

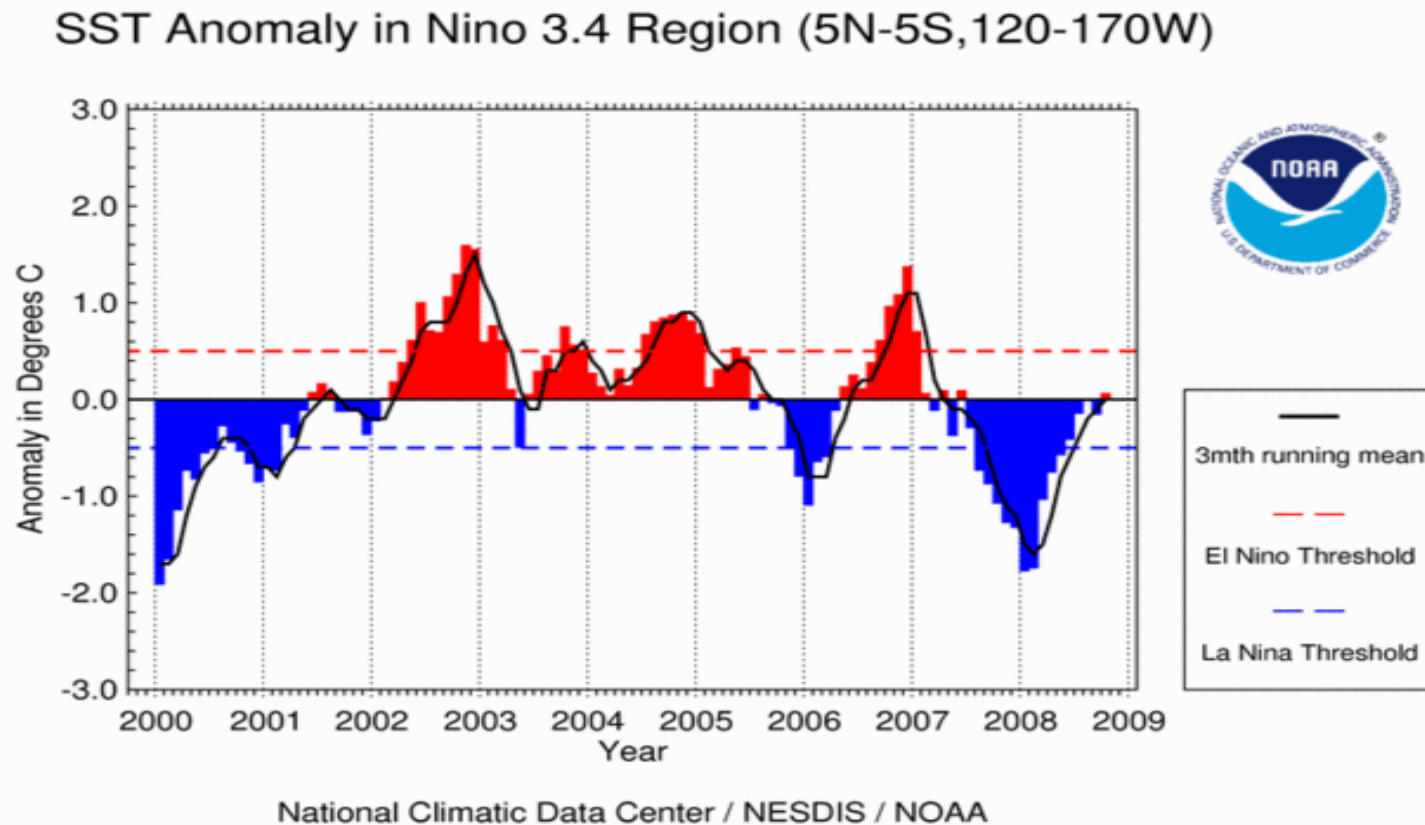
## Weekly Climate Update December 2<sup>nd</sup> 2008

- A tremendous area of cooler than normal sea surface temperatures along the equatorial Pacific extending northward to higher latitudes along the west coast of North America are a result of a very weak La Nina type condition and the cold phase of the Pacific Decadal Oscillation.
- Negative subsurface temperature anomalies in the equatorial Pacific are a sign that an El Nino event is very unlikely to develop. Currently the official climate outlook is calling for ENSO to remain in neutral conditions through at least early 2009. However, several ENSO models (including CFS and IRI) are indicating the possibility of a La Nina developing this winter.
- The latest IRI and CFS models results suggest increased chances of drier than normal conditions for this upcoming dry season.
- The Official climate outlook calls for an increased probability of below normal rainfall.
- The Position Analysis in slide 13 - 15 illustrates projected water levels for Lake Okeechobee.
- Summary of current global ocean-climate conditions can be found at the following link: [http://ioc3.unesco.org/oopc/state\\_of\\_the\\_ocean/all/](http://ioc3.unesco.org/oopc/state_of_the_ocean/all/)

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# El Nino-Southern Oscillation Index



ENSO is currently in neutral conditions.

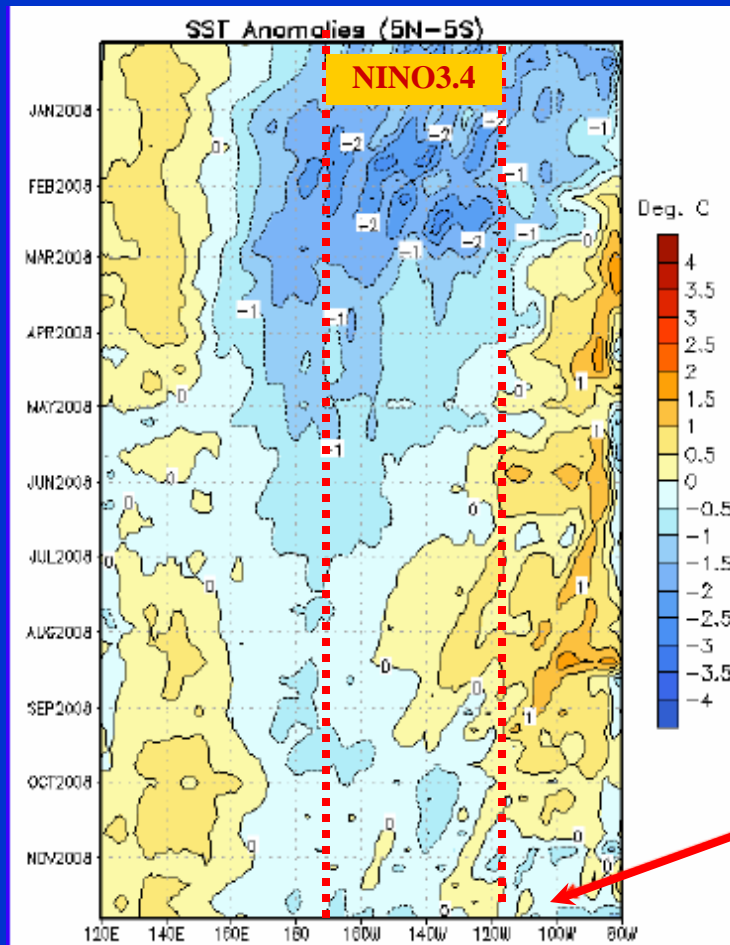
<http://www.ncdc.noaa.gov/img/climate/research/teleconnect/el-n-5-pg.gif>

# Recent Evolution of Equatorial Pacific SST Departures (°C)

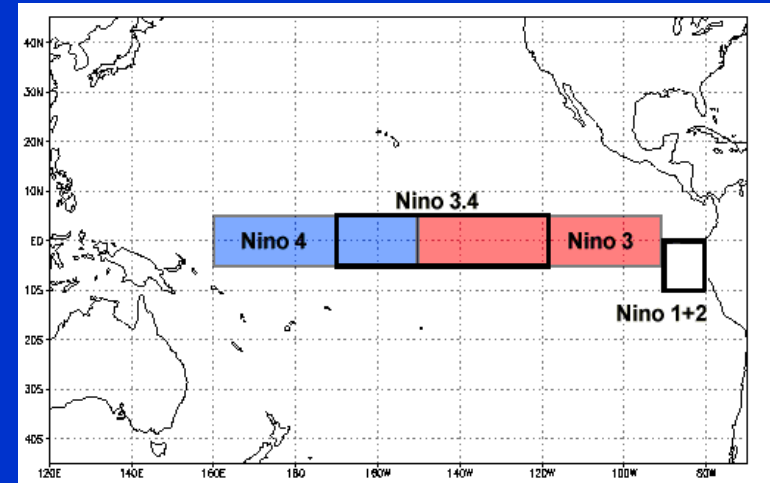
Climate Prediction Center

El Nino-Southern Oscillation Weekly Update

Jan.  
Mar.  
**Time**  
↓  
Aug.  
Nov.



**Longitude**



Since September 2008, negative sea surface temperature anomalies have developed in portions of the eastern equatorial Pacific Ocean.

# Recent Evolution of Niño Region SST Departures (°C)

Climate Prediction Center

El Niño-Southern Oscillation Weekly Update

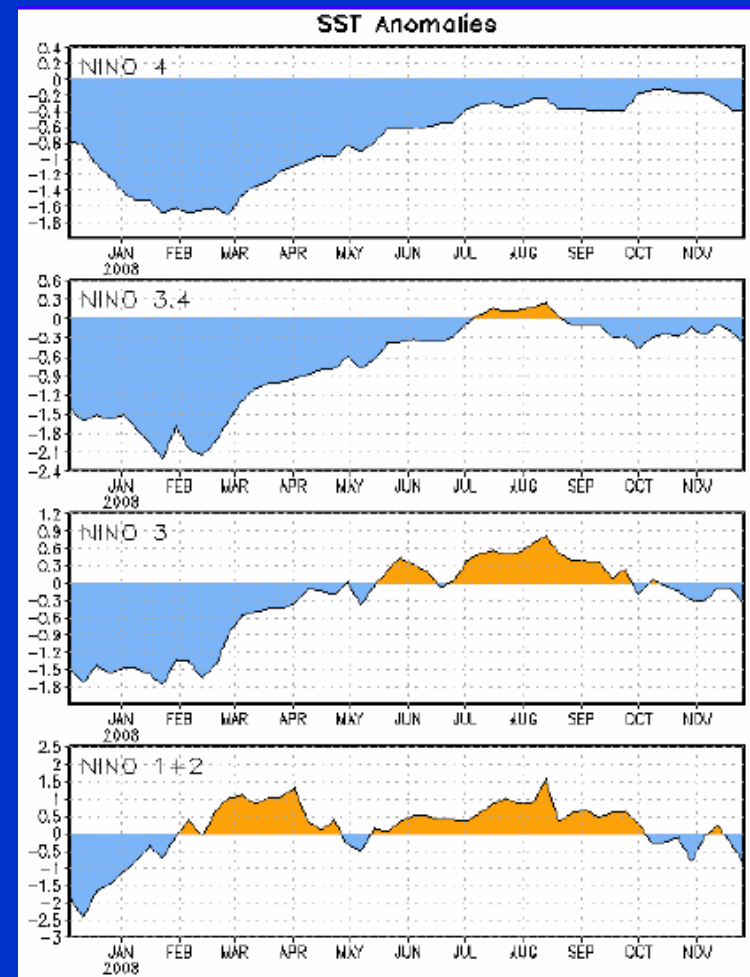
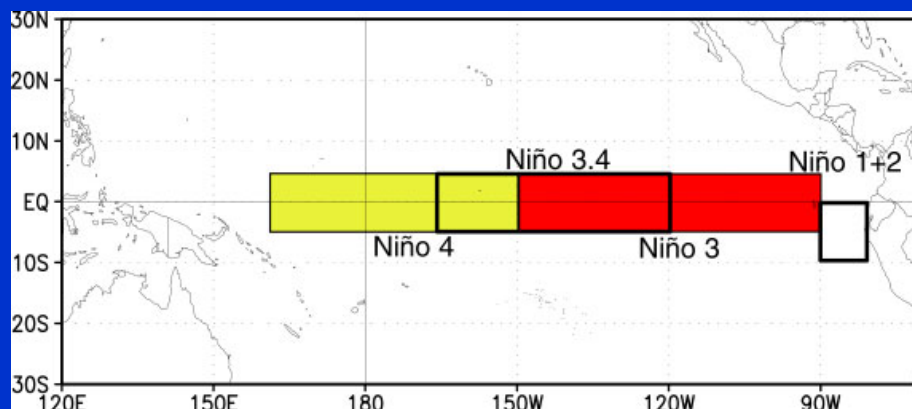
The latest weekly SST departures are:

