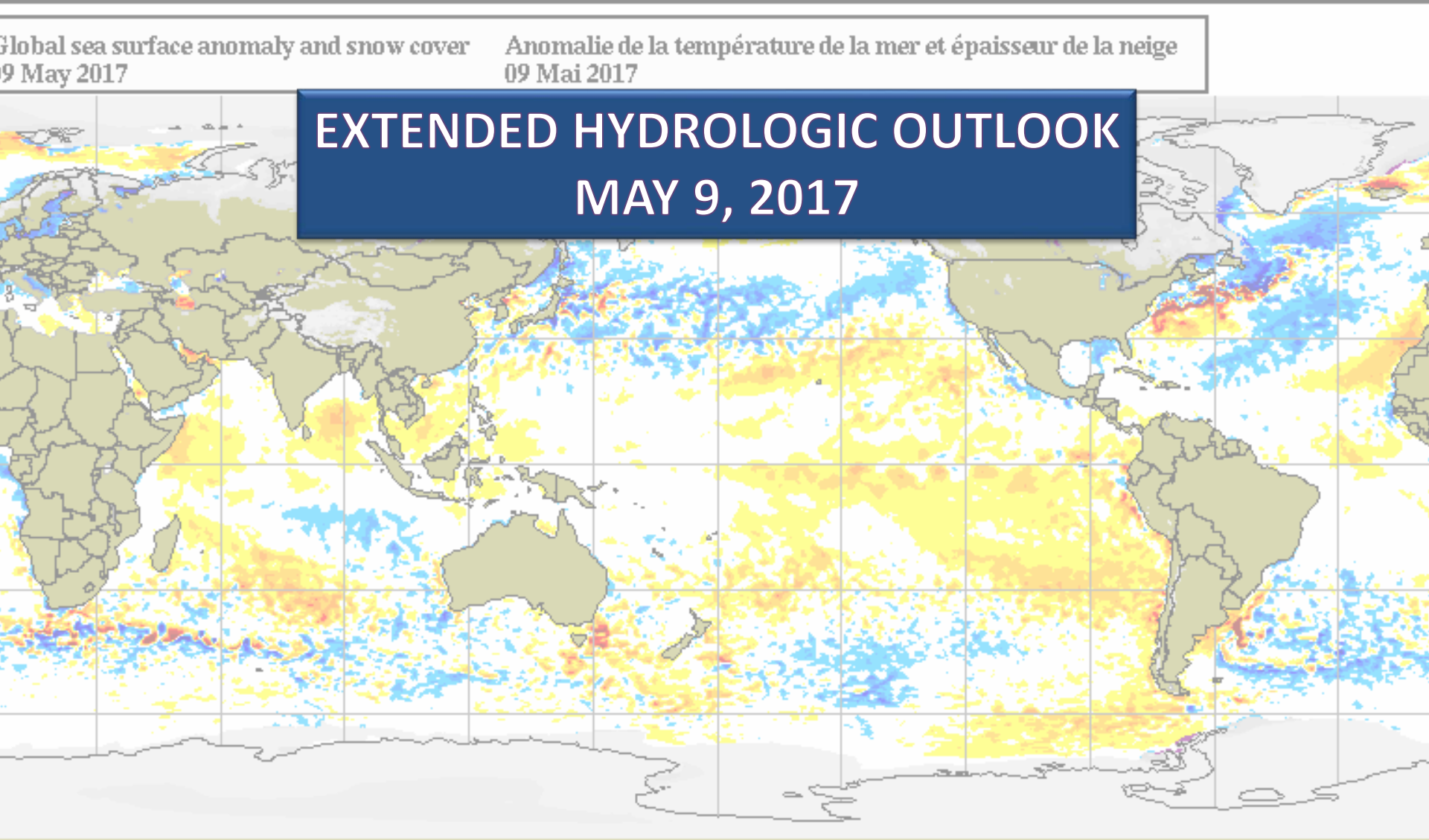
EXTENDED HYDROLOGIC OUTLOOK
MAY 9, 2017



Summary

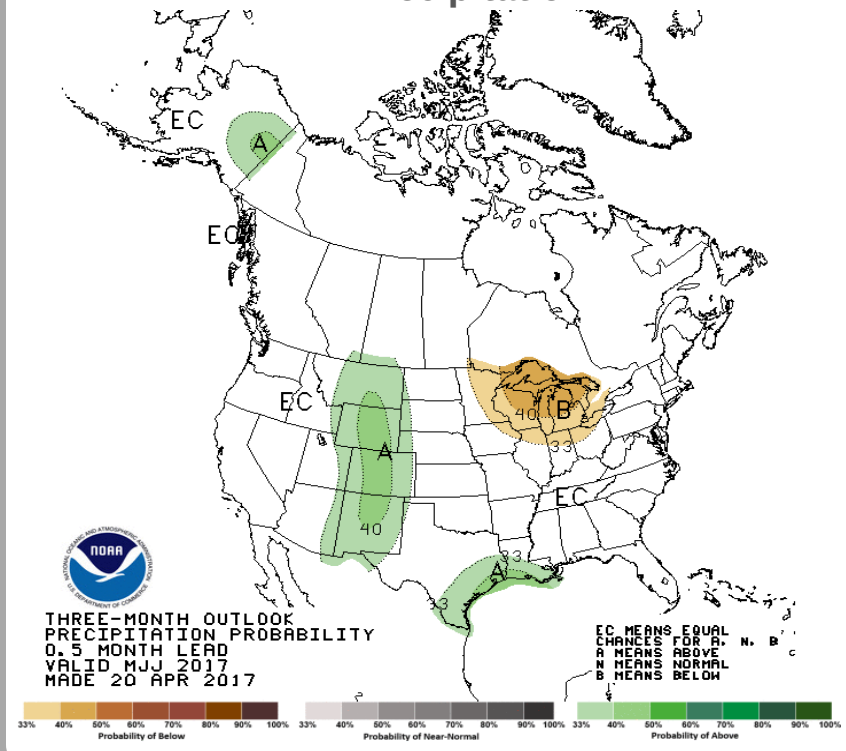
- The Climate Prediction Center (CPC) is forecasting equal chances of above normal, normal and below normal rainfall for May through July.
- ENSO-neutral conditions are favored to continue through spring 2017, with increasing chances for El Niño development by late summer and fall.
- Monitoring Atlantic 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

