Extended Hydrologic Outlook
September 12, 2023

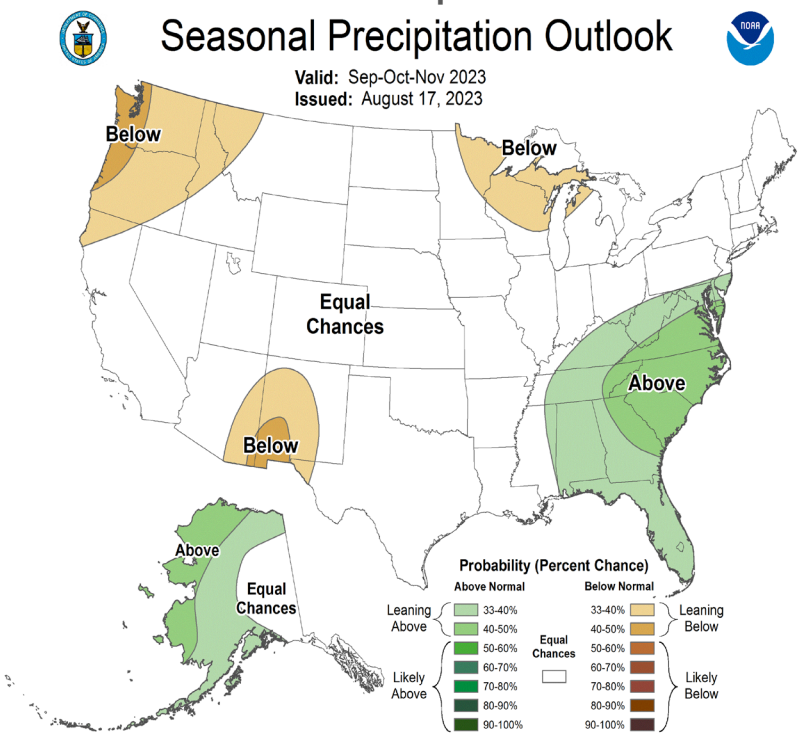
- The Climate Prediction Center (CPC) is forecasting above normal rainfall for September through November.
- El Niño conditions are observed and anticipated to continue through winter with greater than a 95% chance through December 2023-February 2024.
- Atlantic Multidecadal Oscillation (AMO) is currently 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

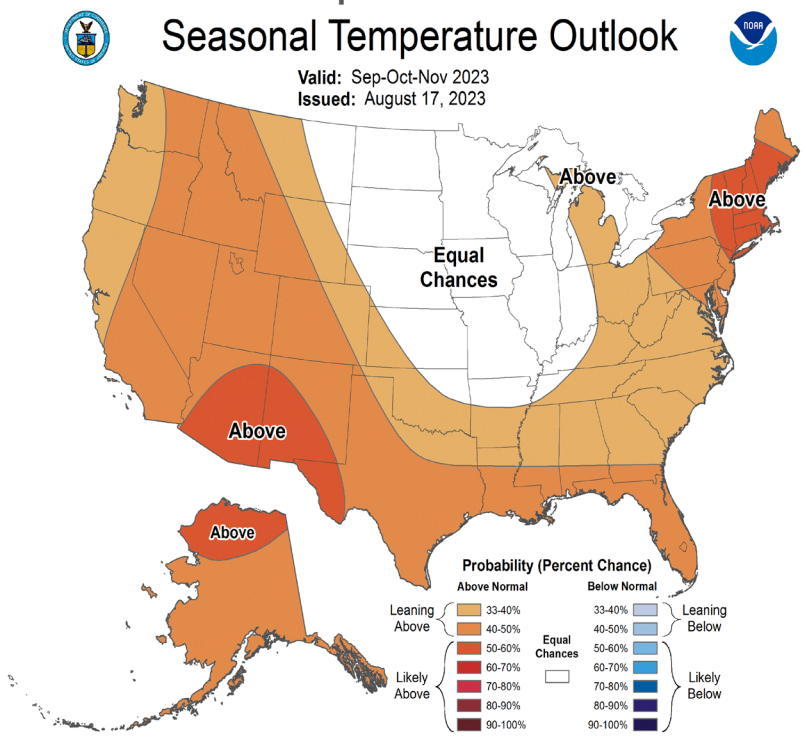
September - November 2023

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

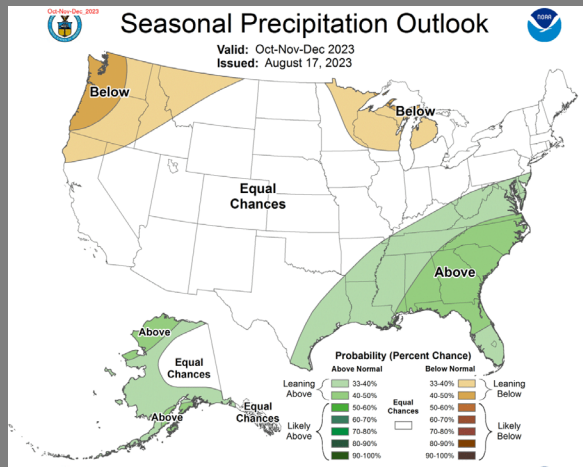
Precipitation

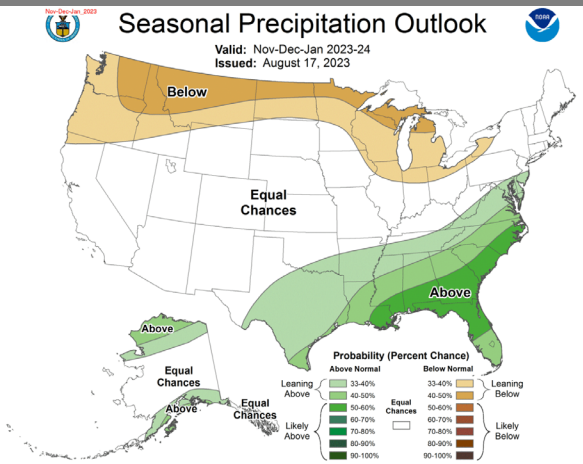


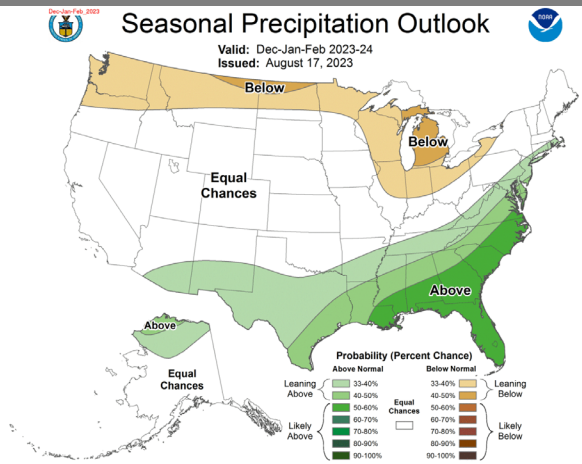
Temperature

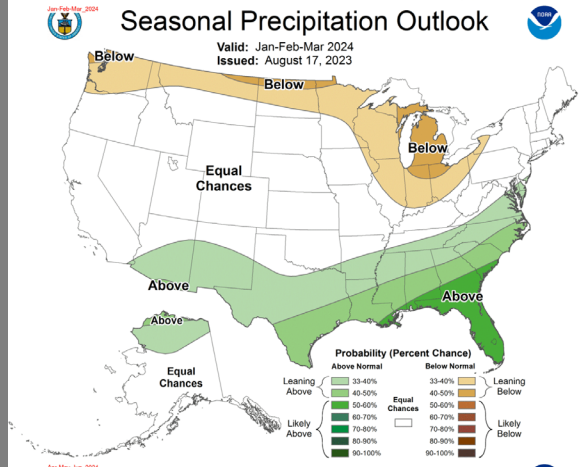


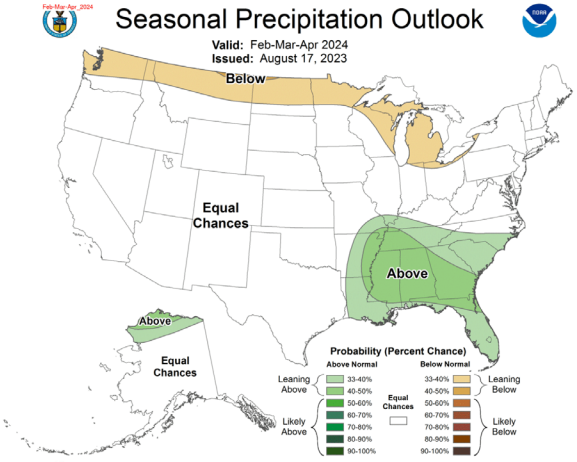
Prepared by: Climate Prediction Center/NCEP

