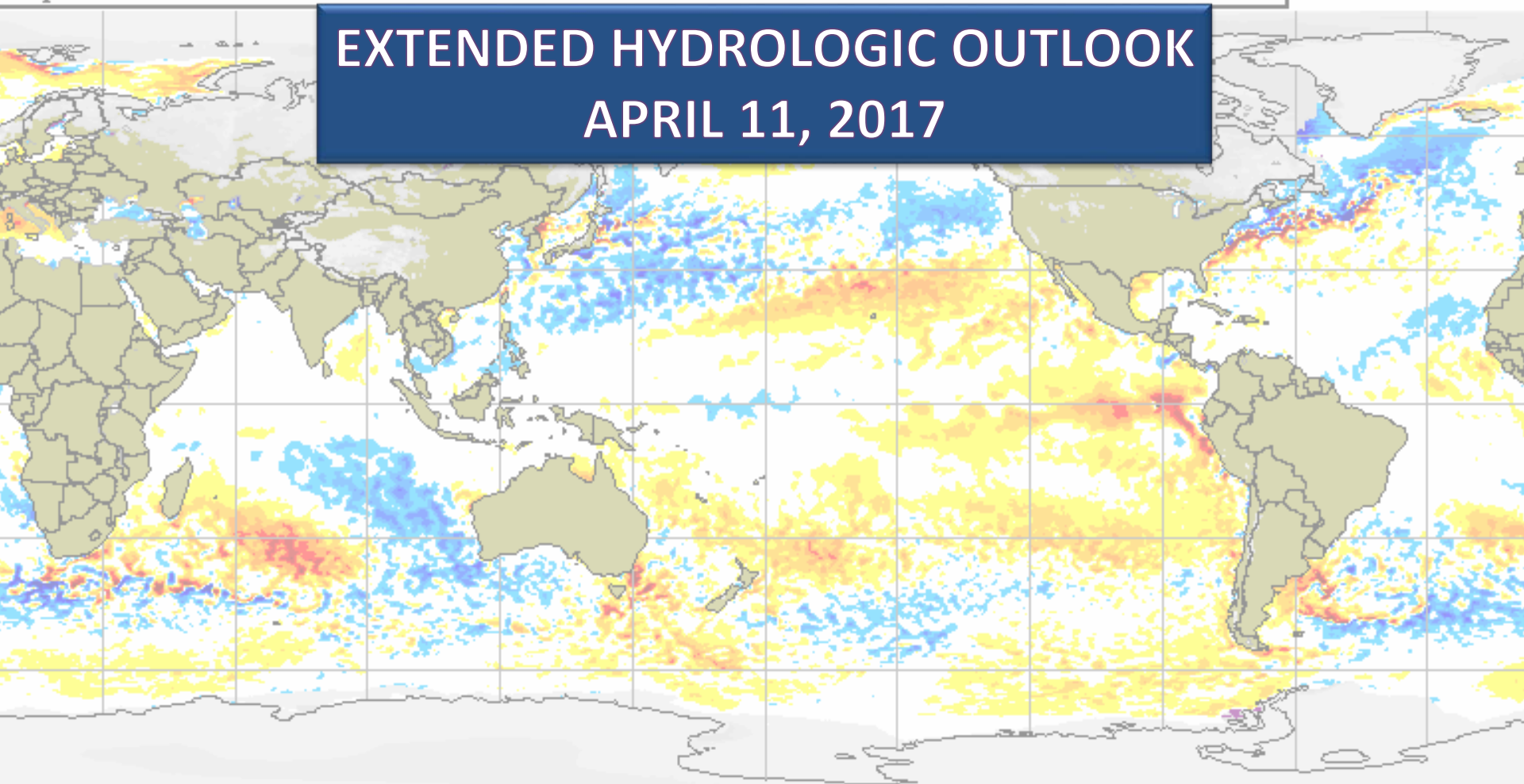


EXTENDED HYDROLOGIC OUTLOOK APRIL 11, 2017



Sea surface temperature anomaly / Anomalie de la température de la mer (°C)



Snow depth / Épaisseur de la neige (cm)



