

Extended Hydrologic Outlook

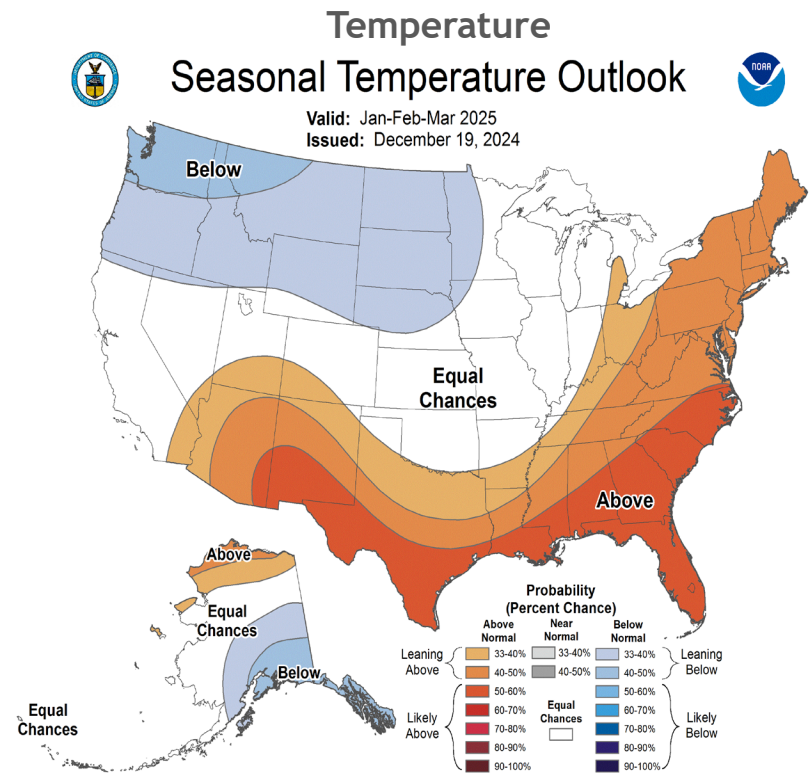
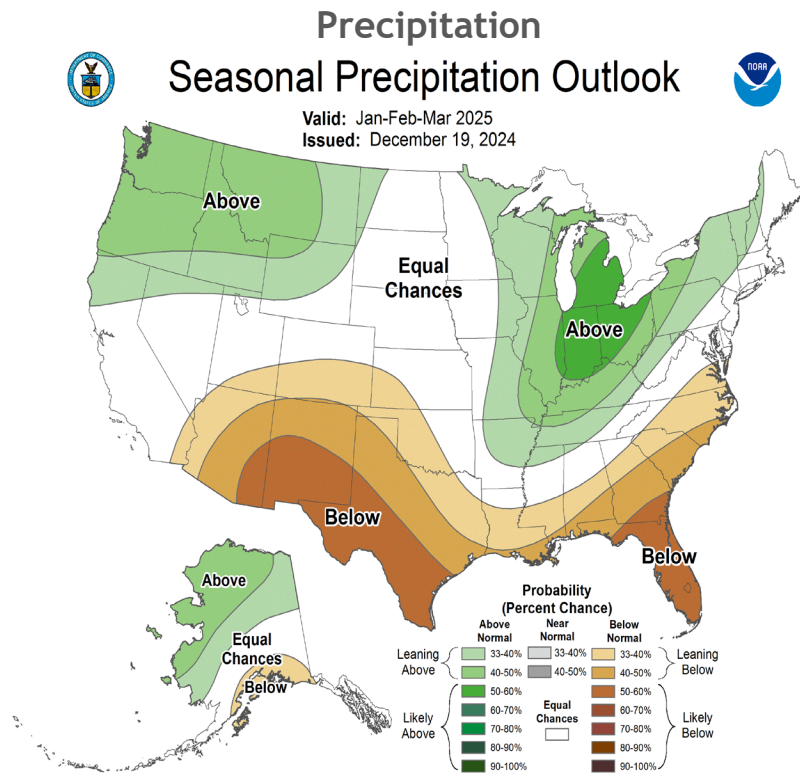
January 10, 2025

- The Climate Prediction Center (CPC) is forecasting below normal rainfall for January through March.
- La Niña conditions are present and are expected to persist through February-April 2025 (59% chance), with a transition to ENSO-neutral likely during March-May 2025 (60% chance).
- Atlantic Multidecadal Oscillation (AMO) is currently in the warm phase:
 - Average annual inflow to Lake Okeechobee is nearly 50% greater during the warm phase compared to the cold phase.

U. S. Seasonal Outlooks

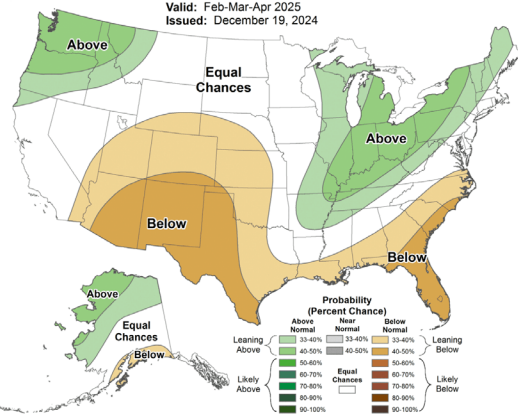
January - March 2025

The seasonal outlooks combine the effects of long-term trends, soil moisture, and, when appropriate, ENSO.



