



## Weekly Climate Update October 14<sup>th</sup> , 2008

- Tropical Atlantic ocean temperature is still above normal which could support an increase in late season tropical activity in late October or early November.
- Developing negative subsurface temperature anomalies in the equatorial Pacific is a sign that an El Nino event is very unlikely. Currently the official climate outlook is calling for ENSO to remain in neutral conditions. This is different than climatology because wetter than normal conditions are less likely than the normal climatologic condition. The Position Analysis in slide 14 and 15 best illustrates this point.
- 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/)
- The new CPC official climate outlook should be out later this week. The IRI and CFS model results suggest increased chances of drier than normal conditions for this upcoming dry season.

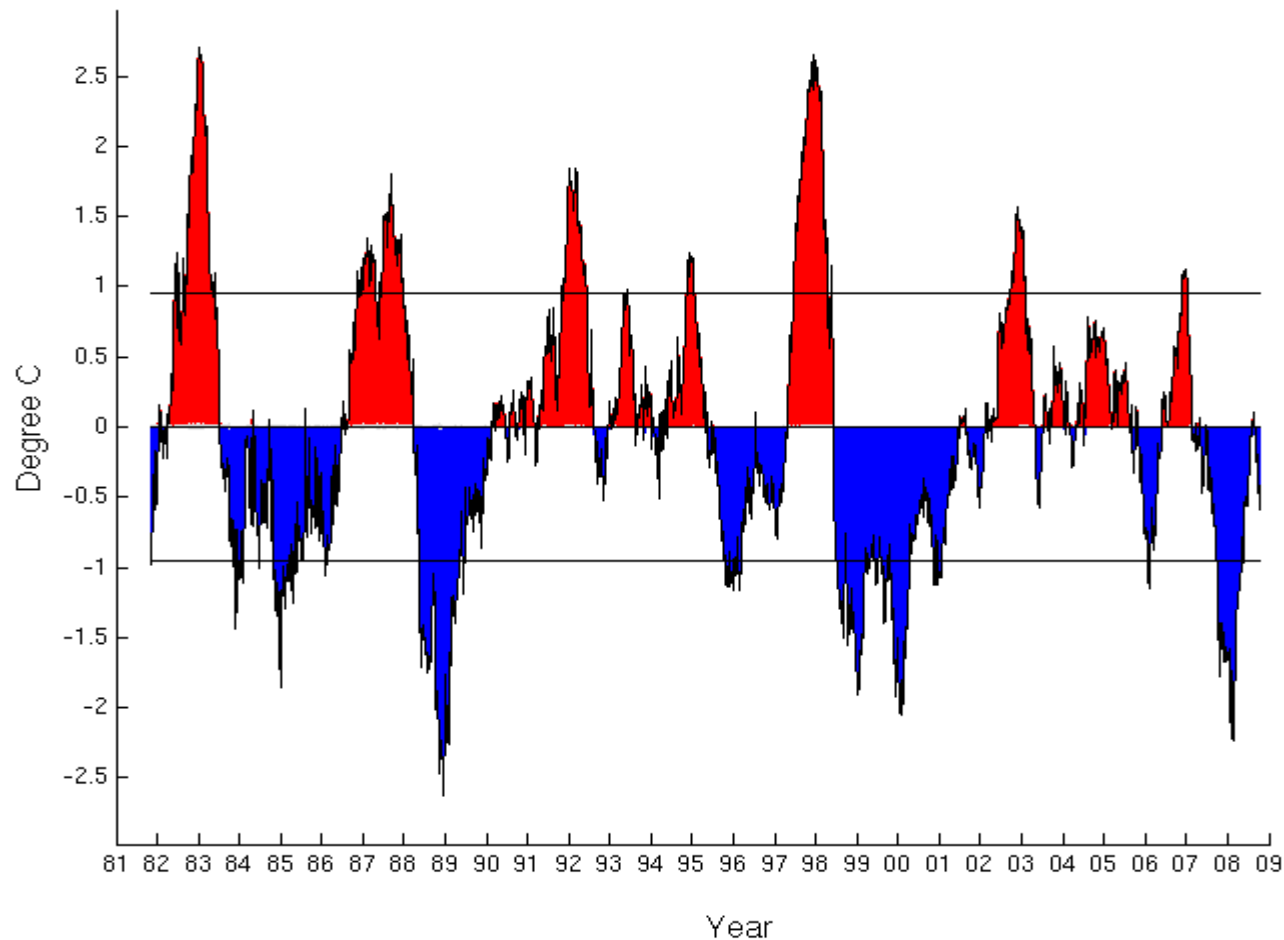


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# El Nino-Southern Oscillation Index



2007-2008 La Nina compared with other ENSO events since 1981.

ENSO is currently in neutral conditions.

[http://ioc3.unesco.org/oopc/state\\_of\\_the\\_ocean/sur/pac/nino3.4.php](http://ioc3.unesco.org/oopc/state_of_the_ocean/sur/pac/nino3.4.php)

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

## Climate Prediction Center

### El Nino-Southern Oscillation Weekly Update

Nov.  
2007

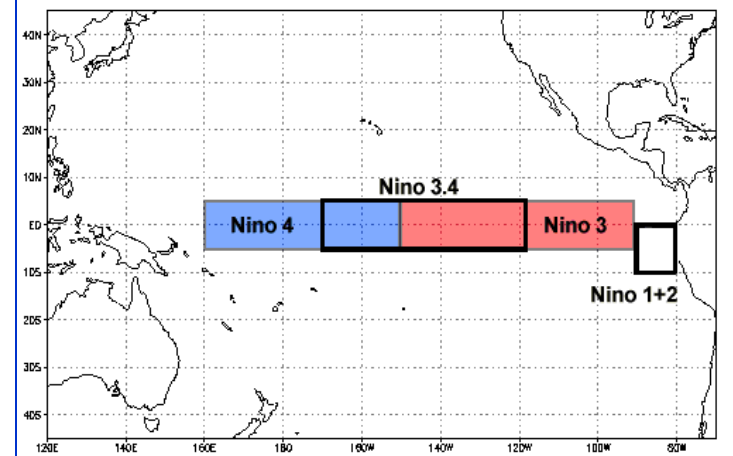
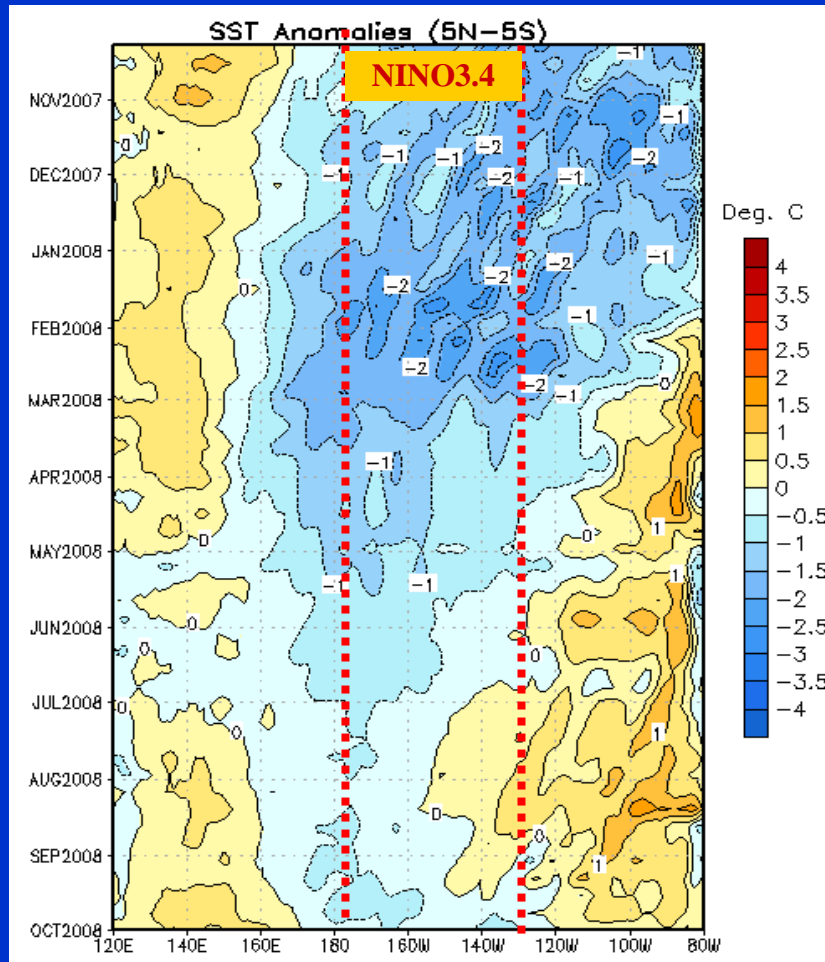
Feb.  
2008

Time



July  
2008

Oct.  
2008



Since September 2008, positive sea surface temperature anomalies have weakened over the eastern equatorial Pacific, while negative SST anomalies have strengthened in the central Pacific.

