

Extended Hydrologic Outlook

April 9, 2024

- The Climate Prediction Center (CPC) is forecasting above normal rainfall for April through June.
- El Niño conditions are observed. A transition from El Niño to ENSO-neutral is likely by April-June 2024 (83% chance), with increasing odds of La Niña developing in June-August 2024 (62% 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

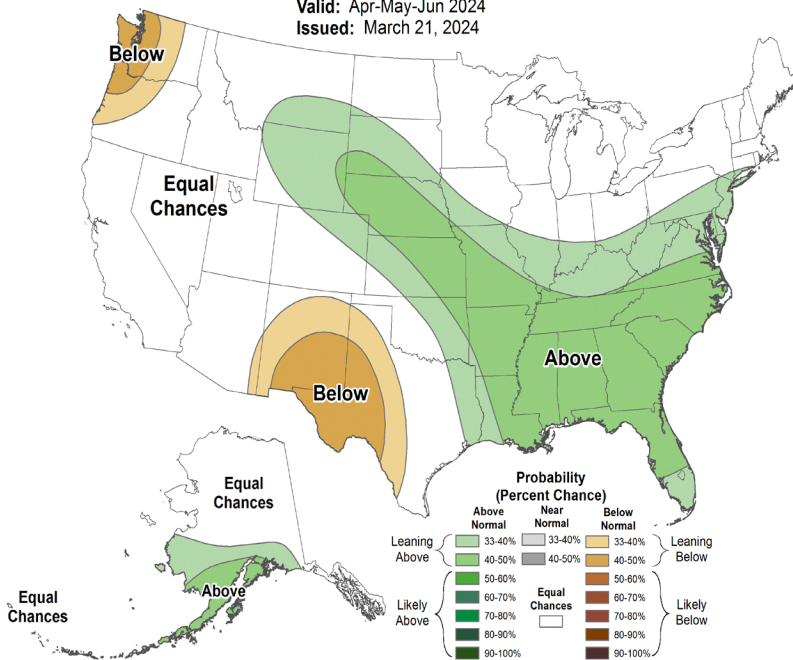
April - June 2024

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

Precipitation

Seasonal Precipitation Outlook

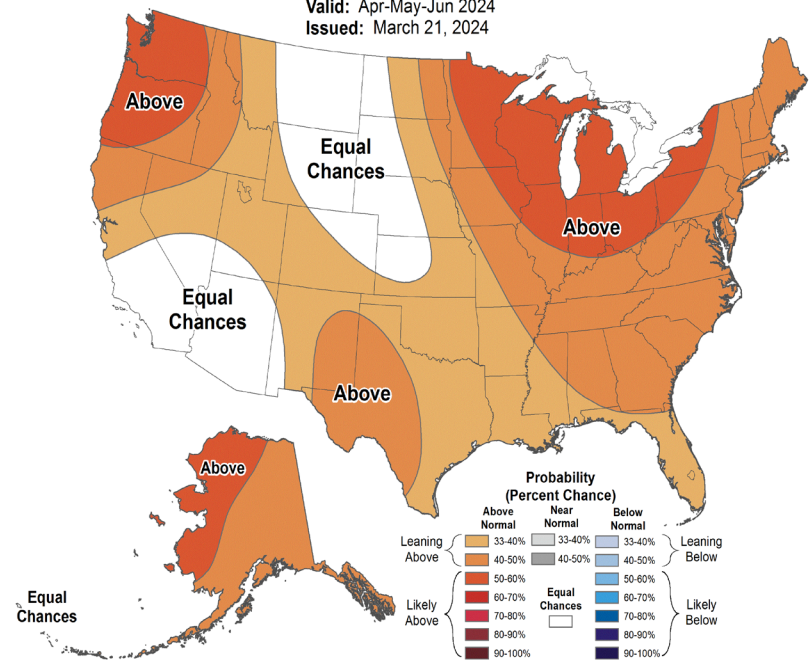
Valid: Apr-May-Jun 2024
Issued: March 21, 2024



Temperature

Seasonal Temperature Outlook

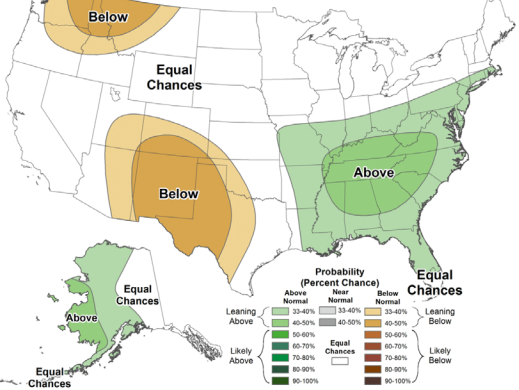
Valid: Apr-May-Jun 2024
Issued: March 21, 2024



May-Jun-Jul 2024

Seasonal Precipitation Outlook

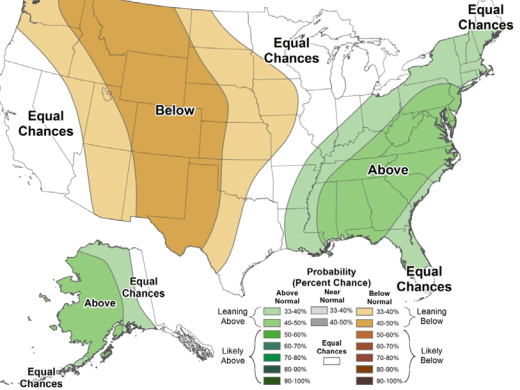
Valid: May-Jun-Jul 2024
Issued: March 21, 2024



Jun-Jul-Aug 2024

Seasonal Precipitation Outlook

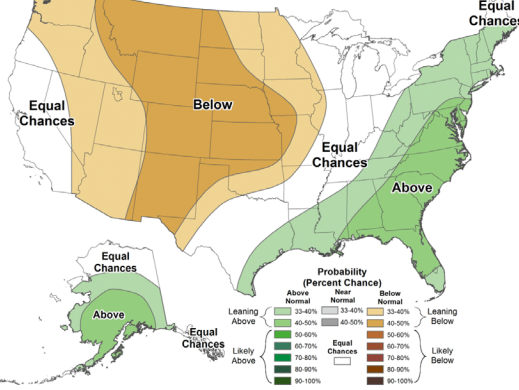
Valid: Jun-Jul-Aug 2024
Issued: March 21, 2024



Jul-Aug-Sep 2024

Seasonal Precipitation Outlook

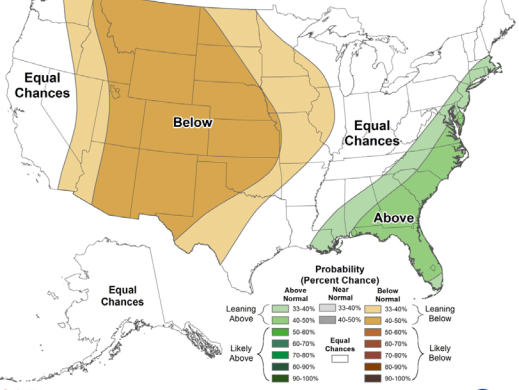
Valid: Jul-Aug-Sep 2024
Issued: March 21, 2024



Aug-Sep-Oct 2024

Seasonal Precipitation Outlook

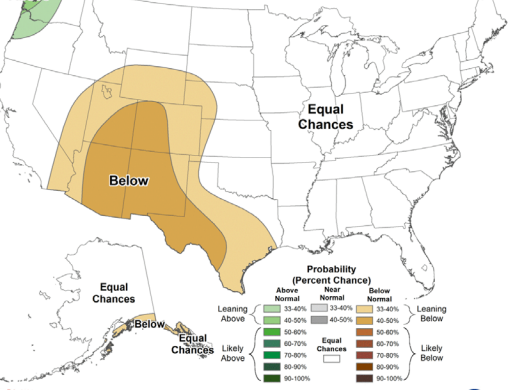
Valid: Aug-Sep-Oct 2024
Issued: March 21, 2024