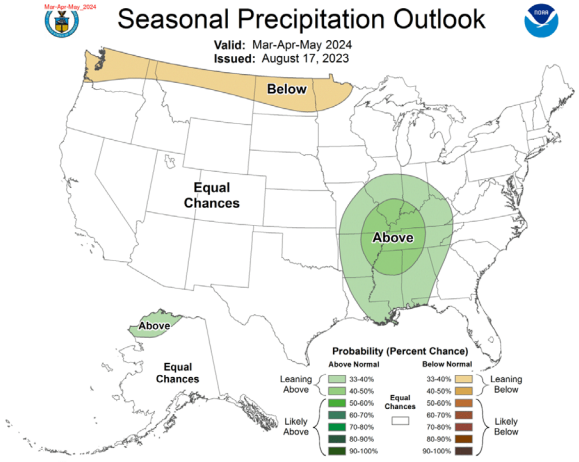


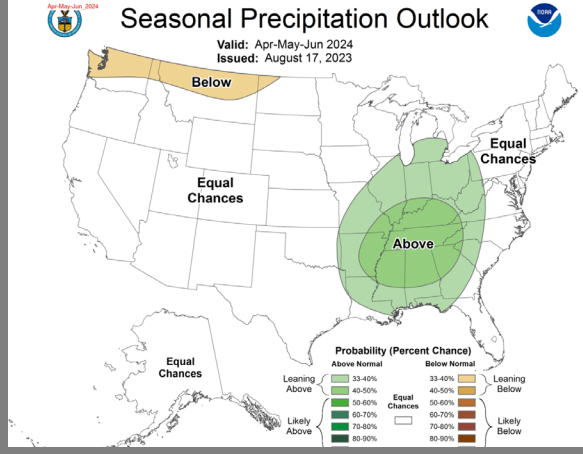


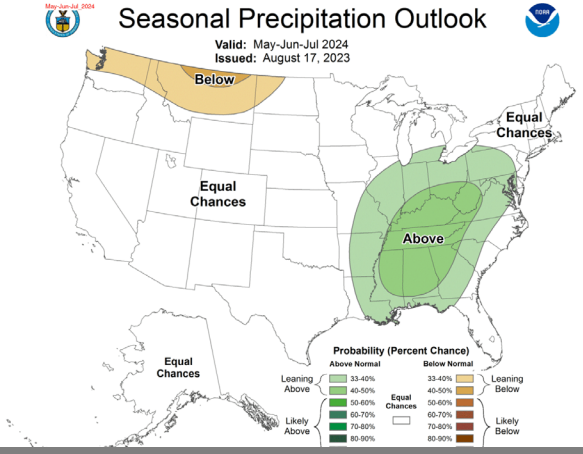


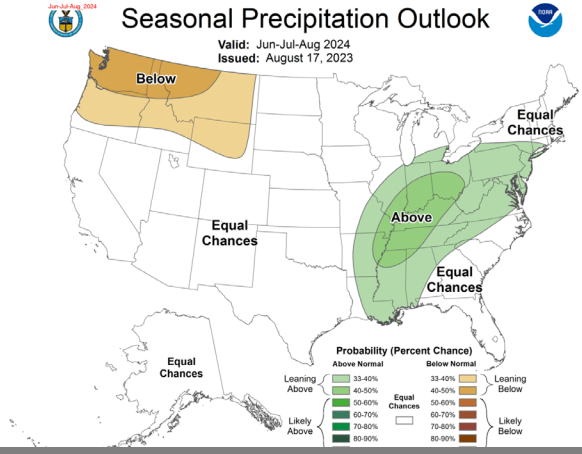












Prepared by: Climate Prediction Center/NCEP

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**

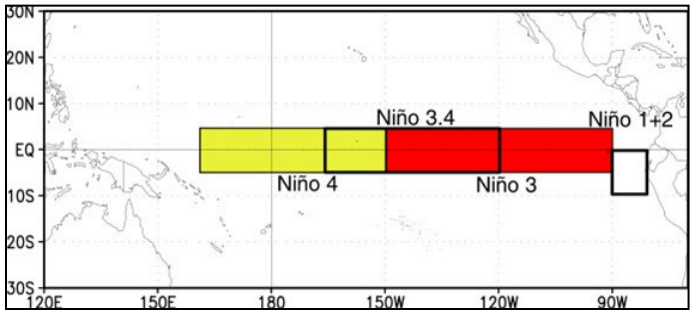
Atlantic Multidecadal Oscillation (AMO)

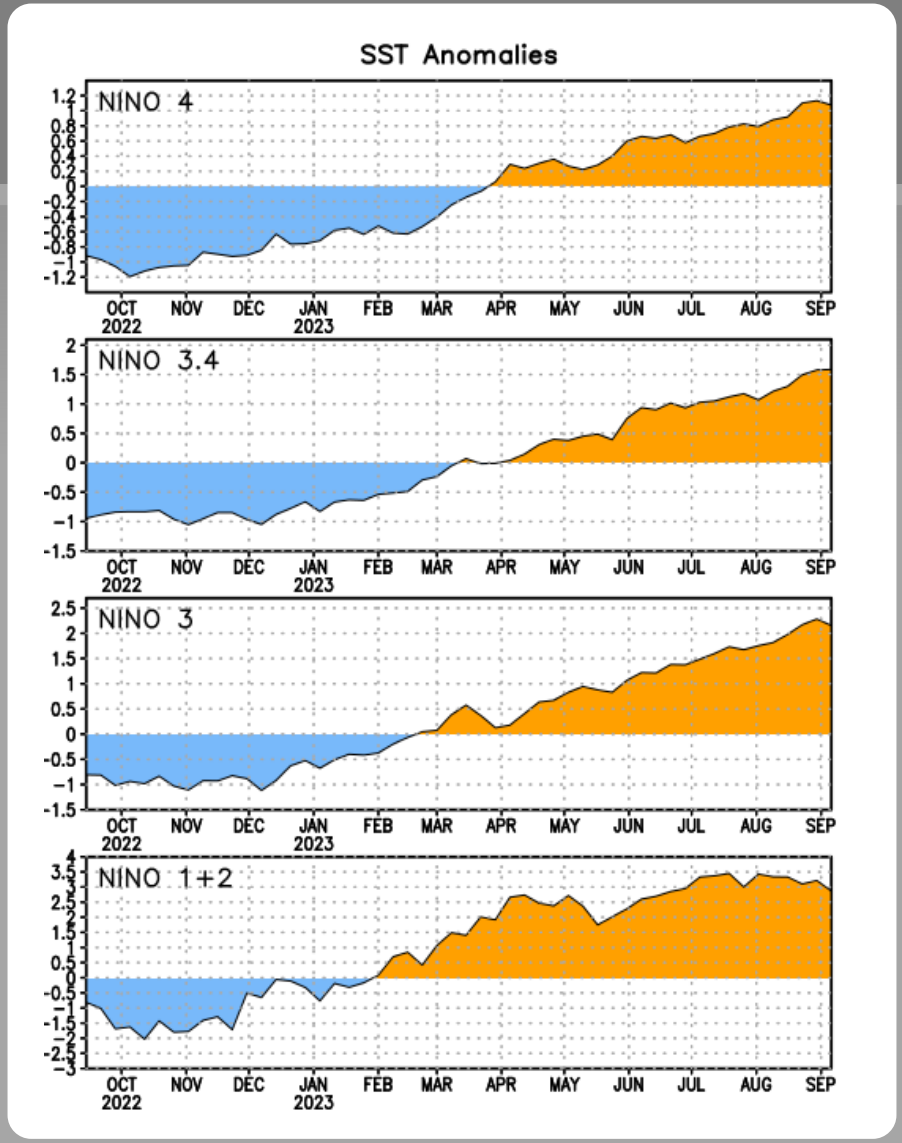
- **Average annual inflow to Lake Okeechobee is nearly 50% greater during the warm phase compared to the cold phase of the AMO, easterly flow toward south Florida affected by phase**

