IASCLiP FORECAST FORUM (IFF)
(Issued August 8, 2011)

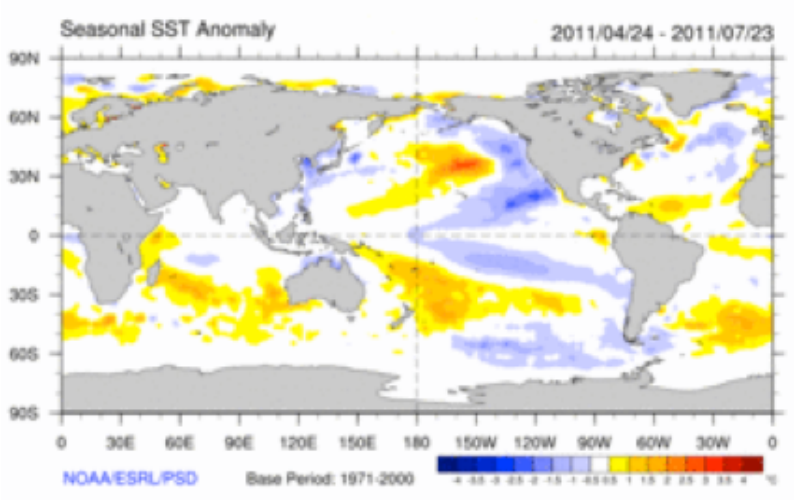
August-September-October 2011

Disclaimer: The forecast and the discussions in this forum in no way reflect the opinion of the contributing personnel's institutions and organizations. These forecasts are experimental with voluntary contributions from ECPC/SIO, NASA/GMAO, RSMAS/UM, APCC/KOREA, COAPS/FSU, IRI, and NCEP-CFS forecasts downloaded from their website.

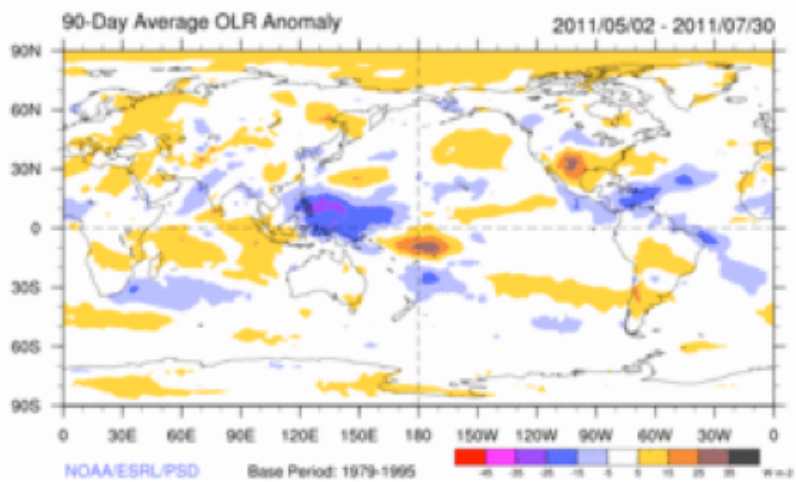
Process: The forecast forum comprises of a coalition of climate scientists working on IASCLiP including the modeling working group of the IASCLiP. We hold discussions analyzing the model forecast and current conditions to come with a "consensus" forecast.

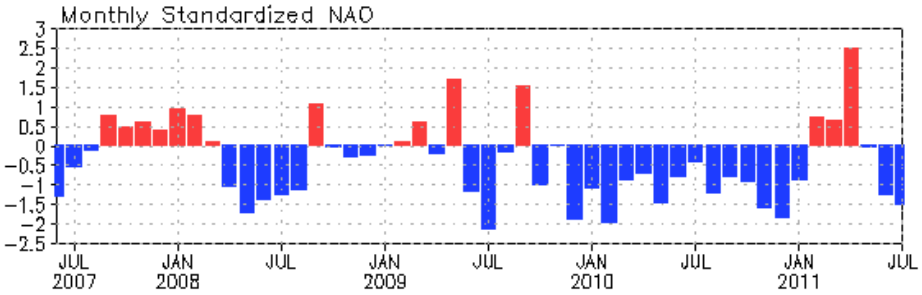
Acknowledgements: APCC, COAPS-FSU, ECPC-SCRIPPS, NASA/GMAO, NCEP, RSMAS-UM