Sep-Oct-Nov 2024

Seasonal Precipitation Outlook

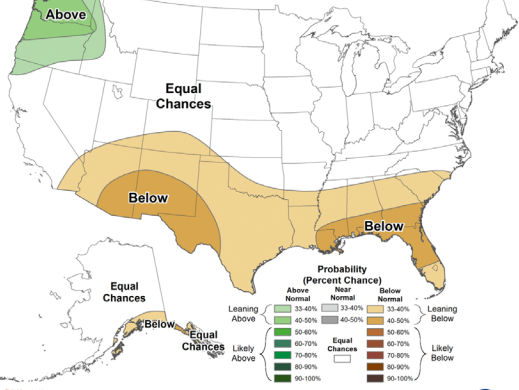
Valid: Sep-Oct-Nov 2024
Issued: March 21, 2024



Oct-Nov-Dec 2024

Seasonal Precipitation Outlook

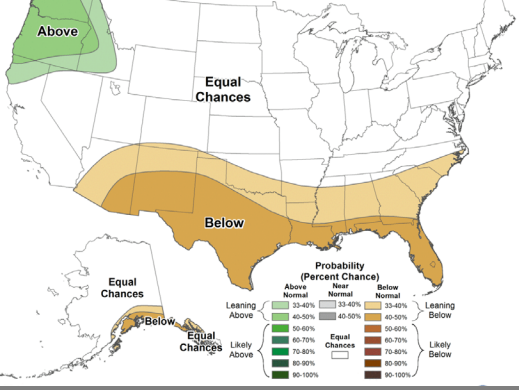
Valid: Oct-Nov-Dec 2024
Issued: March 21, 2024



Nov-Dec-Jan 2024-25

Seasonal Precipitation Outlook

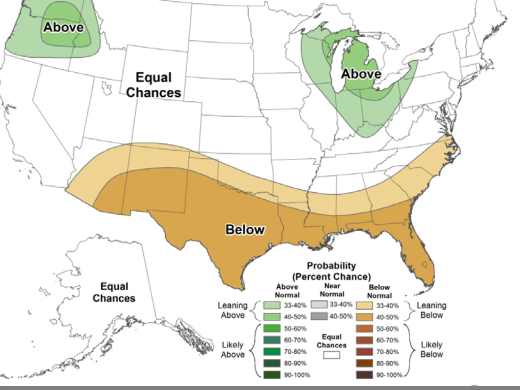
Valid: Nov-Dec-Jan 2024-25
Issued: March 21, 2024



Dec-Jan-Feb 2024-25

Seasonal Precipitation Outlook

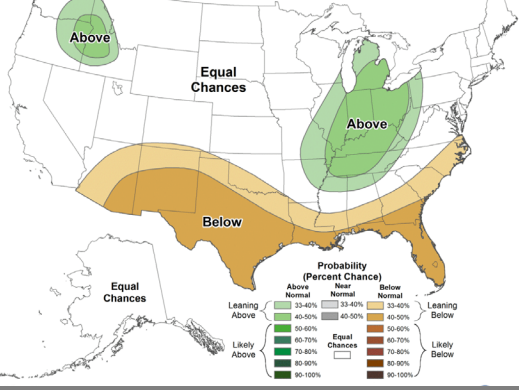
Valid: Dec-Jan-Feb 2024-25
Issued: March 21, 2024



Jan-Feb-Mar 2025

Seasonal Precipitation Outlook

Valid: Jan-Feb-Mar 2025
Issued: March 21, 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

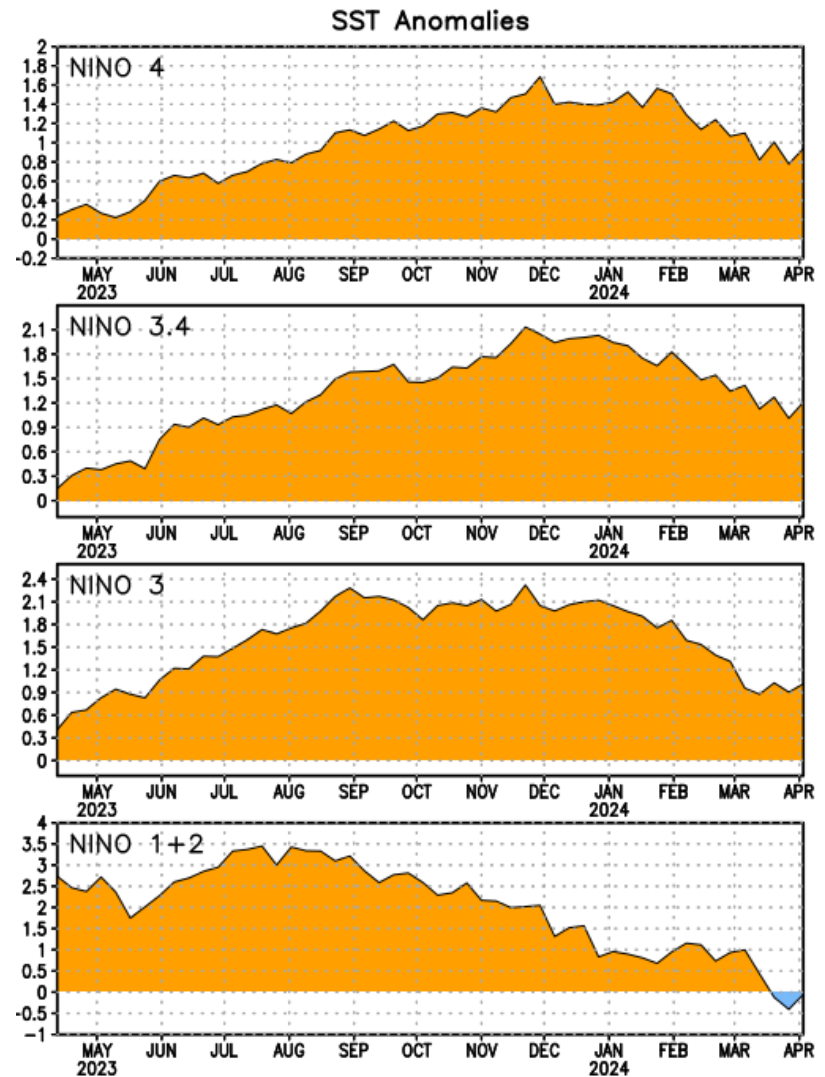
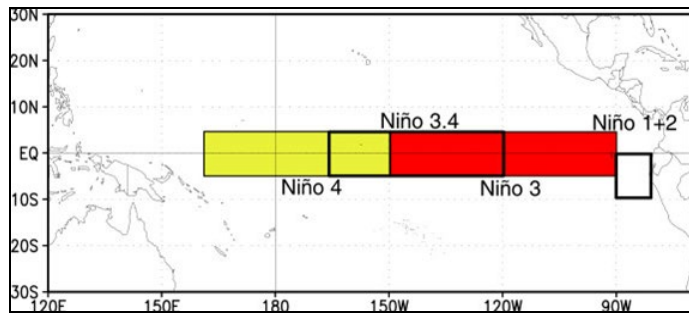
Atlantic Multidecadal Oscillation (AMO)

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

Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	0.9°C
Niño 3.4	1.2°C
Niño 3	1.0°C
Niño 1+2	-0.1°C



This weekly sea surface temperature data is based on OISSTv2.1 (Huang et al., 2021).

IRI Pacific Niño 3.4 SST Model Outlook

The majority of models indicate El Niño will persist through March-May 2024 and then transition to ENSO-neutral during April-June 2024.

After a brief period of ENSO-neutral conditions, most models indicate a transition to La Niña around July-September 2024.