Niño Region SST Departures (ºC) Recent Evolution

The latest weekly SST departures are:

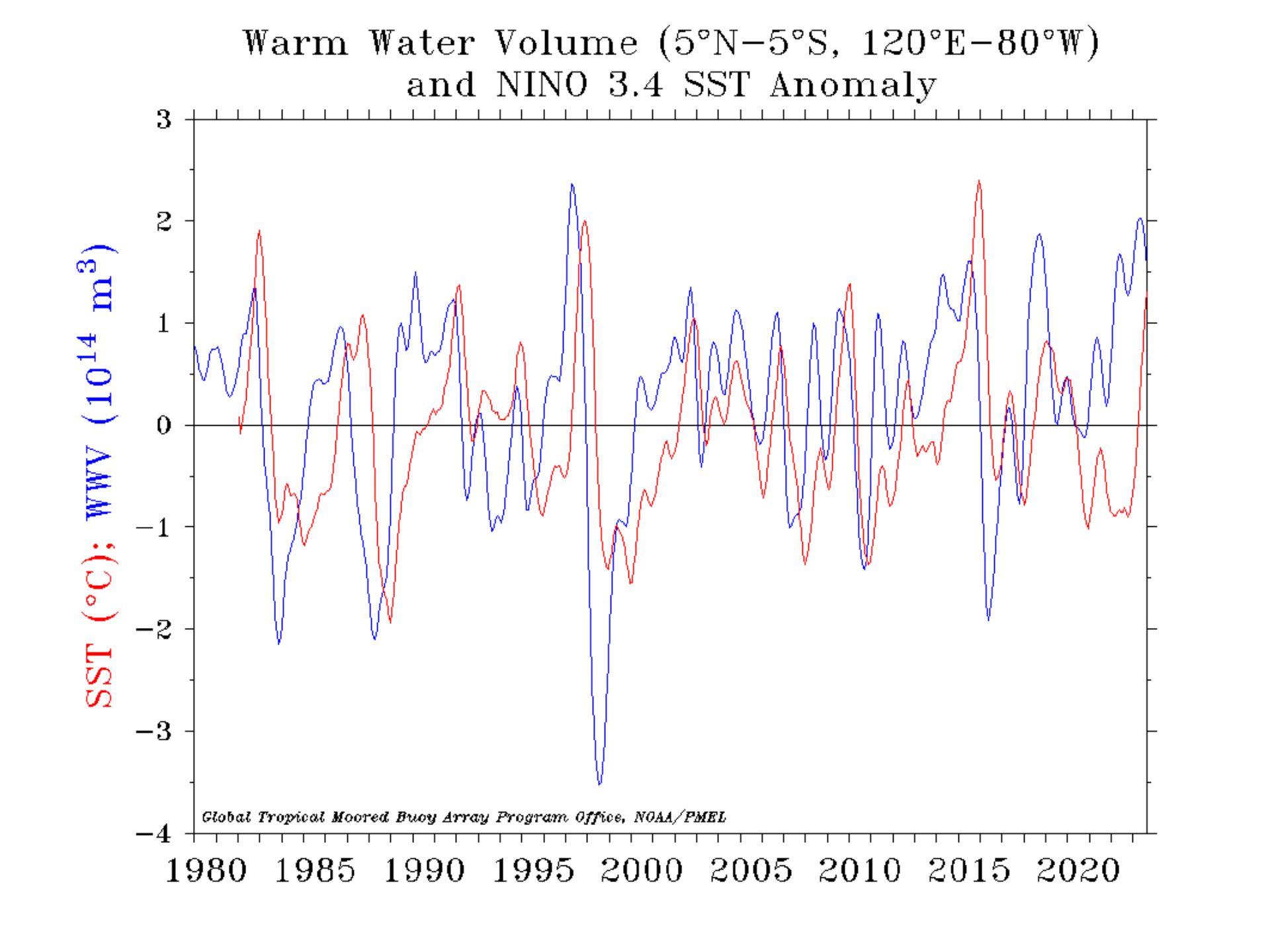
Niño 4	1.1ºC
Niño 3.4	1.6ºC
Niño 3	2.2ºC
Niño 1+2	2.9ºC