Uncovered sea ice
Glace marine à découvert
Climatologie 1995-2009 Climatologie



CMC Environnement Canada
CMC Environment Canada

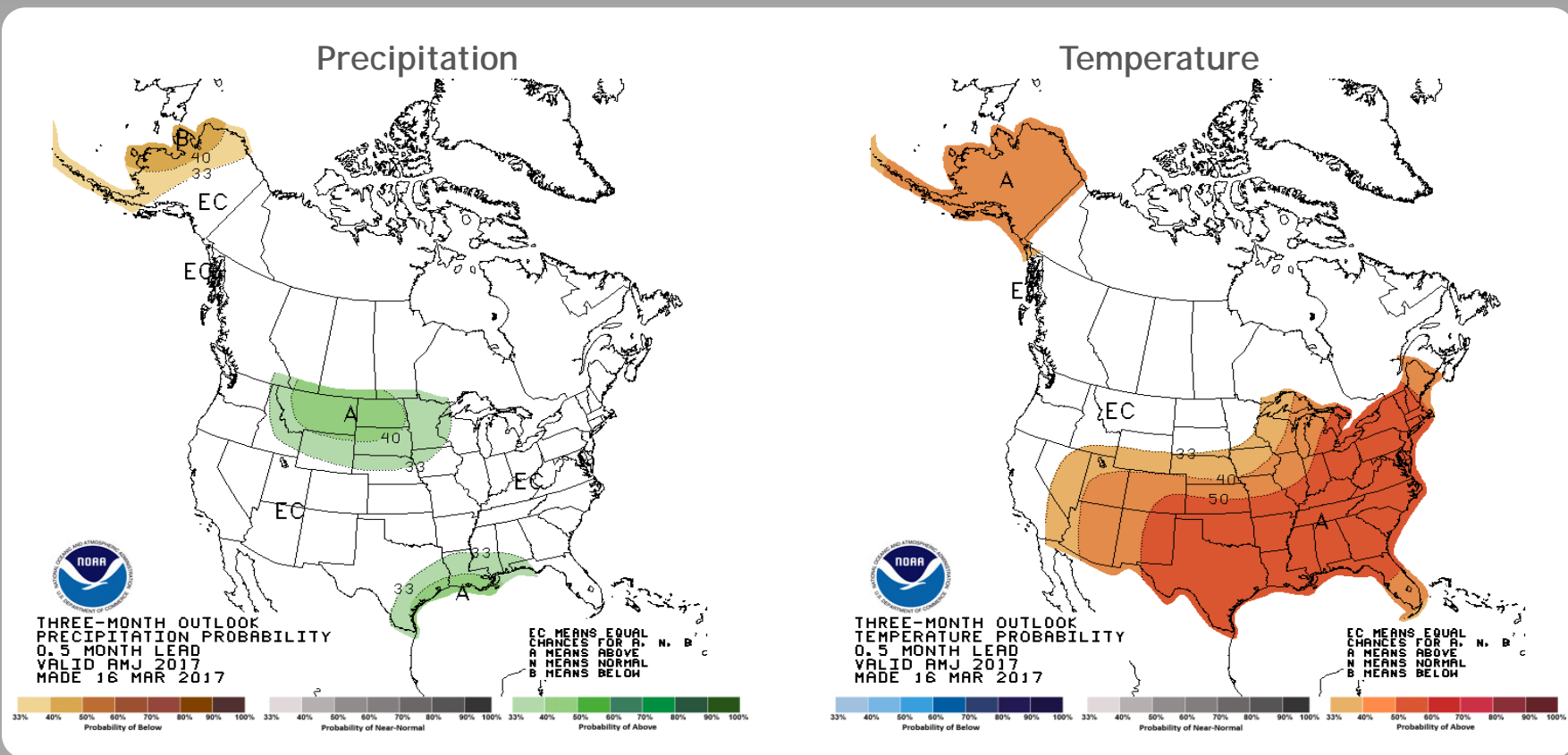
Summary

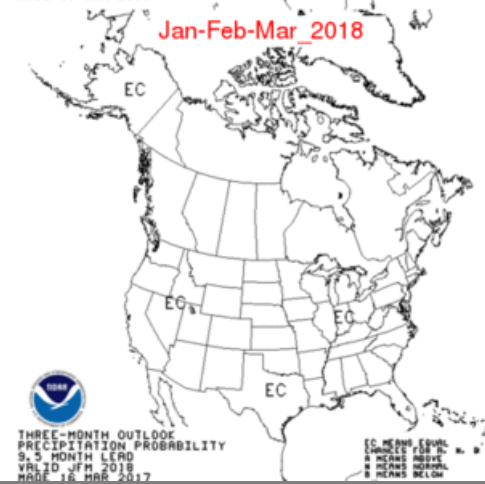
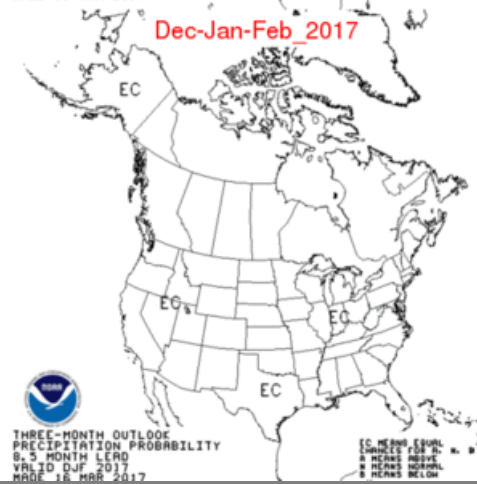
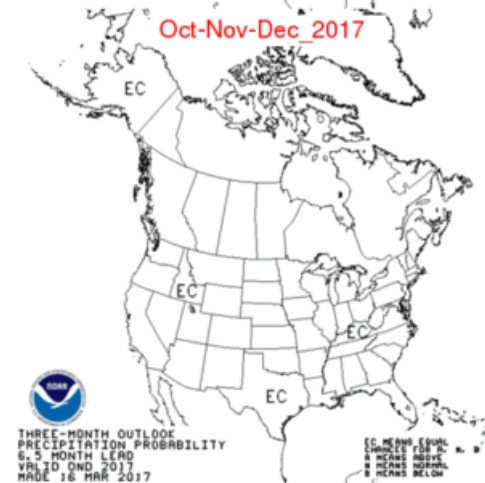
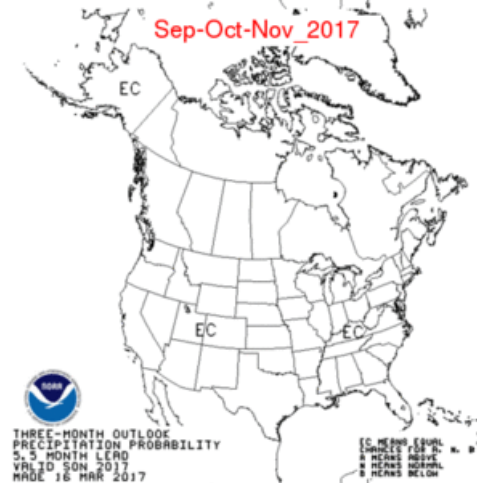
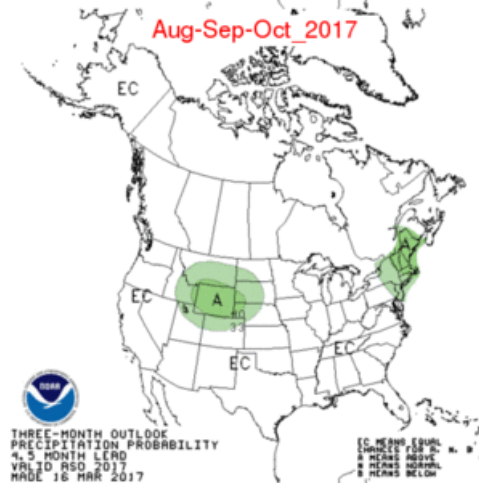
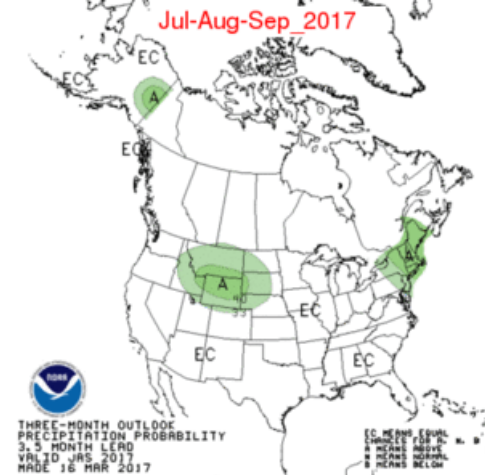
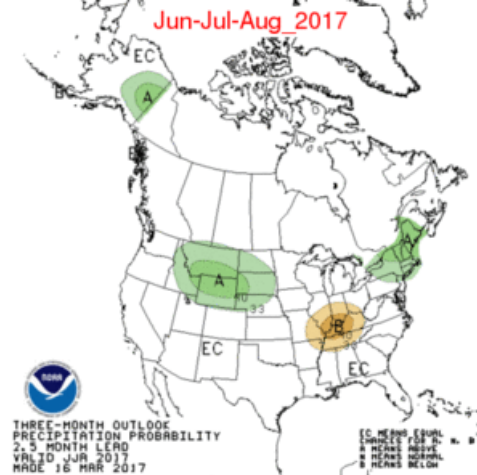
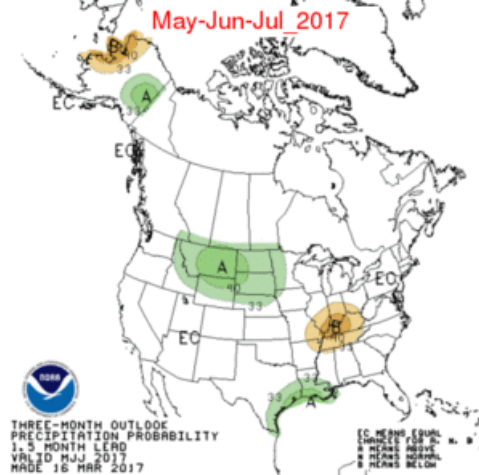
- The Climate Prediction Center (CPC) is forecasting equal chances of above normal, normal and below normal rainfall for April through June.
- ENSO-neutral conditions are favored to continue through spring 2017, with increasing chances for El Niño development in the fall.
- Monitoring Atlantic Multidecadal Oscillation (AMO) index for switch to negative (cold) phase, this has the potential to contribute to a drier-than-normal 2017 wet season.
- CSU anticipates a below-average probability for major hurricanes making landfall along the United States coastline and in the Caribbean. Weak to moderate forecasted El Niño and anomalously cooler North Atlantic contribute to this forecast.

U. S. Seasonal Outlooks

April - June 2017

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

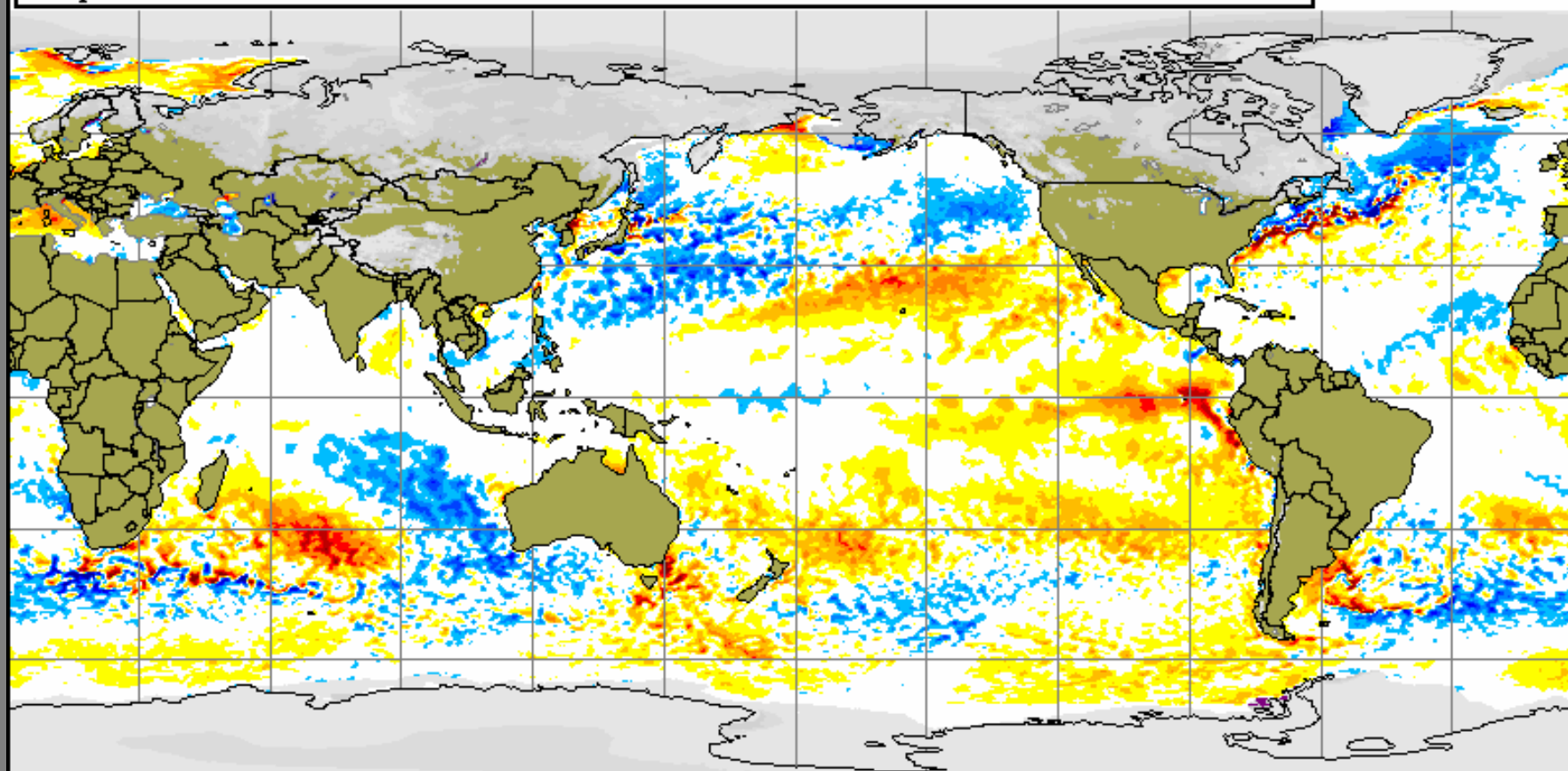




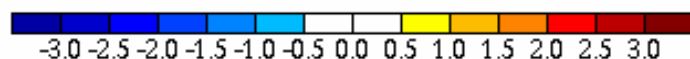
Current Global Sea Surface Temperature Anomalies

Global sea surface anomaly and snow cover
11 Apr 2017

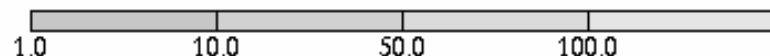
Anomalie de la température de la mer et épaisseur de la neige
11 Avr 2017



Sea surface temperature anomaly / Anomalie de la température de la mer (°C)



Snow depth / Épaisseur de la neige (cm)