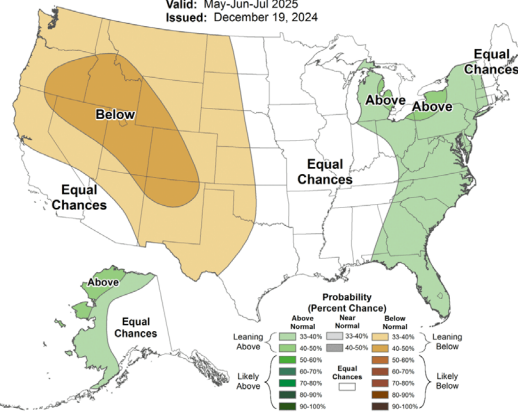
Seasonal Precipitation Outlook

Valid: Feb-Mar-Apr 2025
Issued: December 19, 2024



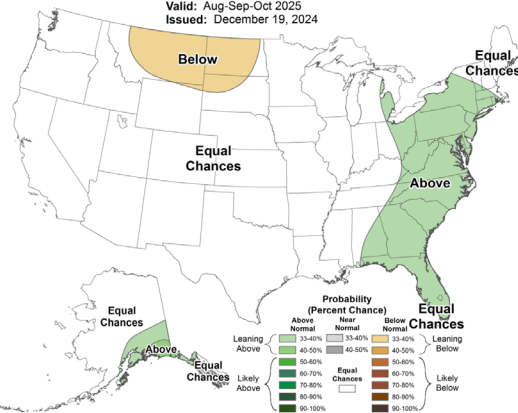
Seasonal Precipitation Outlook

Valid: May-Jun-Jul 2025
Issued: December 19, 2024



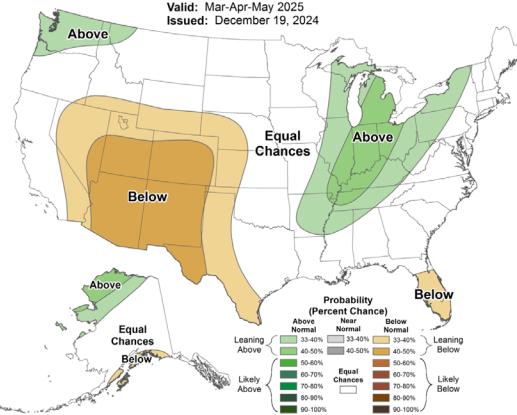
Seasonal Precipitation Outlook

Valid: Aug-Sep-Oct 2025
Issued: December 19, 2024



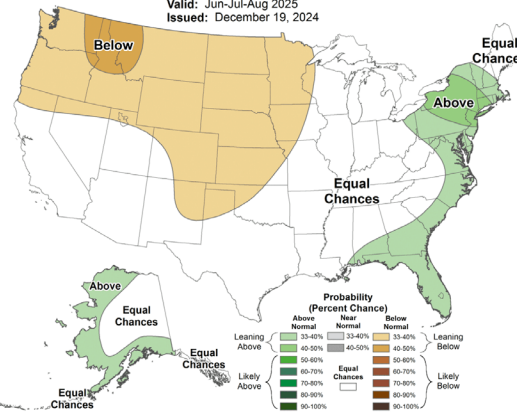
Seasonal Precipitation Outlook

Valid: Mar-Apr-May 2025
Issued: December 19, 2024



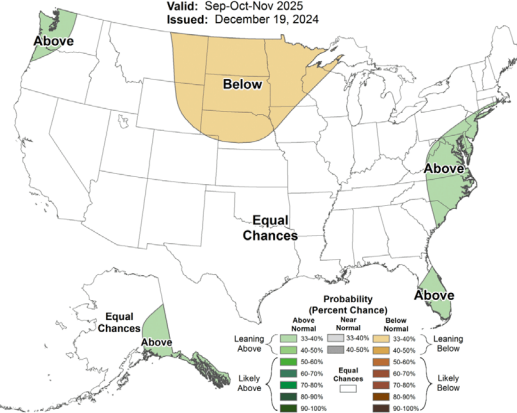
Seasonal Precipitation Outlook

Valid: Jun-Jul-Aug 2025
Issued: December 19, 2024



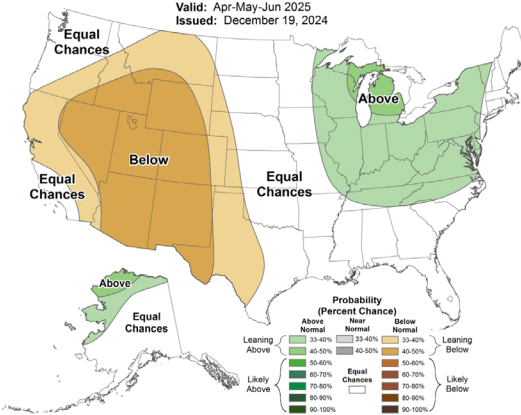
Seasonal Precipitation Outlook

Valid: Sep-Oct-Nov 2025
Issued: December 19, 2024



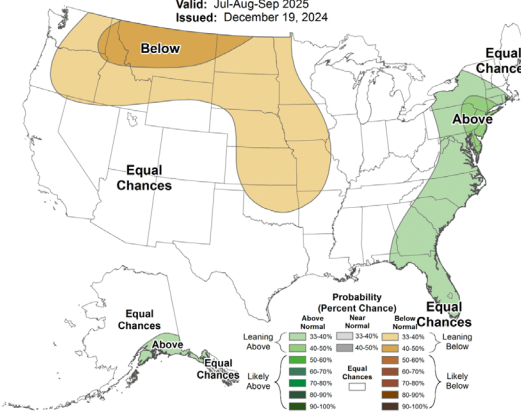
Seasonal Precipitation Outlook

Valid: Apr-May-Jun 2025
Issued: December 19, 2024



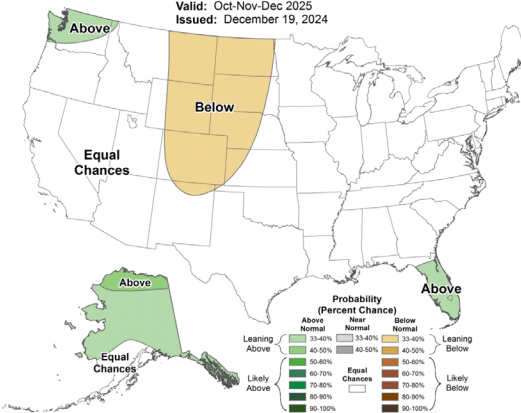
Seasonal Precipitation Outlook

Valid: Jul-Aug-Sep 2025
Issued: December 19, 2024



Seasonal Precipitation Outlook

Valid: Oct-Nov-Dec 2025
Issued: December 19, 2024



Teleconnections to South Florida

Climate anomalies being related to each other at large distances:

El Niño Southern Oscillation (ENSO)

- El Niño increases the chances of a wetter-than-normal dry season and decreased tropical activity, La Niña increases the chances of a drier-than-normal dry season and increased tropical activity (both have most influence in south Florida from November through March)

Pacific Decadal Oscillation (PDO)

- Increases variations in south Florida dry season rainfall, positive leads to more El Niño events, negative leads to more La Niña events
- The current PDO is negative

