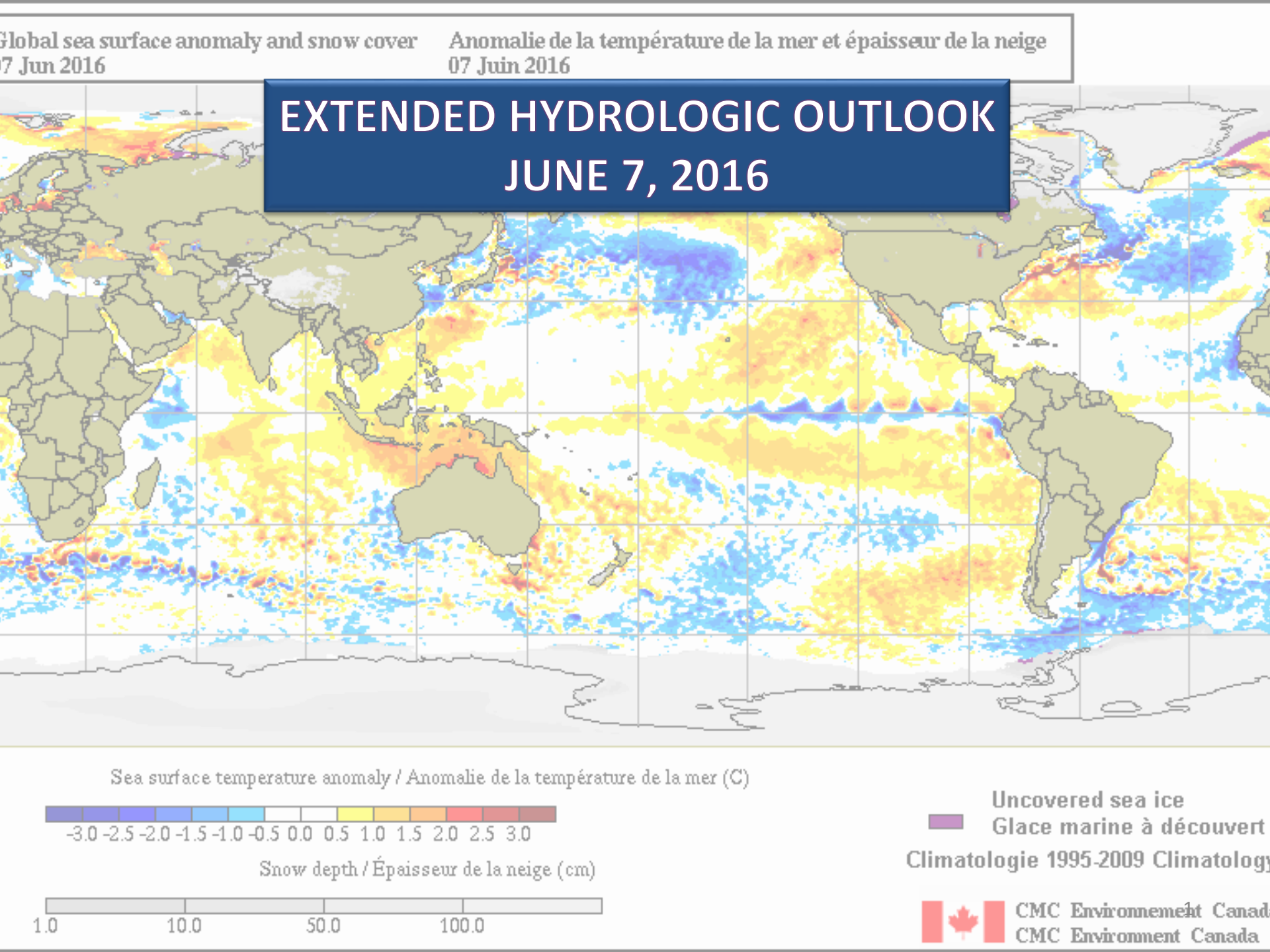

Global sea surface anomaly and snow cover
07 Jun 2016
Anomalie de la température de la mer et épaisseur de la neige
07 Juin 2016
EXTENDED HYDROLOGIC OUTLOOK
JUNE 7, 2016
Sea surface temperature anomaly / Anomalie de la température de la mer (C)
-3.0 -2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0
Snow depth / Épaisseur de la neige (cm)
1.0 10.0 50.0 100.0
Uncovered sea ice
Glace marine à découvert
Climatologie 1995-2009 Climatology
CMC Environnement Canada
CMC Environment Canada

Summary

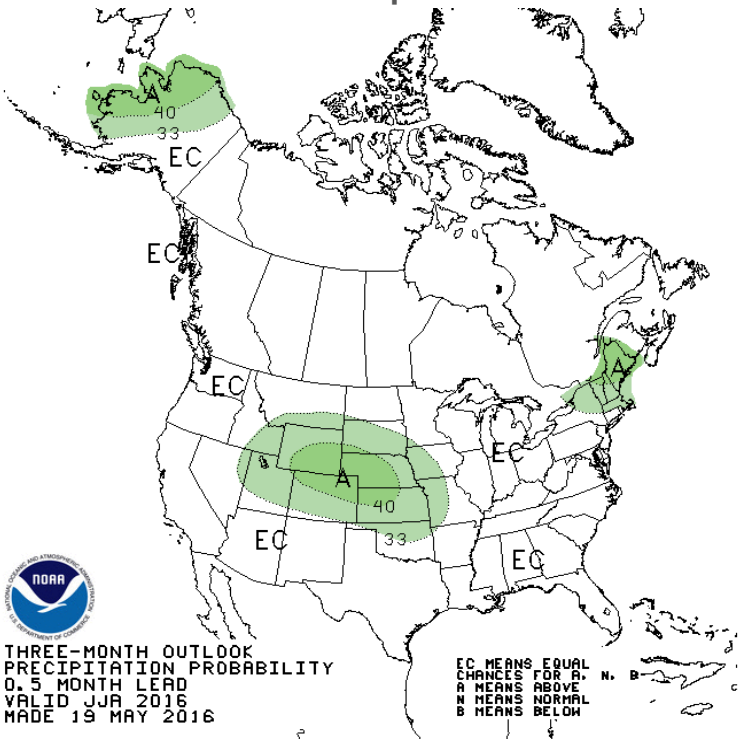
- **The Climate Prediction Center (CPC) is forecasting equal chances of above normal, normal and below normal rainfall for June through August.**
- **El Niño conditions are weakening. La Niña is favored to develop during summer 2016 with about a 75% chance of La Niña during the fall and winter 2016-17.**
- **The strong positive phase of the Pacific Decadal Oscillation increases the potential for a greater number of El Niño events for multi-year periods.**
- **Watching Atlantic Multidecadal Oscillation (AMO) index for switch to negative (cold) phase, this has the potential to contribute to a drier-than-normal 2016 wet season.**