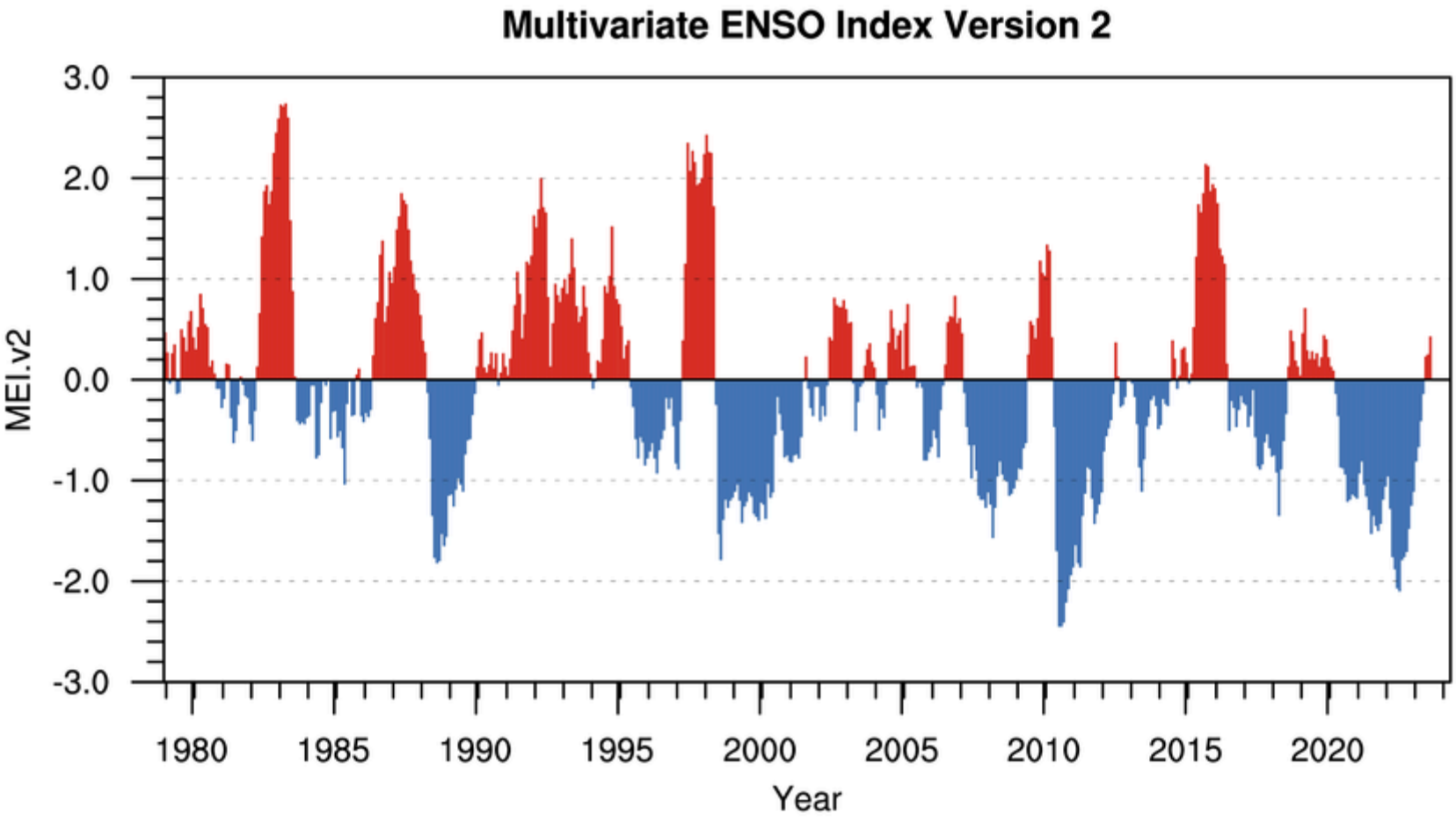




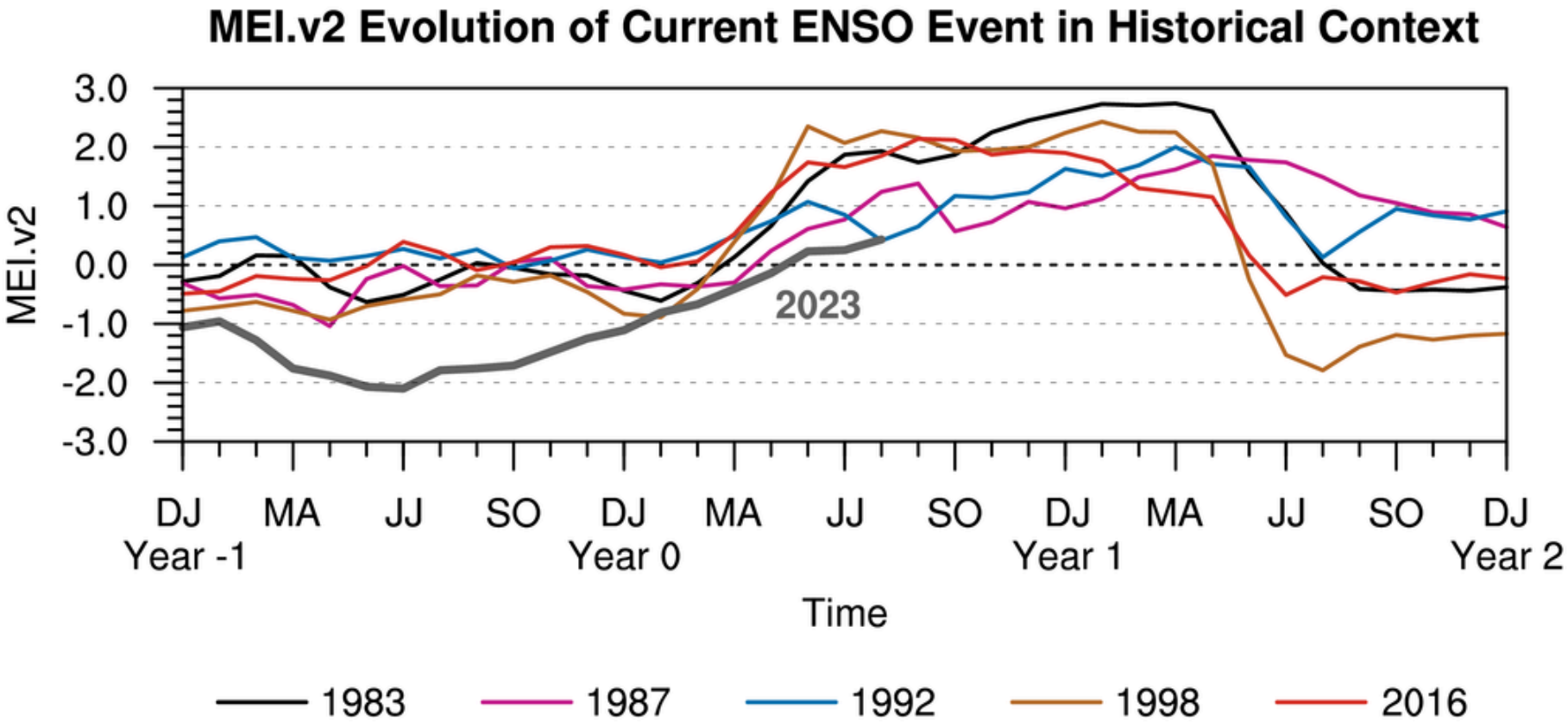
This weekly sea surface temperature data is based on OISSTv2.1 (Huang et al., 2021).

Prepared by: Climate Prediction Center/NCEP

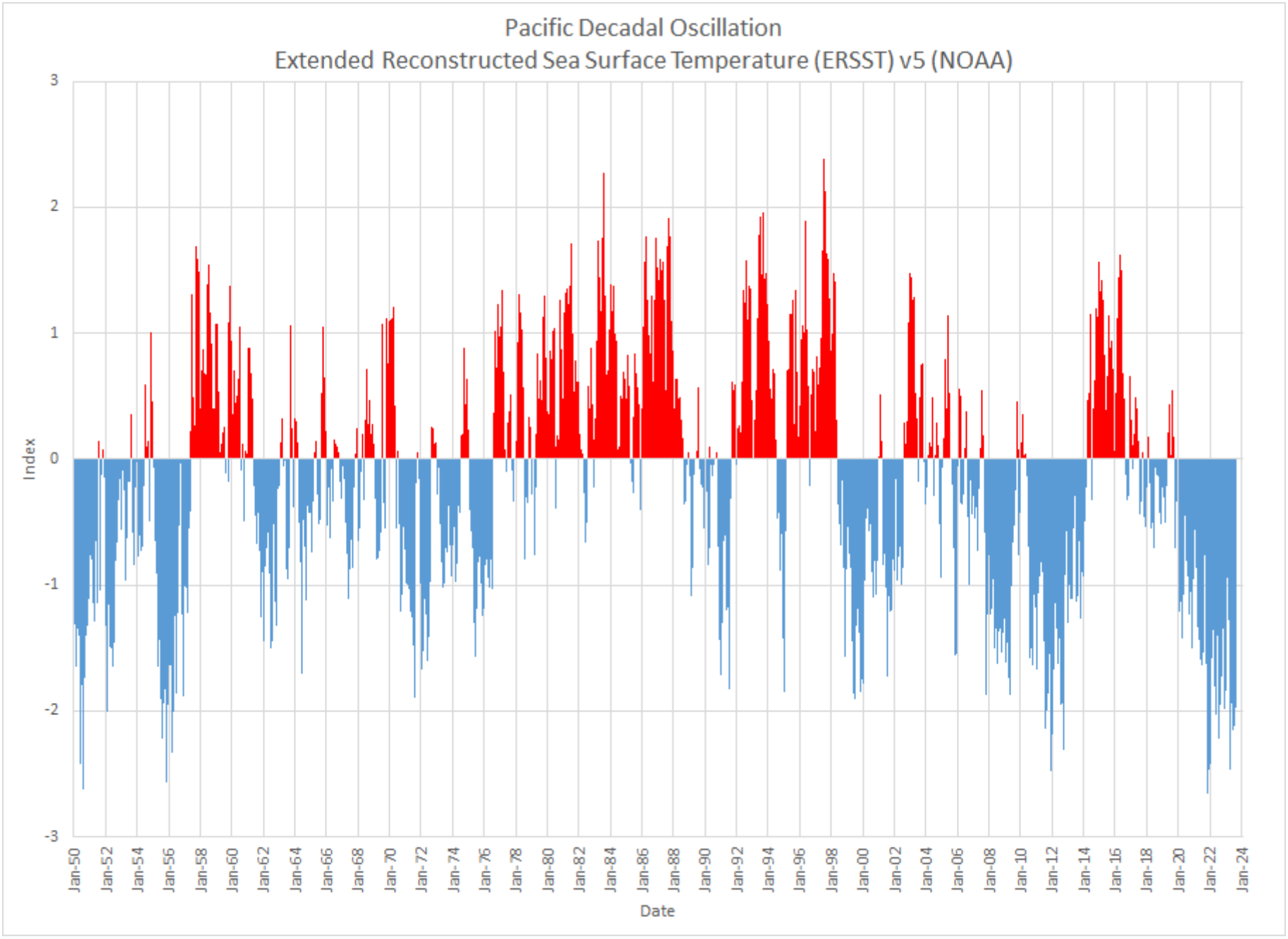

Warm Water Volume (5°N–5°S, 120°E–80°W)
and NINO 3.4 SST Anomaly
SST (°C); WWV (10^{14} m^3)
3
2
1
0
−1
−2
−3
−4
1980
1985
1990
1995
2000
2005
2010
2015
2020
Global Tropical Moored Buoy Array Program Office, NOAA/PMEL