Niño 4 -0.4°C

Niño 3.4 -0.4°C

Niño 3 -0.4°C

Niño 1+2 -0.9°C



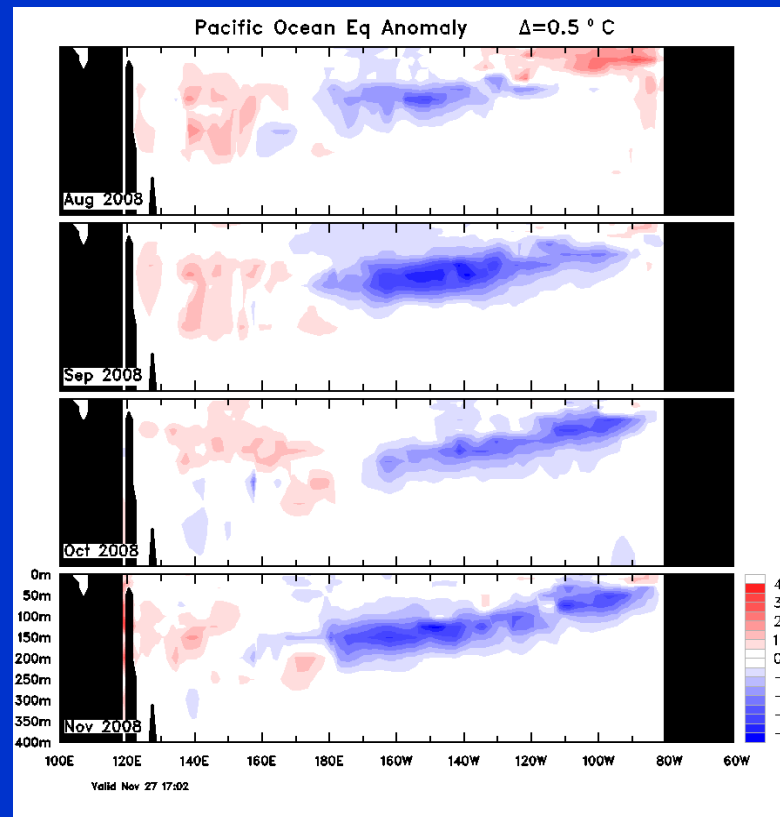
# Sub-Surface Temperature Departures ( $^{\circ}\text{C}$ ) in the Equatorial Pacific Ocean (November 27<sup>th</sup>, 2008) Bureau of Meteorology Research Centre

Aug

Sep

Oct

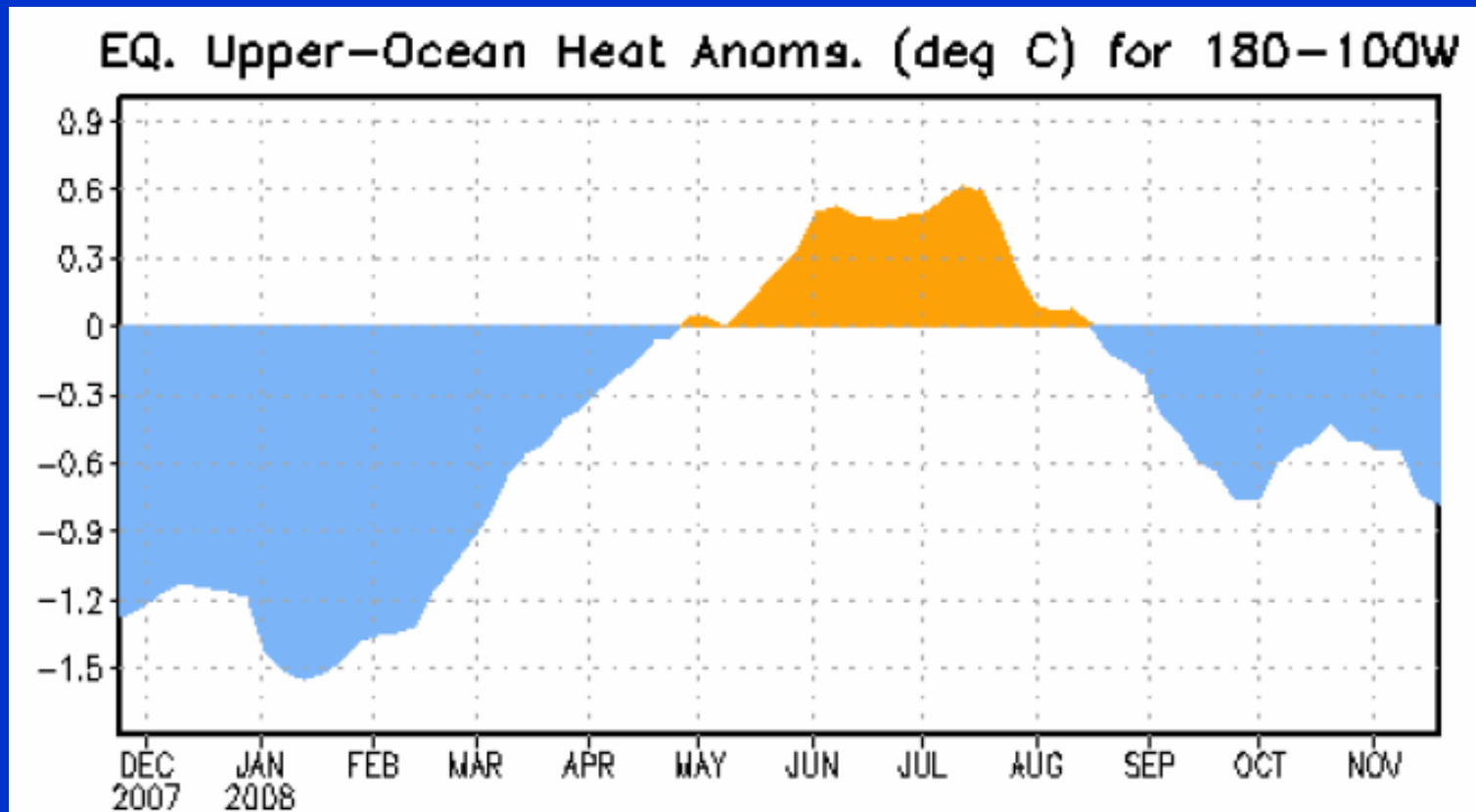
Nov



Longitude

At this time neutral conditions are indicated by sea surface temperature (SST) anomalies. However, cool subsurface anomalies have appeared in the eastern and central equatorial Pacific.

# Central & Eastern Pacific Upper-Ocean (0-300 m) Weekly Heat Content Anomalies



The upper ocean heat content was below-average across the eastern half of the equatorial Pacific Ocean between January 2007 and April 2008, and above-average from early May 2008 through mid-August 2008. Since mid-August 2008, the heat content anomalies have been below-average.

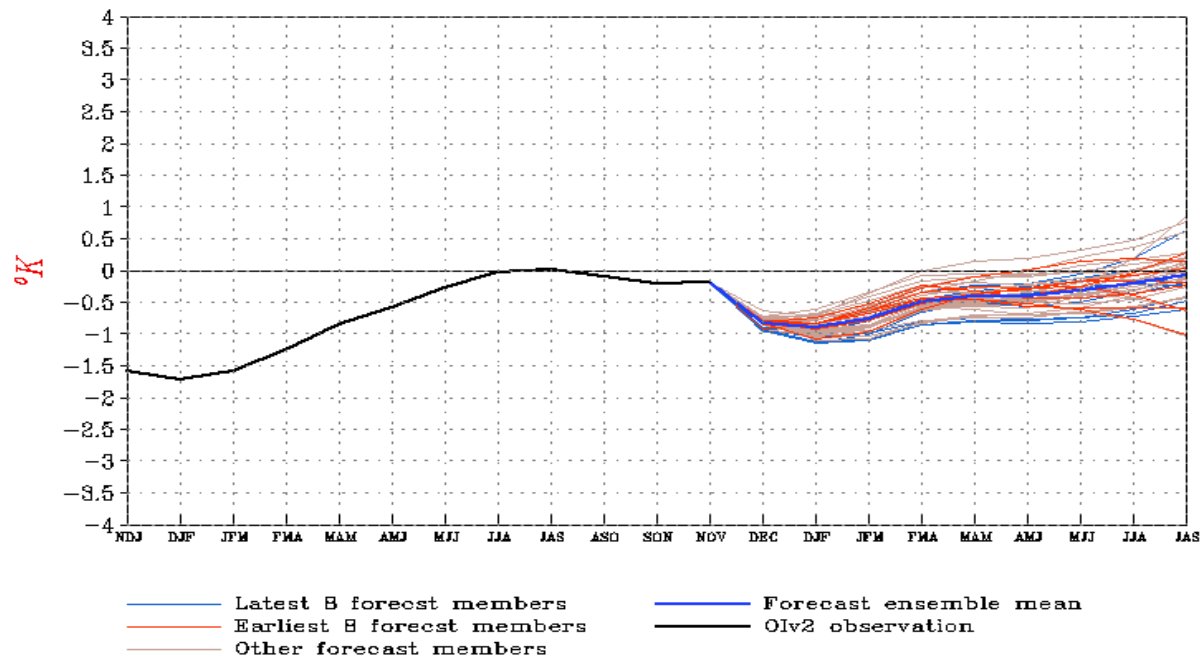
# Equatorial Pacific SST and Temperature Anomaly Forecast- NCEP Climate Forecast System Issued December 1<sup>st</sup> 2008