U. S. Seasonal Outlooks

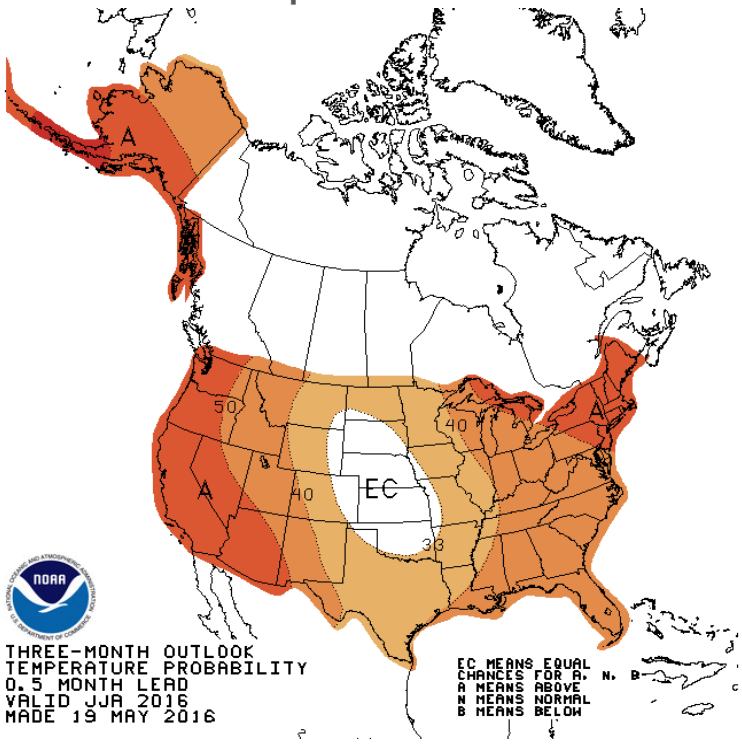
June - August 2016

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

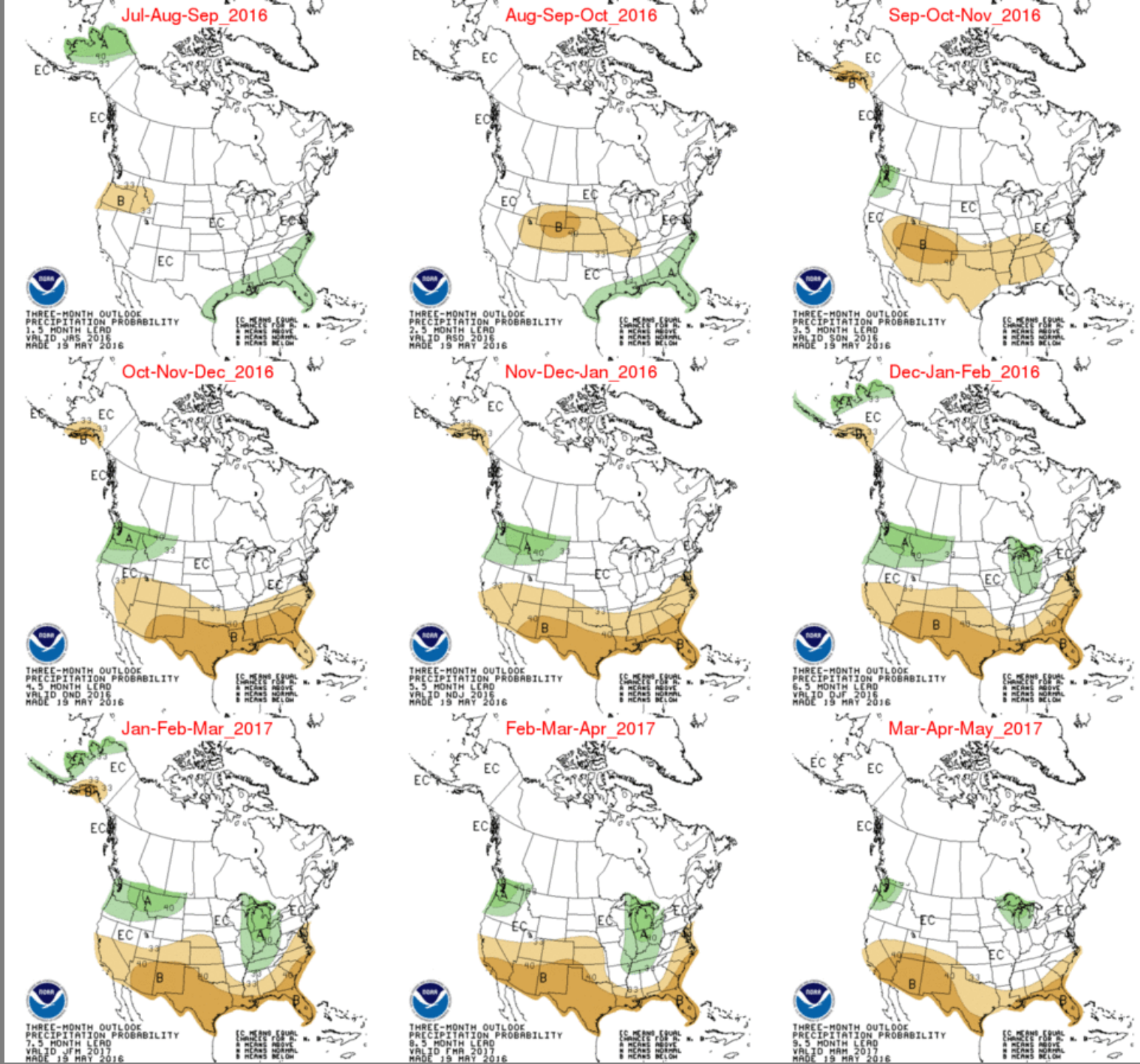
Precipitation



Temperature

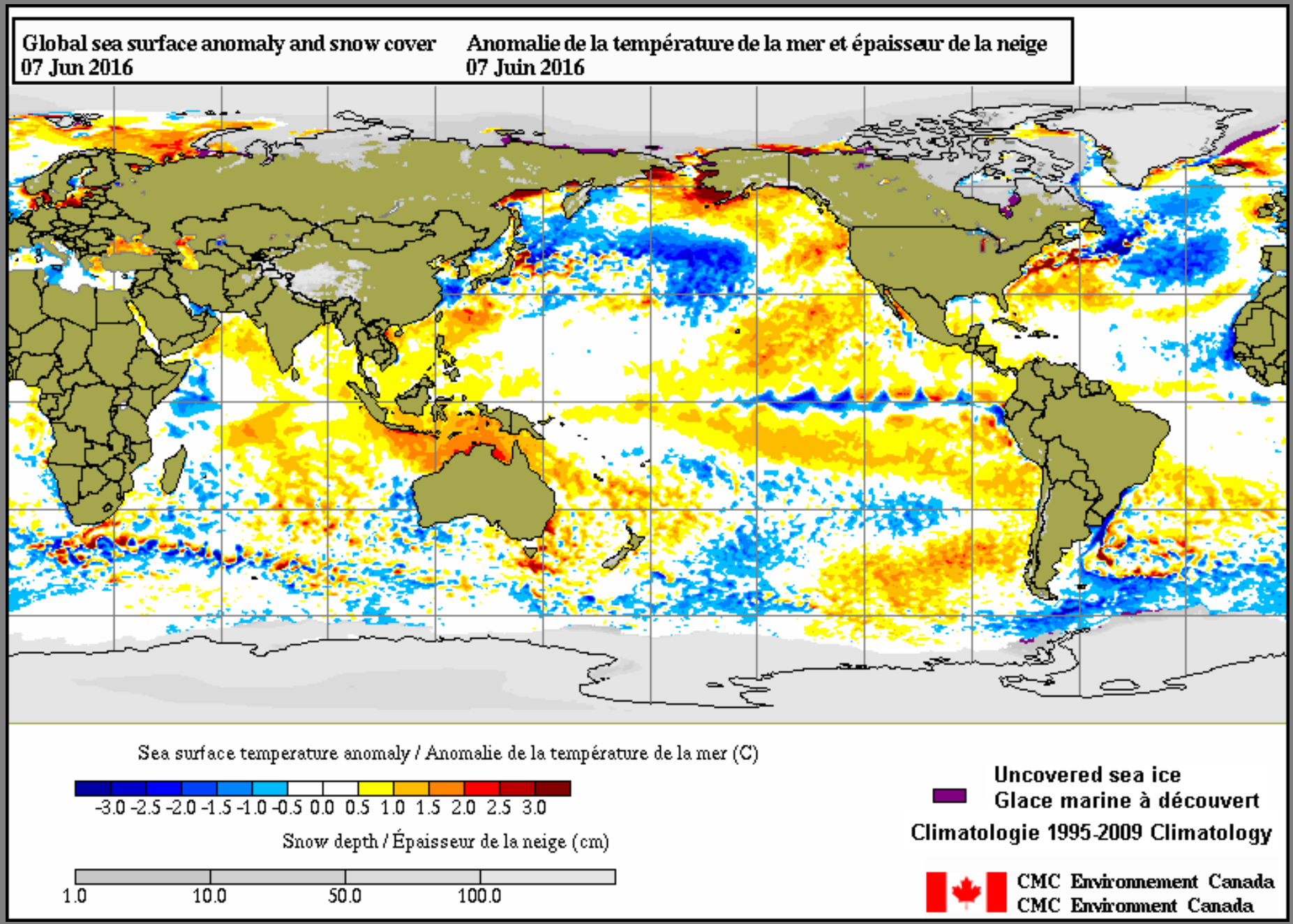


Prepared by: Climate Prediction Center / NCEP



Prepared by: Climate Prediction Center / NCEP

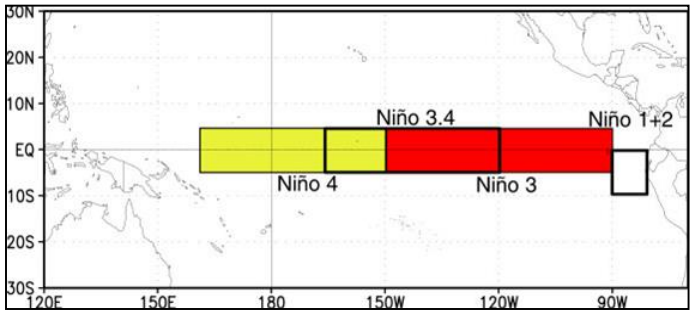
Current Global Sea Surface Temperature Anomalies