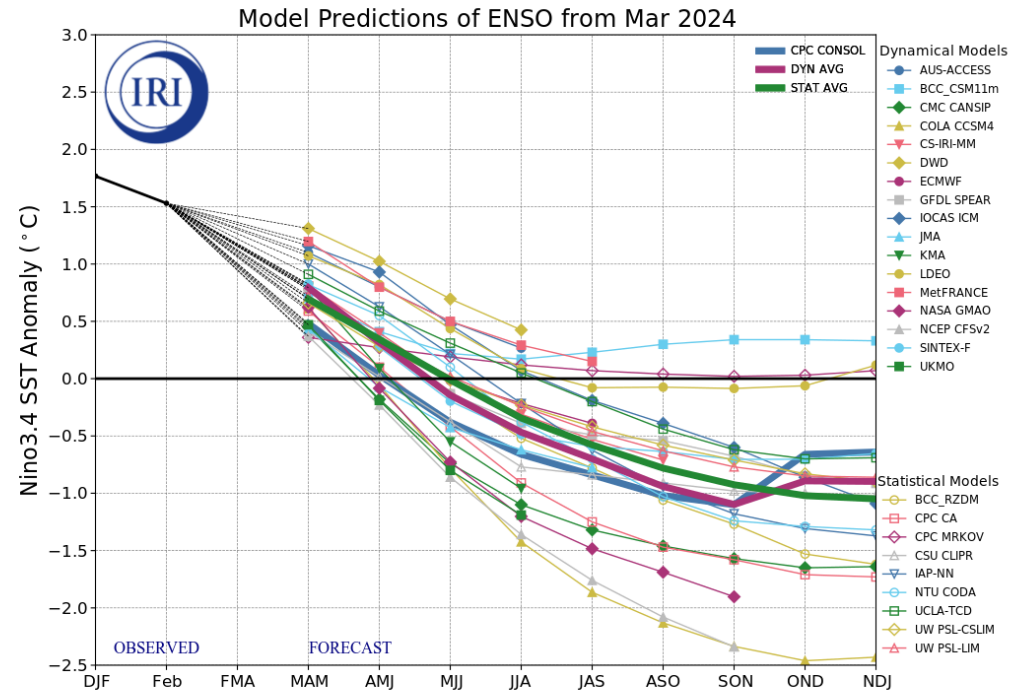
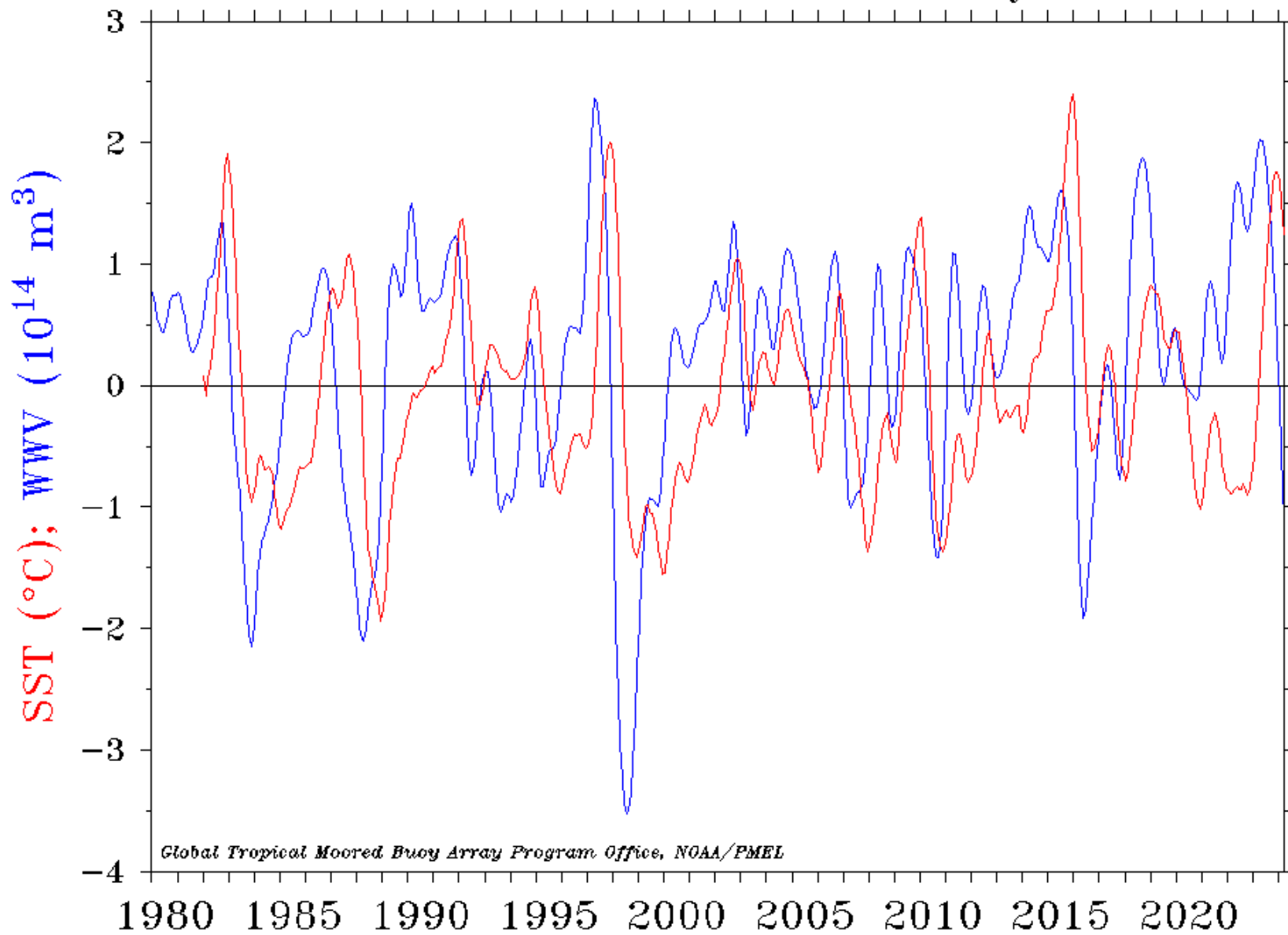
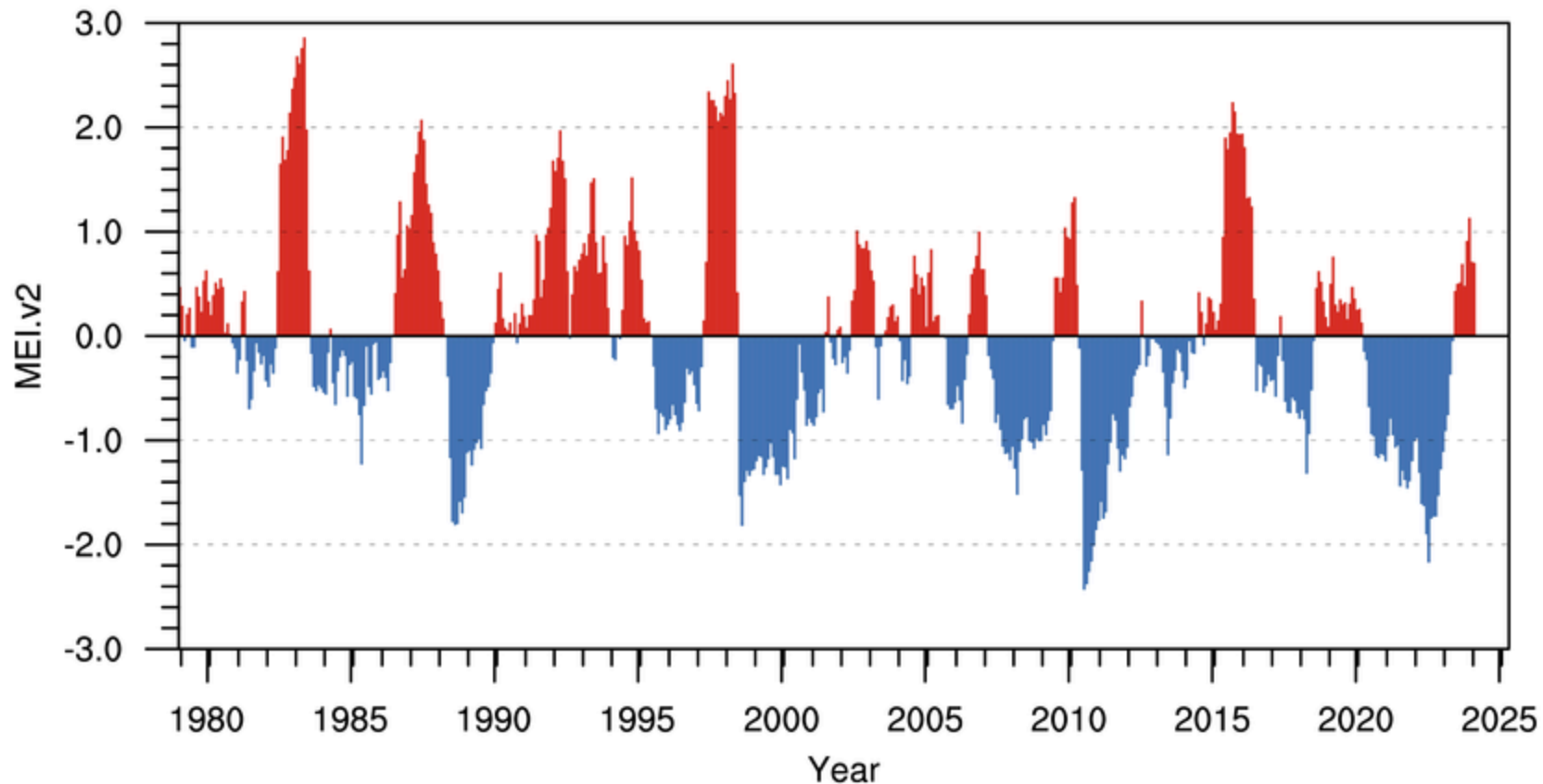


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 19 March 2024).

