in Southwest (AZ, UT), and Florida.

Temperature Anomalies

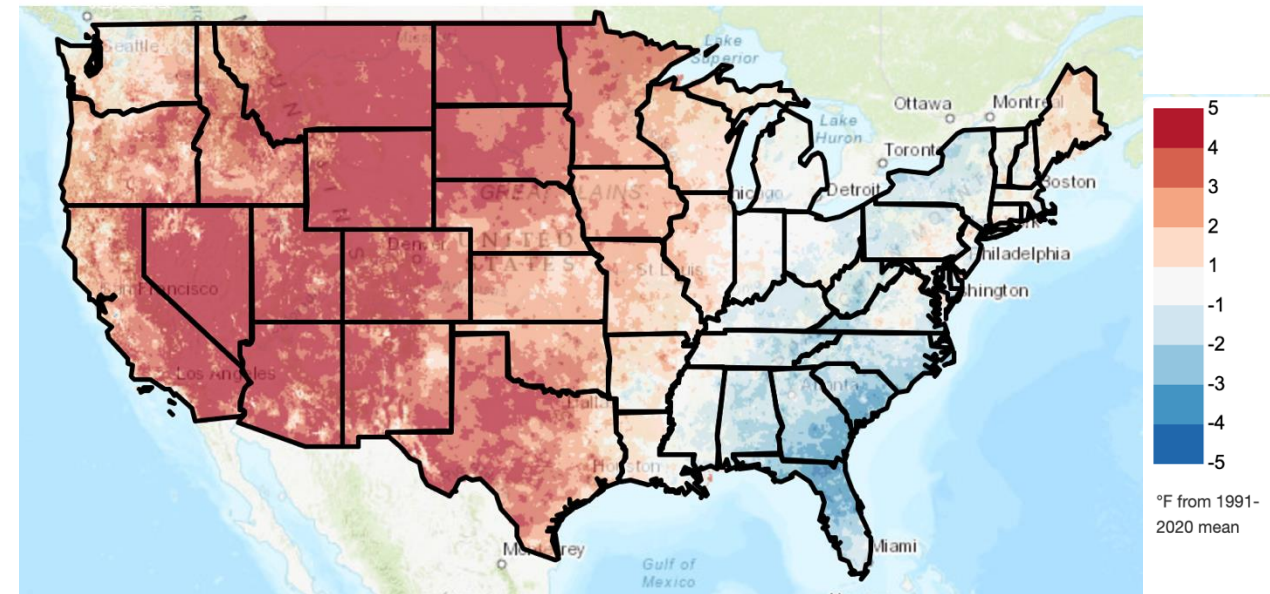
Last 90 Days
(from 1991-2020 Mean)

Mean Daily Temperature Anomaly, Last 90 Days
2025/08/18 - 2025/11/15



Last 30 Days
(from 1991-2020 Mean)

Mean Daily Temperature Anomaly, Last 30 Days
2025/10/17 - 2025/11/15

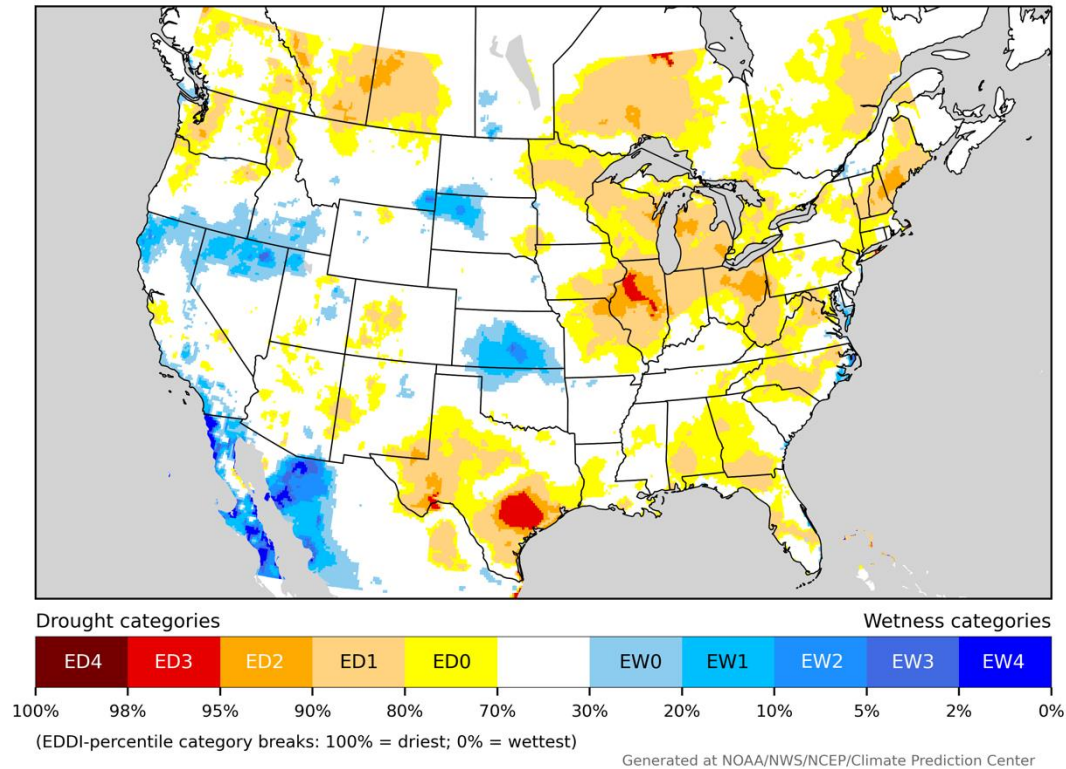


Last 90 and 30 days: Abnormally warm (cool) conditions in western and central (eastern) CONUS.

<https://climatetoolbox.org/tool/climate-mapper>

Evaporative Demand Drought Index (EDDI)

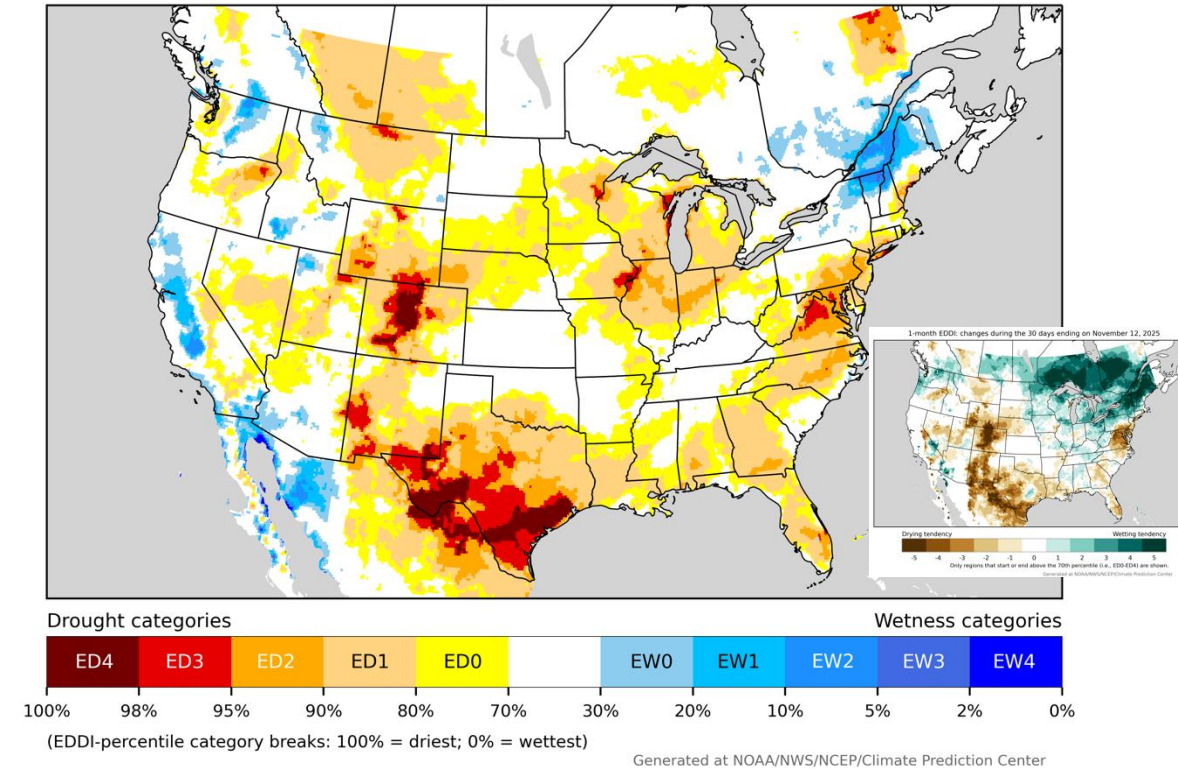
3-month EDDI categories for November 12, 2025



3-month EDDI (November 12, 2025)

- Abnormally high evaporative demand (ED1+) conditions in Mid-west, Southeast, and Texas.

1-month EDDI categories for November 12, 2025

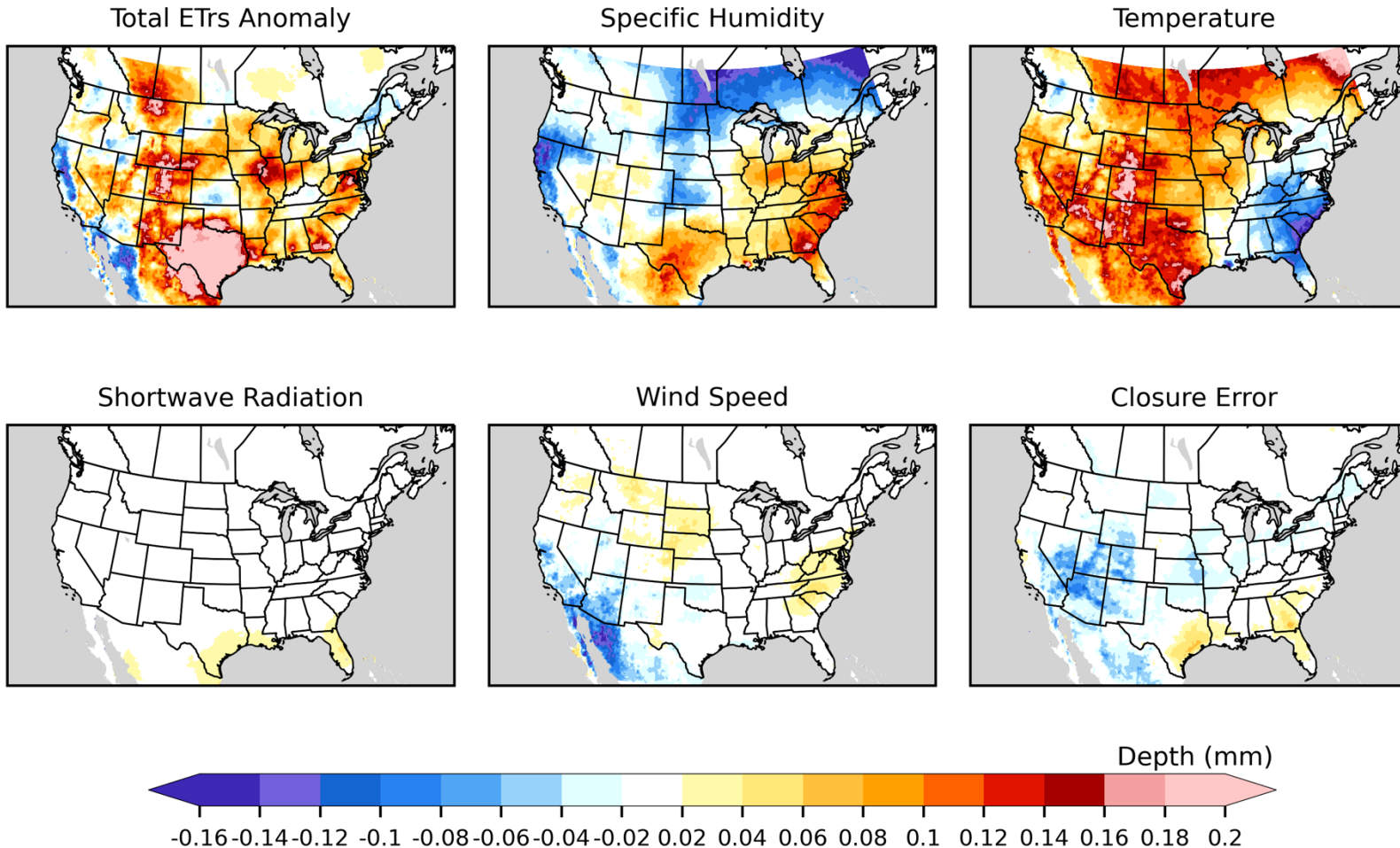


1-month EDDI (November 12, 2025)

- Abnormally high evaporative demand (ED1+) conditions in Texas, Central Rockies, Midwest, Southeast.

Evaporative Demand Drought Index (EDDI): Attribution

1-month ETRs Attribution ending on 2025.11.12



Generated at NOAA/NWS/NCEP/Climate Prediction Center

EDDI attribution:

- A new diagnostic tool developed at NOAA PSL and implemented in real-time at CPC (Hobbins et al. 2025, in prep.)
- Quantifies the separate roles of climatic drivers underlying EDDI in contributing to RefET anomalies

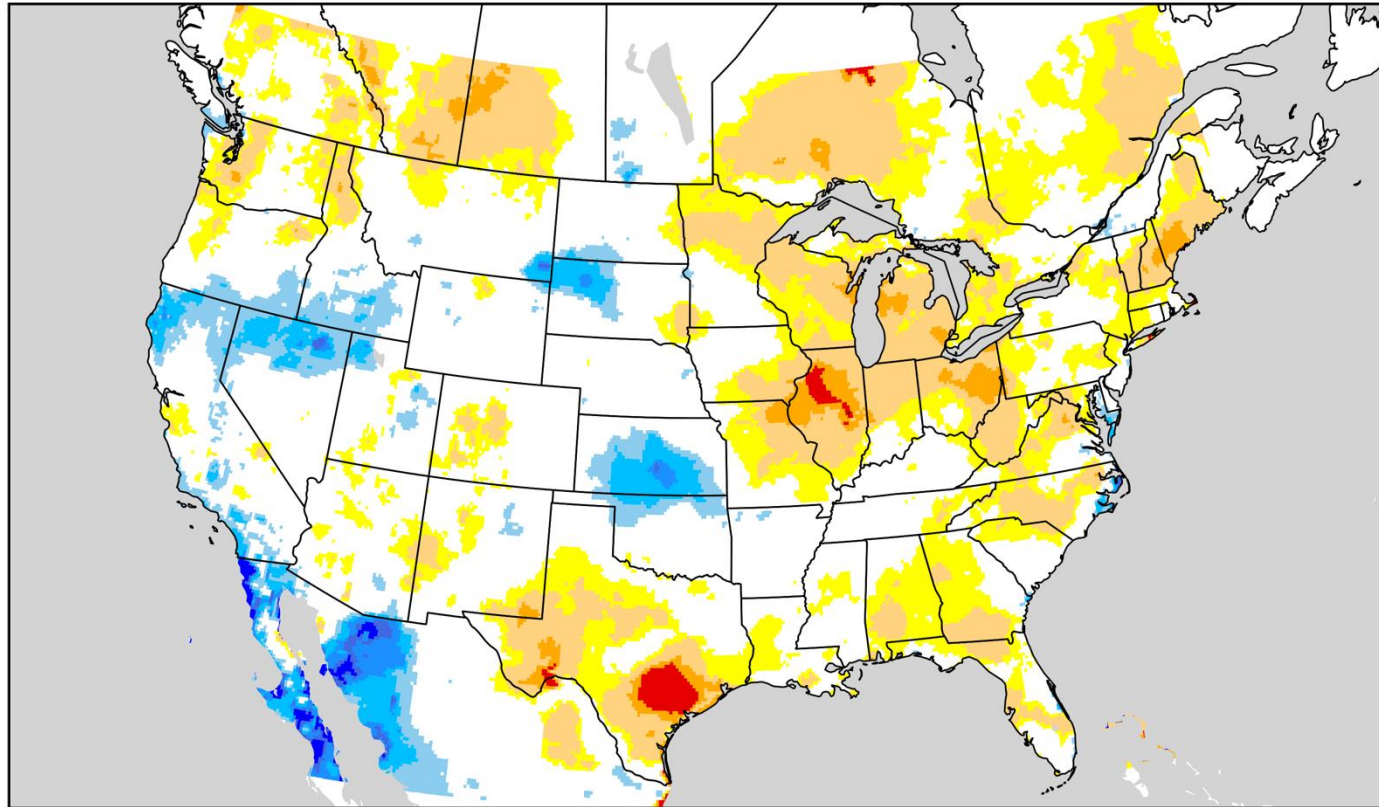
1-mon RefET ending on 2025.11.12

Attribution of above-normal RefET

- **Texas:** warmer temperature, secondarily by below-normal humidity.
- **Southeast:** below-normal humidity, partially offset by below-normal temperature

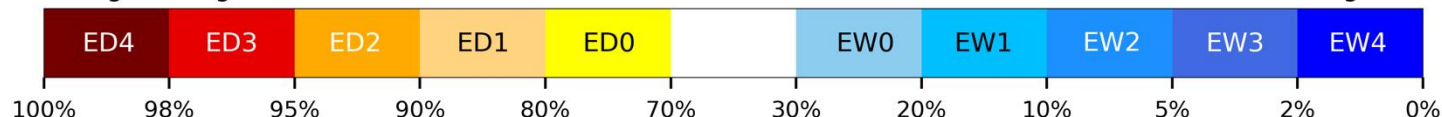
Evaporative Demand Drought Index (EDDI)

3-month EDDI categories for November 12, 2025



Drought categories

Wetness categories



(EDDI-percentile category breaks: 100% = driest; 0% = wettest)