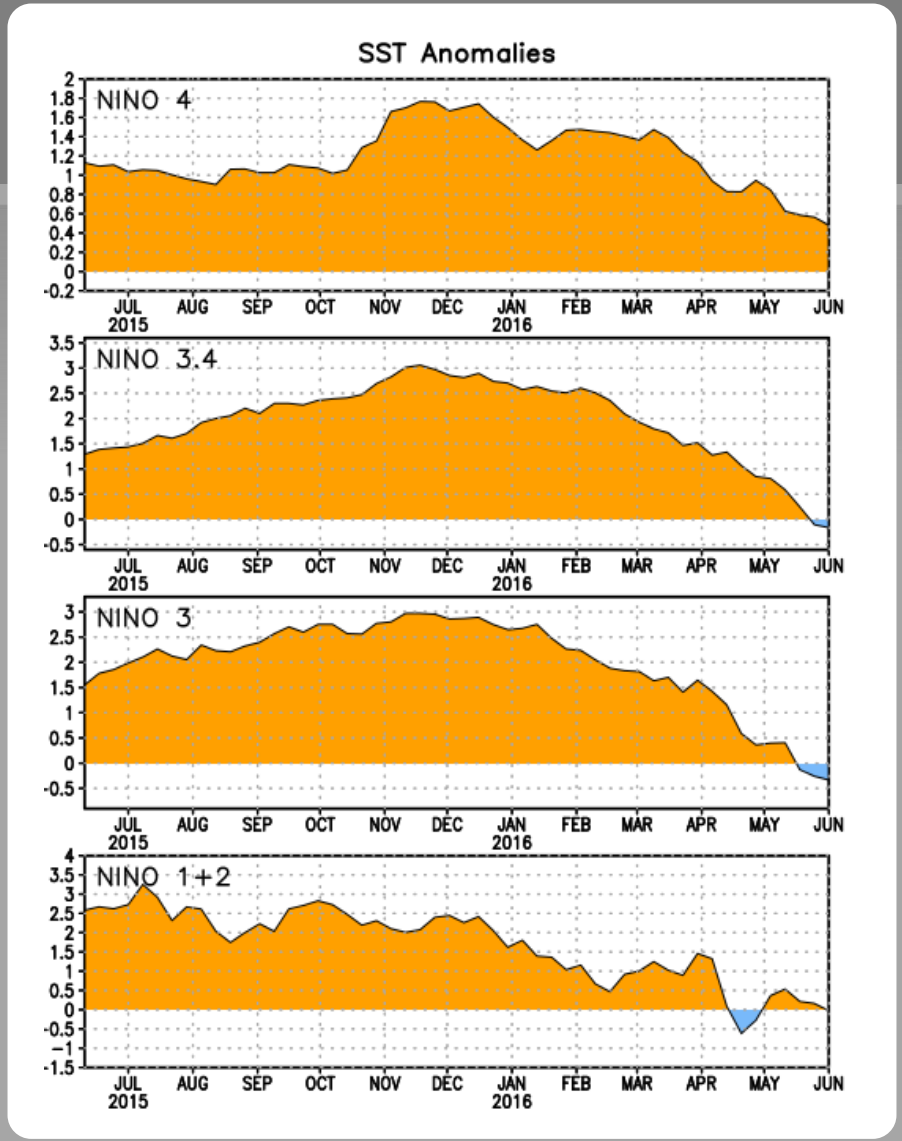


Niño Region SST Departures (ºC) Recent Evolution

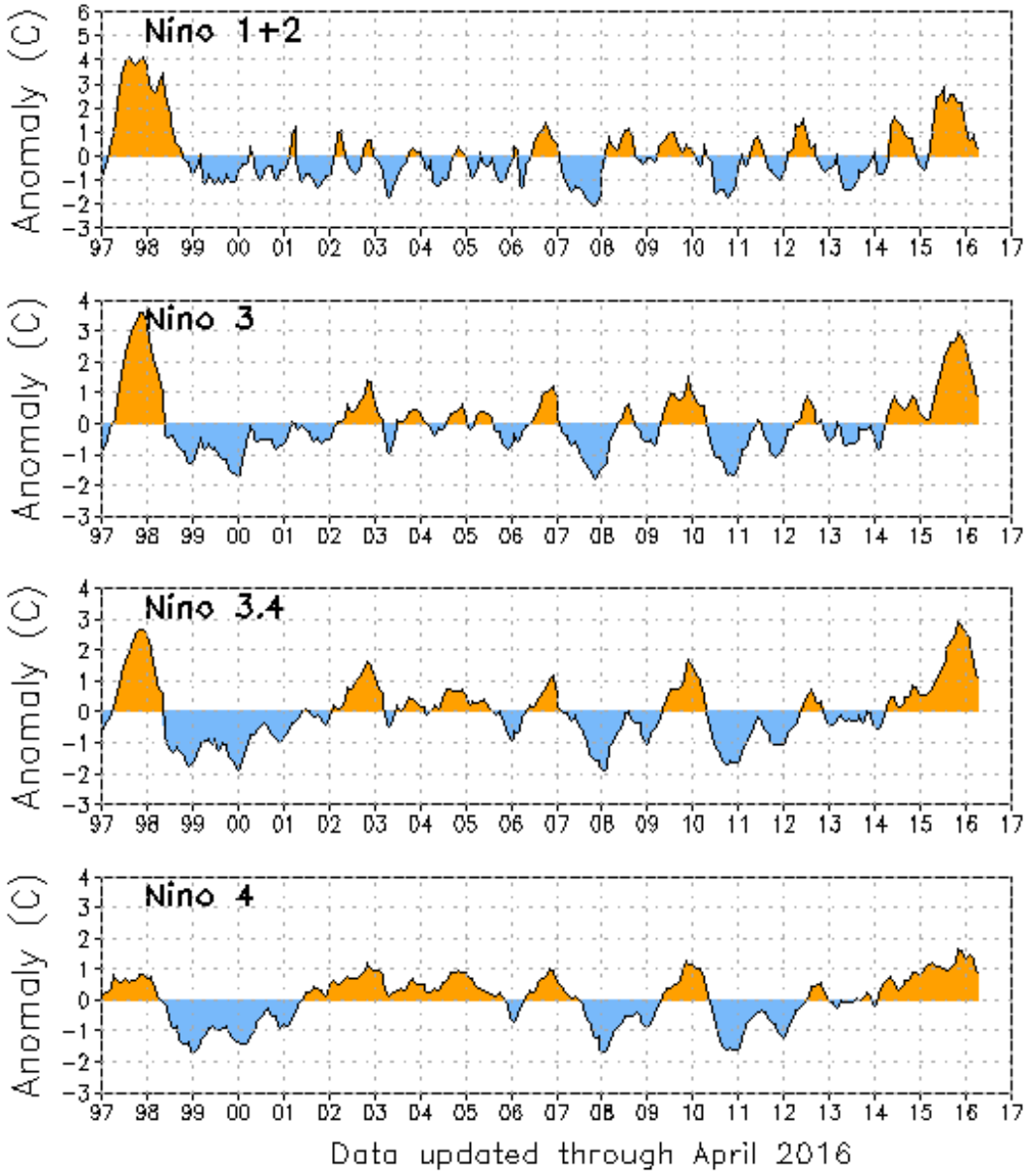
The latest weekly SST departures are:

Niño 4	0.5ºC
Niño 3.4	-0.2ºC
Niño 3	-0.3ºC
Niño 1+2	0.0ºC





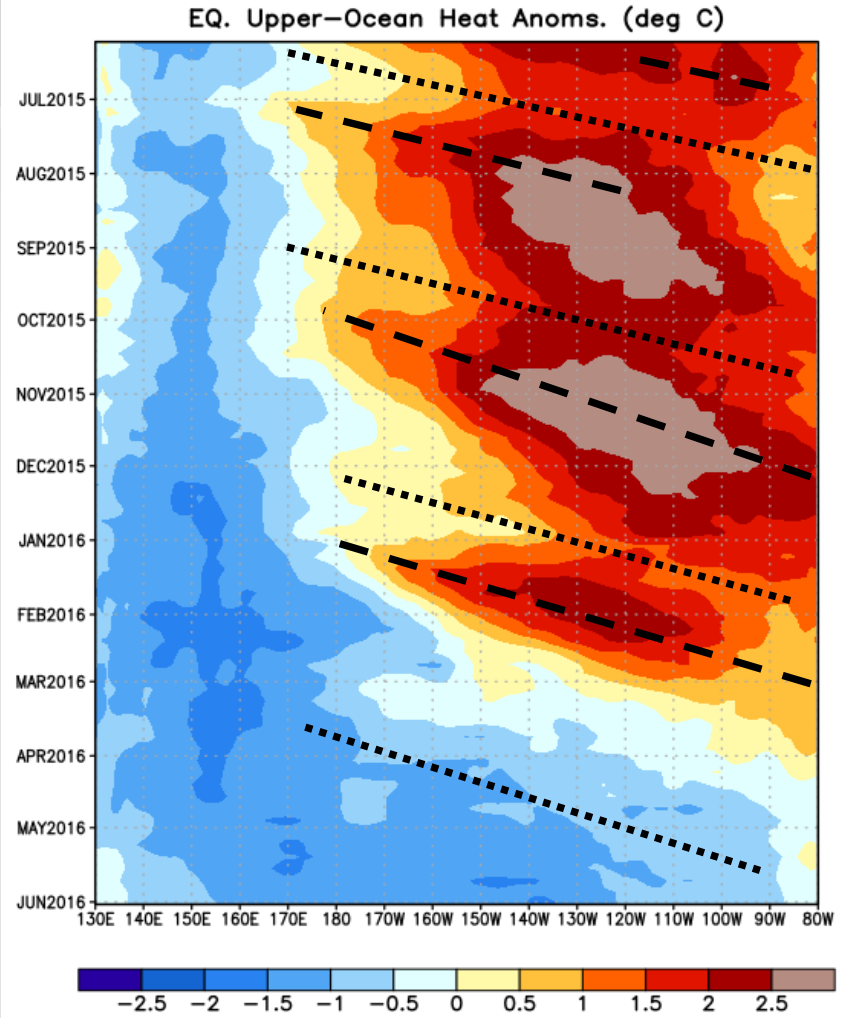
Prepared by: Climate Prediction Center / NCEP


Nino 1+2
Nino 3
Nino 3.4
Nino 4
Anomaly (C)
97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17
Data updated through April 2016

Weekly Heat Content Evolution in the Equatorial Pacific

Downwelling phases of a Kelvin wave were observed in mid-May to late June, July-August, and October to November, and January-February 2016.

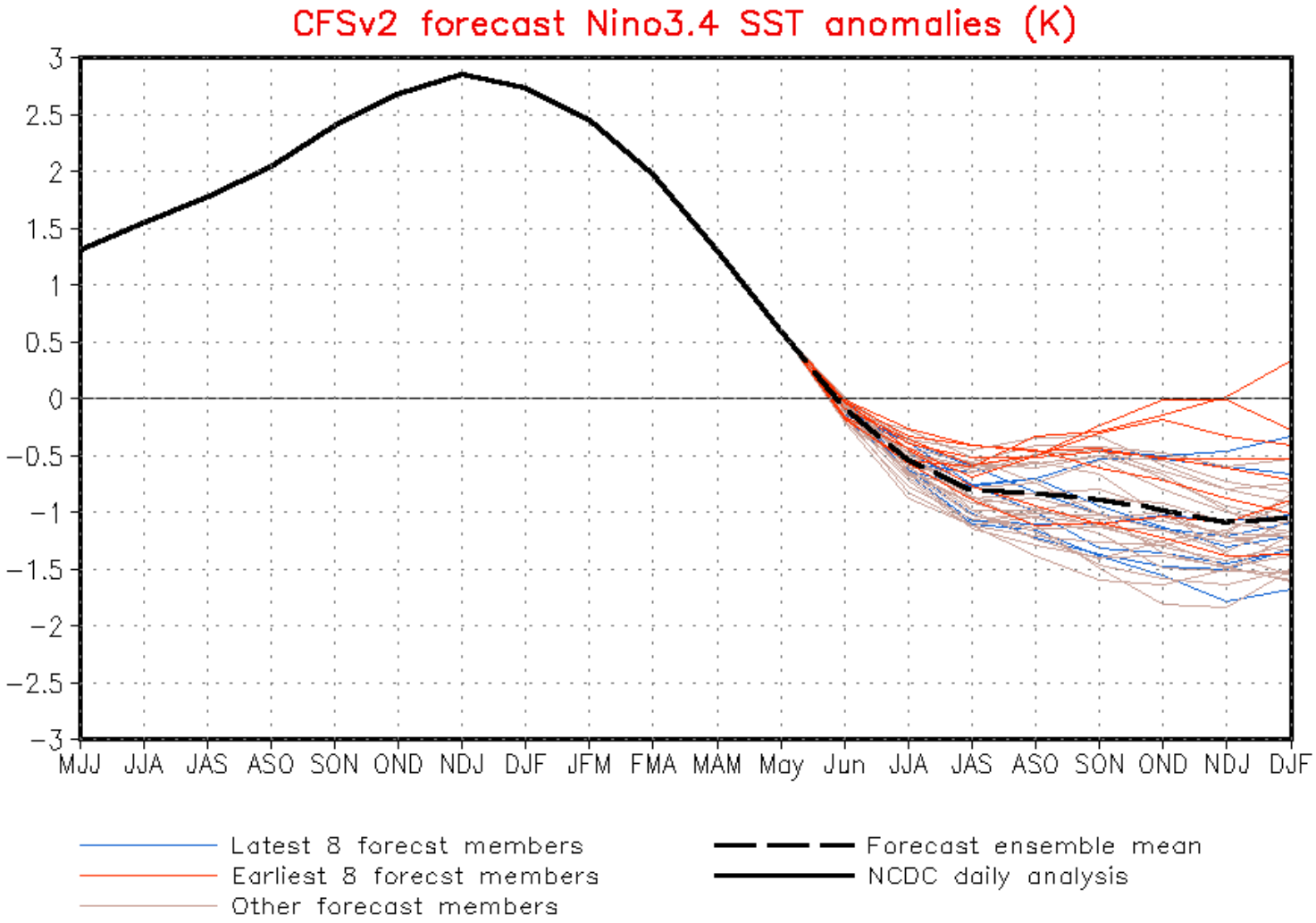
Since February 2016, below-average subsurface temperatures have persisted across much of the equatorial Pacific after the passage of an upwelling phase of a Kelvin wave.