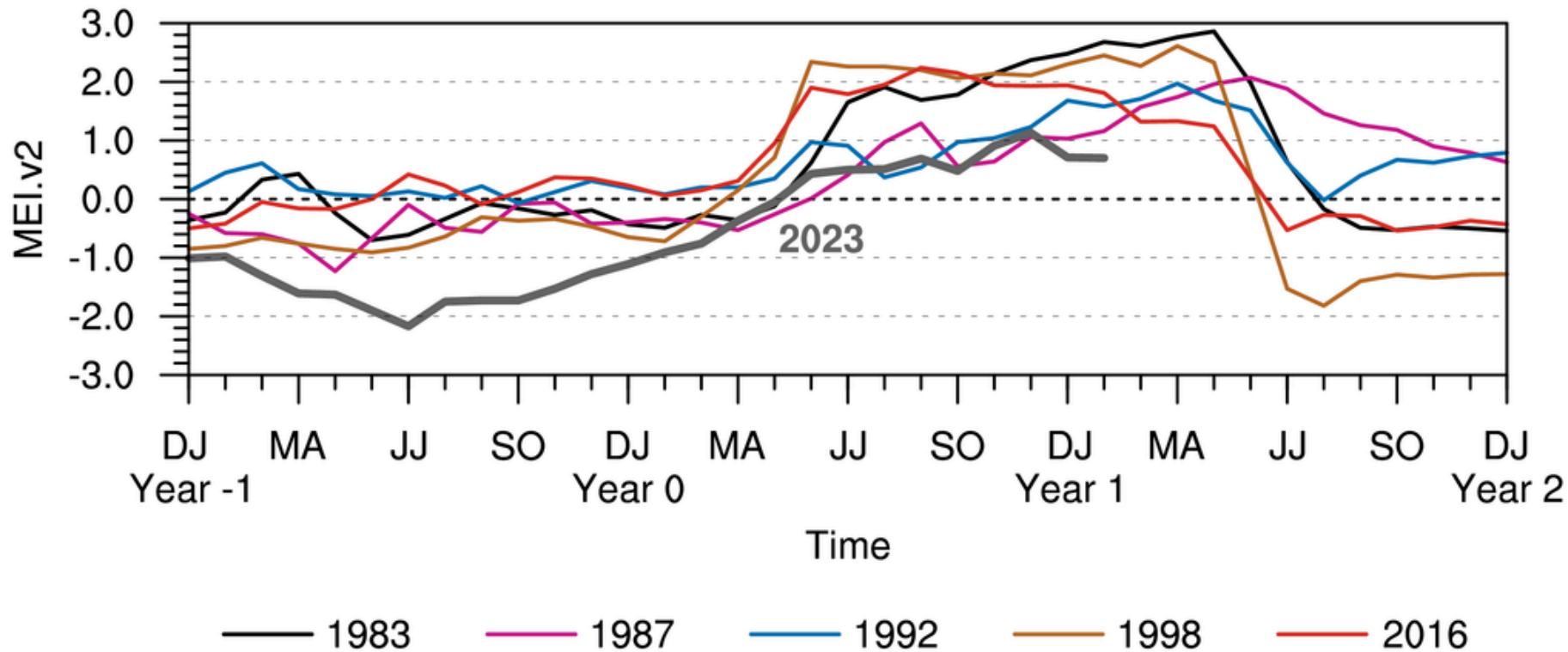
Warm Water Volume (5°N–5°S, 120°E–80°W) and NINO 3.4 SST Anomaly



