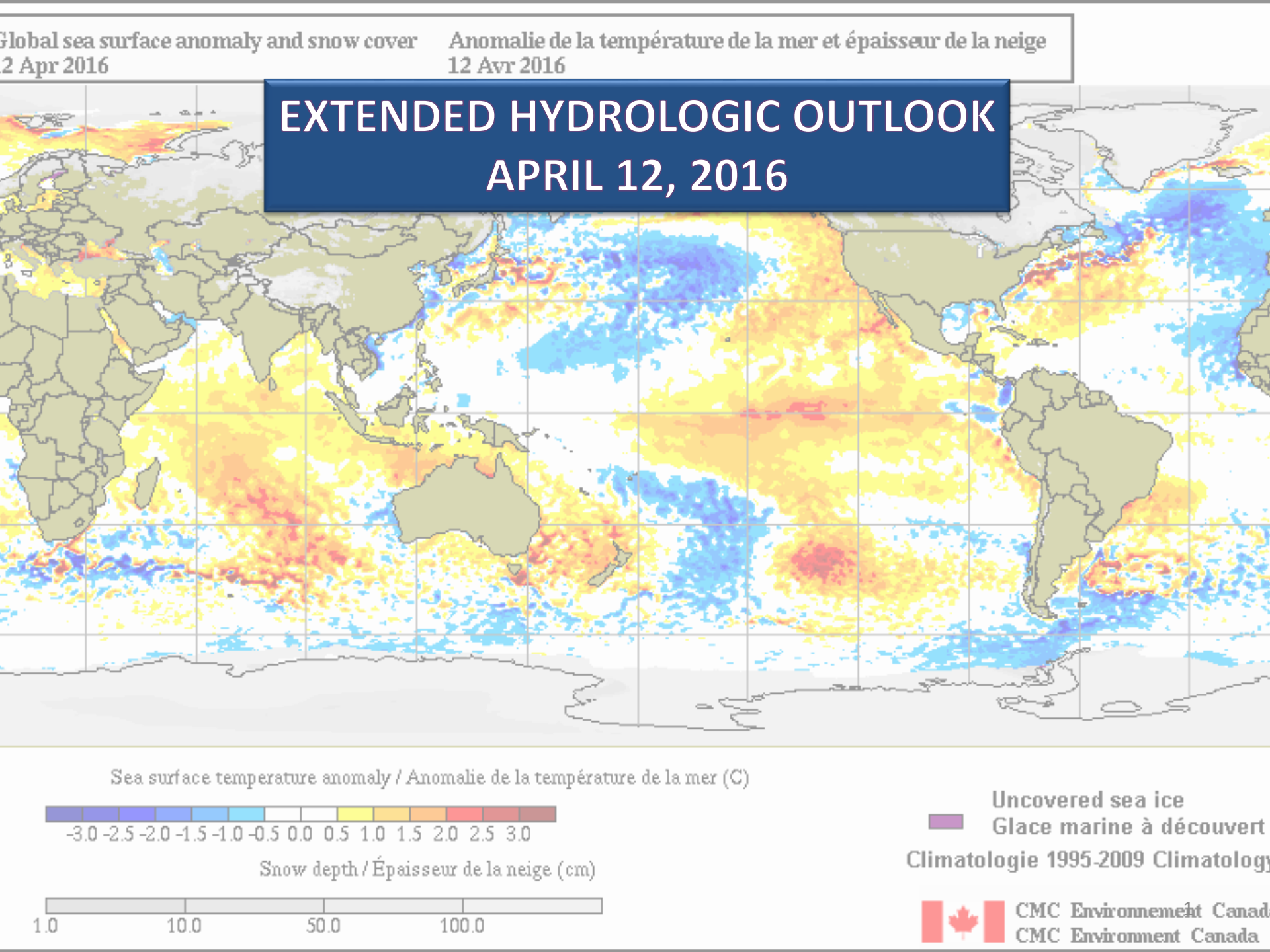

Global sea surface anomaly and snow cover
12 Apr 2016
Anomalie de la température de la mer et épaisseur de la neige
12 Avr 2016
EXTENDED HYDROLOGIC OUTLOOK
APRIL 12, 2016
Sea surface temperature anomaly / Anomalie de la température de la mer (C)
-3.0 -2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0
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

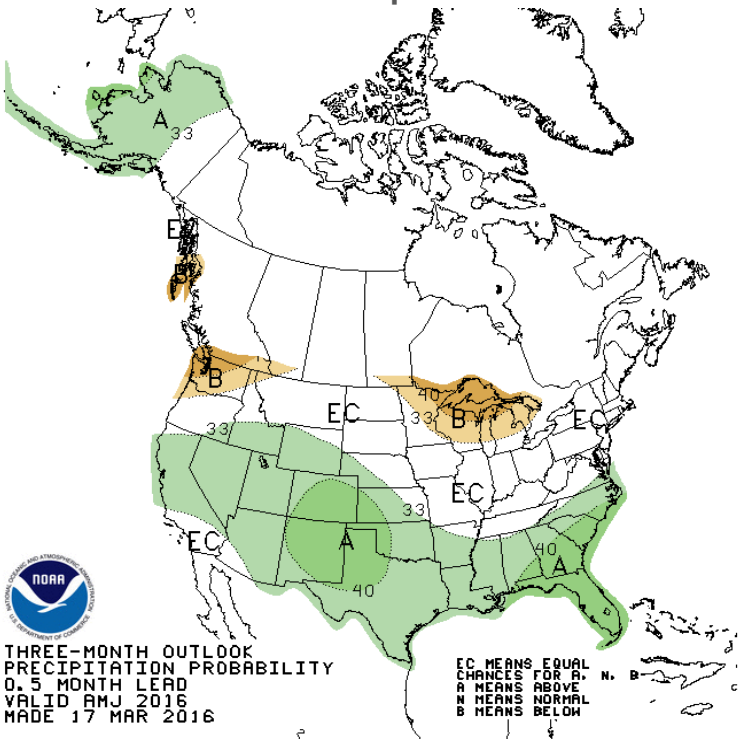
- **The Climate Prediction Center (CPC) is forecasting above normal rainfall for April through June.**
- **El Niño conditions are present. A transition to ENSO-neutral is likely during late spring and there is potential for a weak La Niña by summer 2016.**
- **The strong positive phase of the Pacific 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

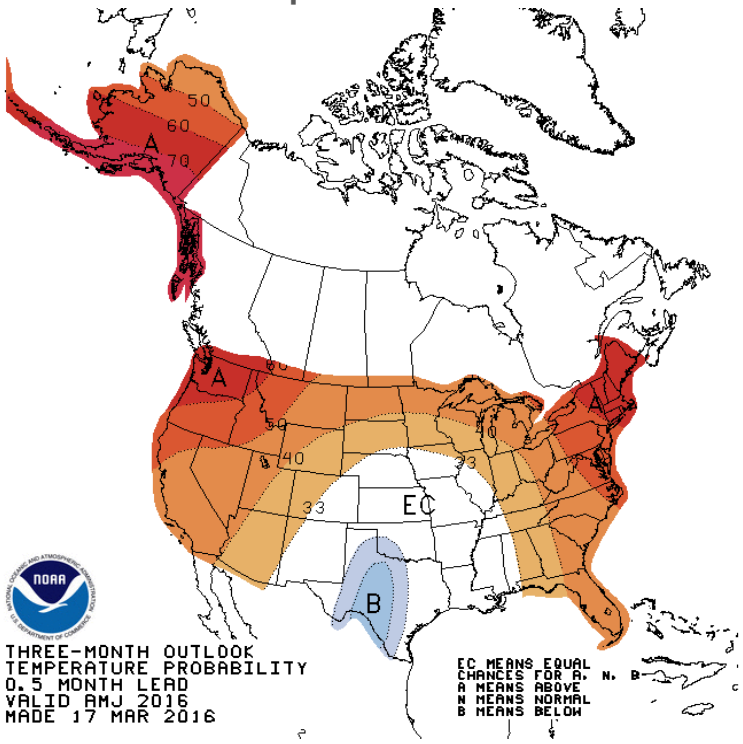
April - June 2016

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

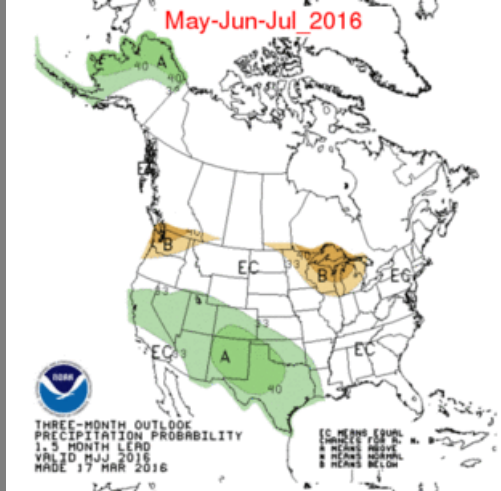
Precipitation

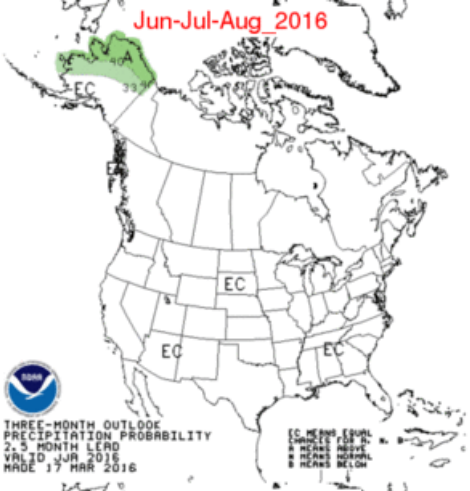


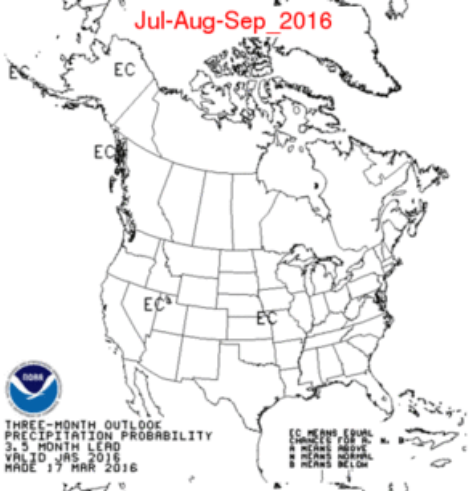
Temperature

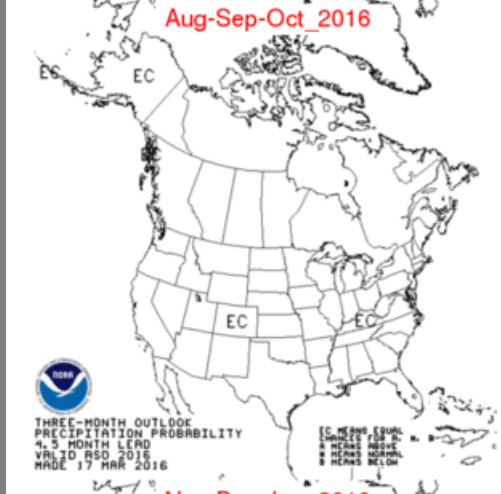


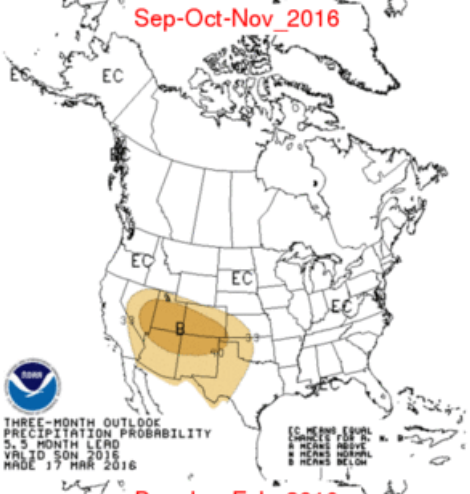
Prepared by: Climate Prediction Center / NCEP