NWS/NCEP

Last update: Mon Dec 1 2008  
Initial conditions: 20Nov2008–29Nov2008

PDF correction: Forecast *Nino3.4* SST anomalies from CFS





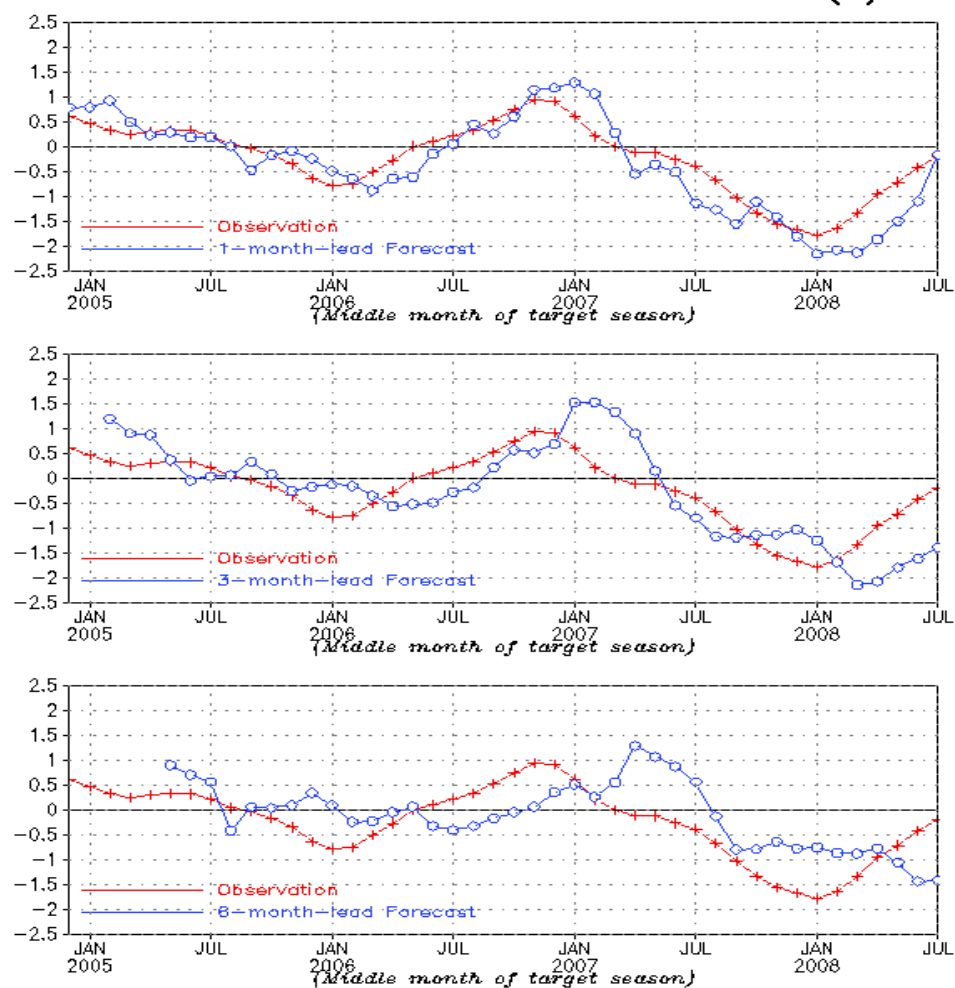
## Verification of Nino 3.4



NWS/NCEP

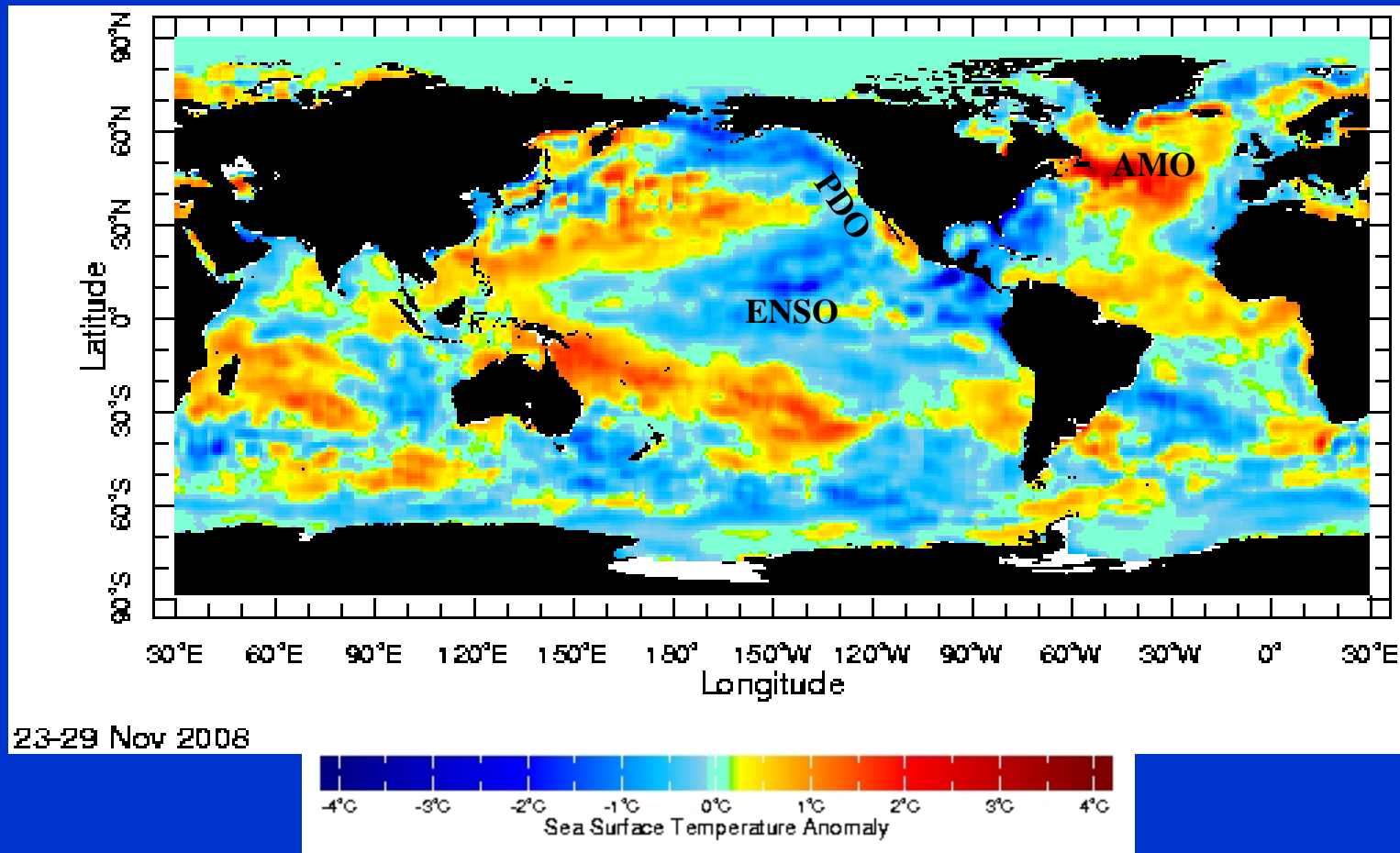
Last update: Sat Sep 13 2008

### Seasonal-mean Nino3.4 SST anomalies (K)



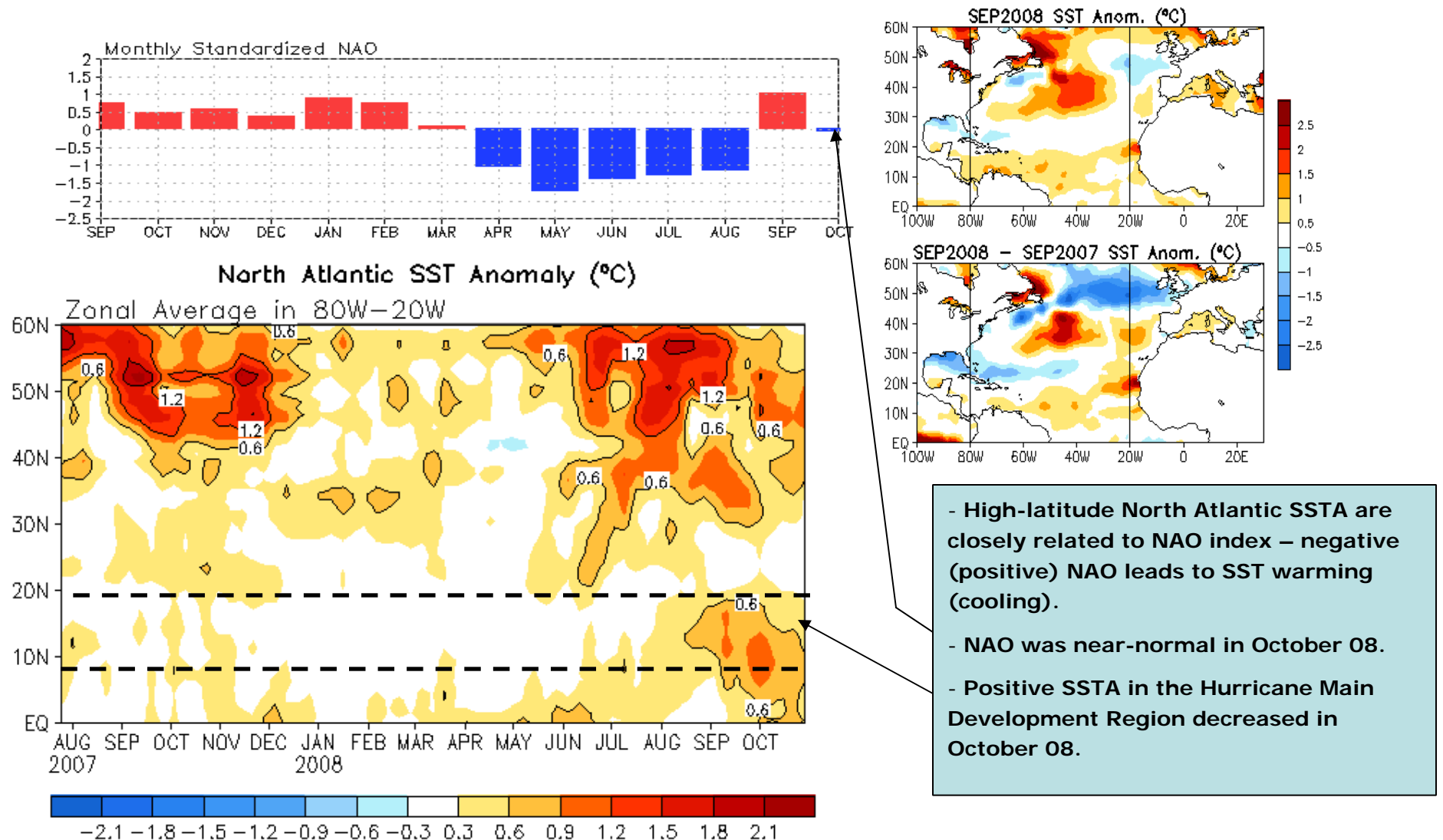
# Latest Weekly Sea Surface Temperature Anomaly

