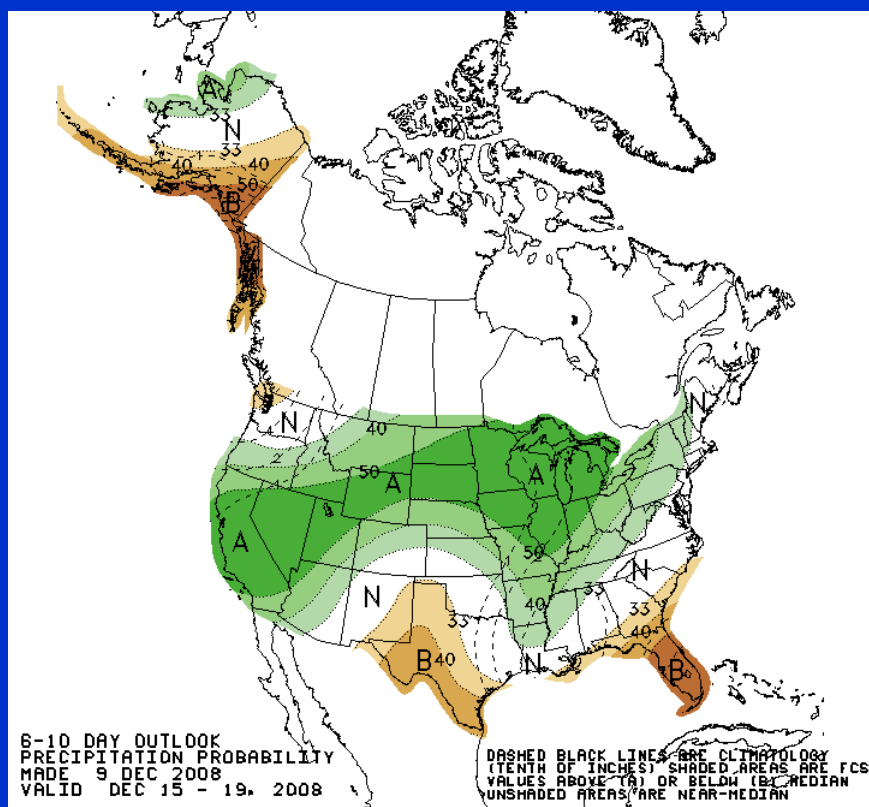


Weekly Climate Update December 9th 2008

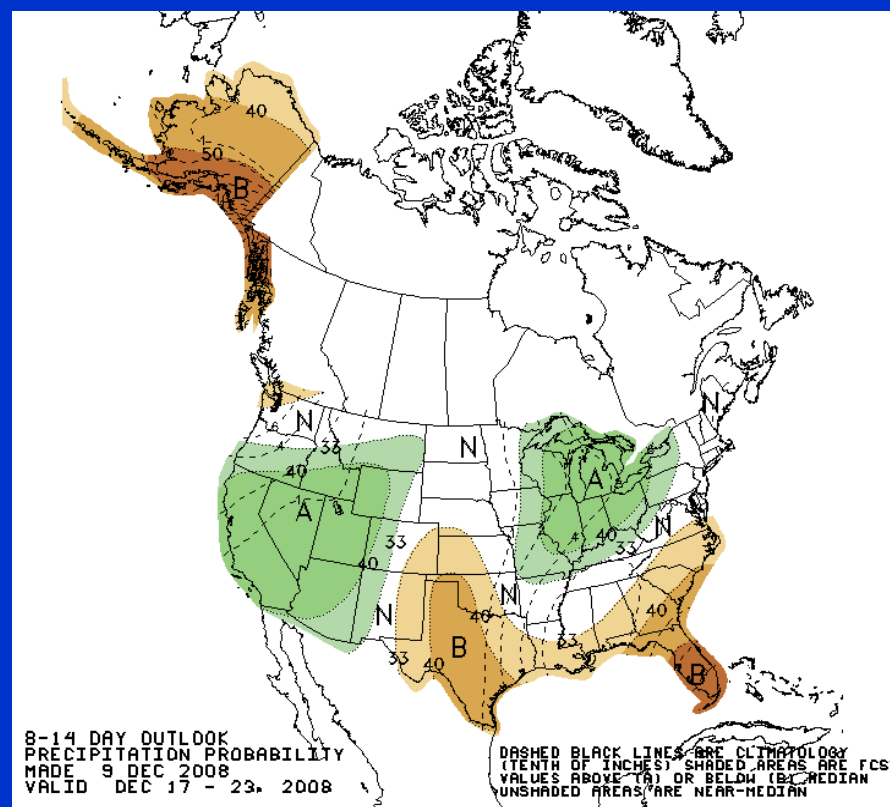
- A tremendous area of cooler than normal sea surface temperatures along the equatorial Pacific extending northward to higher latitudes along the west coast of North America are a result of a very weak La Nina type condition and the cold phase of the Pacific Decadal Oscillation. These anomalies indicative of an increase chance of below normal rainfall in the upcoming Months.
- Strengthening negative subsurface temperature anomalies in the equatorial Pacific are a sign that an El Nino event is very unlikely to develop and La Nina conditions may be redeveloping. 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 and some global weather patterns seem to indicate a weak La Nina already exists
- The latest IRI and CFS models results simulate increased drier than normal conditions for this upcoming dry season.
- The Official climate outlook calls for an increased probability of below normal rainfall for December through mid- April.
- The Position Analysis in slide 17 - 21 illustrates projected water levels for Lake Okeechobee and Water Conservation area 3A.
- Summary of current global ocean-climate conditions can be found at the following link: http://ioc3.unesco.org/oopc/state_of_the_ocean/all/

Medium Range Precipitation Outlook

6-10 Day Outlook



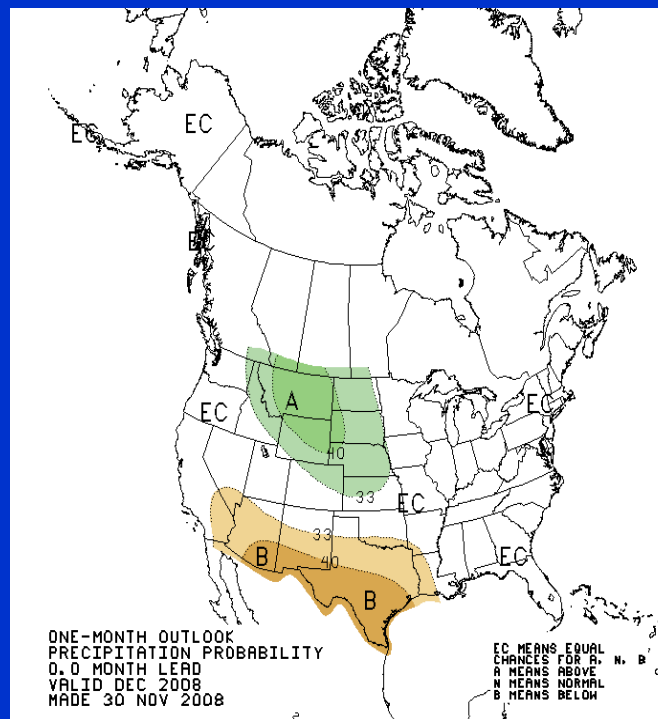
8-14 Day Outlook



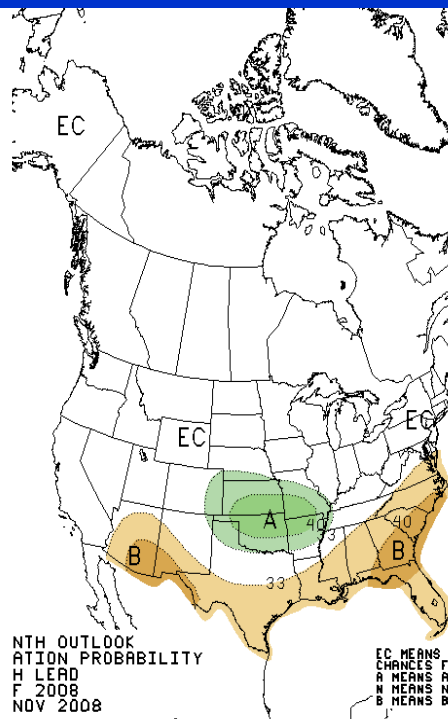
After a cold front passes through Florida later this week conditions should be dry.

Official CPC Seasonal Rainfall Outlook

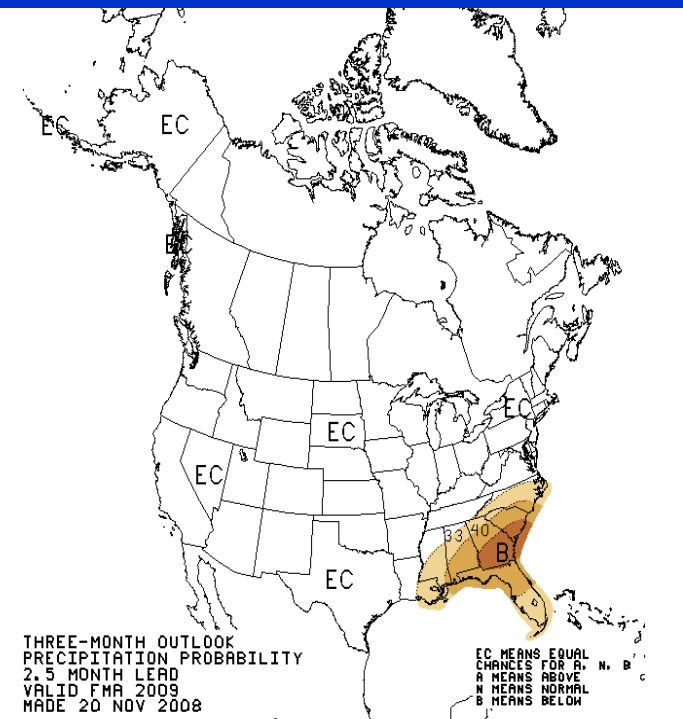
December



December-February



February-April



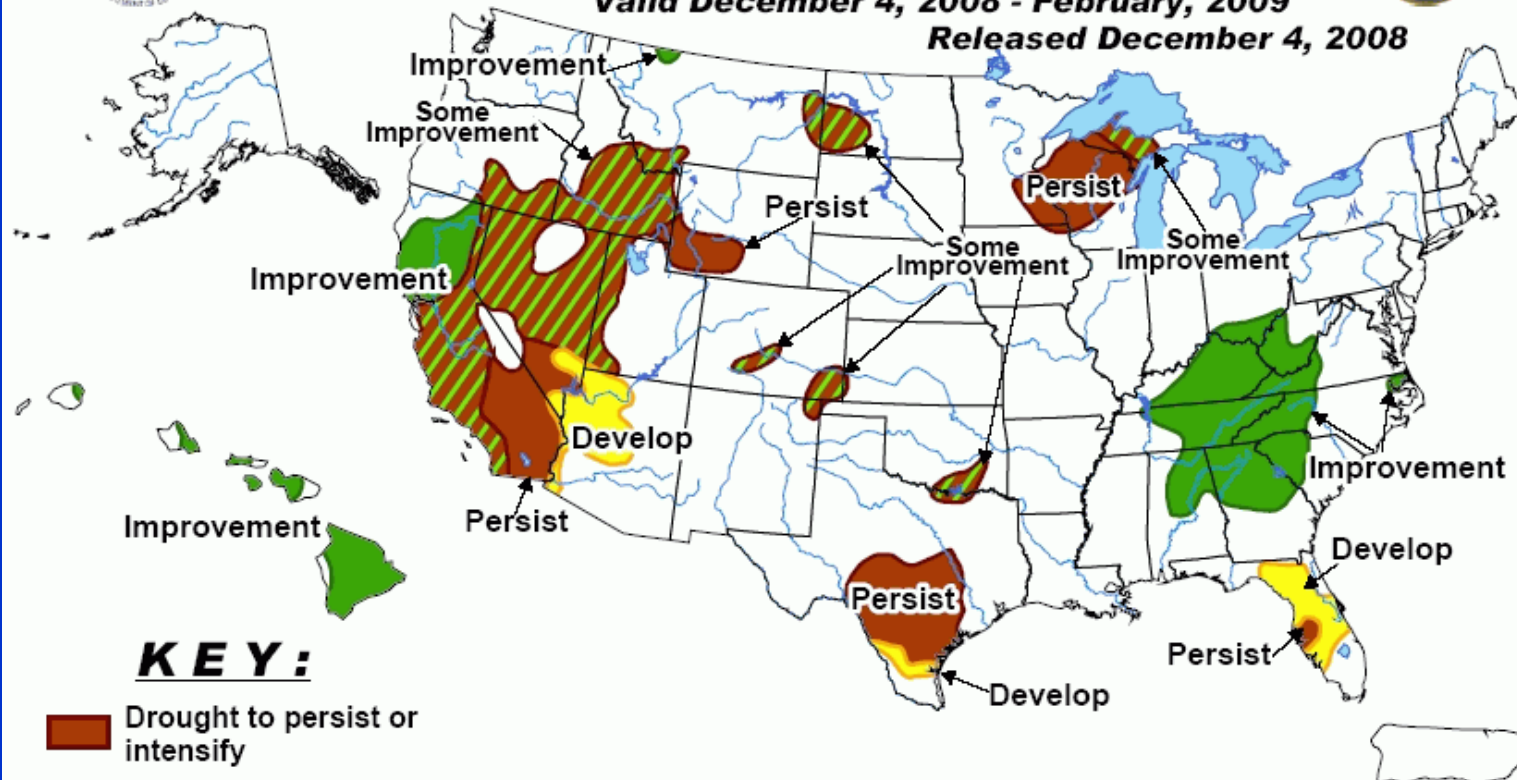


U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid December 4, 2008 - February, 2009