Special Thanks: Steven DiNapoli (COAPS)



http://www.esrl.noaa.gov/psd/map/images/sst/sst.anom.month.gif





http://www.cpc.ncep.noaa.gov/products/GODAS/ocean_briefing_new/mnth_nao.gif

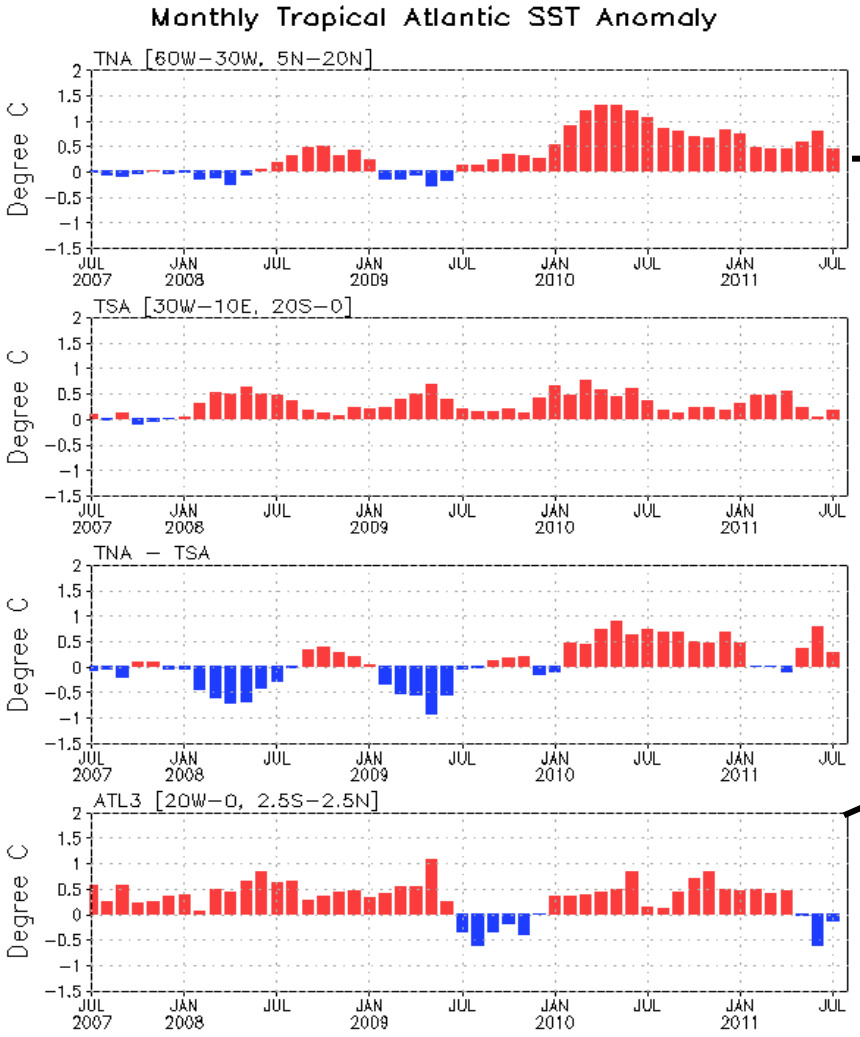
Observations

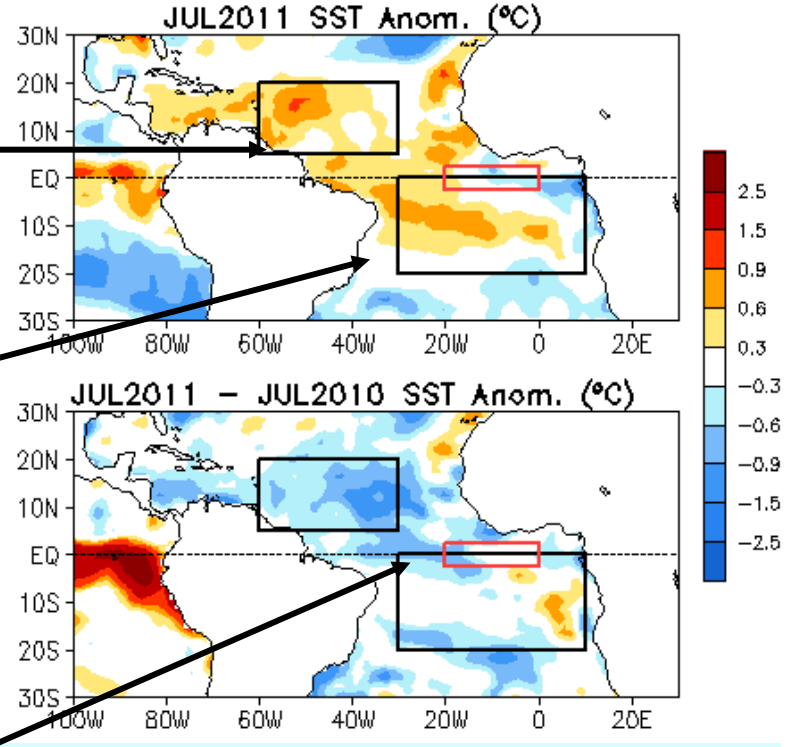
The observations of the past 3 months continue to show weak to non-existent SST anomalies in the equatorial Pacific. The positive anomalies of SST in the Caribbean Sea and in the northwestern Atlantic affirms our earlier call for large Atlantic warm Pool year.