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 Jun 7 2016
Initial conditions: 27May2016–5Jun2016



IRI/CPC Pacific Niño 3.4 SST Model Outlook

A majority of models indicate a transition to ENSO-neutral by May-June-July (MJJ) 2016.

The dynamical model average indicates La Niña by June-July-August (JJA) while the statistical models predict ENSO-neutral through early 2017.

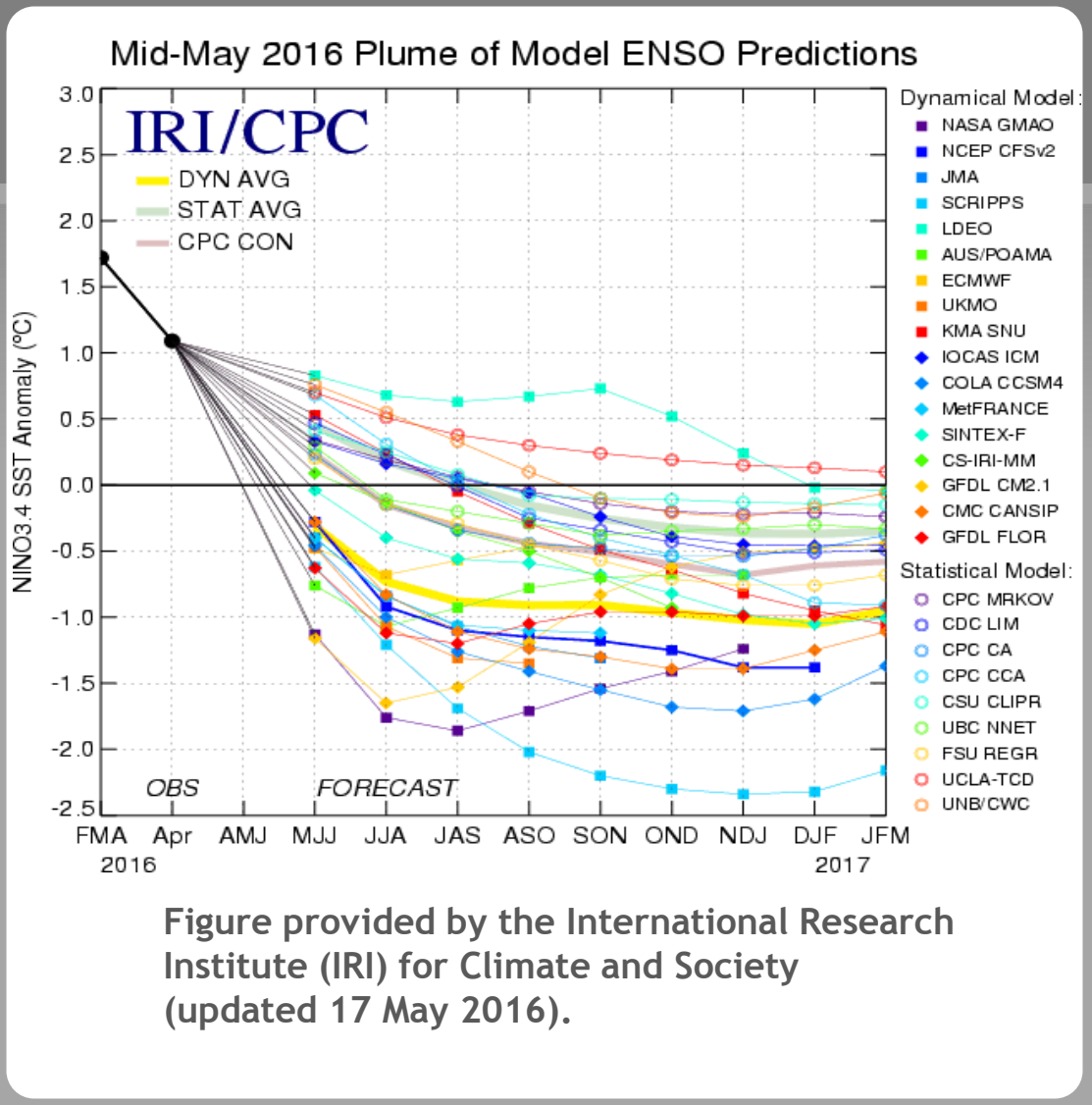


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 17 May 2016).

Prepared by: Climate Prediction Center / NCEP

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.

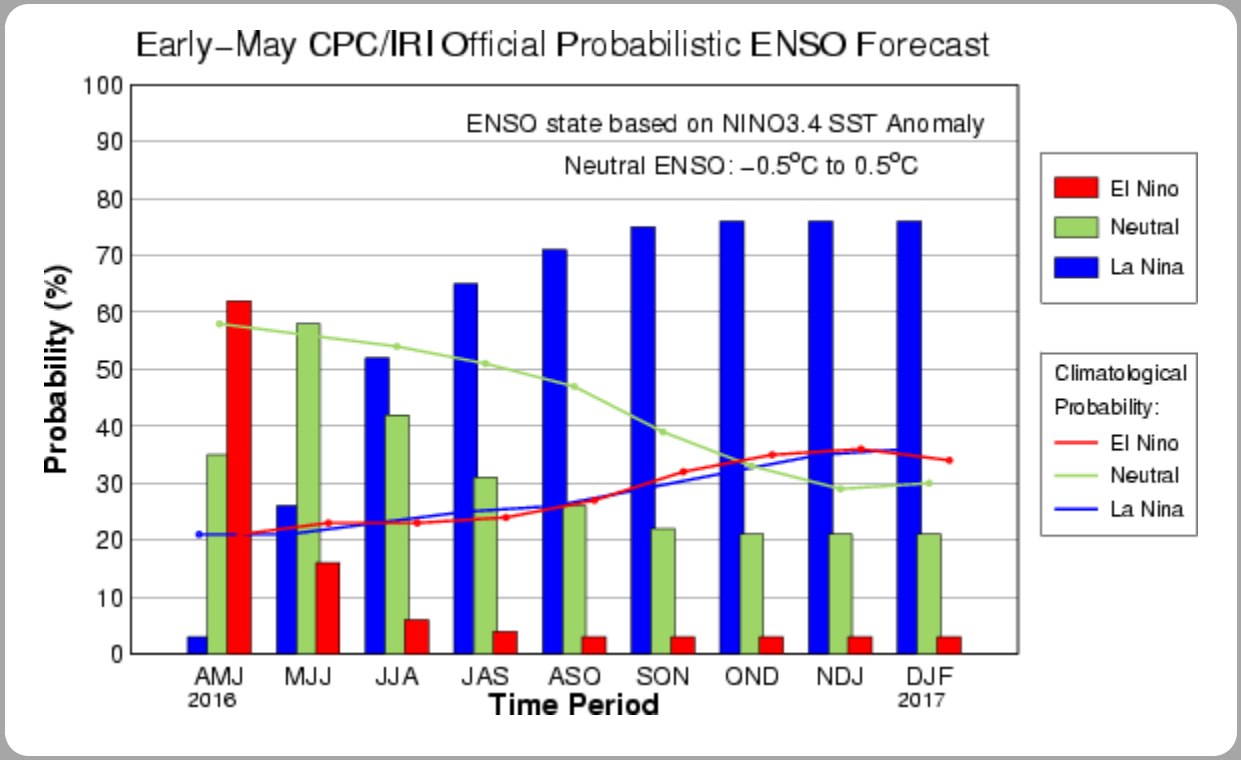
The ONI is one measure of the El Niño-Southern Oscillation, and other indices can confirm whether features consistent with a coupled ocean-atmosphere phenomenon accompanied these periods. The complete table going back to DJF 1950 can be found here.

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2004	0.3	0.2	0.1	0.1	0.2	0.3	0.5	0.7	0.7	0.7	0.7	0.7
2005	0.6	0.6	0.5	0.5	0.4	0.2	0.1	0.0	0.0	-0.1	-0.4	-0.7
2006	-0.7	-0.6	-0.4	-0.2	0.0	0.1	0.2	0.3	0.5	0.8	0.9	1.0
2007	0.7	0.3	0.0	-0.1	-0.2	-0.2	-0.3	-0.6	-0.8	-1.1	-1.2	-1.3
2008	-1.4	-1.3	-1.1	-0.9	-0.7	-0.5	-0.3	-0.2	-0.2	-0.3	-0.5	-0.7
2009	-0.8	-0.7	-0.4	-0.1	0.2	0.4	0.5	0.6	0.7	1.0	1.2	1.3
2010	1.3	1.1	0.8	0.5	0.0	-0.4	-0.8	-1.1	-1.3	-1.4	-1.3	-1.4
2011	-1.3	-1.1	-0.8	-0.6	-0.3	-0.2	-0.3	-0.5	-0.7	-0.9	-0.9	-0.8
2012	-0.7	-0.6	-0.5	-0.4	-0.3	-0.1	0.1	0.3	0.4	0.4	0.2	-0.2
2013	-0.4	-0.5	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3
2014	-0.5	-0.6	-0.4	-0.2	0.0	0.0	0.0	0.0	0.2	0.4	0.6	0.6
2015	0.5	0.4	0.5	0.7	0.9	1.0	1.2	1.5	1.8	2.1	2.2	2.3
2016	2.2	1.9	1.5	1.1								