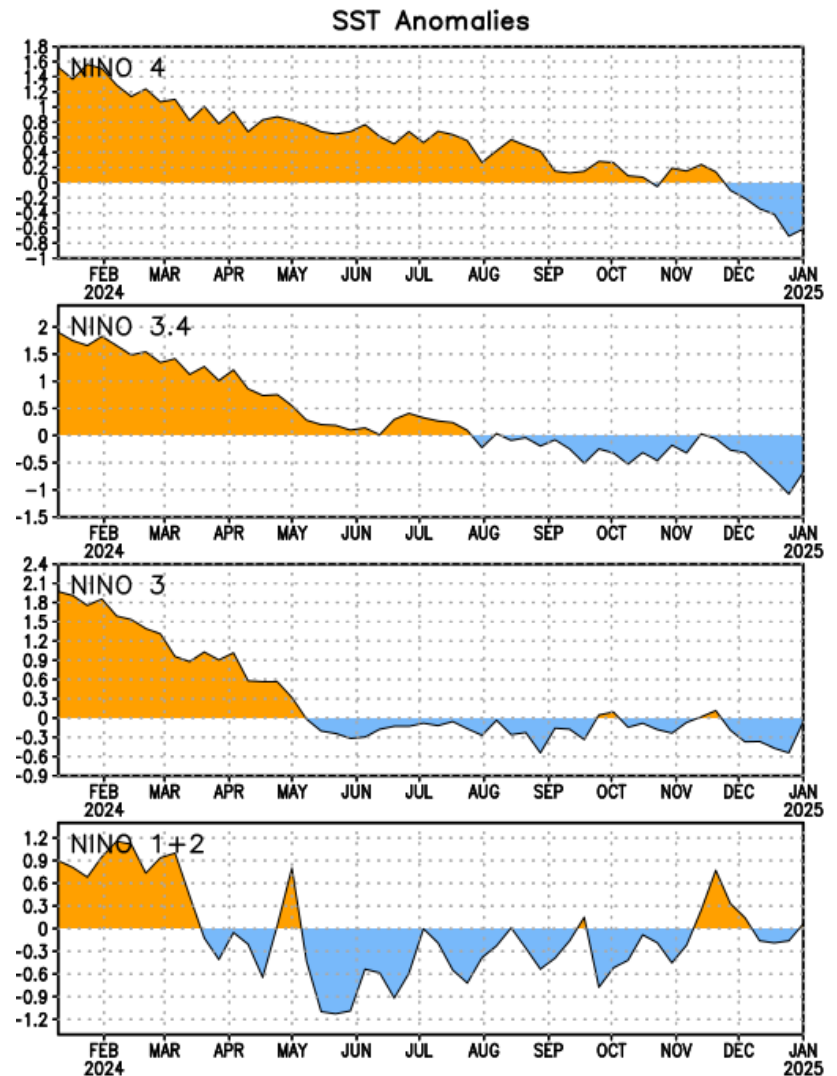
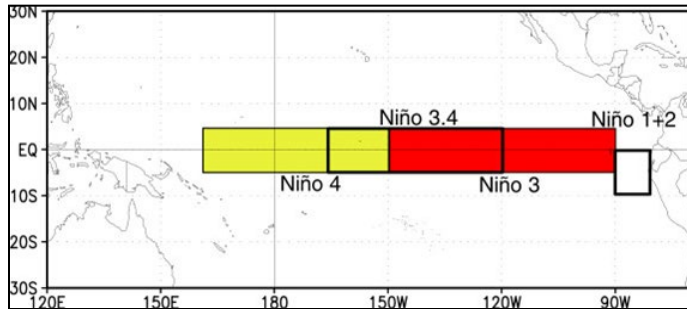
Atlantic Multidecadal Oscillation (AMO)

- Average annual inflow to Lake Okeechobee is nearly 50% greater during the warm phase compared to the cold phase of the AMO, easterly flow toward south Florida affected by phase
- The AMO is currently in the warm phase

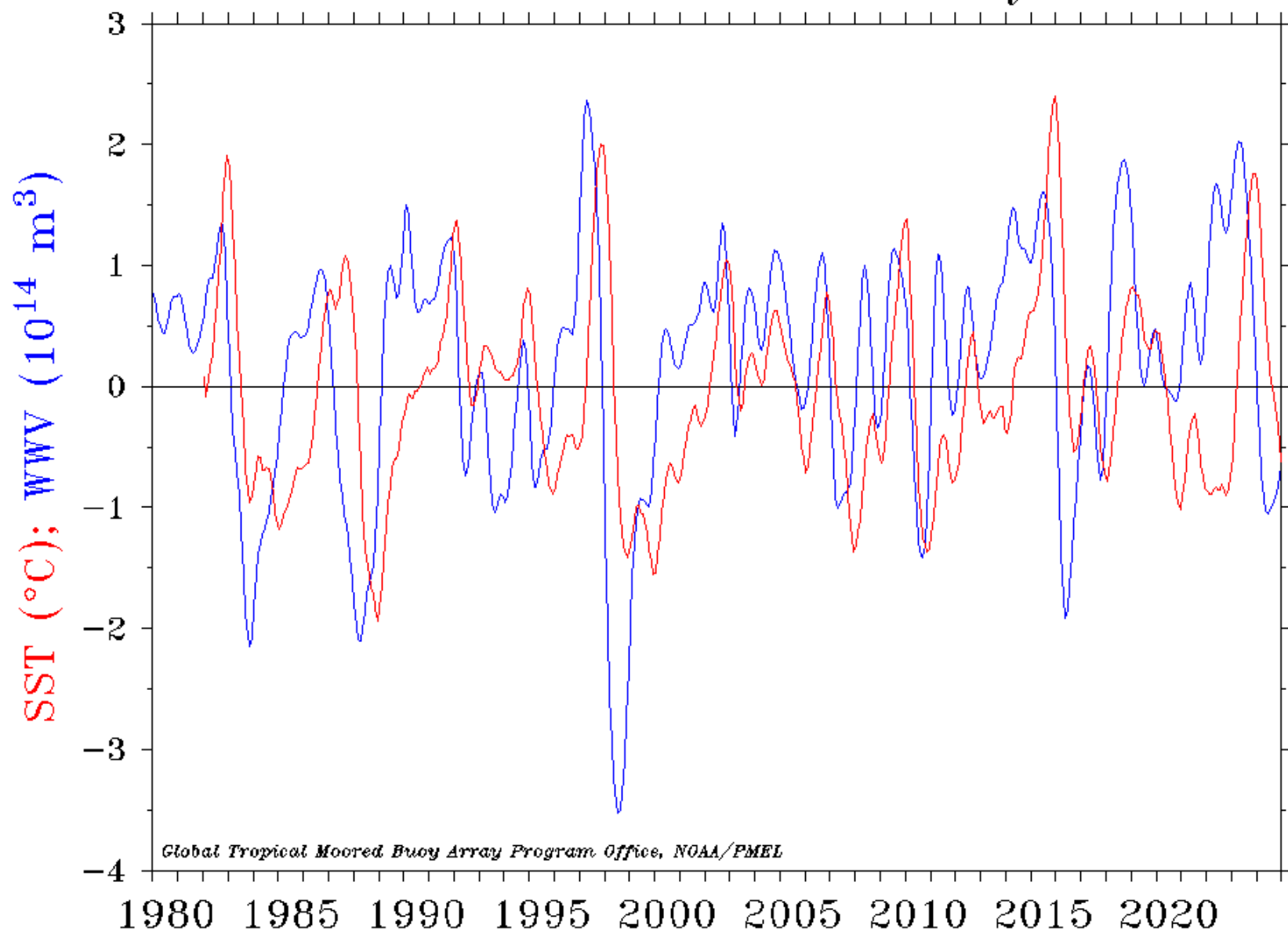
Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