Released December 4, 2008



KEY:

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

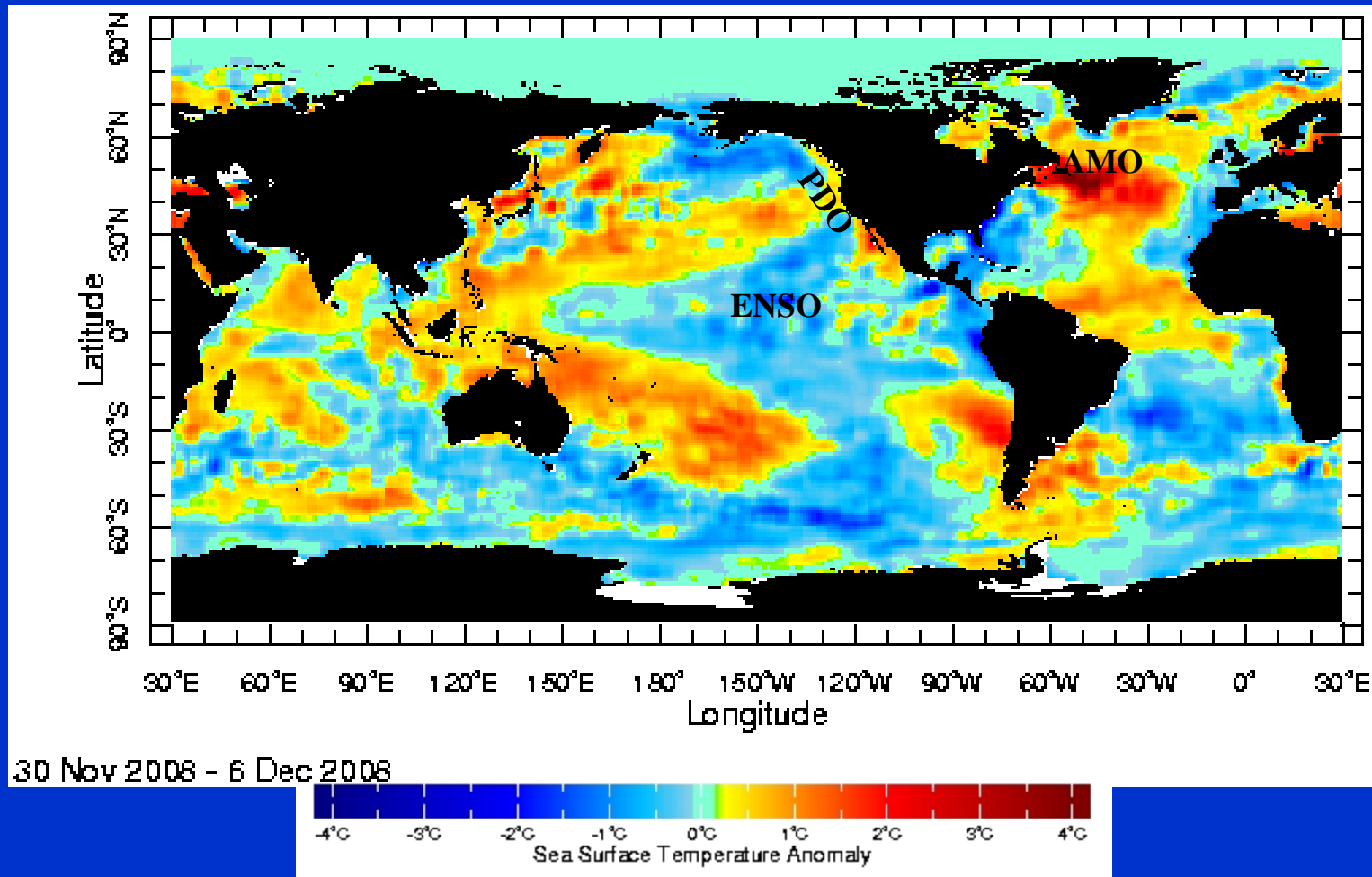
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- 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.

Table of Contents

	Slide
Most recent week Global sea surface temperature anomaly.....	<u>5</u>
Pacific Decadal Oscillation.....	<u>6</u>
The evolution of sea surface temperature anomalies (SSTA) in the east-central equatorial Pacific ocean.....	<u>7</u>
Time series of Nino indices which are used to estimate the state of ENSO	<u>8</u>
Trend in the subsurface anomalies.....	<u>9</u>
Weekly Eastern and Central Equatorial Pacific subsurface Heat Anomaly.....	<u>10</u>
Upper Pacific Ocean Heat Anomalies.....	<u>11</u>
The Climate Forecasting System (CFS) sea temperature anomalies predicted.....	<u>12</u>
Global and Basin Sea Surface Temperature anomalies.....	<u>13</u>
Verification of CFS Nino 3.4 Forecasts.....	<u>14</u>
NAO and Atlantic SST anomalies.....	<u>15</u>
Evolution of Tropical Atlantic SST Anomalies.....	<u>16</u>
The <u>Official CPC Climate Outlook</u>	<u>2</u>
Lake Okeechobee October 1 st PA Percentiles.....	<u>17</u>
Lake Okeechobee October 1 st PA with Neutral ENSO.....	<u>18</u>
Lake Okeechobee October 1 st Neutral ENSO/AMO warm phase sub samplings.....	<u>19</u>
Backup Slides	

Latest Weekly Sea Surface Temperature Anomaly

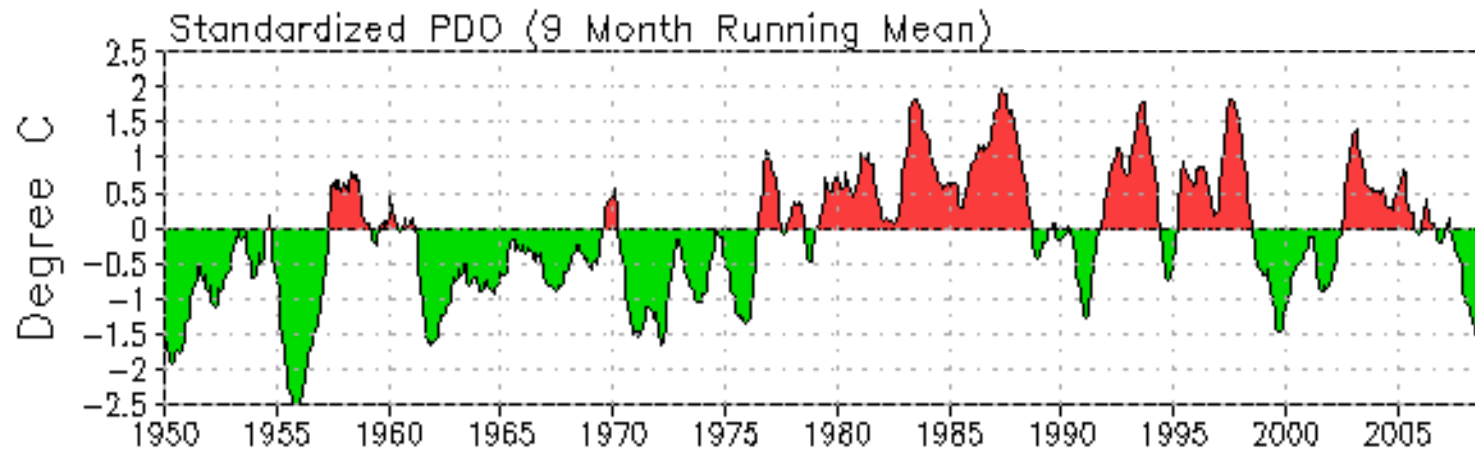
International Research Institute



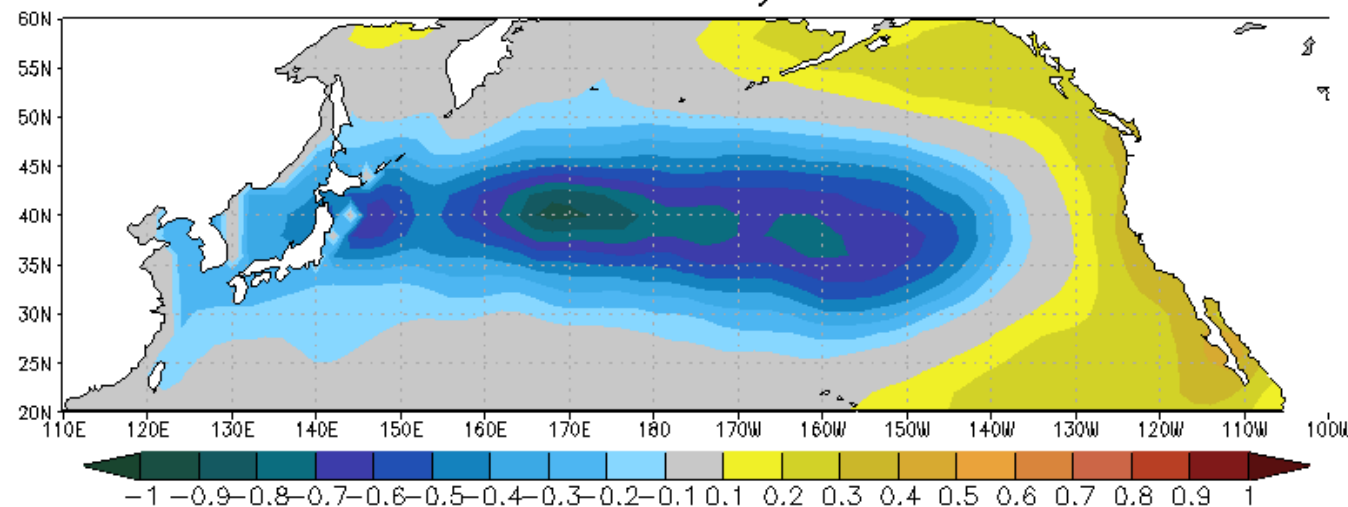
Large area of cooler than normal sea surface temperatures in the equatorial Pacific extending northward to higher latitudes along the west coast of North America are a result of marginal La Nina type conditions and the cold phase of the Pacific Decadal Oscillation.

Pacific Decadal Oscillation (PDO)

PDO index at the lowest value since 1999.