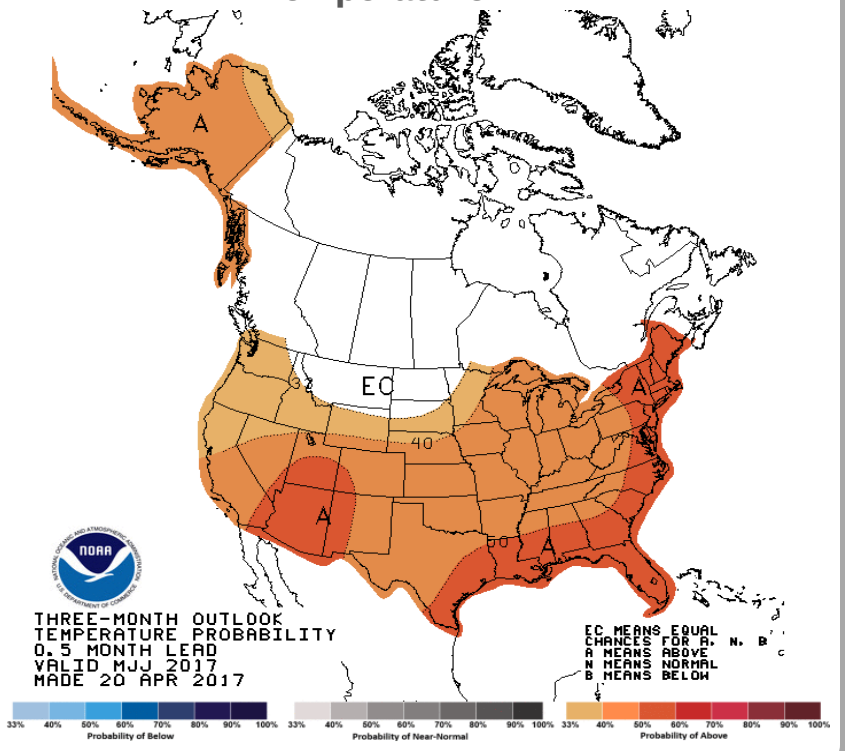
May - July 2017

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

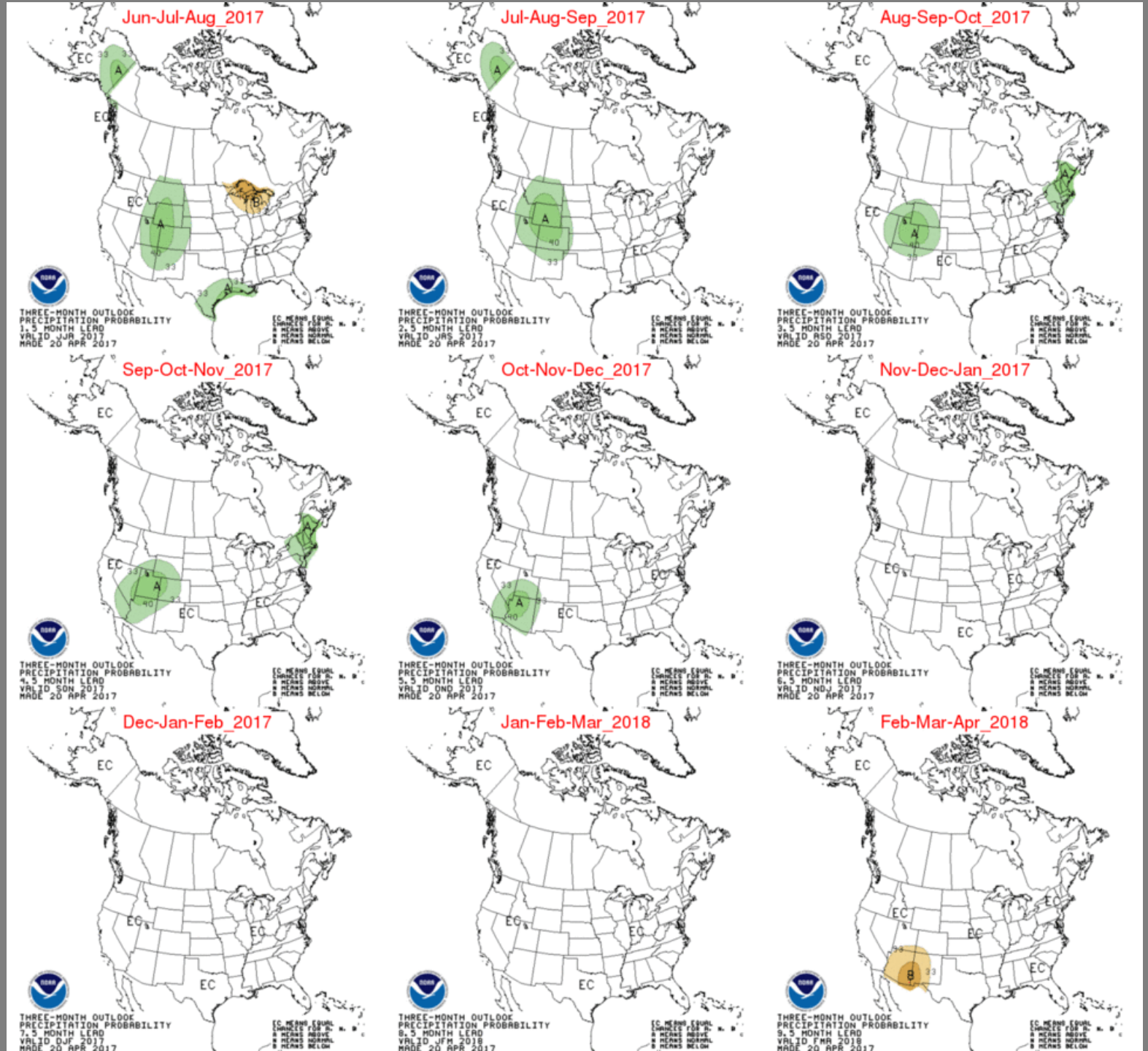
Precipitation



Temperature

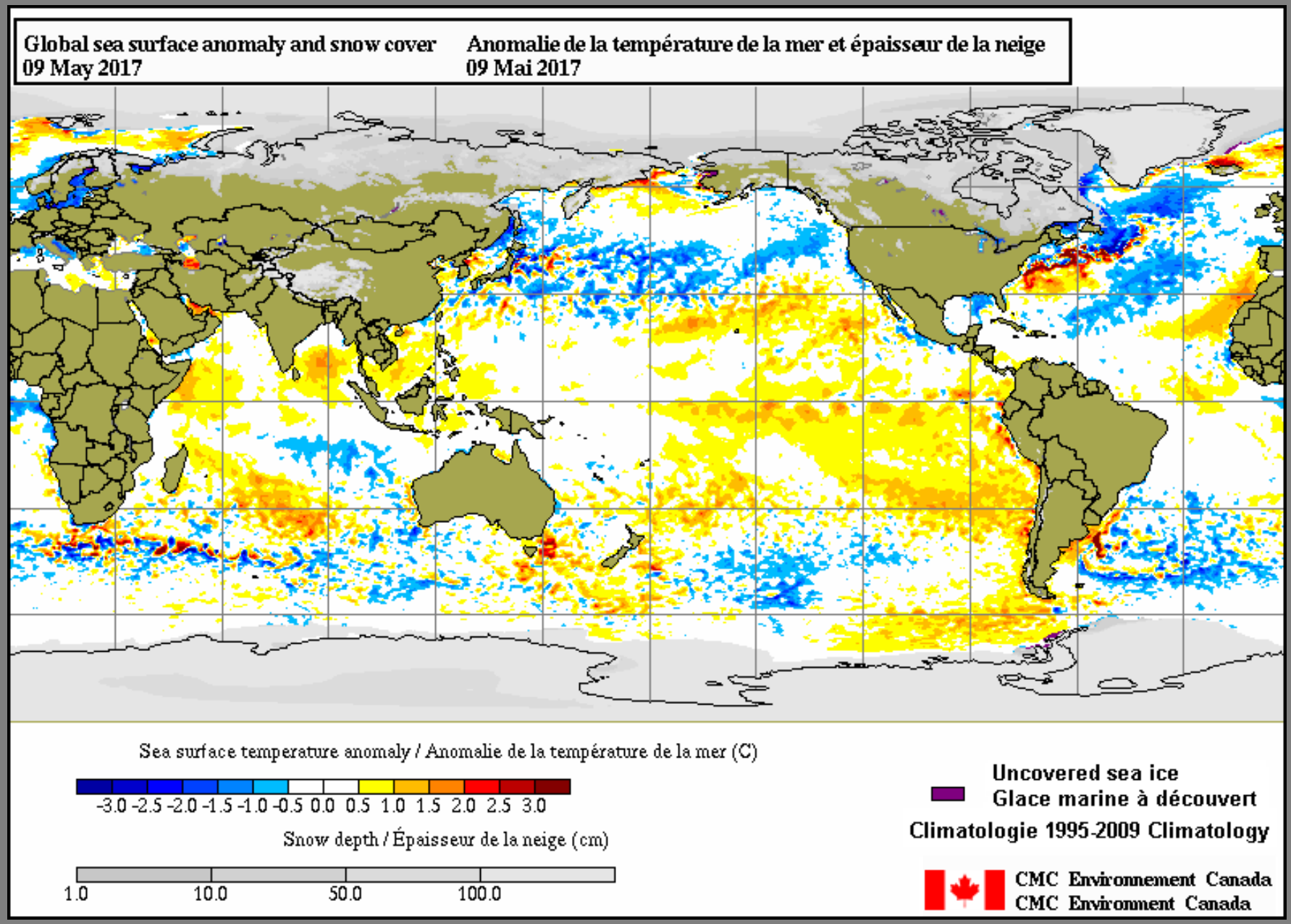


Prepared by: Climate Prediction Center / NCEP



Prepared by: Climate Prediction Center / NCEP

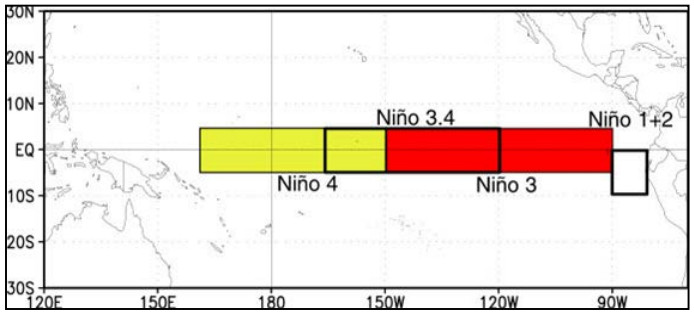
Current Global Sea Surface Temperature Anomalies