## International Research Institute



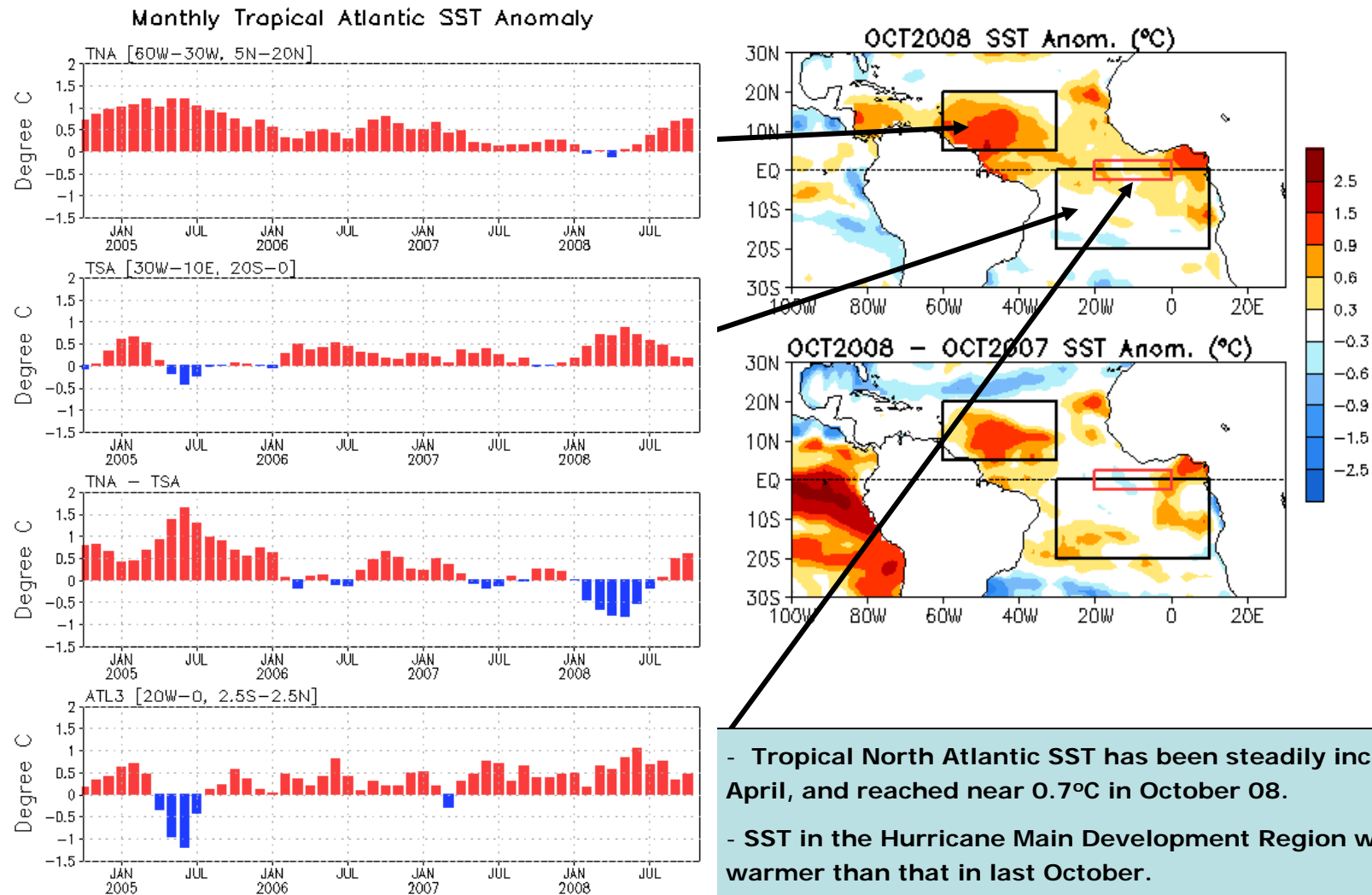
Large area of cooler than normal sea surface temperatures in the equatorial Pacific extending northward to higher latitudes along the west coast of North America are a result of marginal La Niña type conditions and the cold phase of the Pacific Decadal Oscillation.

# NAO and SST Anomaly in North Atlantic



**Fig. NA2.** Monthly standardized NAO index (top) derived from monthly standardized 500-mb height anomalies obtained from the NCEP CDAS in 20°N–90°N (<http://www.cpc.ncep.noaa.gov>). Time-Latitude section of SST anomalies averaged between 80°W and 20°W (bottom). SST are derived from the NCEP OI SST analysis, and anomalies are departures from the 1971–2000 base period means.

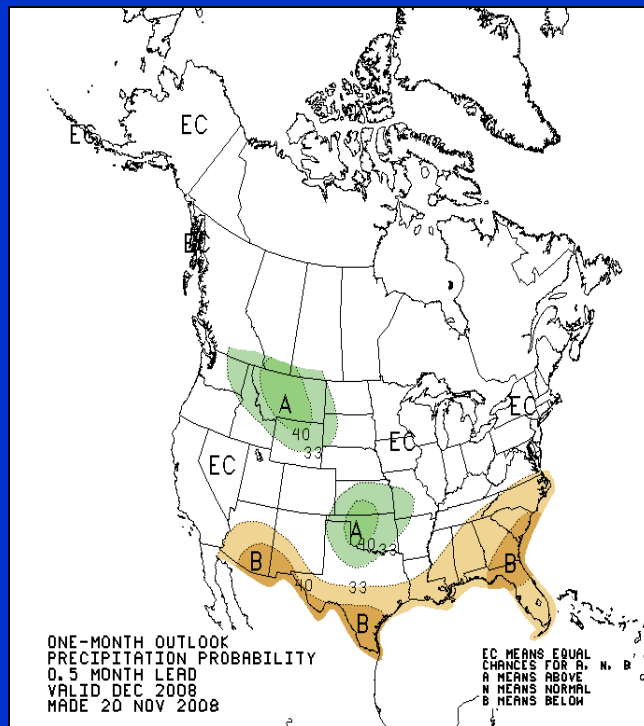
# Evolution of Tropical Atlantic SST Indices



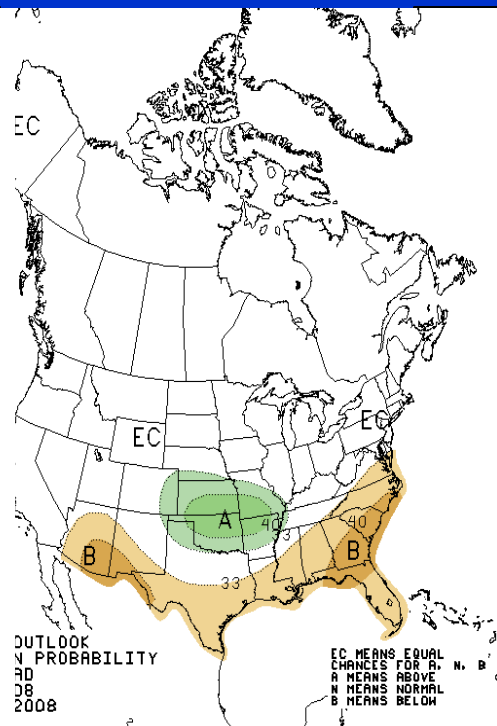
**Fig. A1a.** Tropical Atlantic Variability region indices, calculated as the area-averaged monthly mean sea surface temperature anomalies (°C) for the TNA [60°W-30°W, 5°N-20°N], TSA [30°W-10°E, 20°S-0] and ATL3 [20°W-0, 2.5°S-2.5°N] regions, and Meridional Gradient Index, defined as differences between TNA and TSA. Data are derived from the NCEP OI SST analysis, and anomalies are departures from the 1971-2000 base period means.