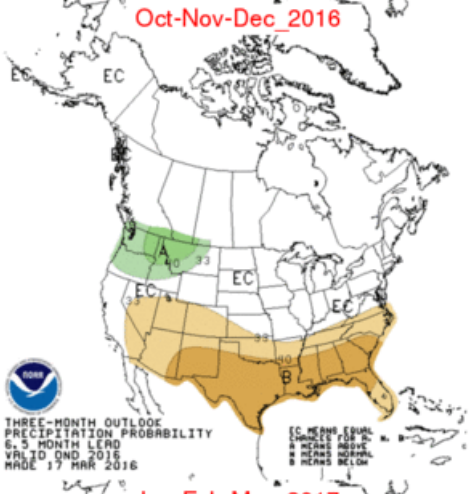


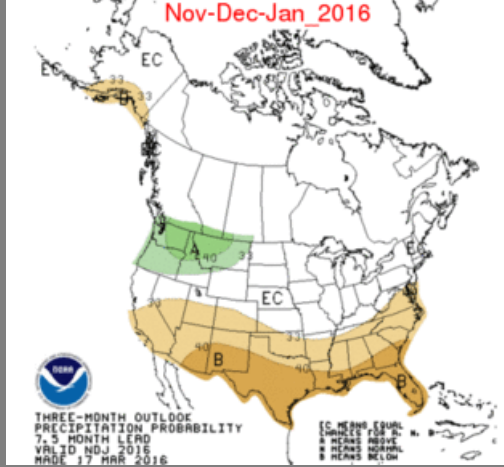


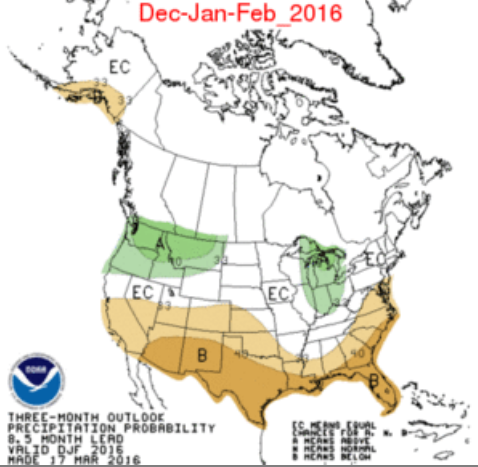


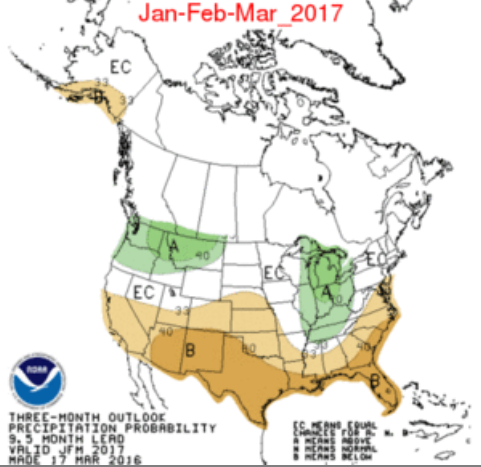






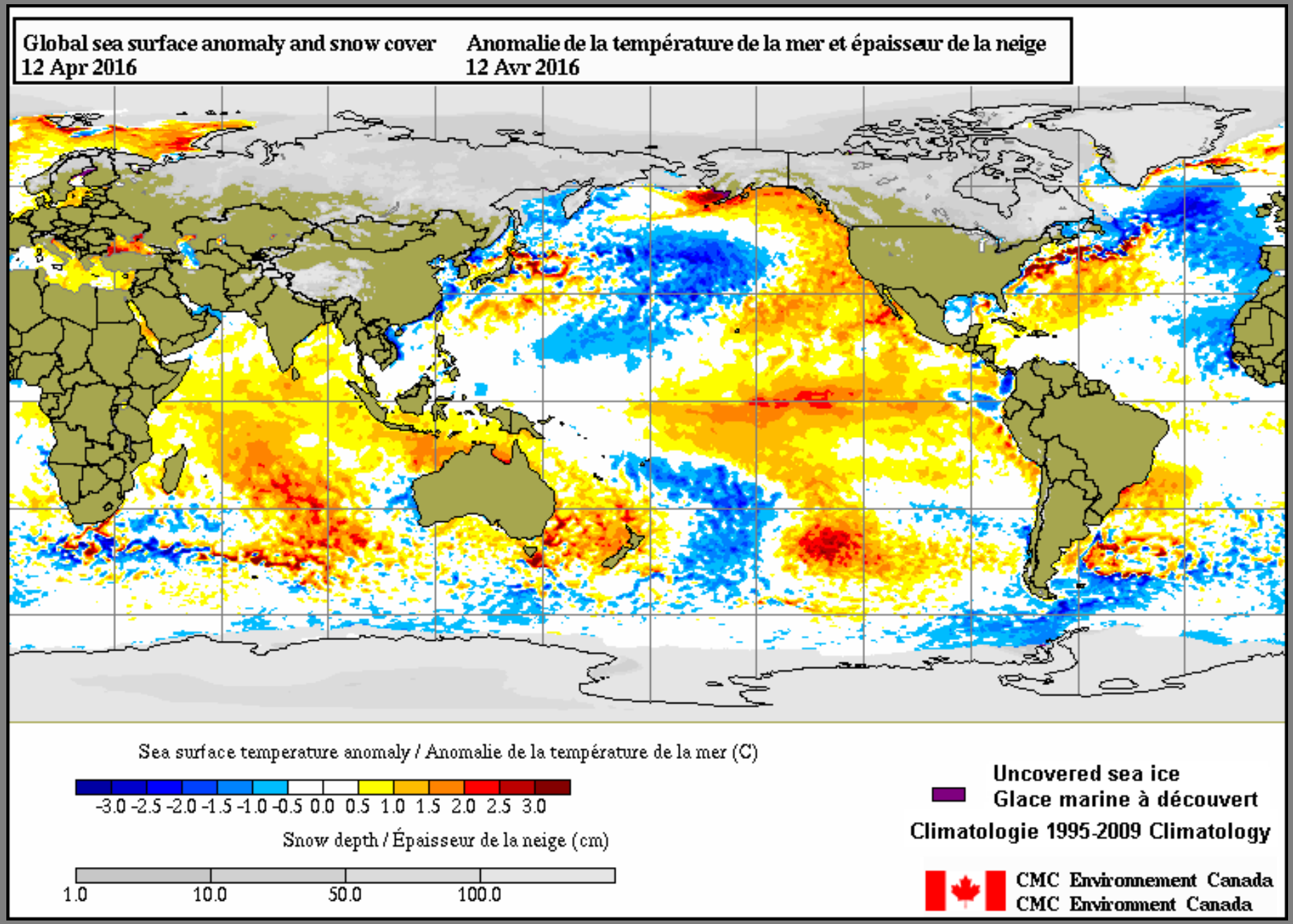






Prepared by: Climate Prediction Center / NCEP

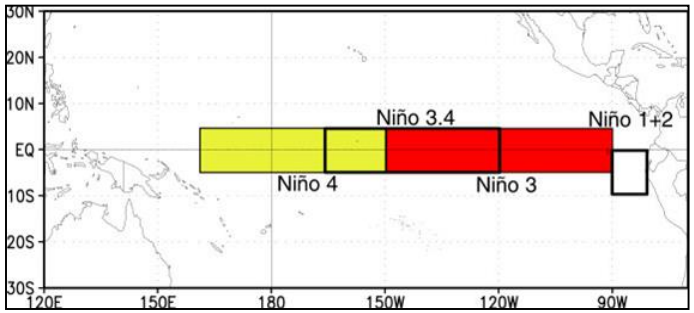
Current Global Sea Surface Temperature Anomalies