Generated at NOAA/NWS/NCEP/Climate Prediction Center

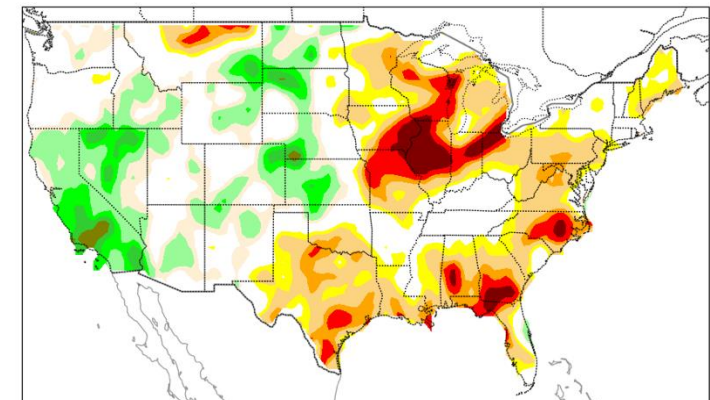
3-month EDDI (November 12, 2025)

- Abnormally high evaporative demand (ED1+) conditions in Midwest, Southeast, Texas

Regions that experienced elevated EDDI conditions and precipitation deficits tend to have land dryness (next slide)

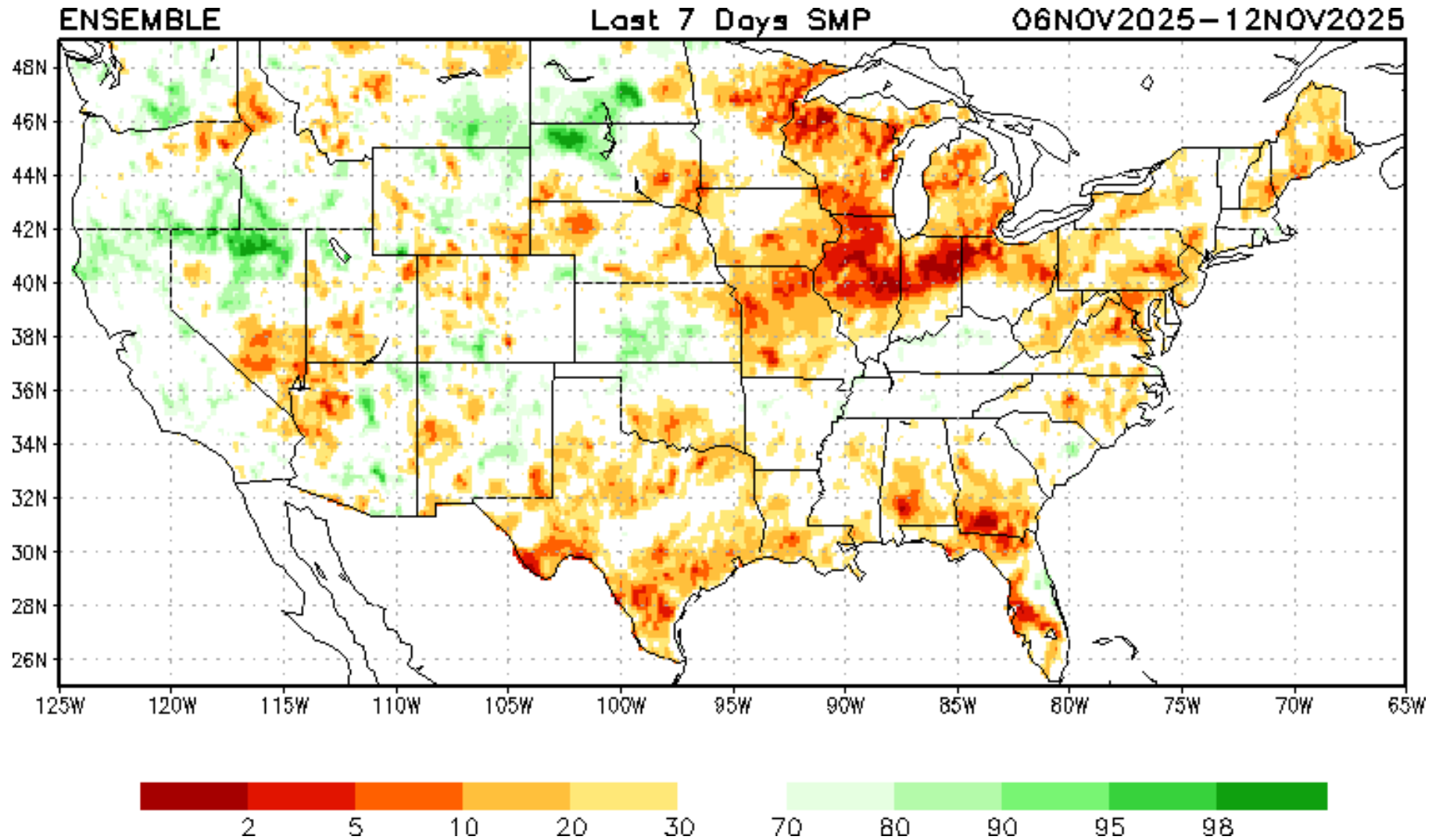
- Most of eastern CONUS

SPI3



https://psl.noaa.gov/eddi/#current_conditions

Soil Moisture Percentile: NLDAS-2



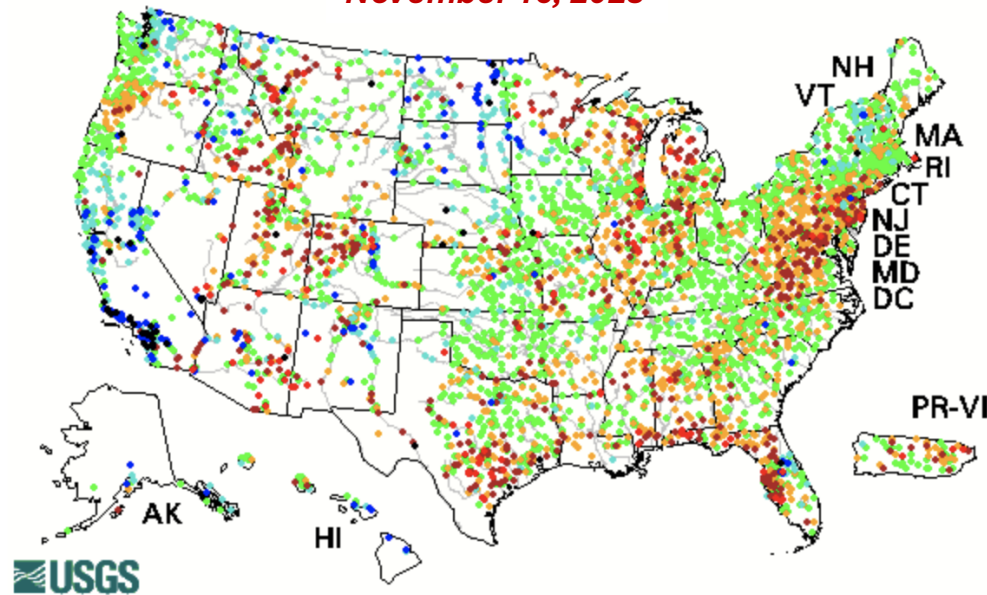
Dry soil moisture in portions of West, Mid-west, Northeast, and Gulf states.

USGS Streamflow

Map of 7-day average streamflow compared to historical streamflow for the day of the year (United States)

State or Water-Resources Regions All Days

November 16, 2025



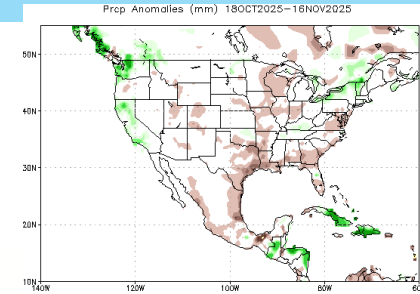
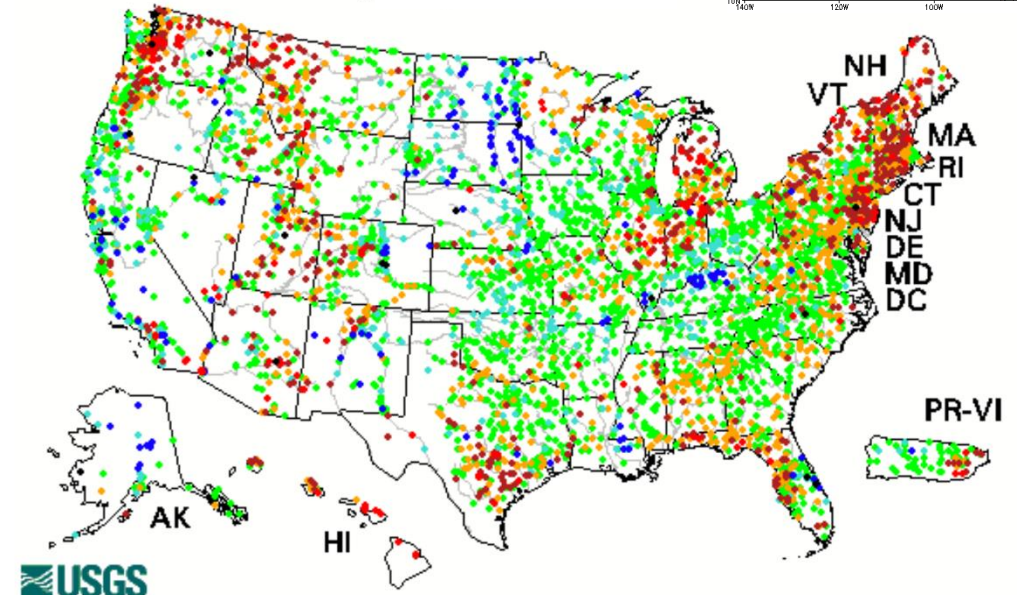
Search USGS streamgage

Choose a data retrieval option and select a location on the map

☐ List of all stations in state, ☒ State map, or ☐ Nearest stations

Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

October 9, 2025

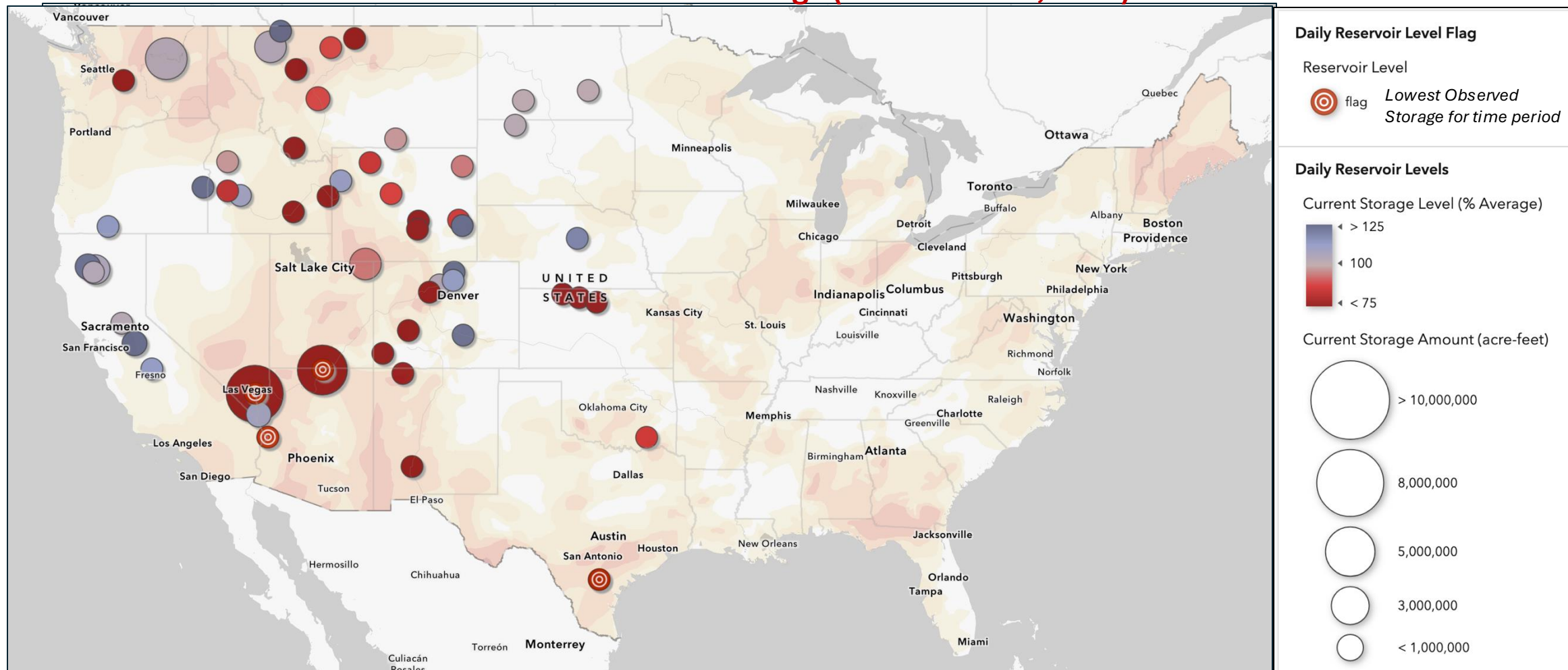


Much below-normal streamflow
(hydrological drought) on **November 16, 2025**

Rockies, Midwest, Mid-Atlantic, Gulf states

Reservoir Storage: Western CONUS

Reclamation Reservoir Storage (November 14, 2025)

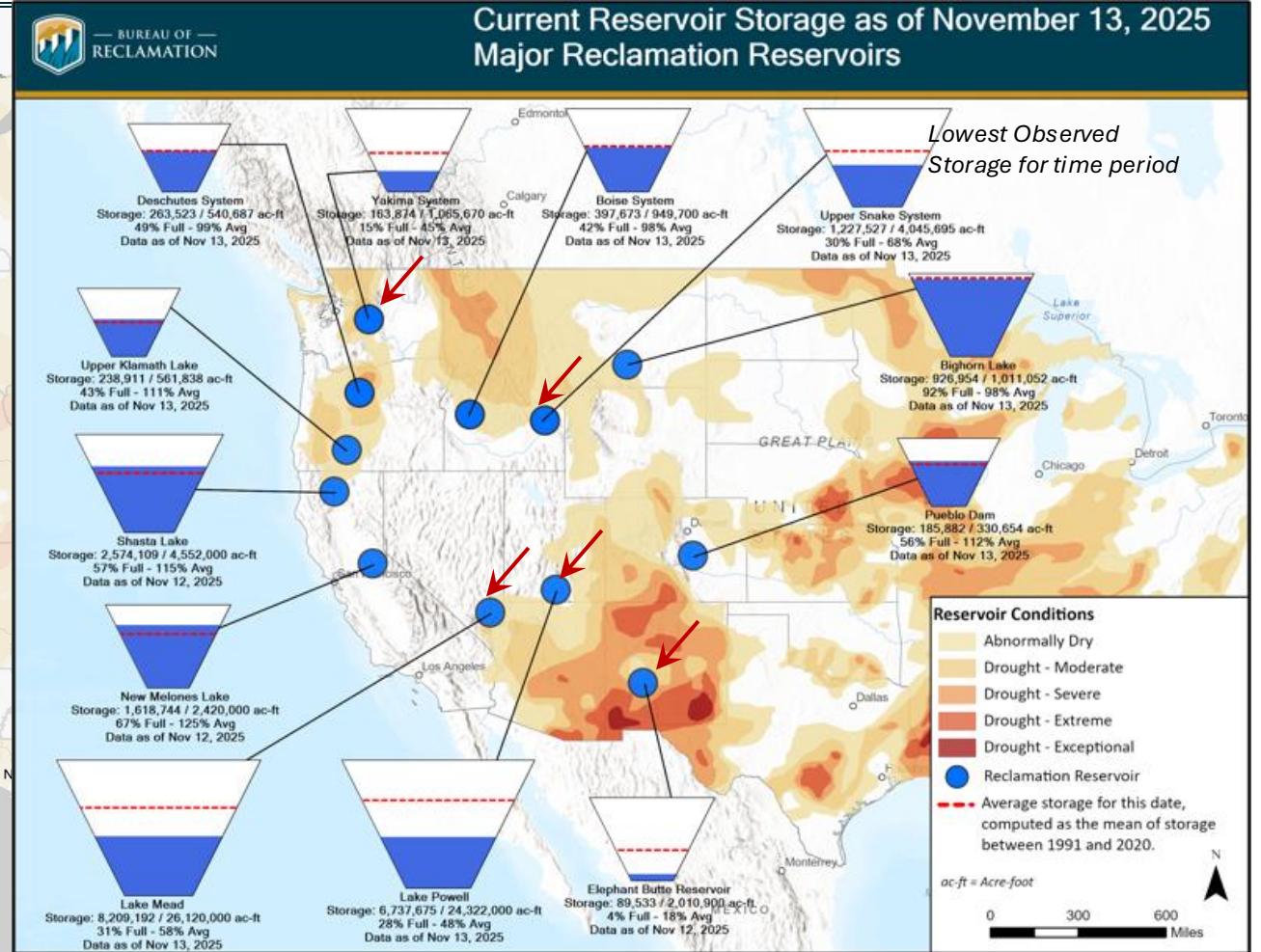
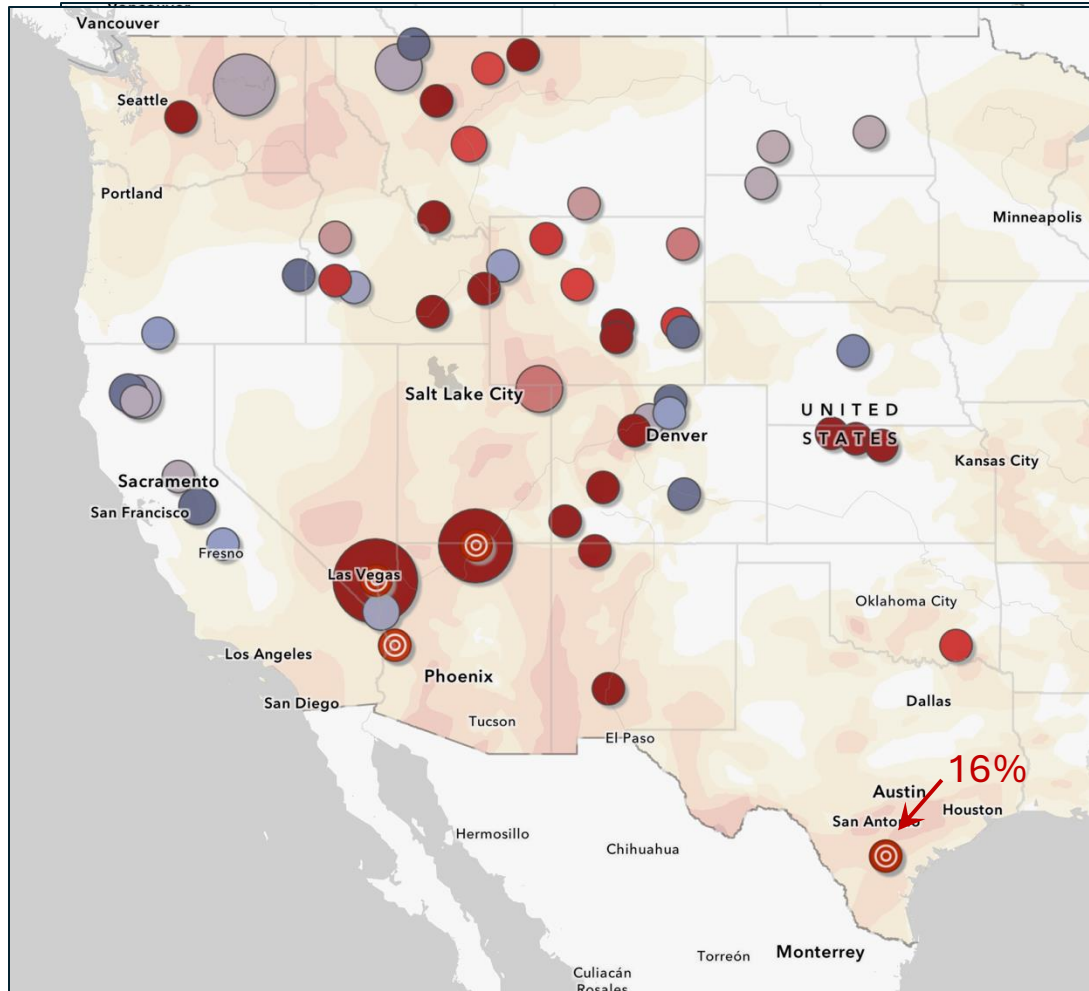