Uncovered sea ice

Glace marine à découvert

Climatologie 1995-2009 Climatologie

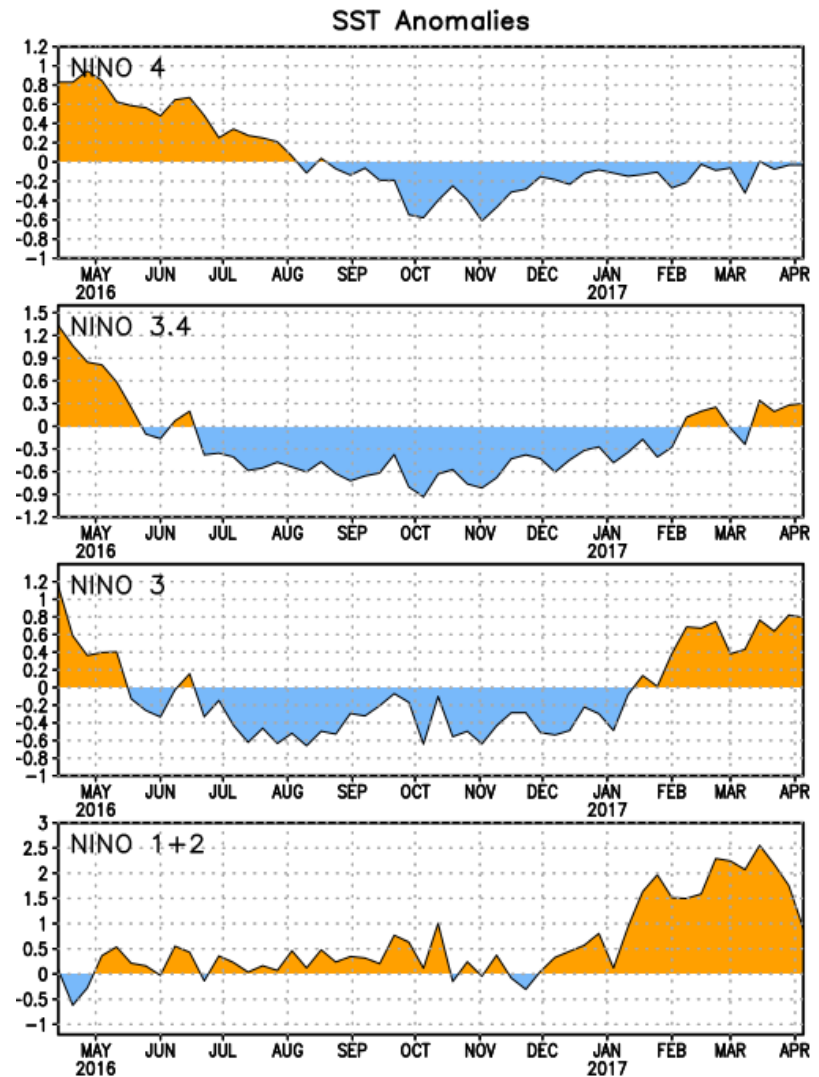
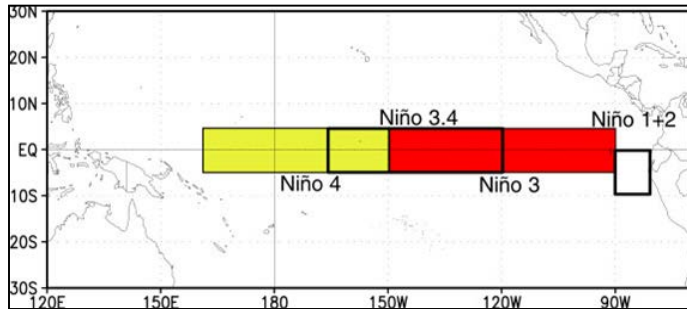


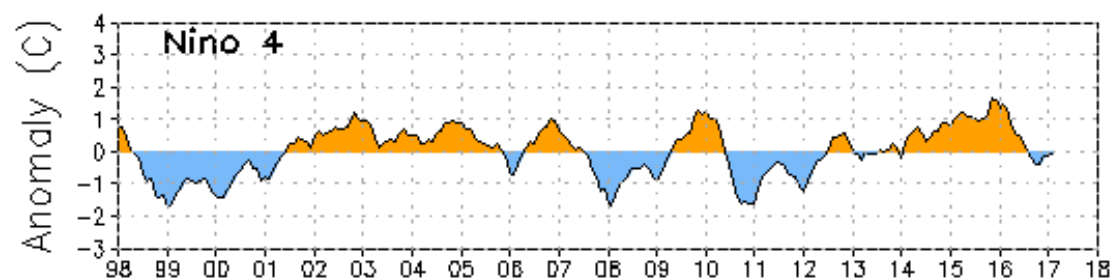
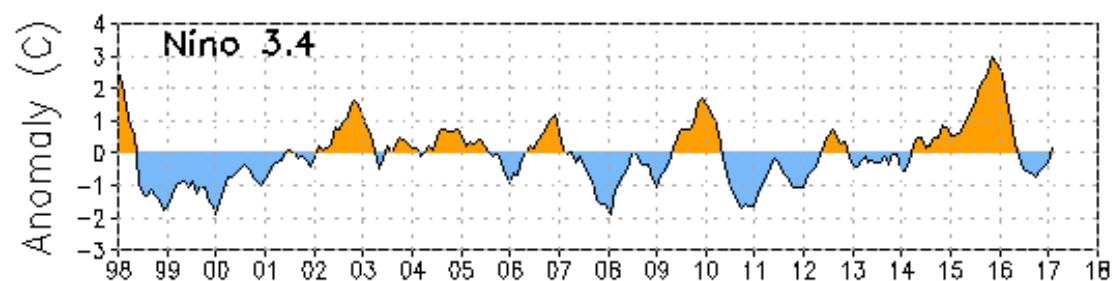
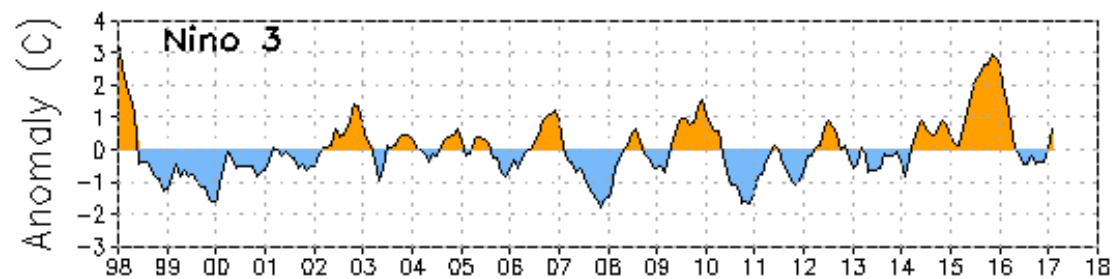
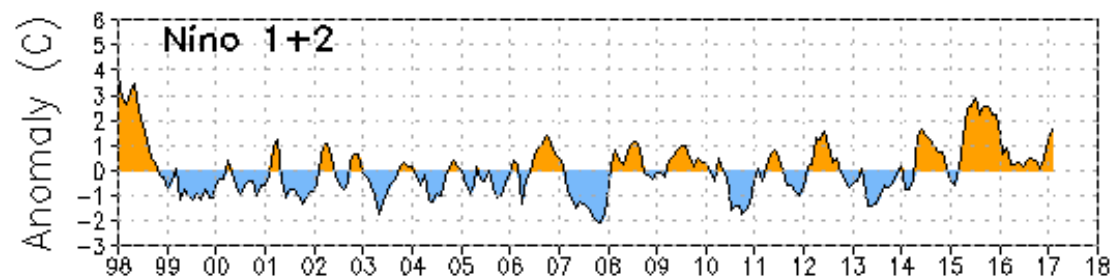
CMC Environnement Canada
CMC Environnement Canada

Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	0.0°C
Niño 3.4	0.3°C
Niño 3	0.8°C
Niño 1+2	0.9°C





Data updated through February 2017

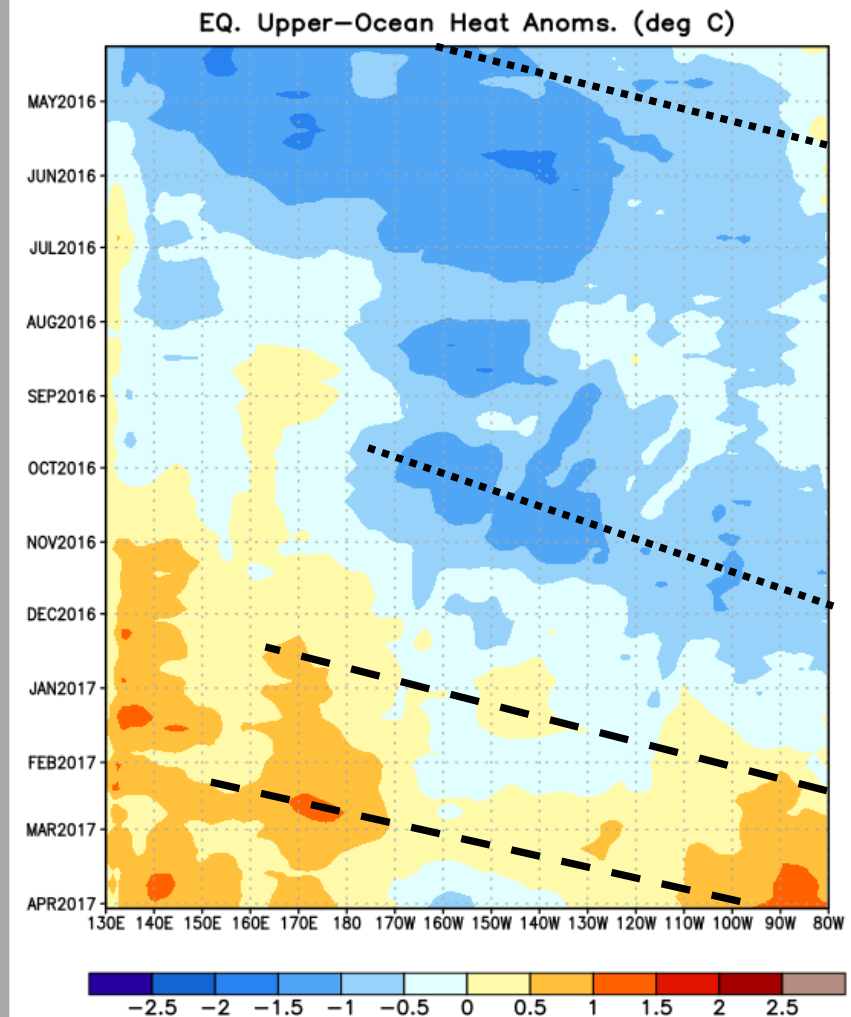
Weekly Heat Content Evolution in the Equatorial Pacific

With the passage of an upwelling equatorial oceanic Kelvin wave in March 2016, below-average subsurface temperatures extended across much of the equatorial Pacific.