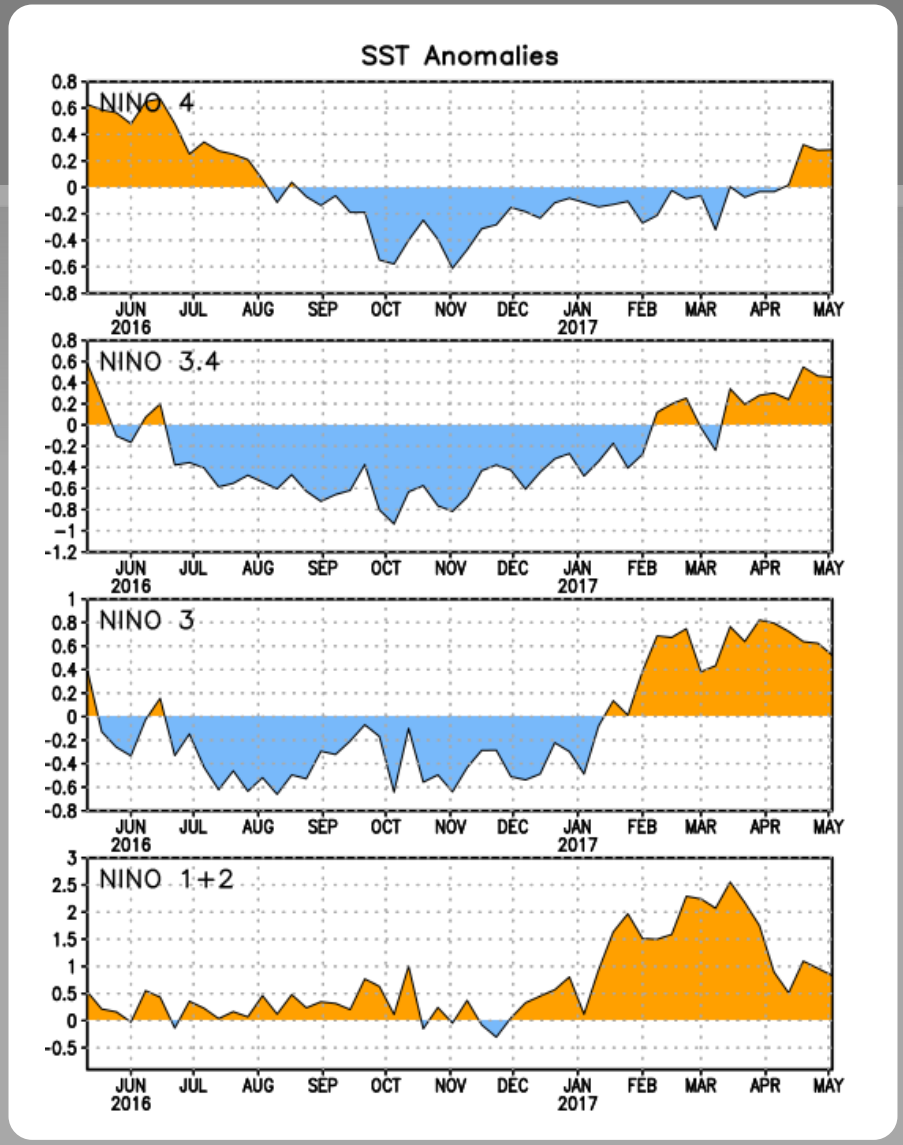


Niño Region SST Departures (ºC) Recent Evolution

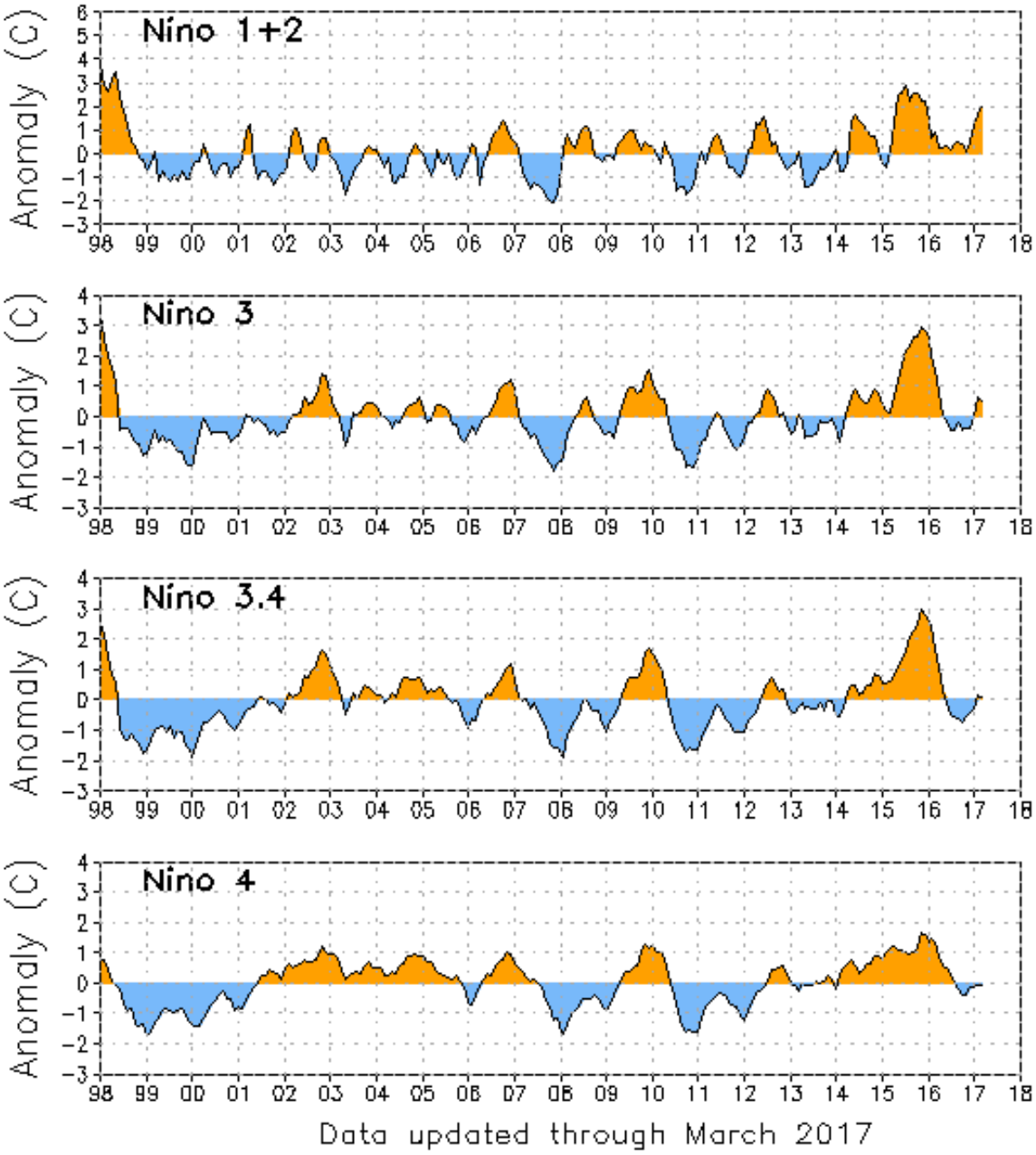
The latest weekly SST departures are:

Niño 4	0.3ºC
Niño 3.4	0.5ºC
Niño 3	0.5ºC
Niño 1+2	0.8ºC





Prepared by: Climate Prediction Center / NCEP

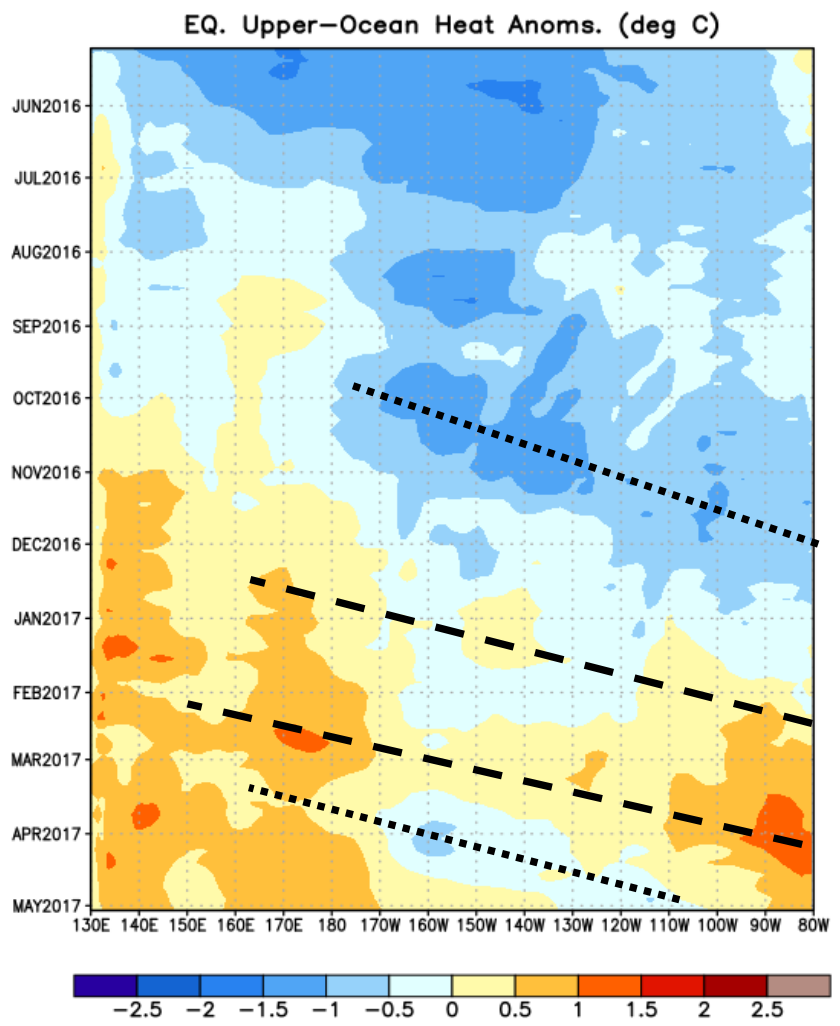

Nino 1+2
Nino 3
Nino 3.4
Nino 4
Anomaly (C)
98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18
Data updated through March 2017

Weekly Heat Content Evolution in the Equatorial Pacific

From March 2016 through December 2016, below-average subsurface temperatures extended across most of the equatorial Pacific.