1st EOF of monthly ERSST v3b



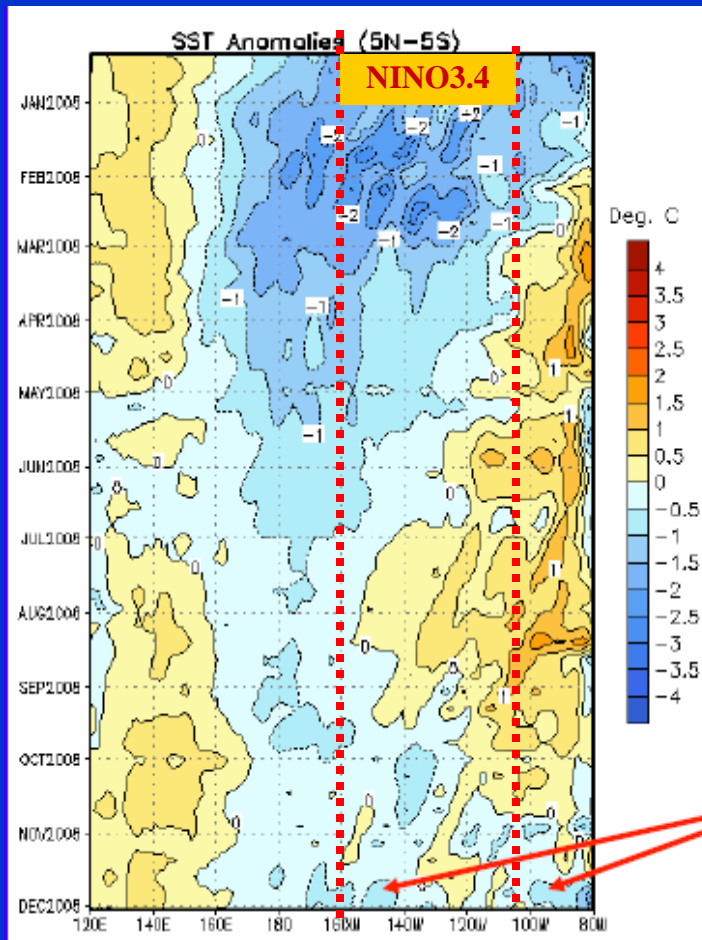
- Pacific Decadal Oscillation is defined as the 1st EOF of monthly SST in the North Pacific.
- Index is the standardized projection of the monthly SST anomalies on this pattern.

Recent Evolution of Equatorial Pacific SST Departures (°C)

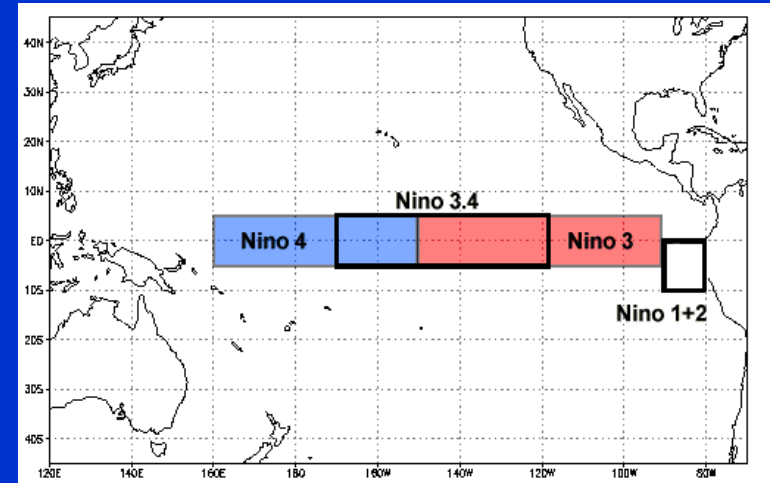
Climate Prediction Center

El Nino-Southern Oscillation Weekly Update

Jan.
Mar.
Time
↓
Aug.
Nov.



Longitude



Since October 2008, negative sea surface temperature anomalies have strengthened in portions of the central and eastern equatorial Pacific Ocean.

Recent Evolution of Niño Region SST Departures (°C)

Climate Prediction Center
El Niño-Southern Oscillation Weekly Update

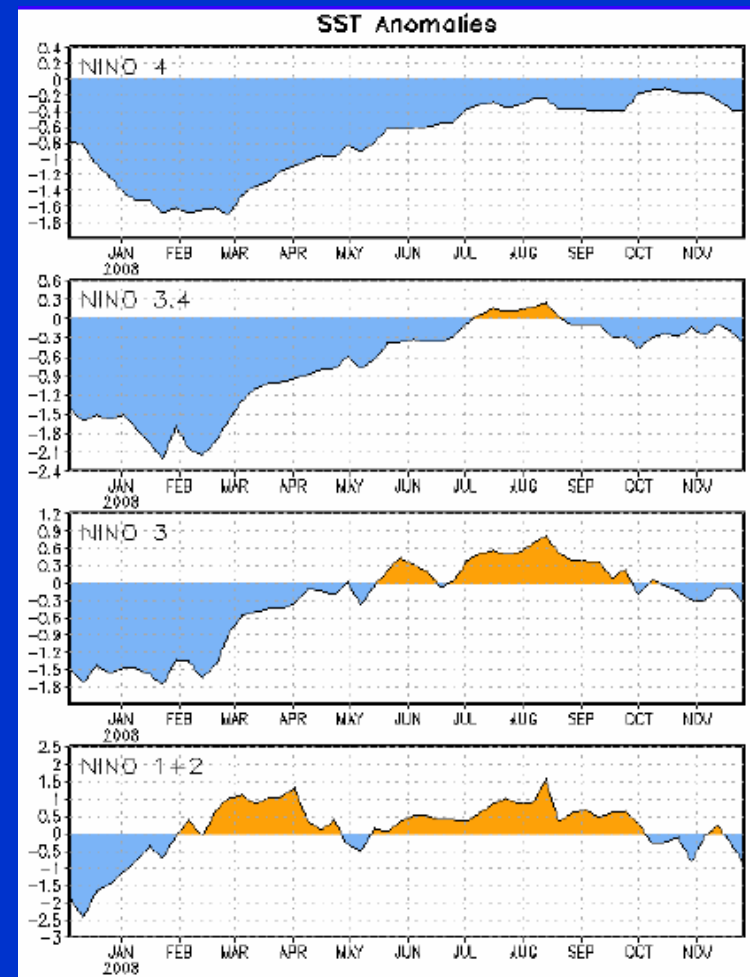
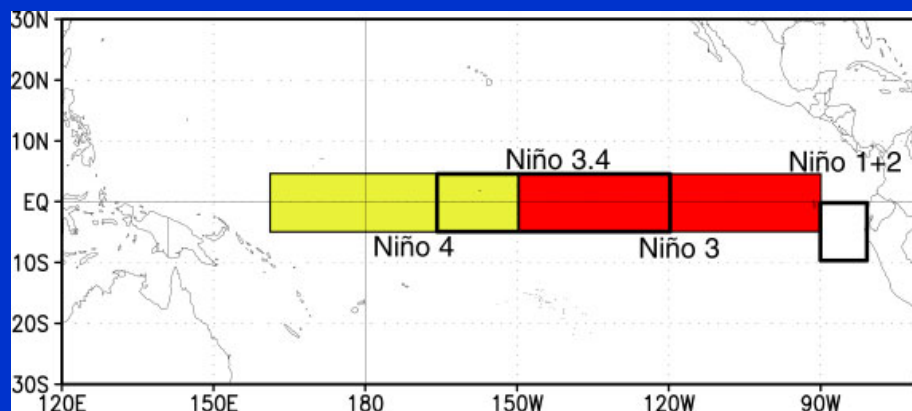
The latest weekly SST departures are:

Niño 4 -0.4°C

Niño 3.4 -0.5°C

Niño 3 -0.3°C

Niño 1+2 -0.9°C



Sub-Surface Temperature Departure Anomalies (CPC)