CPC/IRI Probabilistic ENSO Outlook

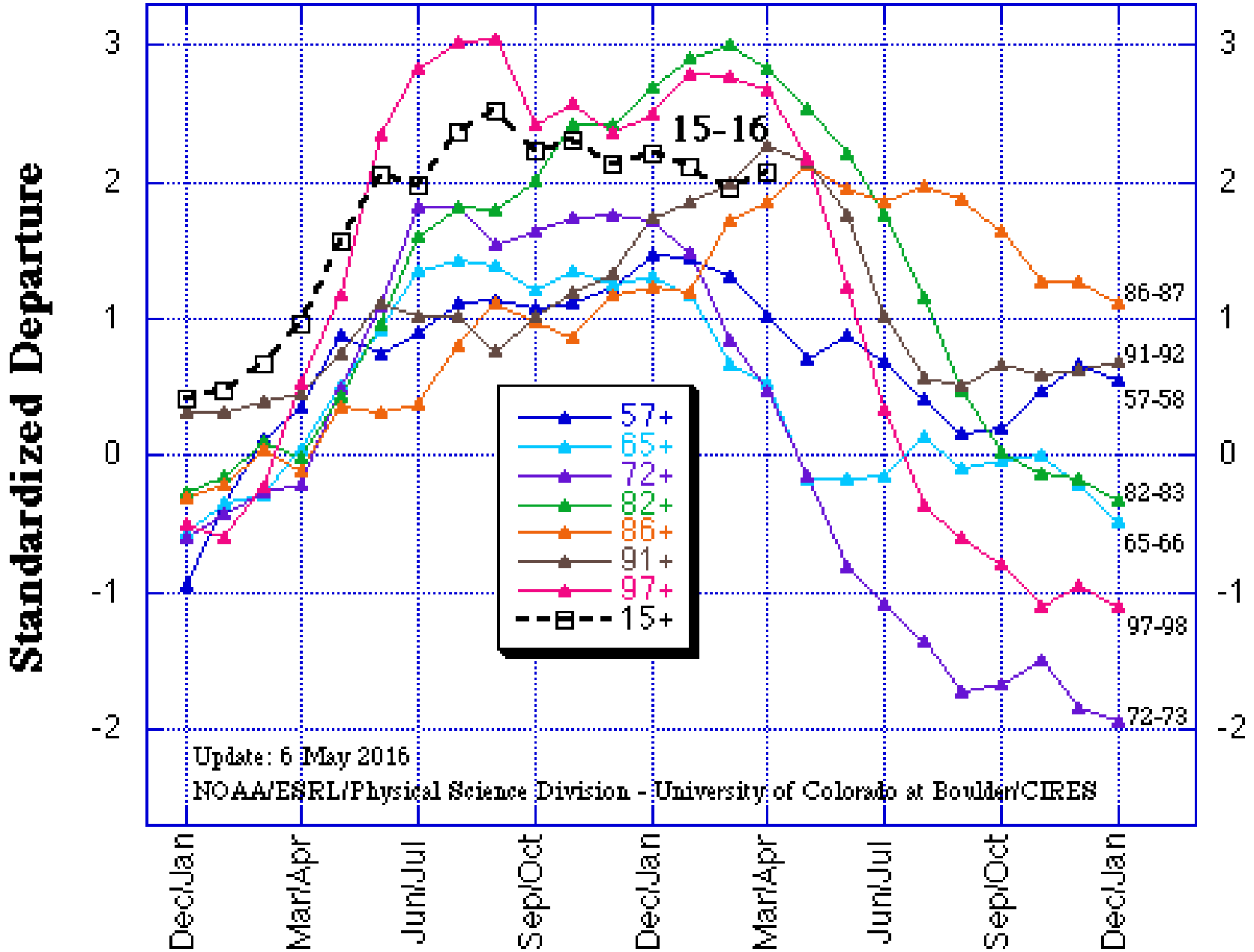
Updated: 12 May 2016

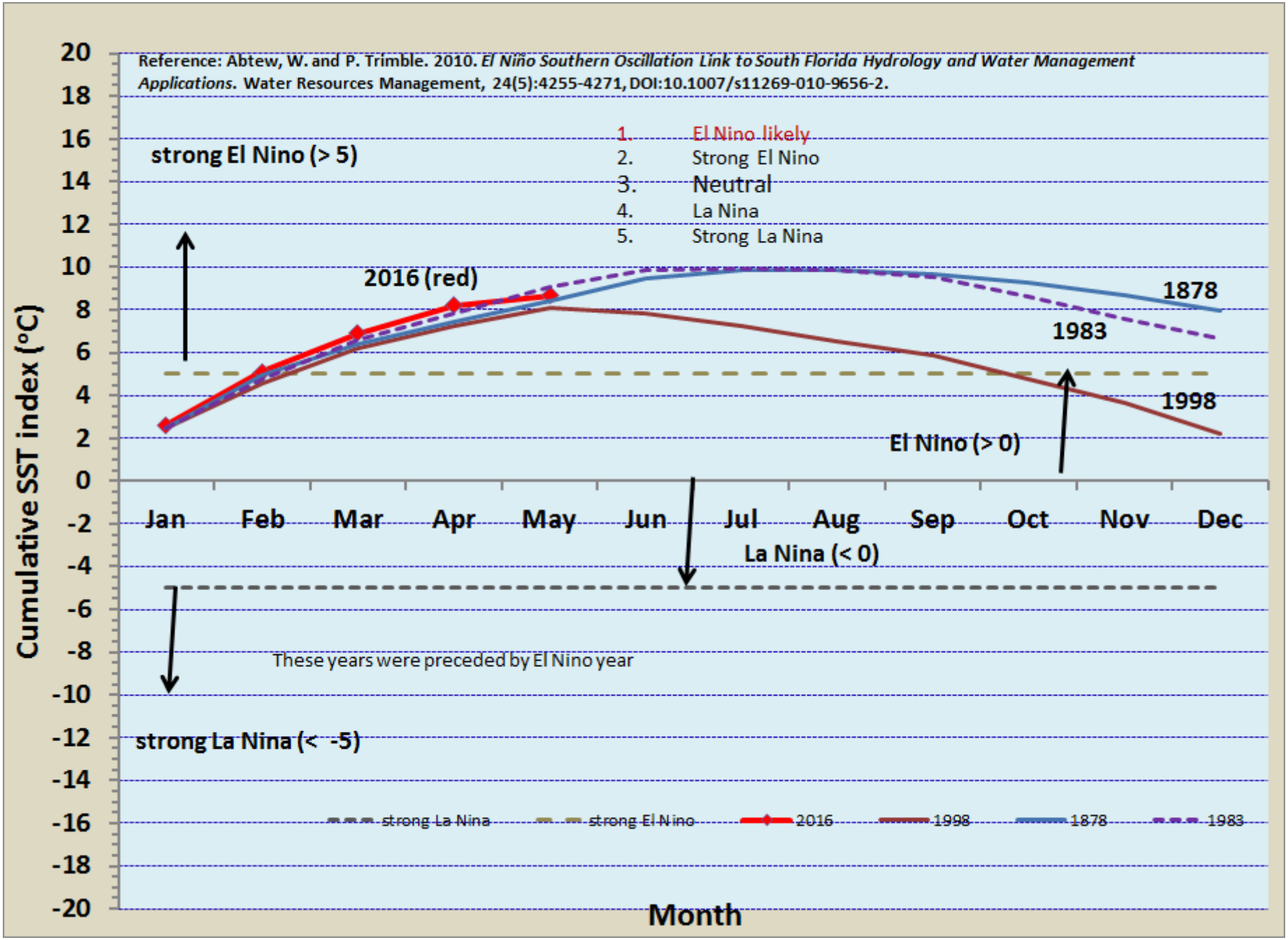
The chance of La Niña increases during the summer and is favored by June-July-August (JJA) 2016. The chance of La Niña is roughly 75% during the Northern Hemisphere fall and winter 2016-17.



Prepared by: Climate Prediction Center / IRI

Multivariate ENSO Index (MEI) for the seven strongest El Niño events since 1950 vs. 2015-16

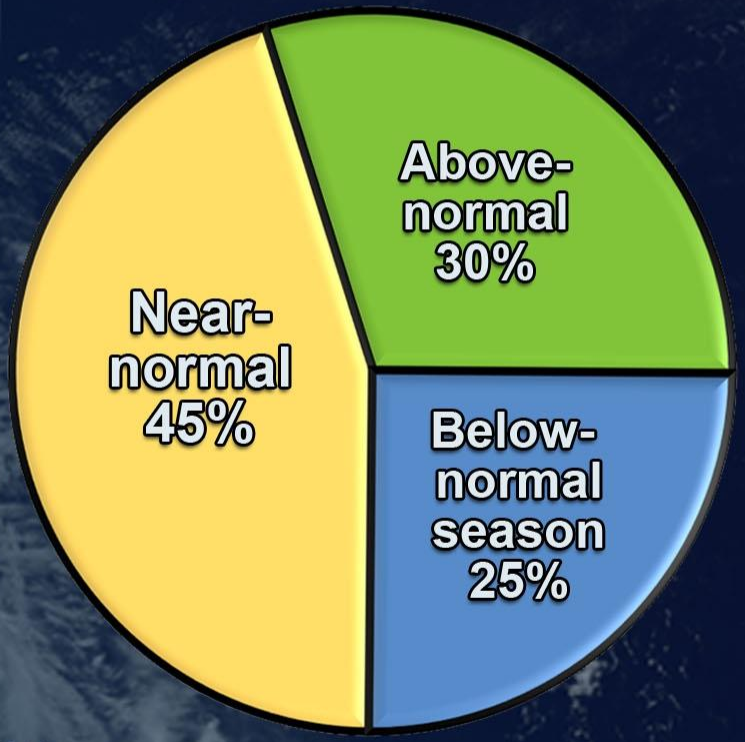




Source: Wossenu Abtew (SFWMD)