From February 2017 through April 2017, positive subsurface temperature anomalies persisted in the western and eastern Pacific Ocean, with oceanic Kelvin waves resulting in anomalous temperature variability in the central Pacific.

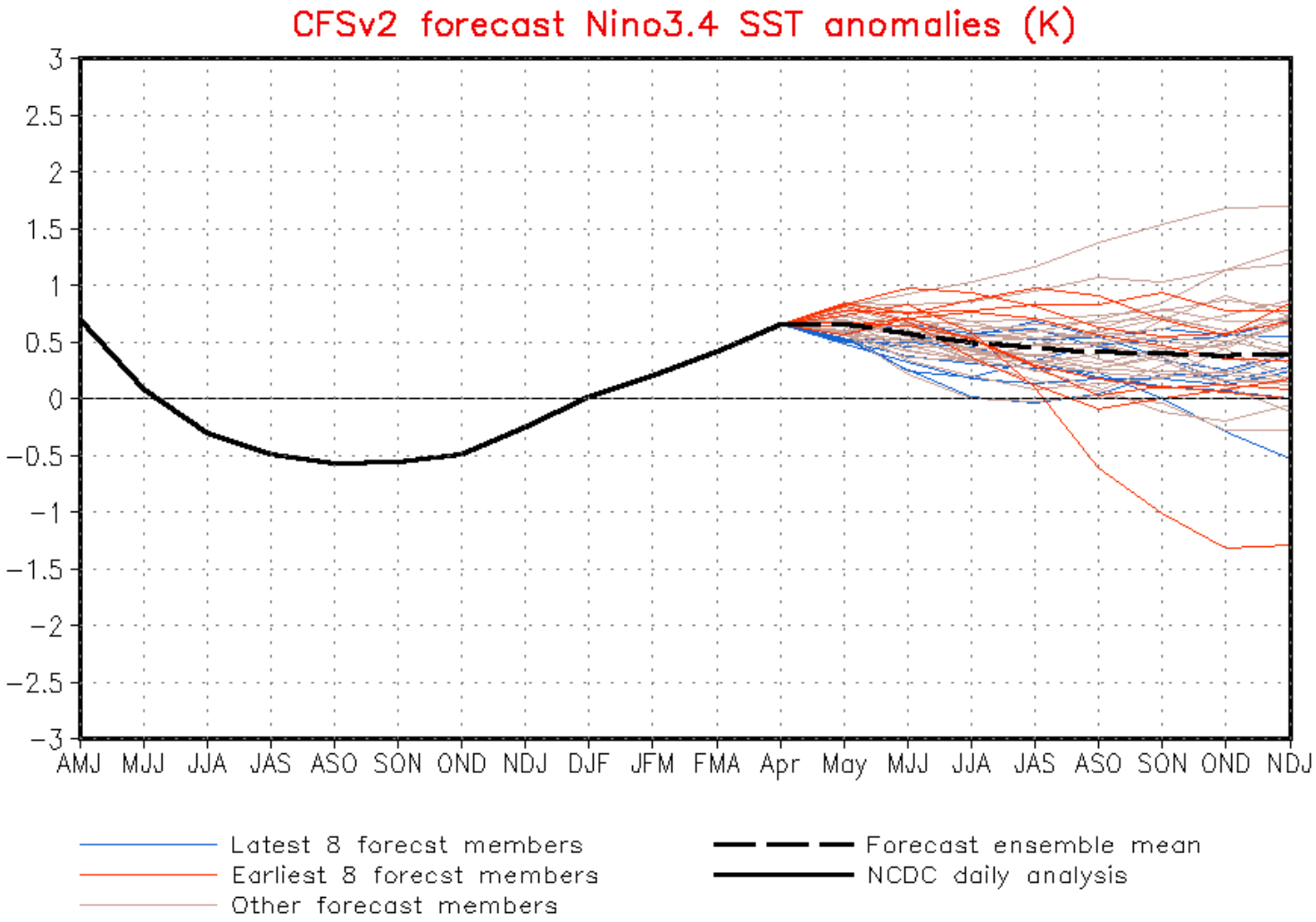
Since mid March 2017, weak negative subsurface temperature anomalies have shifted eastward into the eastern Pacific.



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.

NWS/NCEP/CPC

Last update: Tue May 9 2017
Initial conditions: 28Apr2017–7May2017



IRI/CPC Pacific Niño 3.4 SST Model Outlook

Most models favor El Niño by the late Northern Hemisphere summer 2017, with the dynamical models favoring onset during the summer of 2017.

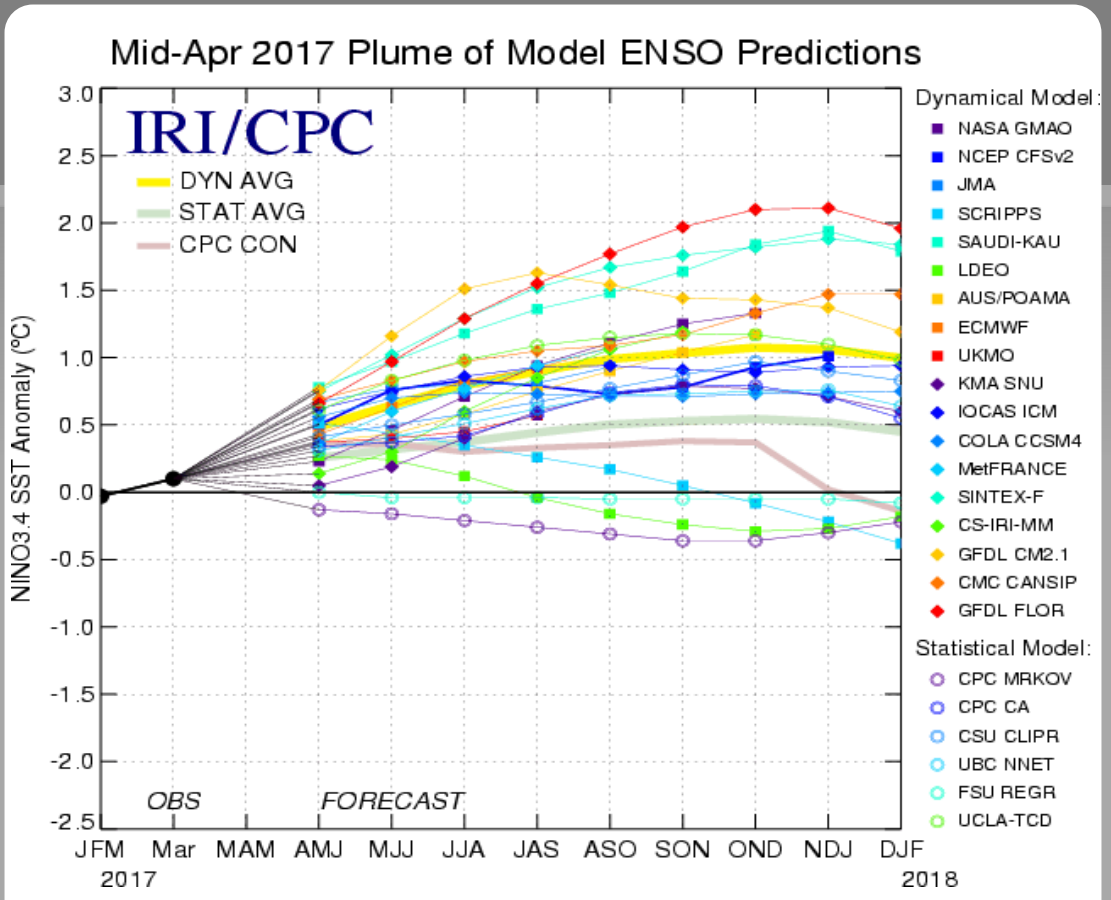


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 18 April 2017).

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 ºC 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.