Flagged reservoirs (lowest storage observed on October 10=>November 14 in the last 30 years):

Lake Powell (43.1%=>43.8% avg), Lake Mead (51.7%=>51.3% avg), Choke Canyon Dam And Reservoir/TX (17.6%=>16% avg), Lake Havasu/AZ (93%=>94.8%, avg)

Reservoir Storage: Western CONUS

Reclamation Reservoir Storage (November 14, 2025)

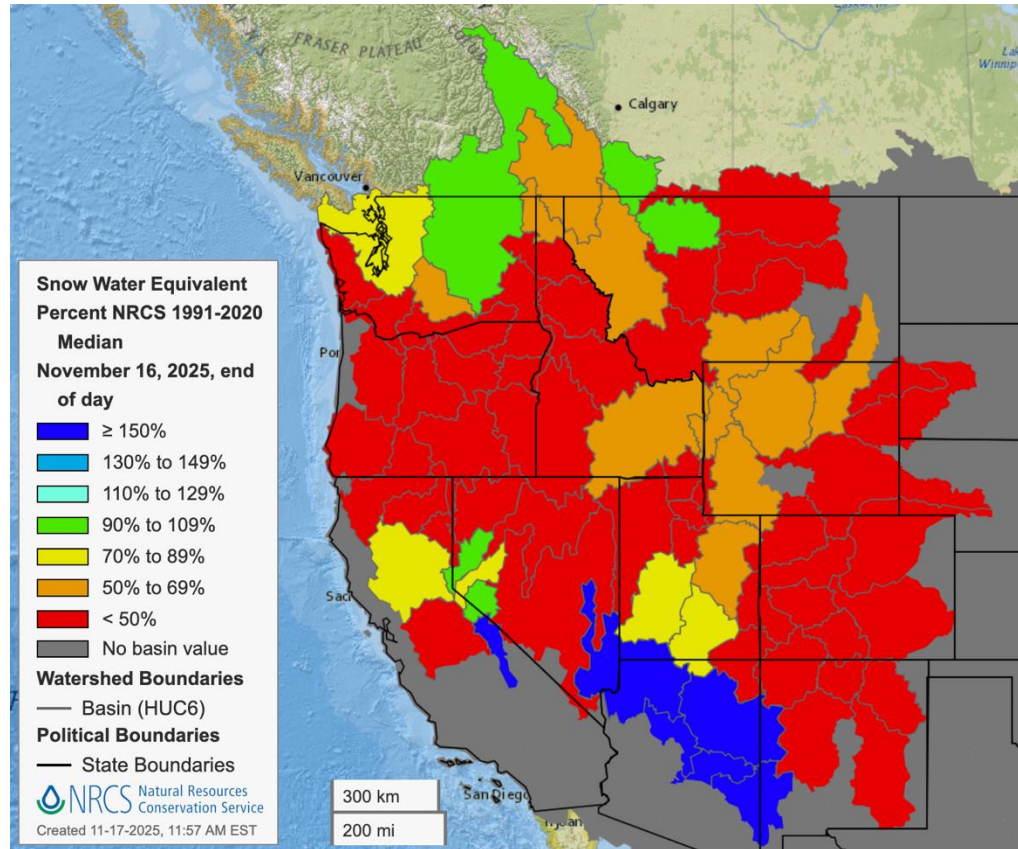


Flagged reservoirs (lowest storage observed on October 10=>November 14 in the last 30 years):

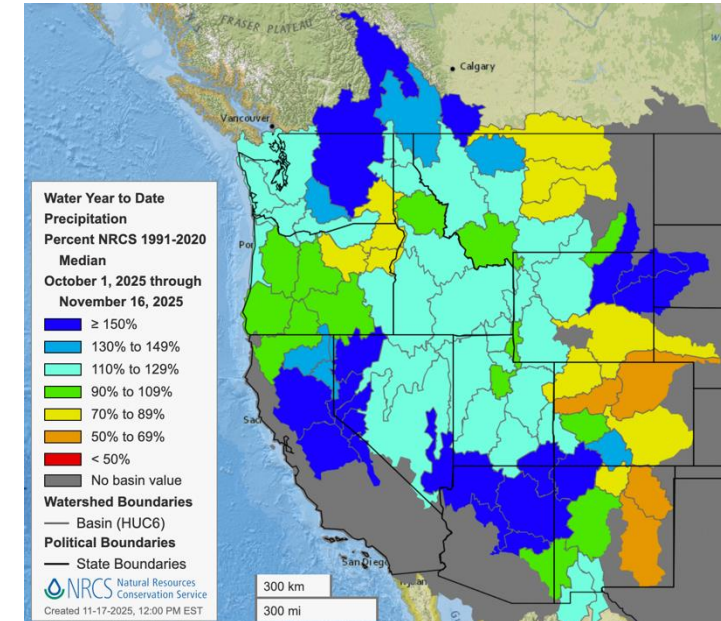
Lake Powell (43.1%=>43.8% avg), Lake Mead (51.7%=>51.3% avg), Choke Canyon Dam And Reservoir/TX (17.6%=>16% avg), Lake Havasu/AZ (93%=>94.8%, avg)

USDA NWCC Snow Water Equivalent (SWE)

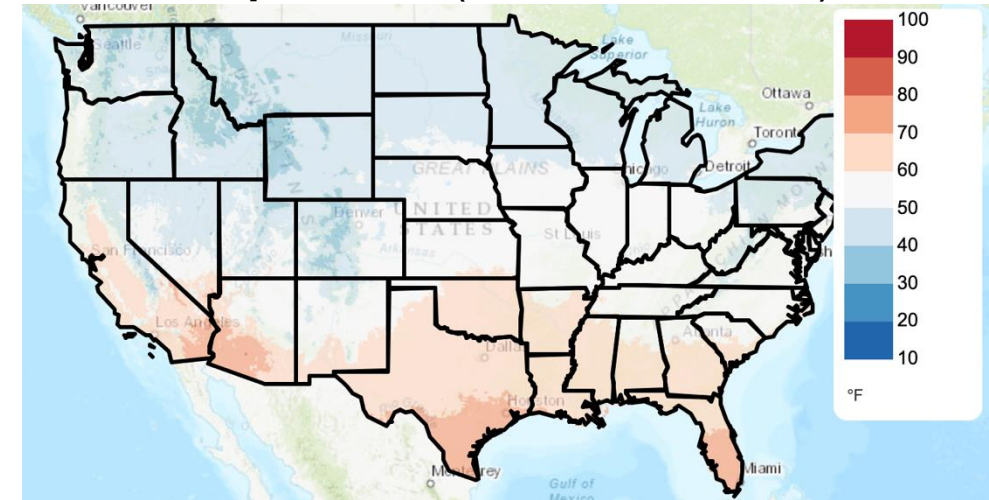
SWE Percent (11/16/2025)



Precip Percent (10/1-11/16, 2025)



Temperature (10/1-11/16, 2025)



- **11/16 (above left):** mostly below normal SWE
- **10/1-11/16 (right):** above normal precipitation;
below zero temperature only over mountain peaks

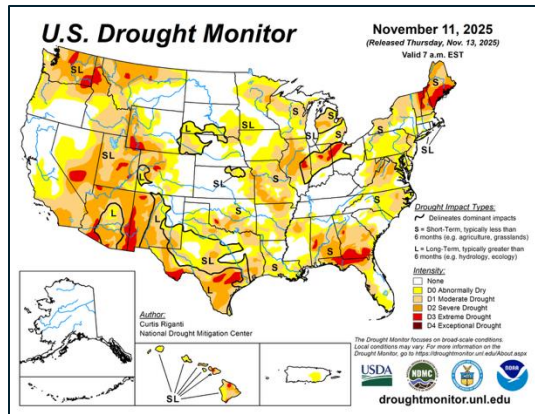
<https://nwcc-apps.sc.egov.usda.gov/imap>

Seasonal Drought Prediction

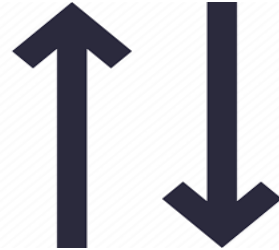
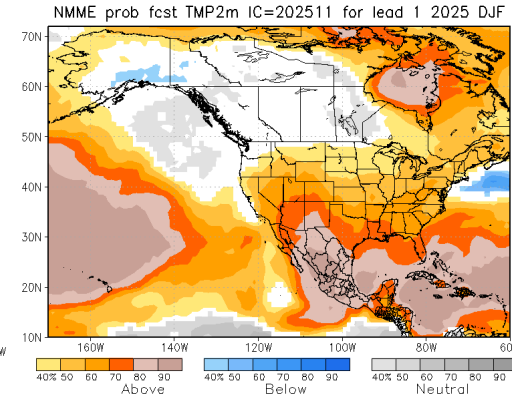
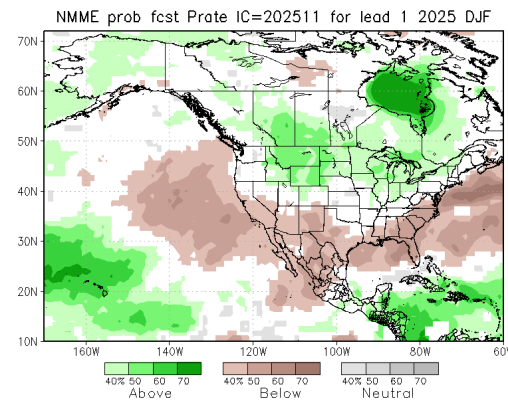
Seasonal Drought Prediction

Seasonal Precip and T2m Forecast Ensembles

Initial Drought Conditions



+



Land Surface Forecasts

} = ?

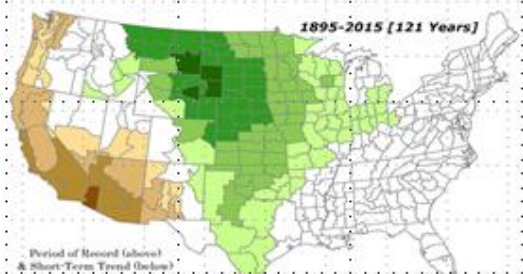
Seasonal Drought Forecasts

Seasonal Precipitation Climatology

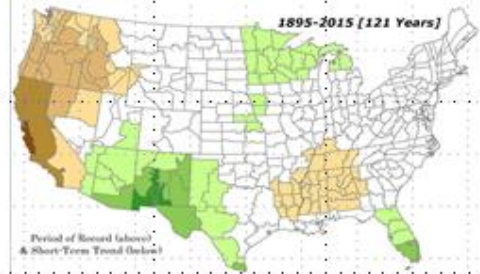
Median Percent of Annual Precipitation -- DJF



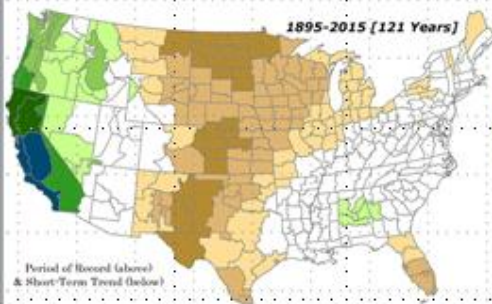
Median Percent of Annual Precipitation -- AMJ



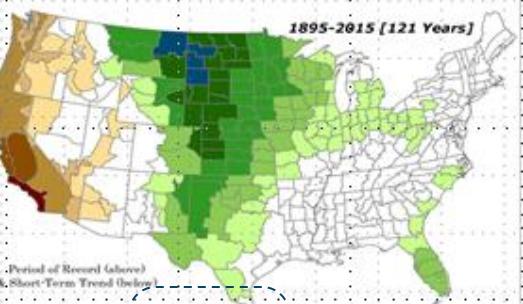
Median Percent of Annual Precipitation -- ASO



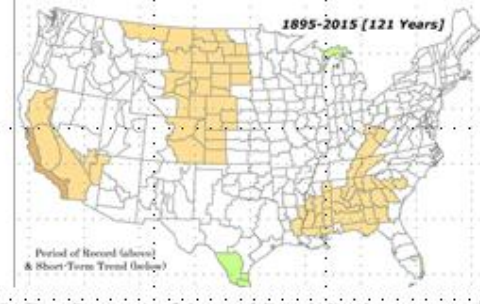
Median Percent of Annual Precipitation -- JFM



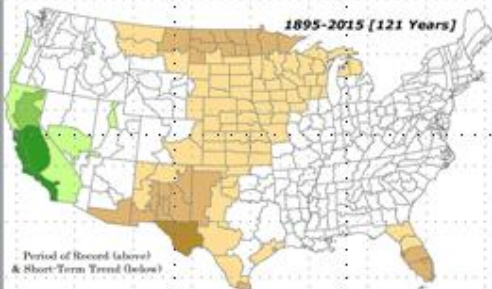
Median Percent of Annual Precipitation -- MJJ



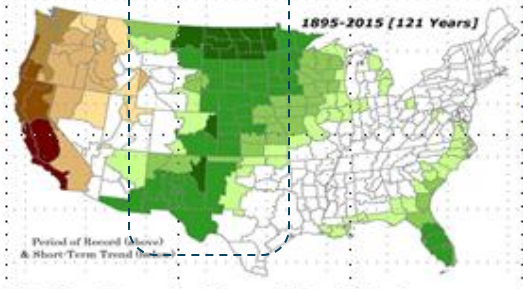
Median Percent of Annual Precipitation -- SON



Median Percent of Annual Precipitation -- FMA



Median Percent of Annual Precipitation -- JJA



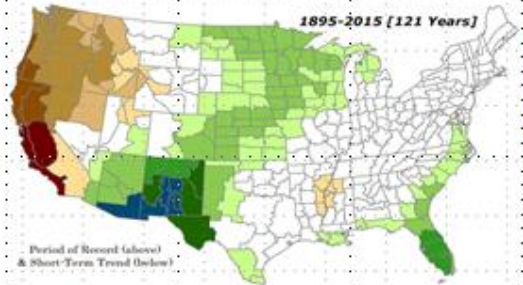
Median Percent of Annual Precipitation -- OND