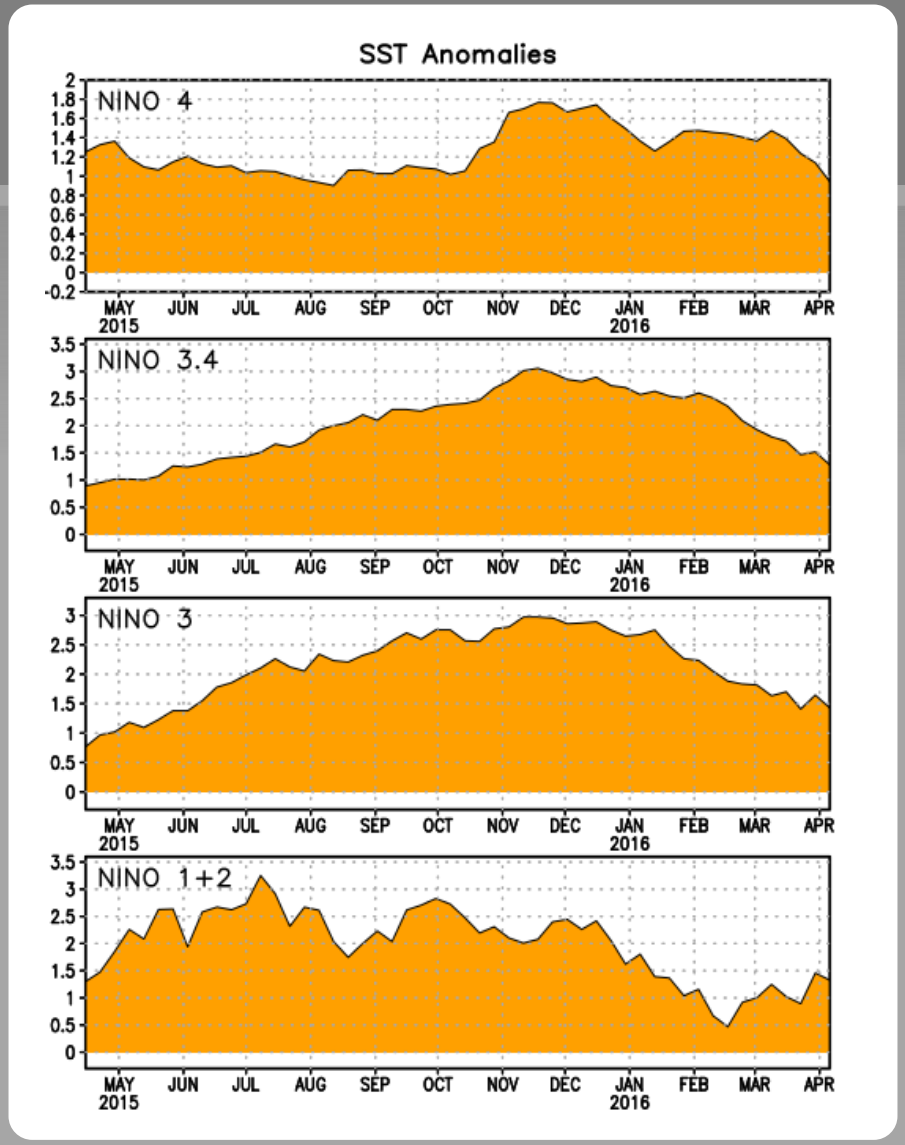


Niño Region SST Departures (ºC) Recent Evolution

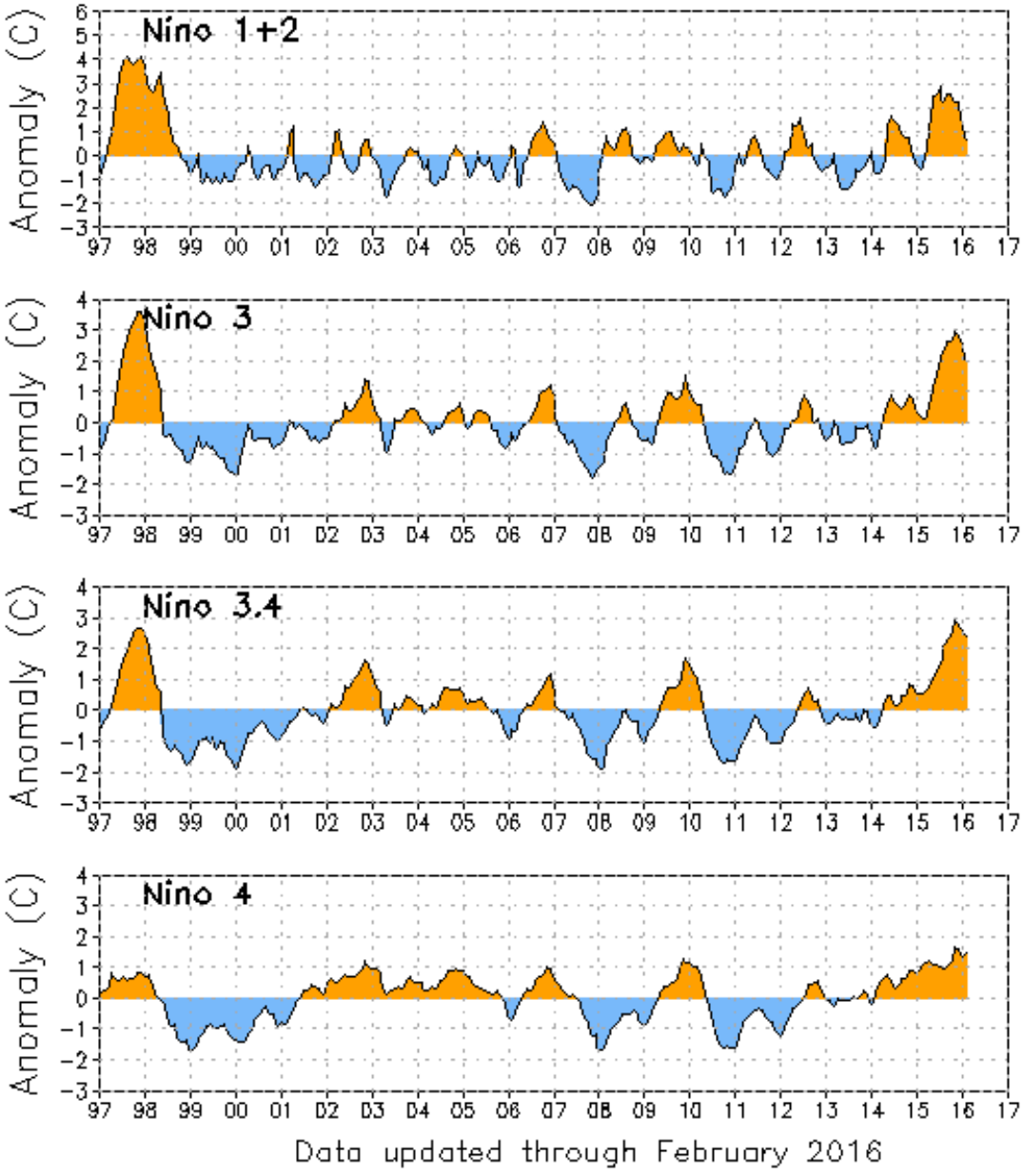
The latest weekly SST departures are:

Niño 4	0.9ºC
Niño 3.4	1.3ºC
Niño 3	1.4ºC
Niño 1+2	1.3ºC





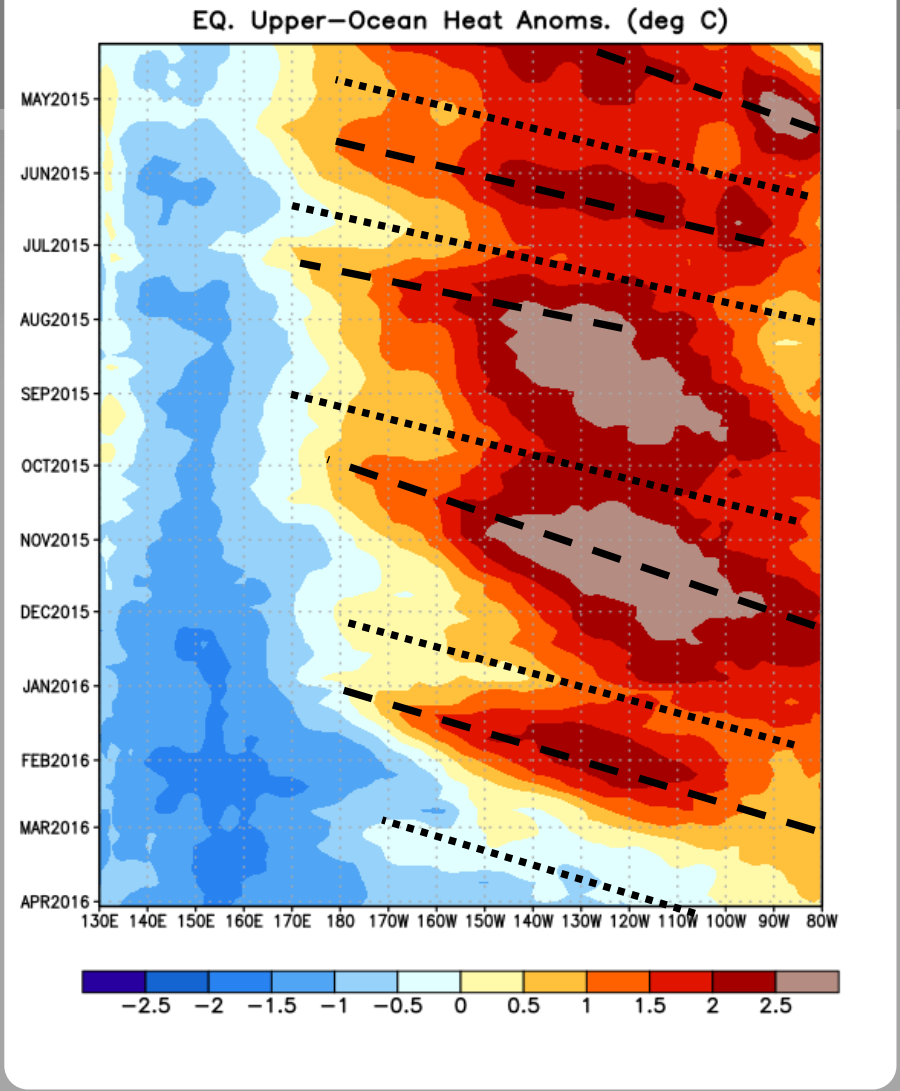
Prepared by: Climate Prediction Center / NCEP


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 February 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.

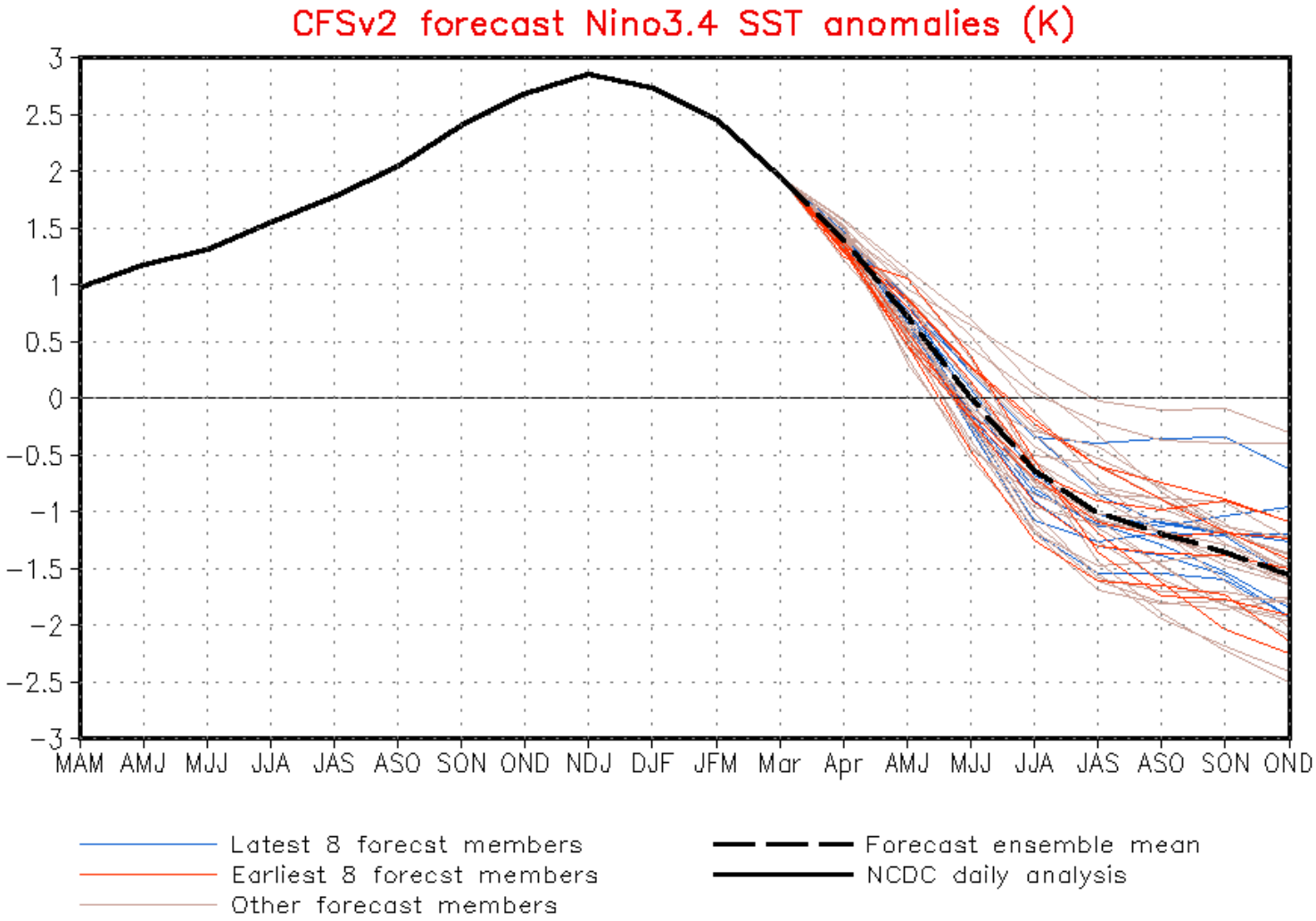
More recently, an upwelling phase is apparent in the eastern Pacific.