Longitude

# Niño Region SST Departures (°C) Recent Evolution

## Climate Prediction Center

### El Nino-Southern Oscillation Weekly Update

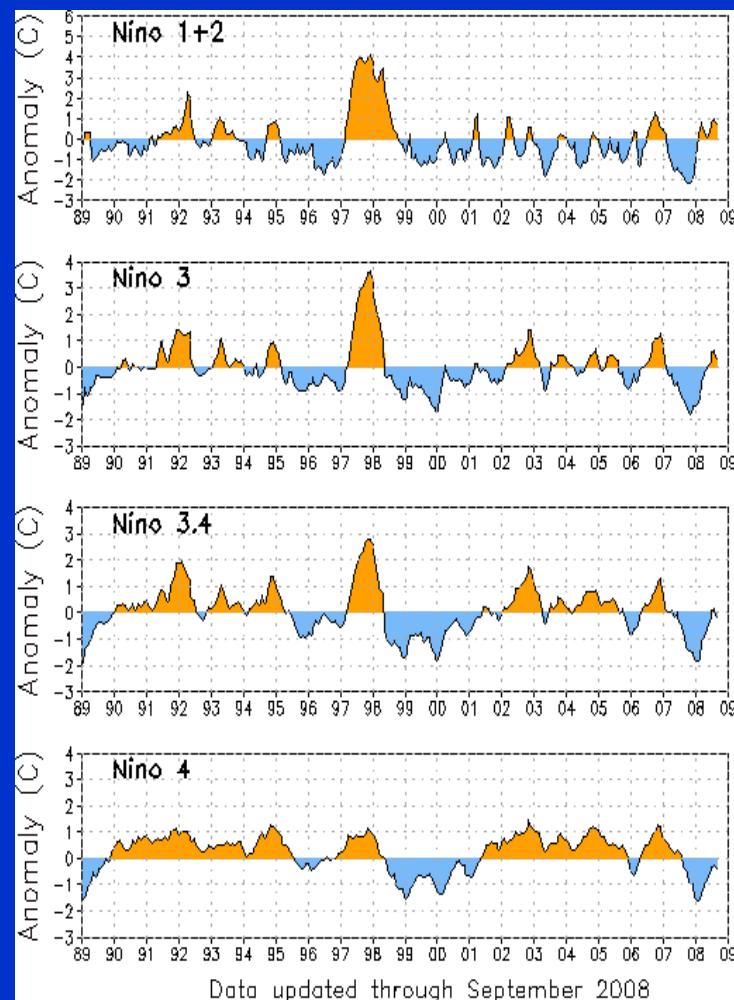
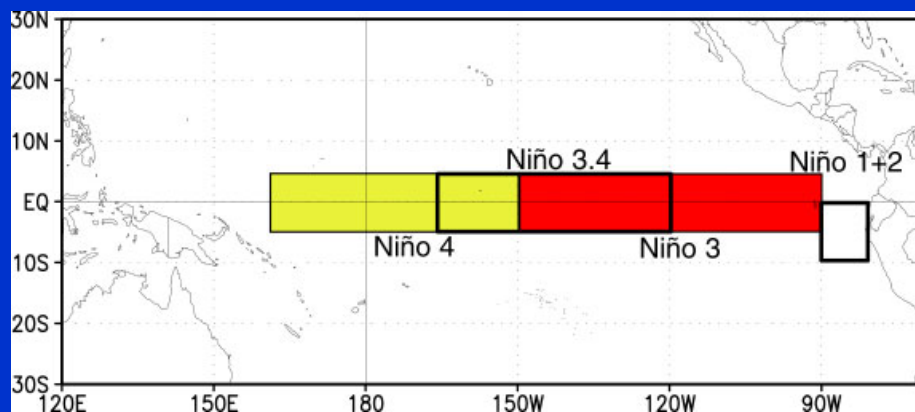
The latest weekly SST departures are:

Niño 1+2                      -0.2°C

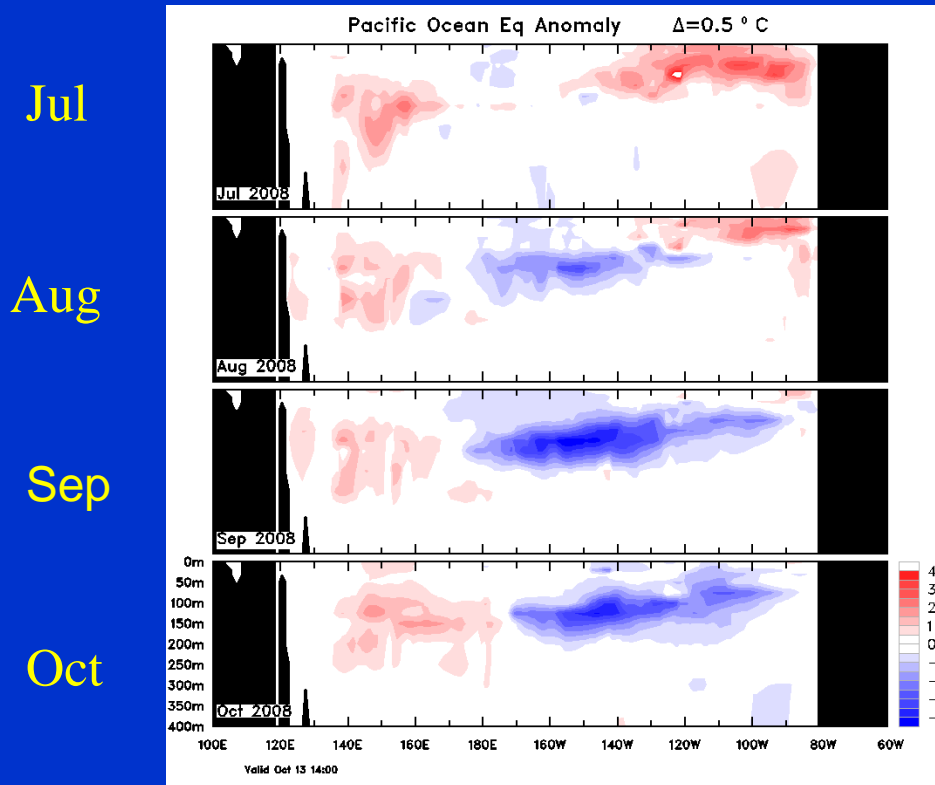
Niño 3                         0.1°C

Niño 3.4                     -0.3°C

Niño 4                        -0.1°C



# Sub-Surface Temperature Departures ( $^{\circ}\text{C}$ ) in the Equatorial Pacific Ocean (October 6<sup>th</sup>, 2008) Bureau of Meteorology Research Centre

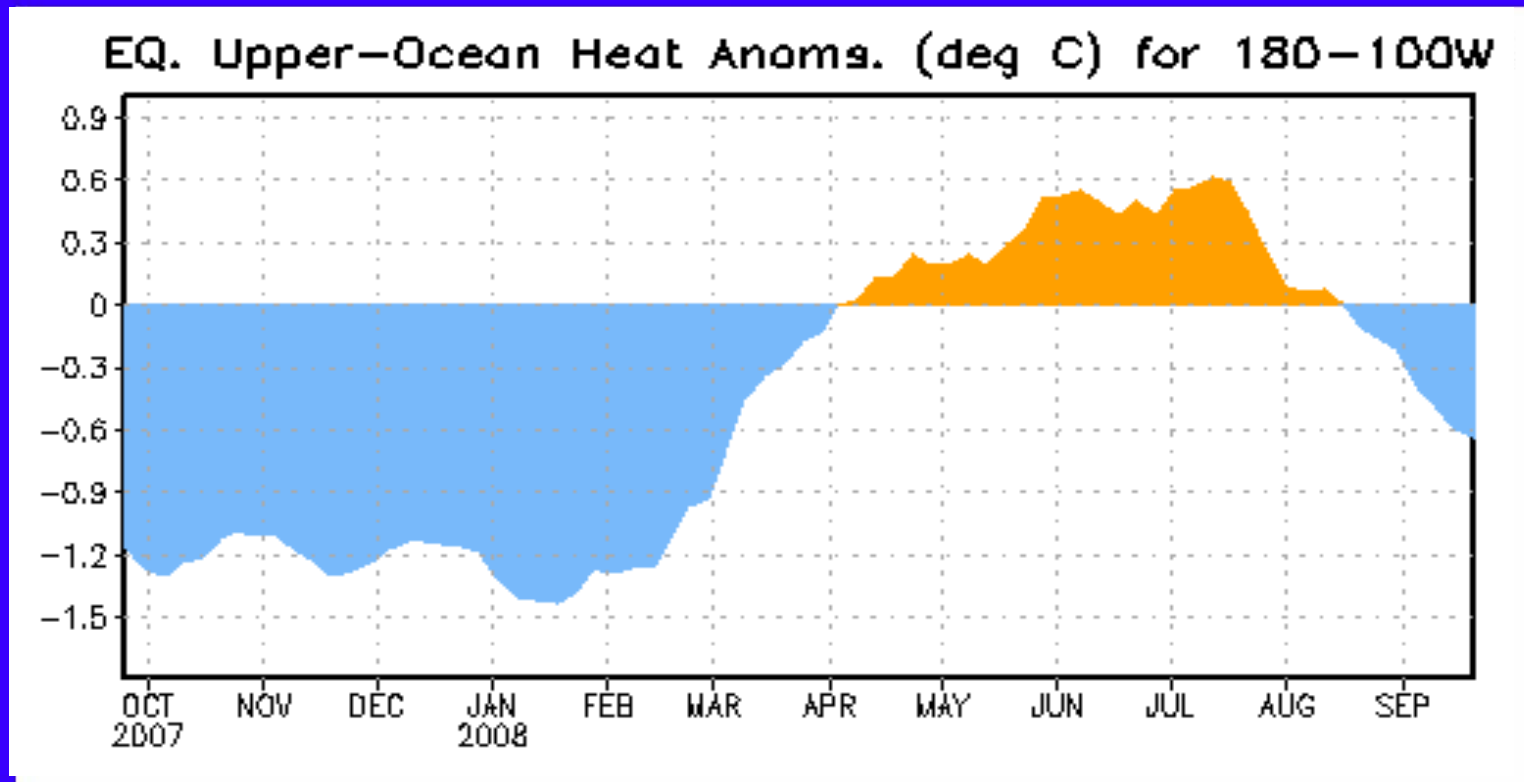


## Longitude

At this time neutral conditions are indicated by sea surface temperature (SST) anomalies. However, La Nina conditions have continued to persist in the atmosphere. Recently 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 March 2008, and above-average from early April 2008 through mid-July 2008. Since mid-August 2008, negative heat content anomalies have been strengthening.