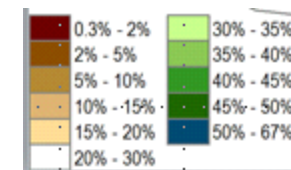
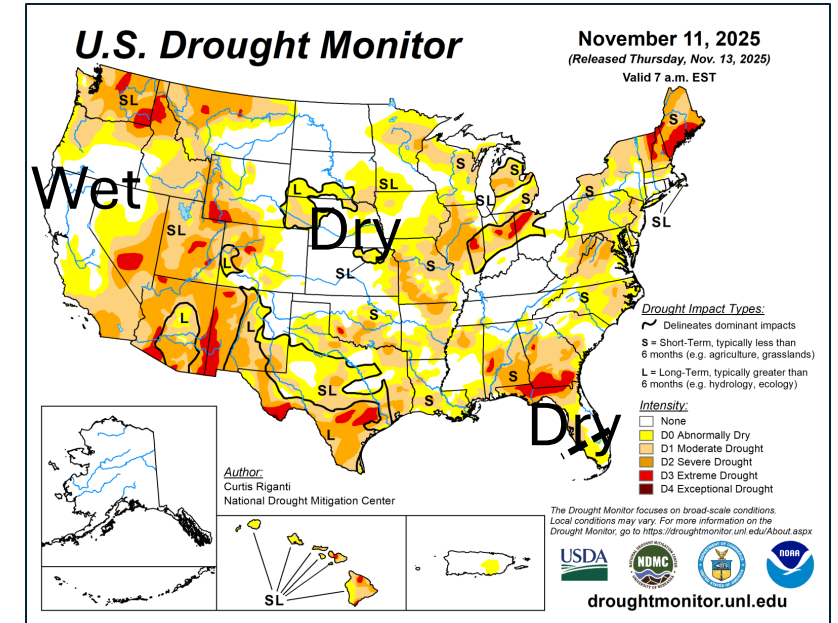
Median Percent of Annual Precipitation -- MAM



Median Percent of Annual Precipitation -- JAS



Median Percent of Annual Precipitation -- NDJ

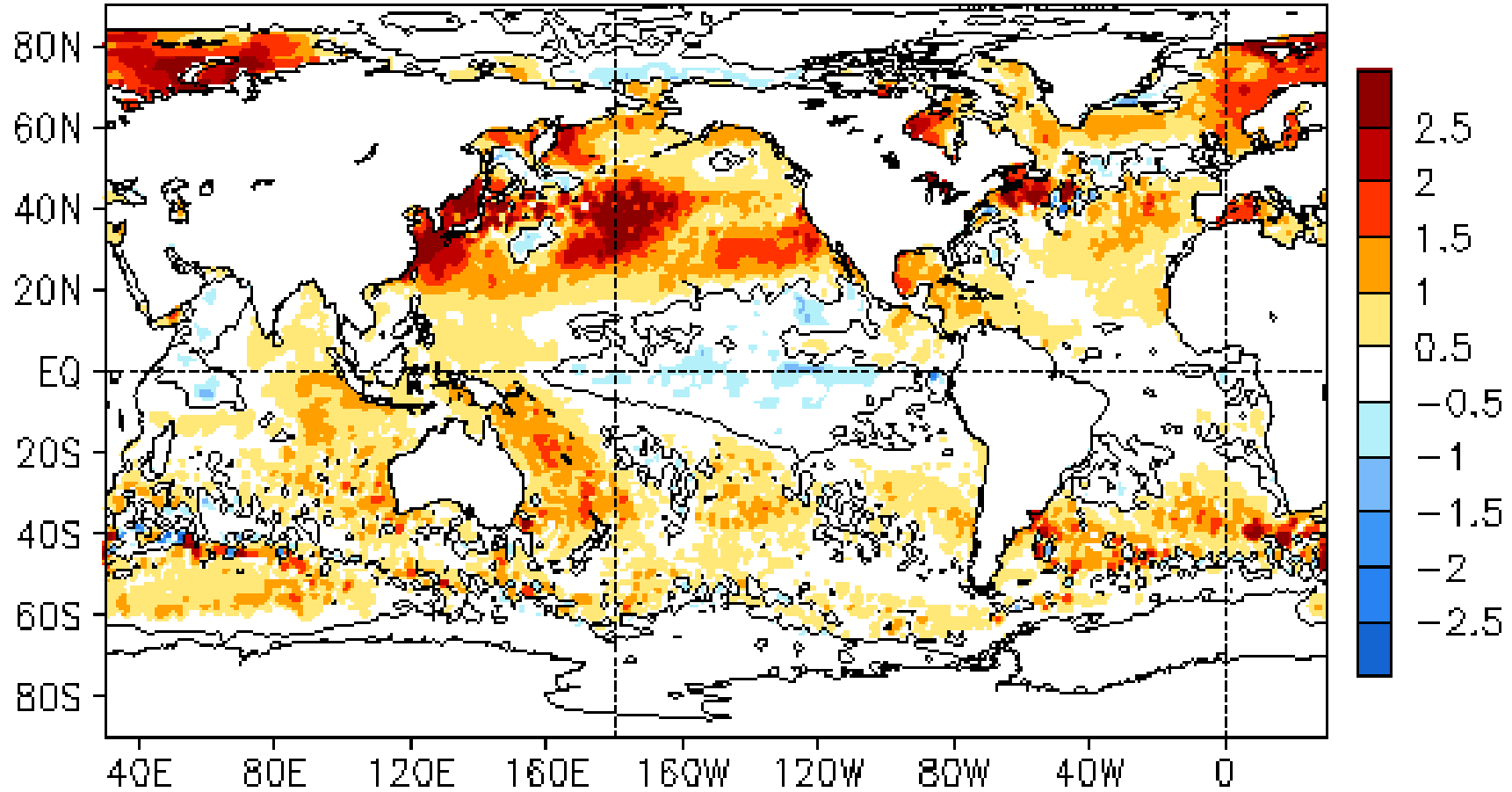


Adapted from Rich Tinker (CPC)

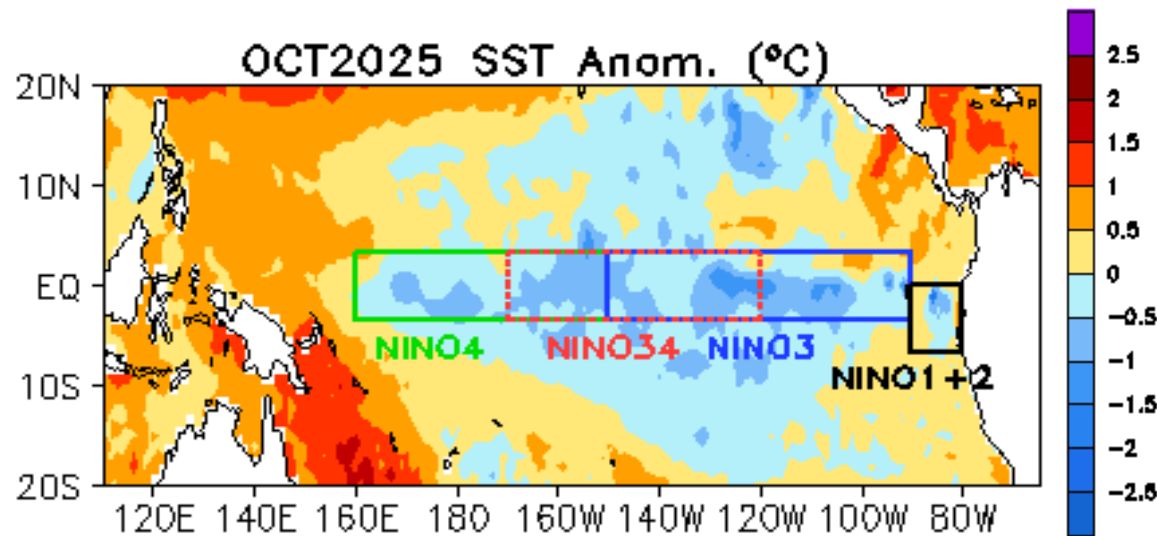
Courtesy: Rich Tinker (CPC)

Global SST Anomaly

OCT 2025 SST Anomaly (°C)
(1991–2020 Climatology)

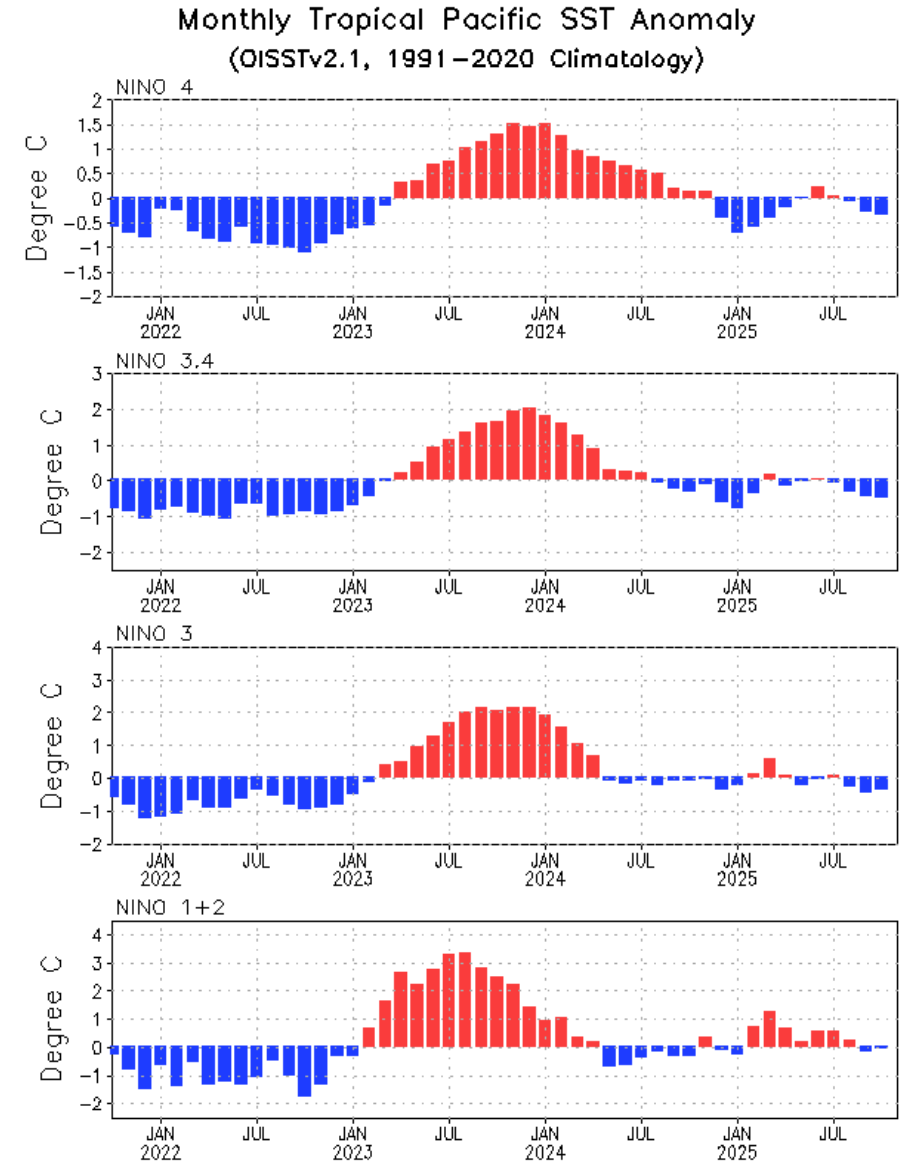


ENSO: Recent Conditions



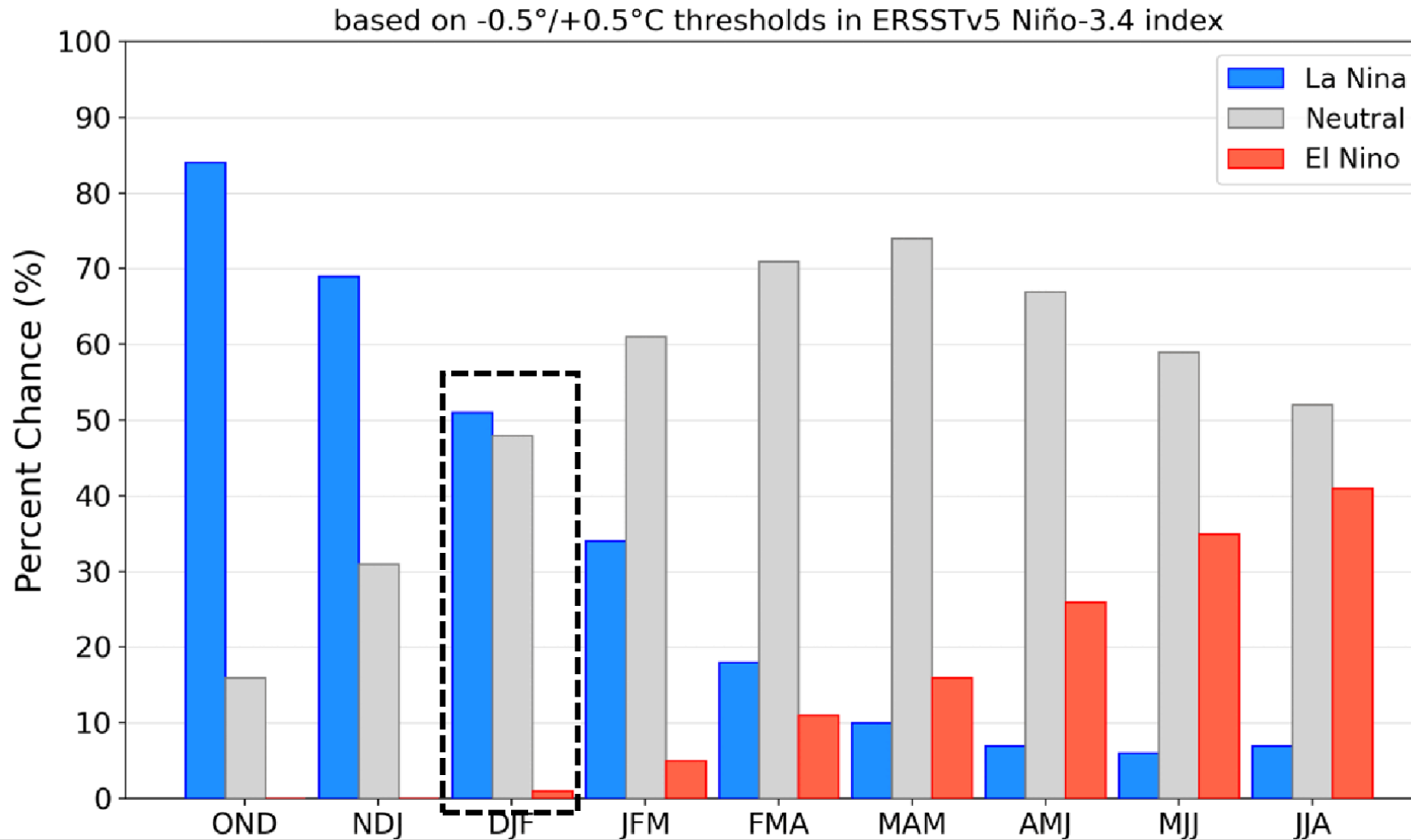
October 2025:

La Nina strengthened slightly, with Niño3.4=-0.5



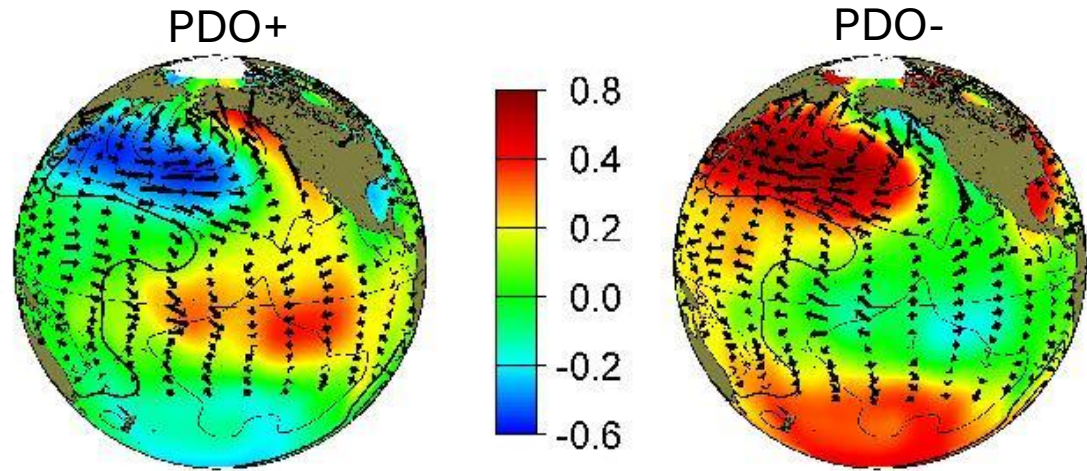
ENSO: Official NOAA CPC Forecast

Official NOAA CPC ENSO Probabilities (issued November 2025)

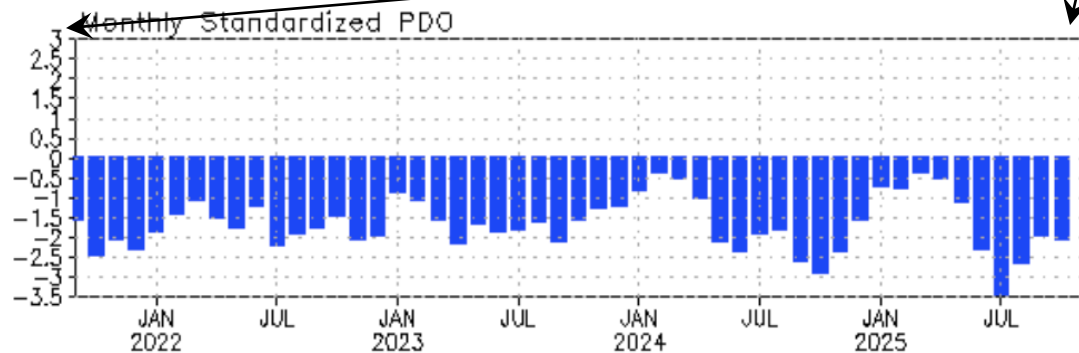
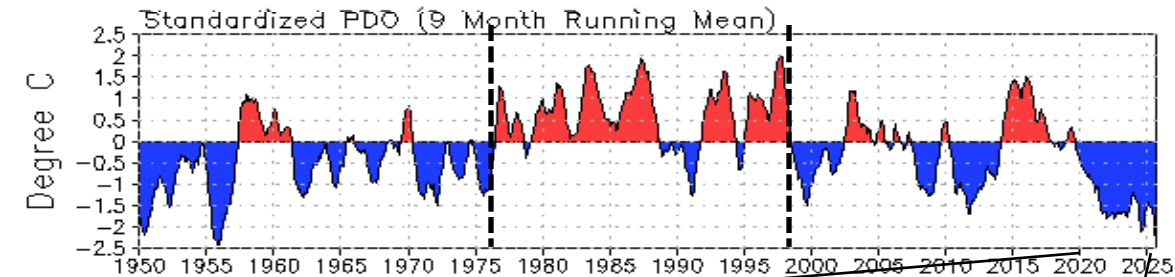


La Nina is favored with 51% chance for December-January-February (DJF) 2025/26.