# CPC Seasonal Rainfall Outlook

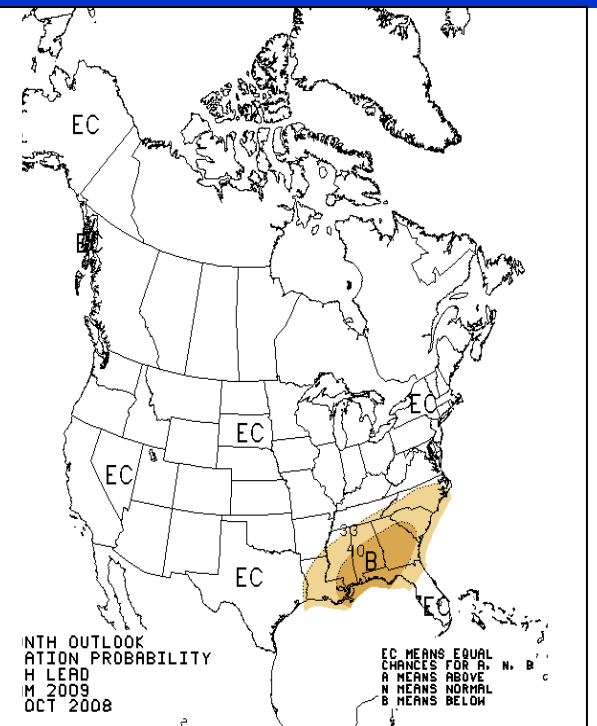
December



December-February

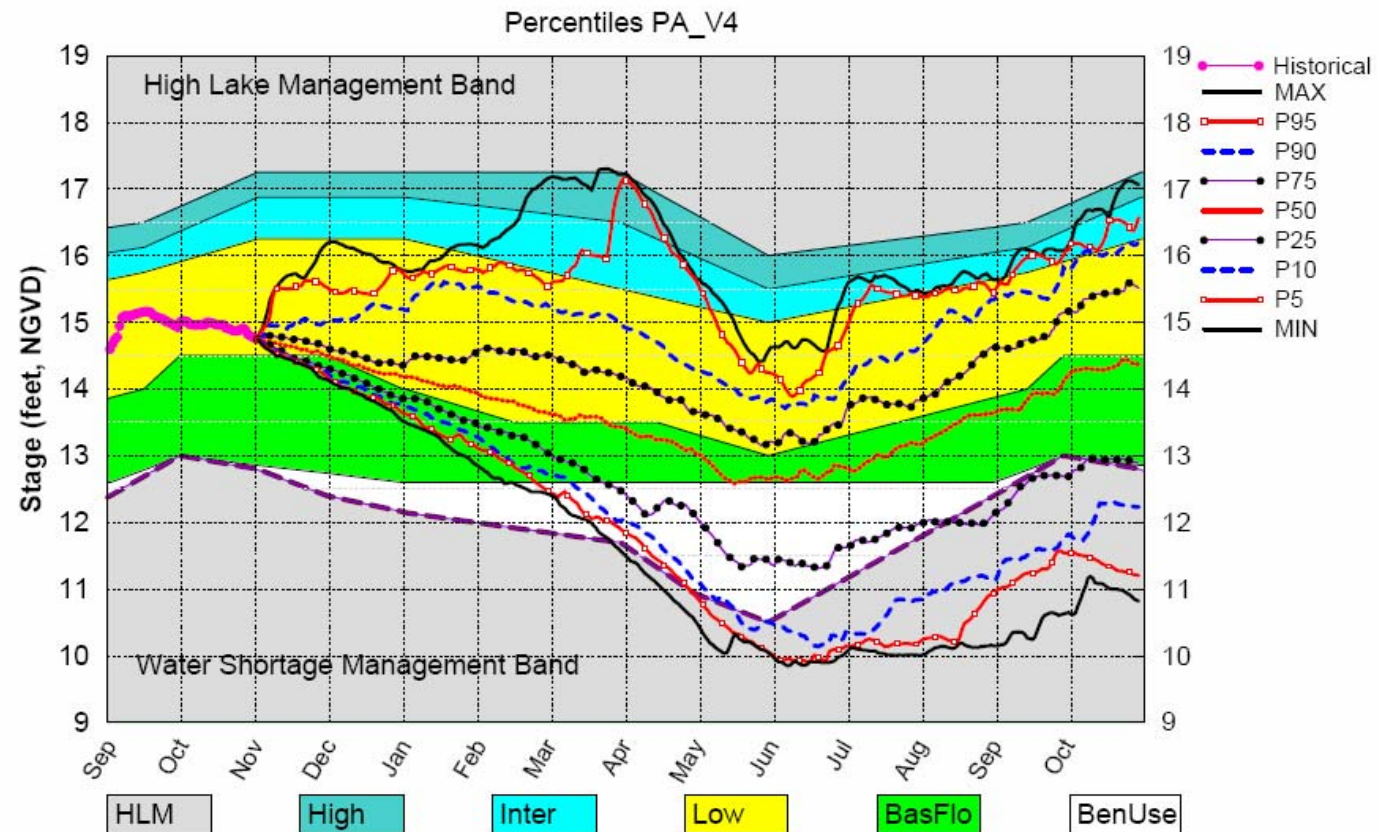


March-May



# November 1<sup>st</sup> Position Analysis

## Lake Okeechobee SFWMM November 2008 Position Analysis



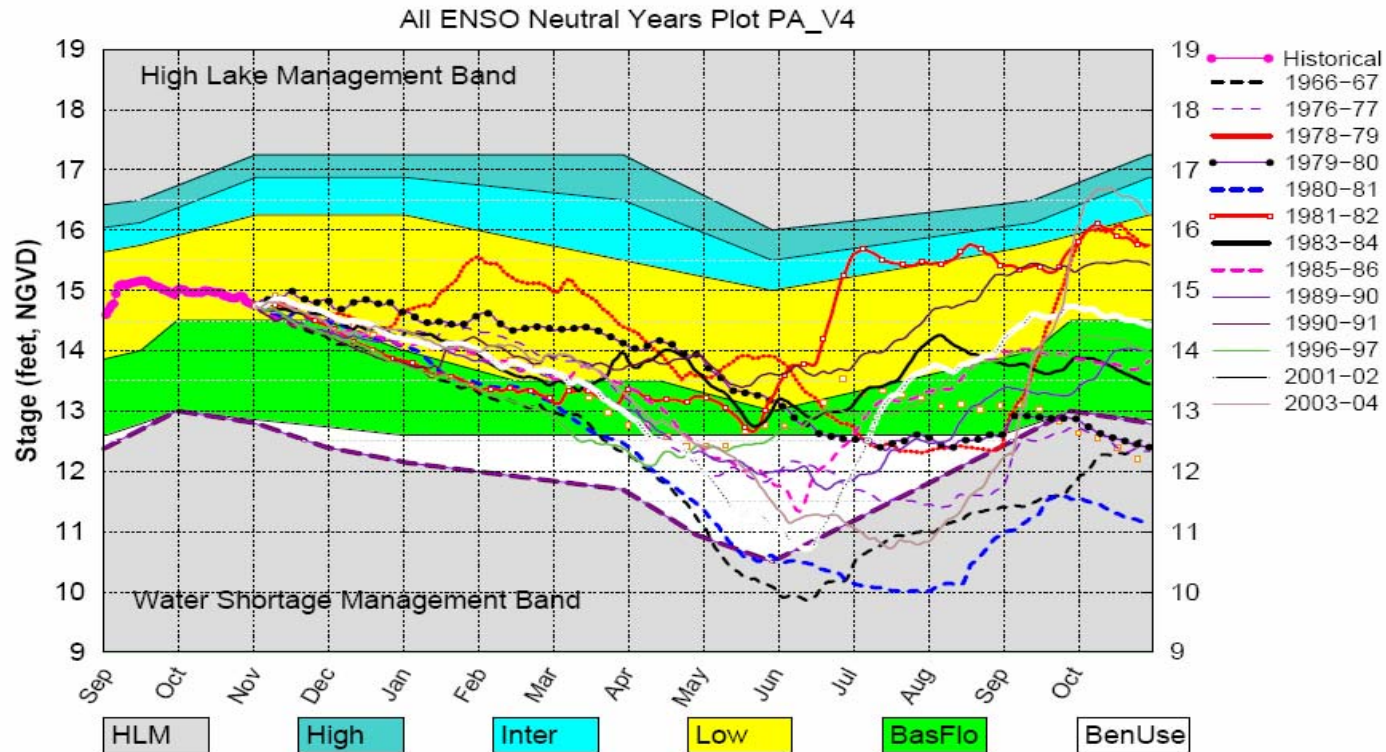
(See assumptions on the Position Analysis Results website)

Thu Nov 6 14:05:47 2008



# November 1<sup>st</sup> ENSO Neutral years Position Analysis

## Lake Okeechobee SFWMM November 2008 Position Analysis



(See assumptions on the Position Analysis Results website)

Thu Nov 6 14:28:27 2008

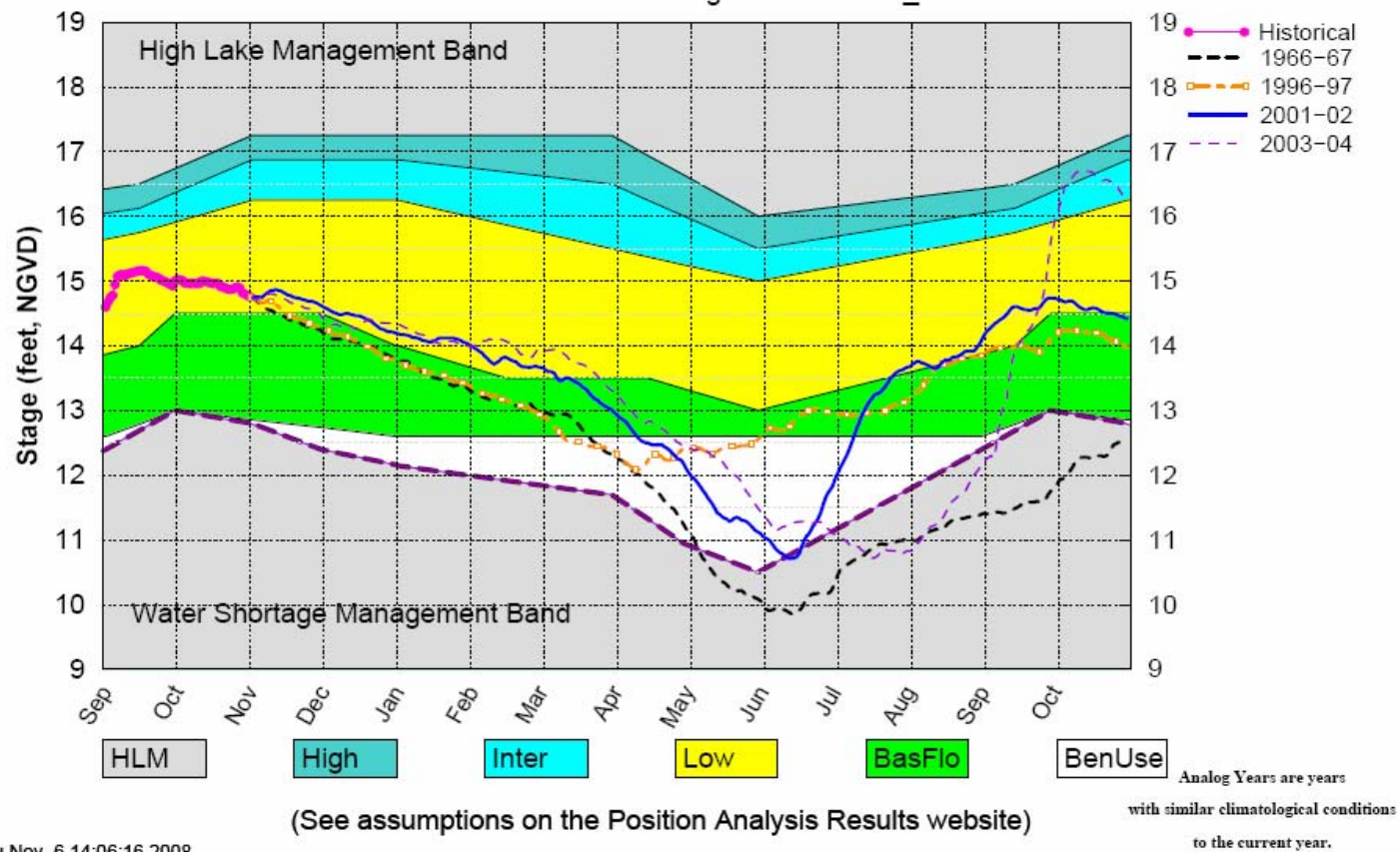
ENSO is officially in a neutral conditions according to CPC