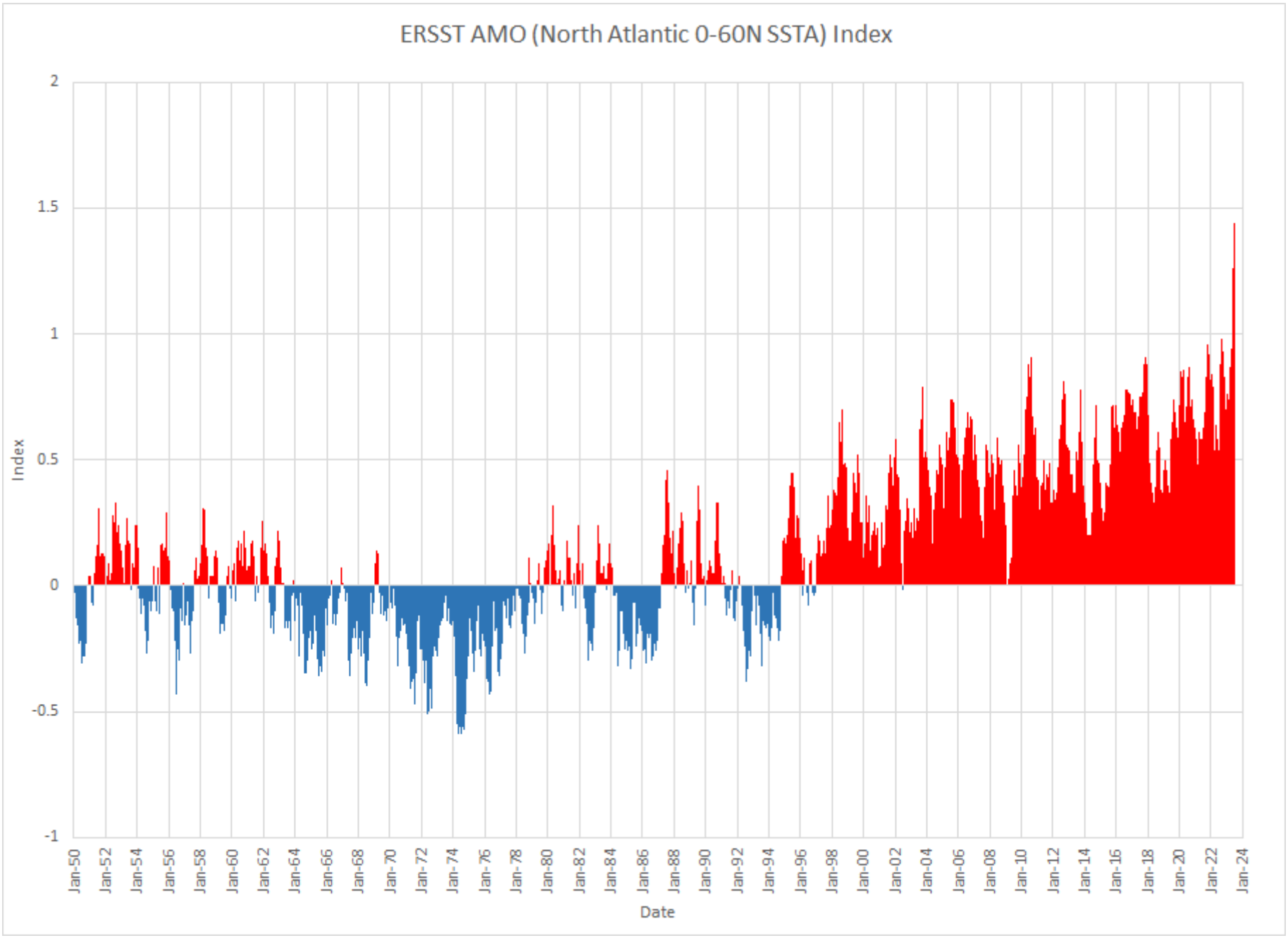


Prepared by: NOAA Physical Sciences Laboratory



Prepared by: NOAA Physical Sciences Laboratory

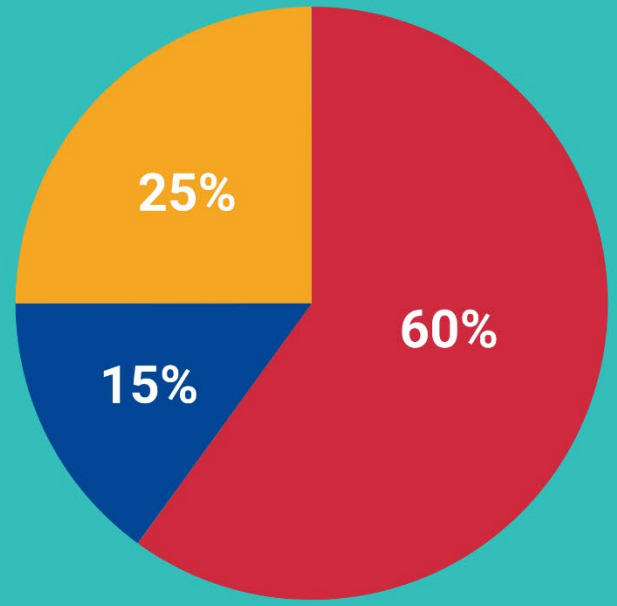

Pacific Decadal Oscillation
Extended Reconstructed Sea Surface Temperature (ERSST) v5 (NOAA)
Index
3
2
1
0
-1
-2
-3
Jan-50
Jan-52
Jan-54
Jan-56
Jan-58
Jan-60
Jan-62
Jan-64
Jan-66
Jan-68
Jan-70
Jan-72
Jan-74
Jan-76
Jan-78
Jan-80
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


ERSST AMO (North Atlantic 0-60N SSTA) Index
2
1.5
1
0.5
0
-0.5
-1
Index
Jan-50
Jan-52
Jan-54
Jan-56
Jan-58
Jan-60
Jan-62
Jan-64
Jan-66
Jan-68
Jan-70
Jan-72
Jan-74
Jan-76
Jan-78
Jan-80
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

2023 Tropical Outlook

2023 Atlantic Hurricane Season Outlook

AUGUST 10 UPDATE



Above normal Near normal Below normal

Season probability

Named storms
14 - 21

Hurricanes
6 -11

Major hurricanes
2 - 5

NOAA

Be prepared: Visit hurricanes.gov and follow @NWS and @NHC_Atlantic on Twitter.

August 2023

Updated August 3, 2023

ATLANTIC BASIN SEASONAL HURRICANE FORECAST FOR 2023

Forecast Parameter and 1991-2020 Average (in parentheses)	Issue Date 13 April 2023	Issue Date 1 June 2023	Issue Date 6 July 2023	Issue Date 3 August 2023	Observed Thru 2 August 2023	Remainder of Season Forecast
Named Storms (NS) (14.4)	13	15	18	18*	5	13
Named Storm Days (NSD) (69.4)	55	60	90	90	19.50	70.50
Hurricanes (H) (7.2)	6	7	9	9	1	8
Hurricane Days (HD) (27.0)	25	30	35	35	0.5	34.50
Major Hurricanes (MH) (3.2)	2	3	4	4	0	4
Major Hurricane Days (MHD) (7.4)	5	7	9	9	0	9
Accumulated Cyclone Energy (ACE) (123)	100	125	160	160	16	144
ACE West of 60°W (73)	55	70	82	82	4	78
Net Tropical Cyclone Activity (NTC) (135%)	105	135	170	170	18	152

*Total forecast includes an unnamed subtropical storm in January as well as Arlene, Bret and Cindy in June and Don in July.