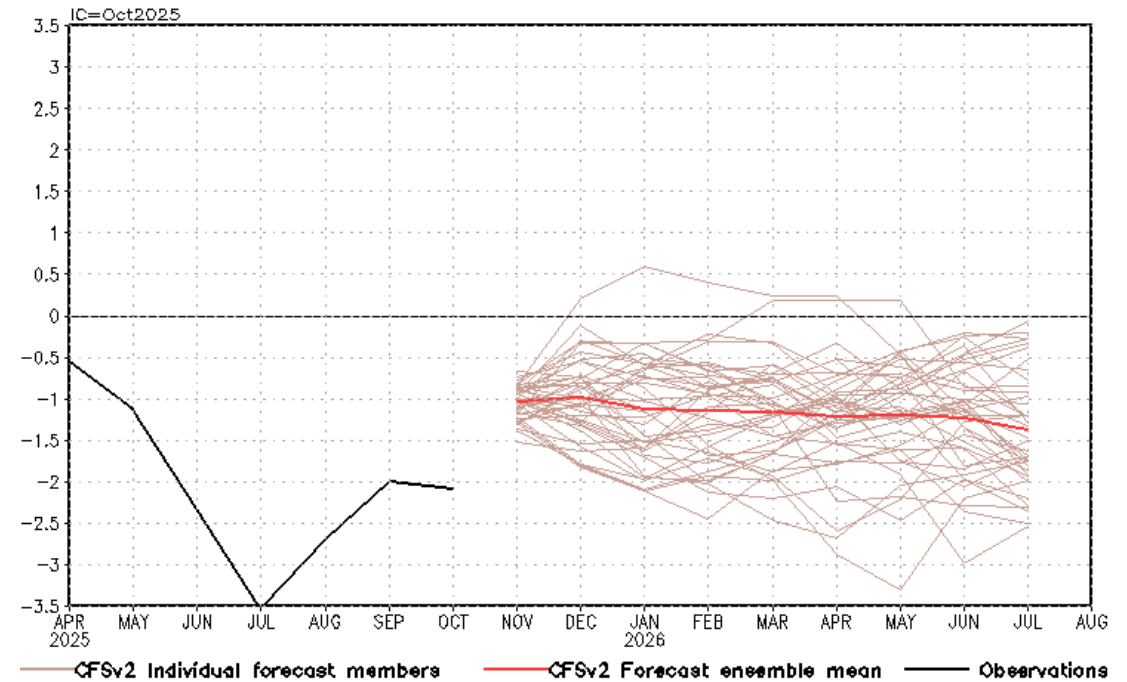
Pacific Decadal Oscillation (PDO): Observations and Forecasts



<https://psl.noaa.gov/pdo/>



standardized PDO index



Pacific Decadal Oscillation (PDO)

- **Observations:** The PDO has been in its negative phase since Jan 2020 with a strong PDO Index (**-2.1**) in Oct 2025.
- **Forecast (CFSv2):** PDO is forecast to remain in negative phase through Summer 2026.
- **Negative PDO** enhances La Nina effects over CONUS.

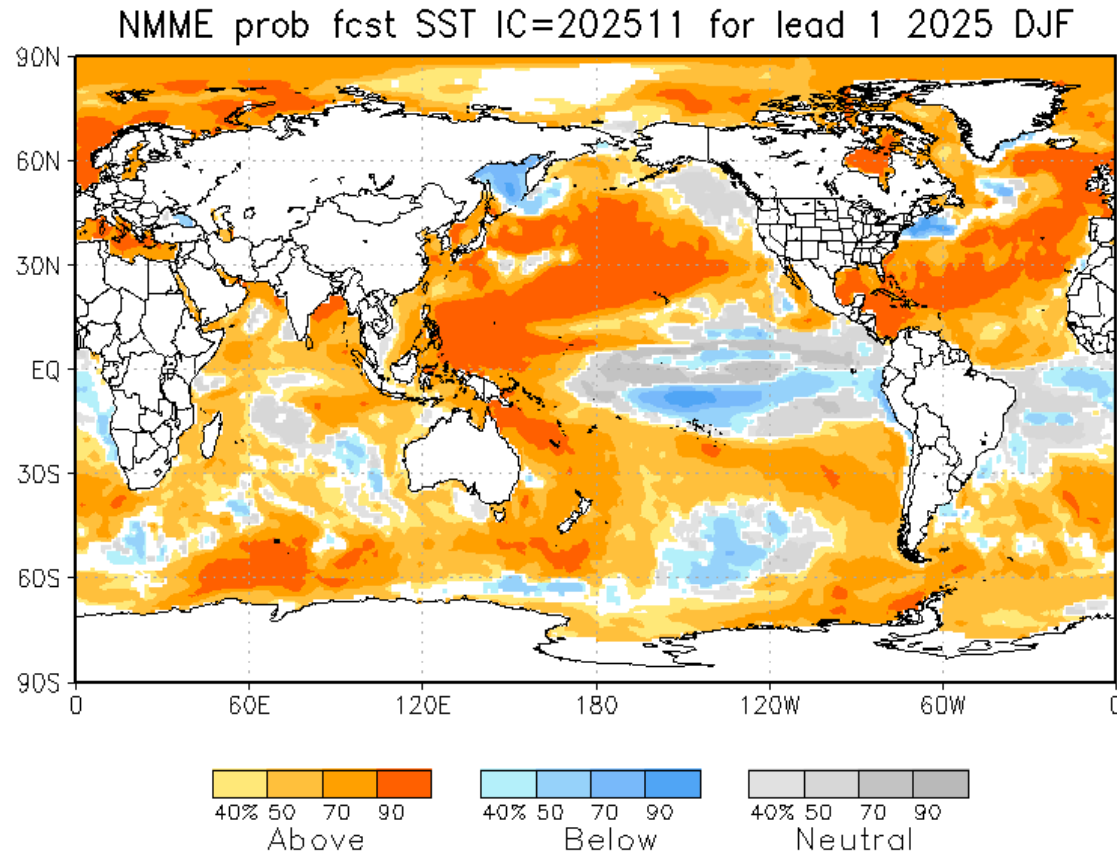
CPC Monthly Ocean Briefing (November 2025)

https://www.cpc.ncep.noaa.gov/products/GODAS/ocean_briefing_gif/global_ocean_monitoring_2025_11.pdf

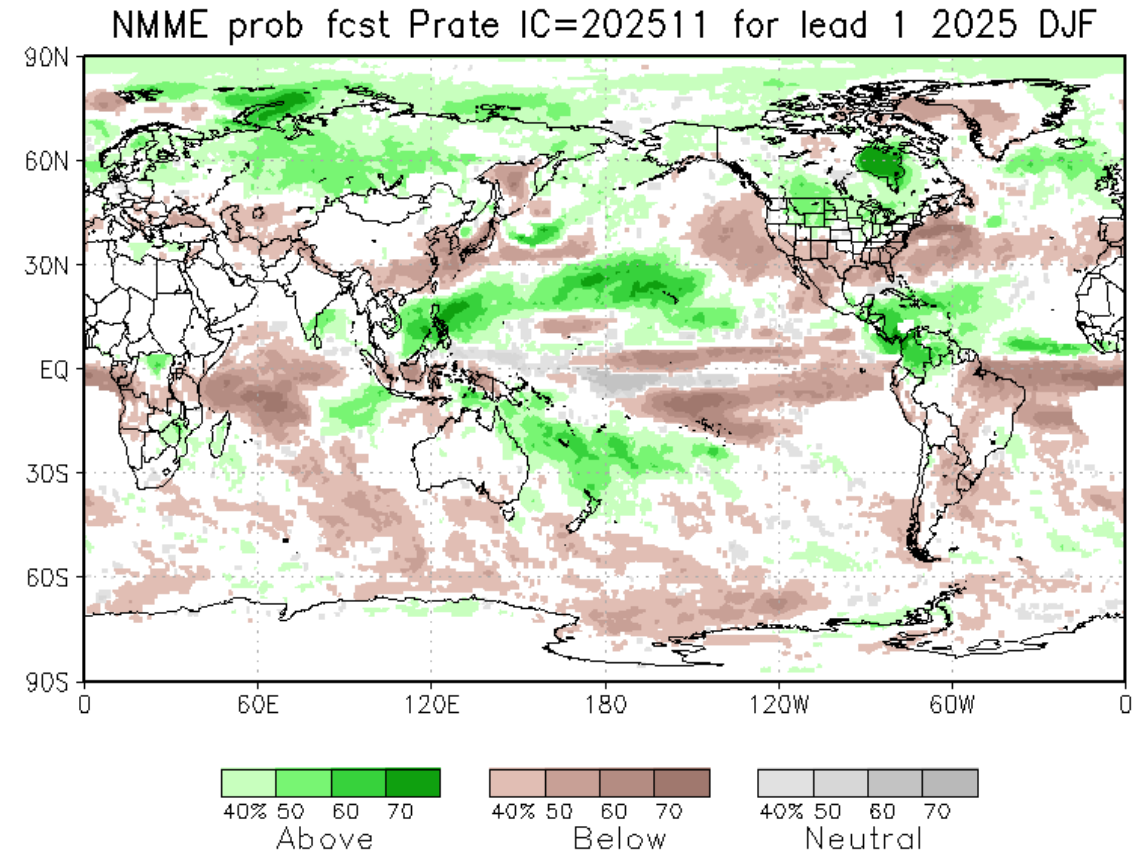
NMME Seasonal Forecasts: SST, Precipitation

Probabilistic Forecast: IC=202511 Lead=1 month for DJF2025/26

SST



Precipitation

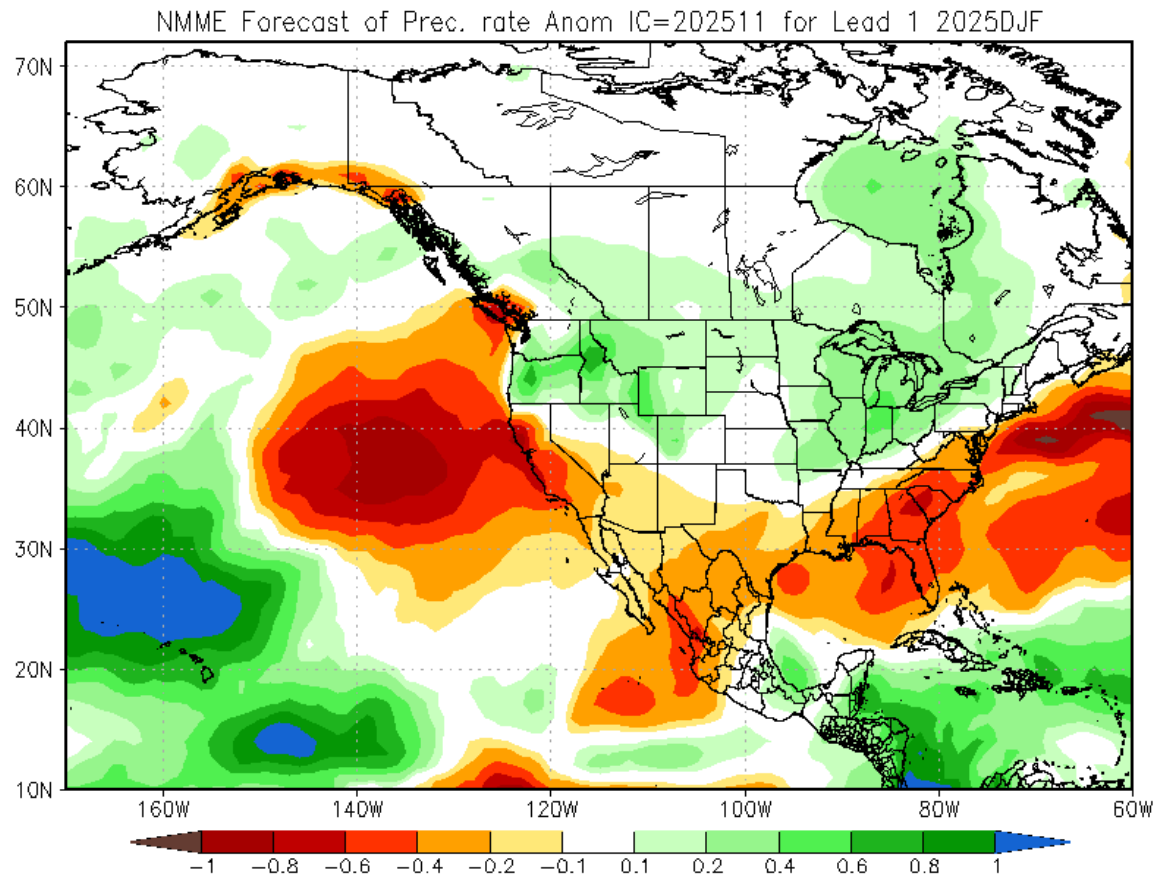


Cold Pacific (La Nina, cold PDO) + Warm Atlantic: SST forcing that induces drought conditions over the CONUS

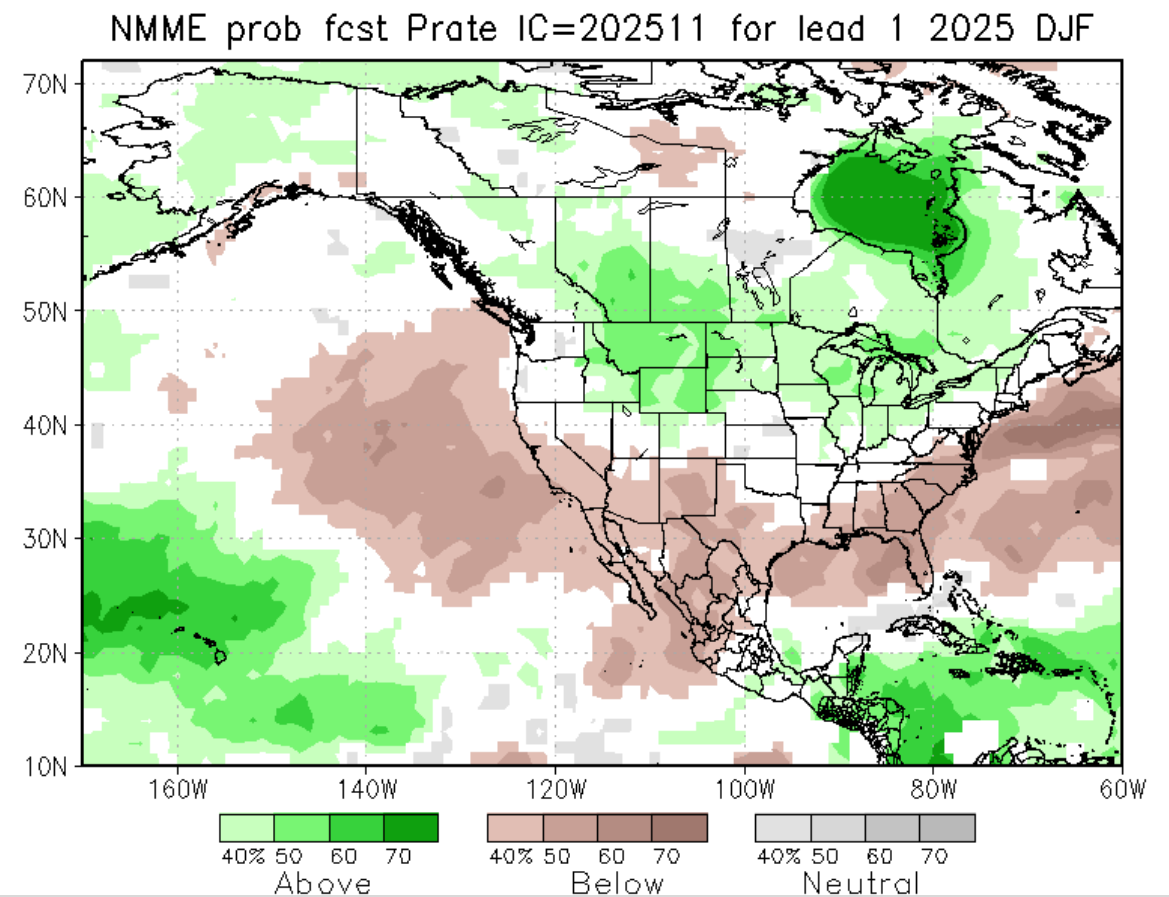
NMME Forecasts: Precipitation

IC=202511 Lead=1month for DJF2025/26

Multi-Model Ensemble Mean



Probabilistic Forecast

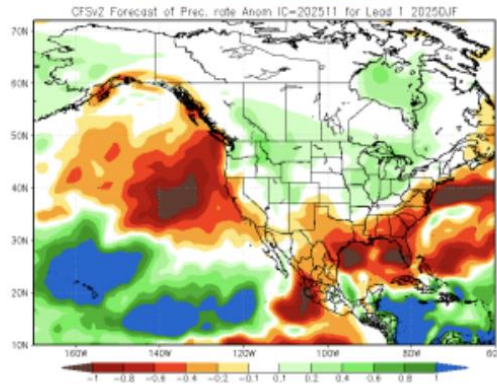


NMME forecasts precipitation deficits in southwestern and southeastern CONUS, and above-normal precipitation in northern CONUS, with >40% probability.