# November 1<sup>st</sup> Position Analysis

## ENSO Neutral/AMO Warm sub sampling

### Lake Okeechobee SFWMM November 2008 Position Analysis

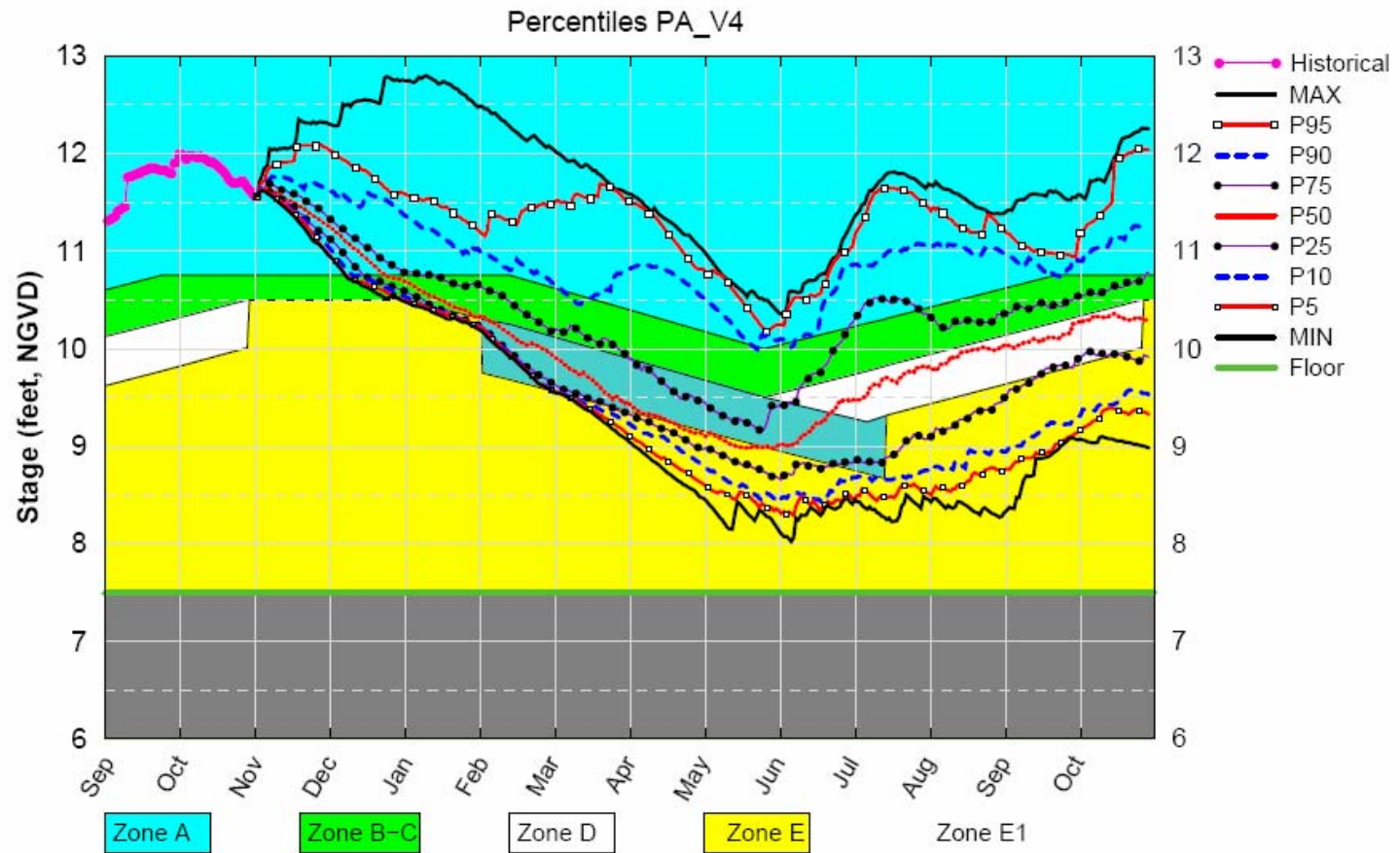
AMO Warm / ENSO Neutral Analog Years Plot PA\_V4



Thu Nov 6 14:06:16 2008



## WCA3A SFWMM November 2008 Position Analysis



(See assumptions on the Position Analysis Results website)

Thu Nov 6 14:05:50 2008

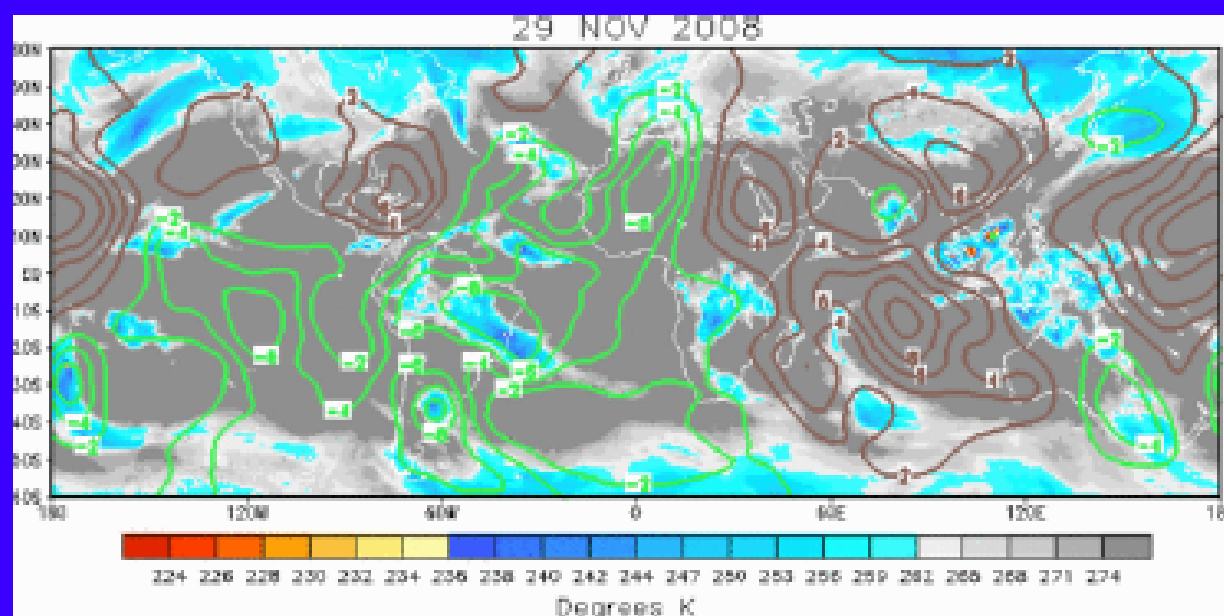
# Backup Slides with additional support material



# IR Temperatures (K) / 200-hPa Velocity Potential Anomalies

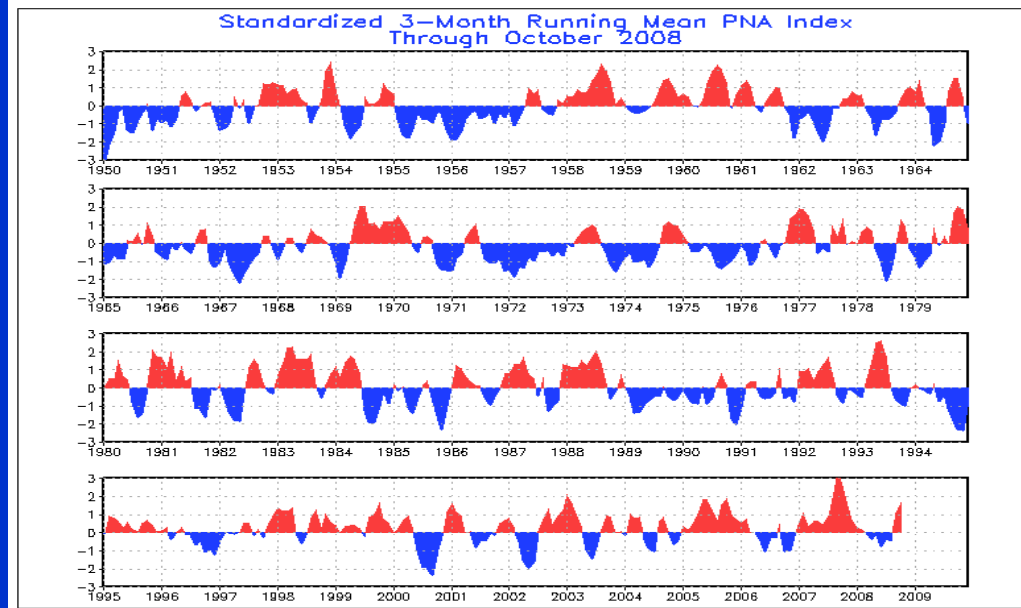
Positive anomalies (brown contours) indicate unfavorable conditions for precipitation

Negative anomalies (green contours) indicate favorable conditions for precipitation

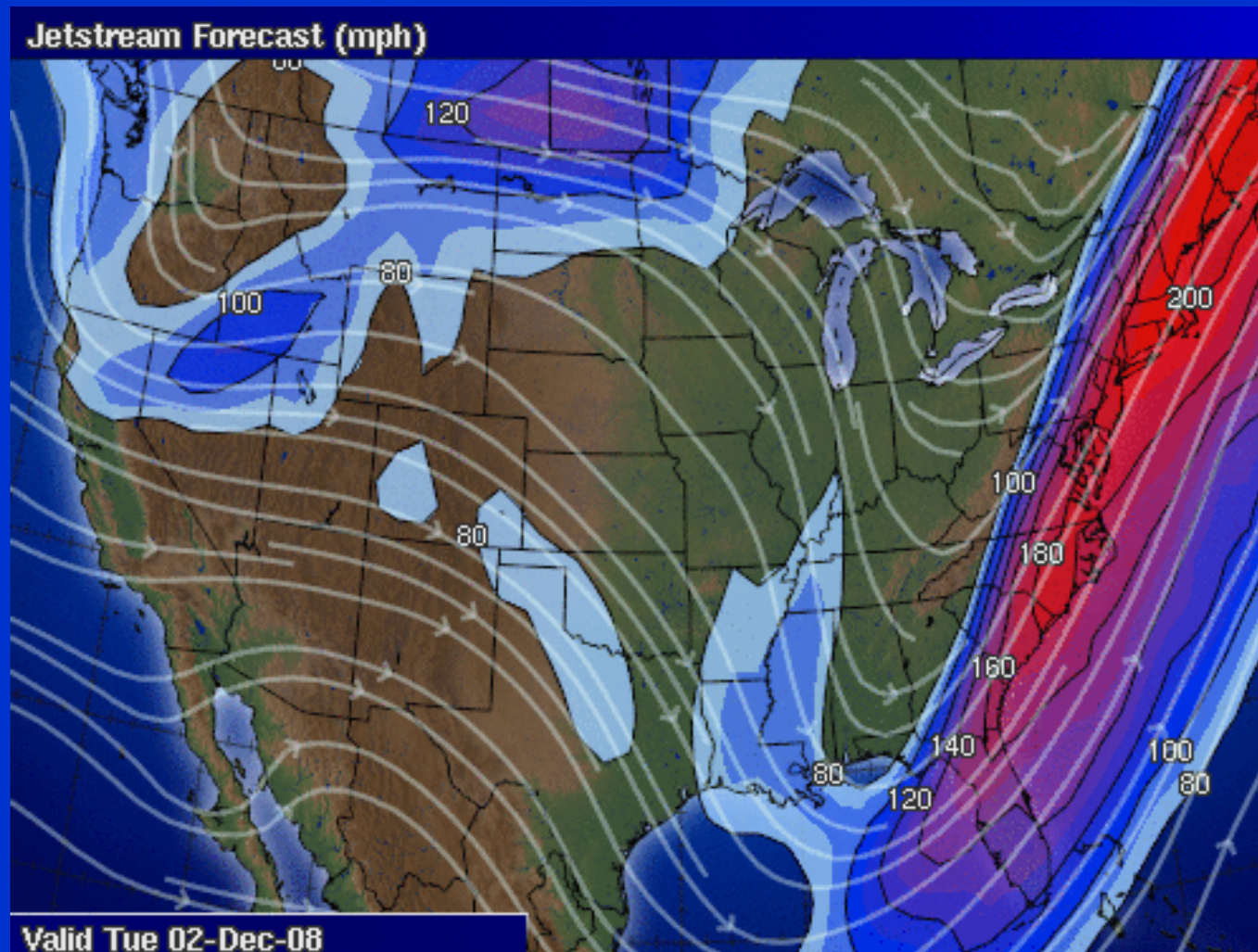


The velocity potential pattern shows upper-level divergence over the Atlantic Ocean and South America. Upper-level convergence is evident across the Indian and western Pacific oceans.