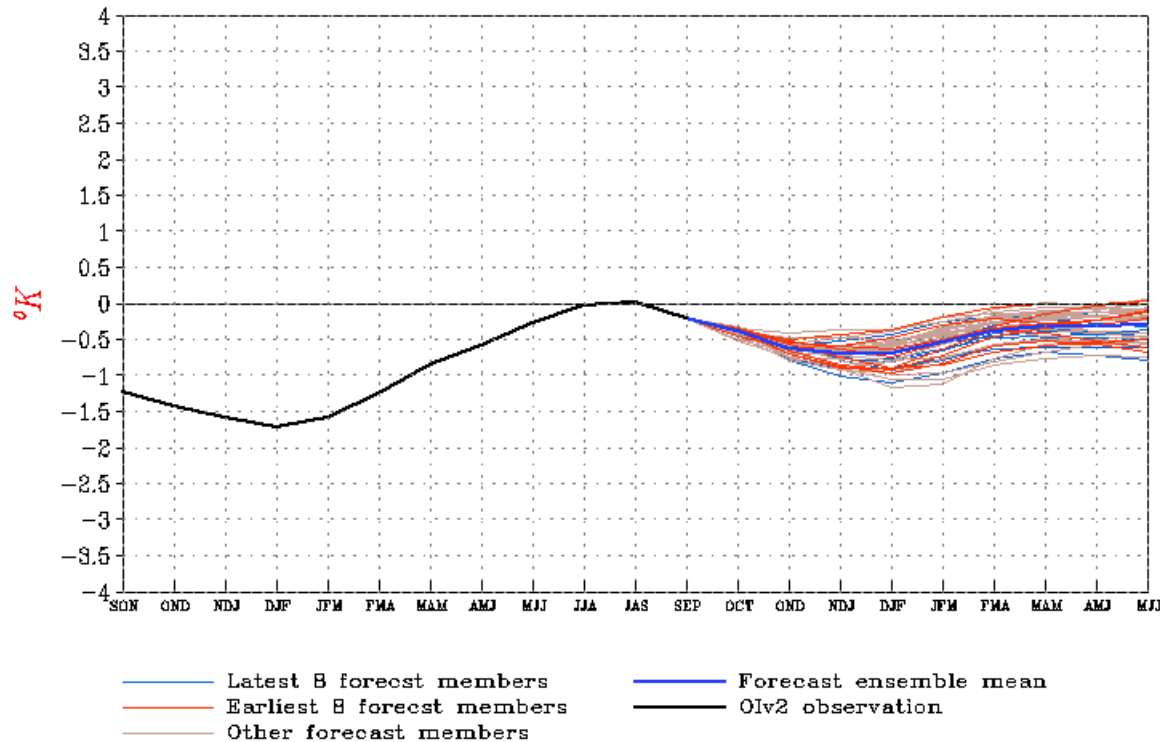
# Equatorial Pacific SST and Temperature Anomaly Forecast- NCEP Climate Forecast System Issued October 14<sup>th</sup> 2008



NWS/NCEP

Last update: Tue Oct 14 2008  
Initial conditions: 30Oct2008-12Oct2008

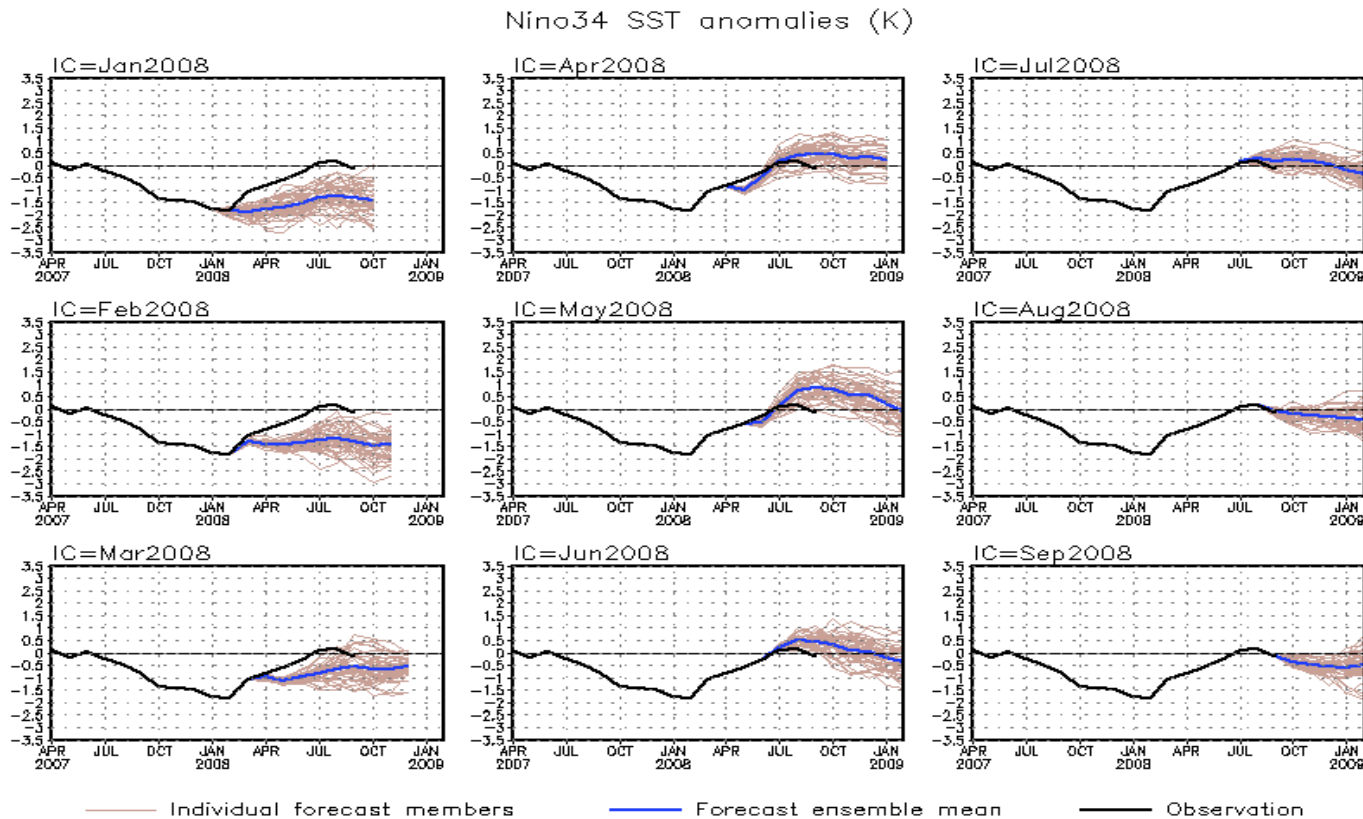
PDF correction: Forecast *Nino3.4* SST anomalies from CFS