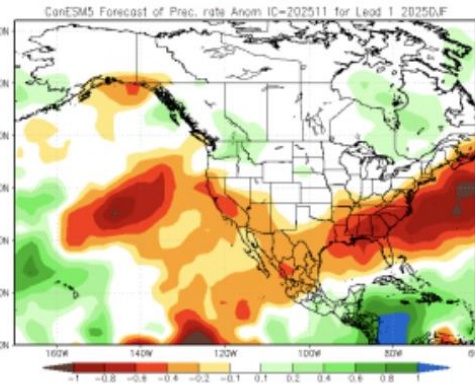
NMME Forecasts: Precipitation

Ensemble Mean: IC=202511 Lead=1month for DJF2025/26

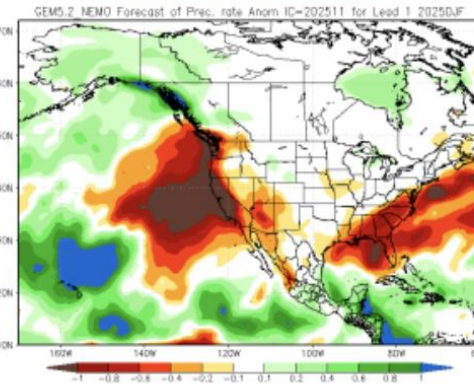
NCEP CFSv2



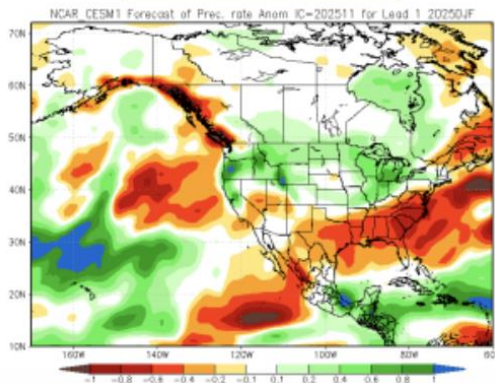
CanESM5



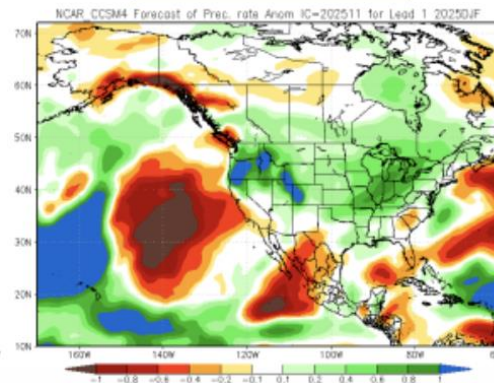
GEM5.2 NEMO



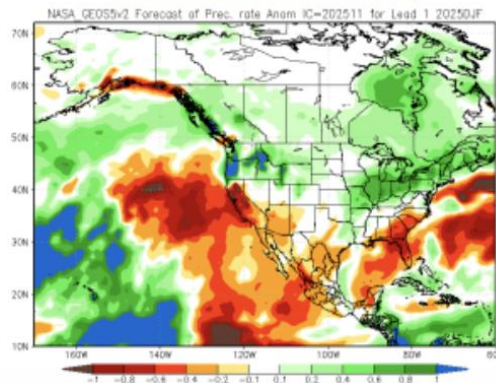
NCAR CESM1



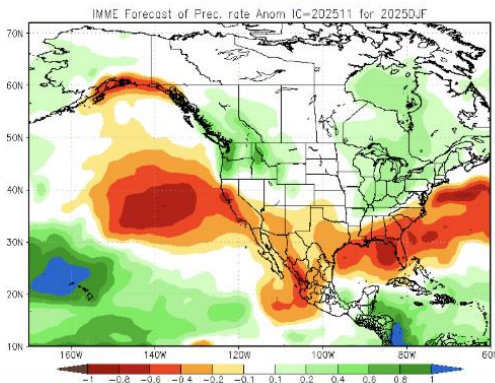
NCAR CCSM4



NASA GEOS5v2



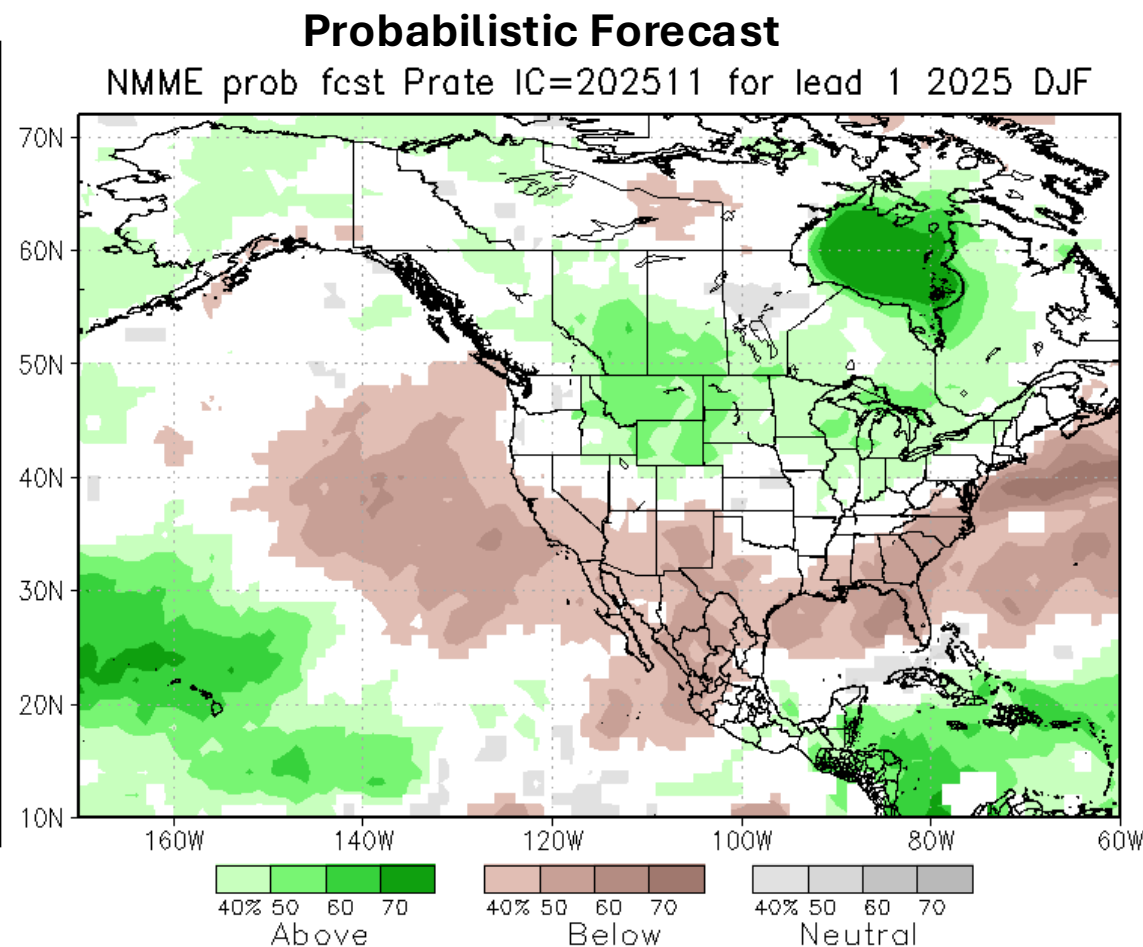
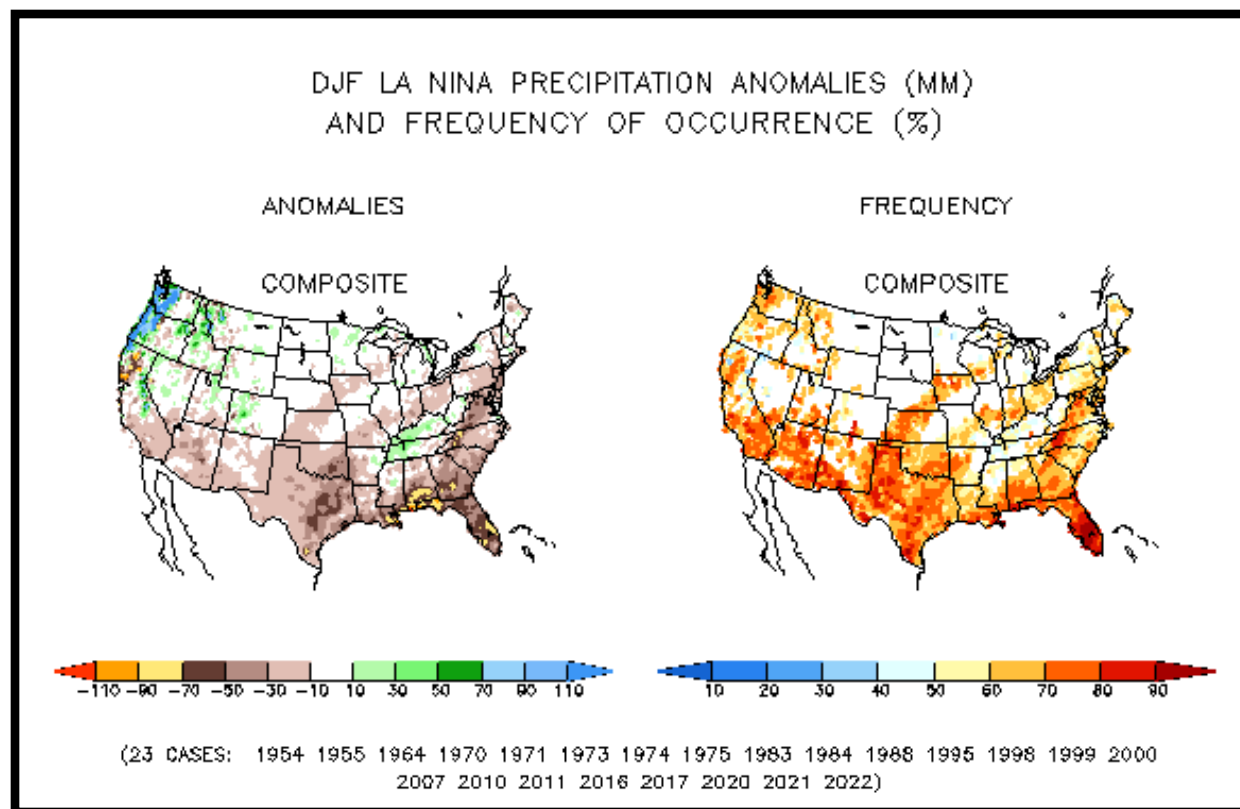
IMME



General agreement across NMME models and IMME in forecasting precipitation anomalies across the CONUS

NMME Precipitation Forecasts: Potential Drivers

IC=202511 Lead=1month for DJF2025/26

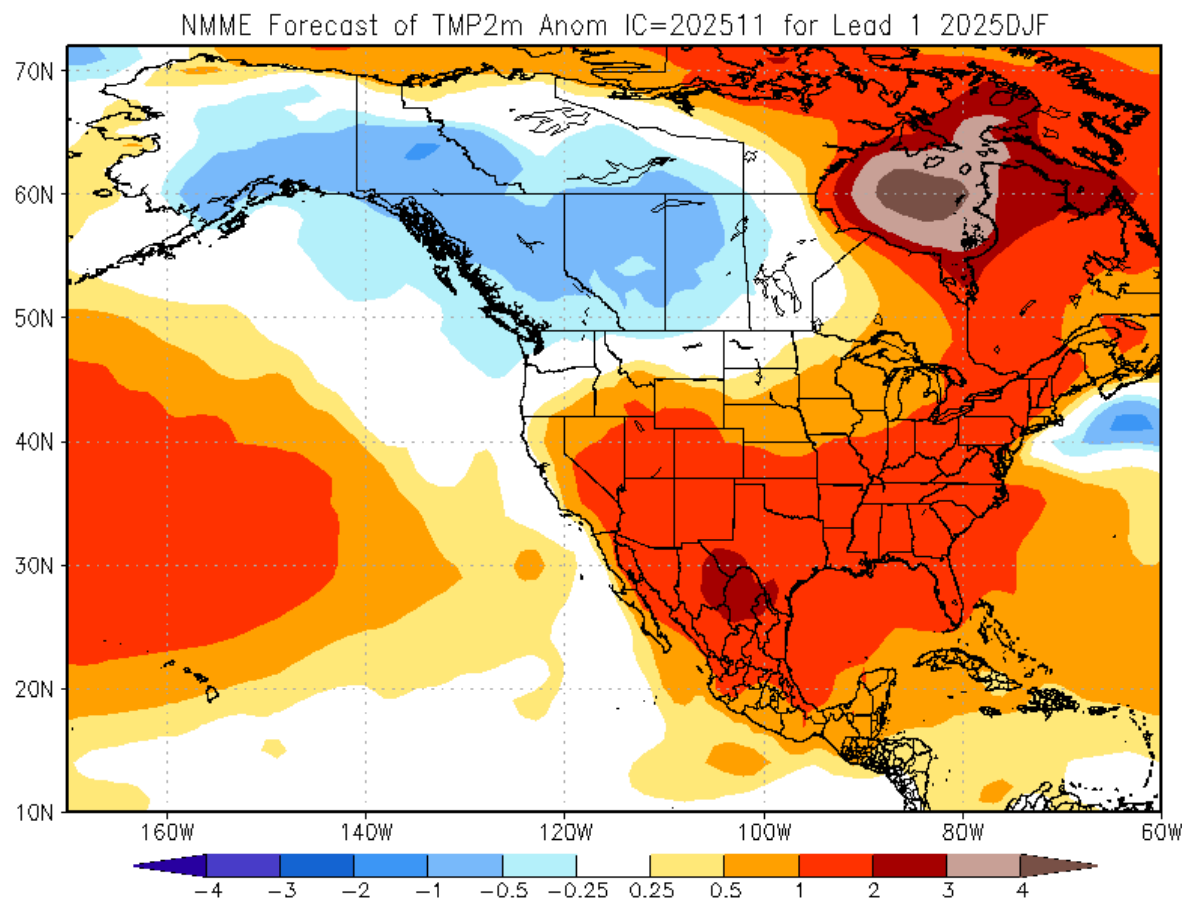


La Nina: Precipitation composites during DJF 2025/26 show deficits in southwestern and southeastern CONUS
Cold PDO: Enhances La Nina effect

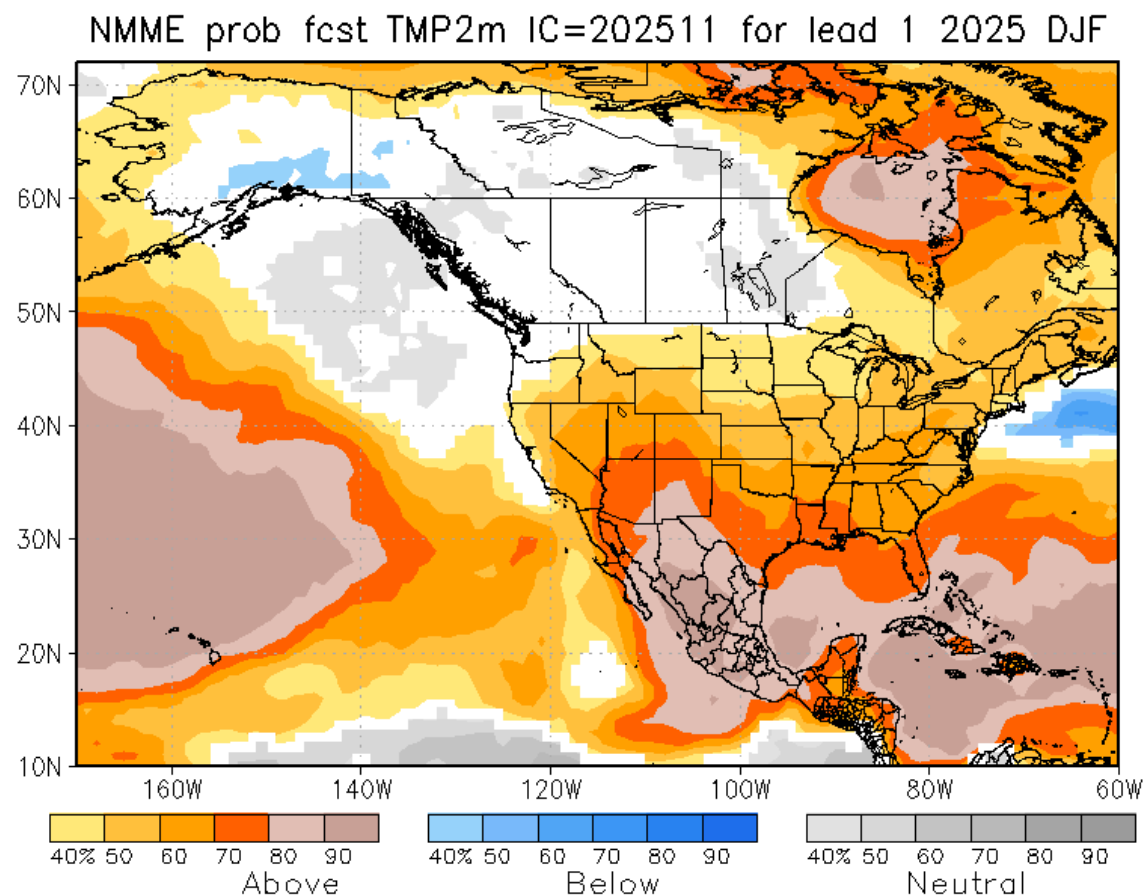
NMME Forecasts: Temperature

IC=202511 Lead=1month for DJF2025/26

Multi-Model Ensemble Mean



Probabilistic Forecast

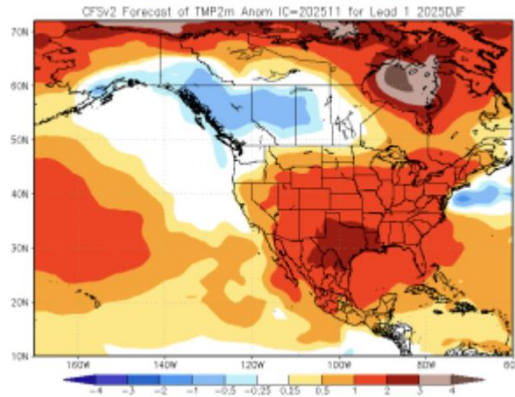


NMME forecasts warm T2m anomalies across the CONUS with stronger warming in the Southwest (>70% probability).