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 Apr 12 2016
Initial conditions: 1Apr2016–10Apr2016



IRI/CPC Pacific Niño 3.4 SST Model Outlook

Positive Niño 3.4 SST anomalies are predicted to weaken through 2016.

Most models suggest a transition to ENSO-neutral by May-June-July (MJJ) 2016 with the possibility of La Niña conditions during the Northern Hemisphere fall.

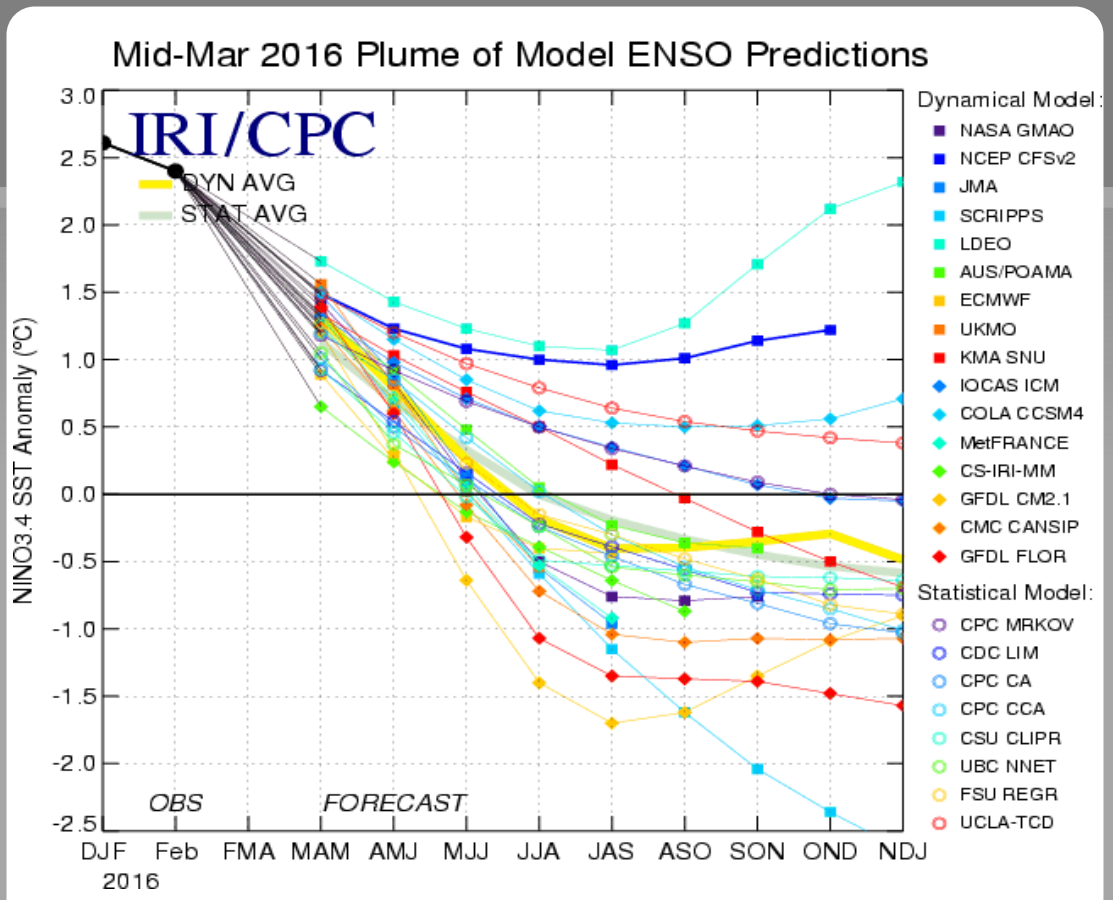


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 15 March 2016).

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.

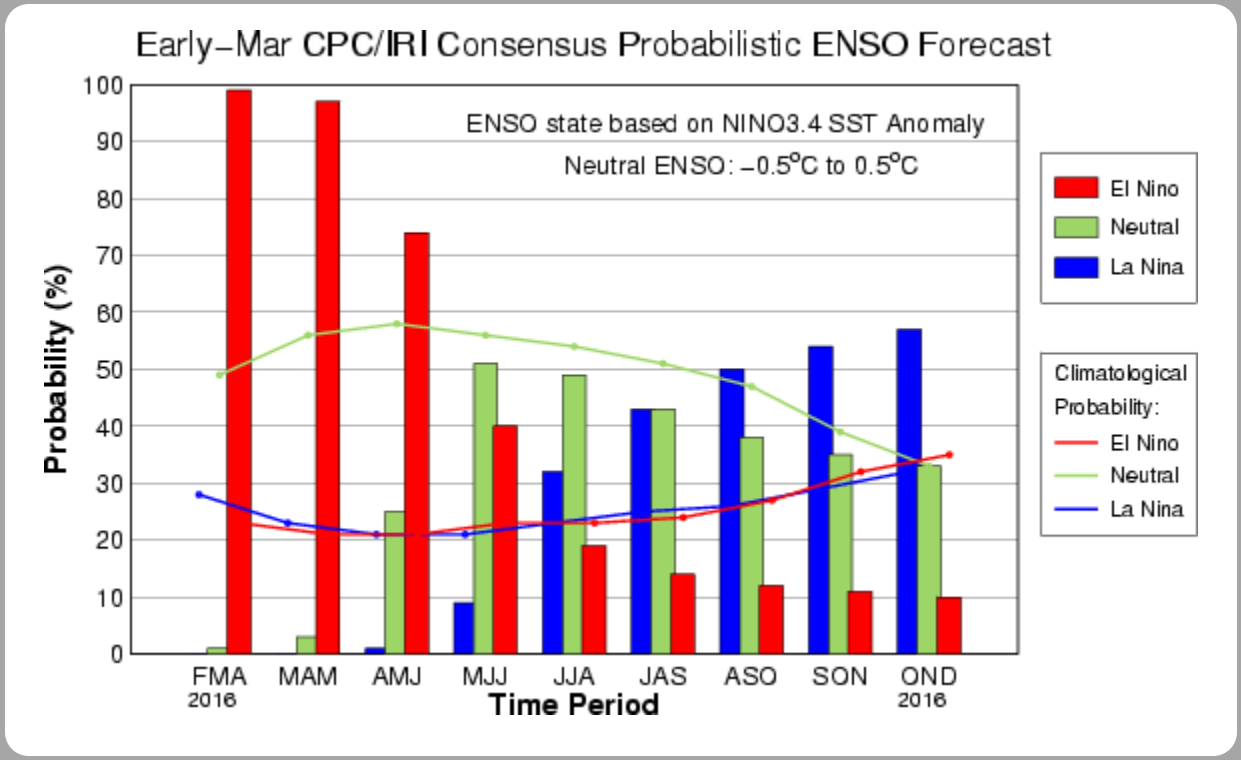
The ONI is one measure of the El Niño-Southern Oscillation, and other indices can confirm whether features consistent with a coupled ocean-atmosphere phenomenon accompanied these periods. The complete table going back to DJF 1950 can be found here.