2016 Atlantic Hurricane Season Outlook

Named storms:	10 - 16
Hurricanes:	4 - 8
Major hurricanes:	1 - 4



Outlook probability

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

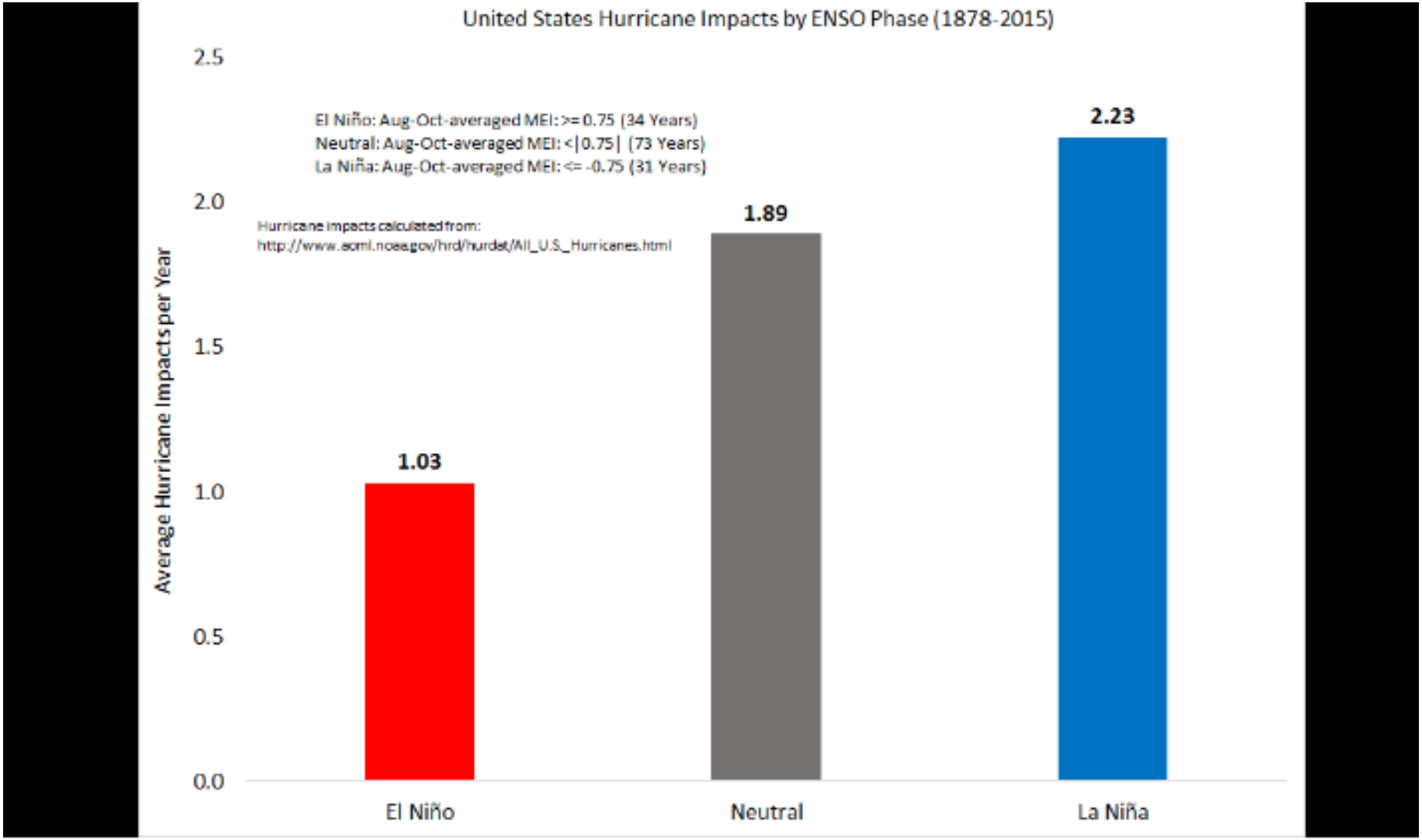
NOAA

Source: NOAA's National Hurricane Center

2016 Forecast for Atlantic Basin June-November TCs as of 1 June 2016

Forecast Parameter	Statistical Forecast	Final Forecast	1981-2010 Median
Named Storms (NS)	10.1	12	12.0
Named Storm Days (NSD)	47.9	50	60.1
Hurricanes (H)	5.6	5	6.5
Hurricane Days (HD)	20.8	20	21.3
Major Hurricanes (MH)	2.2	2	2.0
Major Hurricane Days (MHD)	4.8	4	3.9
Accumulated Cyclone Energy (ACE)	85	90	92
Net Tropical Cyclone Activity (NTC)	95	95	103

Source: Department of Atmospheric Science (CSU)

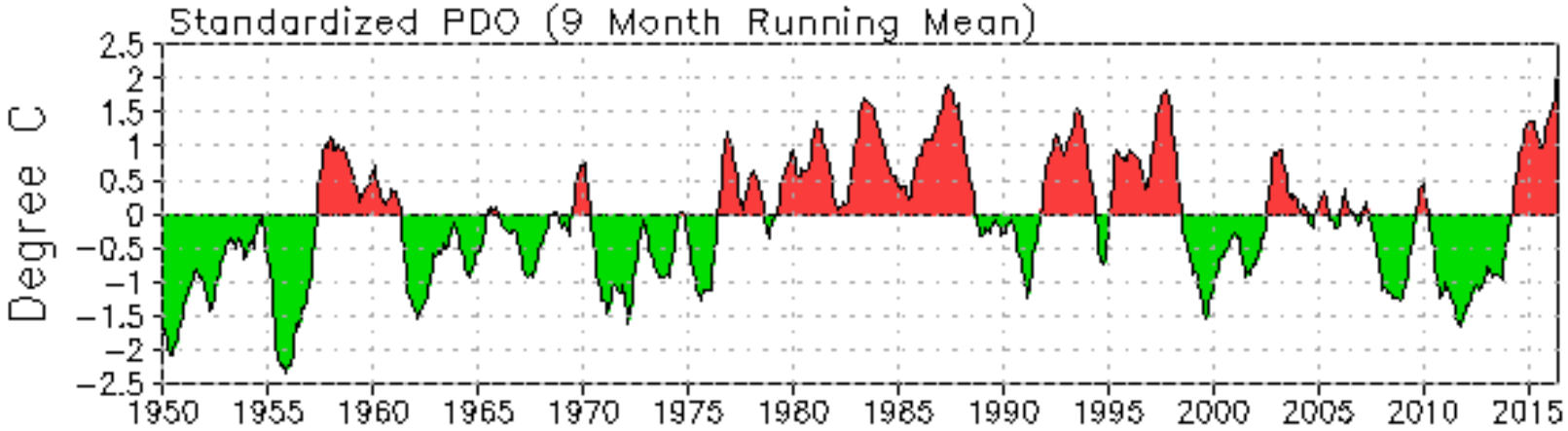


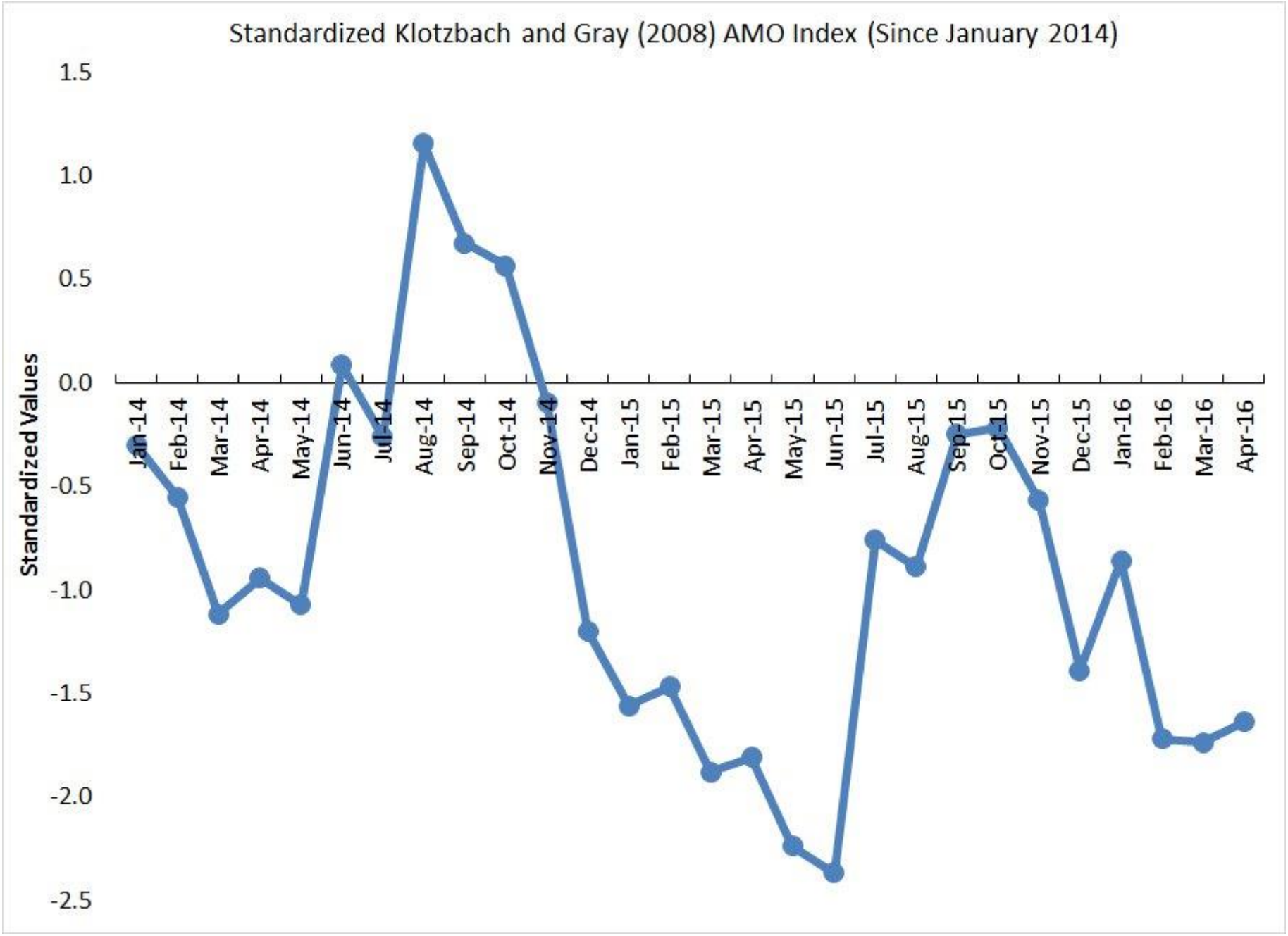
Philip Klotzbach @philklotzbach · 18 Dec 2015