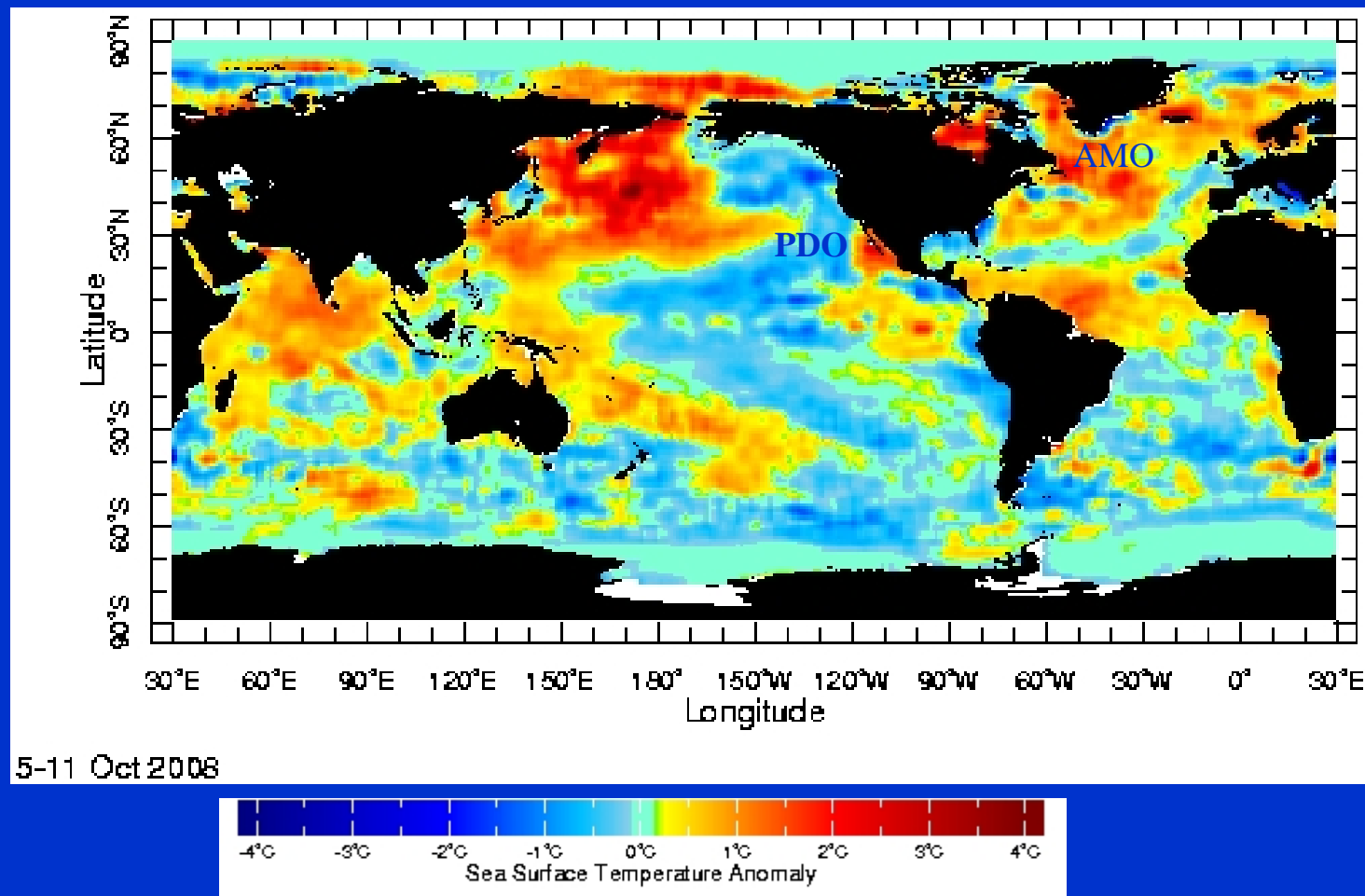
## Verification of Nino 3.4

### CFS Niño3.4 SST Predictions from Different Initial Months



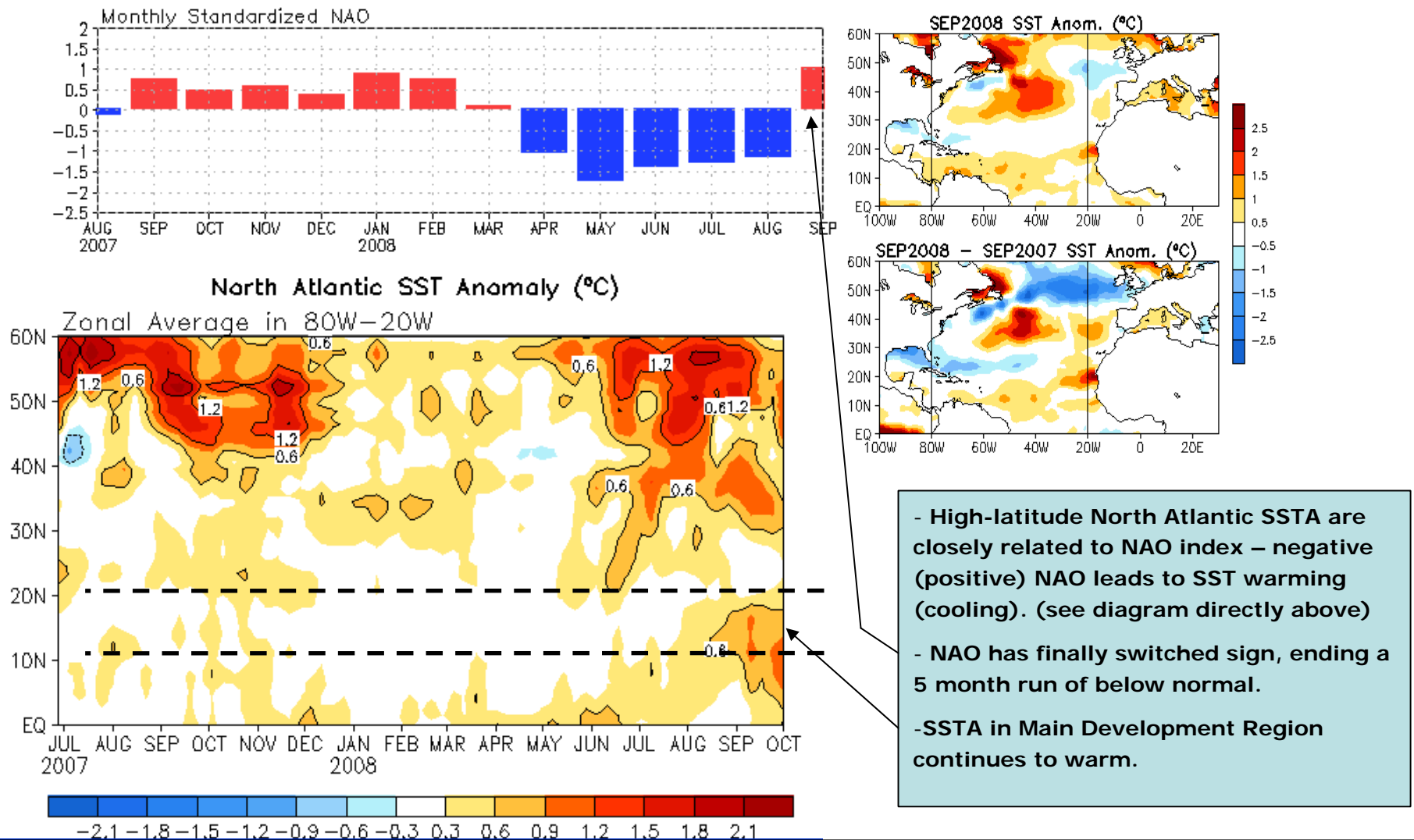
# Latest Weekly Sea Surface Temperature Anomaly

## National Climate Data Center



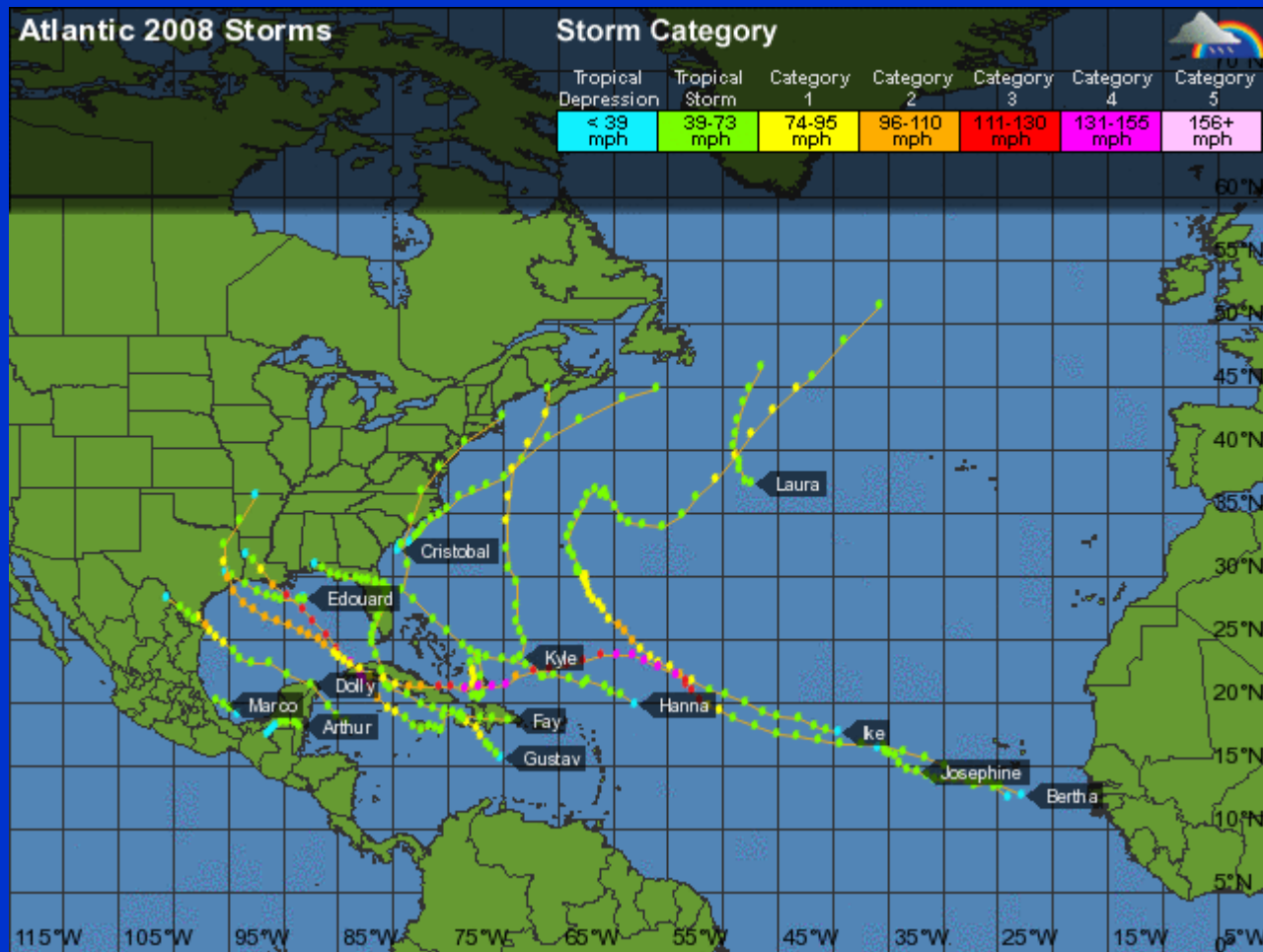
The Atlantic Main Hurricane Development Region is still well above normal. With the location of the warm anomalies and together with being late in the hurricane season the Caribbean would be the most favorable region for development of storms that would affect south Florida.