The convection in the Caribbean Sea and northwest Atlantic as noted by the negative OLR anomalies are consistent with the warm SST anomalies

NAO has continued to be negative in the last 2-3 months.

Evolution of Tropical Atlantic SST Indices





- **Tropical Atlantic was much cooler in Jul 2011 than in Jul 2010.**
- **Positive SSTA persisted in both TNA and TSA since Feb 2011.**
- **Meridional Gradient Mode (TNA-TSA) was above-normal since May 2011.**
- **Minor negative ATL3 SST was observed in Jul.**

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.

Slide from http://www.cpc.ncep.noaa.gov/products/GODAS/ocean_briefing_new

ASO 2011 forecast based on current conditions

- Aug-Sep is the time of the year when SST anomalies established in late Spring dissipate going into fall months.
- All prevailing observations indicate that there will be no further warming of the AWP, if anything SST's will probably drop further, closer to normal. If we were to persist with the current conditions, then the large AWP year will prevail through the Aug-Sep-Oct (2011) season.

Models

Model	Reference	No. of Ensemble members	Coupled to ocean?
NCEP CFS v1	A	10	Yes
CCSM3.0	B	6	Yes
NASA GMAO	C	6	Yes
POAMA	D	10	Yes
ECPC	F	12	No. Prescribed (persisted SST & IRI forecasted SST)
CWB	G	10	Yes

Index	Reference
A	http://cfs.ncep.noaa.gov/menu/doc/
B	http://journals.ametsoc.org/doi/abs/10.1175/2009MWR2672.1
C	http://gmao.gsfc.nasa.gov/research/modeling/cgcm/
D	http://poama.bom.gov.au/
E	http://iri.columbia.edu/climate/ENSO/currentinfo/models/ECHAM_MOM.html
F	http://ecpc.ucsd.edu/projects/GSM_model.html
G	http://www.cwb.gov.tw/V6/climate/other-subject/WPGM_CWB2tier_CFS.pdf

How have we faired in 2011?

In Jun 2011 we called for a large AWP year in JJA 2011. So far the forecast has verified.

We further claimed that there was increased likelihood of:

i) Slightly below normal rainfall over mid-west US (so far verified)

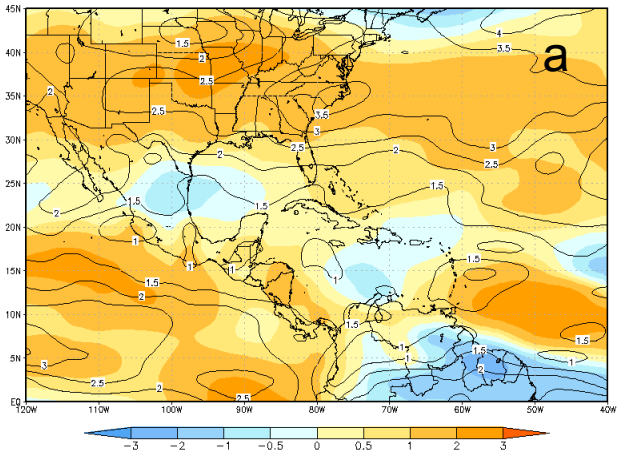
ii) Slightly above normal rainfall over southern Mexico (so far verified)

iii) Slightly below normal summer rainfall activity along the northern US Gulf coast (so far verified)