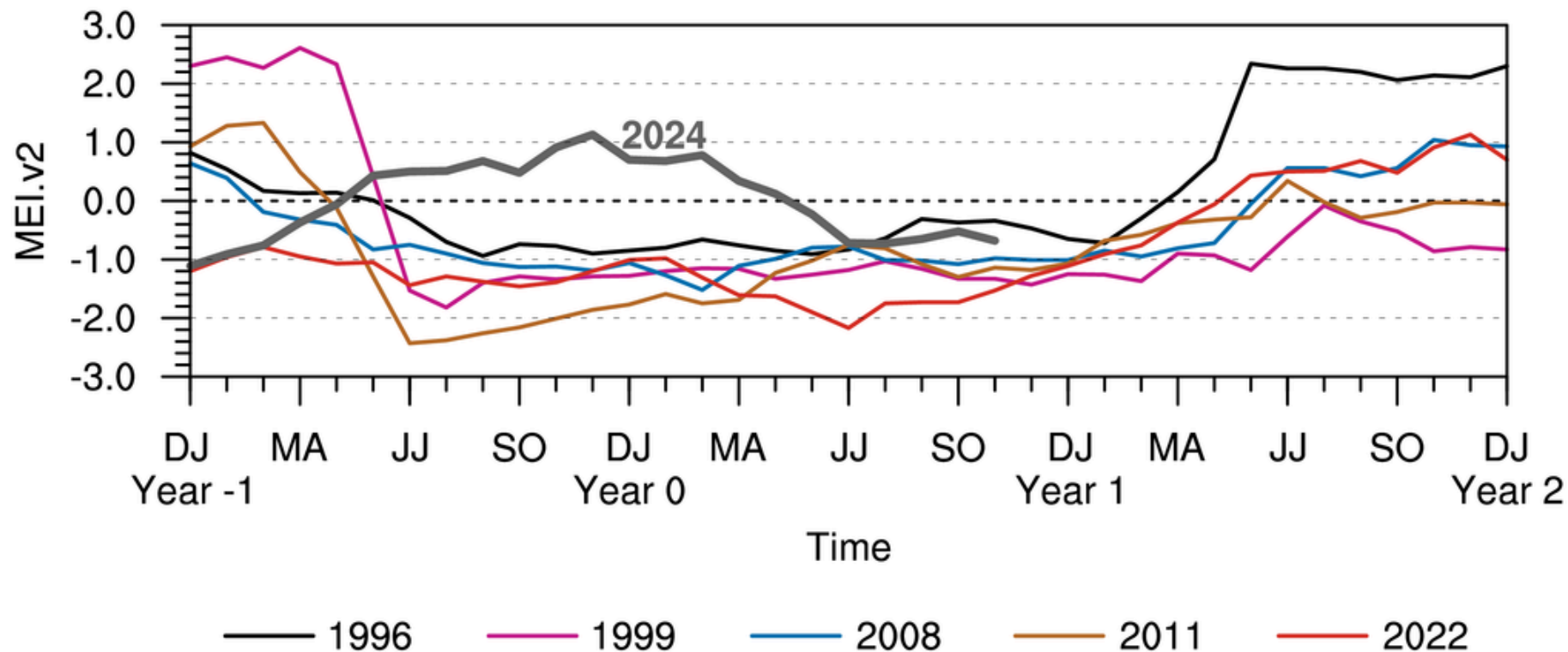
Niño 4	-0.6°C
Niño 3.4	-0.7°C
Niño 3	-0.1°C
Niño 1+2	0.1°C



Warm Water Volume (5°N–5°S, 120°E–80°W) and NINO 3.4 SST Anomaly



MEI.v2 Evolution of Current ENSO Event in Historical Context



2024 Winter Outlook





U.S. Winter Outlook: Warmer and drier South, wetter North

Drought relief likely in the Ohio River Valley and Great Lakes regions due to La Nina

Focus areas: Weather Topics: winter, climate outlooks

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October 17, 2024

Temperature

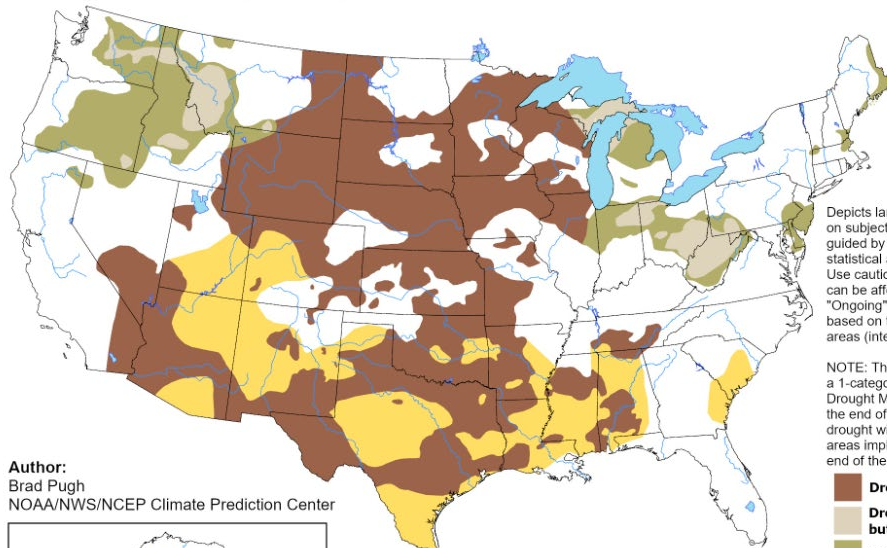
Warmer-than-average temperatures are favored from the southern tier of the U.S. to the eastern Great Lakes, eastern seaboard, New England and northern Alaska.