Since December 2016- January 2017, positive subsurface temperature anomalies have persisted in the western and eastern Pacific Ocean.

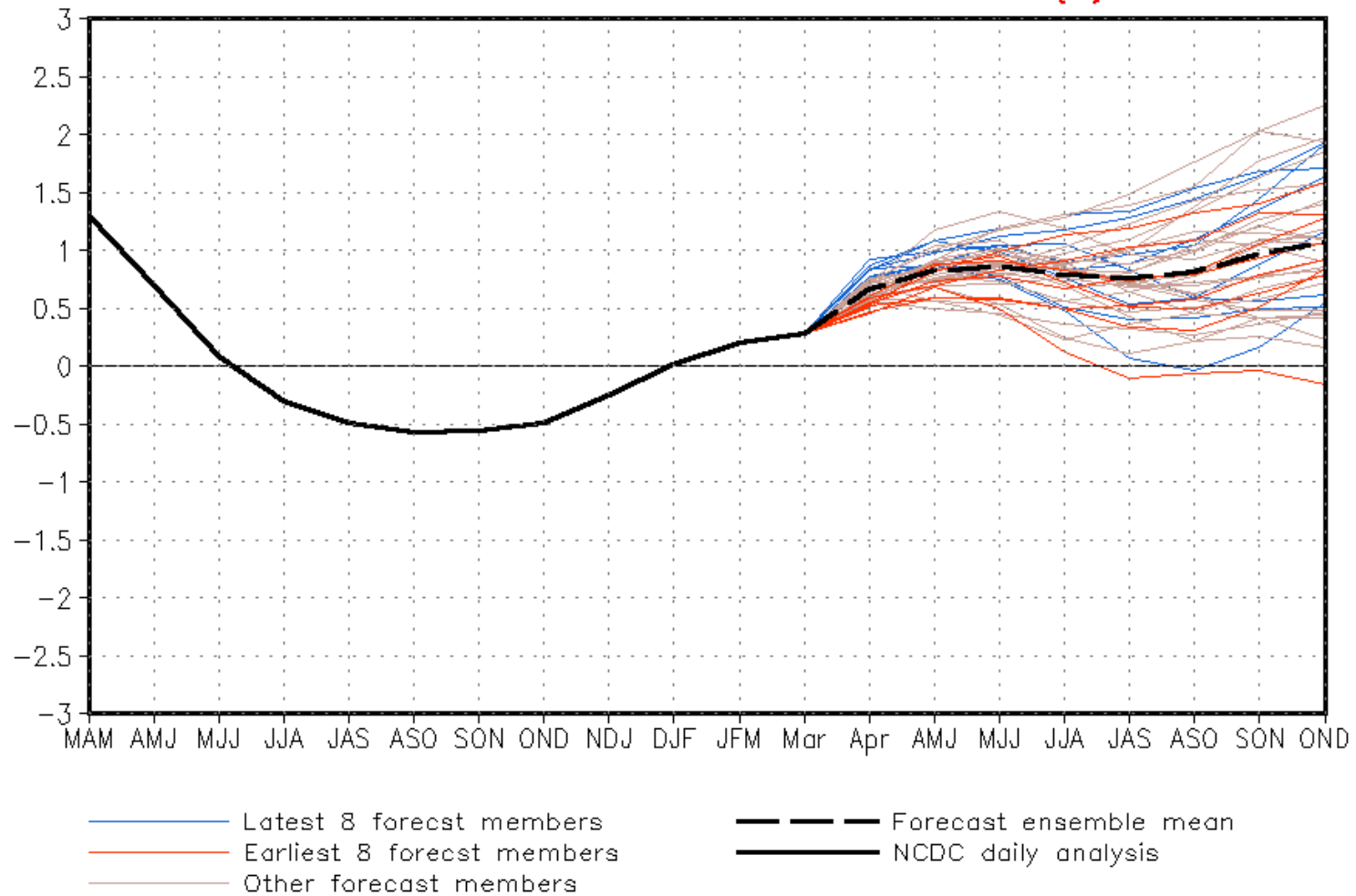
Since mid March 2017, negative subsurface temperature anomalies have emerged east of the Date Line.

Equatorial oceanic Kelvin waves have alternating warm and cold phases. The warm phase is indicated by dashed lines. Down-welling and warming occur in the leading portion of a Kelvin wave, and up-welling and cooling occur in the trailing portion.





CFSv2 forecast Nino3.4 SST anomalies (K)



IRI/CPC Pacific Niño

3.4 SST Model Outlook

Most dynamical models favor El Niño during the early Northern Hemisphere summer 2017, while statistical models favor ENSO-neutral through the Northern Hemisphere autumn 2017.

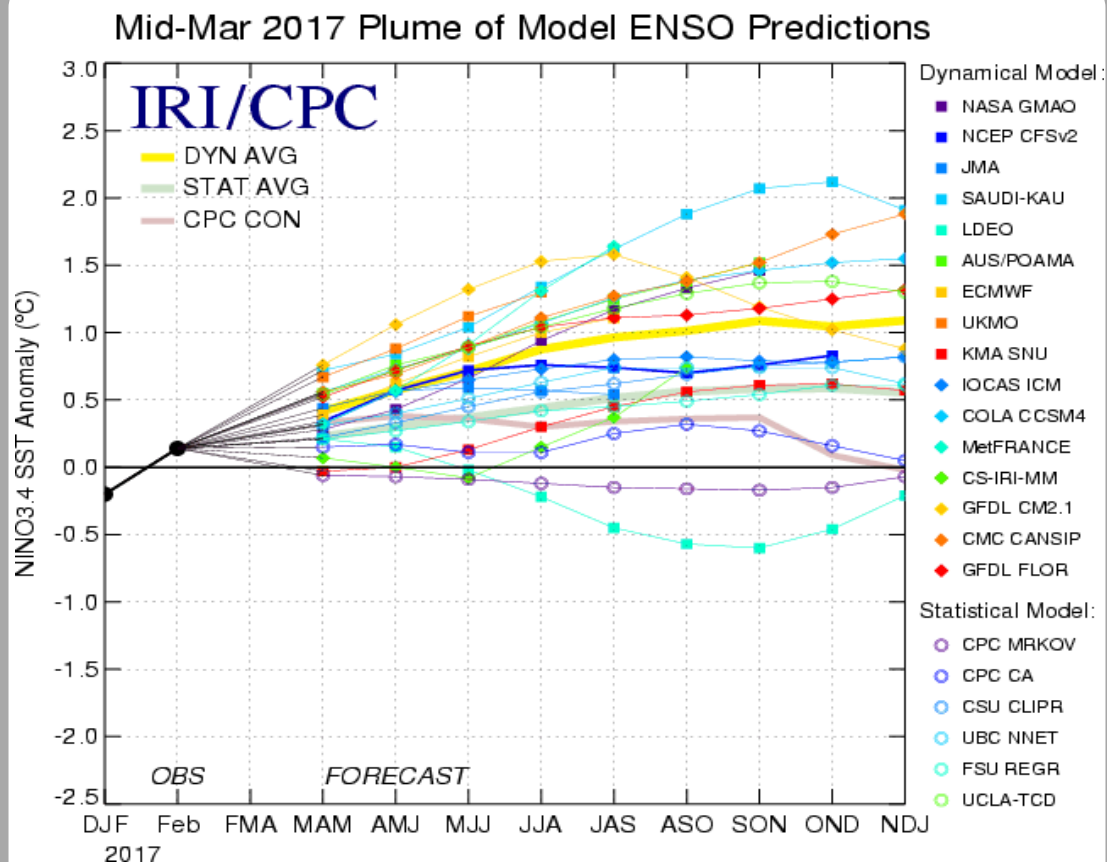


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 15 March 2017).

Historical El Niño and La Niña Episodes Based on the ONI computed using ERSST.v4

Recent Pacific warm (red) and cold (blue) periods based on a threshold of ± 0.5 °C for the Oceanic Nino Index (ONI) [3 month running mean of ERSST.v4 SST anomalies in the Nino 3.4 region (5N-5S, 120-170W)]. For historical purposes, periods of below and above normal SSTs are colored in blue and red when the threshold is met for a minimum of 5 consecutive over-lapping seasons.