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	2.0										

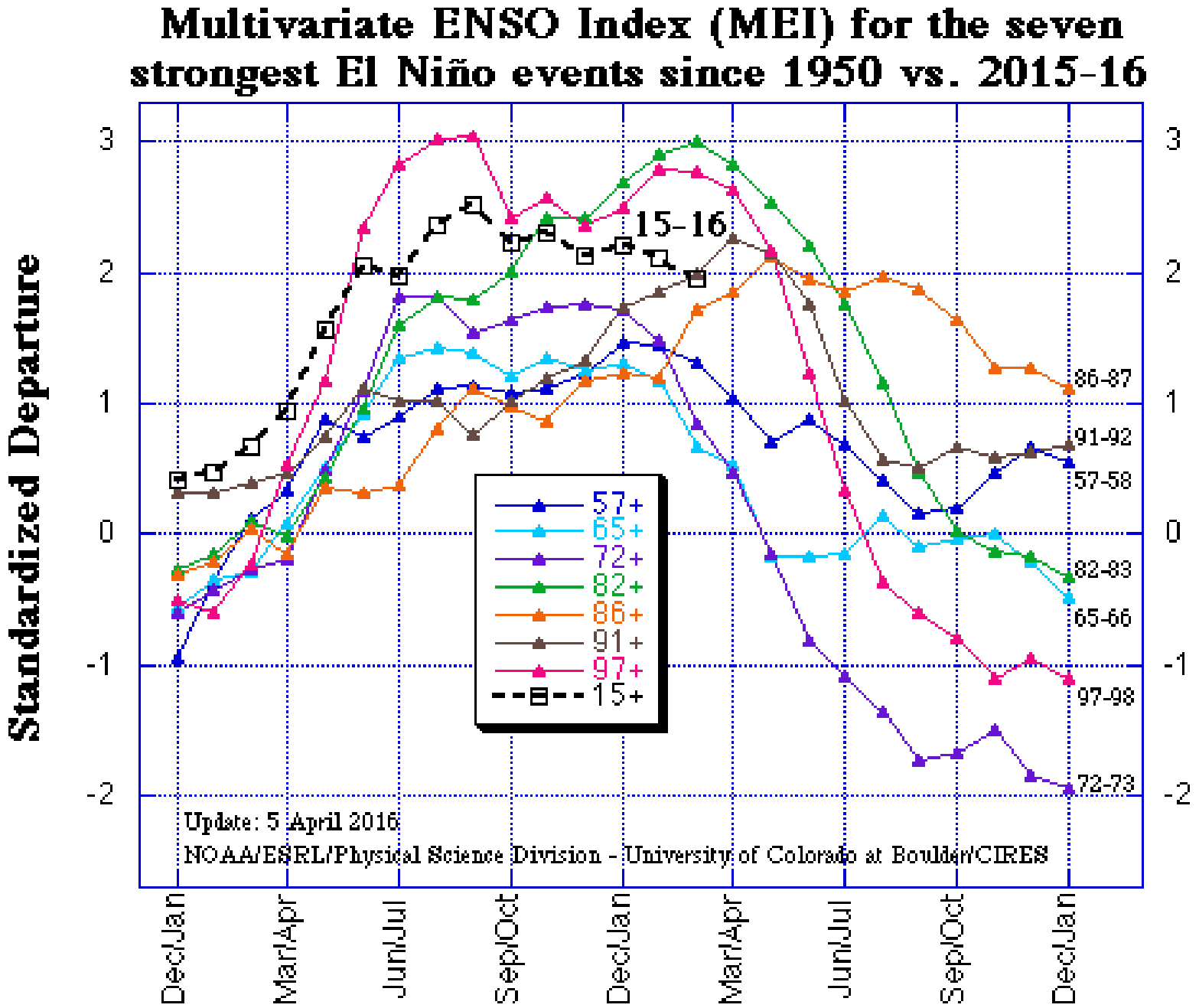
CPC/IRI Probabilistic ENSO Outlook

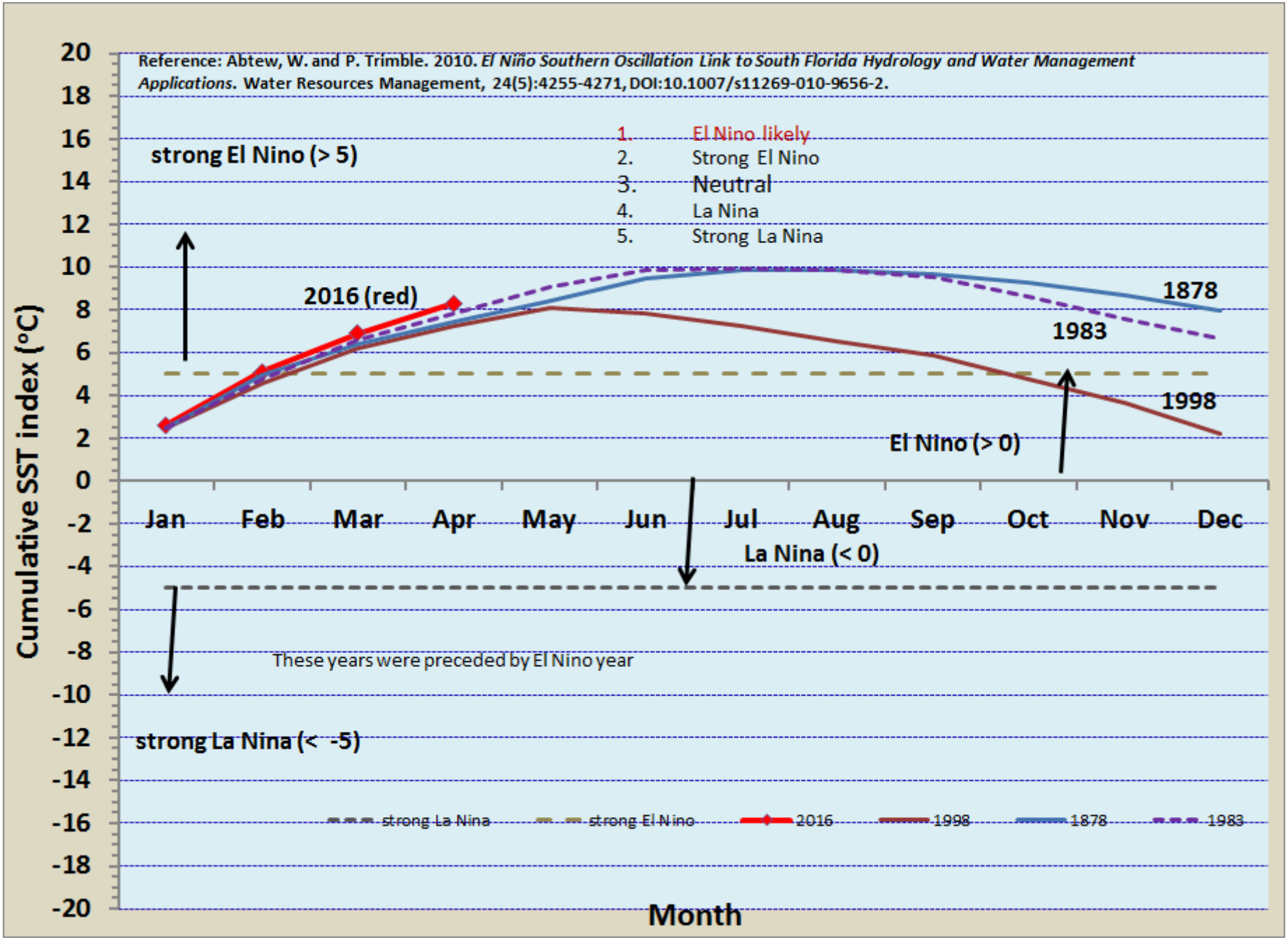
Updated: 10 March 2016

The chance of El Niño gradually decreases during the spring and ENSO-neutral is favored by May-June-July (MJJ) 2016. The chance of La Niña increases to 50% in August-September-October (ASO) 2016.

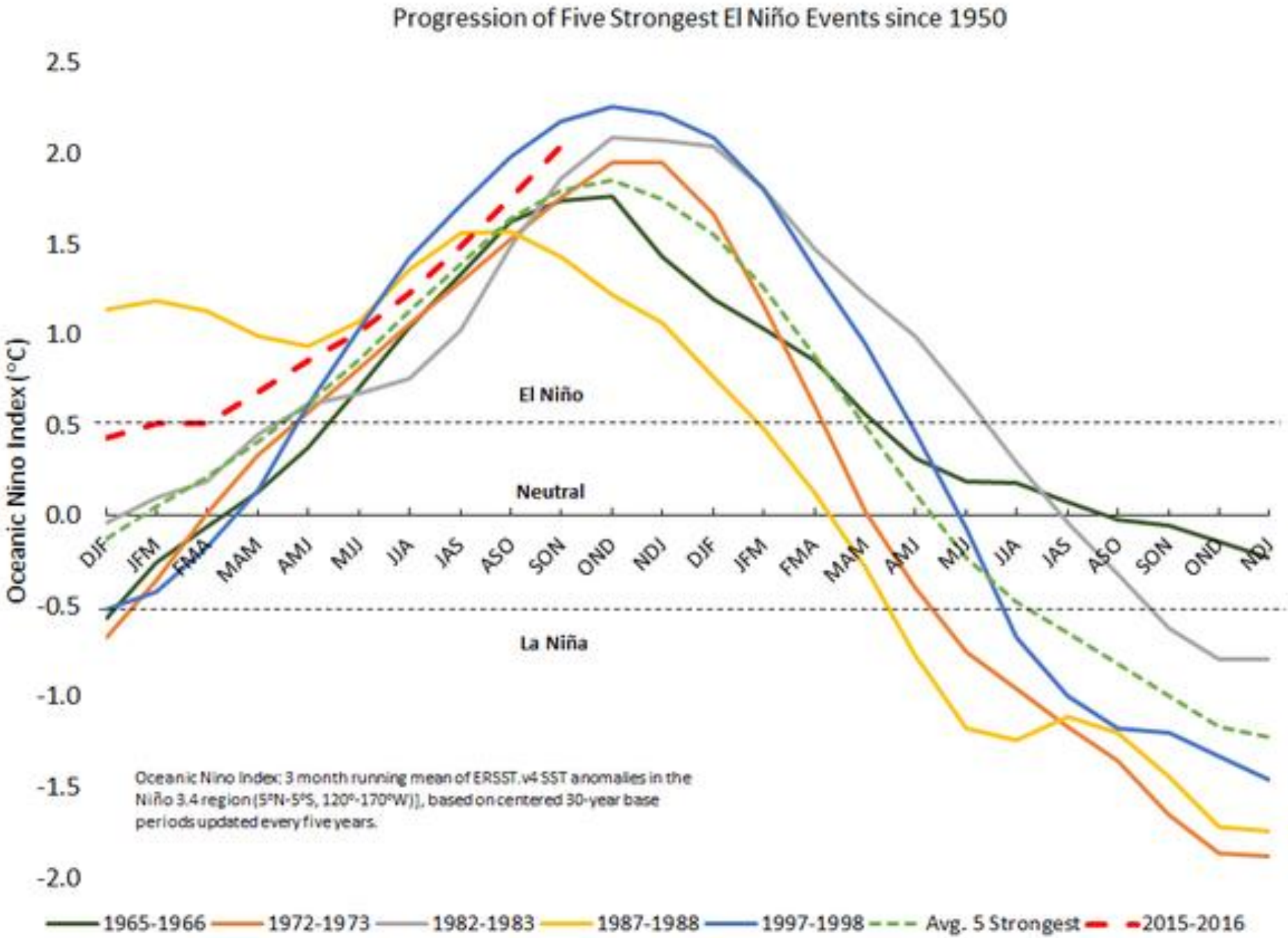


Prepared by: Climate Prediction Center / IRI

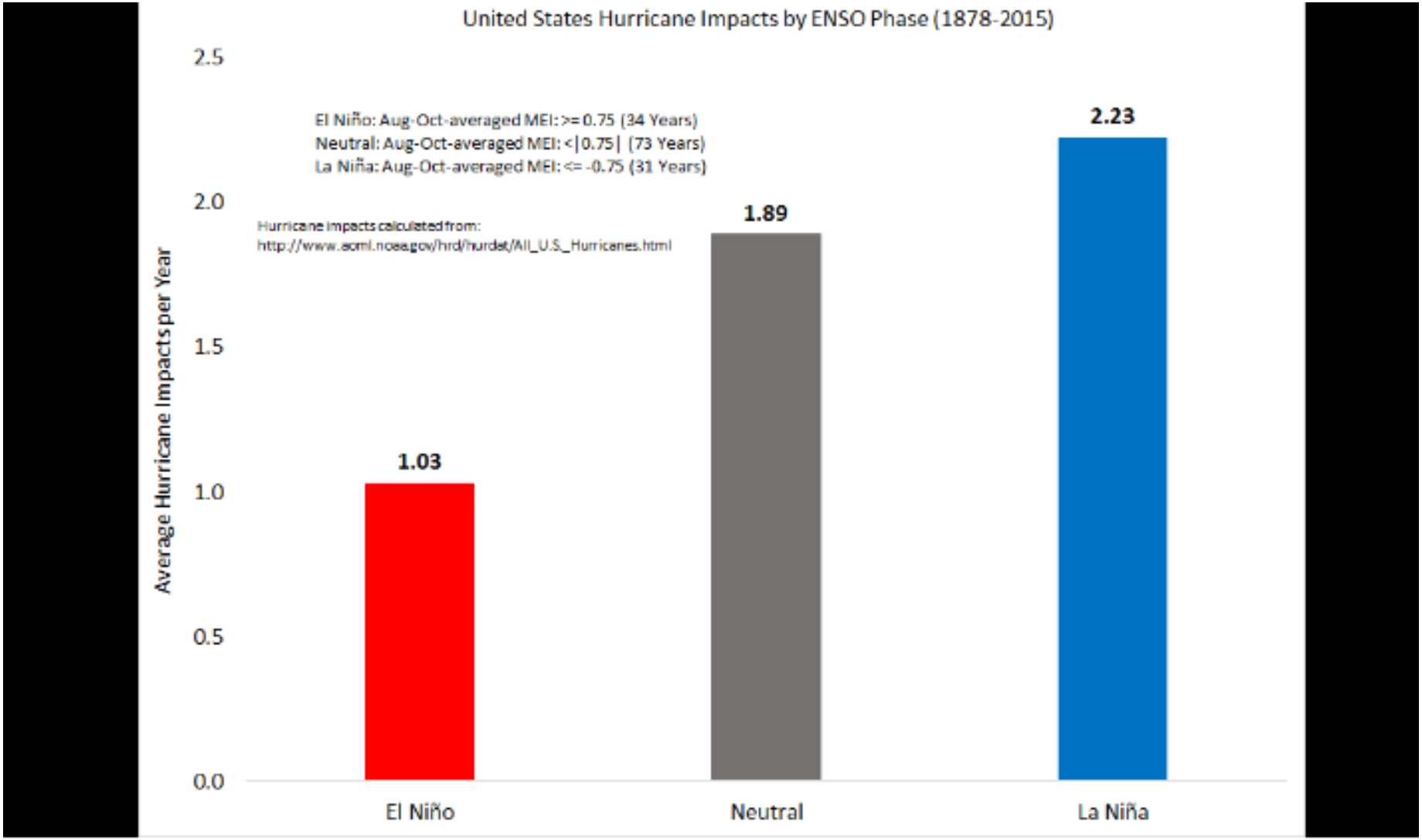

Multivariate ENSO Index (MEI) for the seven strongest El Niño events since 1950 vs. 2015-16
Standardized Departure
3
2
1
0
-1
-2
15-16
86-87
91-92
57-58
82-83
65-66
97-98
72-73
57+
65+
72+
82+
86+
91+
97+
15+
Update: 5 April 2016
NOAA/ESRL/Physical Science Division - University of Colorado at Boulder/CIRES
DecJan
MarApr
JunJul
SepOct
DecJan
MarApr
JunJul
SepOct
DecJan