Precipitation

The greatest likelihood for drier-than-average conditions are in states bordering the Gulf of Mexico, as well as in Texas and southern New Mexico.

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

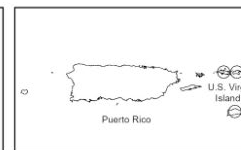
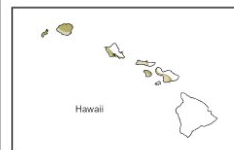
Valid for October 17, 2024 - January 31, 2025
Released October 17, 2024



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).

Author:
Brad Pugh
NOAA/NWS/NCEP Climate Prediction Center



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



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

January 2025 DPA Assumptions

- The January 1, 2025 Dynamic Position Analysis (DPA) simulation is based on historical climatic conditions spanning the period 1965-2016. This DPA posting is made with the South Florida Water Management Model (SFWMM) v7.3.3.
- The January 1, 2025 DPA resets the initial stages for Lake Okeechobee (LOK) and the Water Conservation Areas (WCAs) on December 1st of each year of the DPA simulation and conditions the simulation to real time data during December to achieve real time stages on January 1st for LOK and WCAs.
- The Lake Okeechobee operations follow the Lake Okeechobee System Operating Manual (LOSOM). Modeling assumptions are consistent with modeling performed for LOSOM Supplemental Environmental Impact Statement (SEIS).
- LOK Temporary Forward Pump operations will be in place, whenever necessary, to improve water supply deliveries from LOK under low LOK stages.
- STA surface area values are modified to reflect current flowways under operation. STA depths are maintained to a minimum of 6 inches using Lake Okeechobee releases.
- Lake Okeechobee Water Shortage Management (LOWSM) is included in the simulation which reflects the currently approved 40E-21 and 40E-22 water shortage rules.

Lake Okeechobee Recovery Operations

Starting December 7, 2024 the U.S. Army Corps of Engineers (USACE) - Jacksonville District will begin releases under Lake Okeechobee Recovery Operations. The goal of recovery is to lower lake levels before the onset of the wet season to allow for recovery of lake ecology.

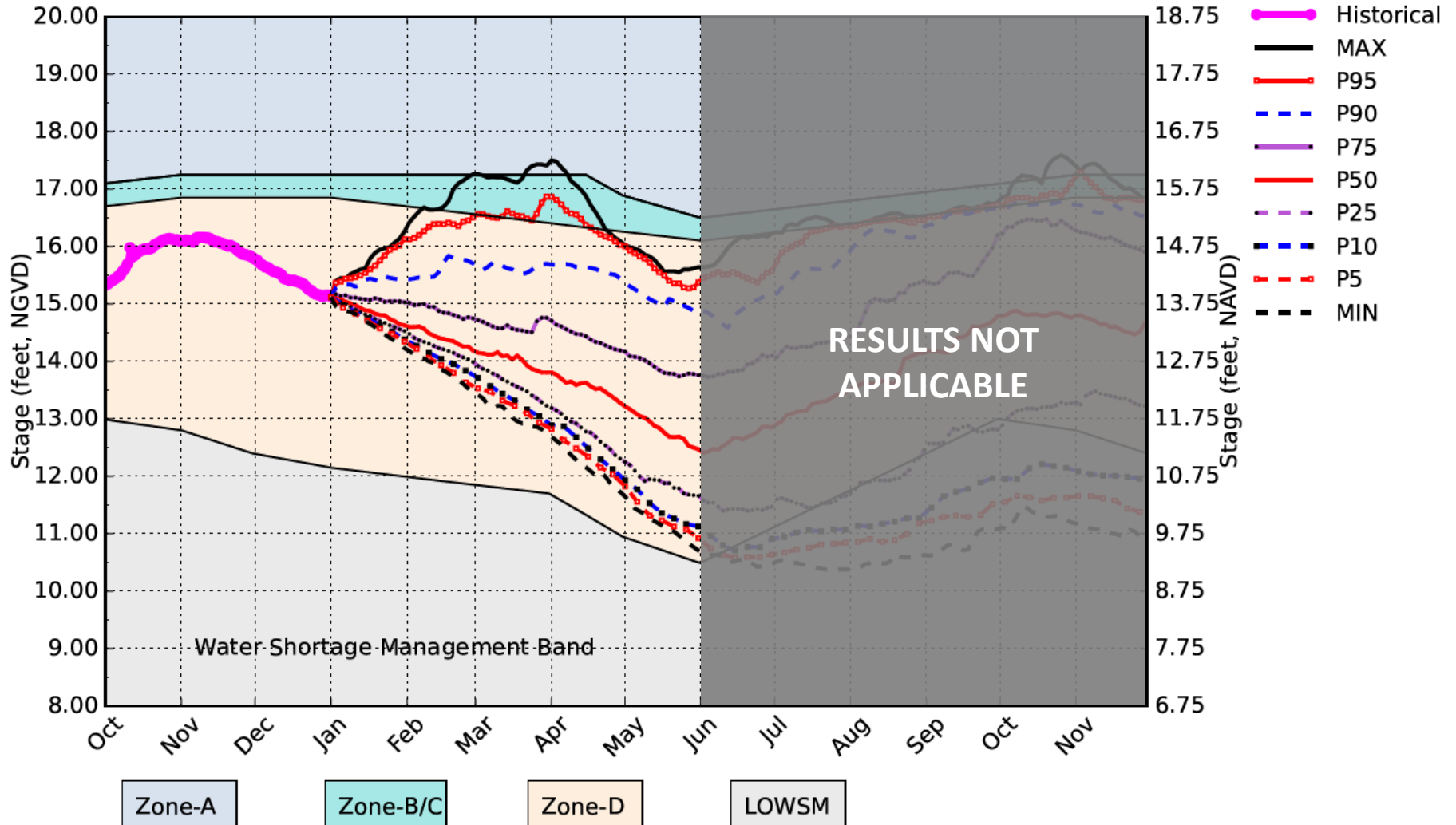
- SFWMM model assumptions for the January 1, 2025 DPA
 - Lake Okeechobee releases
 - 2100 cfs at S-79 to the Caloosahatchee River Estuary (CRE)
 - 750 cfs at S-80 to the St. Lucie Estuary (SLE)
 - 750 cfs is a regulatory release from Lake Okeechobee and therefore does not account for flow at S-97, S-49, or Gordy Road
 - Maximum practicable releases south

NOTE:

The above flow assumptions were applied to the entire simulation period and not just dry season, unlike the intention of RO. Hence, DPA-CPA results after June 1 are not applicable and masked for LO and downstream locations.