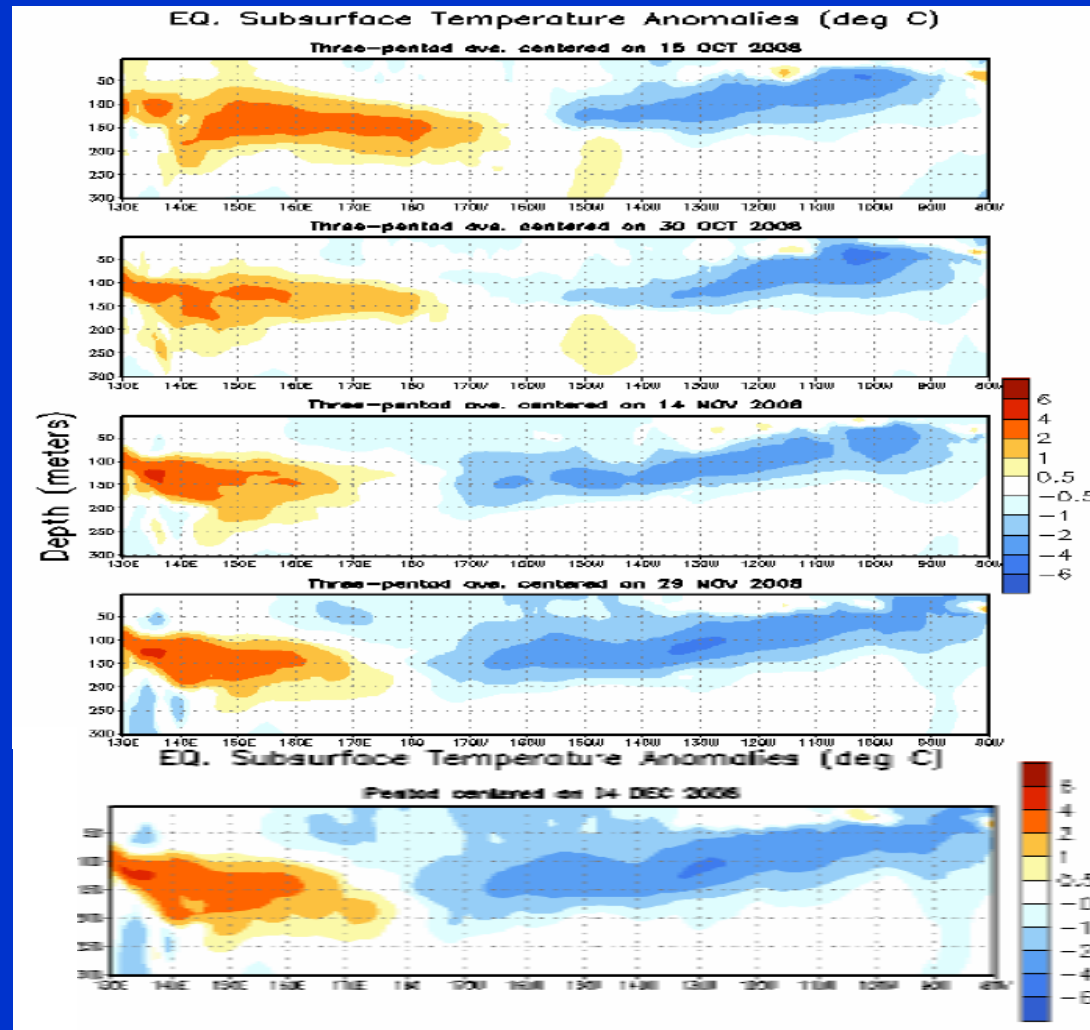
Oct. 15th

Oct. 30th

Nov. 14th

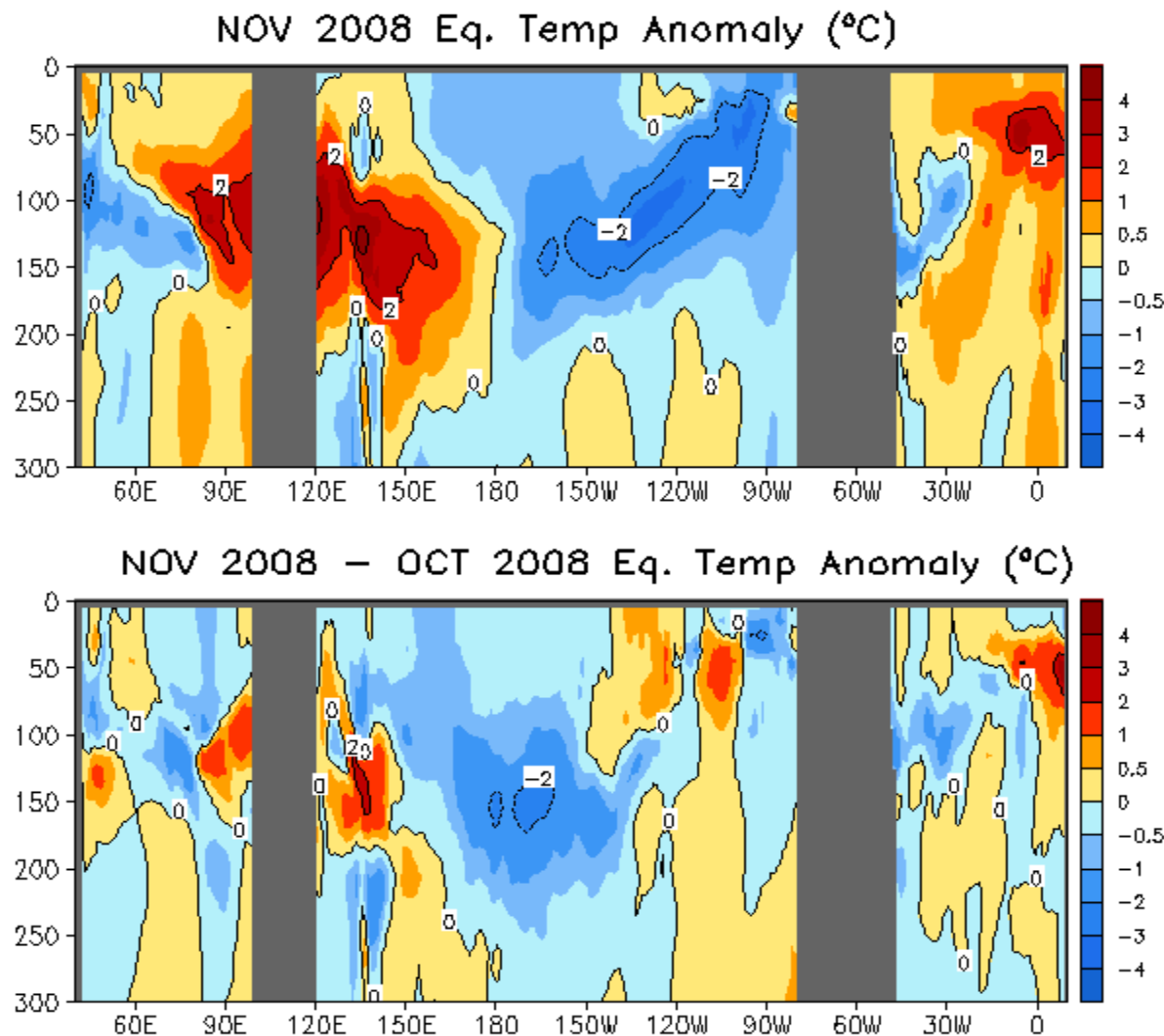
Nov. 29th

Dec. 4th



At this time neutral conditions are indicated by sea surface temperature (SST) anomalies. However, cool subsurface anomalies have increased in the eastern and central equatorial Pacific which may be a sign that La Nina conditions may be developing.

Longitude-Depth Temperature Anomaly and Anomaly Tendency in 2°S-2°N

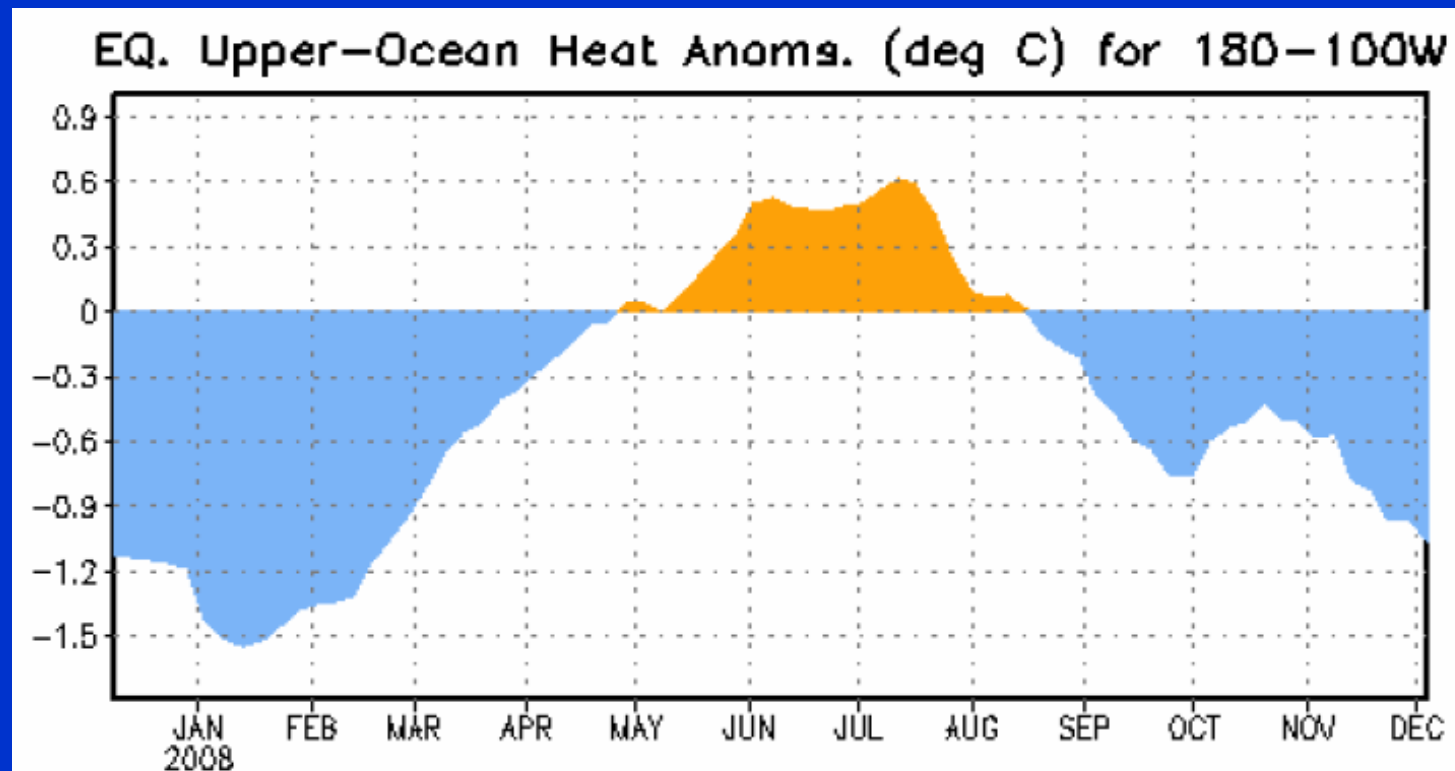


- Positive (negative) subsurface temperature anomalies in the western (central-eastern) Pacific.
- Positive subsurface temperature anomalies in the tropical Atlantic and most of the tropical Indian Ocean.

- Temperature decreased in the central Pacific.
- Temperature increased in the eastern Atlantic near the thermocline.

Fig. G3. Equatorial depth-longitude section of ocean temperature anomalies (top) and anomaly tendency (bottom). Data are derived from the NCEP's global ocean data assimilation system which assimilates oceanic observations into an oceanic GCM. Anomalies are departures from the 1982-2004 base period means.

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 again since mid-August 2008. The negative heat content anomalies have strengthened since mid-October 2008.

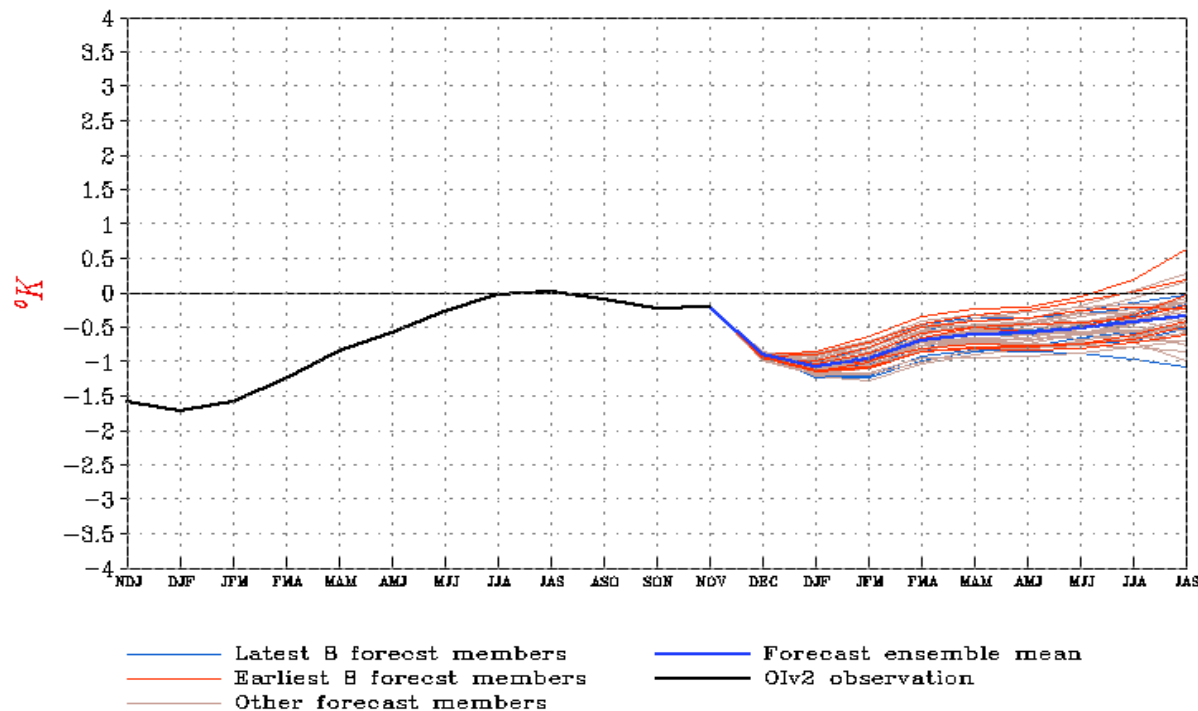
Equatorial Pacific SST and Temperature Anomaly Forecast- NCEP Climate Forecast System Issued December 9th 2008