Source: Wossenu Abtew (SFWMD)



Source: Phil Klotzbach (CSU)

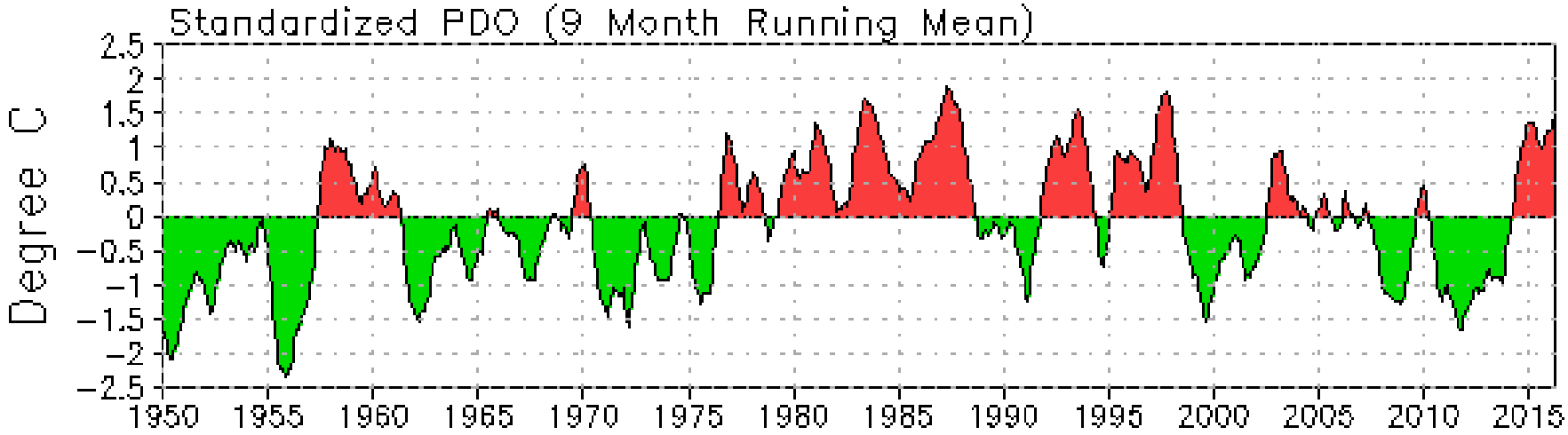


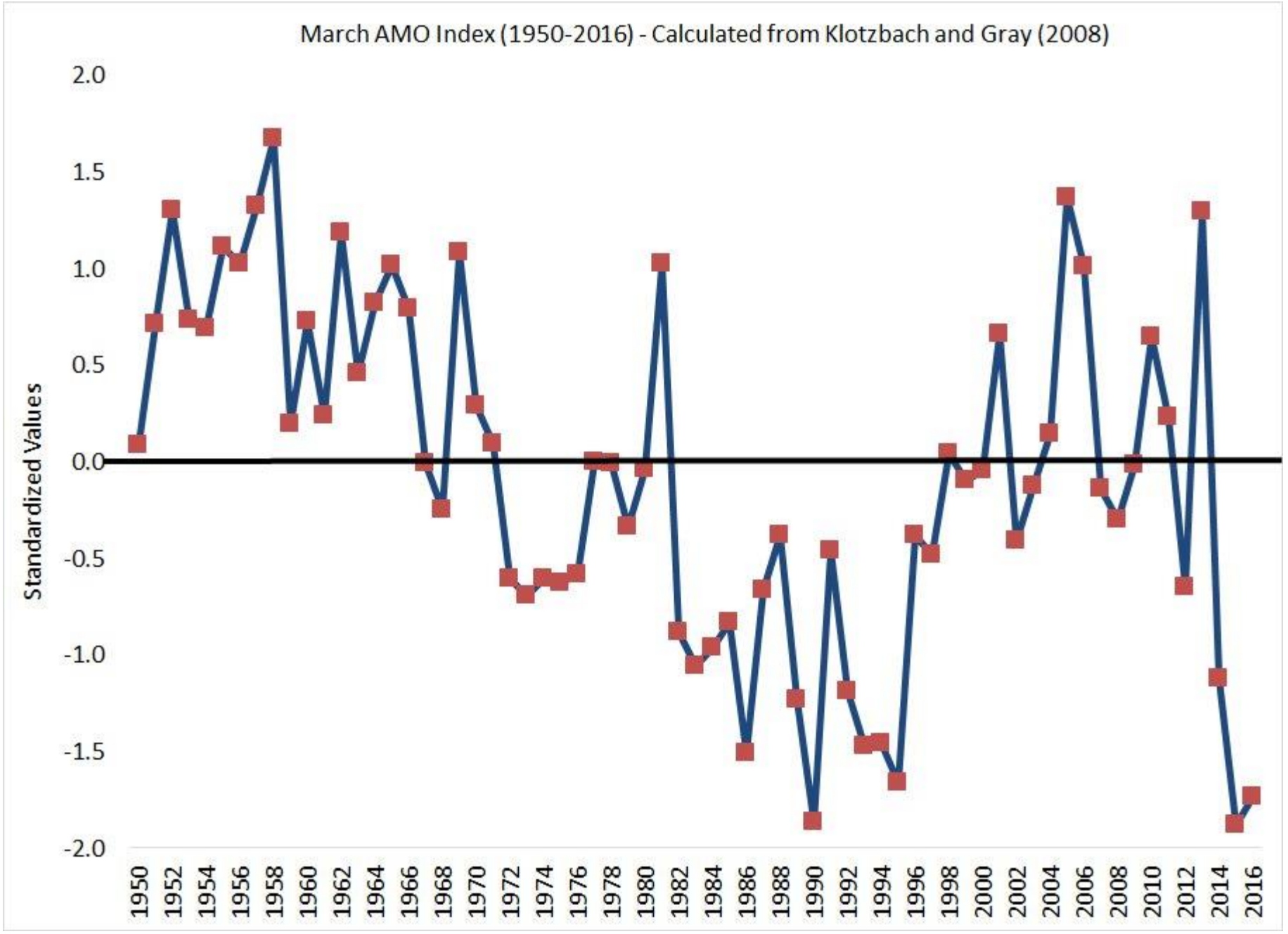
Philip Klotzbach @philklotzbach · 18 Dec 2015

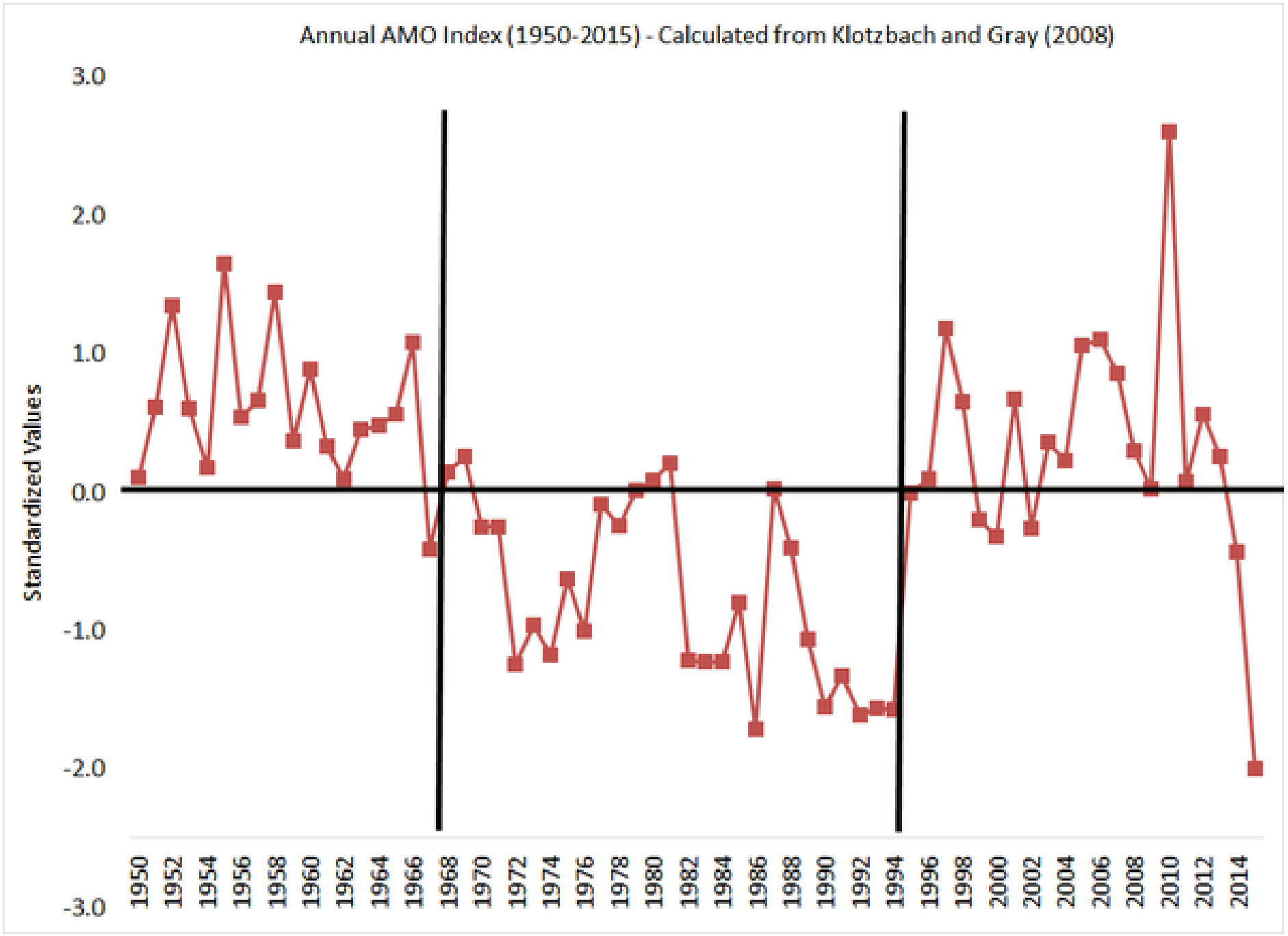
Over twice as many hurricanes impact the United States in La Nina years vs. El Nino years. #ElNino