Lake Okeechobee SFWMM January 2025 Position Analysis

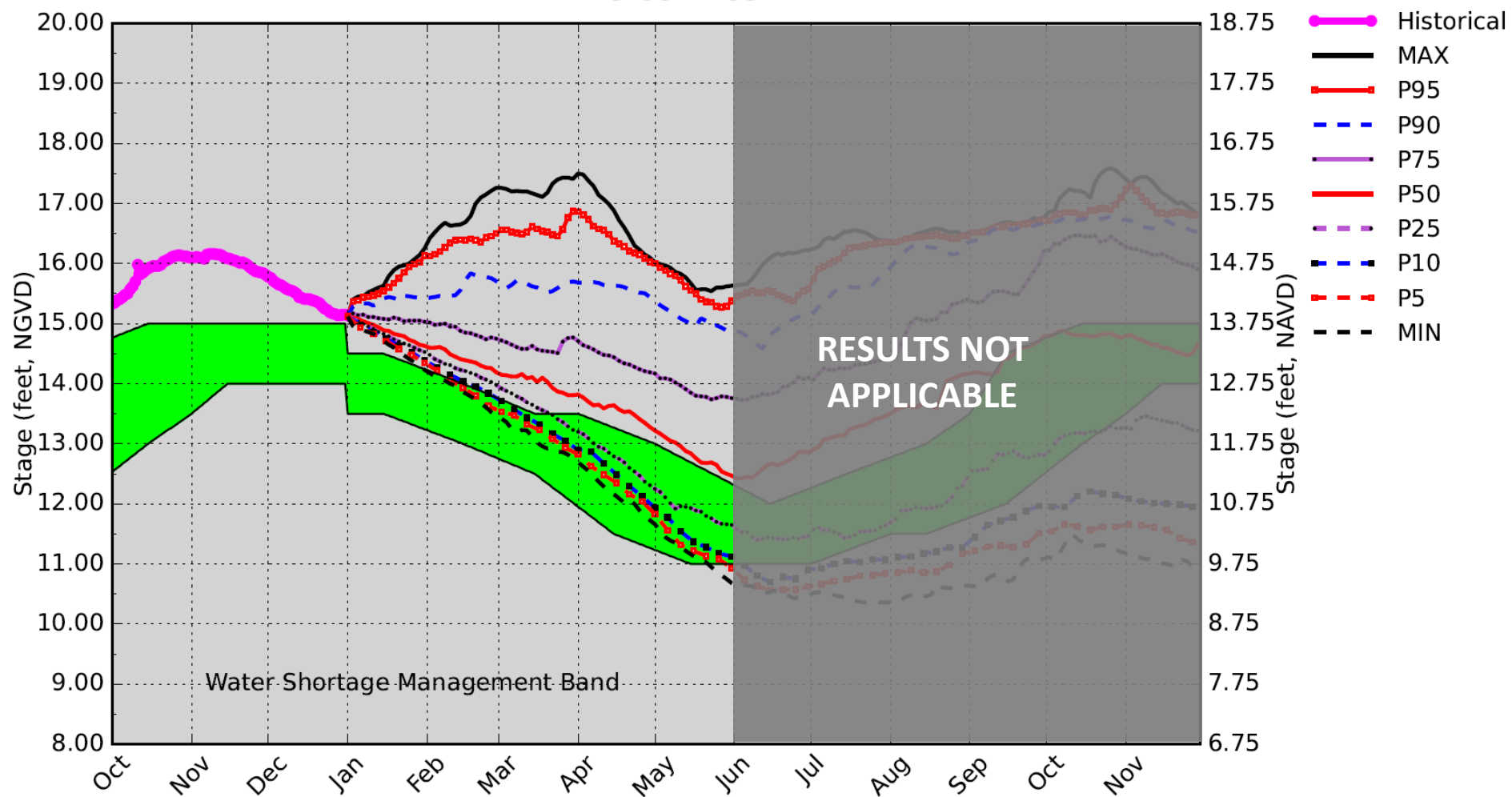
Percentiles PA



(See assumptions on the Position Analysis Results website)

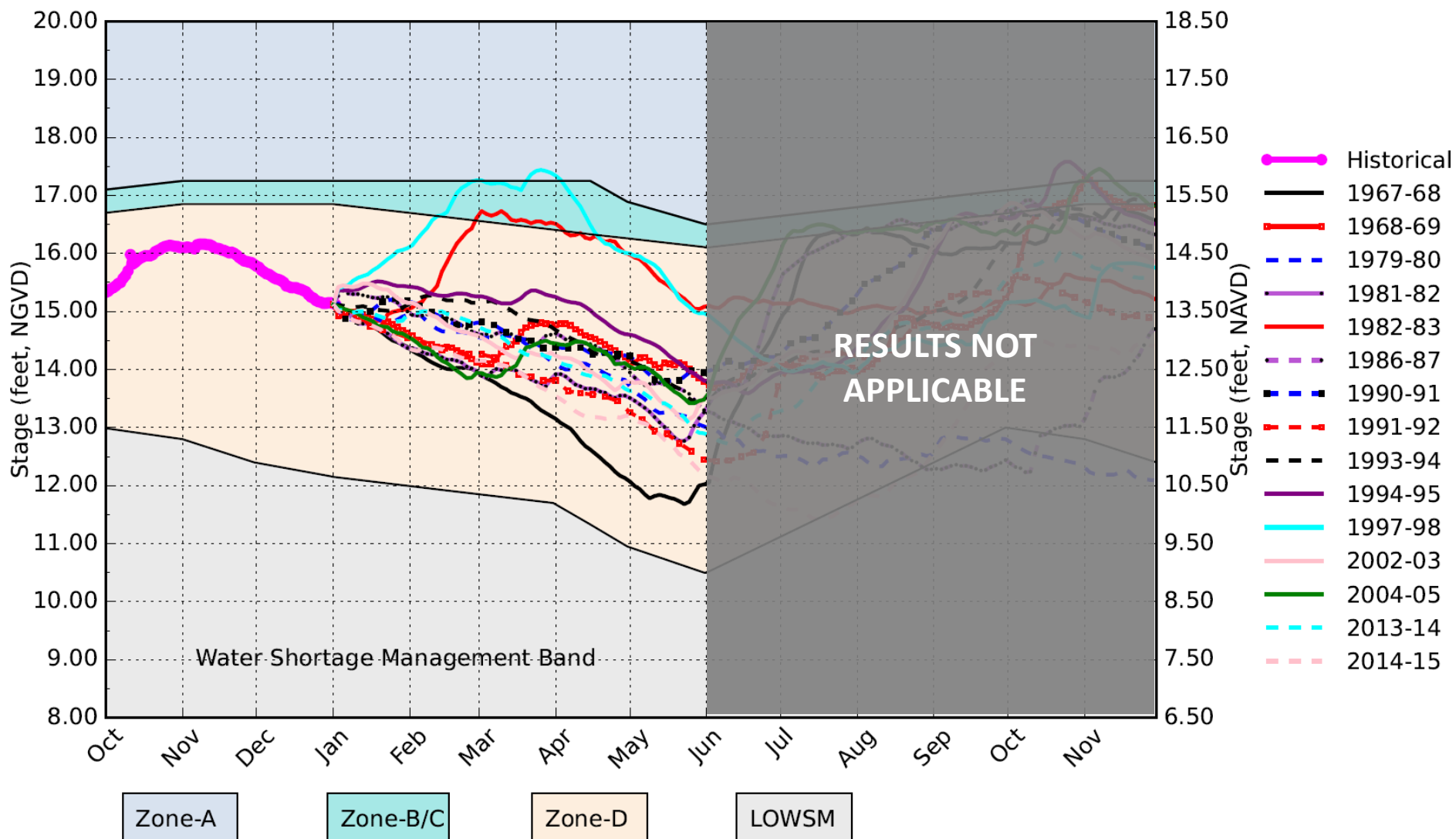
Lake Okeechobee SFWMM January 2025 Position Analysis