# NAO and SST Anomaly in North Atlantic



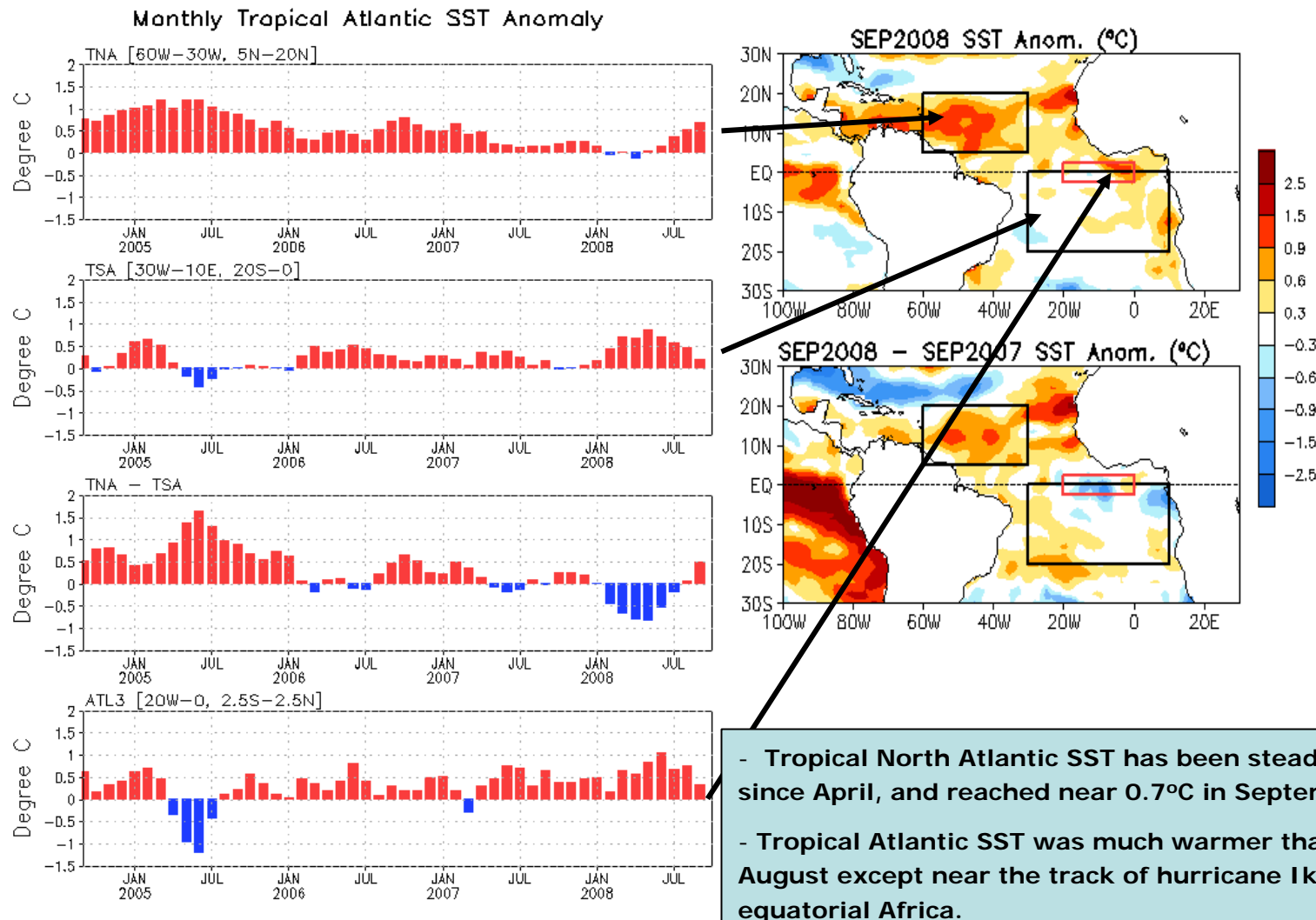
**Fig. NA2.** Monthly standardized NAO index (top) derived from monthly standardized 500-mb height anomalies obtained from the NCEP CDAS in 20°N-90°N (<http://www.cpc.ncep.noaa.gov>). Time-Latitude section of SST anomalies averaged between 80°W and 20°W (bottom). SST are derived from the NCEP OI SST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

# Path and Strength of 2008 Tropical Storms and Hurricanes



Negative NAO anomalies tend to direct tropical storms and hurricanes further west with landfall often occurring before recurvature

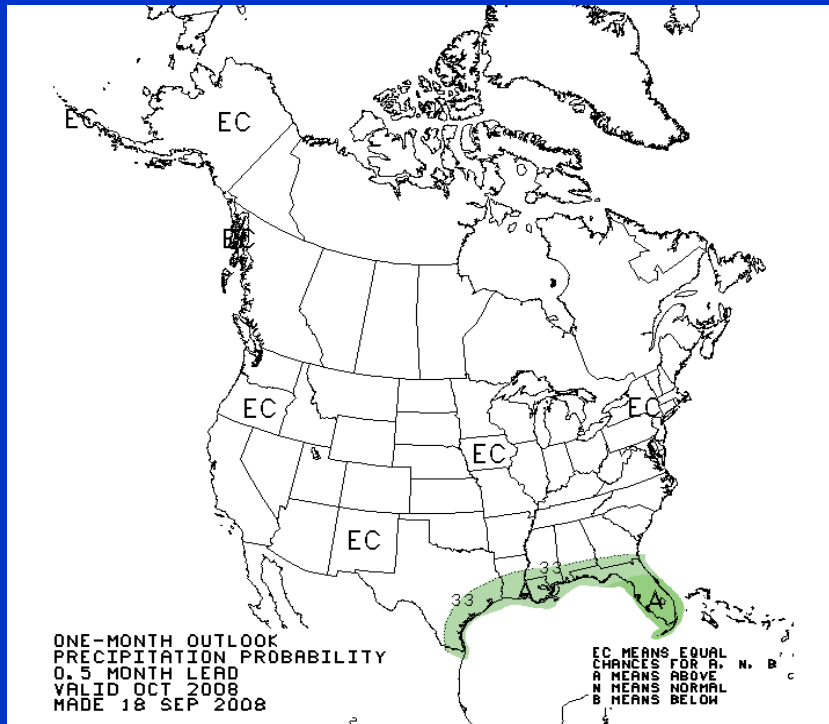
# Evolution of Tropical Atlantic SST Indices



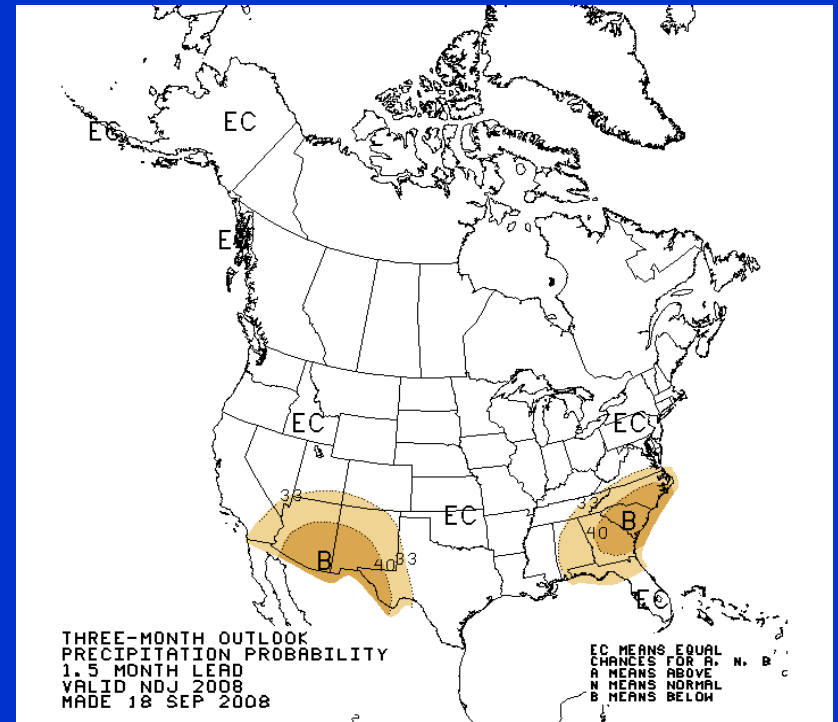
**Fig. A1a. Tropical Atlantic Variability region indices, calculated as the area-averaged monthly mean sea surface temperature anomalies (°C) for the TNA [60°W-30°W, 5°N-20°N], TSA [30°W-10°E, 20°S-0] and ATL3 [20°W-0, 2.5°S-2.5°N] regions, and Meridional Gradient Index, defined as differences between 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