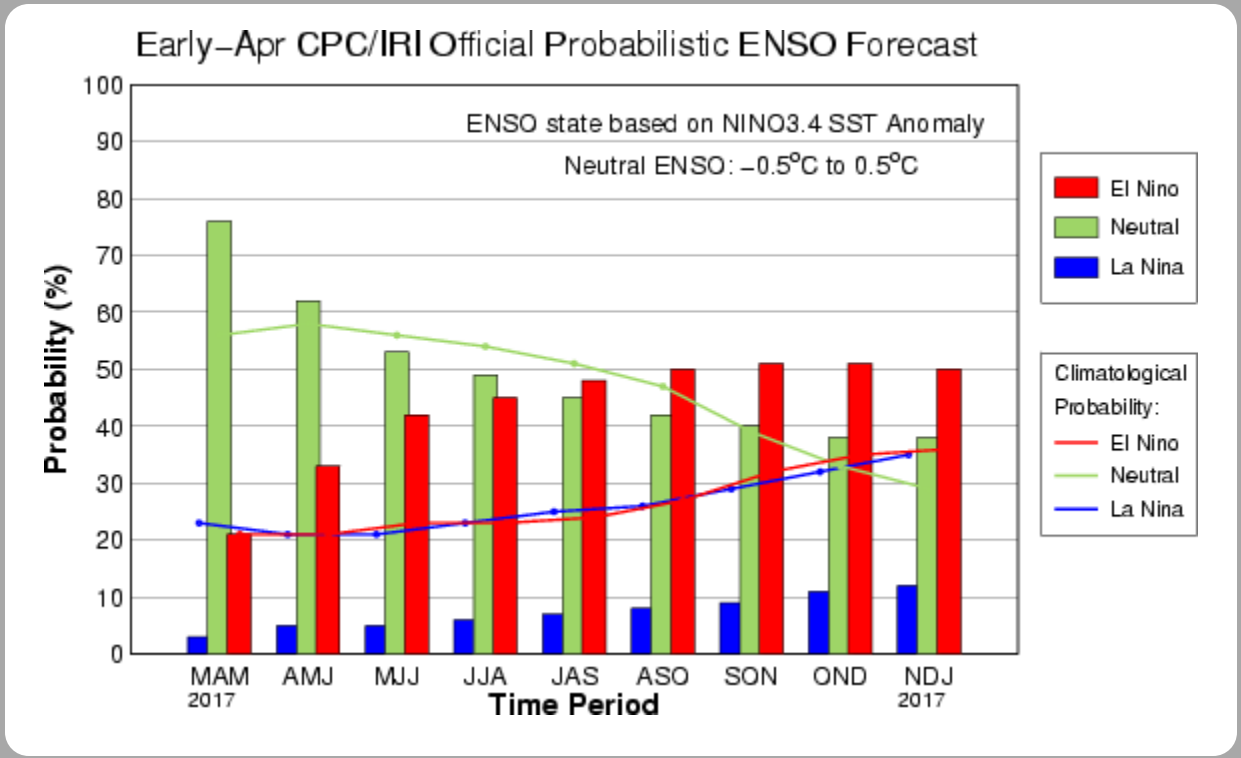
The ONI is one measure of the El Niño-Southern Oscillation, and other indices can confirm whether features consistent with a coupled ocean-atmosphere phenomenon accompanied these periods. The complete table going back to DJF 1950 can be found here.