Over twice as many hurricanes impact the United States in La Nina years vs. El Nino years. #ElNino

28 16

Source: Phil Klotzbach (CSU)


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 and Gray (2008) AMO Index (Since January 2014)
Standardized Values
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
Jan-14
Feb-14
Mar-14
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
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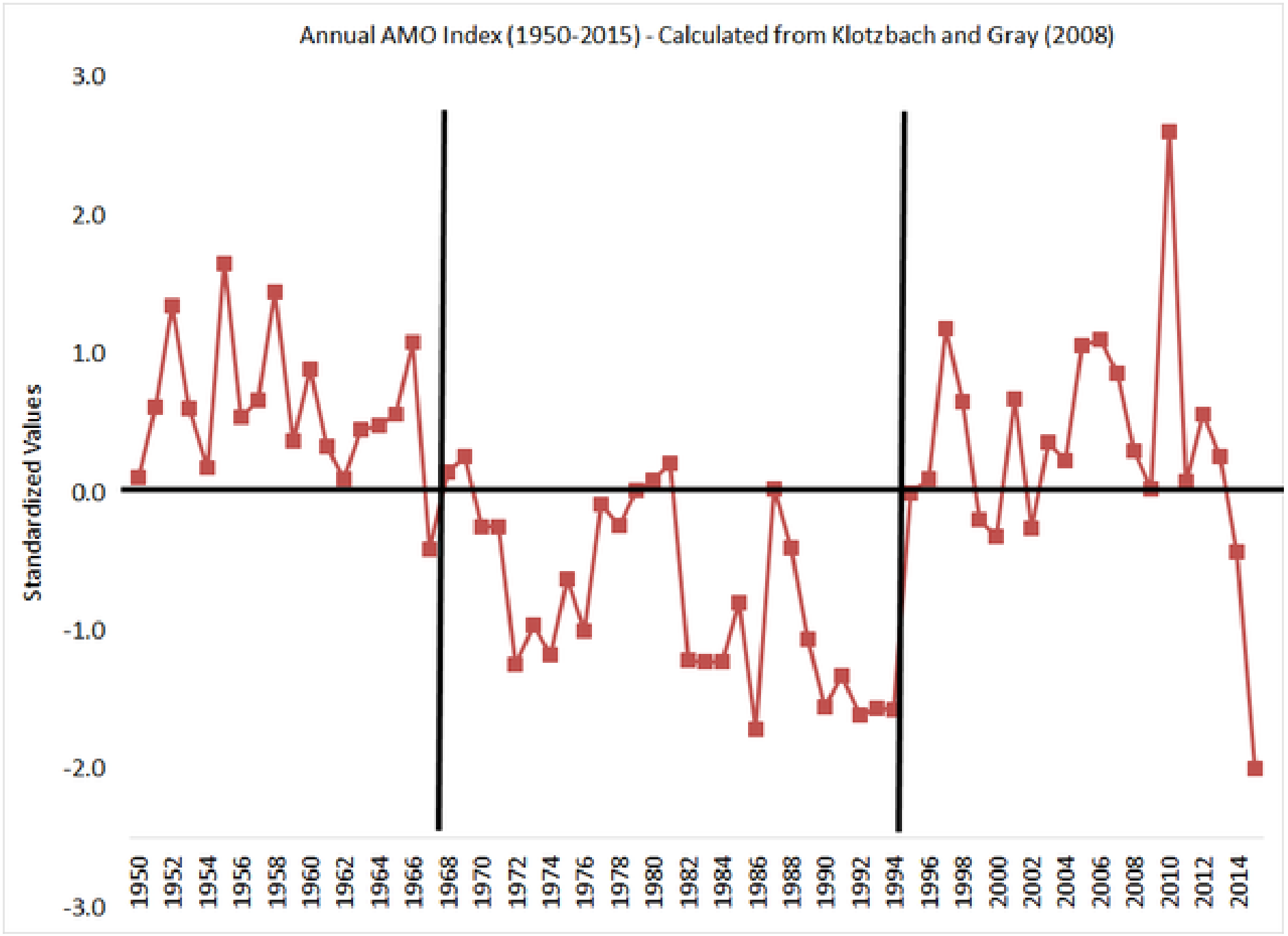
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16


Annual AMO Index (1950-2015) - Calculated from Klotzbach and Gray (2008)
Standardized Values
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
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1998
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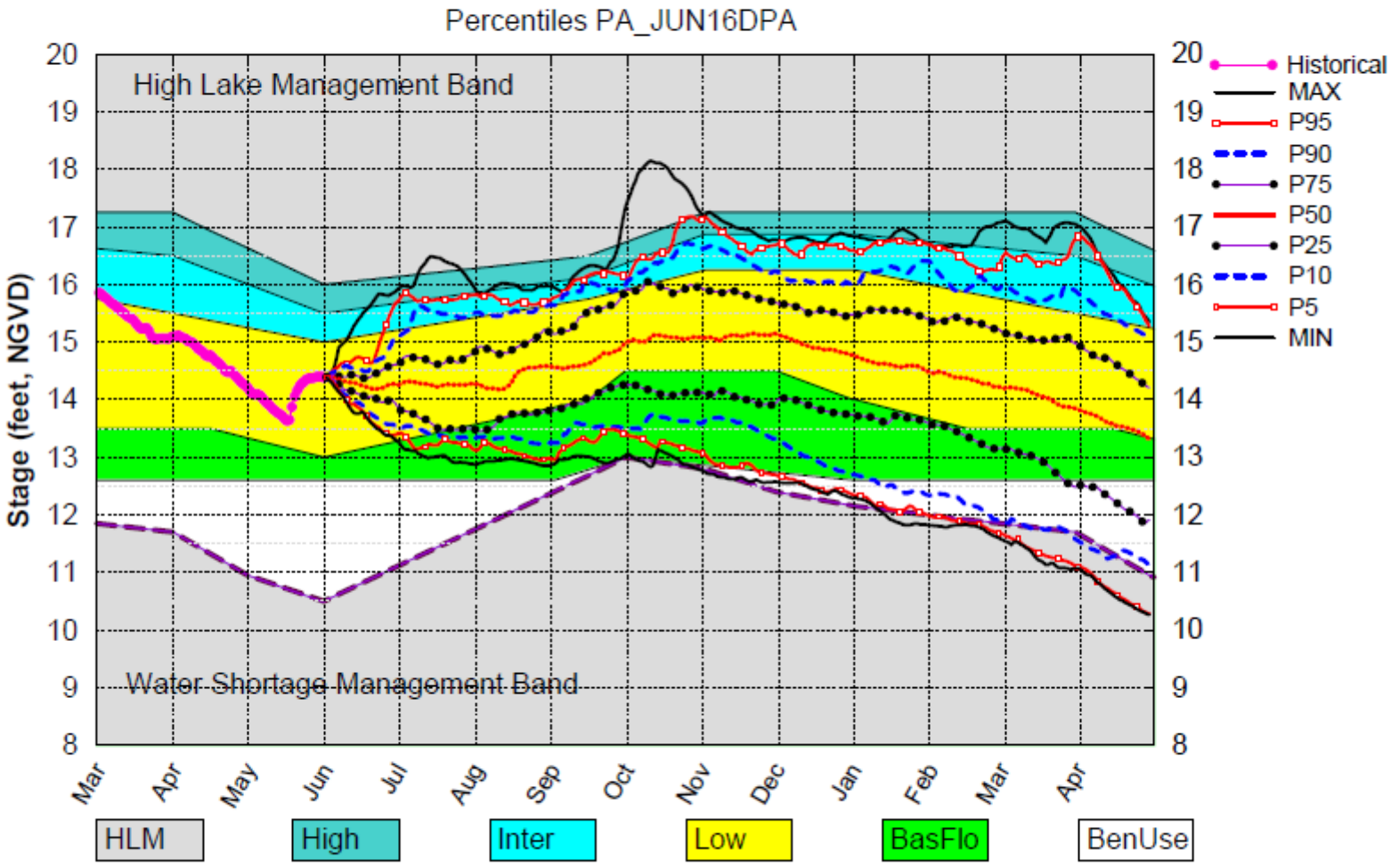
2002
2004
2006
2008
2010
2012
2014