October



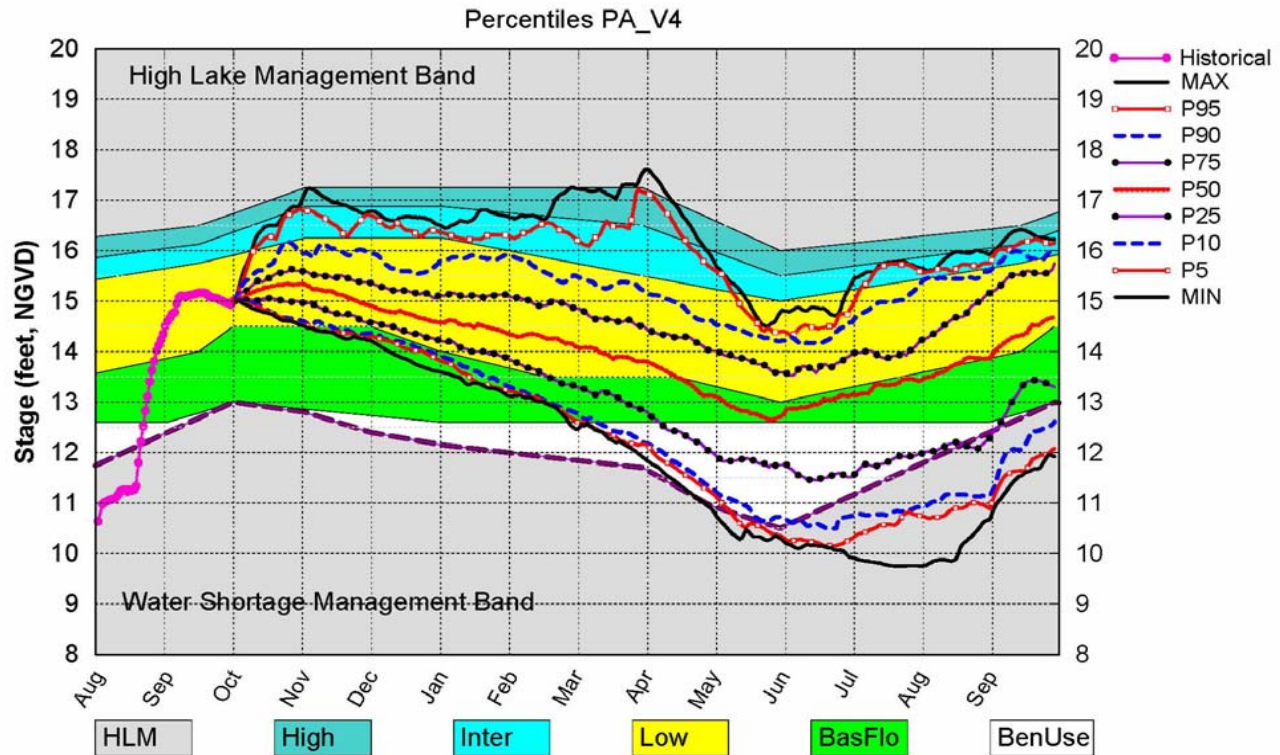
November-January





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

## Lake Okeechobee SFWMM October 2008 Position Analysis

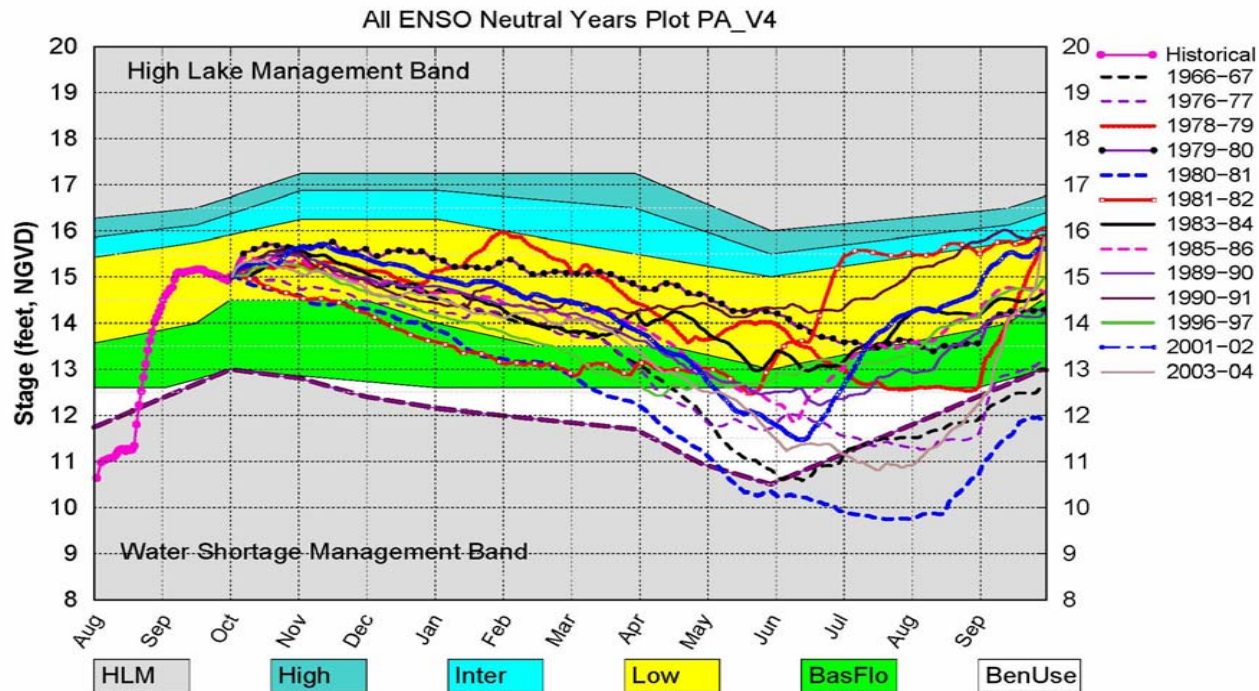


(See assumptions on the Position Analysis Results website)

Tue Oct 7 08:44:03 2008

# October 1<sup>st</sup> ENSO neutral years Position Analysis

## Lake Okeechobee SFWMM October 2008 Position Analysis



Tue Oct 7 10:36:24 2008

(See assumptions on the Position Analysis Results website)

Although ENSO is officially in neutral conditions according to CPC, many of the atmospheric properties of La Nina are still lingering. Therefore caution should be used when considering this plot. However, it is clearly not an El Nino warm event,