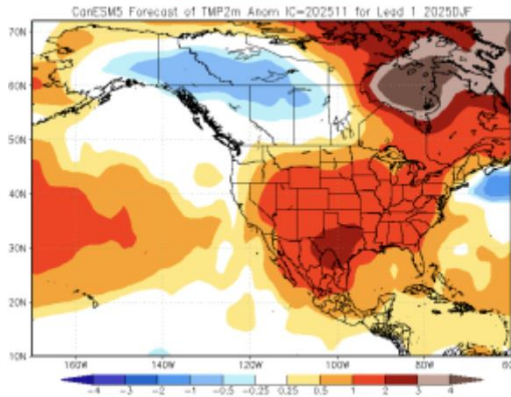
NMME Forecasts: Temperature

Ensemble Mean: IC=202511 Lead=1month for DJF2025/26

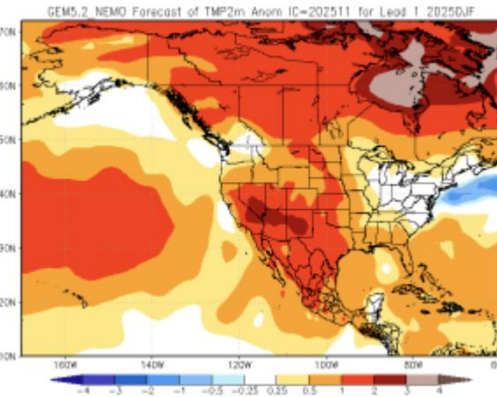
NCEP CFSv2



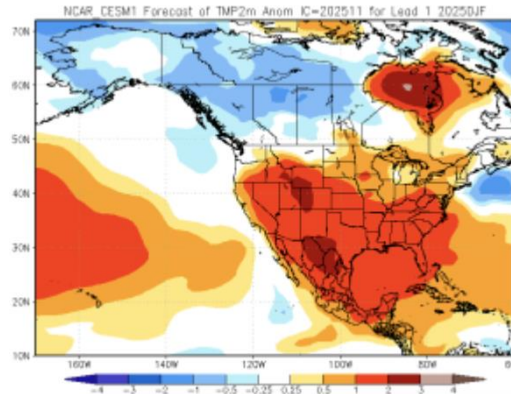
CanESM5



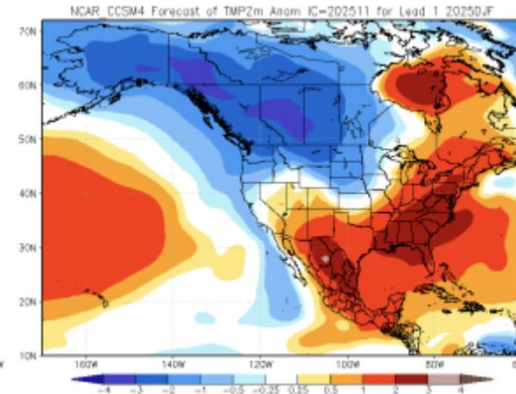
GEM5.2 NEMO



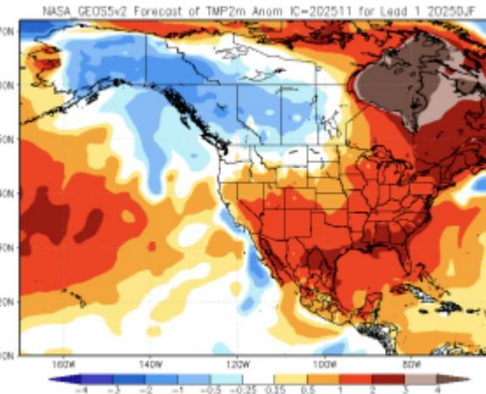
NCAR CESM1



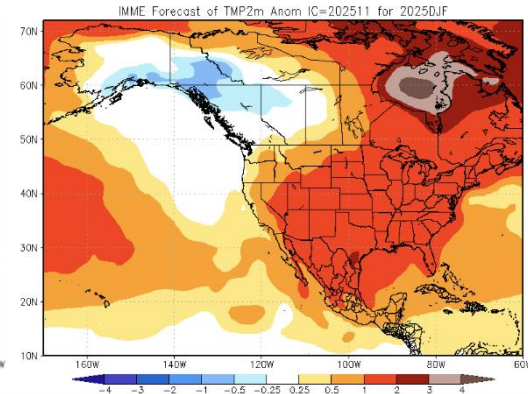
NCAR CCSM4



NASA GEOS5v2



IMME

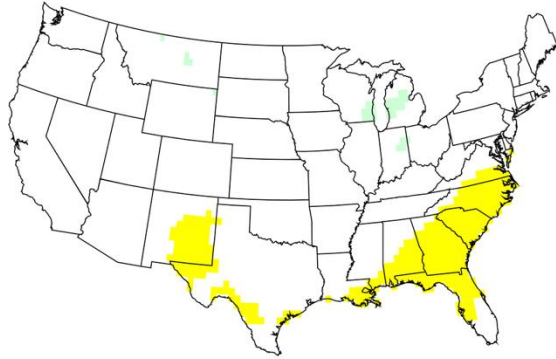


General agreements among the NMME models and IMME in forecasting warm T2m anomalies over CONUS

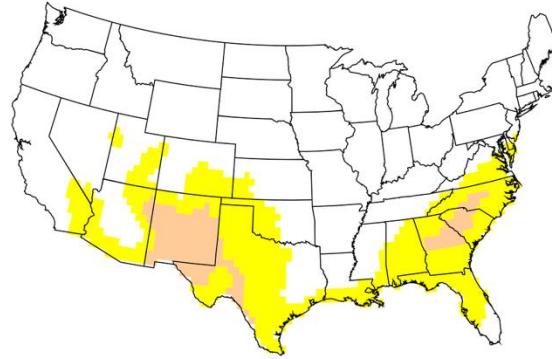
CPC Objective Seasonal Drought Forecasts

IC_202511 Lead=3month for 202602
NMME-based Ensemble Median Forecast

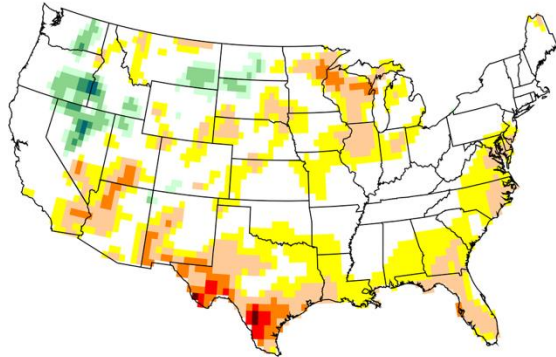
SPI3



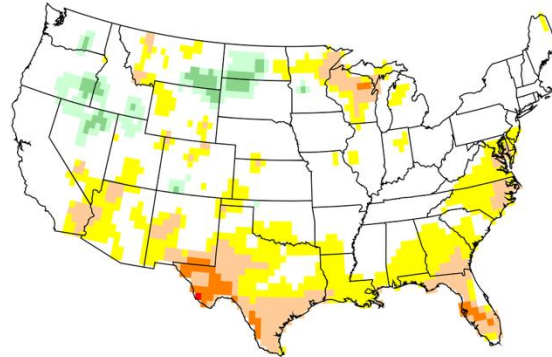
SPEI3



SMP3



SRI3



Drought is forecast as a multi-variate and multi-scalar phenomenon.

SPI3, SPEI3 (short-term meteorological drought): D0-D1 conditions in Southeast and Southwest

SMP3, SRI3 (agricultural & hydrological drought): Persistence of initial drought conditions; D1-D4 conditions in Southwest, Southeast and portions of Midwest.

SPI: Standardized Precipitation Index

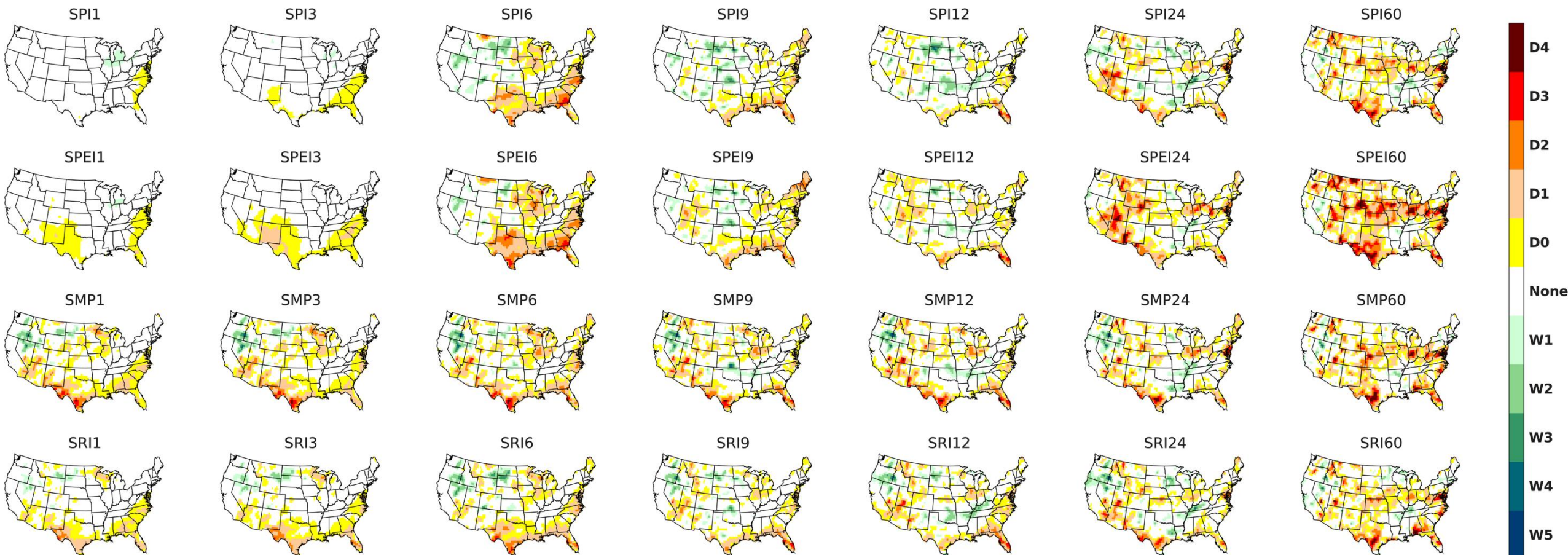
SPEI: Standardized Precipitation-Evapotranspiration Index

SMP: Soil Moisture Percentile

SRI: Standardized Runoff Index

CPC Objective Seasonal Drought Forecasts

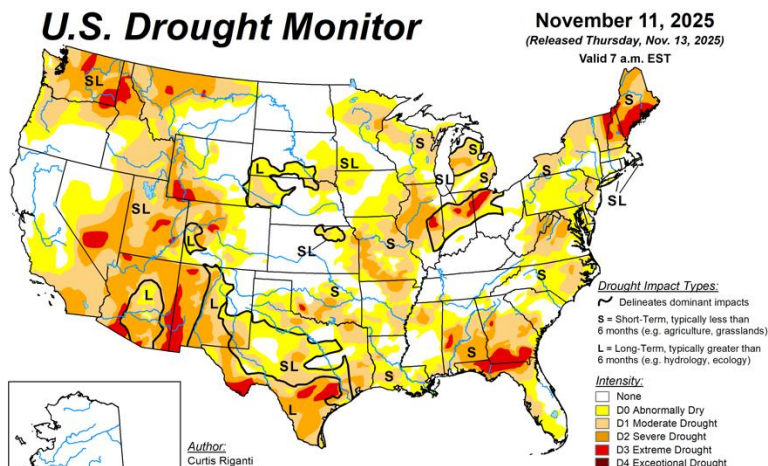
IC_202511 Lead=3month for 202602
NMME-based Ensemble Median Forecast



The forecasts for these drought indices are integrated using CPC objective drought blends developed for forecasts to produce forecasts for integrated drought conditions.

Adjusted Objective Seasonal Drought Forecasts

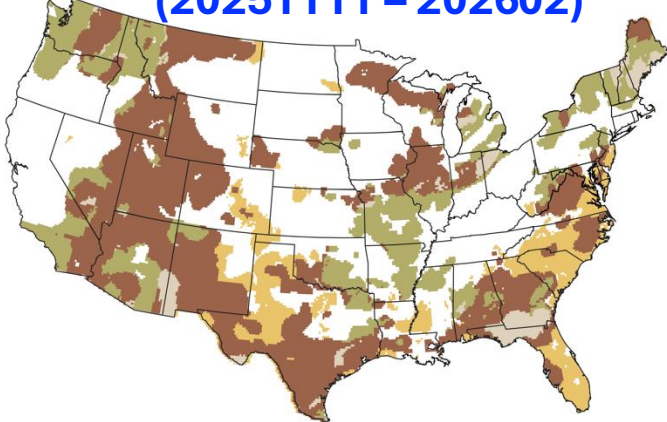
USDM 20251111



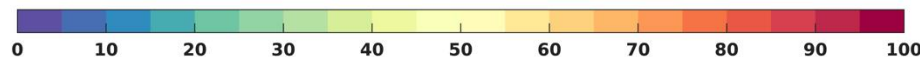
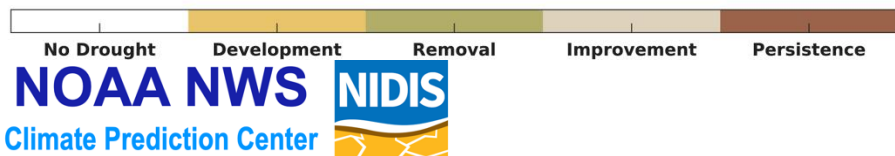
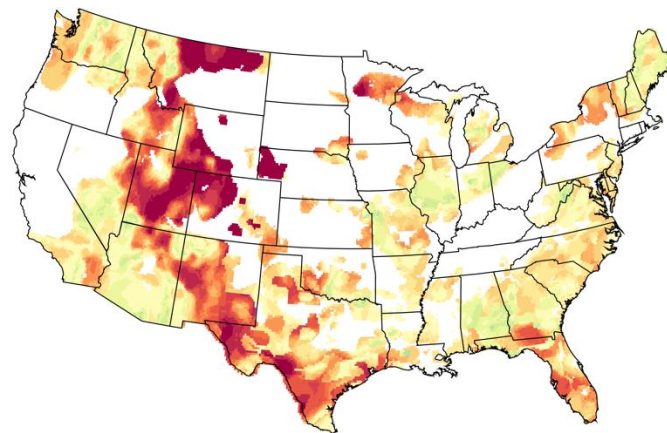
Objective NMME-based Seasonal Drought Forecast

- **Drought persistence (incl. intensification)** is favored over much of the Southwest, Rockies, southern Texas (>70% probability), and portions of Midwest, Southeast and Mid Atlantic (~40%).
- **Drought removal** is favored over portions of Pacific Northwest, Southwest, Northeast (40-50%).
- **Drought development** is favored over northern Texas, Southeast (60%).