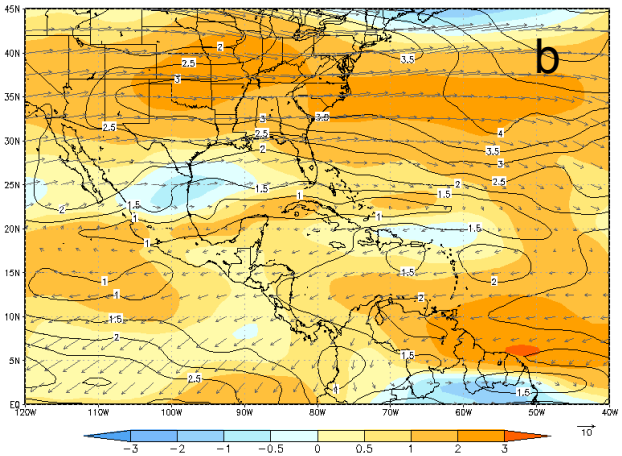
iv) Slightly above normal hurricane activity based on 1950-2010 climatology (*this is early to call although we are already on the 5th named storm in beginning of August compared to climatology which has the 5th named storm by 31 August*)

NCEP CFS v1

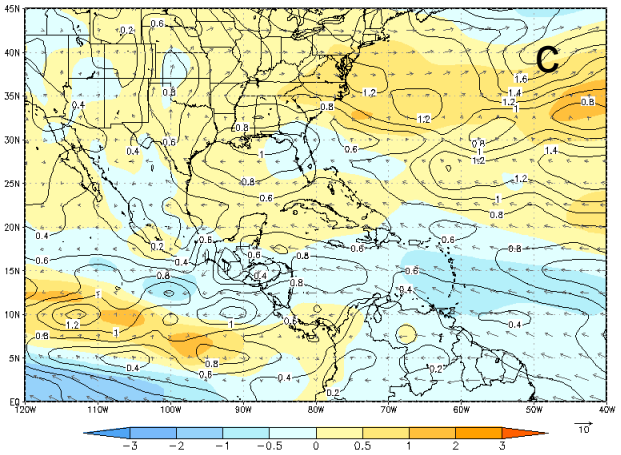
Vertical wind shear (200-850 hpa, in ms^{-1})



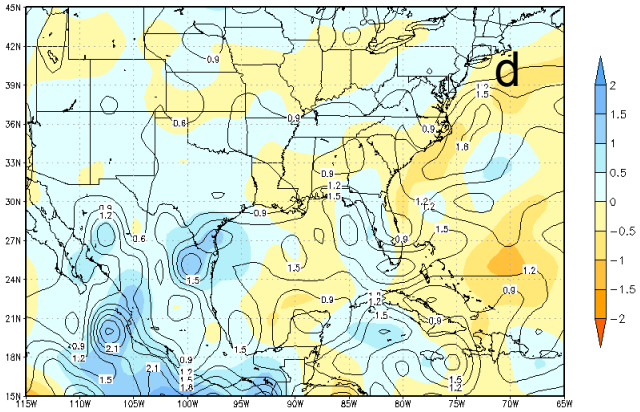
200 hPa winds ms^{-1}



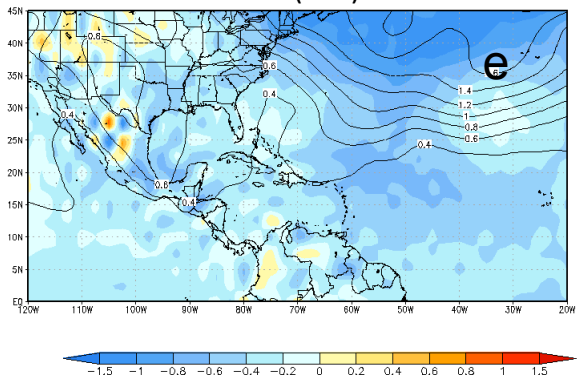
850 hPa winds ms^{-1}



Precipitation ($mmday^{-1}$)



MSLP (hPa)