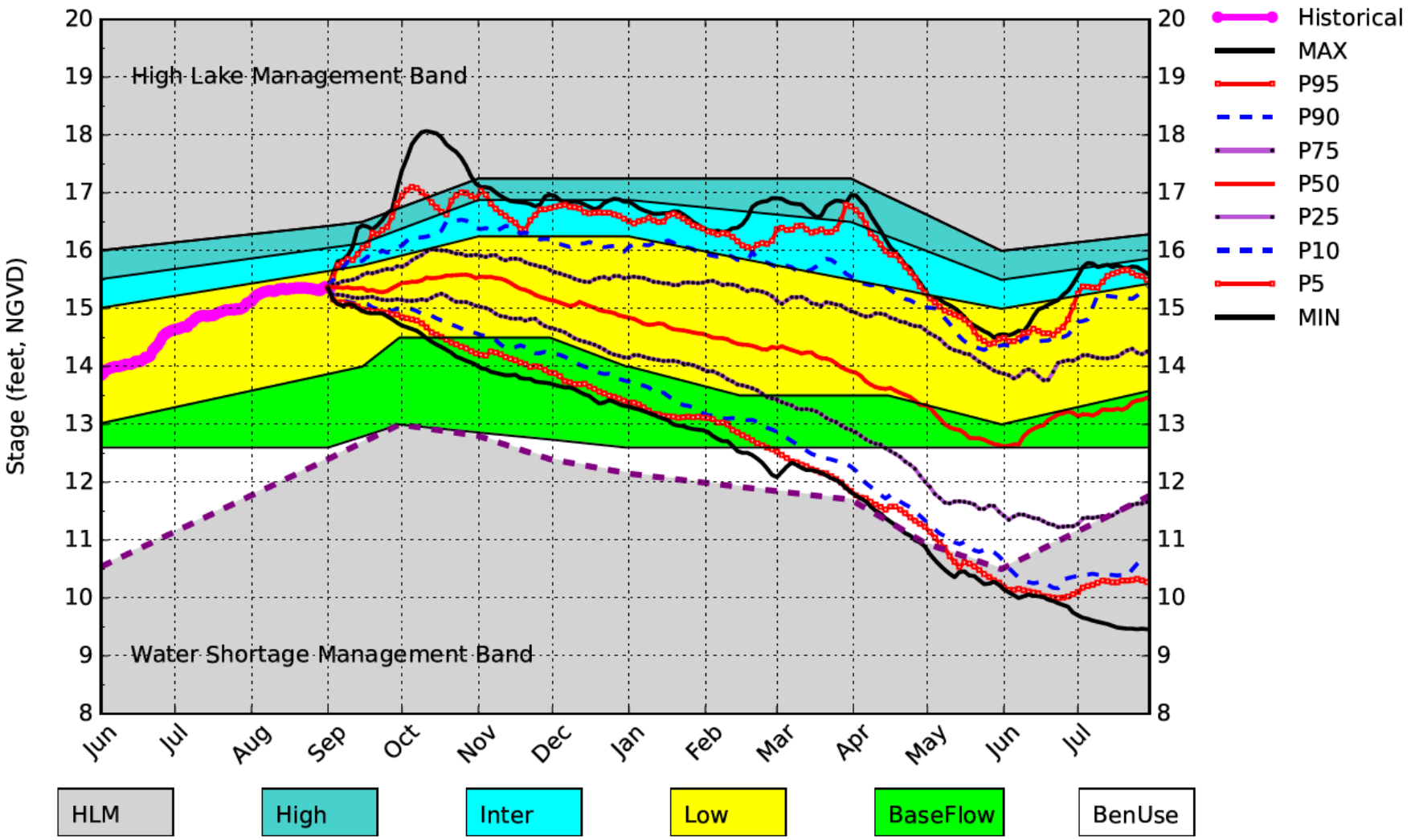
- Above-average activity anticipated
- Subtropical Atlantic now has record warm sea surface temperatures
- El Niño increases vertical wind shear in the Caribbean and tropical Atlantic, but the extreme anomalous warmth in the tropical and subtropical Atlantic may counteract some of the typical El Niño-driven increase in vertical wind shear

Source: Colorado State University (Tropical Weather & Climate Research)

September DPA Assumptions

- The September 1, 2023 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 September 1, 2023 DPA resets the initial stages for Lake Okeechobee (LOK) and the Water Conservation Areas (WCAs) on August 1st of each year of the DPA simulation and conditions the simulation to real time data during August to achieve real time stages on September 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.

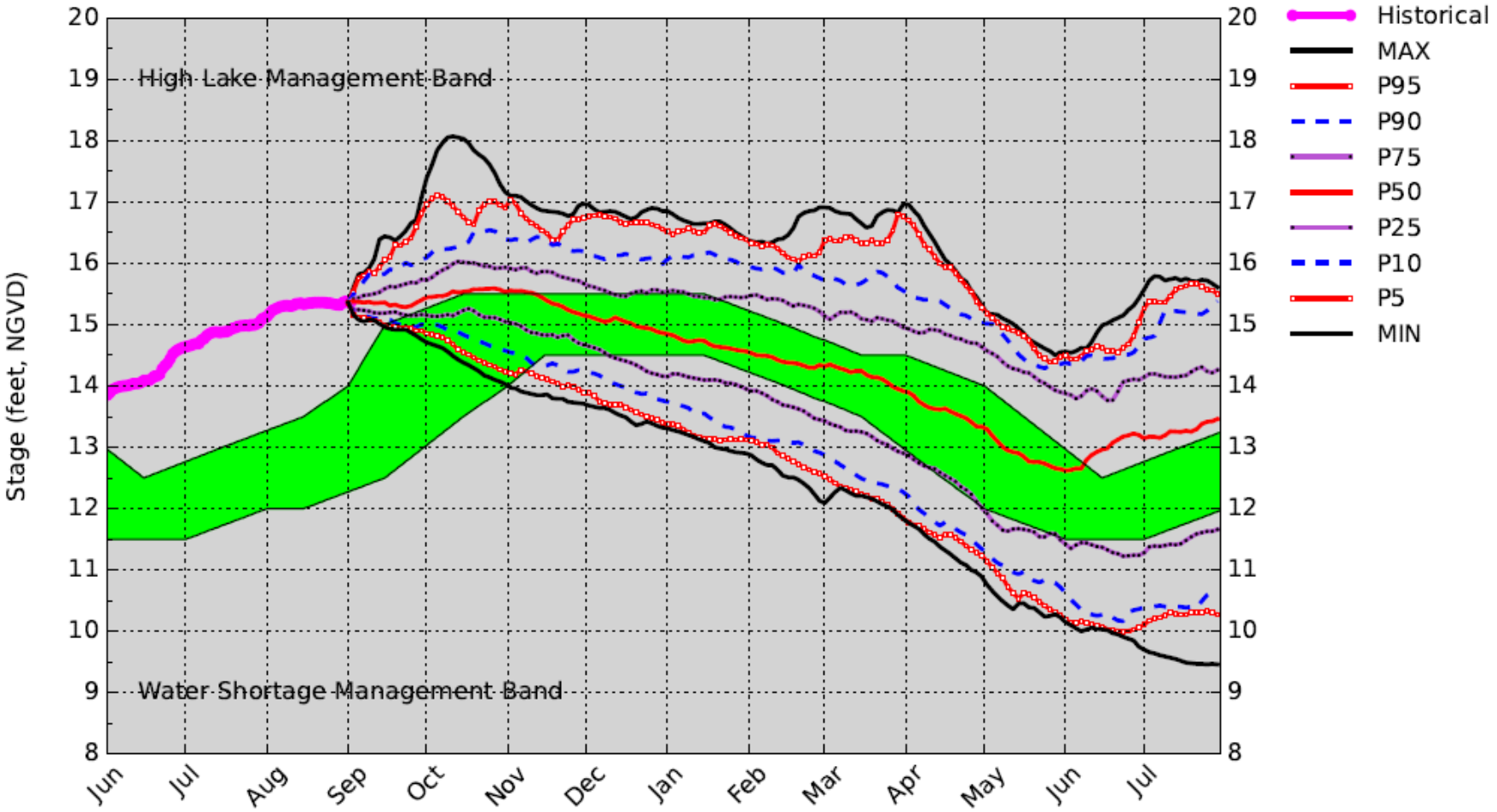
Lake Okeechobee SFWMM September 2023 Position Analysis