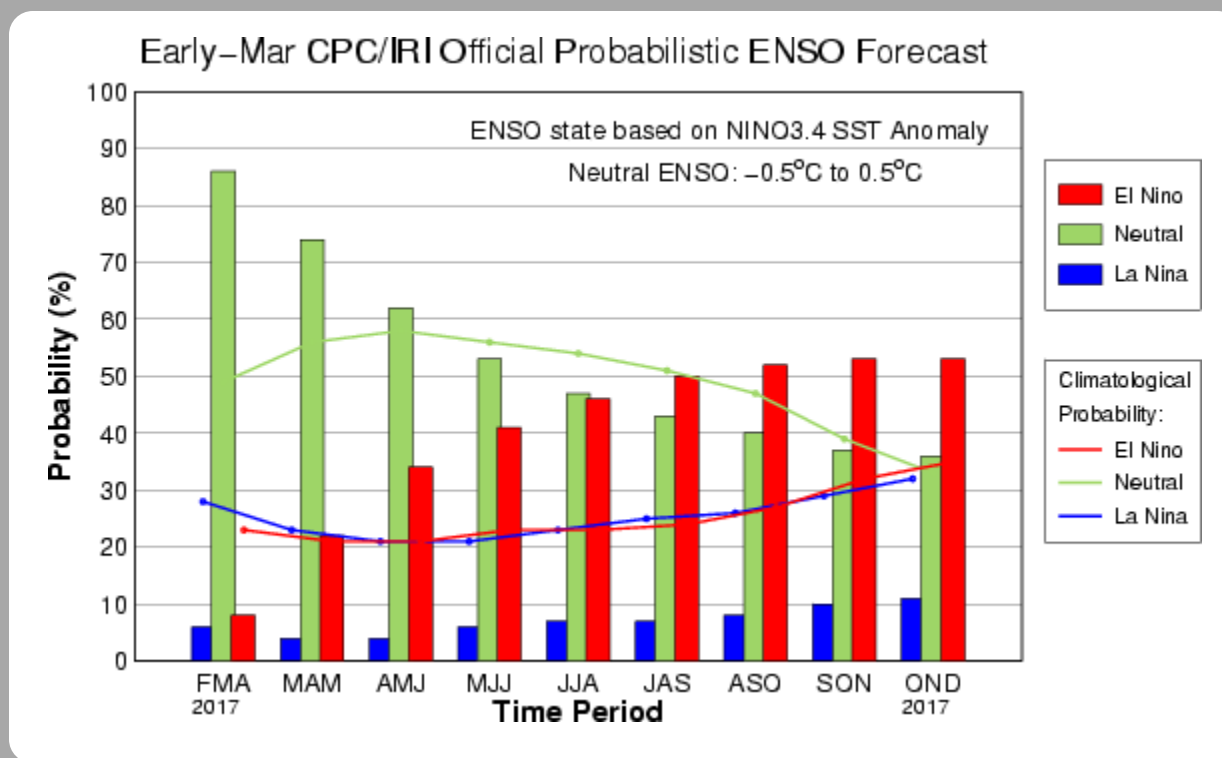
The ONI is one measure of the El Niño-Southern Oscillation, and other indices can confirm whether features consistent with a coupled ocean-atmosphere phenomenon accompanied these periods. The complete table going back to DJF 1950 can be found [here](#).

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2005	0.7	0.6	0.5	0.5	0.3	0.2	0.0	-0.1	0.0	-0.2	-0.5	-0.7
2006	-0.7	-0.6	-0.4	-0.2	0.0	0.0	0.1	0.3	0.5	0.7	0.9	0.9
2007	0.7	0.4	0.1	-0.1	-0.2	-0.3	-0.4	-0.6	-0.9	-1.1	-1.3	-1.3
2008	-1.4	-1.3	-1.1	-0.9	-0.7	-0.5	-0.4	-0.3	-0.3	-0.4	-0.6	-0.7
2009	-0.7	-0.6	-0.4	-0.1	0.2	0.4	0.5	0.5	0.6	0.9	1.1	1.3
2010	1.3	1.2	0.9	0.5	0.0	-0.4	-0.9	-1.2	-1.4	-1.5	-1.4	-1.4
2011	-1.3	-1.0	-0.7	-0.5	-0.4	-0.3	-0.3	-0.6	-0.8	-0.9	-1.0	-0.9
2012	-0.7	-0.5	-0.4	-0.4	-0.3	-0.1	0.1	0.3	0.3	0.3	0.1	-0.2
2013	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.3	-0.3	-0.3
2014	-0.5	-0.5	-0.4	-0.2	-0.1	0.0	-0.1	0.0	0.1	0.4	0.5	0.6
2015	0.6	0.5	0.6	0.7	0.8	1.0	1.2	1.4	1.7	2.0	2.2	2.3
2016	2.2	2.0	1.6	1.1	0.6	0.1	-0.3	-0.6	-0.8	-0.8	-0.8	-0.7
2017	-0.4	-0.2										