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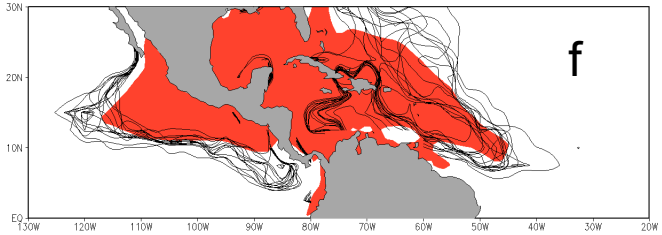
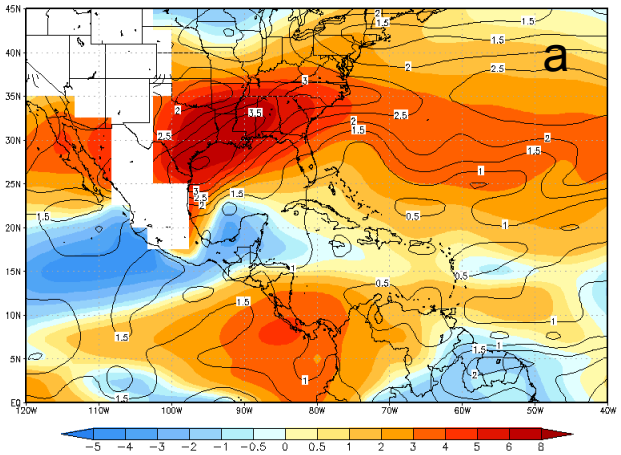
28.5^{0}C isotherm of SST



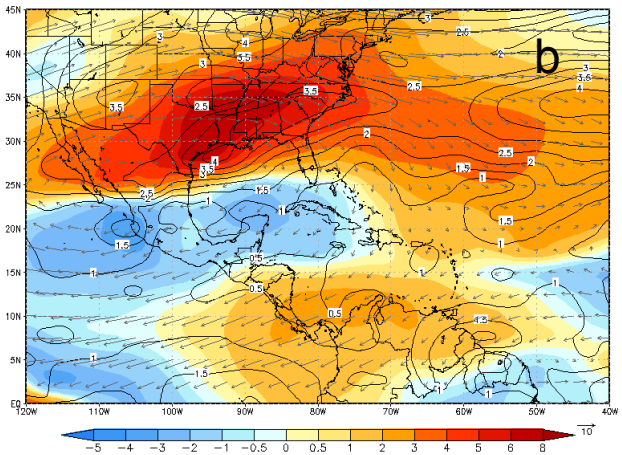
MDR anomalous shear value of ensemble mean: 0.3014m/s; suggests moderate westerly shear

NASA GMAO

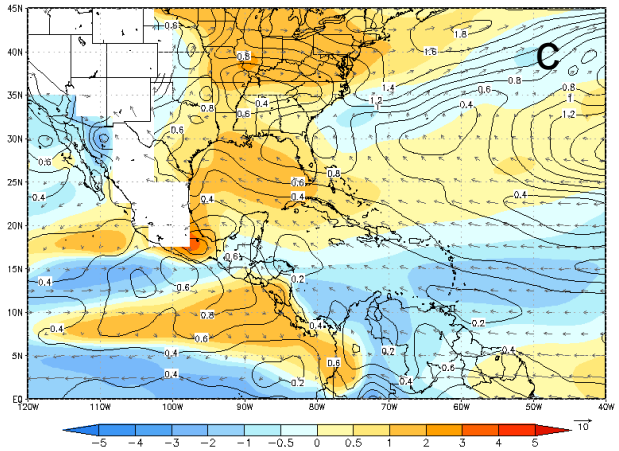
Vertical wind shear (200-850 hpa, in ms^{-1})