NWS/NCEP

Last update: Tue Dec 9 2008
Initial conditions: 28Nov2008-07Dec2008

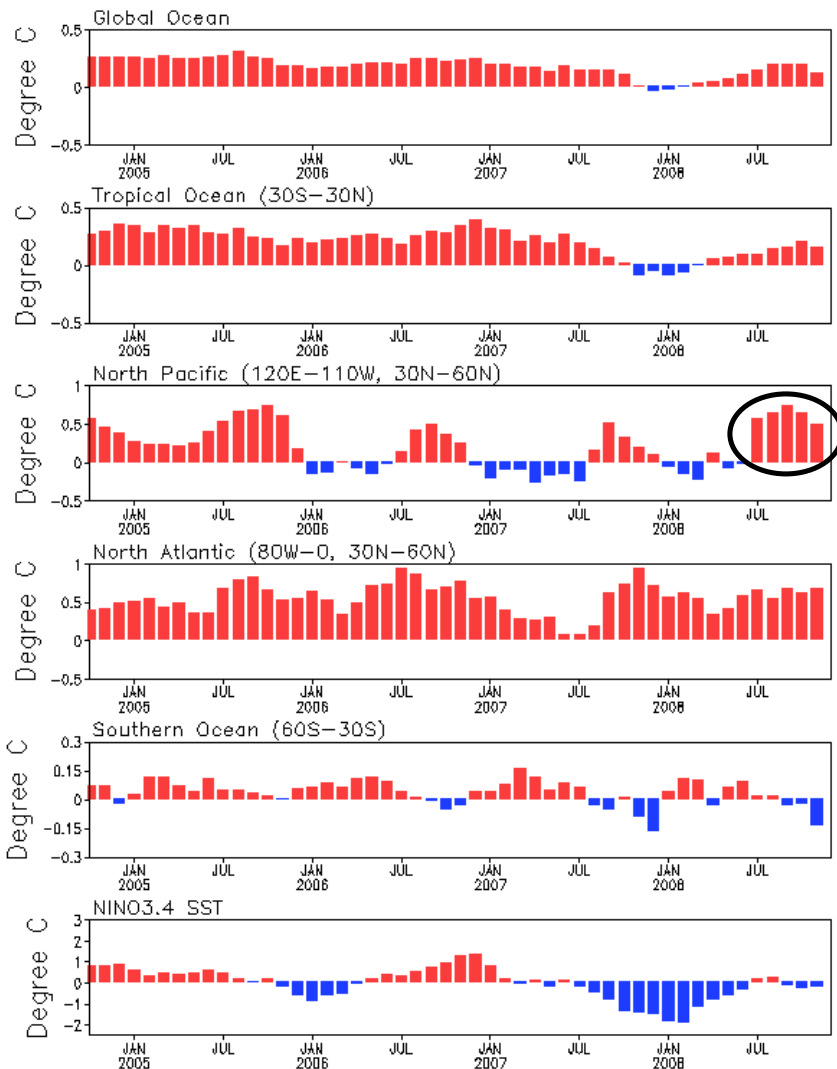
PDF correction: Forecast Nino3.4 SST anomalies from CFS



Monthly Time Series

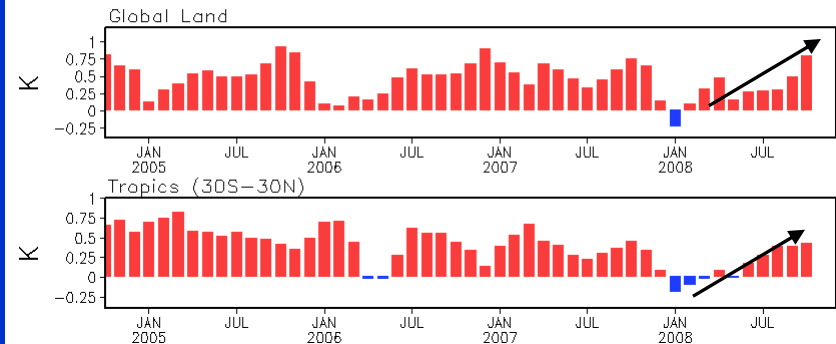
Sea Surface Temperature

Monthly SST Time Series (OISST.v2, Climo. 1971–2000)



CAMS Land Temperature

CAMS Temperature (Climo. 1982–2004)
(3–Month running mean)



- Global mean SSTA cooled slightly in November.
- Tropical Surface Air Temperature over land has been trending upward in response to the upward trend in tropical ocean SSTA.
- Strong positive SSTA in North Pacific persisted in July–November 08.
- Strong positive SSTA in North Atlantic has persisted from September 07 to present.
- Southern Oceans cooled down in Nov 08.
- NINO3.4 SST remains slightly below-normal.

Fig. BU. Sea surface temperature (SST) anomalies (left) and surface air temperature anomalies (right) average for selected regions. Due to larger variability, the surface air temperature anomalies have a 3-month running mean applied. Anomalies were computed with respect to the 1971–2000 base period means.

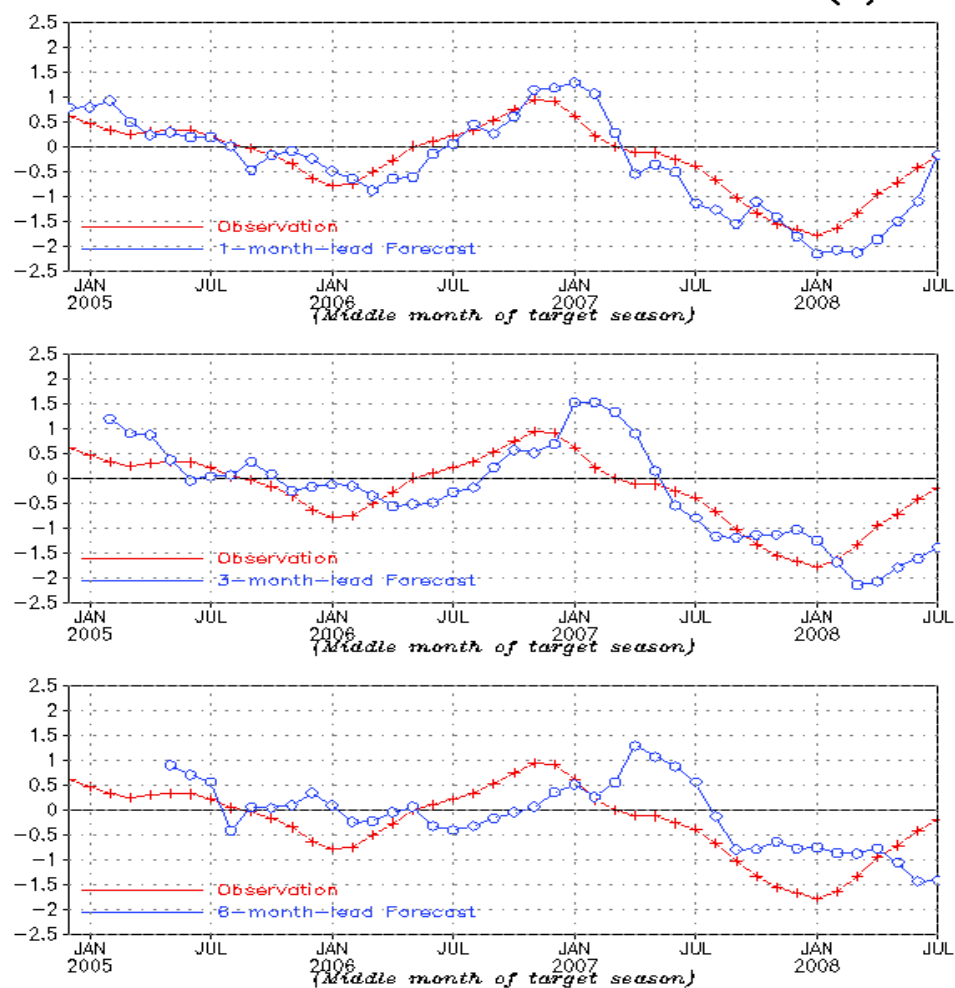
Verification of Nino 3.4



NWS/NCEP

Last update: Sat Sep 13 2008

Seasonal-mean Nino3.4 SST anomalies (K)



NAO and SST Anomaly in North Atlantic

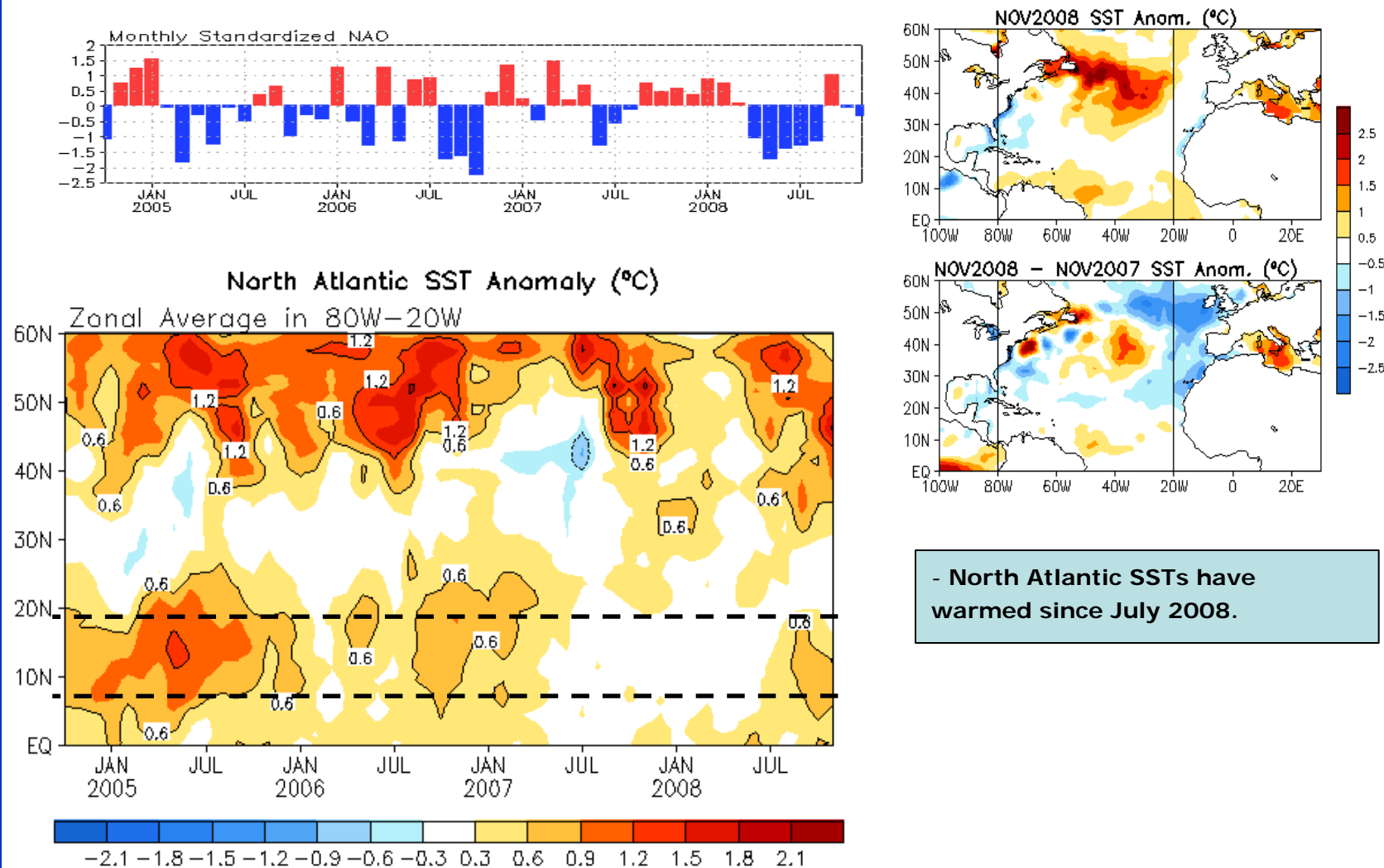
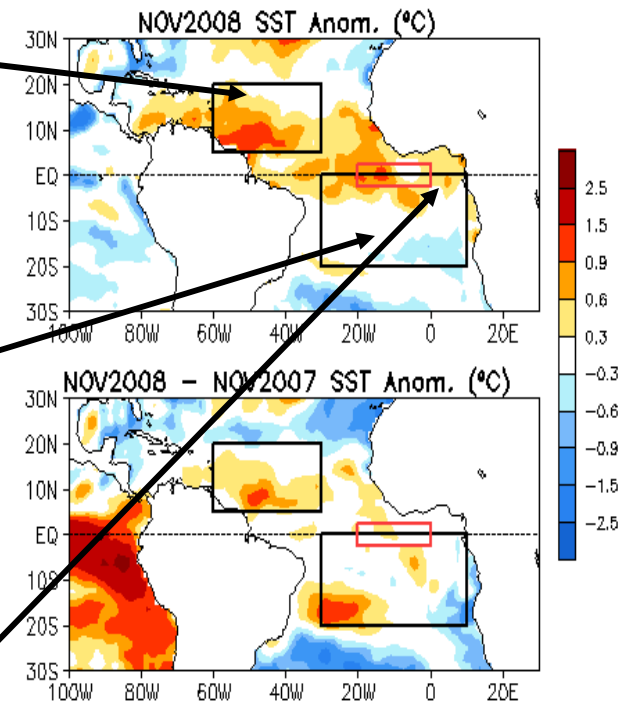
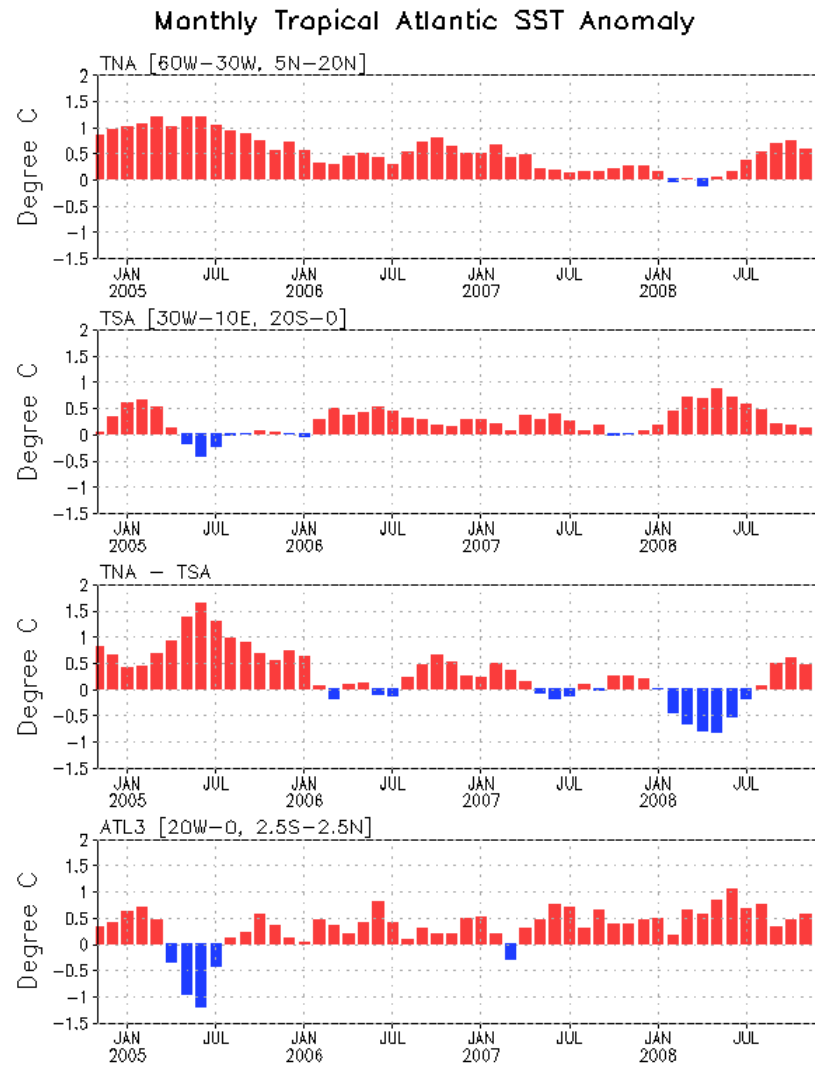