# Pacific – North American Index



# Current Jet Stream





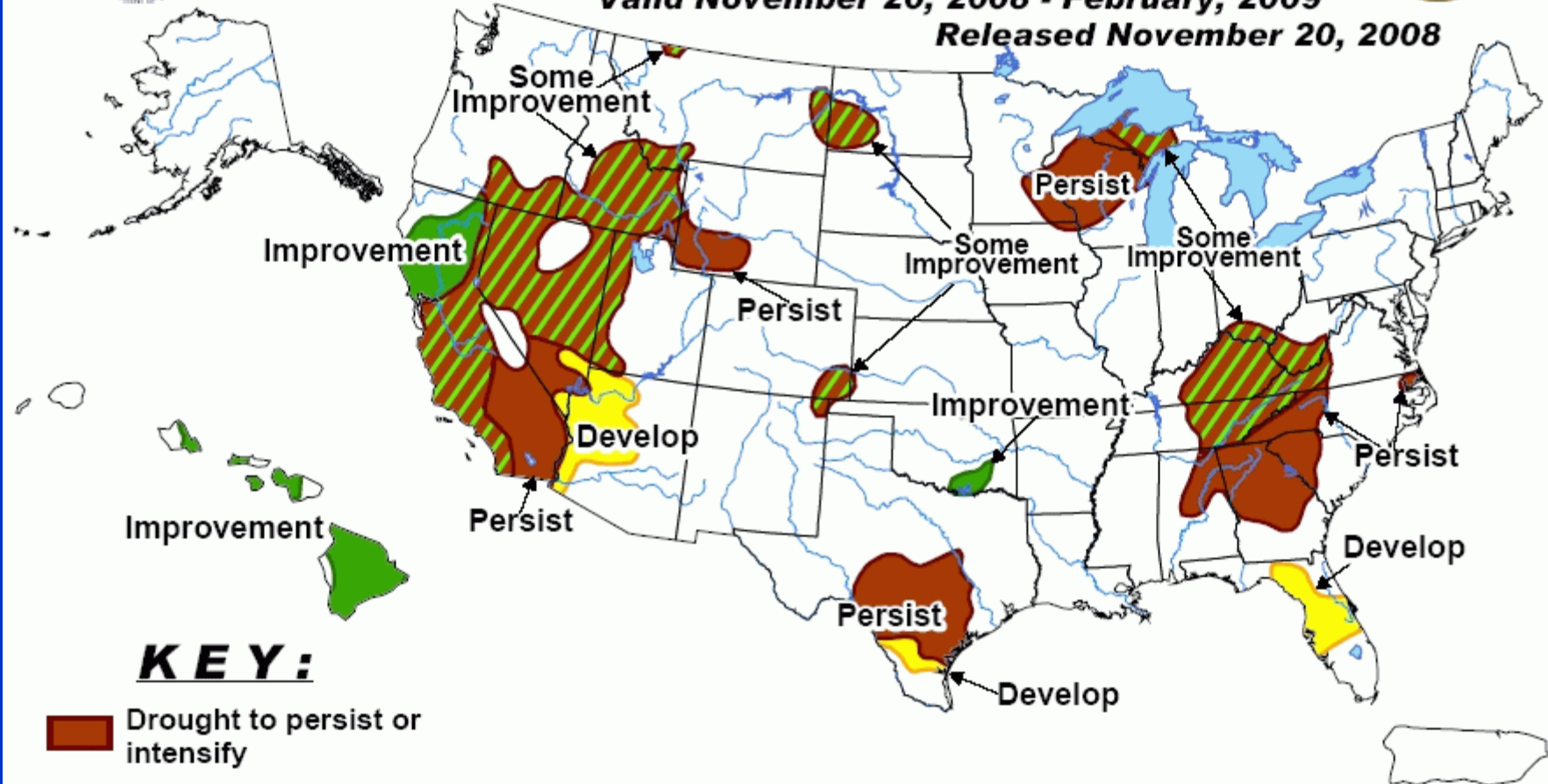


# U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid November 20, 2008 - February, 2009

Released November 20, 2008

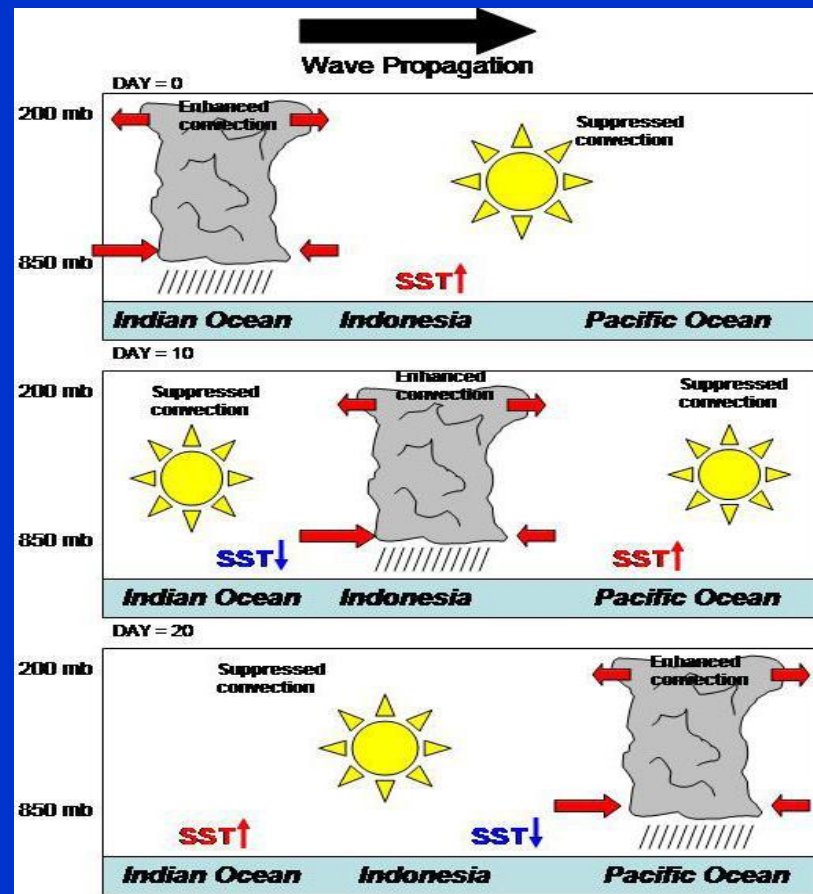


## KEY:

-  Drought to persist or intensify
-  Drought ongoing, some improvement
-  Drought likely to improve, impacts ease
-  Drought development likely

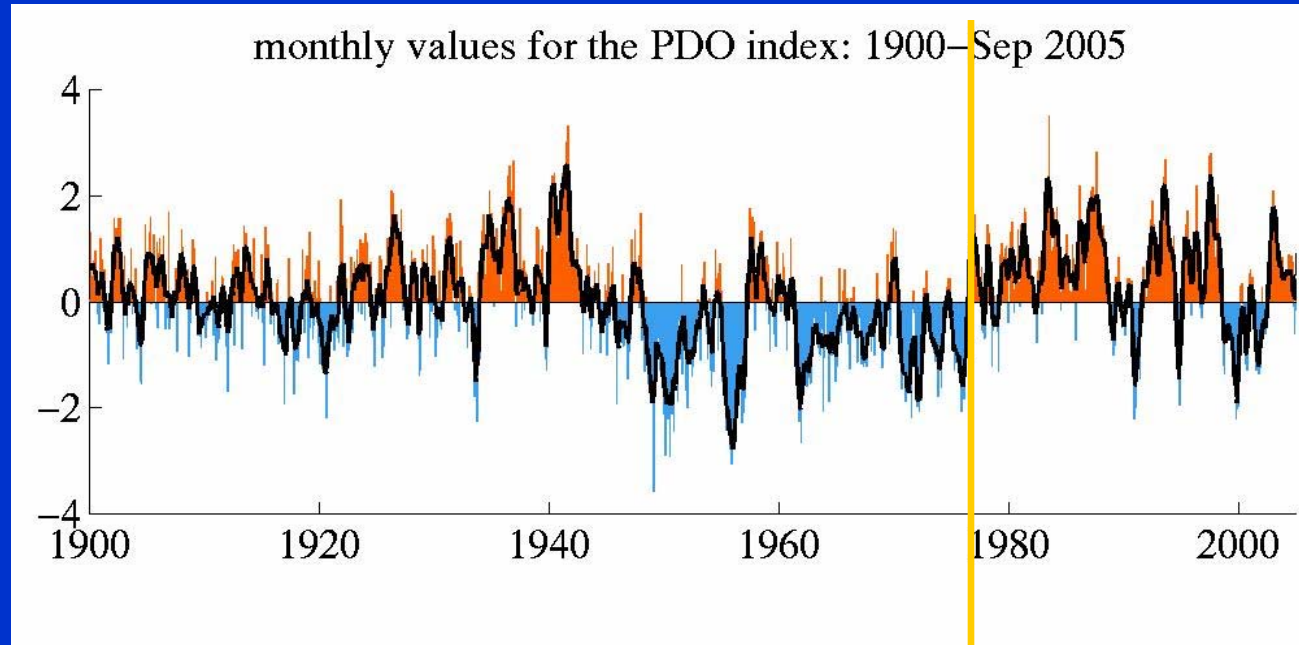
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