Percentiles PA



Lake Okeechobee SFWMM January 2025 Position Analysis

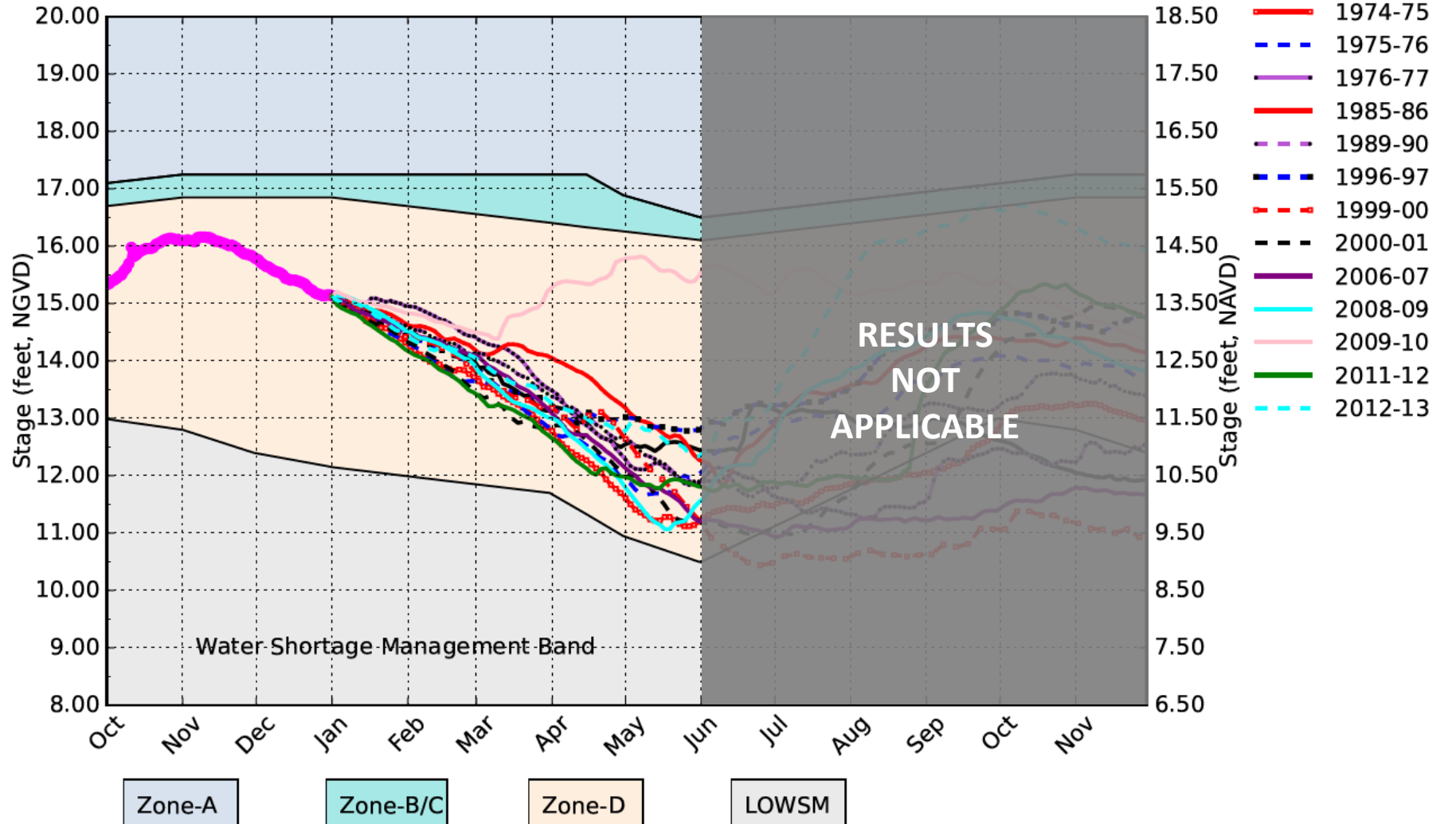
All ENSO Neutral Years Plot PA



(See assumptions on the Position Analysis Results website)