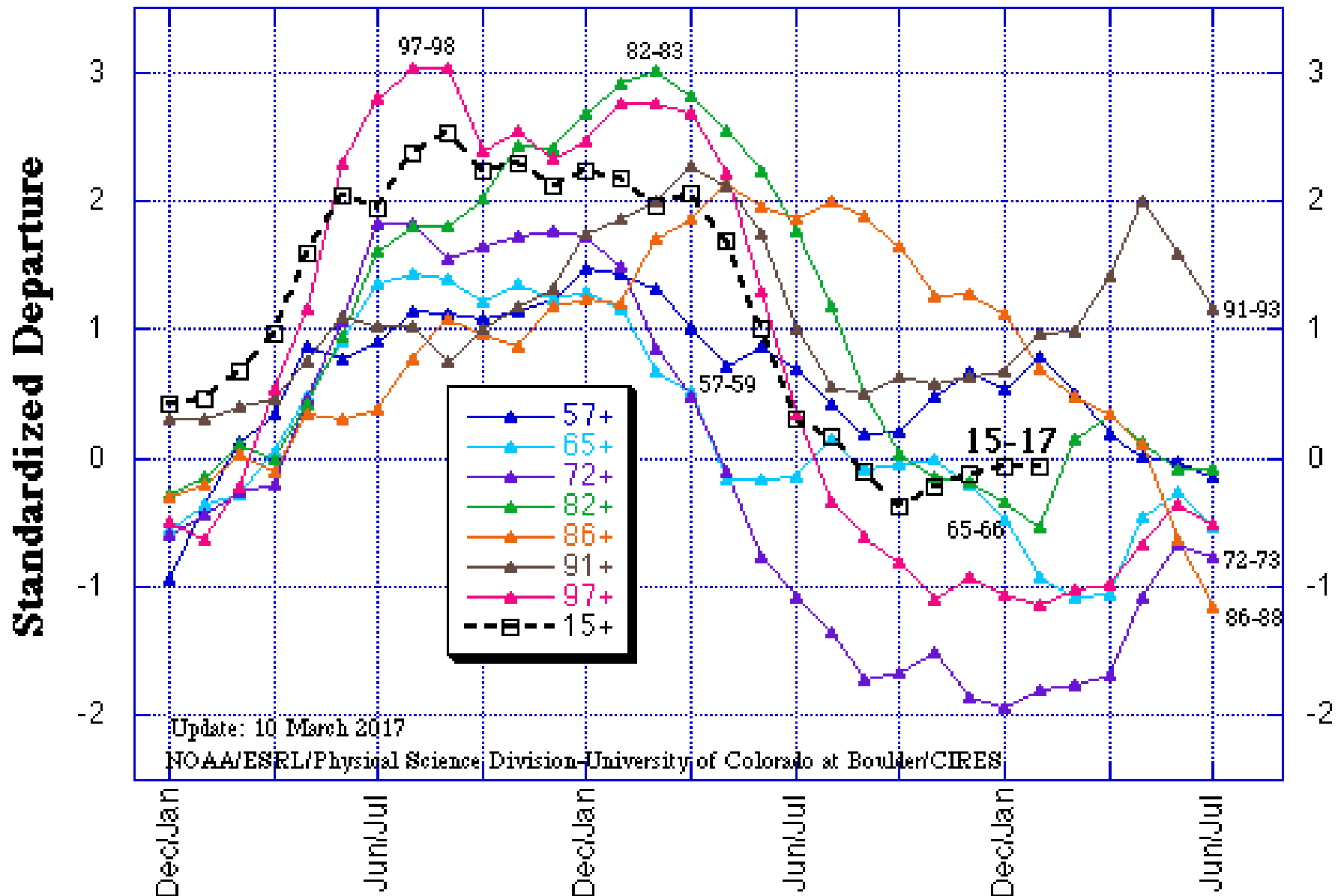
CPC/IRI Probabilistic ENSO Outlook

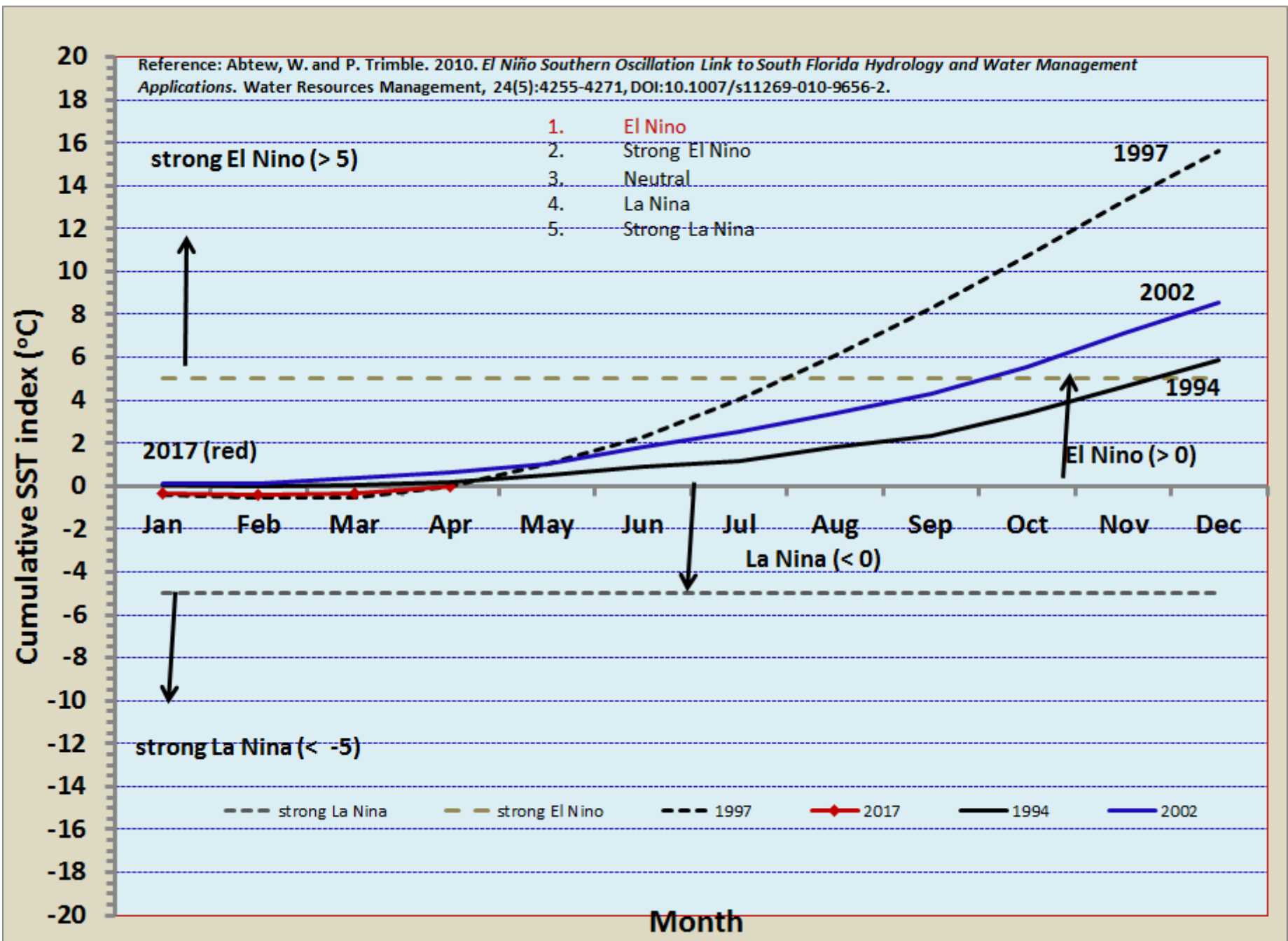
Updated: 9 March 2017

ENSO-neutral is favored through mid-2017, with a slight tilt toward El Niño (~50%) during the late summer through fall 2017.

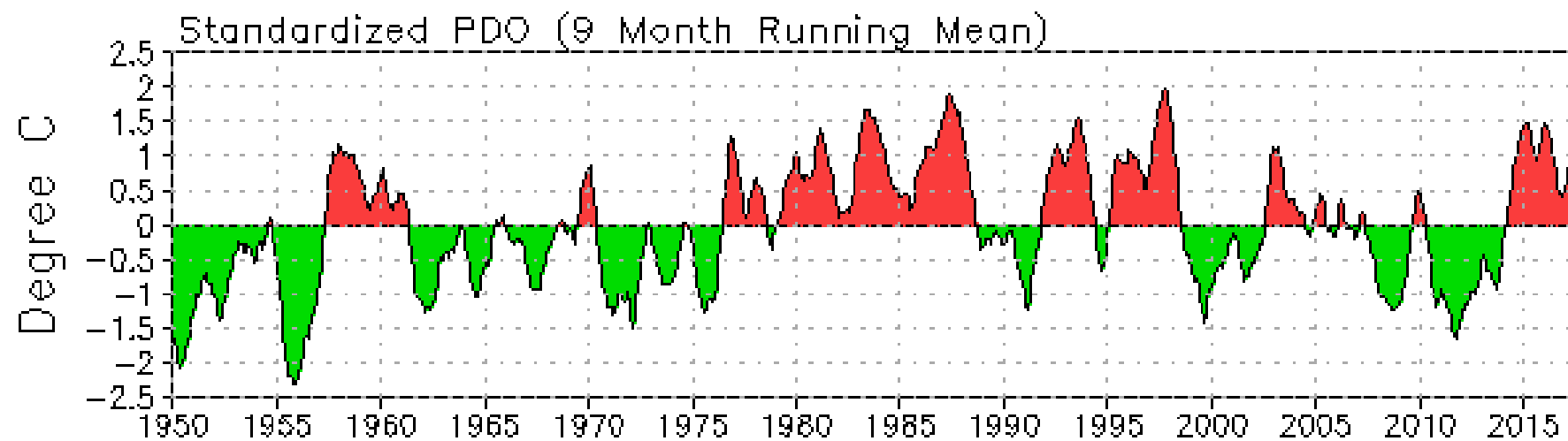


Multivariate ENSO Index (MEI) for the seven strongest El Niño events since 1950 vs. 2015-17

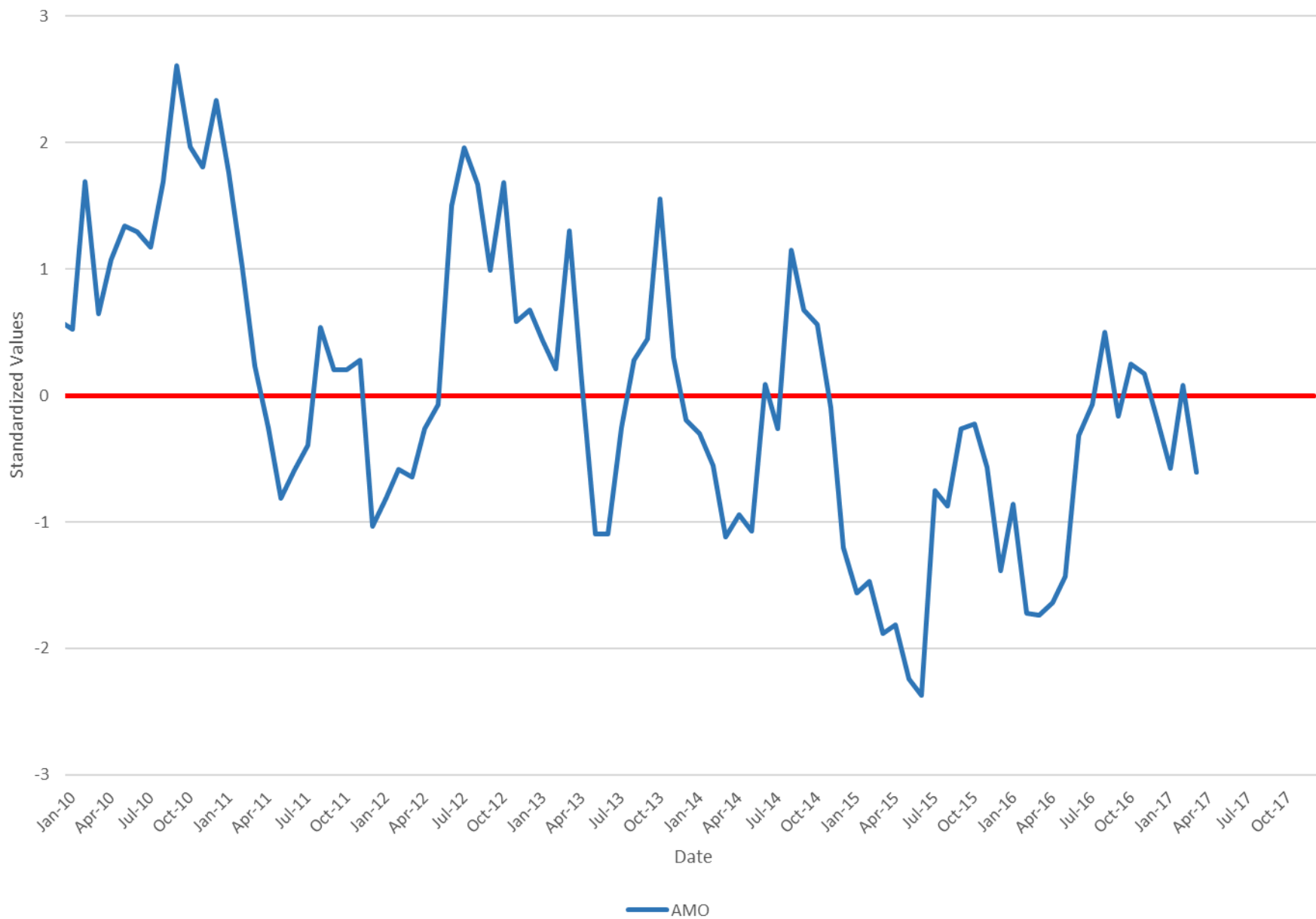




Source: Wossenu Abtew (SFWMD)



Standardized Klotzbach/Gray Atlantic Multidecadal Oscillation Index (CSU)