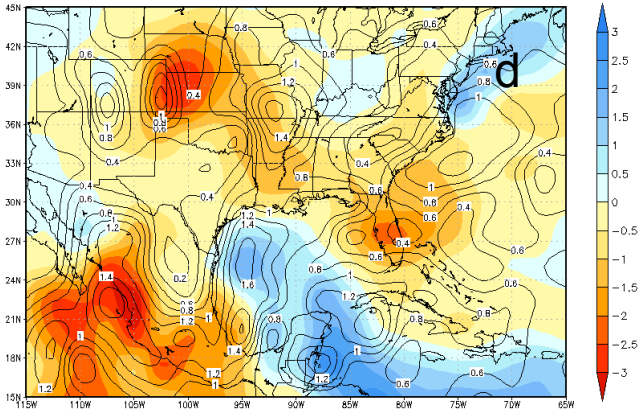
200 hPa winds ms^{-1}



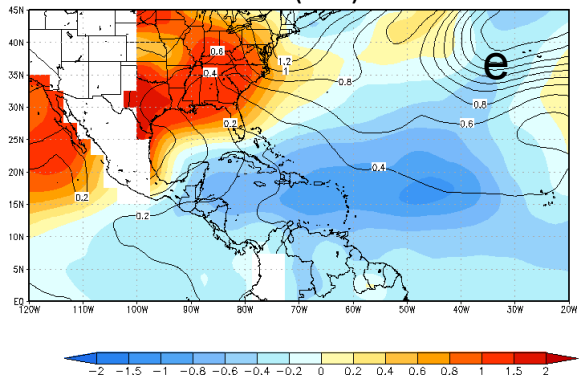
850 hPa winds ms^{-1}



Precipitation ($mmday^{-1}$)



MSLP (hPa)



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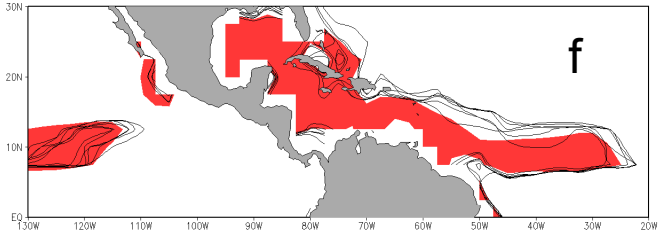
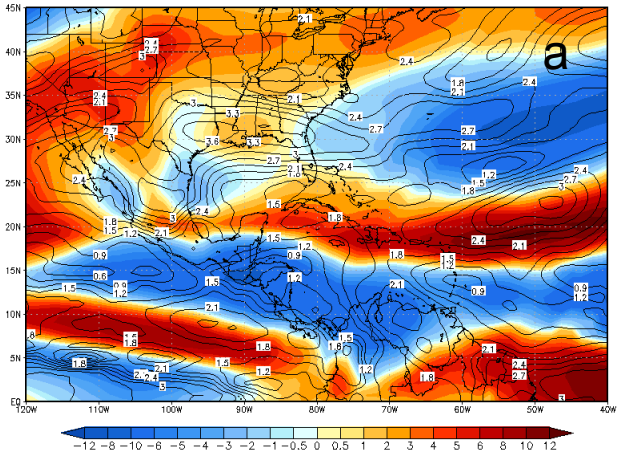
28.5^{0}C isotherm of SST



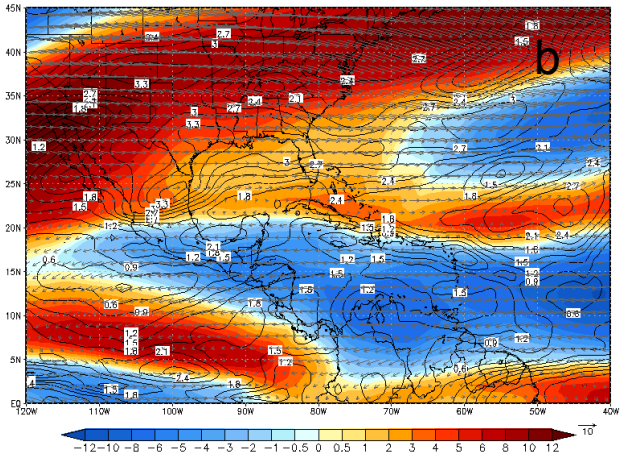
MDR anomalous shear value of ensemble mean: 0.0588m/s; suggests near normal shear

CCSM3

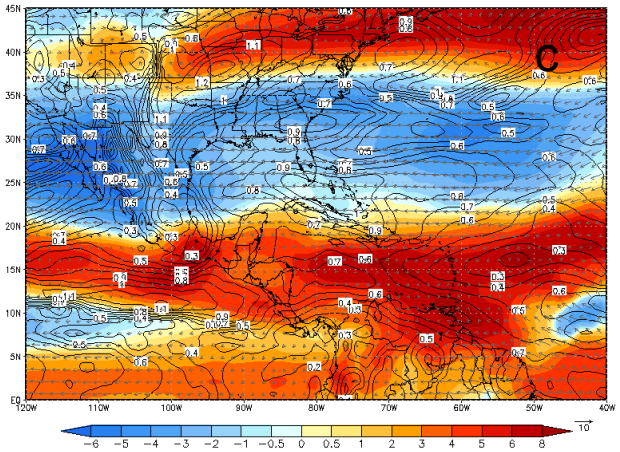
Vertical wind shear (200-850 hpa, in ms^{-1})