Multivariate ENSO Index Version 2 using JRA3Q

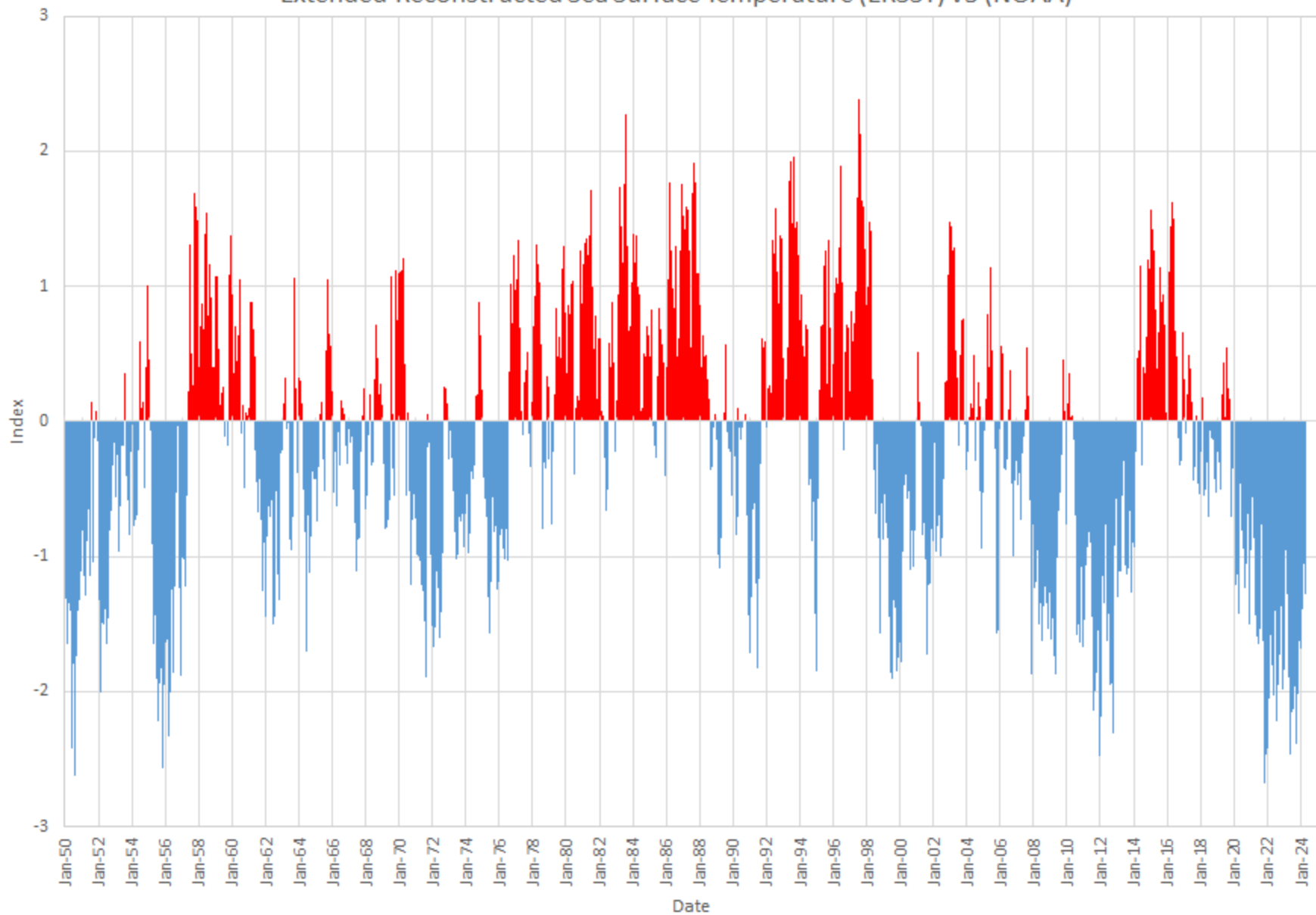


MEI.v2 Evolution of Current ENSO Event in Historical Context

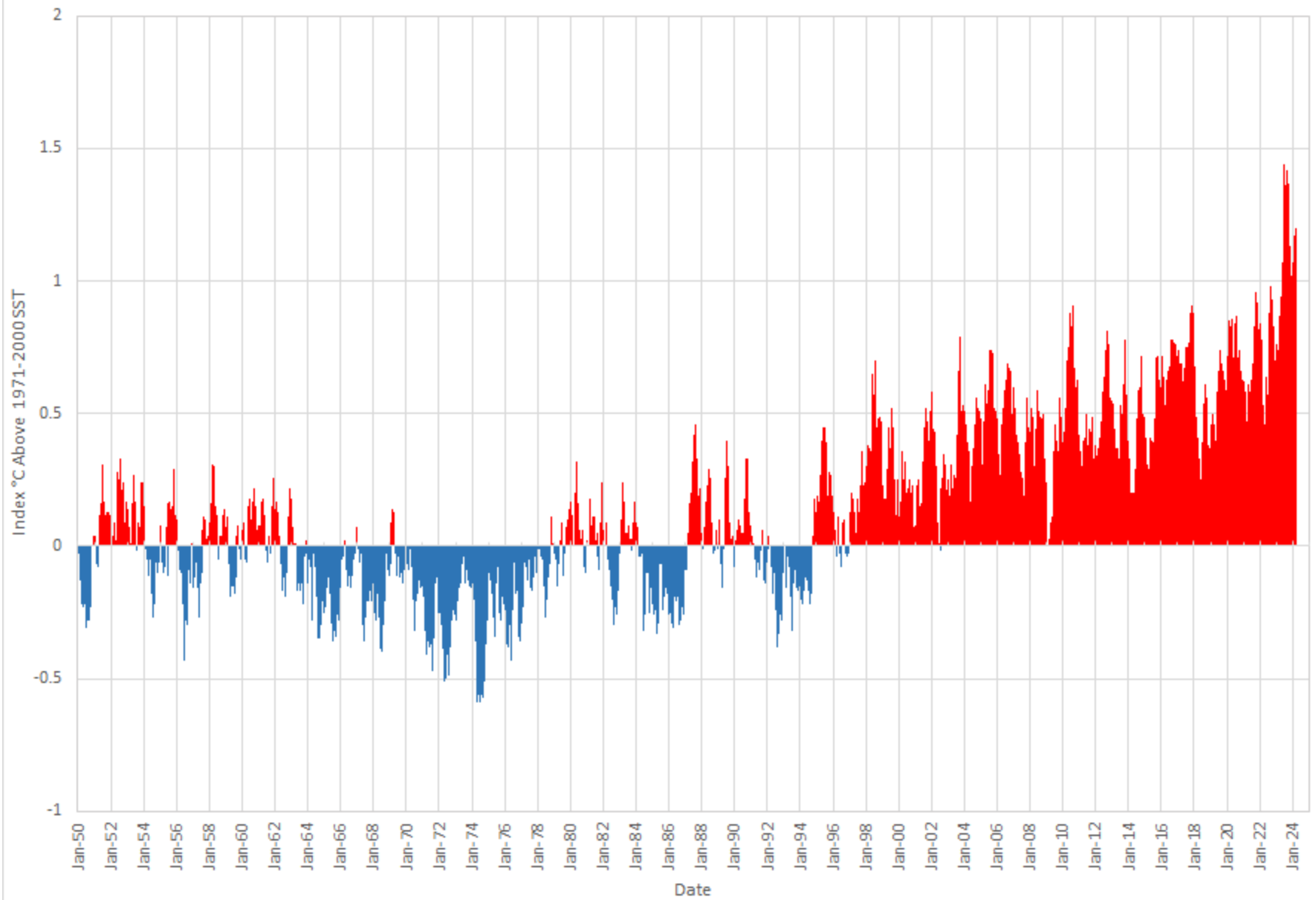


Pacific Decadal Oscillation

Extended Reconstructed Sea Surface Temperature (ERSST) v5 (NOAA)



ERSST AMO (North Atlantic 0-60N SSTA) Index



2024 Tropical Outlook



ATLANTIC BASIN SEASONAL HURRICANE FORECAST FOR 2024

Forecast Parameter and 1991–2020 Average (in parentheses)	Issue Date 4 April 2024
Named Storms (NS) (14.4)	23
Named Storm Days (NSD) (69.4)	115
Hurricanes (H) (7.2)	11
Hurricane Days (HD) (27.0)	45
Major Hurricanes (MH) (3.2)	5
Major Hurricane Days (MHD) (7.4)	13
Accumulated Cyclone Energy (ACE) (123)	210
ACE West of 60°W (73)	125
Net Tropical Cyclone Activity (NTC) (135%)	220

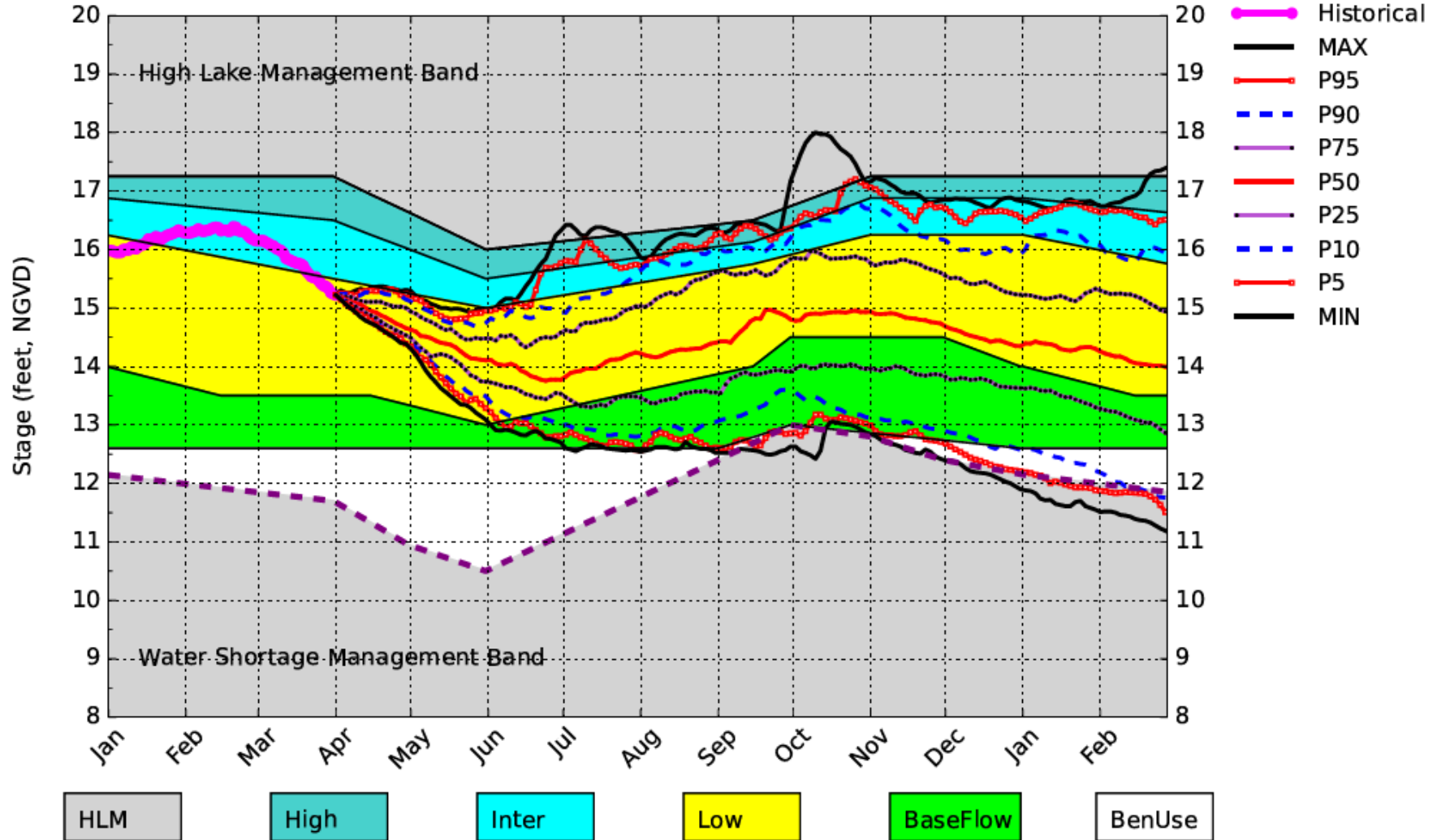
- Extremely active season
- Transition to La Niña expected in July/August leading to hurricane-favorable wind shear conditions
- Sea surface temperatures in the eastern and central Atlantic are at record warm levels
- Forecast is of above-normal confidence for an early April outlook
- Next update: June 11, 2024