Fig. NA2. Monthly standardized NAO index (top) derived from monthly standardized 500-mb height anomalies obtained from the NCEP CDAS in 20°N-90°N (<http://www.cpc.ncep.noaa.gov>). Time-Latitude section of SST anomalies averaged between 80°W and 20°W (bottom). SST are derived from the NCEP OI SST analysis,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

Evolution of Tropical Atlantic SST Indices

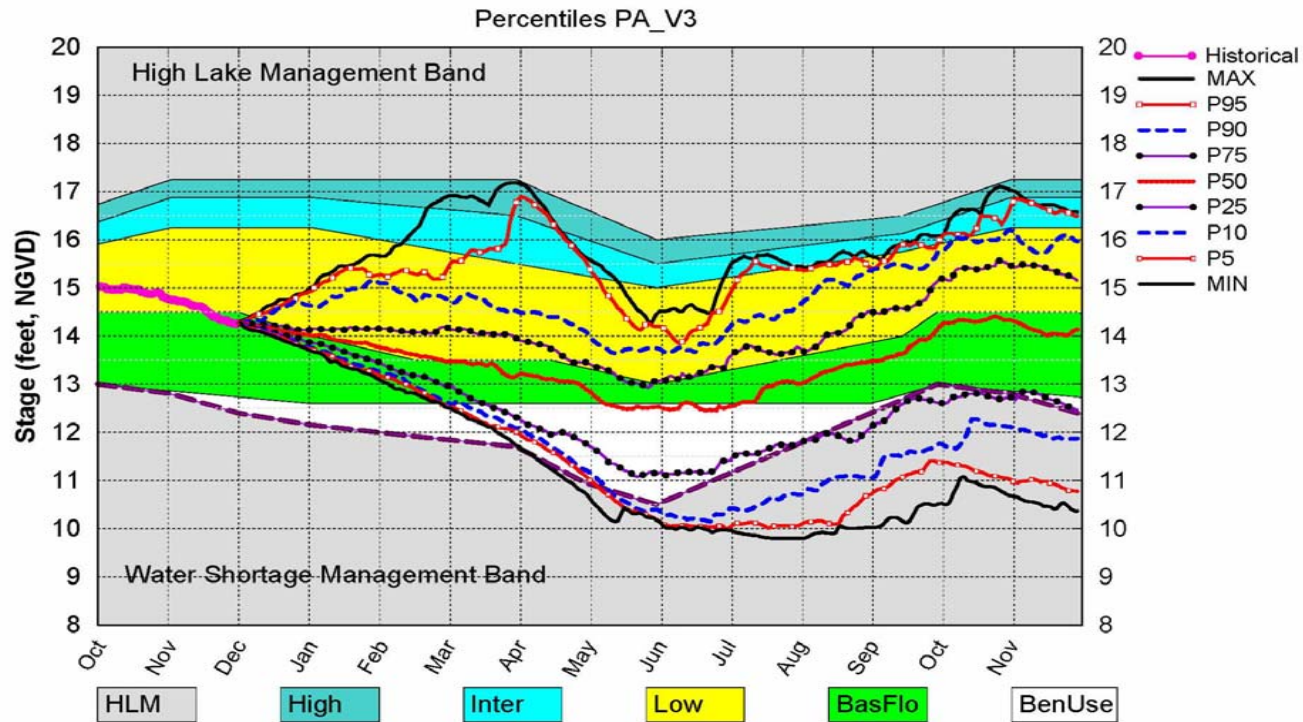


- Positive SST anomalies across the basin from 5S to 15N.
- All Atlantic indices are above average.

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.

December 1st Position Analysis

Lake Okeechobee SFWMM December 2008 Position Analysis



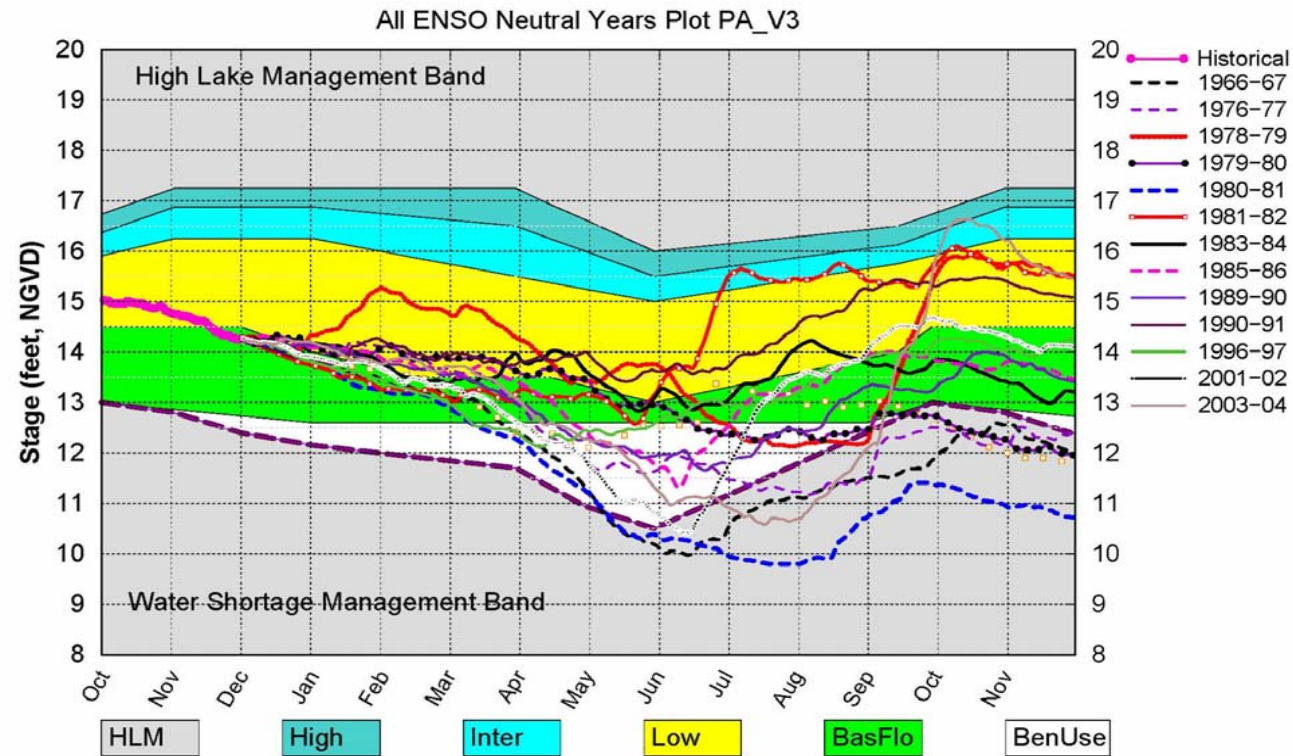
(See assumptions on the Position Analysis Results website)

Wed Dec 3 16:08:41 2008

All years 1965-2005

December 1st ENSO Neutral years Position Analysis

Lake Okeechobee SFWMM December 2008 Position Analysis



(See assumptions on the Position Analysis Results website)