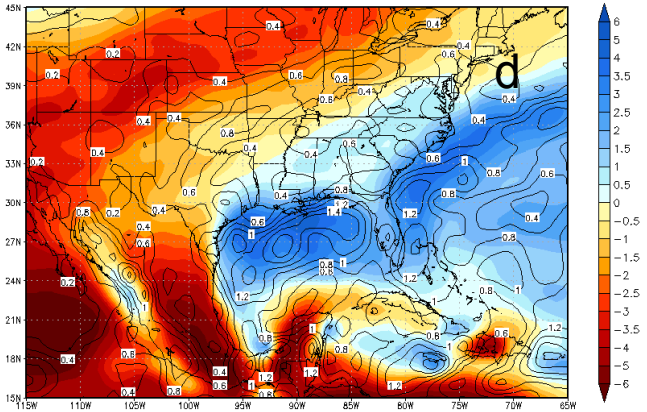
200 hPa winds ms^{-1}



850 hPa winds ms^{-1}



Precipitation ($mmday^{-1}$)



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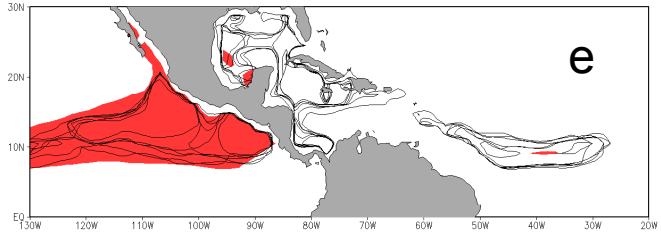
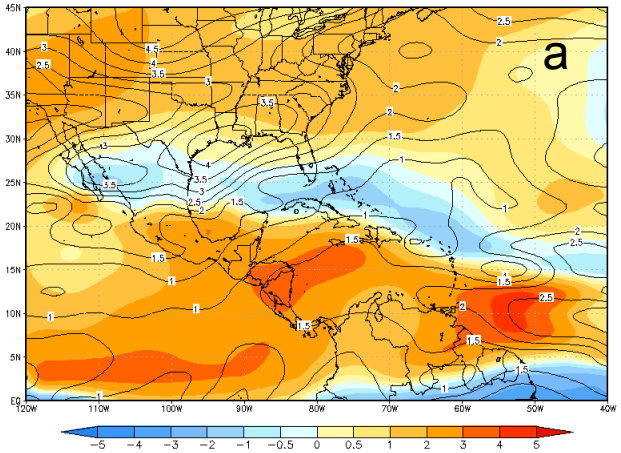


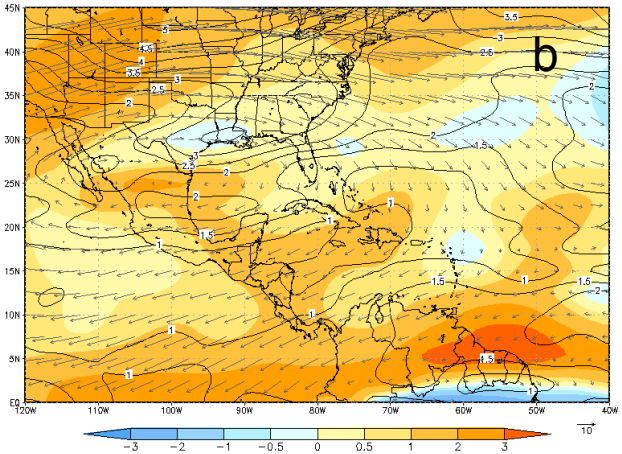
MDR anomalous shear value of ensemble mean: -2.4160m/s; suggests strong easterly shear

CWB

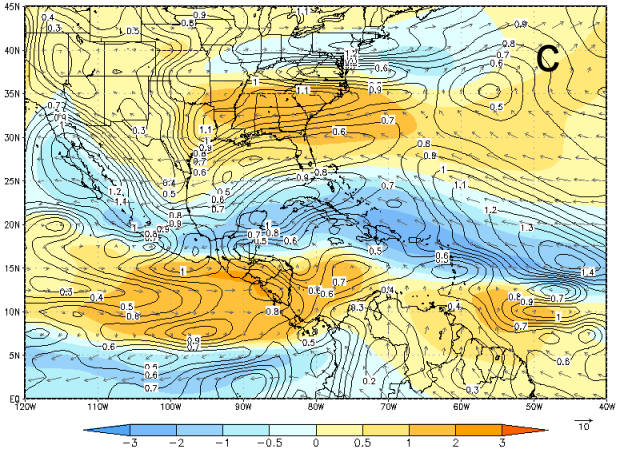
Vertical wind shear (200-850 hpa, in ms^{-1})