28 16

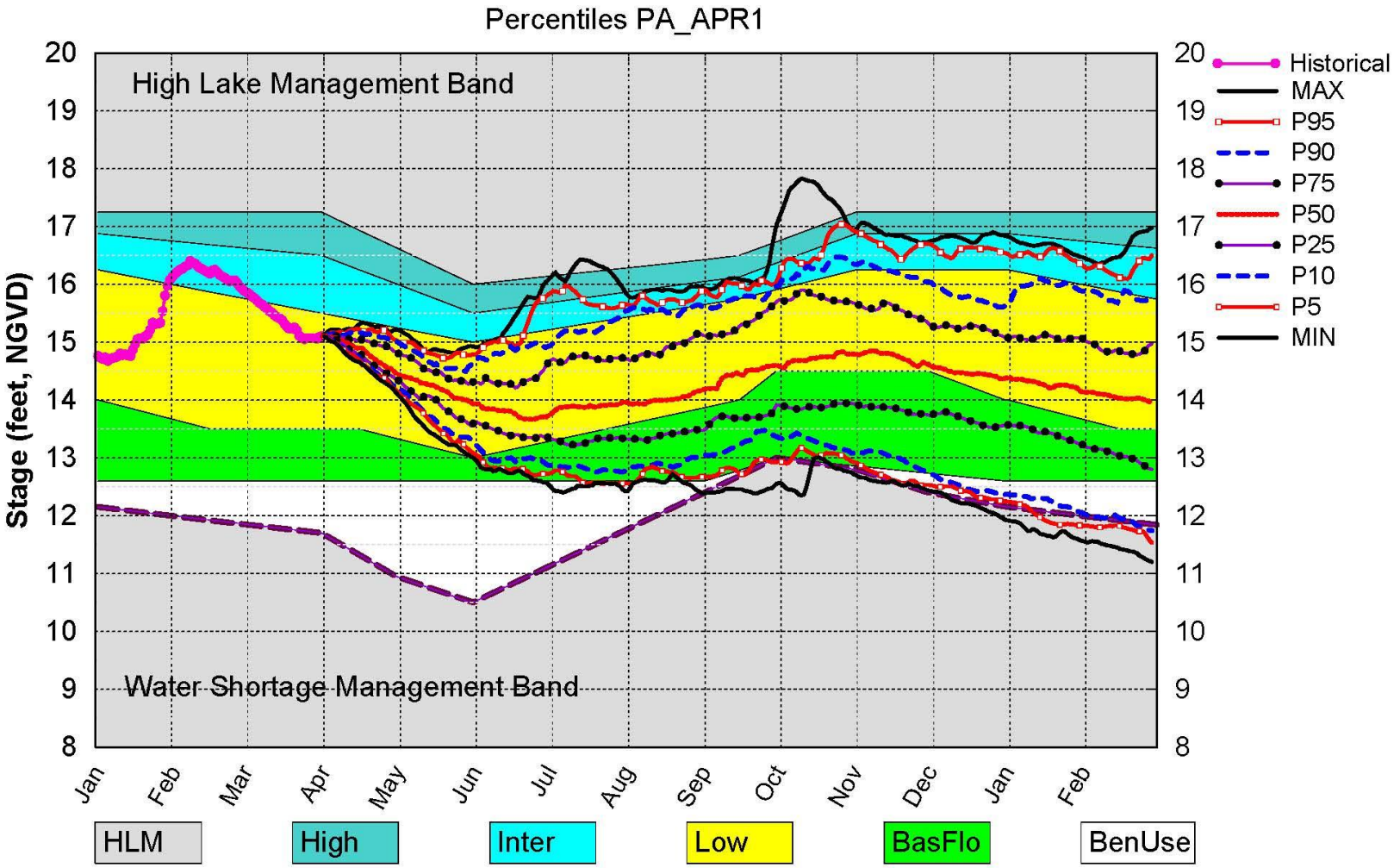
Source: Phil Klotzbach (CSU)


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


March AMO Index (1950-2016) - Calculated from Klotzbach and Gray (2008)
Standardized Values
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016


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
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014

Lake Okeechobee SFWMM Apr 2016 Dynamic Position Analysis

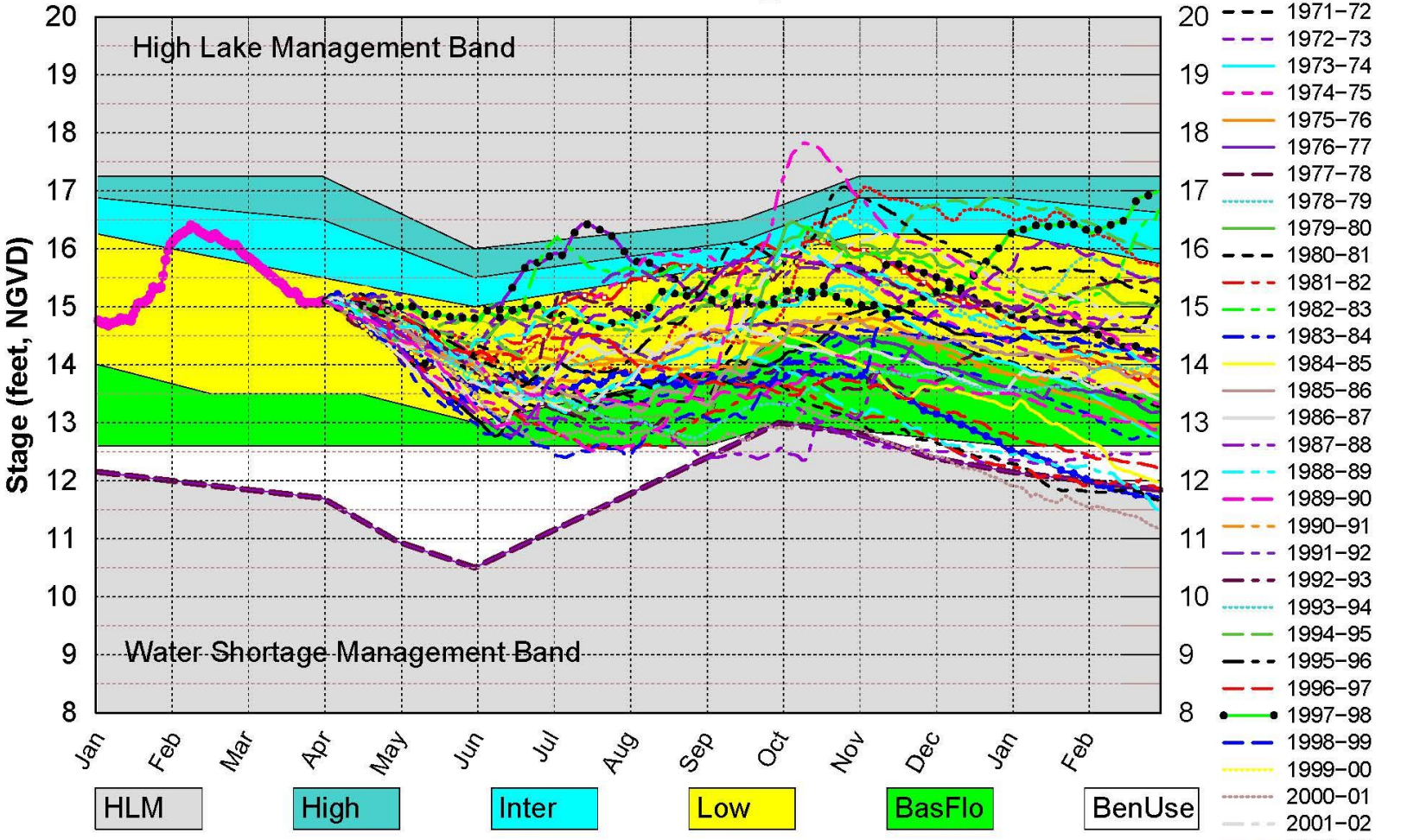


(See assumptions on the Position Analysis Results website)

Mon Apr 4 13:23:27 2016

Lake Okeechobee SFWMM Apr 2016 Dynamic Position Analysis

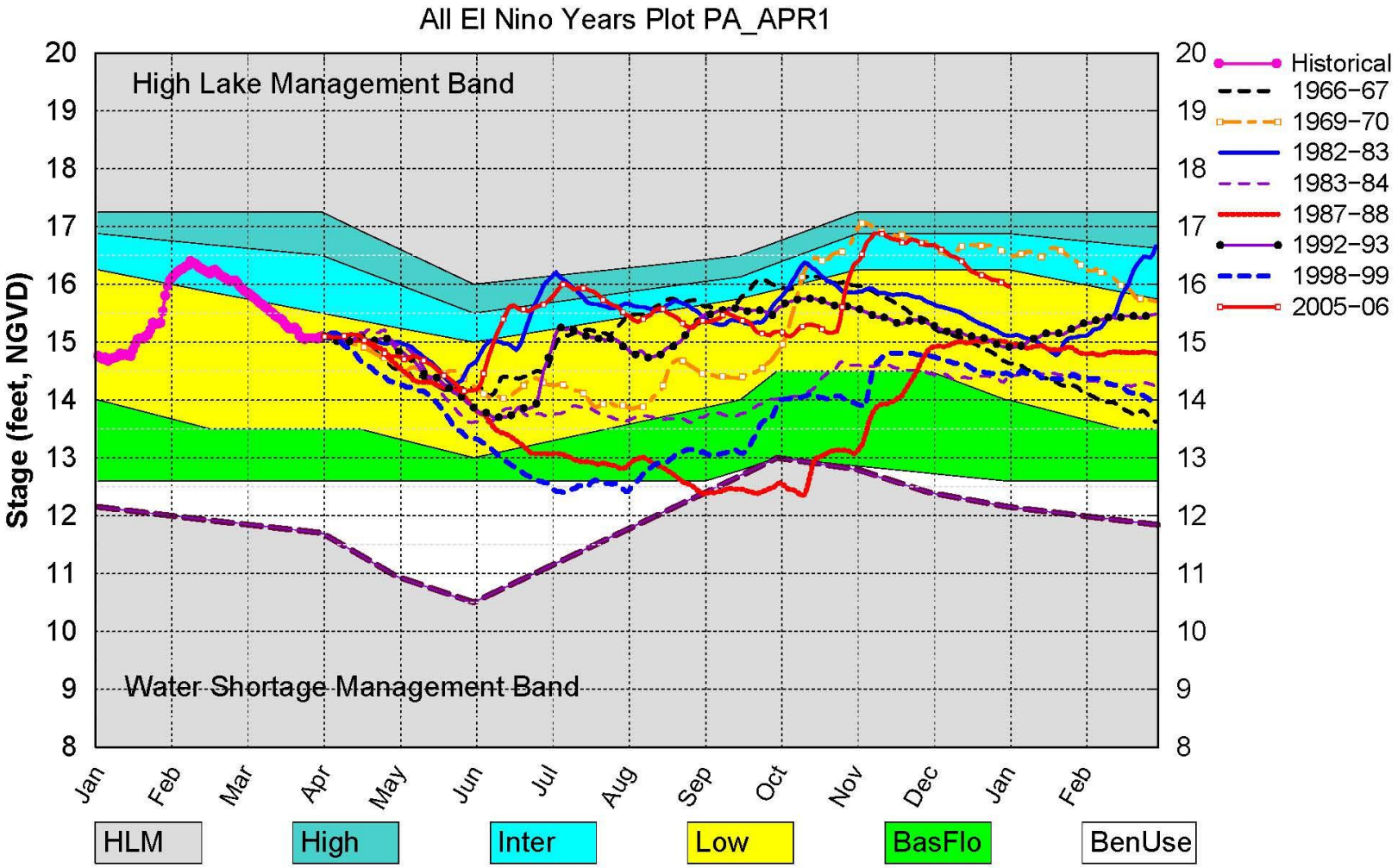
All Simulated Years Plot PA_APR1



(See assumptions on the Position Analysis Results website)