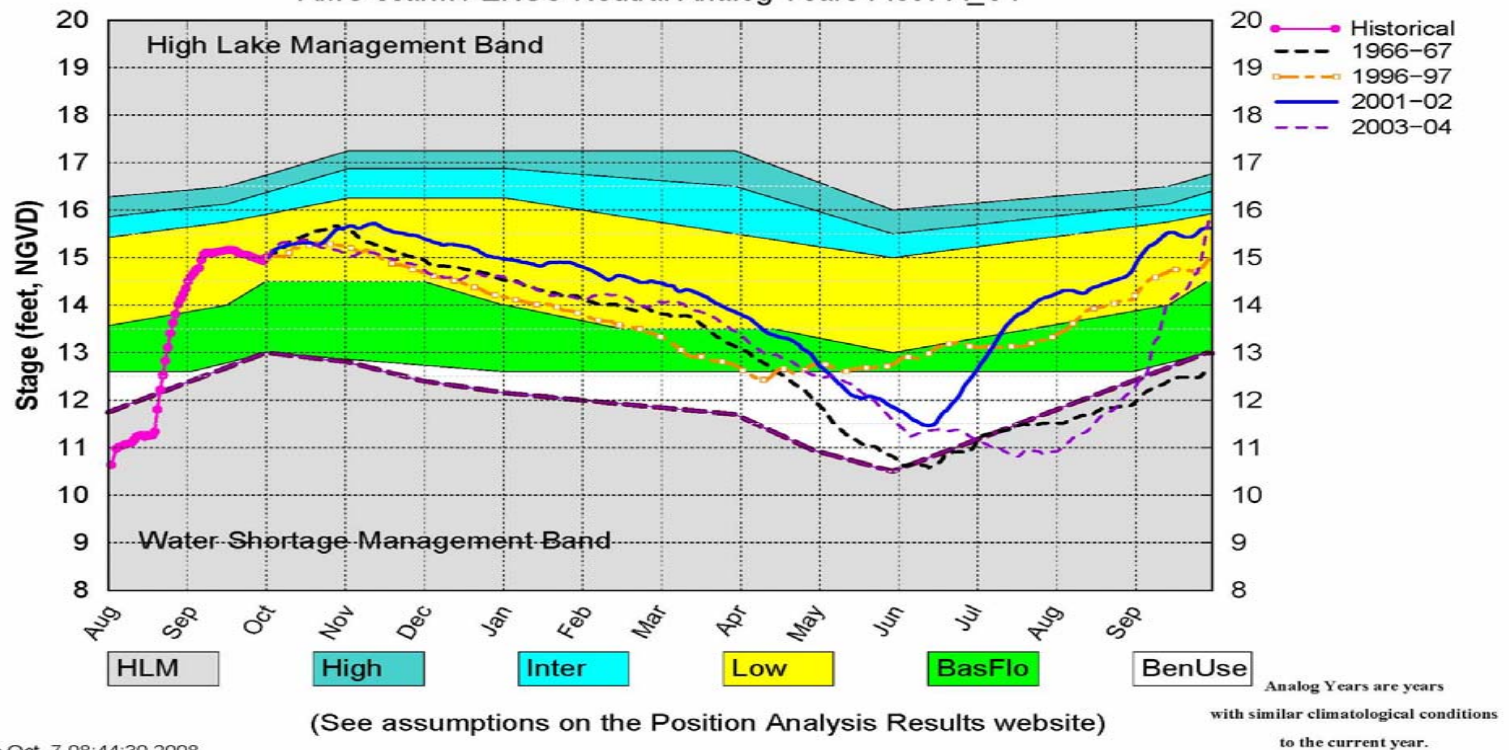


# September 1<sup>st</sup> Position Analysis

## ENSO Neutral/AMO Warm sub sampling

### Lake Okeechobee SFWMM October 2008 Position Analysis

AMO Warm / ENSO Neutral Analog Years Plot PA\_V4

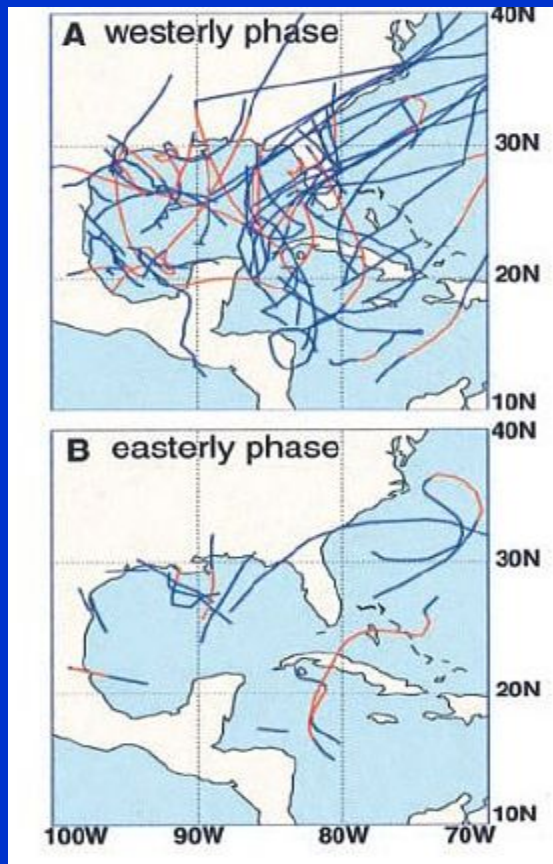


Tue Oct 7 08:44:30 2008

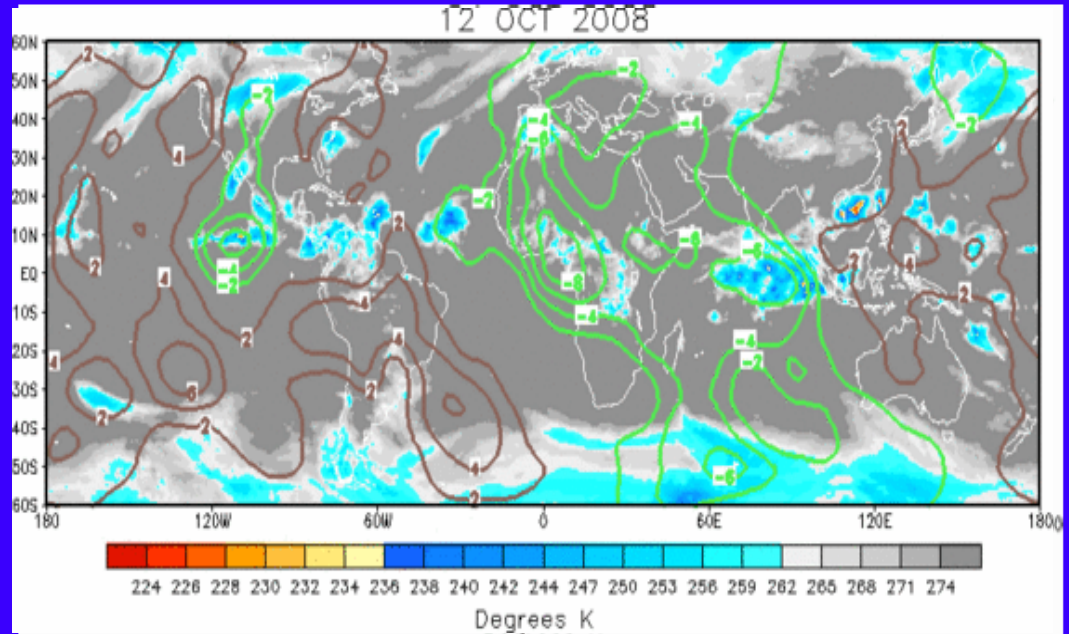
# Madden Julian Oscillation (MJO)

MJO is neutral this week

Historical (1947-1977)



Current state of MJO

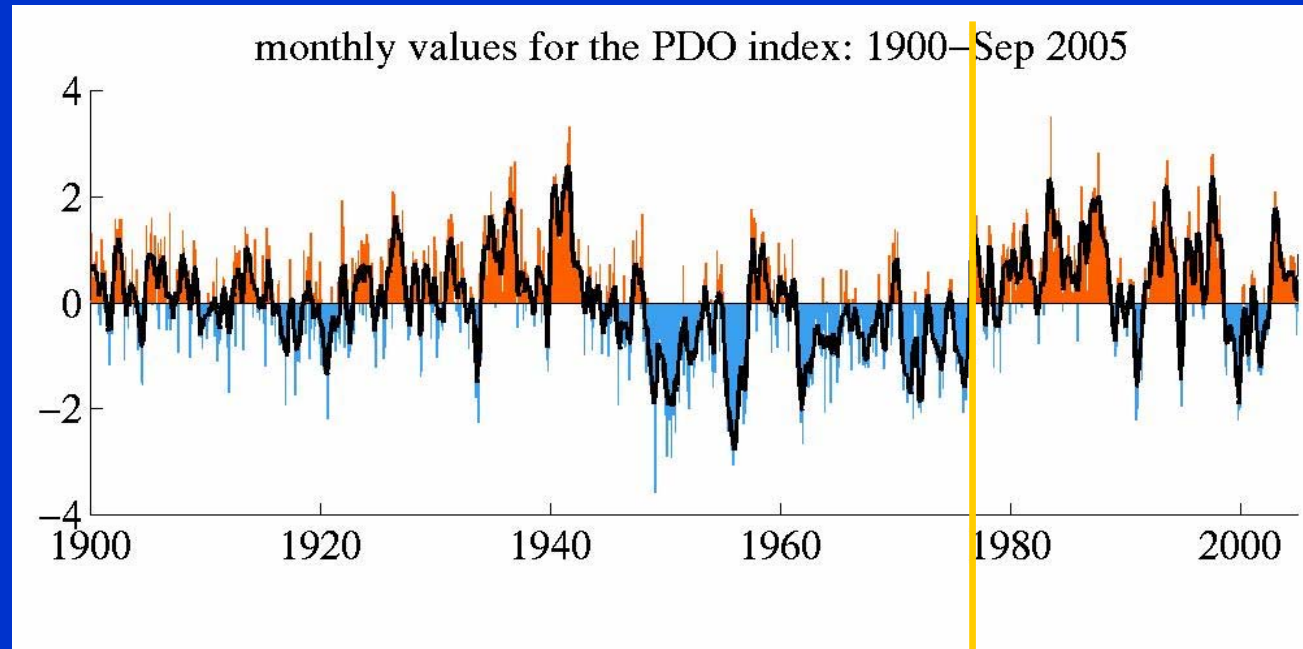


The contrast between the westerly phase and the easterly phase of the eastward propagating MJO is striking (see maps to left). During westerly MJO phase between 1949-1977, fifty tropical storms developed compared with 14 during easterly phase. The numbers were similarly disparate for hurricane formation, 24 to 6.