(See assumptions on the Position Analysis Results website)

09/07/23 09:09:25

Lake Okeechobee SFWMM September 2023 Position Analysis



(See assumptions on the Position Analysis Results website)

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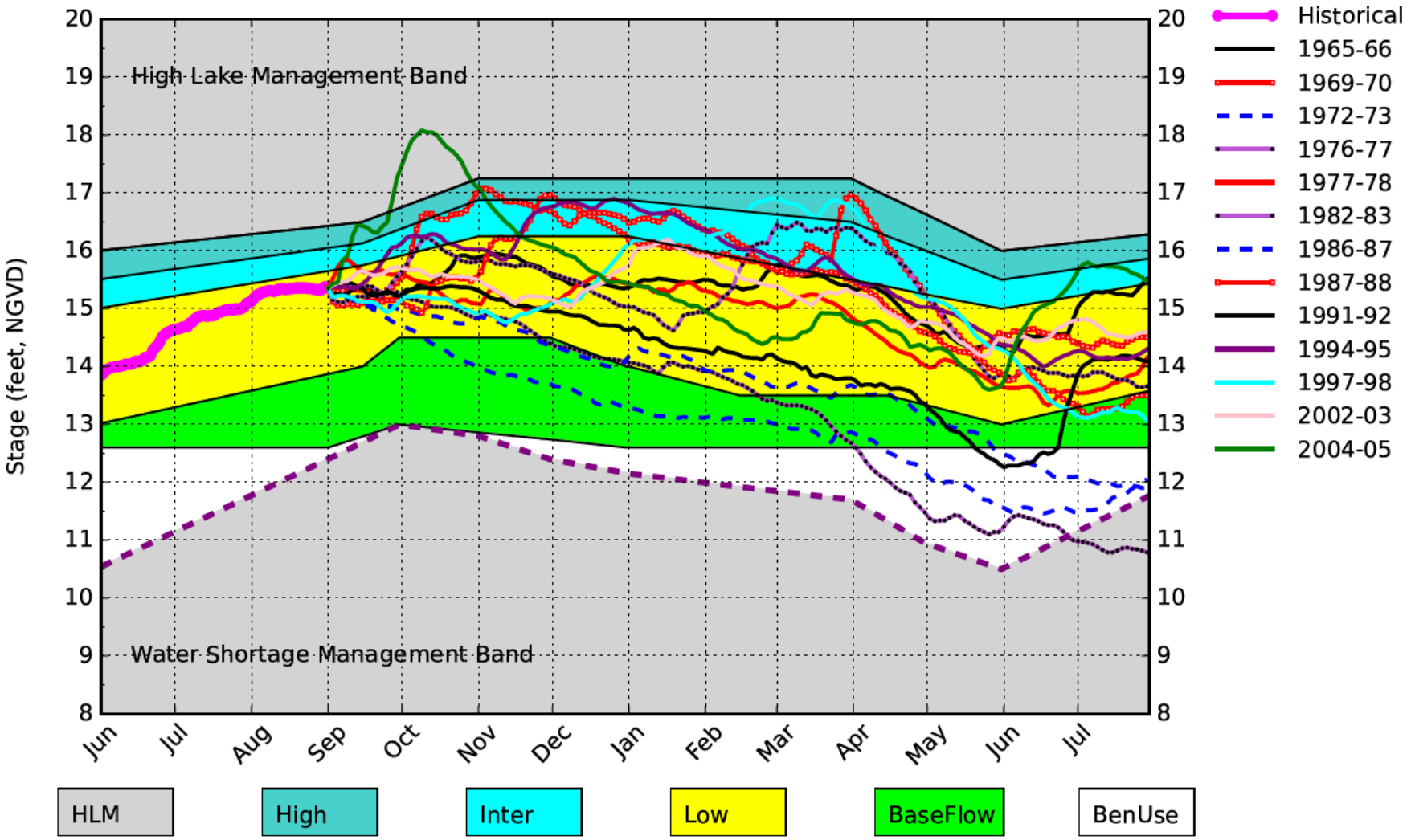
Lake Okeechobee SFWMM September 2023 Position Analysis



(See assumptions on the Position Analysis Results website)

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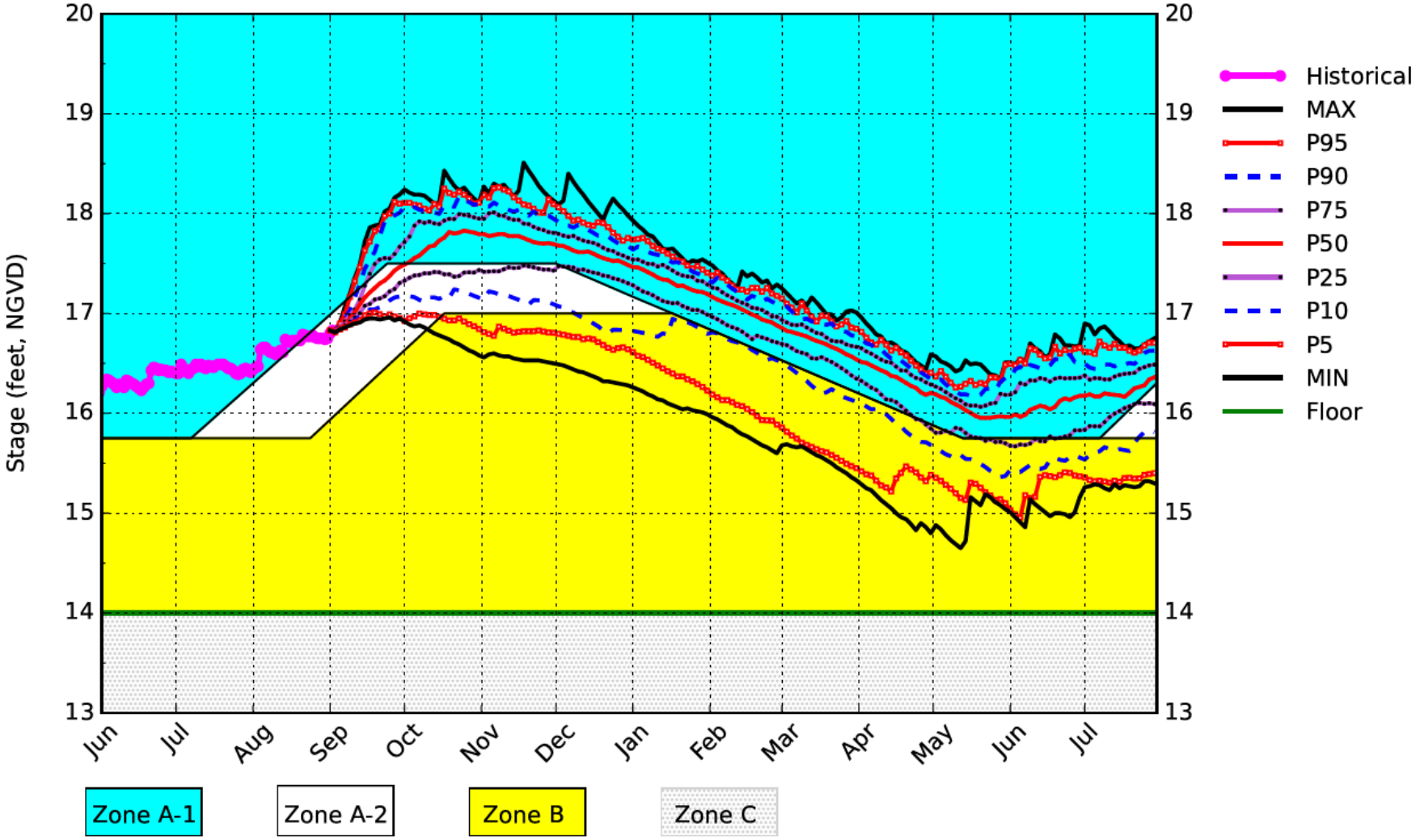
WCA1 SFWMM September 2023 Position Analysis