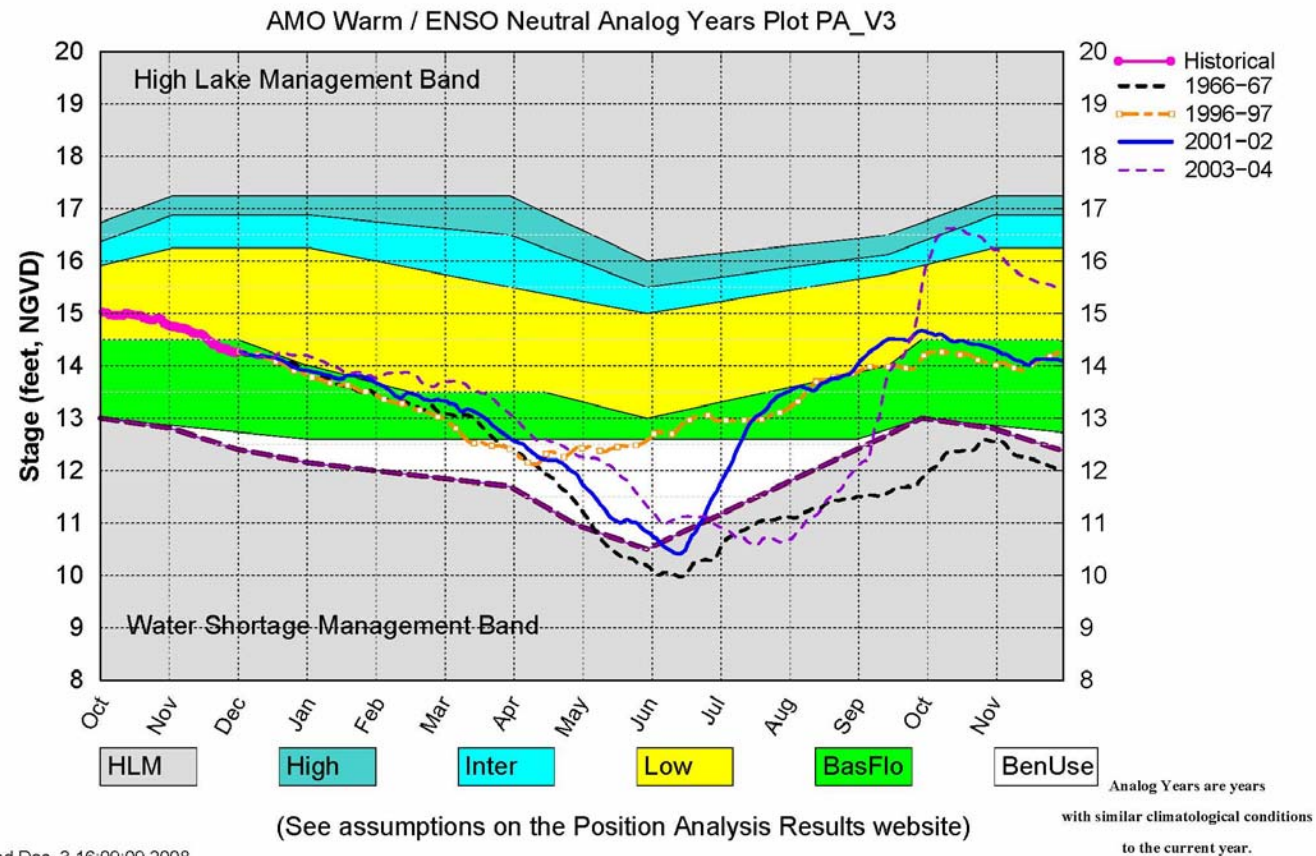
Wed Dec 3 17:49:58 2008

ENSO is officially in a neutral conditions according to CPC

December 1st Position Analysis

ENSO Neutral/AMO Warm sub sampling

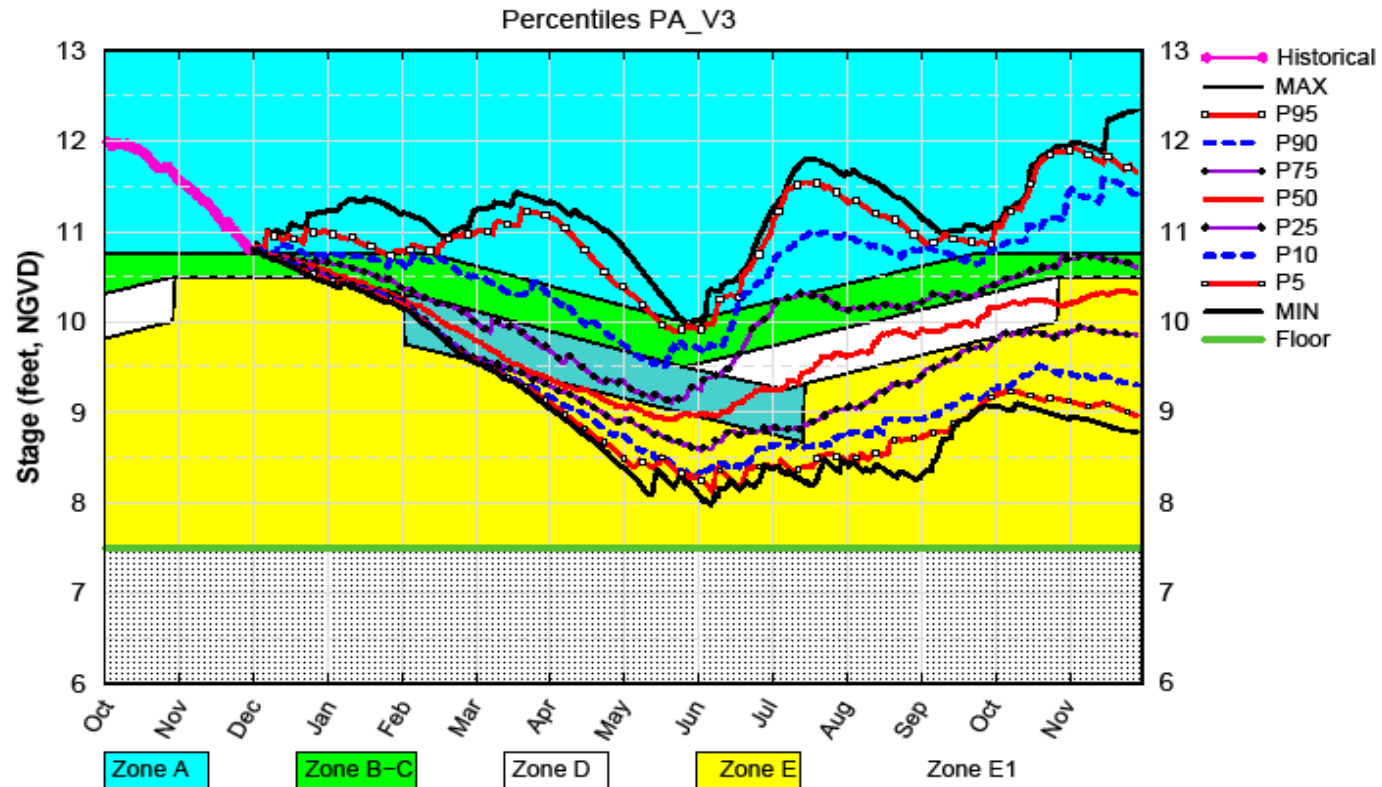
Lake Okeechobee SFWMM December 2008 Position Analysis



Wed Dec 3 16:09:09 2008

December 1st Position Analysis

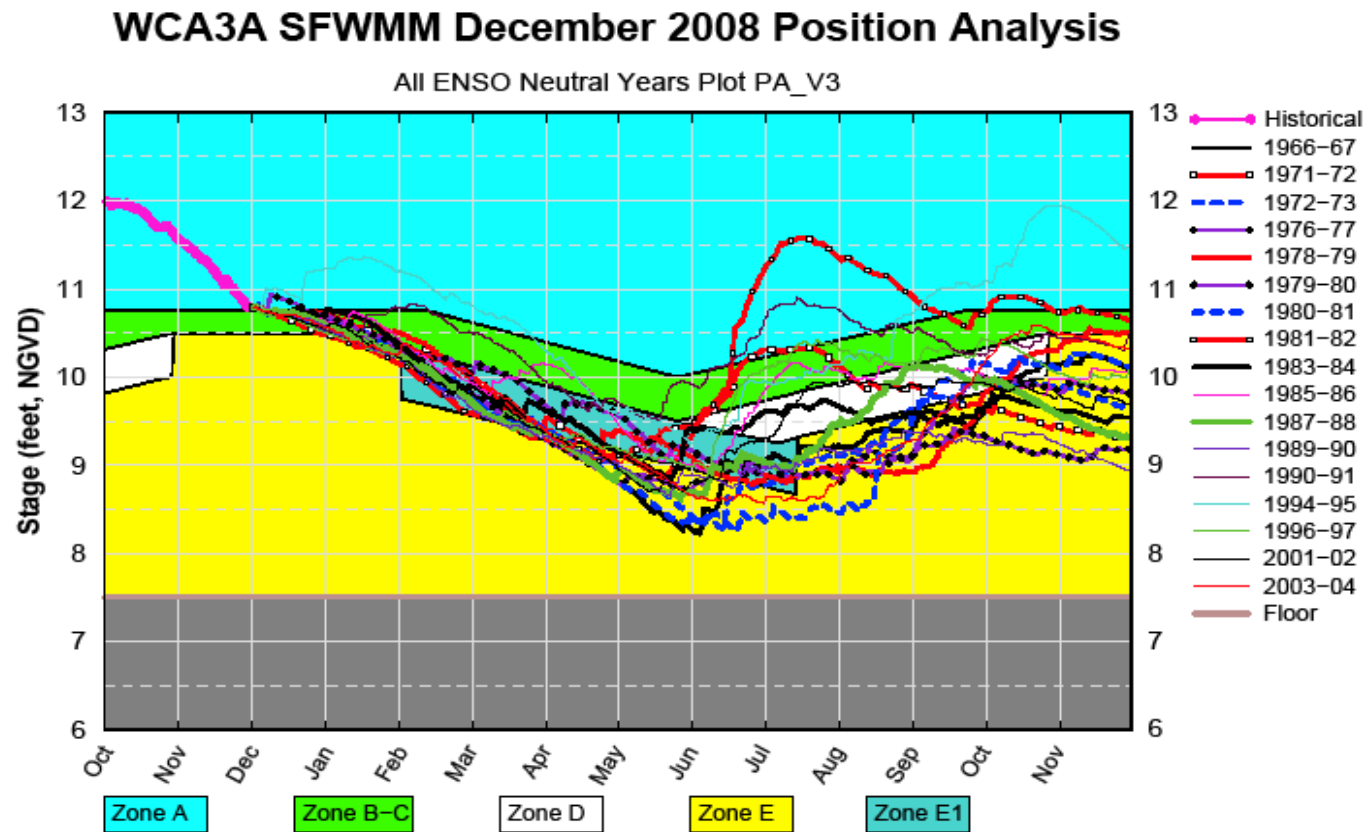
WCA3A SFWMM December 2008 Position Analysis



(See assumptions on the Position Analysis Results website)

Wed Dec 3 16:08:44 2008

December 1st Position All Neutral Years



Wed Dec 3 16:09:18 2008

(See assumptions on the Position Analysis Results website)

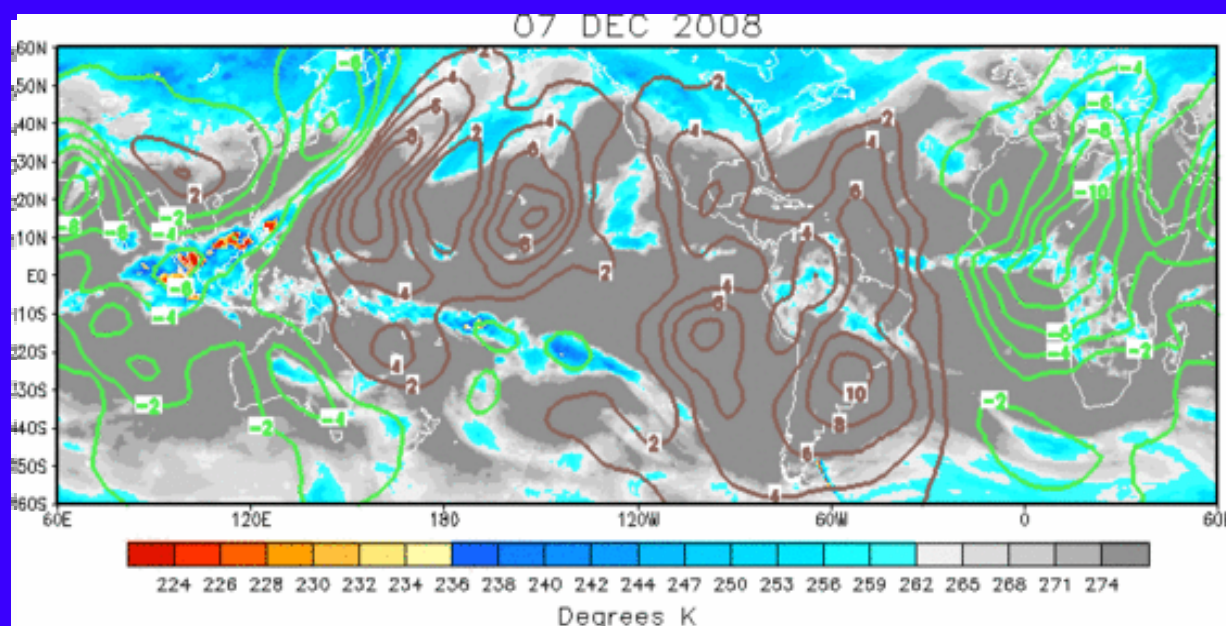
Backup Slides with additional support material