Lake Okeechobee SFWMM June 2016 Dynamic Position Analysis

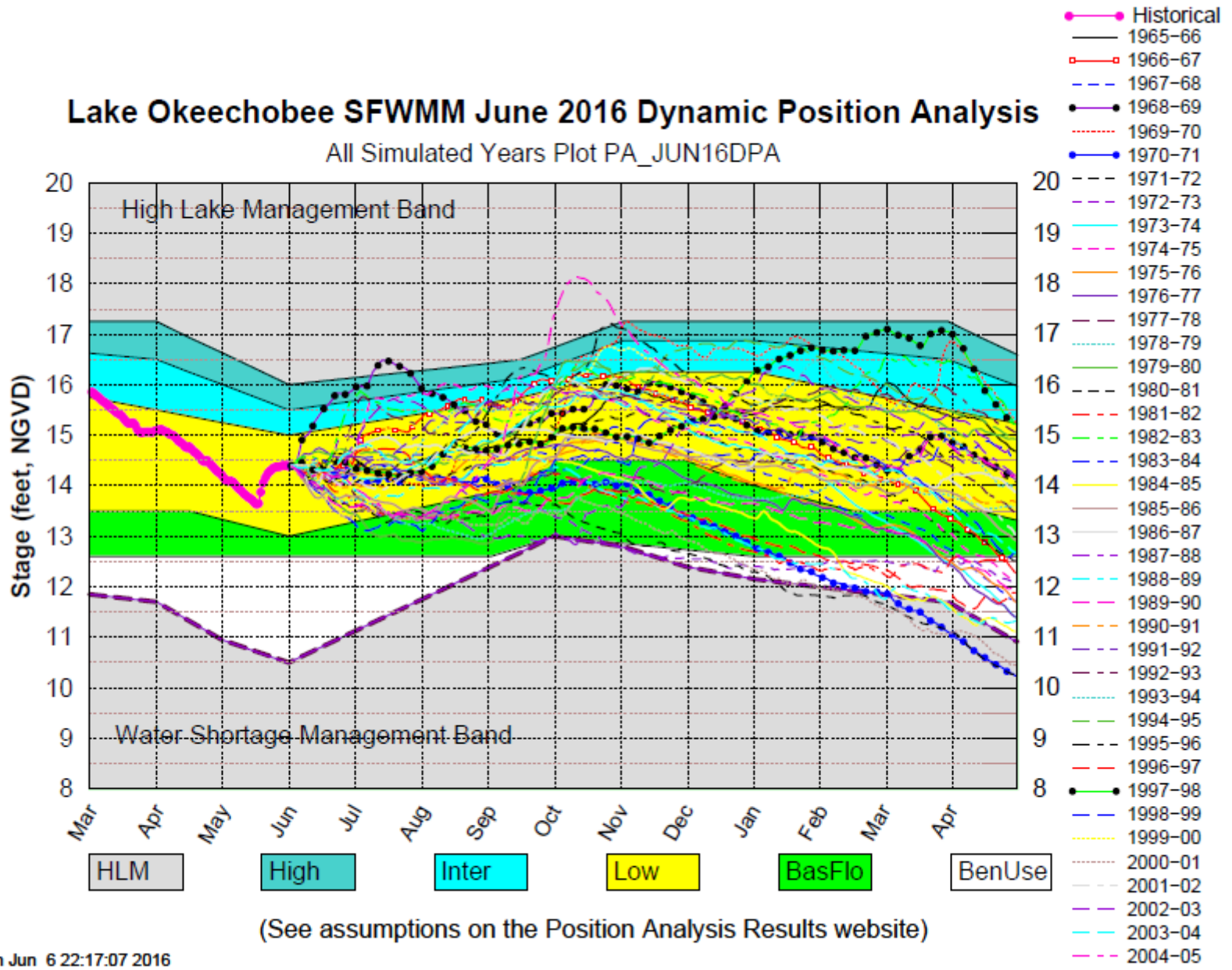


(See assumptions on the Position Analysis Results website)

Mon Jun 6 22:14:46 2016

Lake Okeechobee SFWMM June 2016 Dynamic Position Analysis

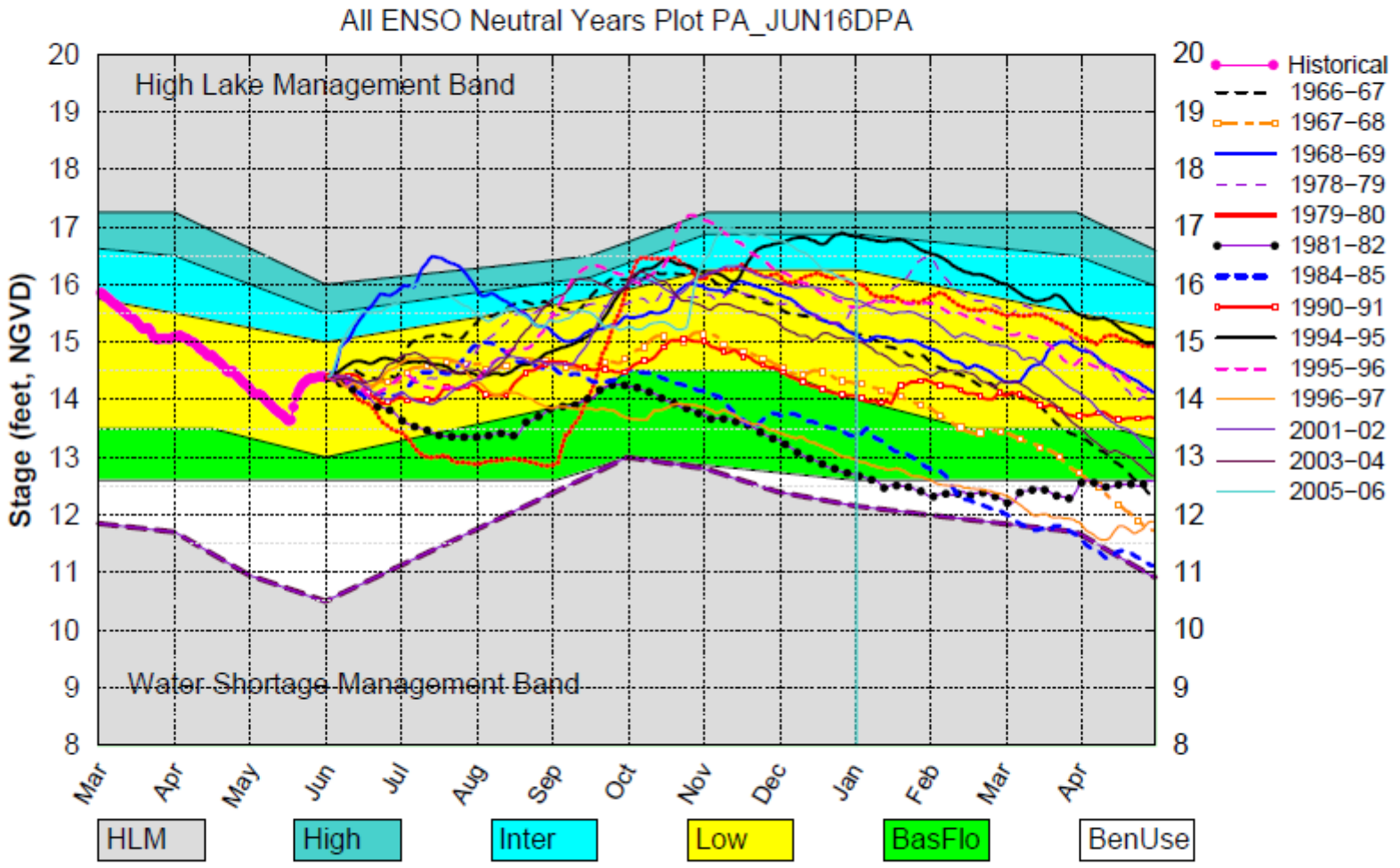
All Simulated Years Plot PA_JUN16DPA



(See assumptions on the Position Analysis Results website)

Mon Jun 6 22:17:07 2016

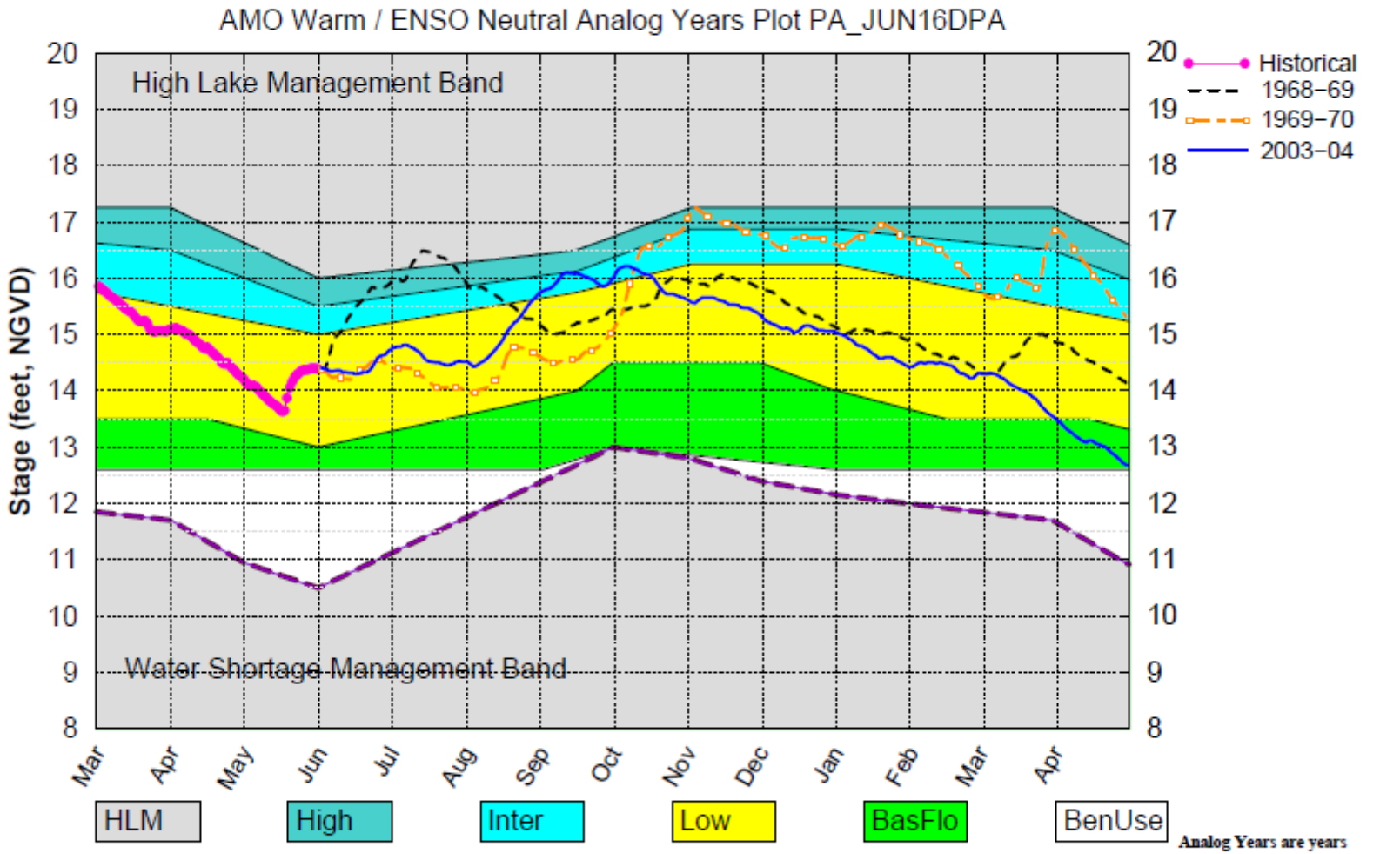
Lake Okeechobee SFWMM June 2016 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)

Mon Jun 6 22:15:14 2016

Lake Okeechobee SFWMM June 2016 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)

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

Mon Jun 6 22:15:17 2016