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	-0.1	0.1									

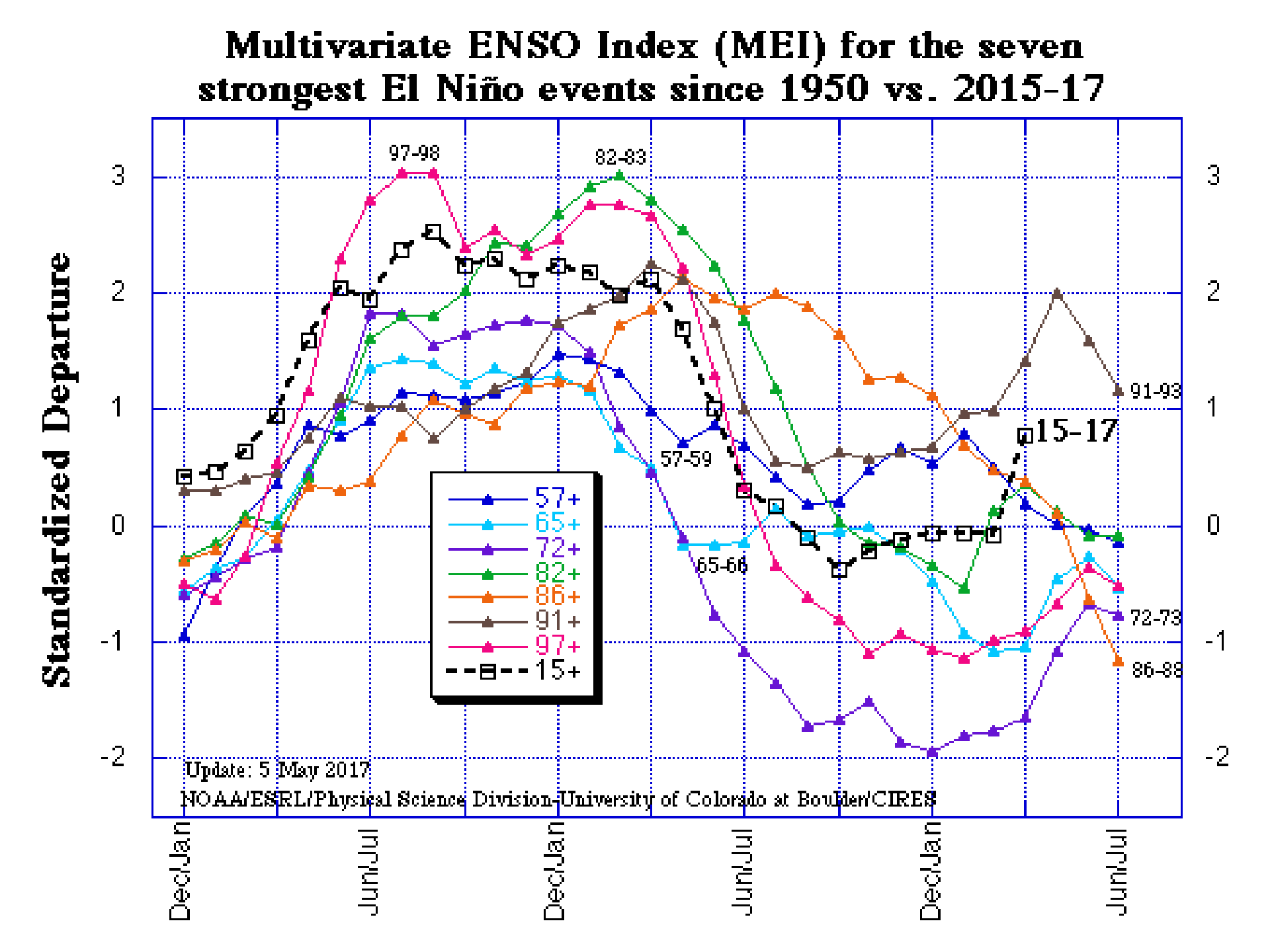
CPC/IRI Probabilistic ENSO Outlook

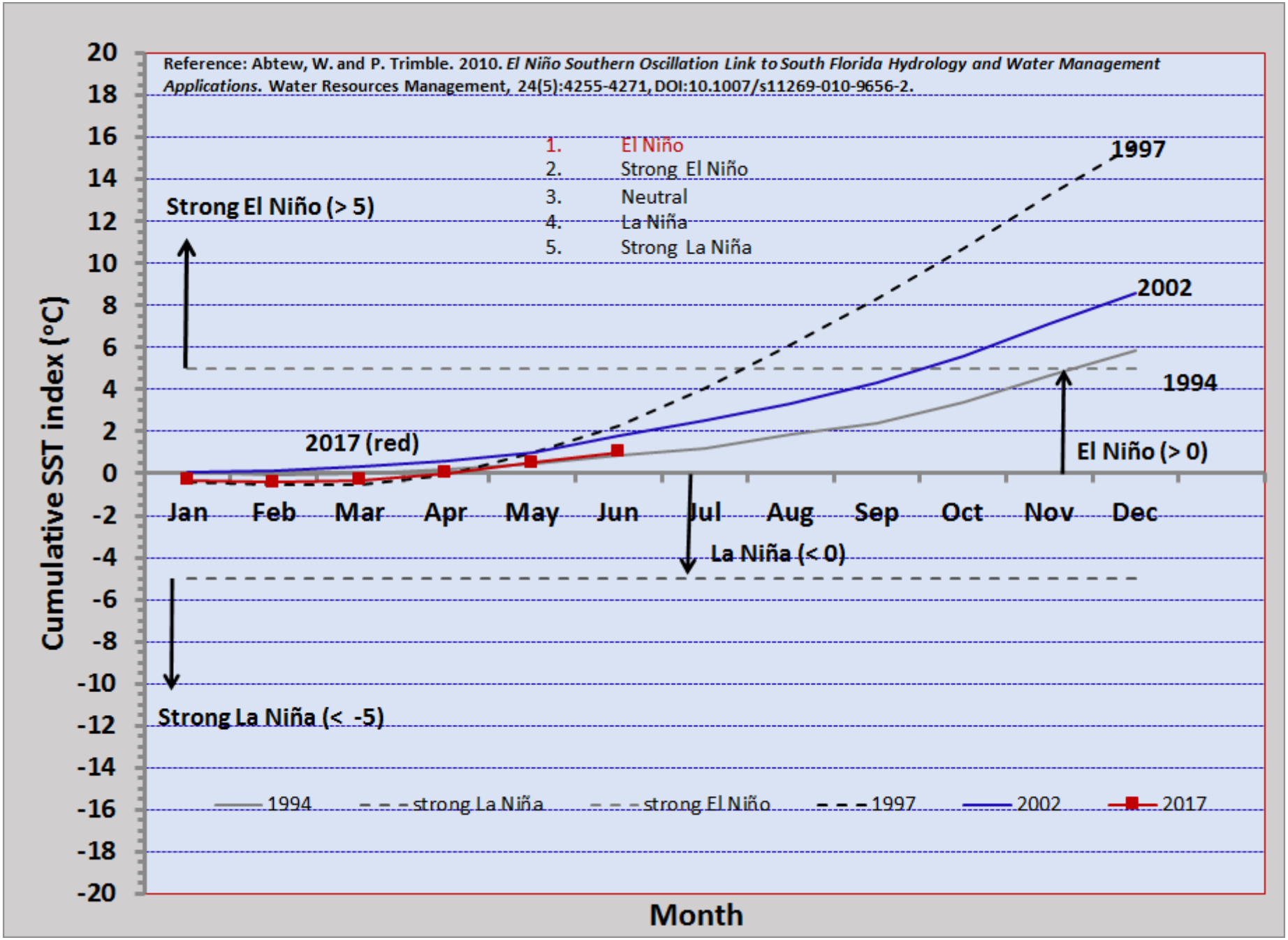
Updated: 13 April 2017

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

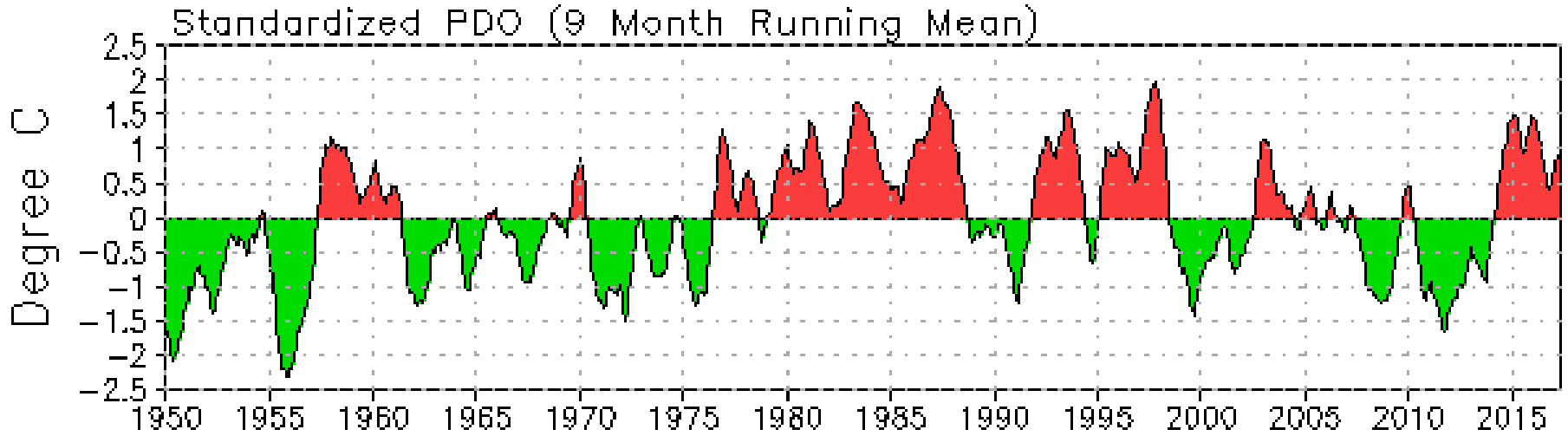


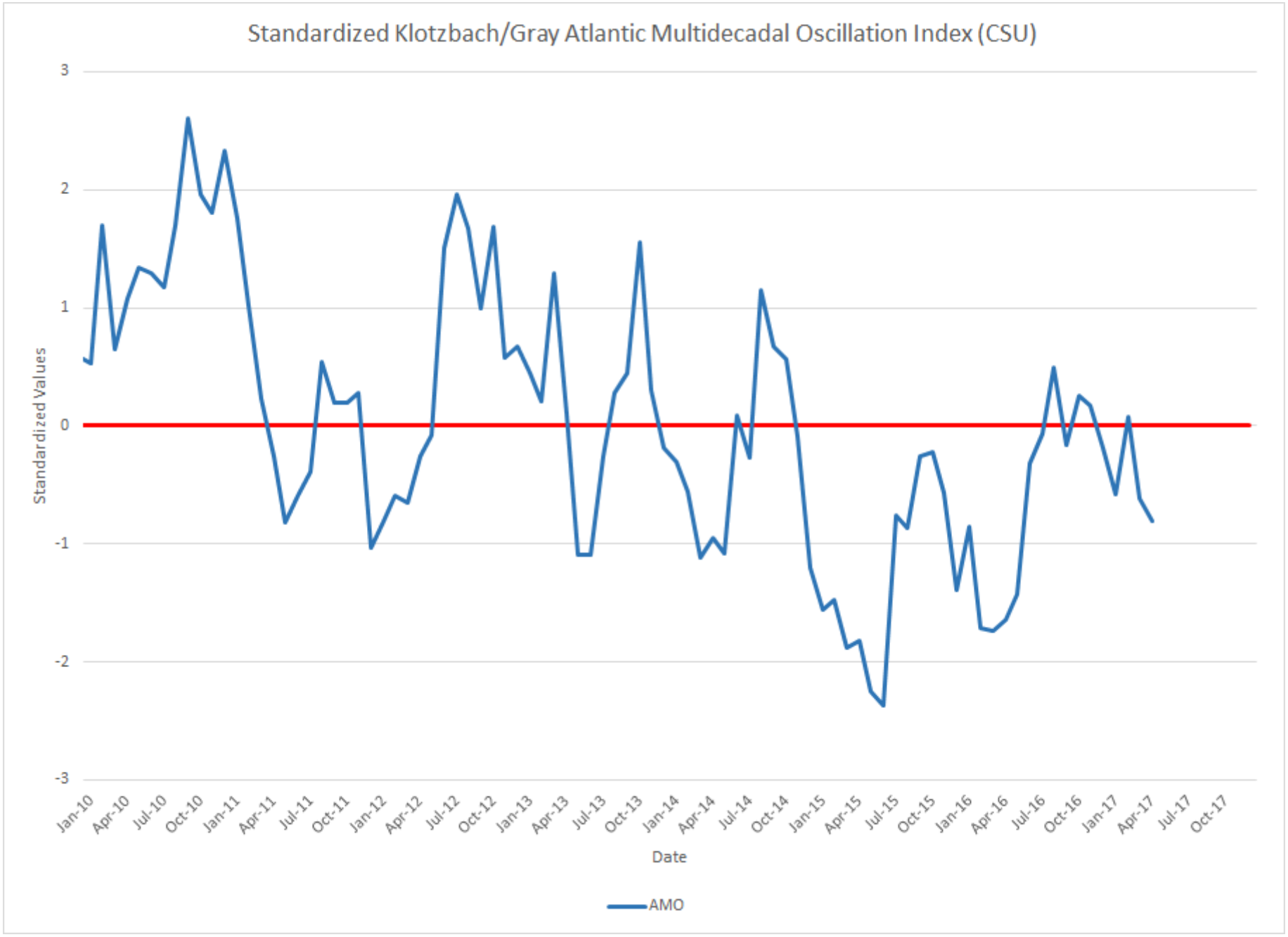
Prepared by: Climate Prediction Center / IRI


Multivariate ENSO Index (MEI) for the seven strongest El Niño events since 1950 vs. 2015-17
Standardized Departure
3
2
1
0
-1
-2
97-98
82-83
57-59
65-66
91-93
72-73
86-88
15-17
57+
65+
72+
82+
86+
91+
97+
15+
Update: 5 May 2017
NOAA/ESRL/Physical Science Division-University of Colorado at Boulder/CIRES
Dec/Jan
Jun/Jul
Dec/Jan
Jun/Jul
Dec/Jan
Jun/Jul



Source: Wossenu Abtew (SFWMD)


Standardized PDO (9 Month Running Mean)
Degree C
2.5
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015