# Backup Slides with additional support material

Currently  
transitioning  
to cold phase of  
PDO

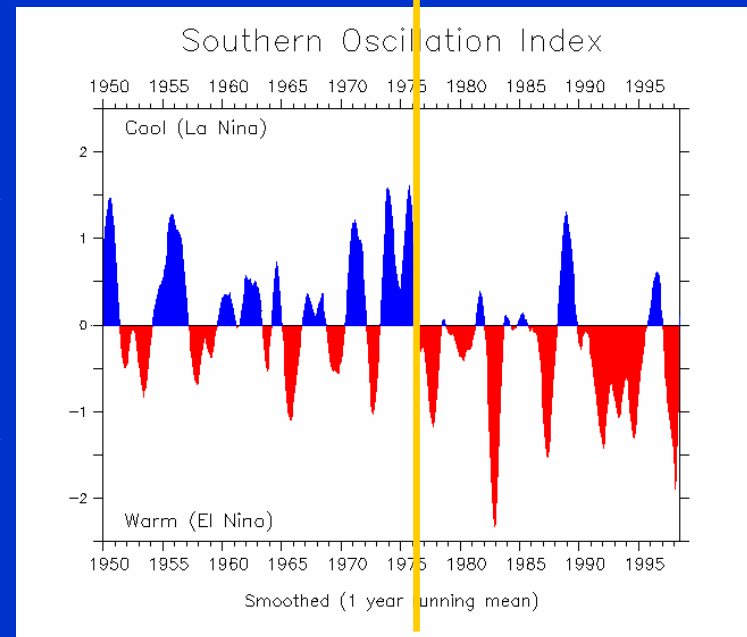
## PDO



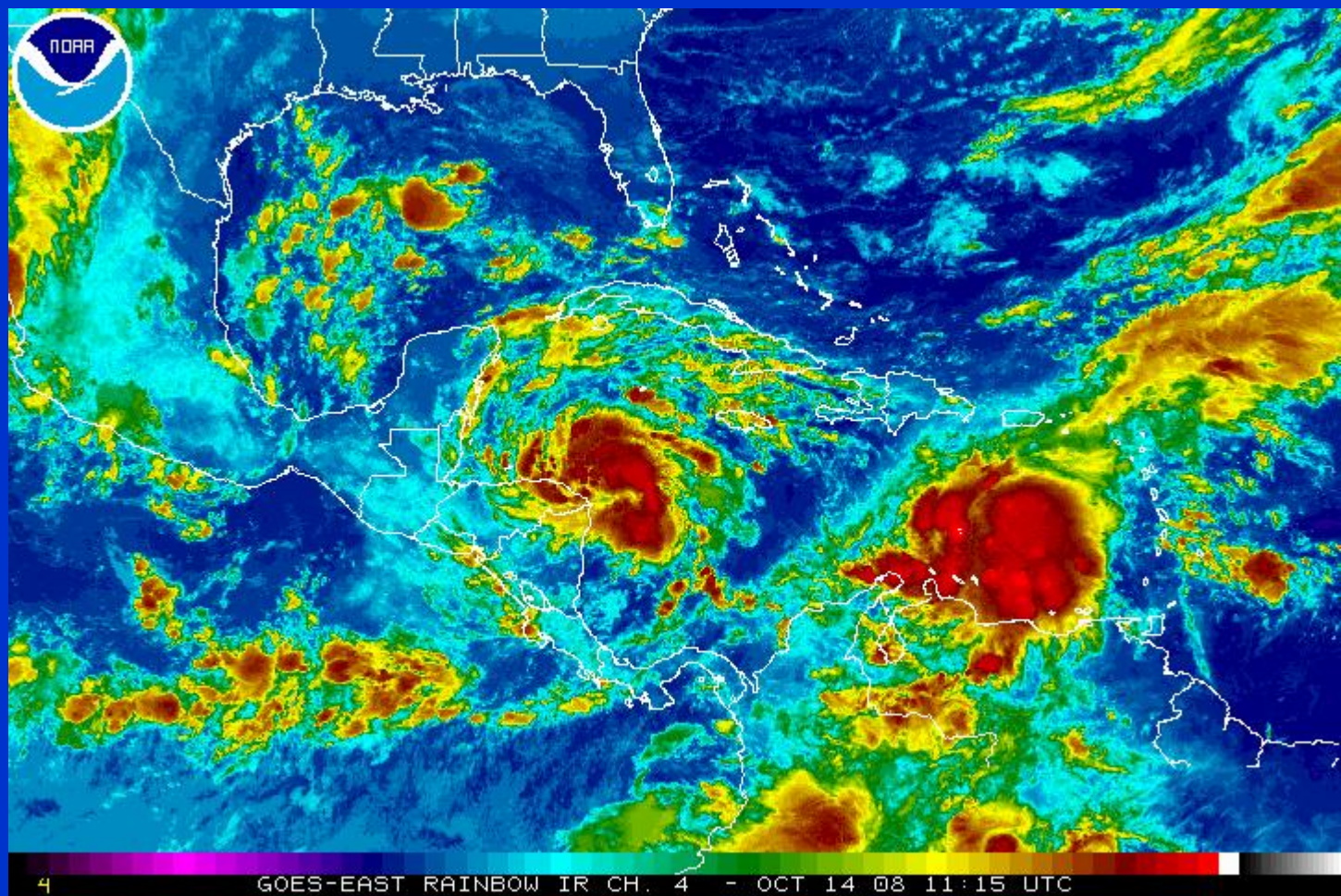
## ENSO

La Nina predominates when  
PDO is in negative phase →

El Nino predominates when  
PDO is in positive phase →

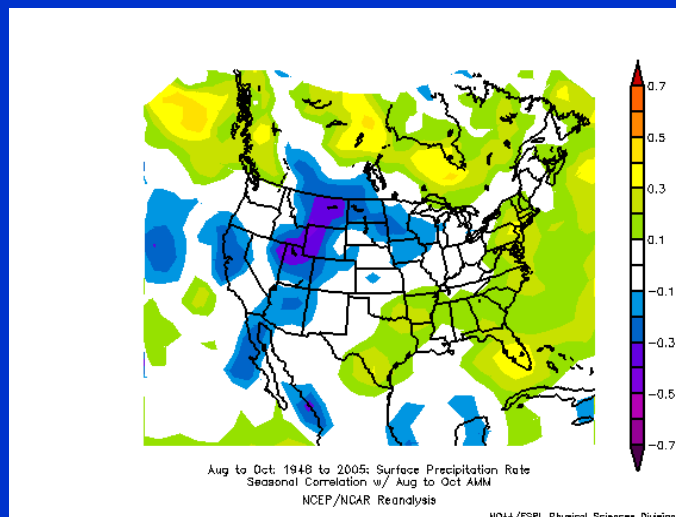




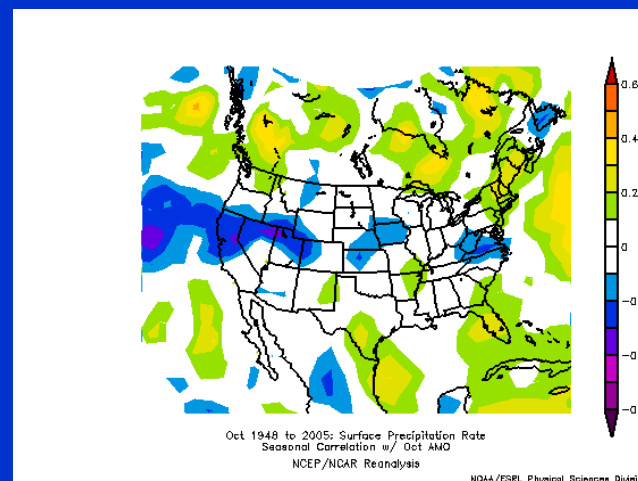
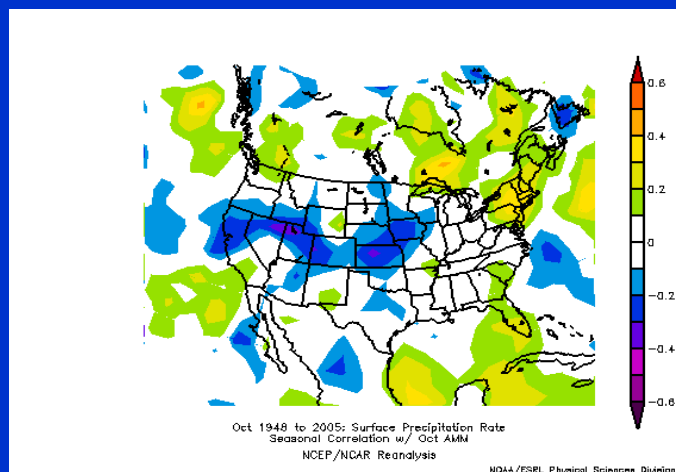
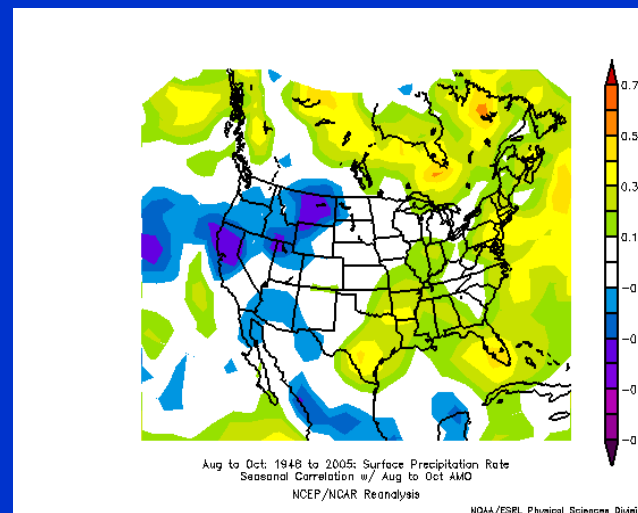


# Correlation between RF and Atlantic Meridional Mode and Atlantic Multidecadal Oscillation

## AMM

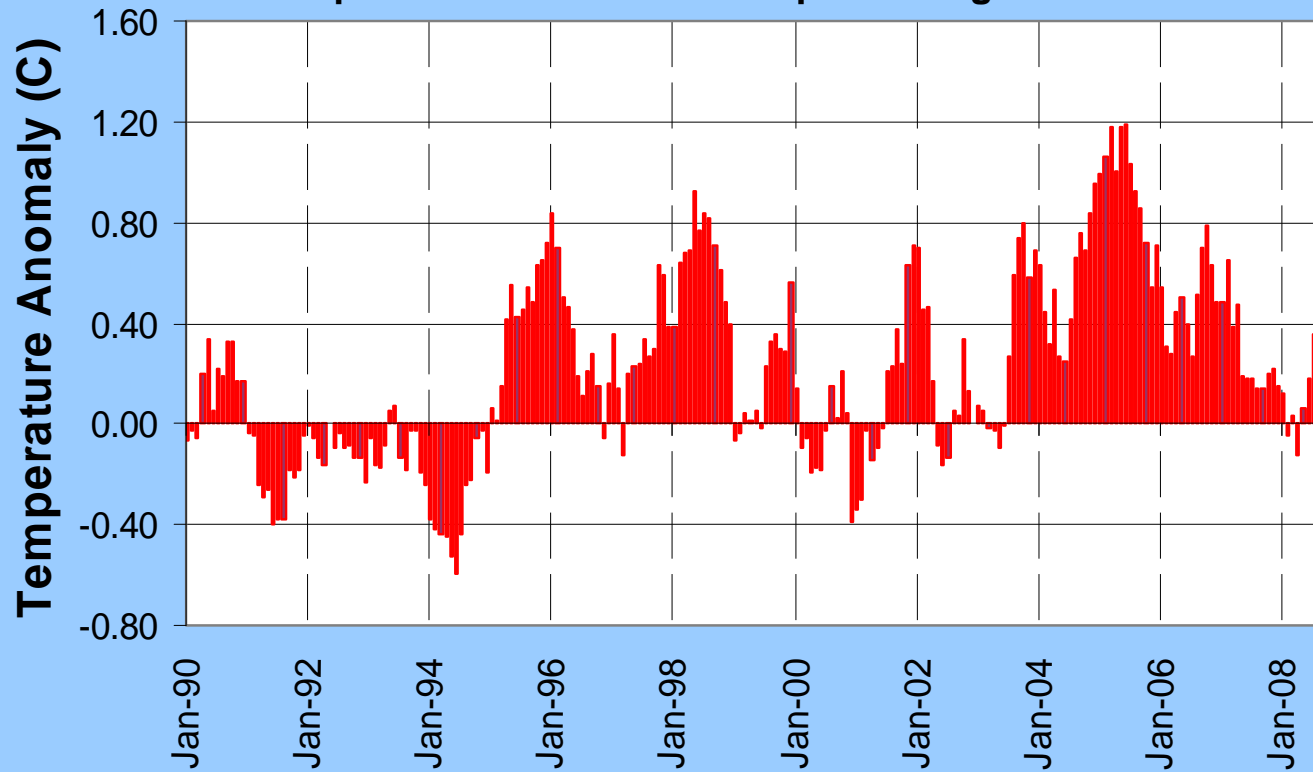


## AMO



## Sea Surface Temperature Anomaly

### Tropical Atlantic Main Development Region



## Madden-Julian Oscillation