April DPA Assumptions

- The April 1, 2024 Dynamic Position Analysis (DPA) simulation is based on historical climatic conditions spanning the period 1965-2005. This DPA posting is made with the South Florida Water Management Model (SFWMM) v6.7.4 (Tamiami Trail) which includes the following improvement(s):
 - Improvements to include the Combined Operational Plan (COP)
- The April 1, 2024 DPA resets the initial stages for Lake Okeechobee (LOK) and the Water Conservation Areas (WCAs) on March 1st of each year of the DPA simulation and conditions the simulation to real time data during March to achieve real time stages on April 1st for LOK and WCAs.
- The Lake Okeechobee operations follow the Lake Okeechobee Regulation Schedule (LORS2008). Modeling assumptions are consistent with modeling performed for LORS2008 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.
- **Full LORS 2008 releases are modeled as specified in the regulation schedule.**

Lake Okeechobee SFWMM April 2024 Position Analysis

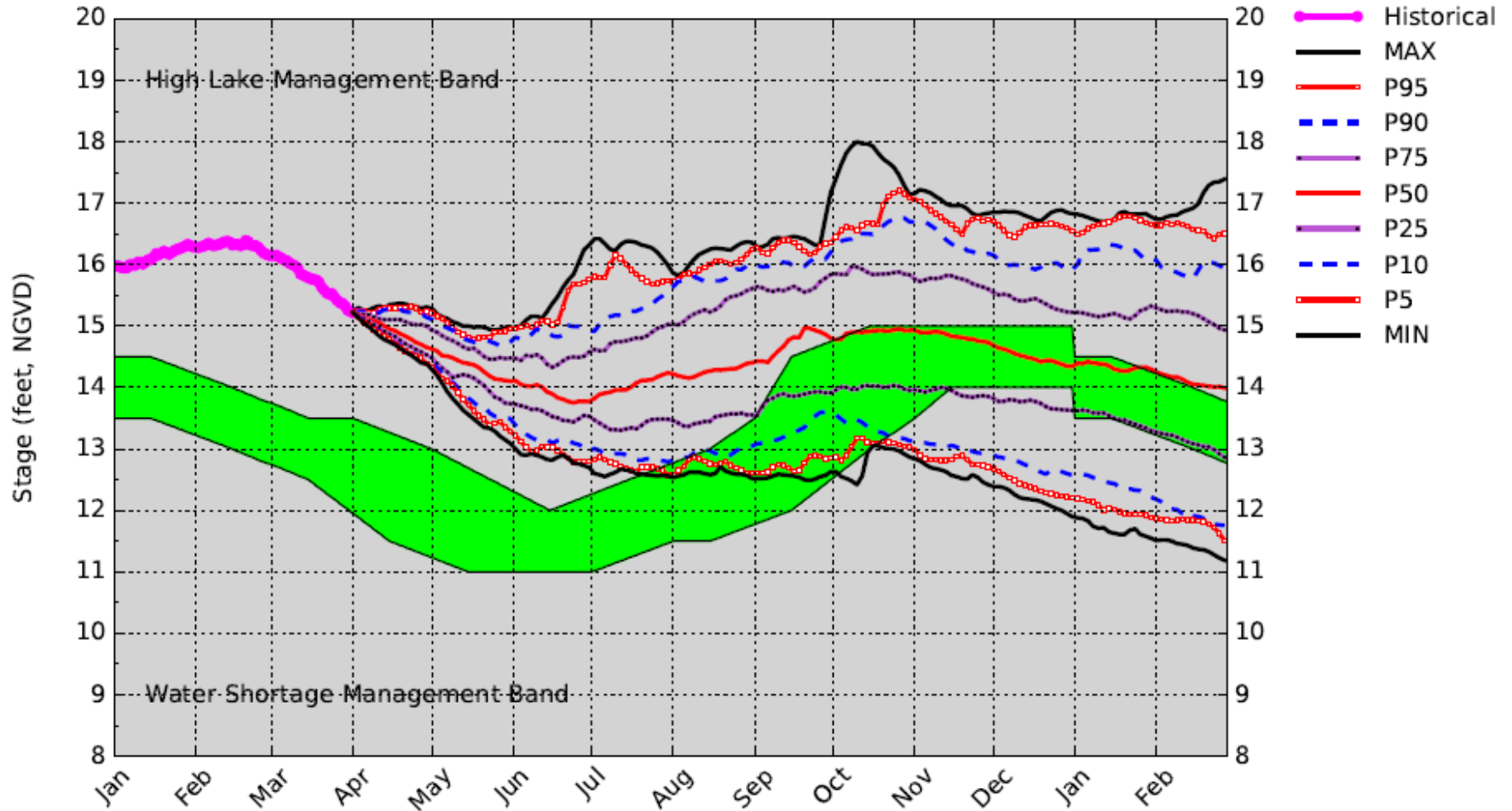
Percentiles PA



(See assumptions on the Position Analysis Results website)

Lake Okeechobee SFWMM April 2024 Position Analysis

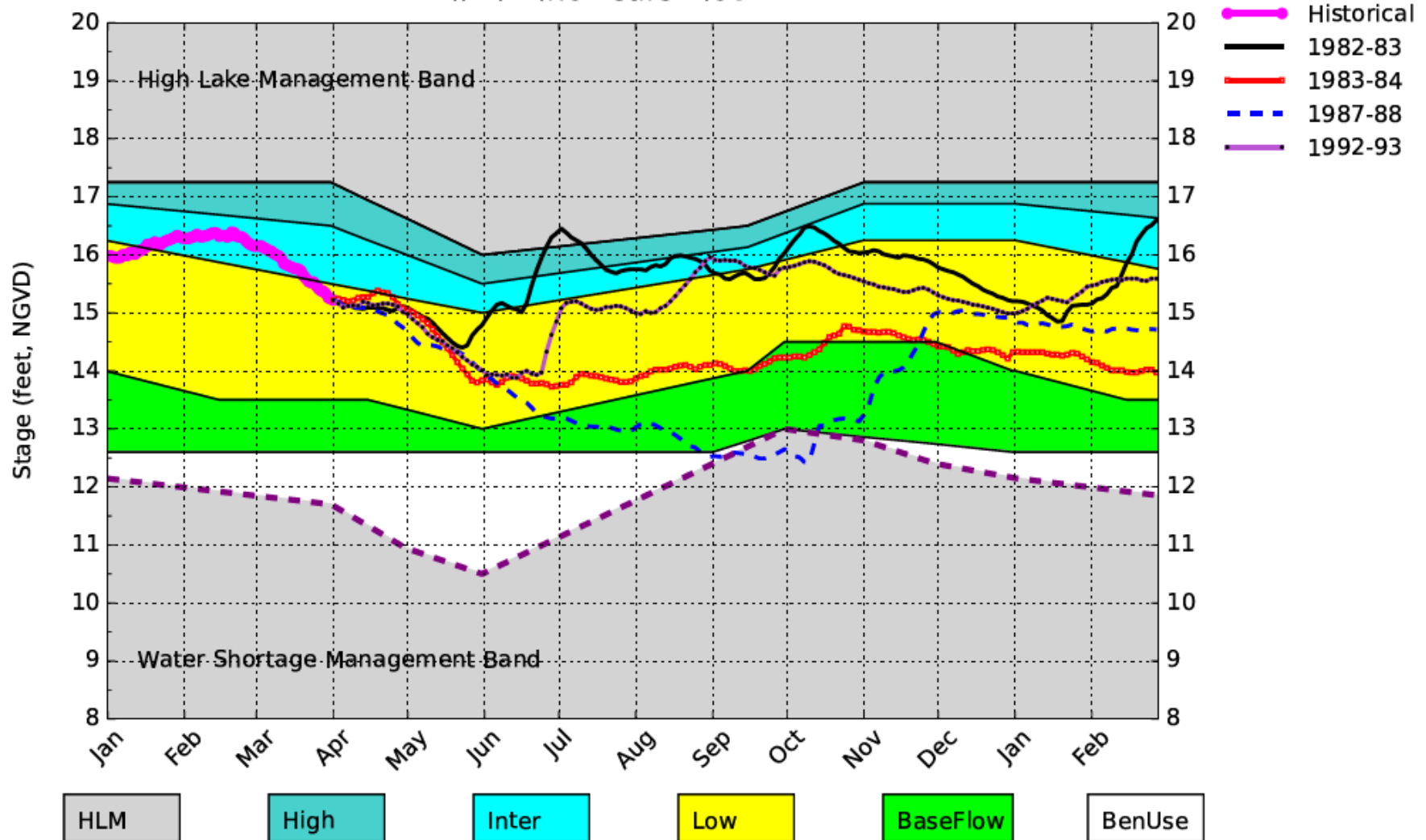
Percentiles PA



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Lake Okeechobee SFWMM April 2024 Position Analysis