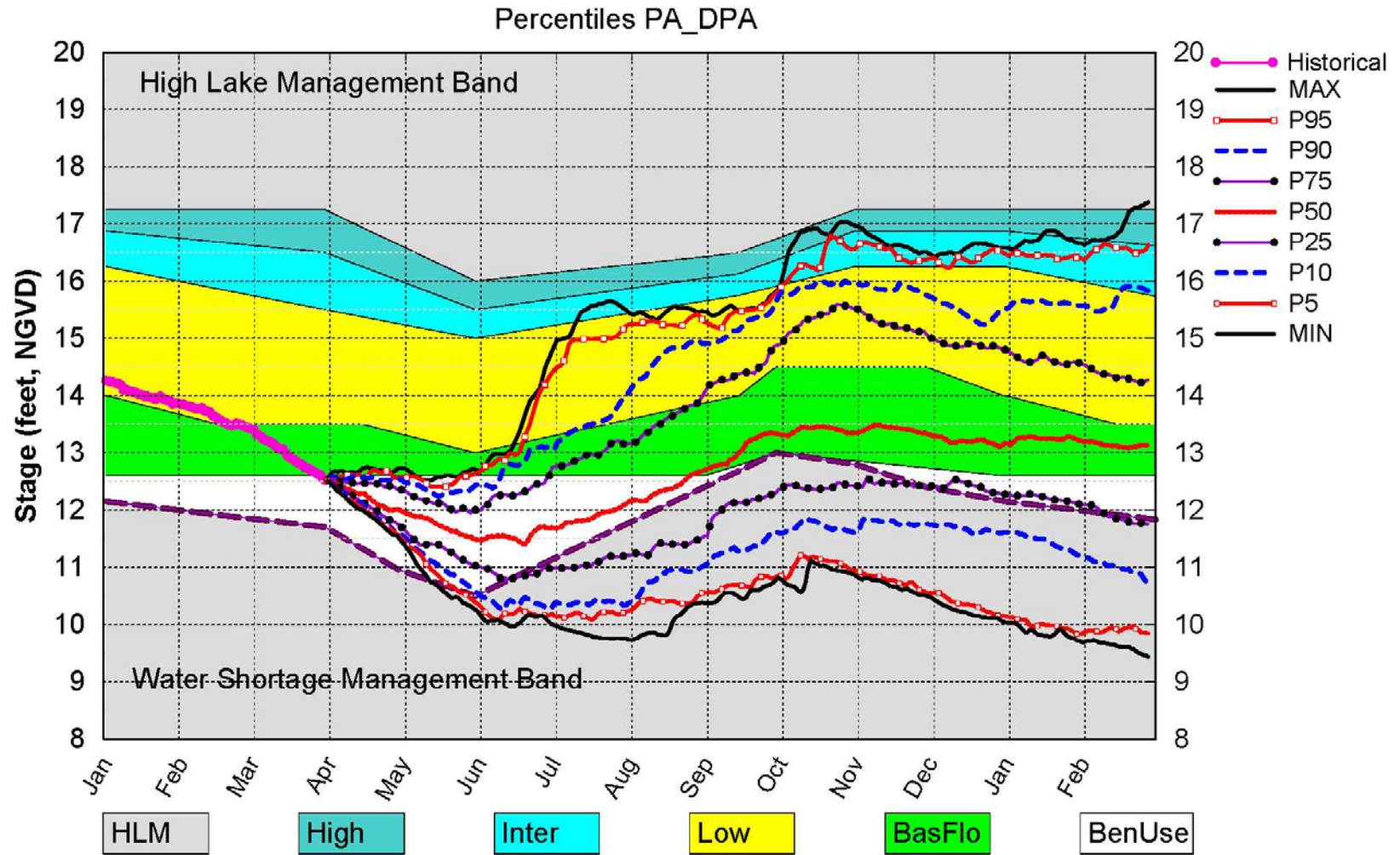
ATLANTIC BASIN SEASONAL HURRICANE FORECAST FOR 2017

Forecast Parameter and 1981-2010 Median (in parentheses)	Issue Date 6 April 2017
Named Storms (NS) (12.0)	11
Named Storm Days (NSD) (60.1)	50
Hurricanes (H) (6.5)	4
Hurricane Days (HD) (21.3)	16
Major Hurricanes (MH) (2.0)	2
Major Hurricane Days (MHD) (3.9)	4
Accumulated Cyclone Energy (ACE) (92)	75
Net Tropical Cyclone Activity (NTC) (103%)	85

From the Tropical Meteorology Project at Colorado State University (4/6/2017):

<http://webcms.colostate.edu/tropical/media/sites/111/2017/04/2017-04.pdf>

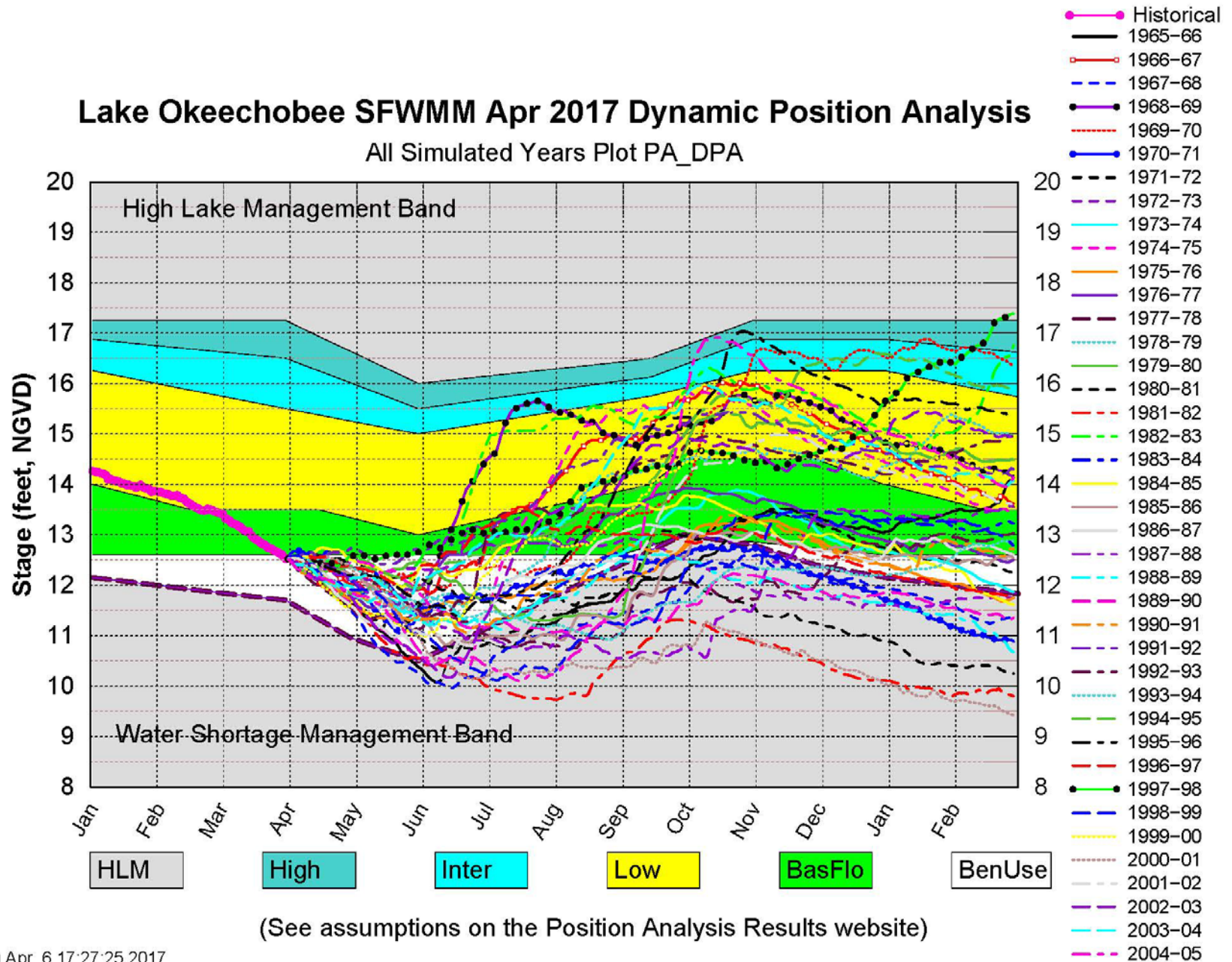
Lake Okeechobee SFWMM Apr 2017 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)

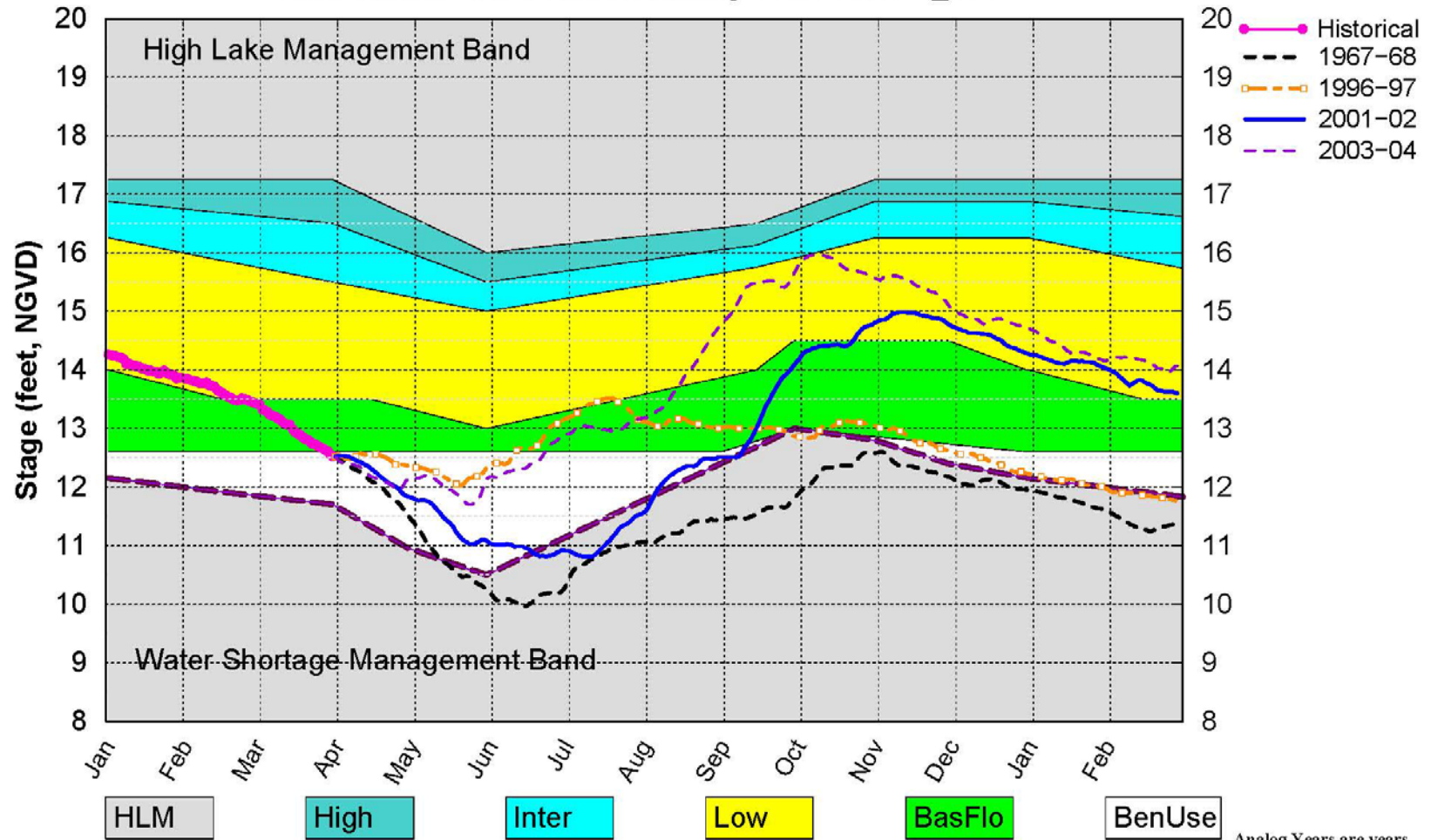
Lake Okeechobee SFWMM Apr 2017 Dynamic Position Analysis