Percentiles PA



(See assumptions on the Position Analysis Results website)

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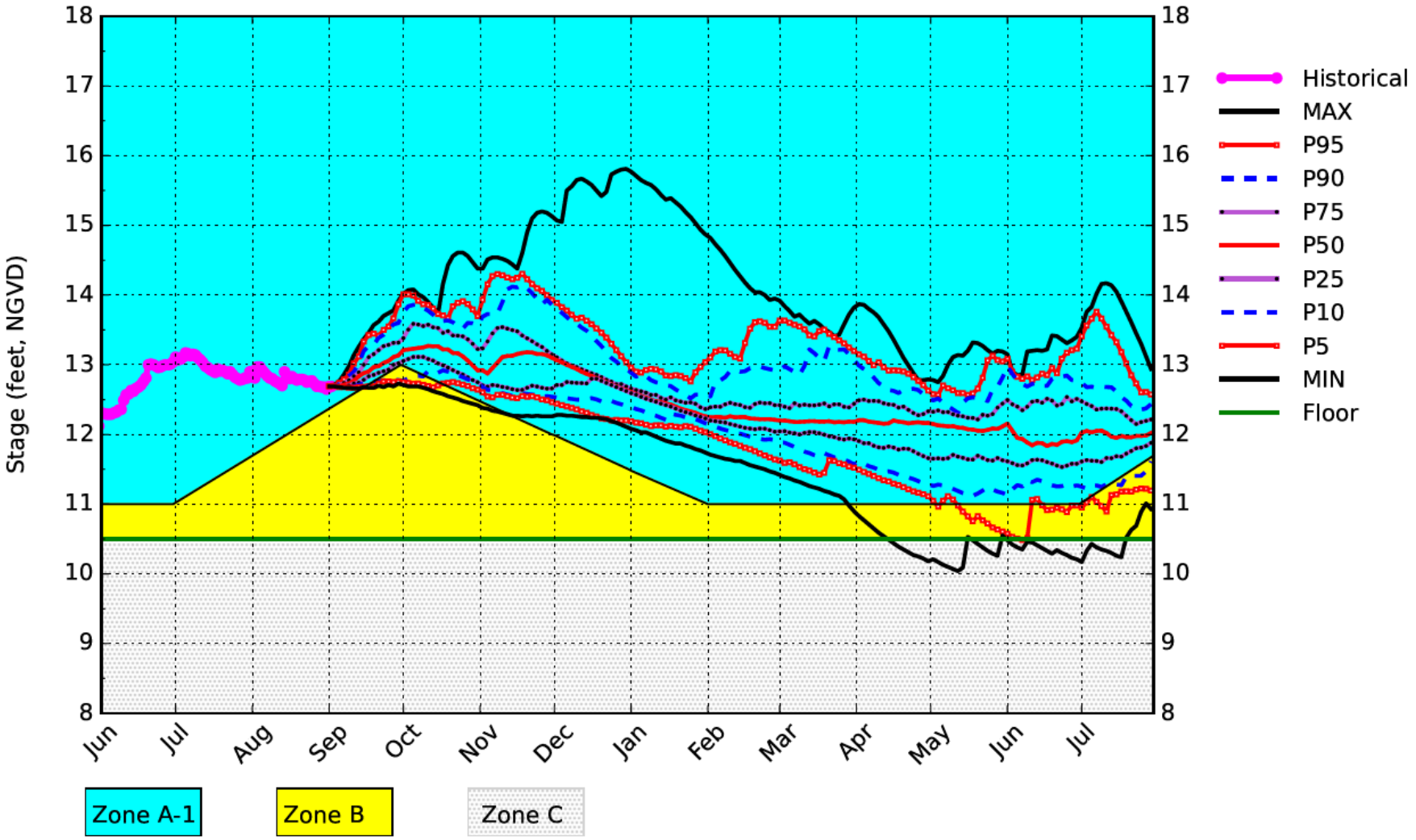
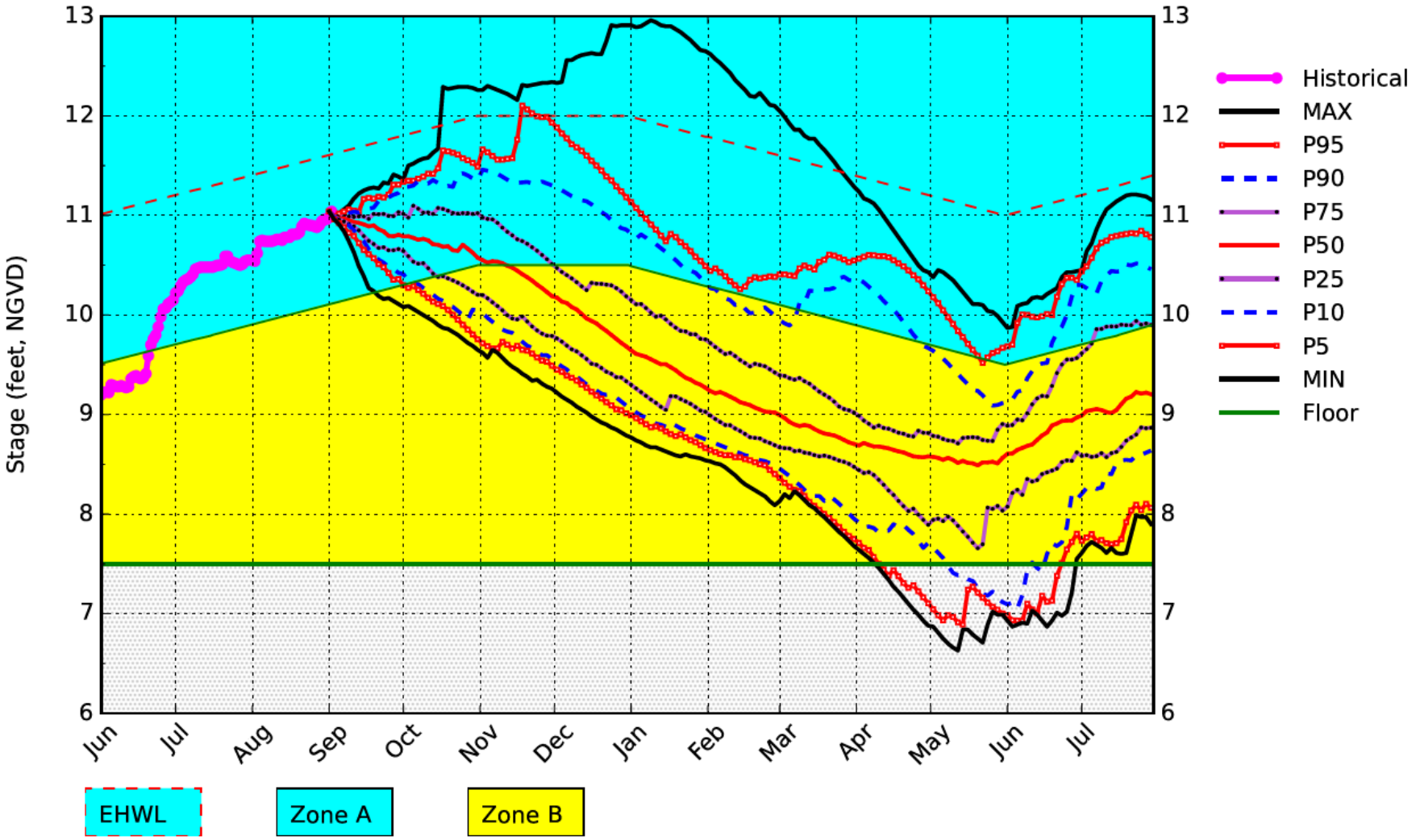
WCA2A SFWMM September 2023 Position Analysis



(See assumptions on the Position Analysis Results website)

09/07/23 09:09:30

WCA3A SFWMM September 2023 Position Analysis



(See assumptions on the Position Analysis Results website)

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