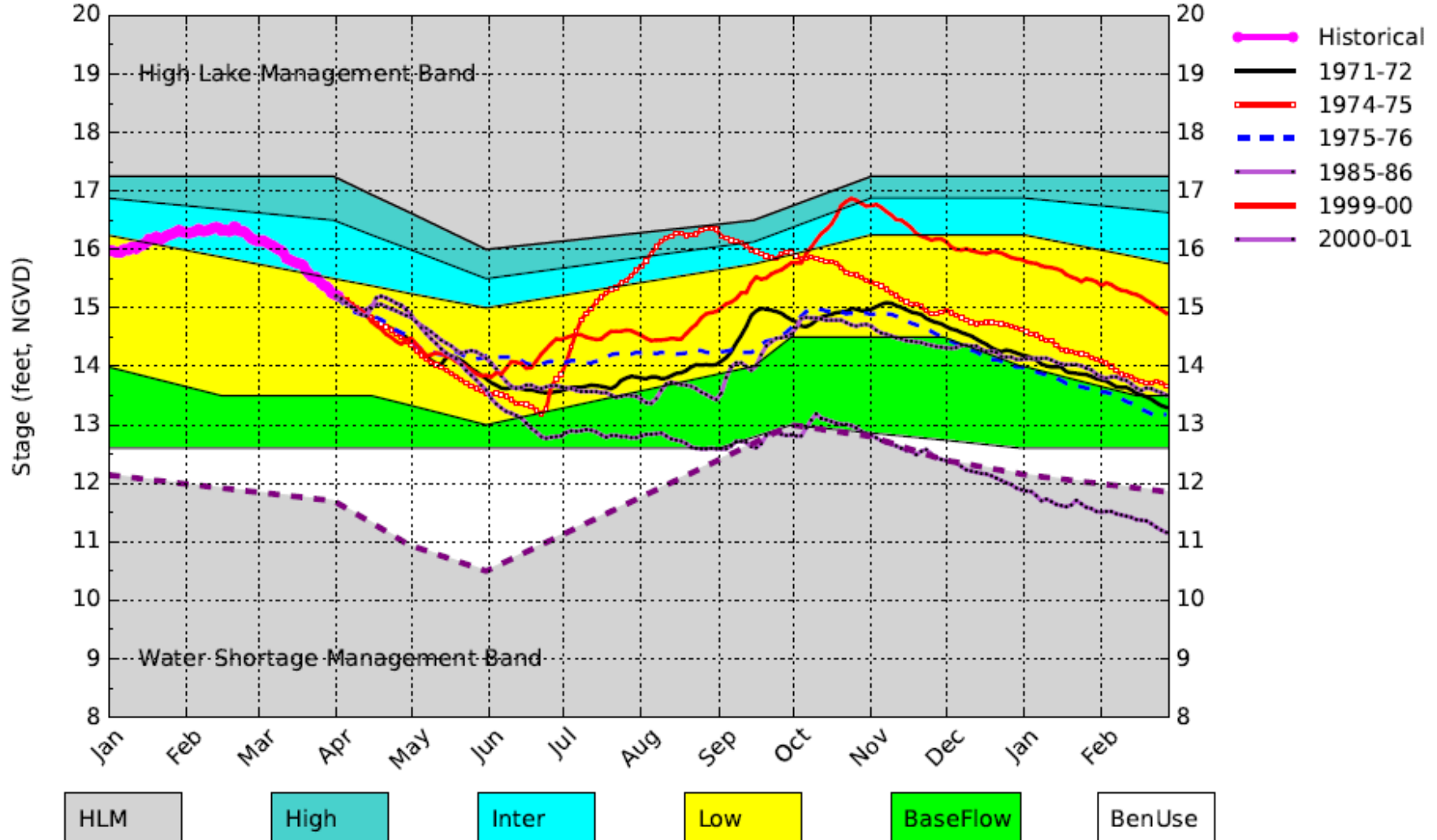
All El Nino Years Plot PA



(See assumptions on the Position Analysis Results website)

Lake Okeechobee SFWMM April 2024 Position Analysis

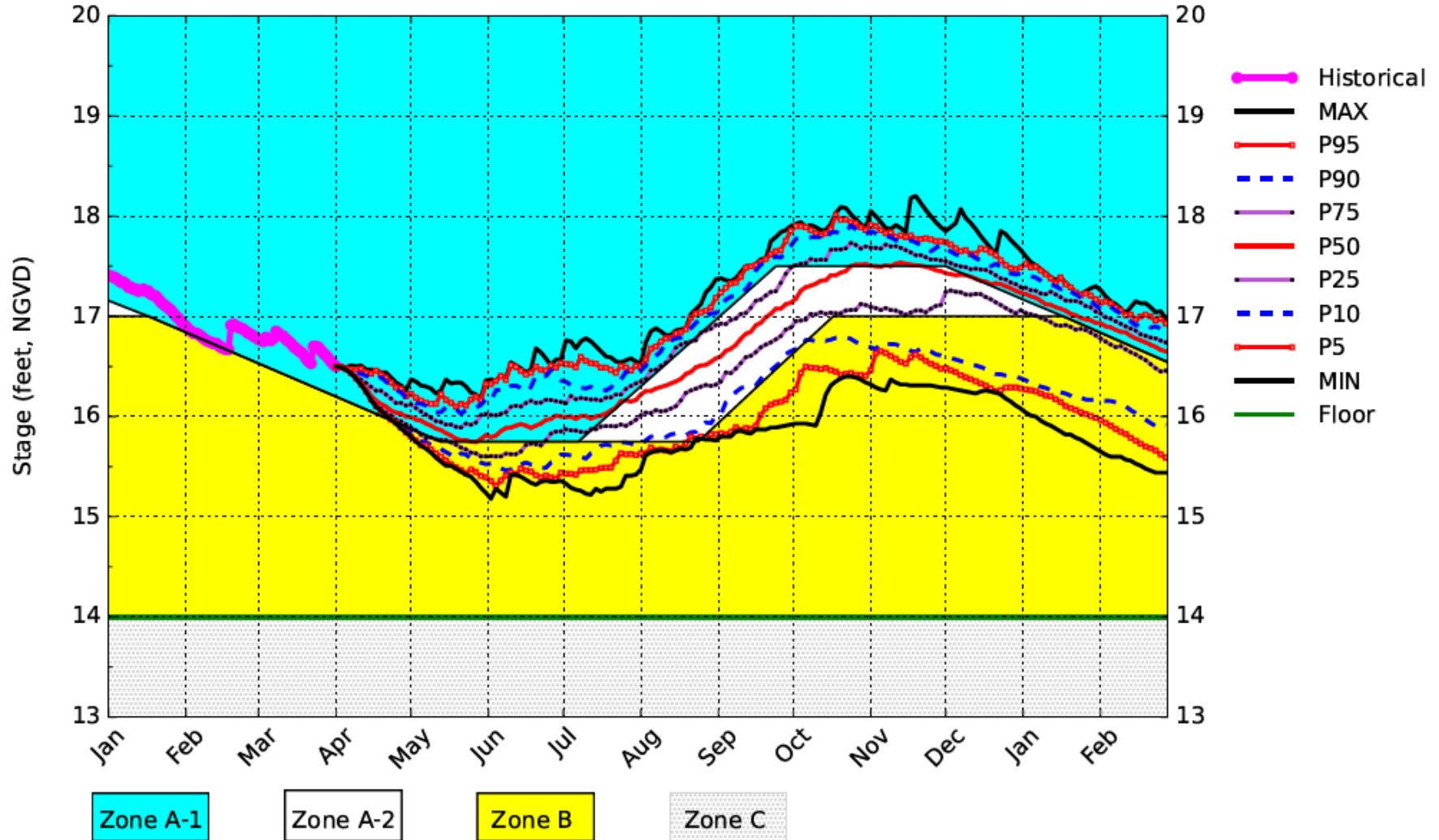
All La Nina Years Plot PA



(See assumptions on the Position Analysis Results website)