Lake Okeechobee SFWMM January 2025 Position Analysis

All La Nina Years Plot PA

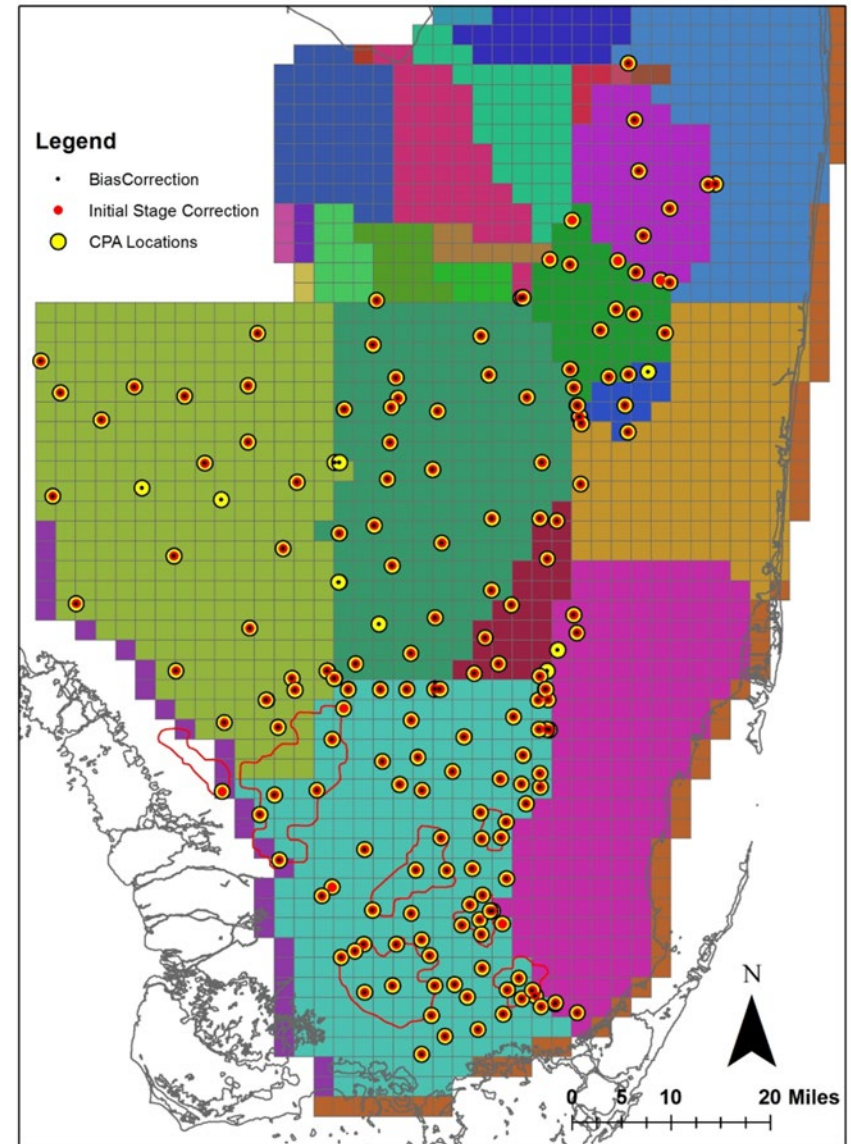


(See assumptions on the Position Analysis Results website)

Conditional Position Analysis Overview

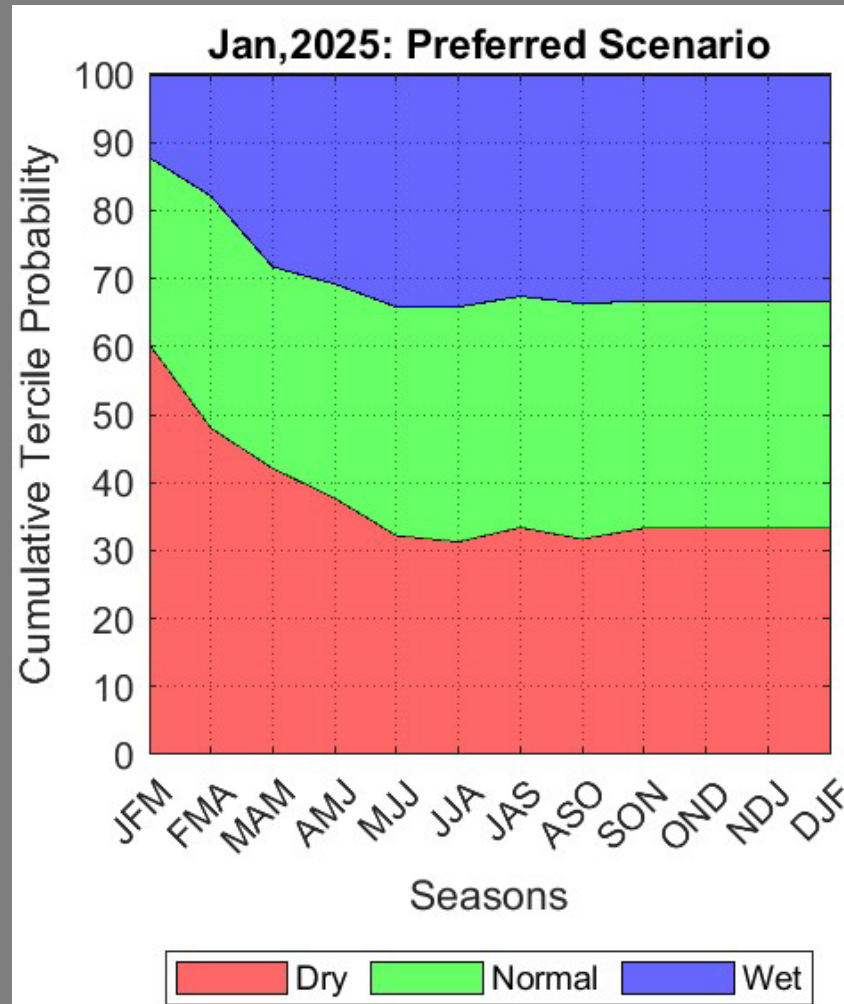
- CPA is a stochastic framework that transforms stages obtained from Dynamic Position Analysis (DPA) based on forecasted rainfall conditions over the next twelve months (Ali, 2016).
- DPA stage outputs are used as inputs to CPA.
- CPA is implemented for Lake Okeechobee and 200+ locations in the Everglades.

Conditional Position Analysis (CPA) Gage Locations



January 2025 CPA: Preferred Rainfall Scenario

Seasonal rainfall tercile probabilities are calculated using a transition coefficient matrix that is based on historical rainfall data (1914 – 2022). Projected Niño-3.4 published by CPC is then used to calculate rainfall tercile probability projections.



Lake Okeechobee – LOSOM RO CPA implementation shows that all percentile lines shift down from the respective DPA percentile lines by ~ 0.2 to 0.7 ft by the end of May 2025 (except the 99% line). Under PrefScenario median trace projected stage is at ~12.0 ft NGVD, a 0.4 ft downward shift from LOSOM RO DPA.