Mon Apr 4 13:26:16 2016

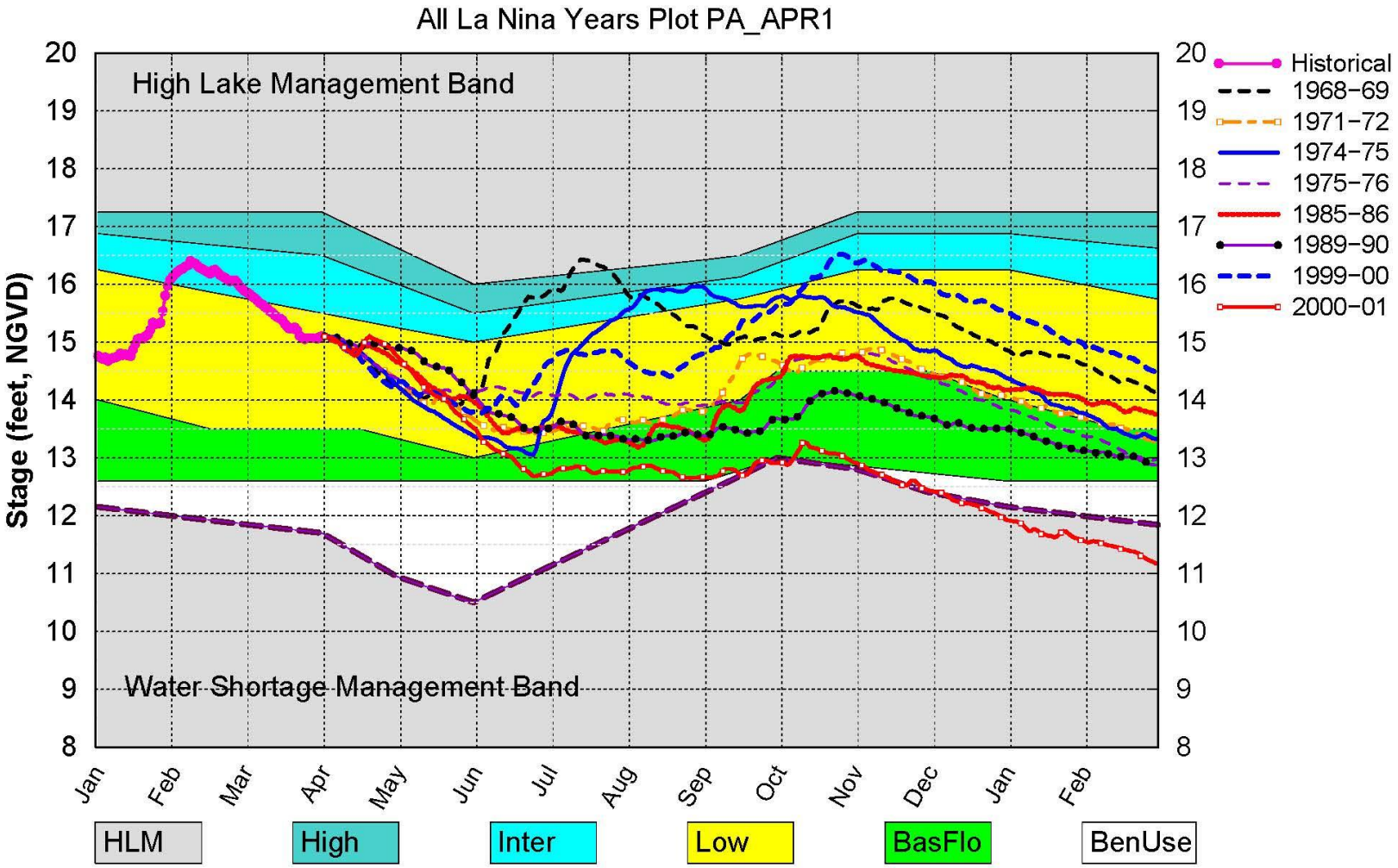
Lake Okeechobee SFWMM Apr 2016 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)

Mon Apr 4 14:35:24 2016

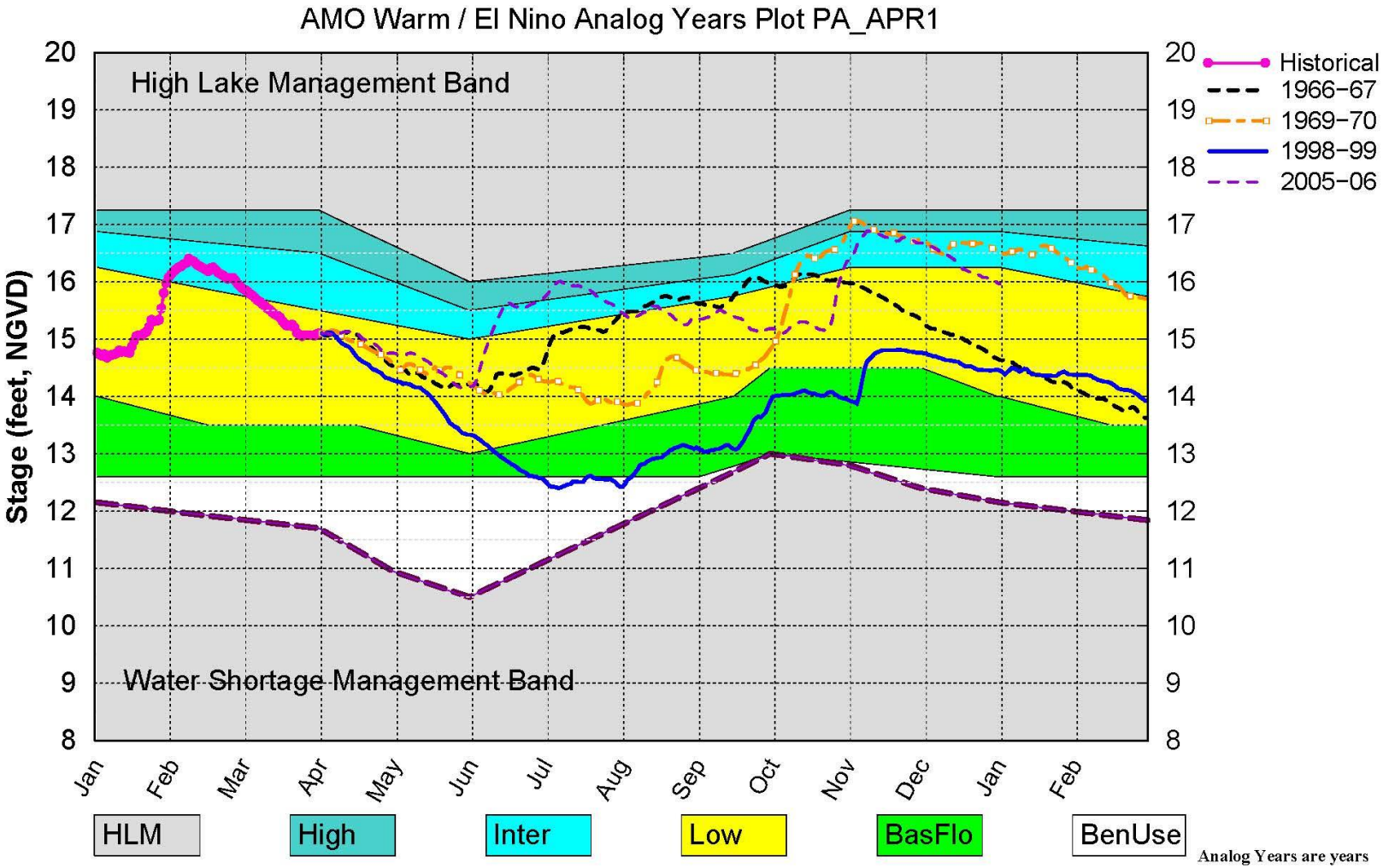
Lake Okeechobee SFWMM Apr 2016 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)

Mon Apr 4 15:09:14 2016

Lake Okeechobee SFWMM Apr 2016 Dynamic Position Analysis

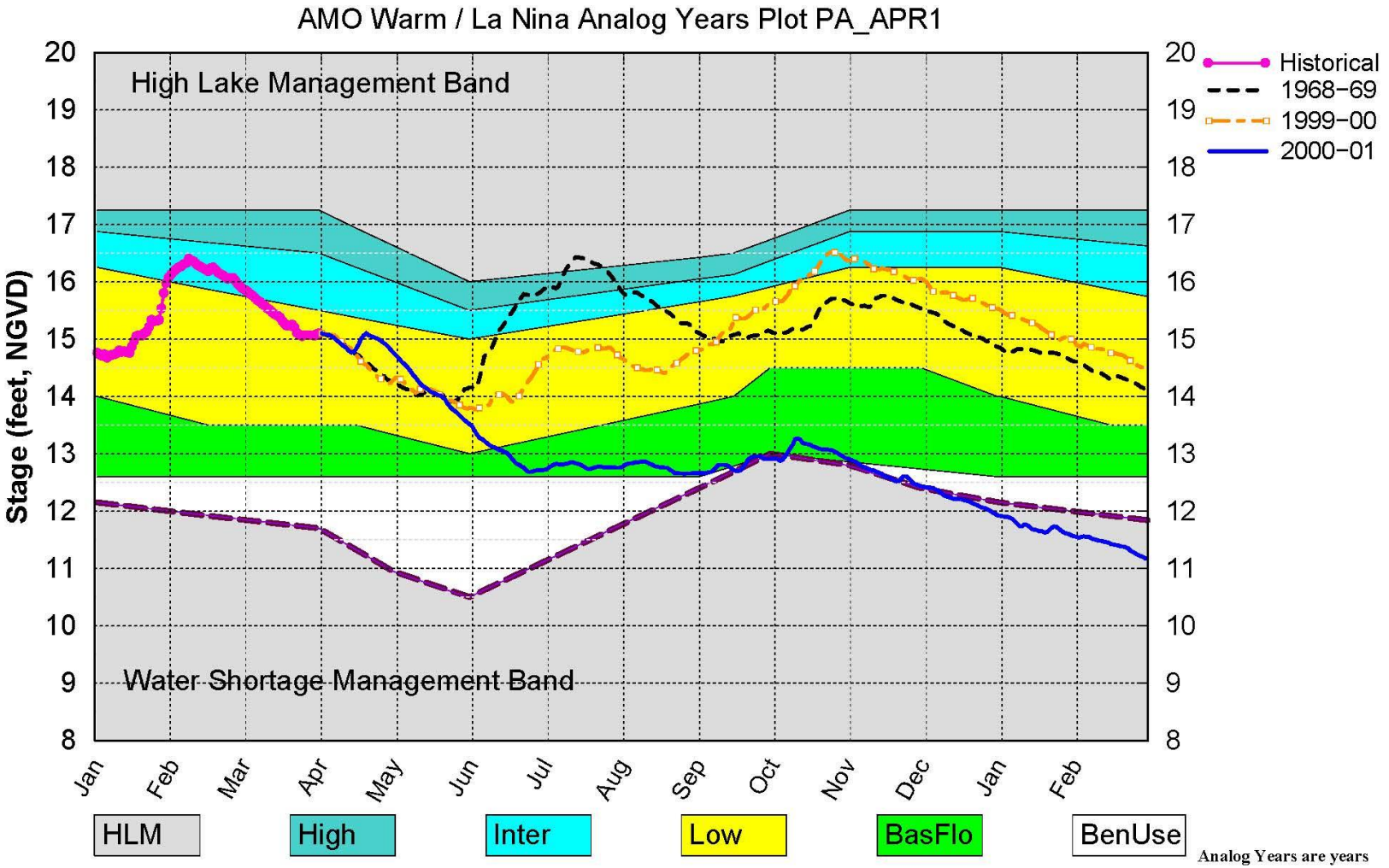


(See assumptions on the Position Analysis Results website)

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

Mon Apr 4 14:35:28 2016

Lake Okeechobee SFWMM Apr 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 Apr 4 15:09:19 2016