WCA1 SFWMM April 2024 Position Analysis

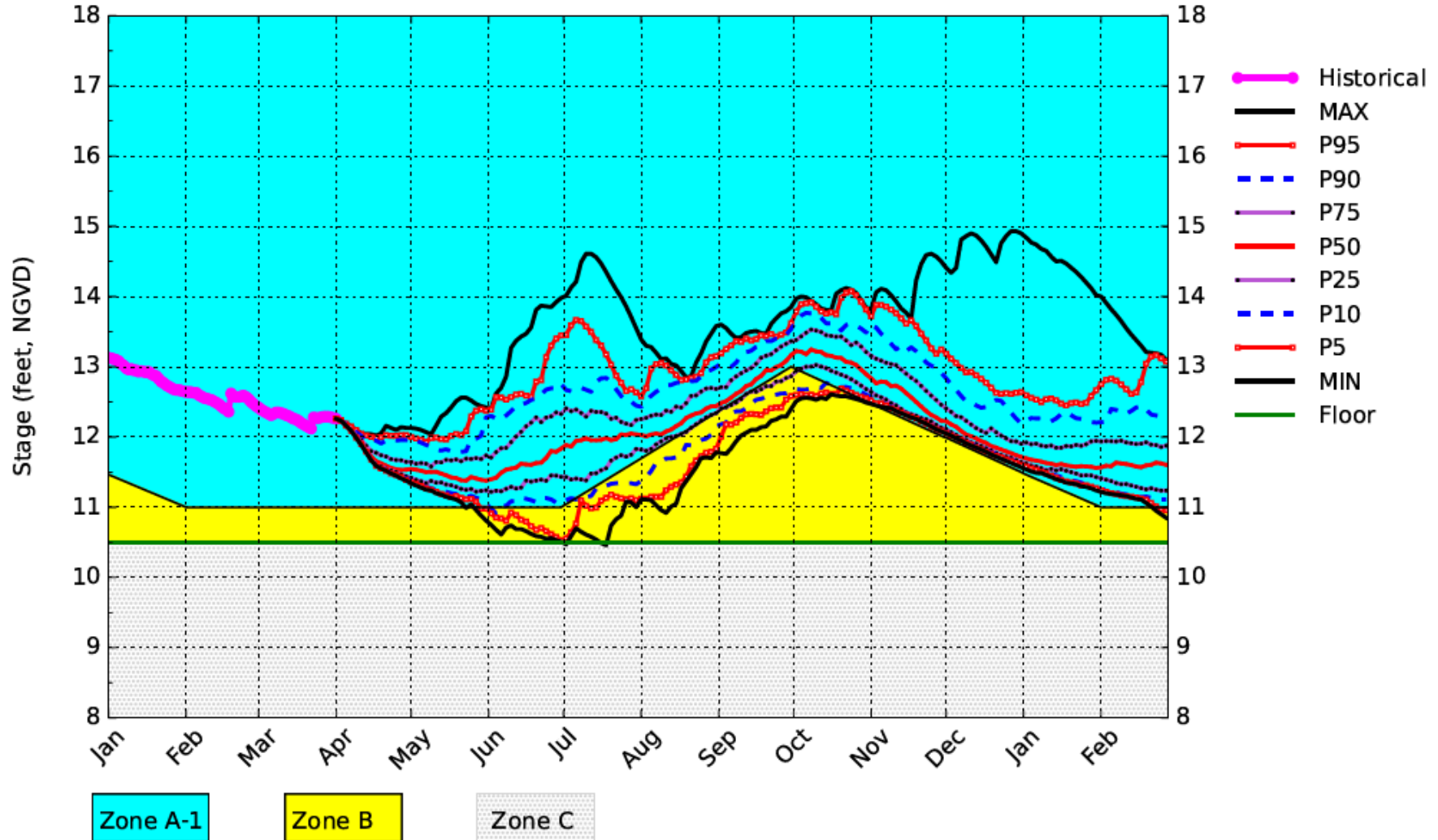
Percentiles PA



(See assumptions on the Position Analysis Results website)

WCA2A SFWMM April 2024 Position Analysis

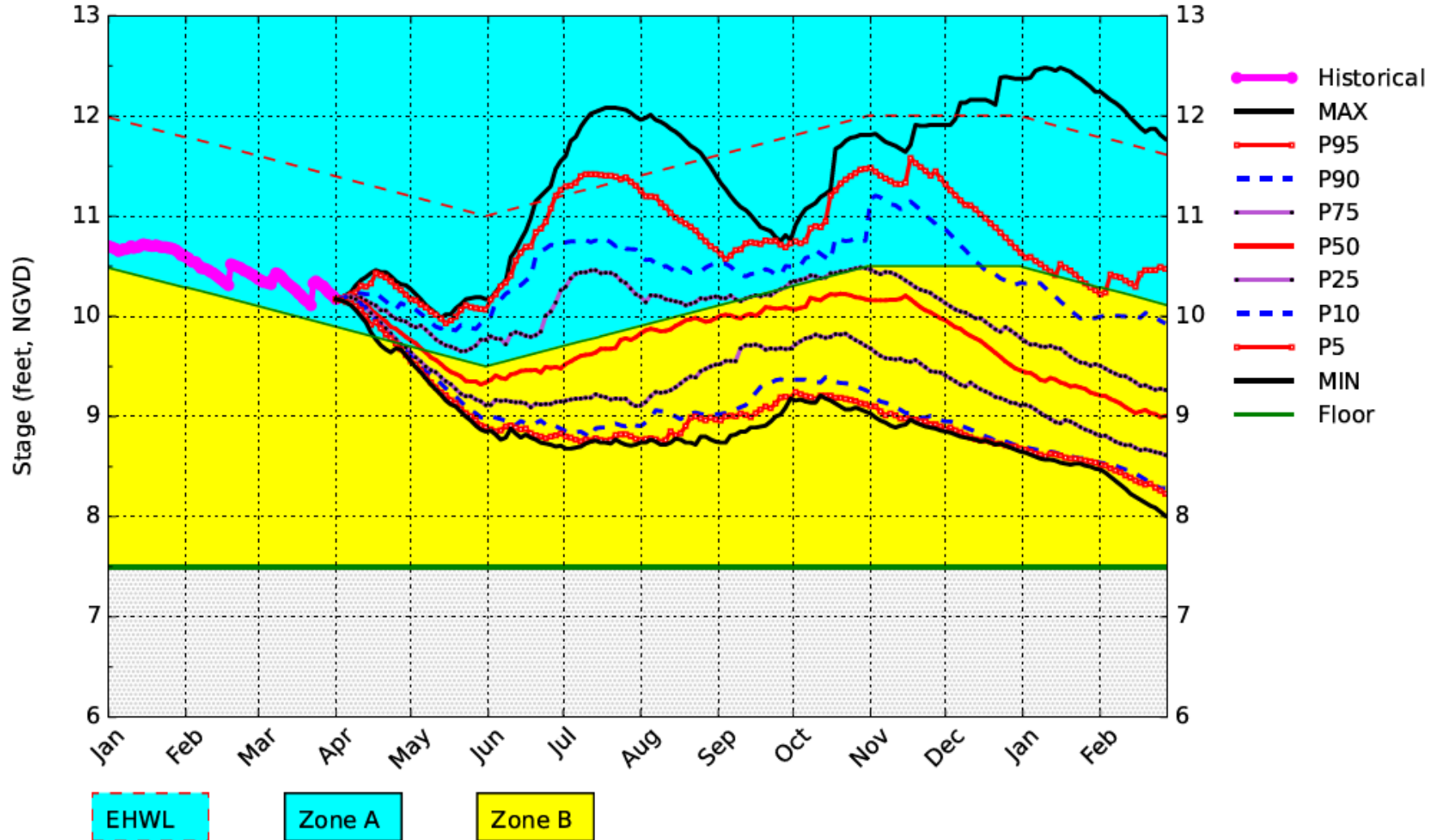
Percentiles PA



(See assumptions on the Position Analysis Results website)

WCA3A SFWMM April 2024 Position Analysis

Percentiles PA



(See assumptions on the Position Analysis Results website)