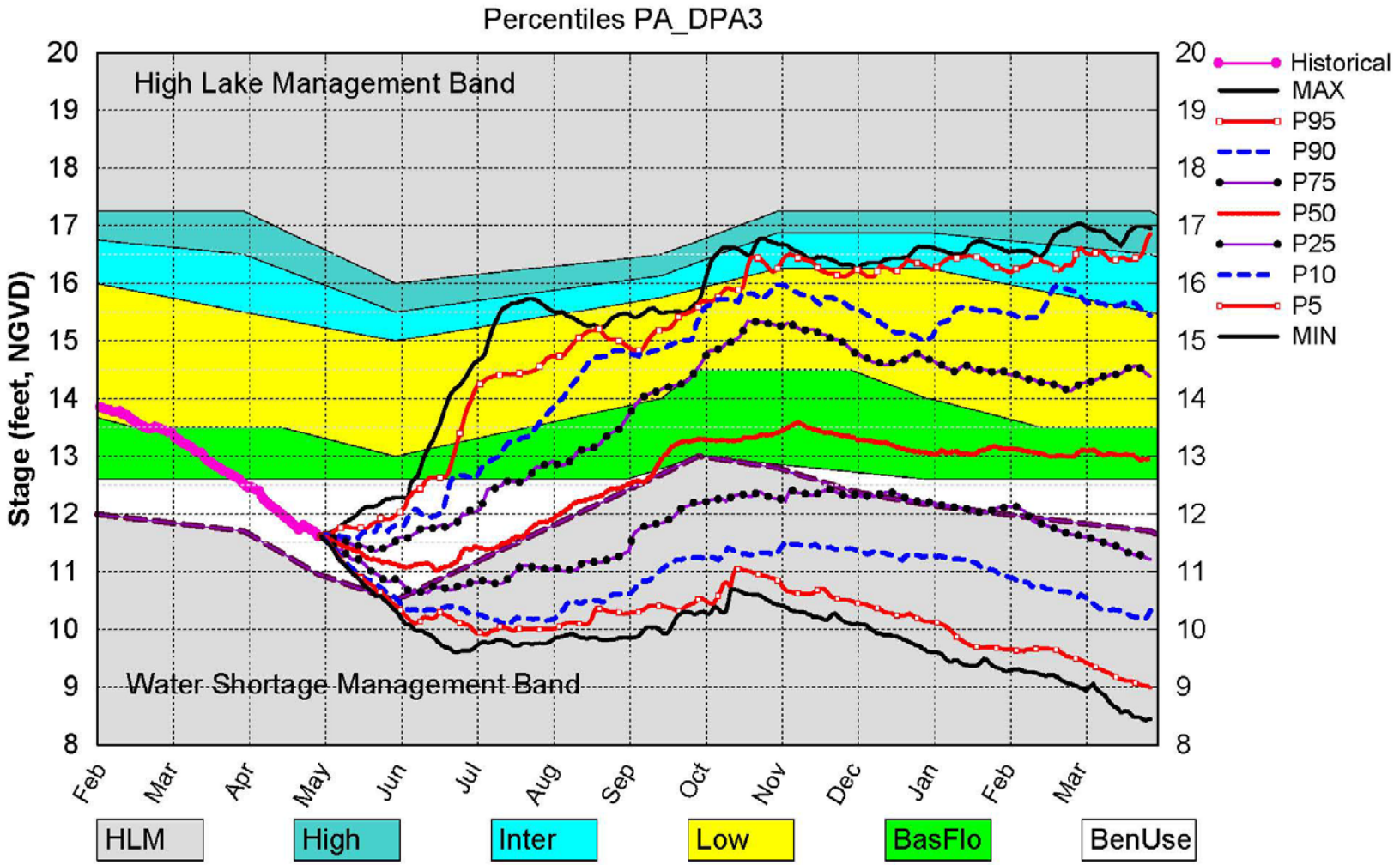

Standardized Klotzbach/Gray Atlantic Multidecadal Oscillation Index (CSU)
3
2
1
0
-1
-2
-3
Standardized Values
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Jan-13
Apr-13
Jul-13
Oct-13
Jan-14
Apr-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Jul-16
Oct-16
Jan-17
Apr-17
Jul-17
Oct-17
Date
AMO

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 May 2017 Dynamic Position Analysis

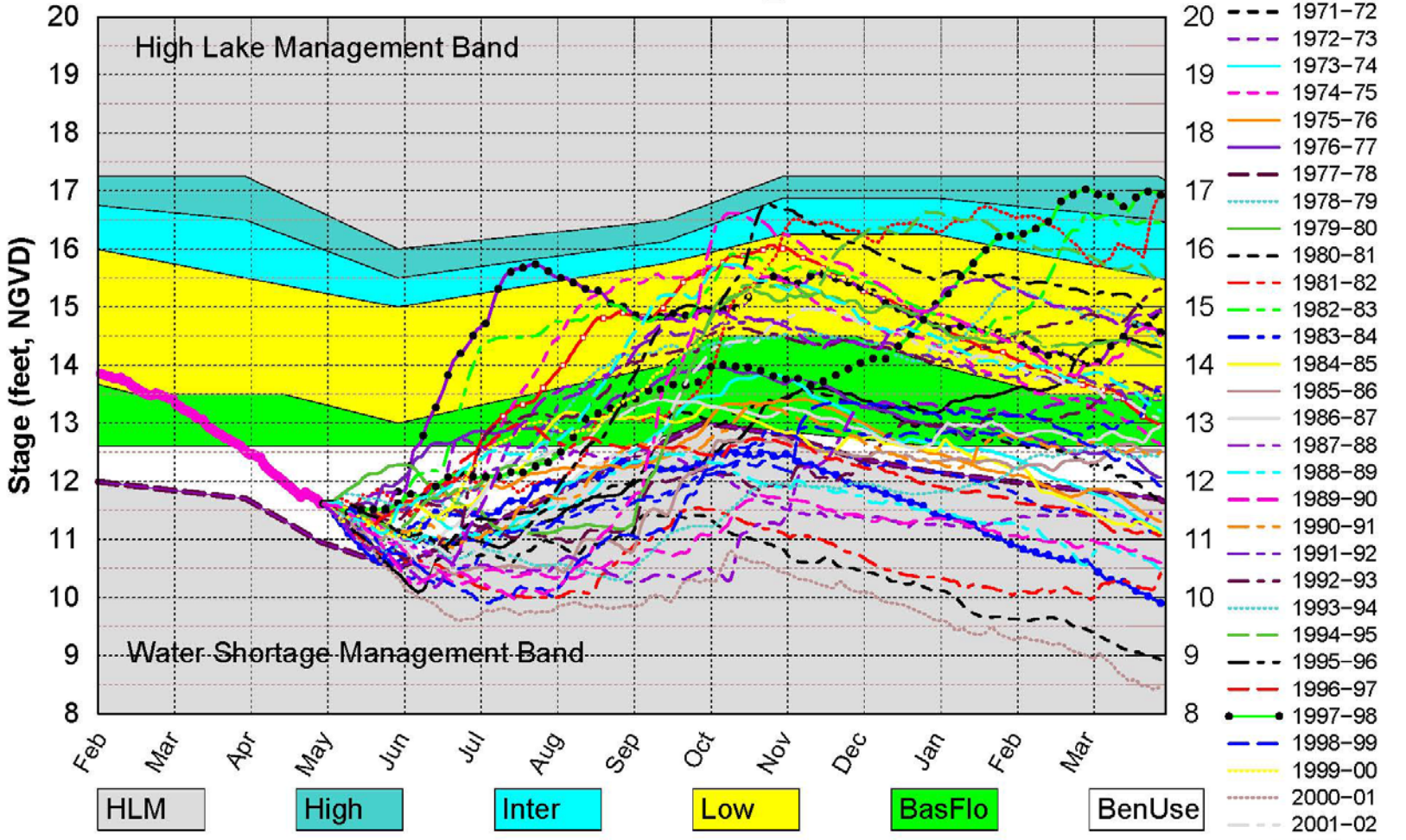


(See assumptions on the Position Analysis Results website)

Wed May 3 15:57:45 2017

Lake Okeechobee SFWMM May 2017 Dynamic Position Analysis

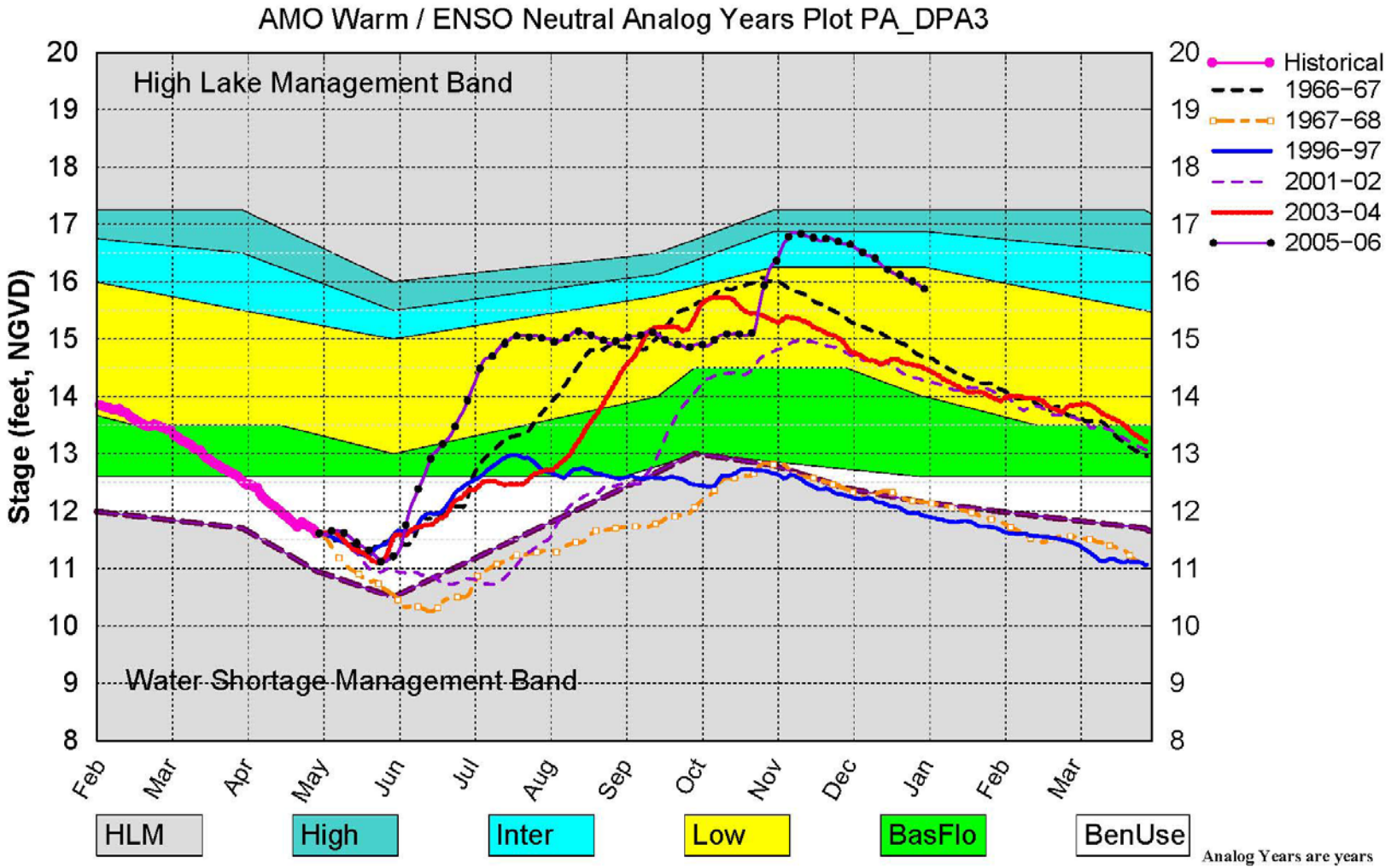
All Simulated Years Plot PA_DPA3



(See assumptions on the Position Analysis Results website)