All Simulated Years Plot PA_DPA



Lake Okeechobee SFWMM Apr 2017 Dynamic Position Analysis

AMO Warm / ENSO Neutral Analog Years Plot PA_DPA

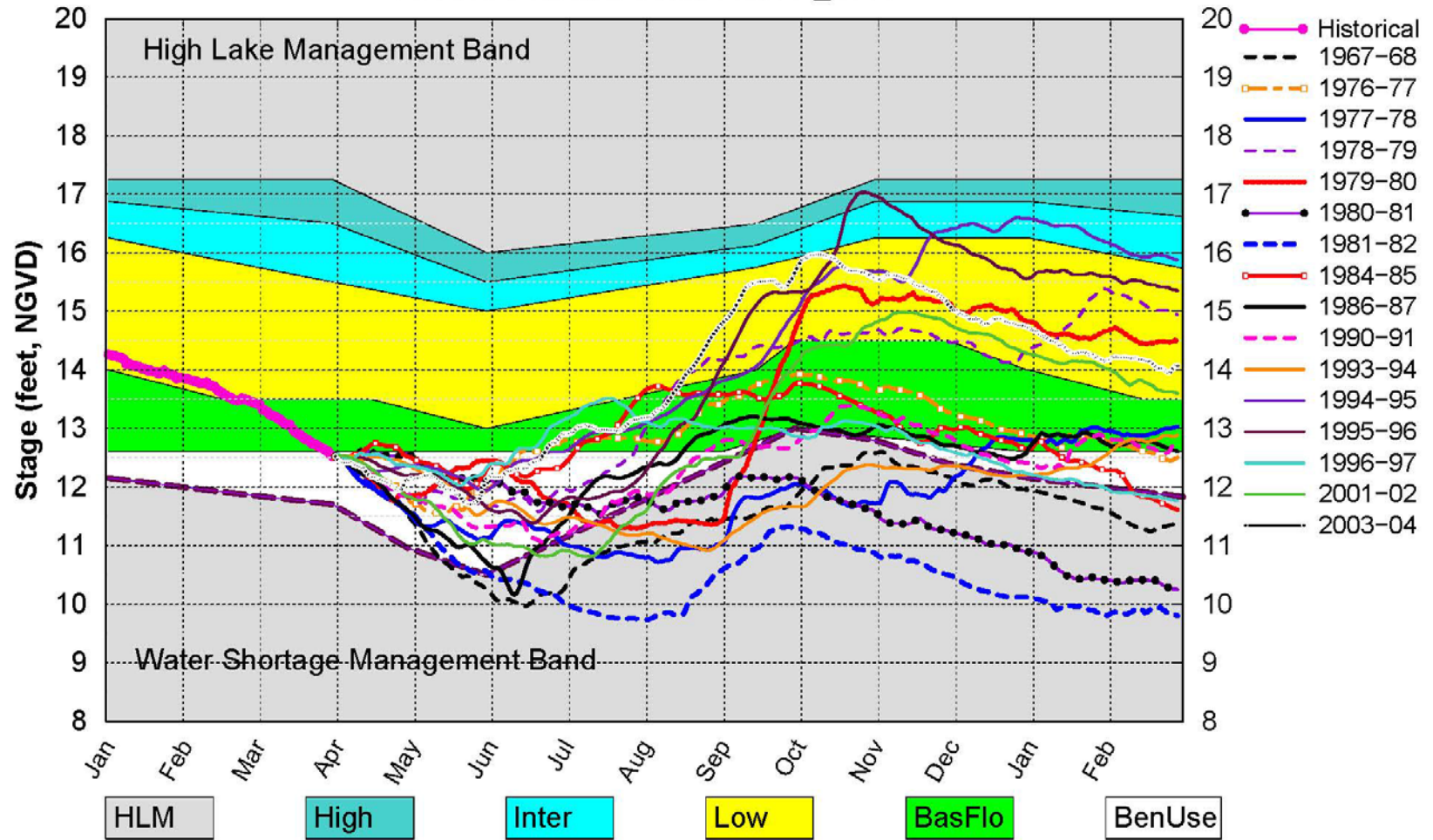


(See assumptions on the Position Analysis Results website)

Analog Years are years
with similar climatological conditions
to the current year.

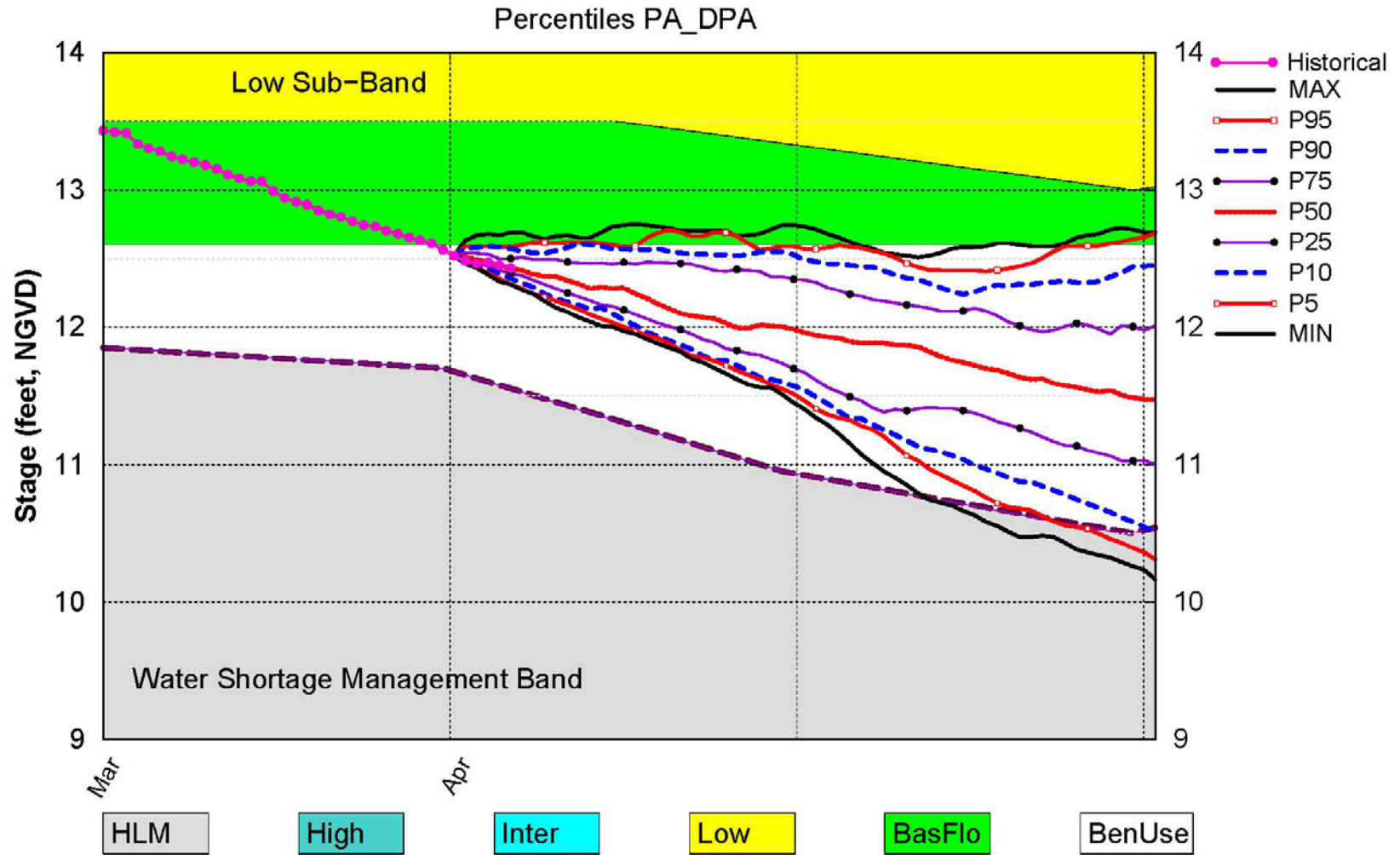
Lake Okeechobee SFWMM Apr 2017 Dynamic Position Analysis

All ENSO Neutral Years Plot PA_DPA



(See assumptions on the Position Analysis Results website)

Lake Okeechobee SFWMM Apr 2017 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)