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

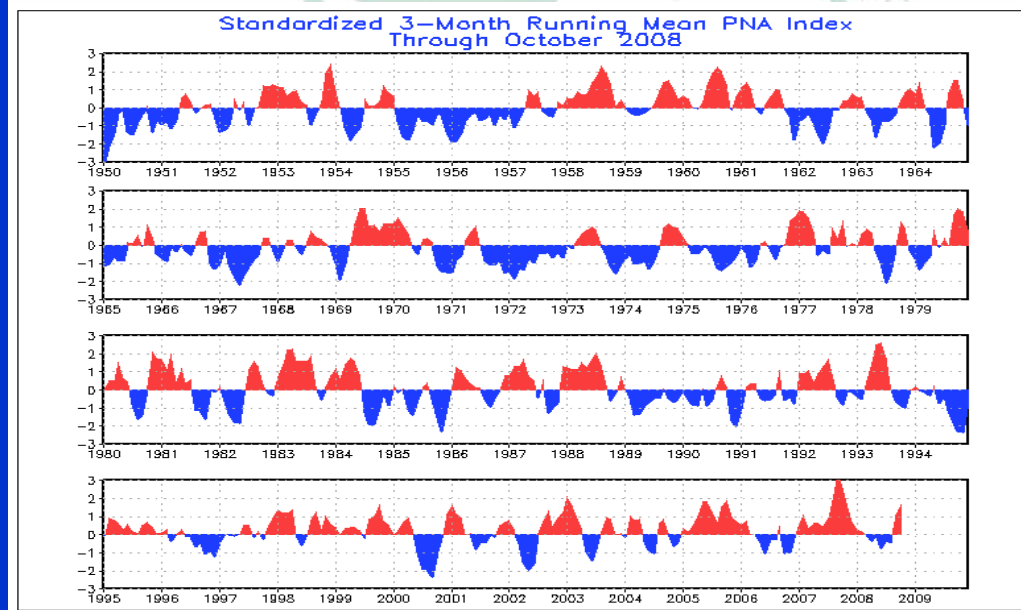
Positive anomalies (brown contours) indicate unfavorable conditions for precipitation

Negative anomalies (green contours) indicate favorable conditions for precipitation

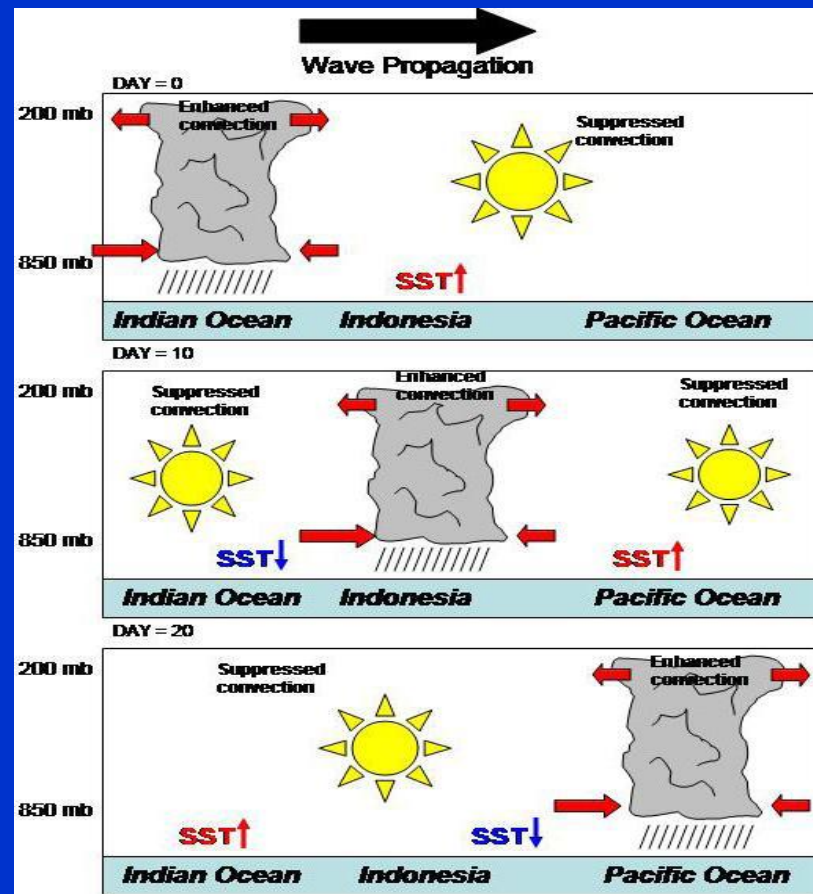


The velocity potential pattern shows upper-level divergence over the Atlantic Ocean and South America. Upper-level convergence is evident across the Indian and western Pacific oceans.

Pacific – North American Index

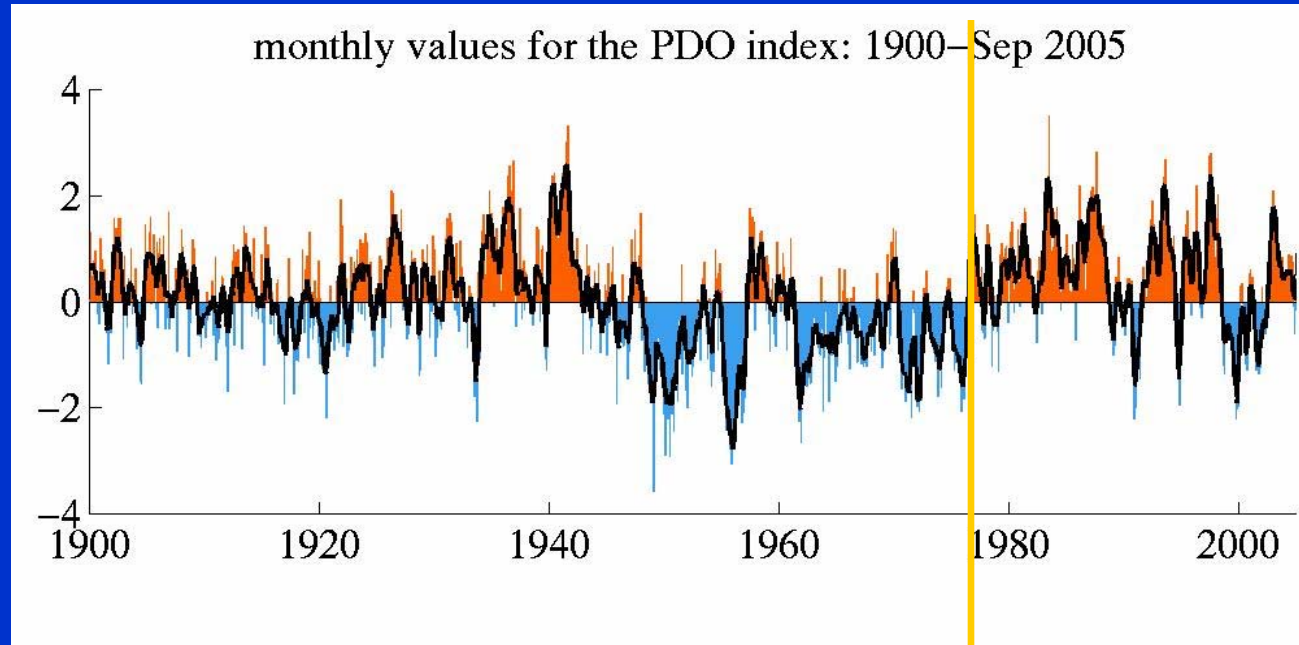


Madden-Julian Oscillation



Currently
transitioning
to cold phase of
PDO

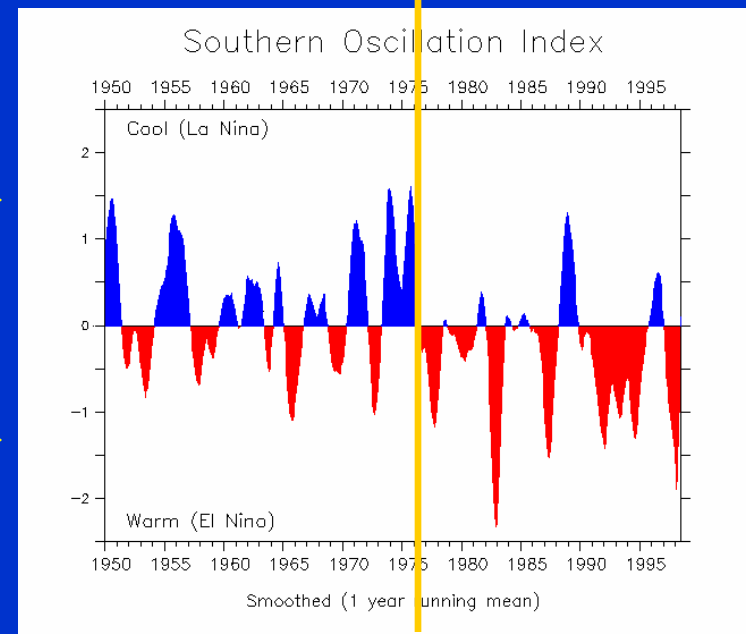
PDO



ENSO

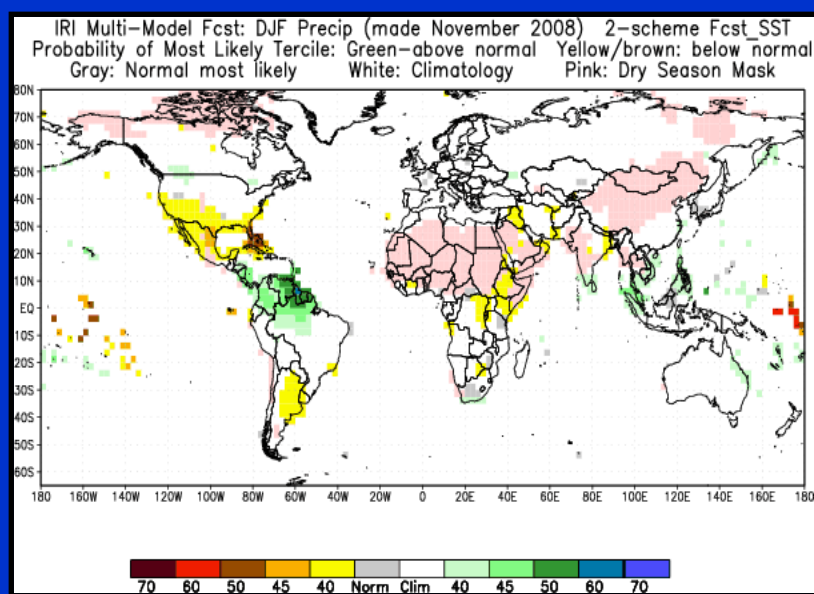
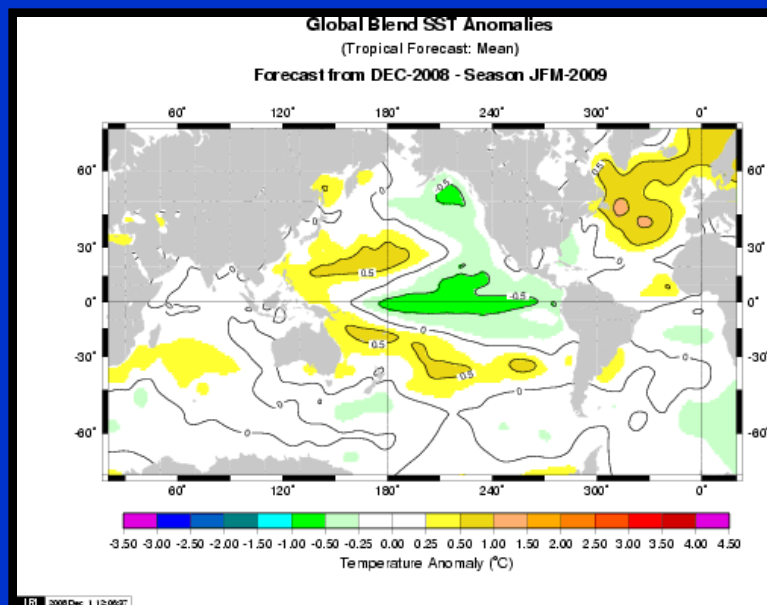
La Nina predominates when
PDO is in negative phase →

El Nino predominates when
PDO is in positive phase →



IRI Multi-Model Probability Forecasts 2008-2009

JFM



FMA