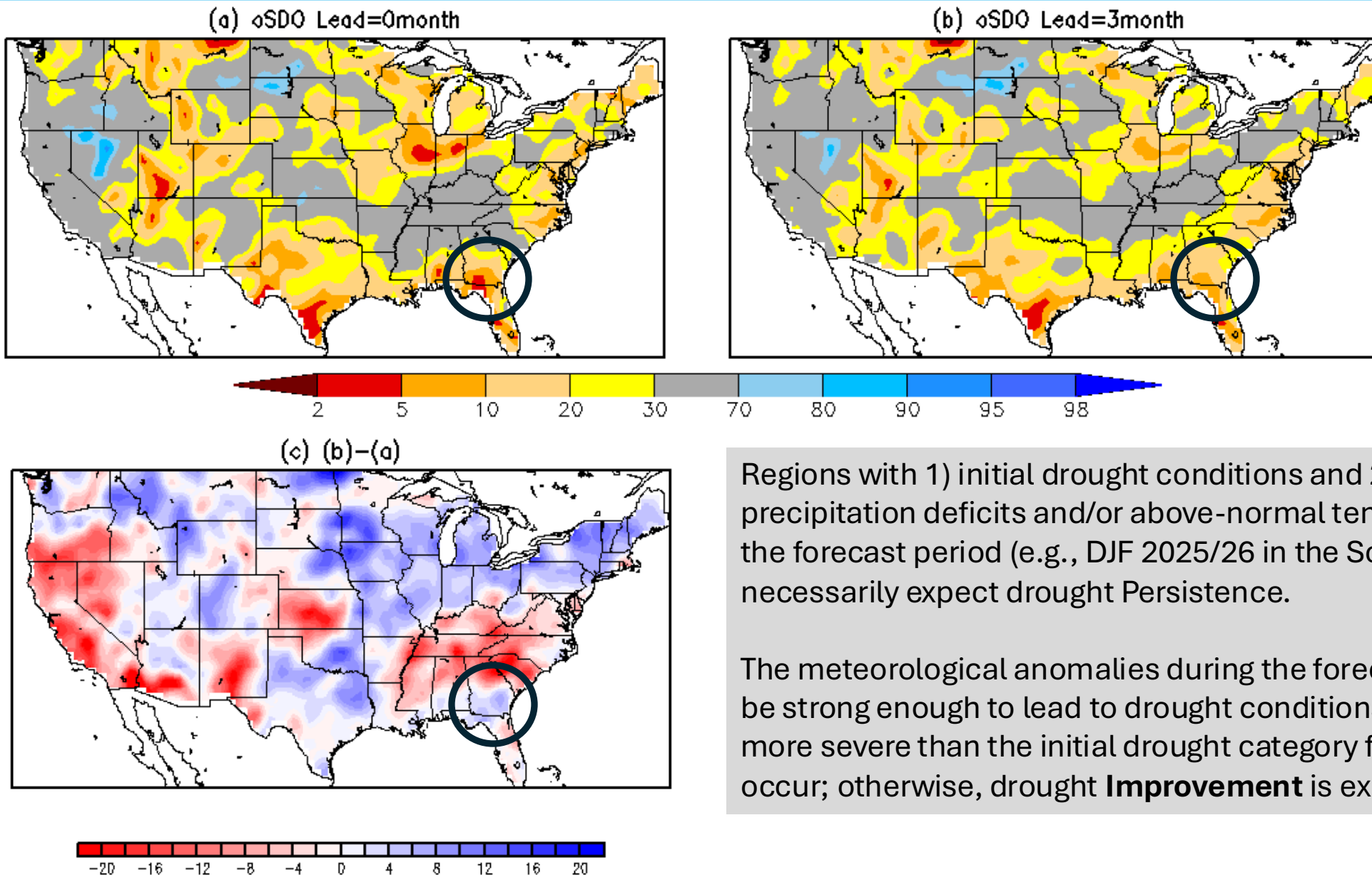
Objective Drought Tendency Forecast (20251111 – 202602)



Probability



Persist or Improve?



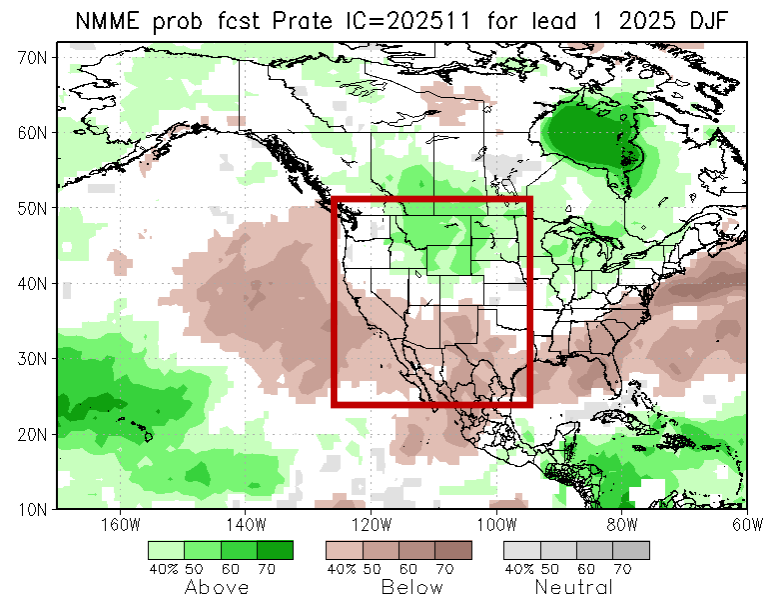
Regions with 1) initial drought conditions and 2) forecasted precipitation deficits and/or above-normal temperatures during the forecast period (e.g., DJF 2025/26 in the Southeast) may not necessarily expect drought Persistence.

The meteorological anomalies during the forecast period need to be strong enough to lead to drought conditions that are equal to or more severe than the initial drought category for **Persistence** to occur; otherwise, drought **Improvement** is expected.

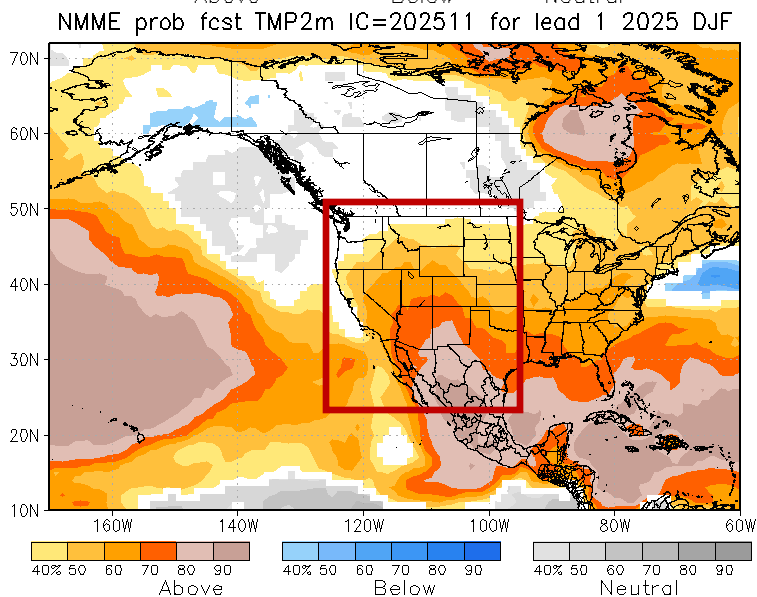
Snowpack (SWE)

NMME-based IC_202511 Forecasts for DJF2025/26

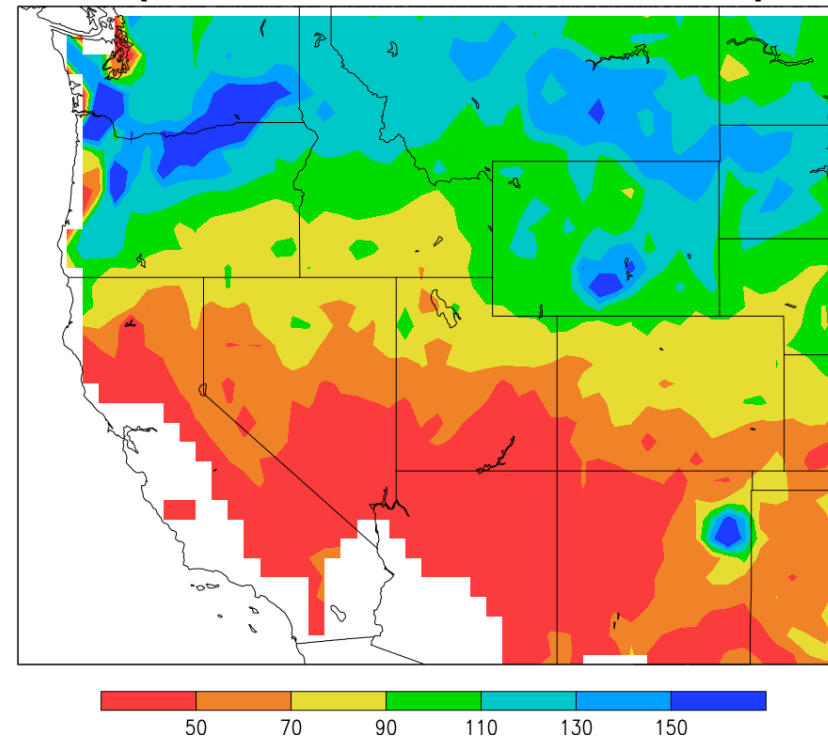
Precip



T2m



CPC SWE EnsMean Forecast (% relative to 1991-2020 clim)

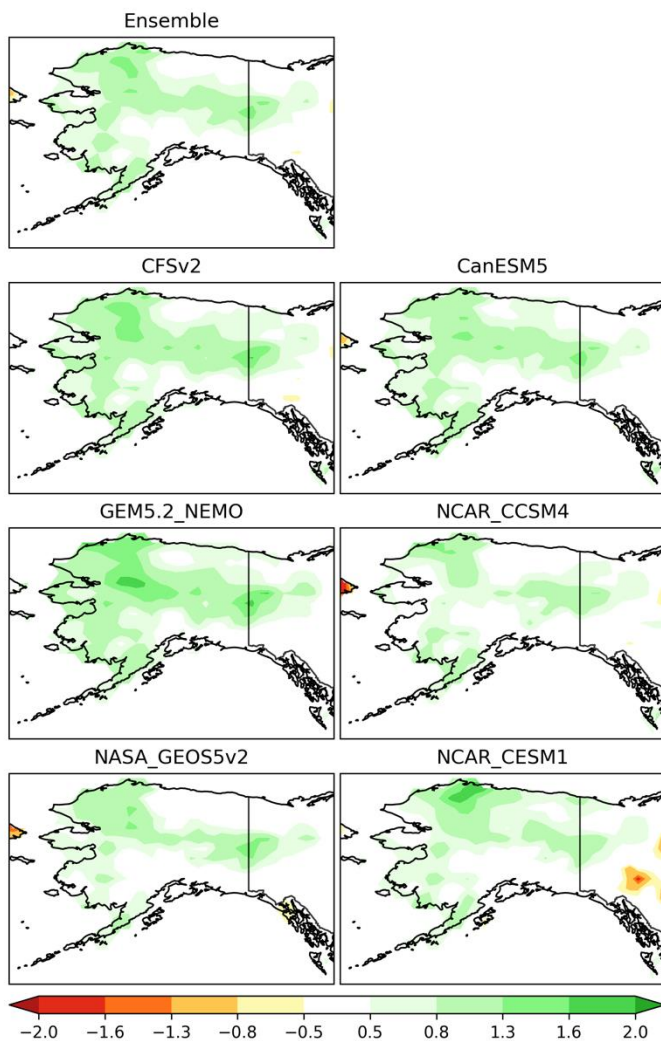


An initial attempt at seasonal SWE forecasting (at CPC):

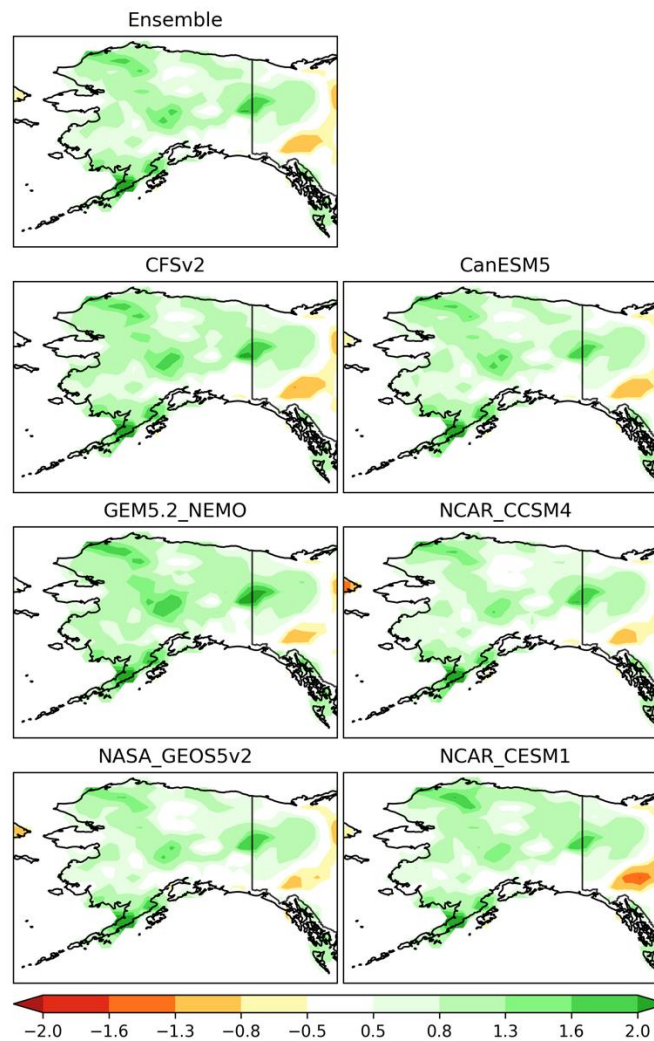
- **Southwest:** P-, T2m+++, SWE-
- **Northwest:** P+, T2m+, SWE+

Alaska: SPI Forecasts

SPI3 lead=1month for 202512



SPI12 lead=3month for 202602



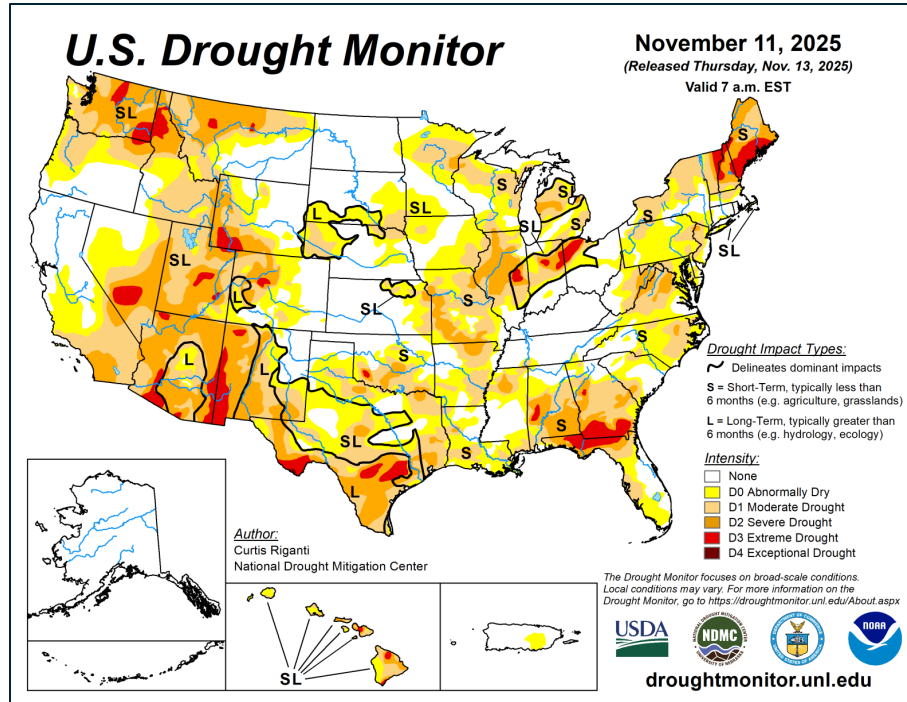
SPI forecasts based on NMME IC_202511

- SPI3 (202512): Wet anomalies
- SPI12 (202602): Wet anomalies

Summary

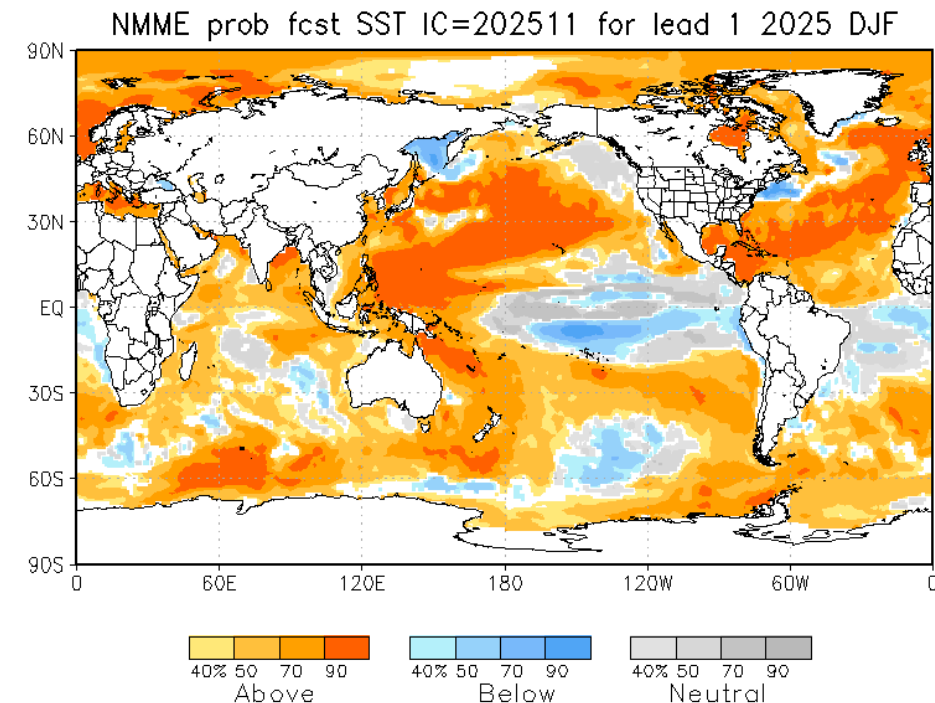
1. Current drought conditions

- Drought is present in Southwest and Pacific Northwest, with short-term drought development in eastern US.



2. SST forecasts for DJF2025/26

- **ENSO:** La Nina conditions are favored, with 51% probability, according to CPC official ENSO forecast
- **PDO:** Negative phase
- Warm **Atlantic**



Summary (Cont'd)

3. Objective NMME-based forecasts for DJF2025/26

- **Precip, T2m**
 - NMME forecasts below- (above-) normal precip over southwestern and southeastern (northern) CONUS.
 - NMME forecasts above-normal T2m for much of the CONUS, with stronger warming in the Southwest.
- **Drought**
 - **CONUS**
 - **Drought persistence (incl. intensification)** is favored over much of the Southwest, Rockies, Southern Texas (>70% probability), and portions of Midwest, Southeast and Mid Atlantic (~40%).
 - **Drought removal** is favored over portions of Northwest, Southwest, South-central, Northeast (>40%)
 - **Drought development** is favored over northern Texas, Southeast (50%).
 - **Alaska:** Drought is not a significant concern based on SPI forecasts.