Wed May 3 16:00:35 2017

Lake Okeechobee SFWMM May 2017 Dynamic Position Analysis

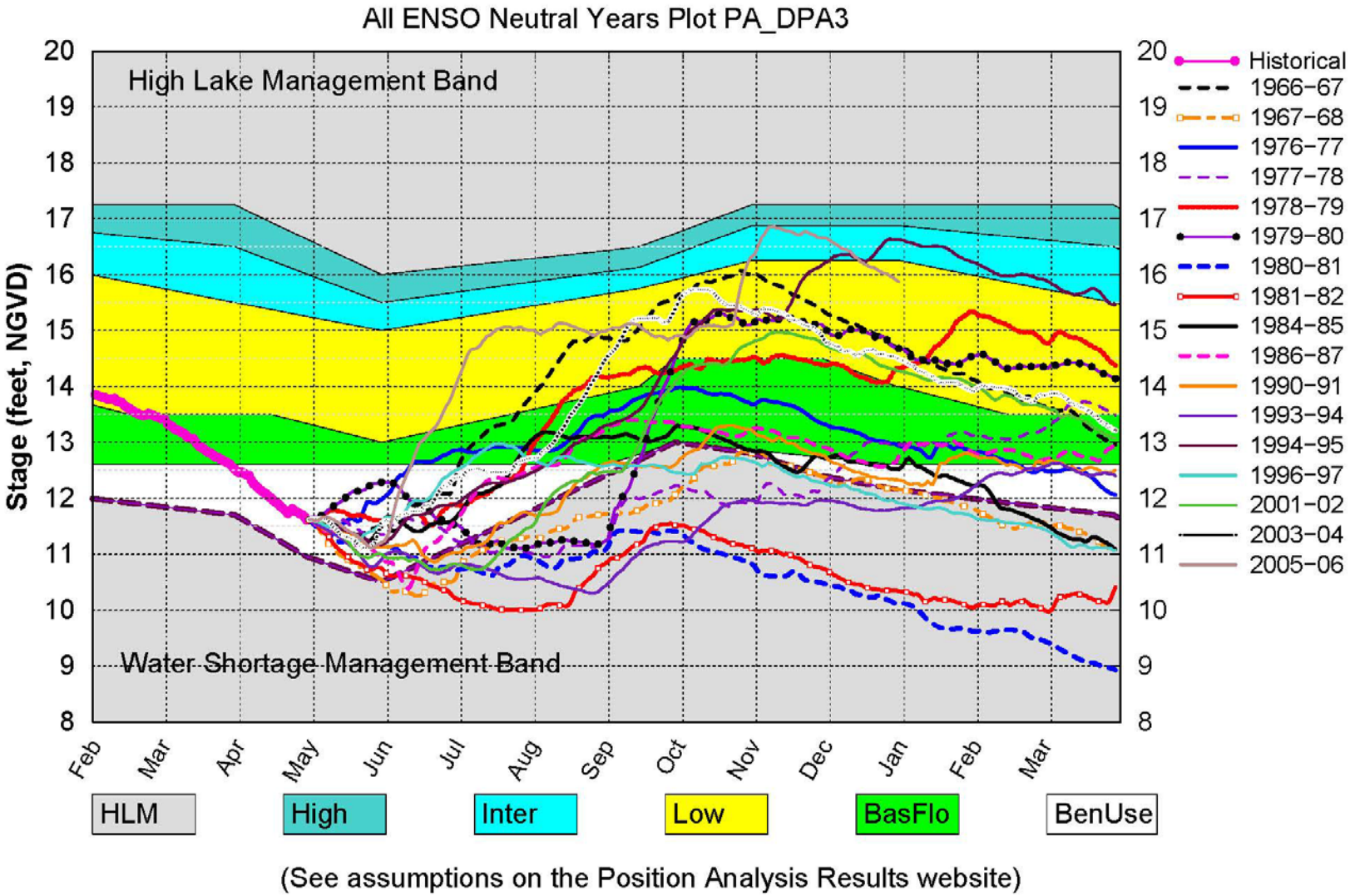


(See assumptions on the Position Analysis Results website)

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

Wed May 3 15:58:24 2017

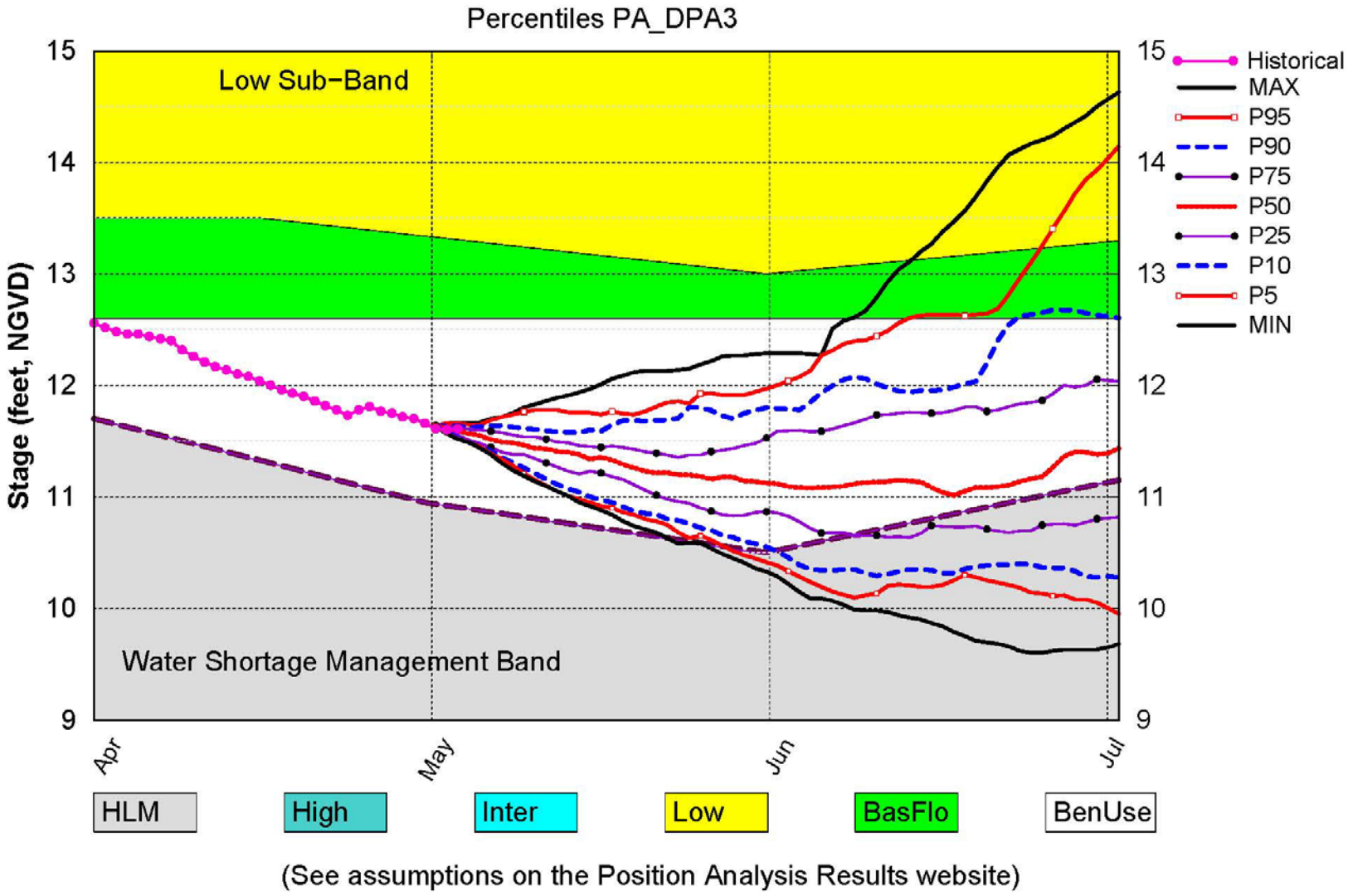
Lake Okeechobee SFWMM May 2017 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)

Wed May 3 15:58:20 2017

Lake Okeechobee SFWMM May 2017 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)

Fri May 5 09:38:28 2017