## Madden-Julian Oscillation



Currently  
transitioning  
to cold phase of  
PDO

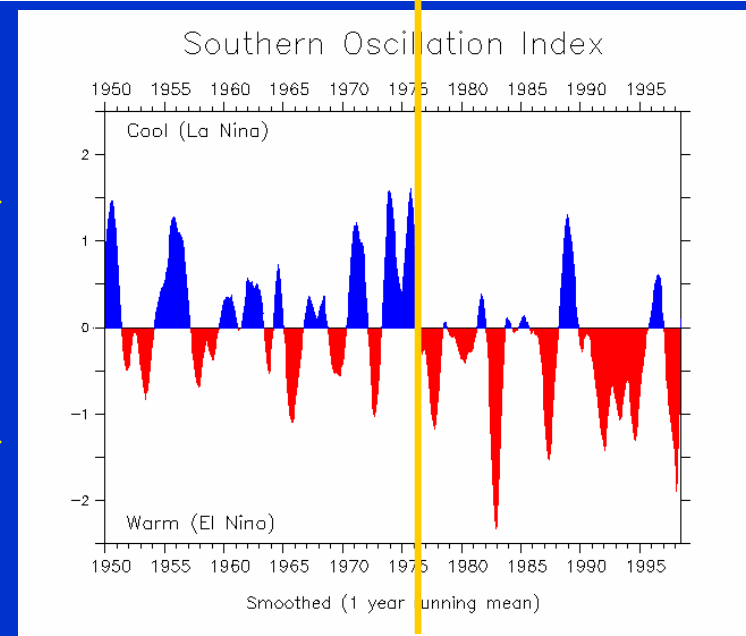
## PDO



## ENSO

La Nina predominates when  
PDO is in negative phase →

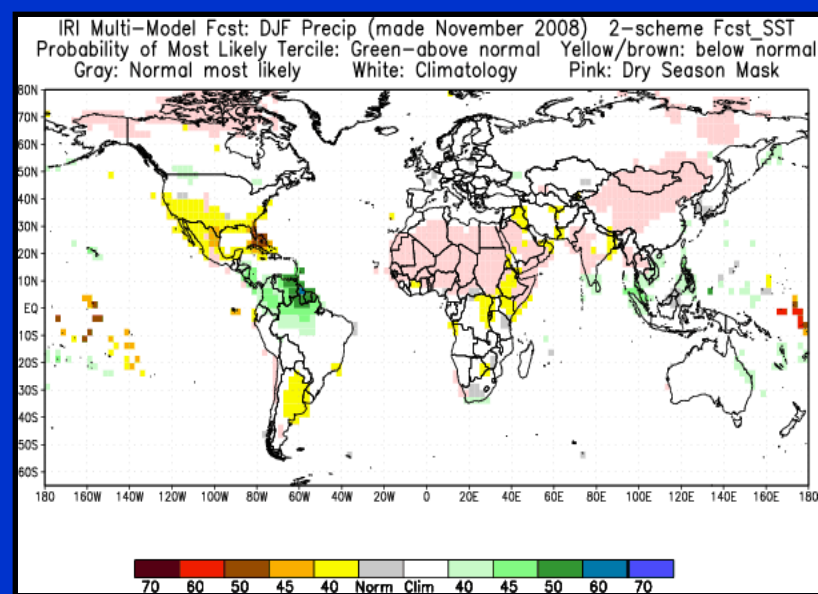
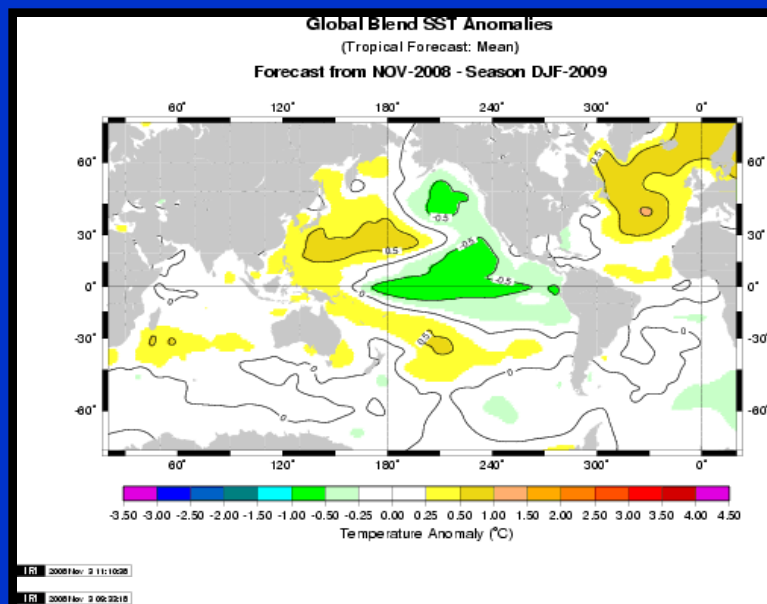
El Nino predominates when  
PDO is in positive phase →



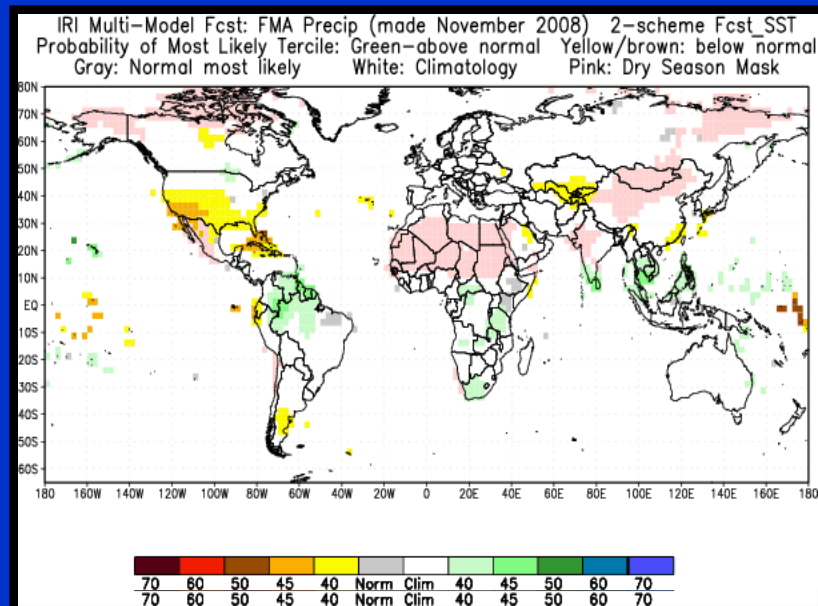
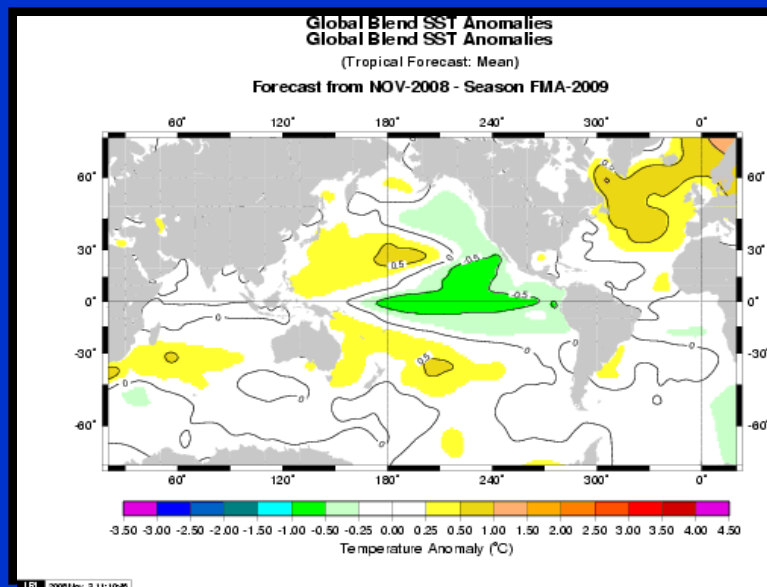


# IRI Multi-Model Probability Forecasts 2008-2009

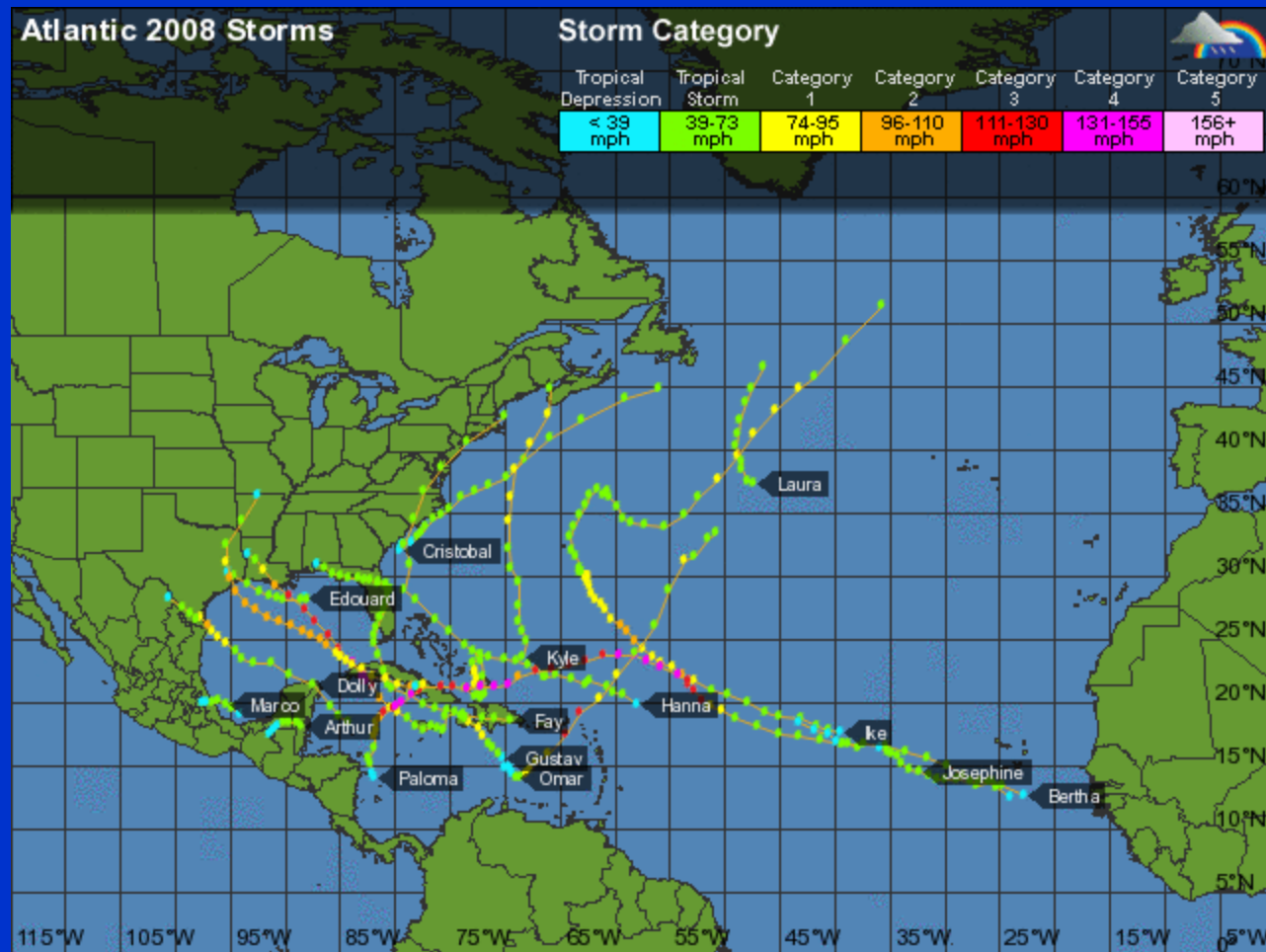
DJF



FMA



# 2008 Tropical Season Summary



➤ Source: Tropical Underground: Dr. Jeff Master