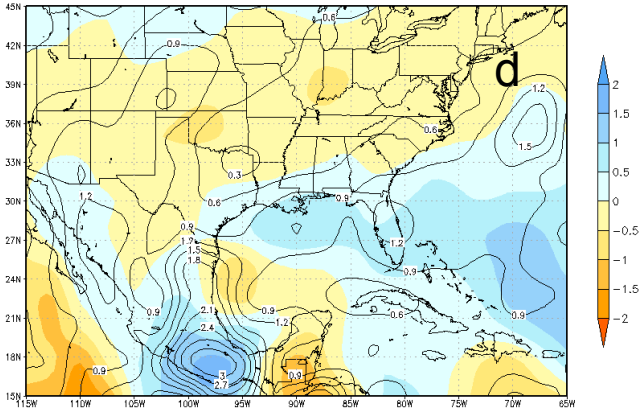
200 hPa winds ms^{-1}



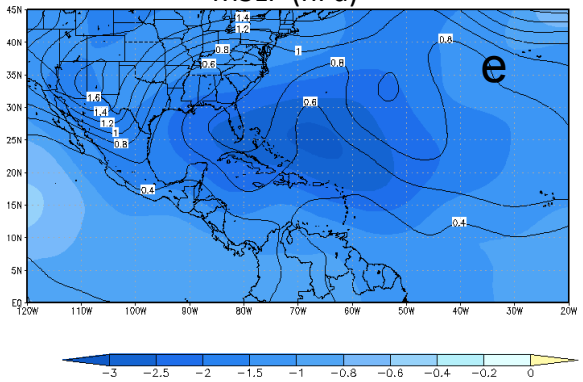
850 hPa winds ms^{-1}



Precipitation ($mmday^{-1}$)



MSLP (hPa)

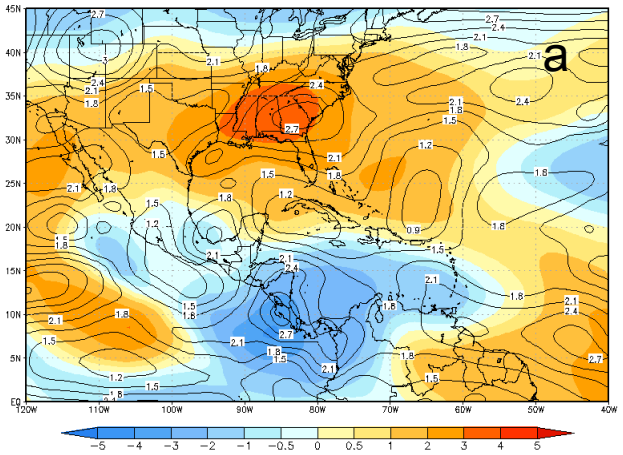


Contours are intra-ensemble spread and shading is anomaly of the ensemble mean in a, b, c, d, and e.

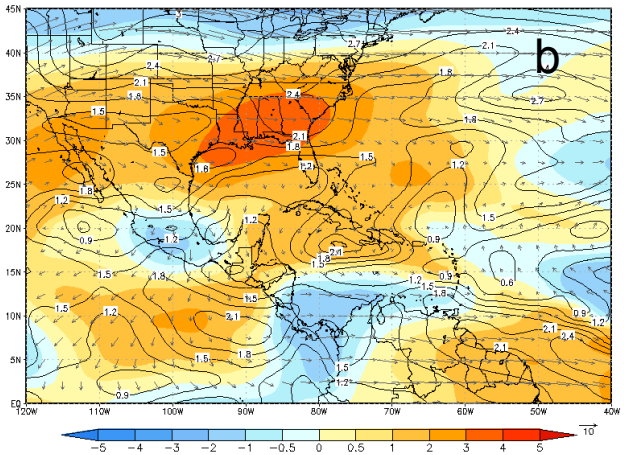
MDR anomalous shear value of ensemble mean: 1.0994m/s; suggests strong westerly shear

POAMA

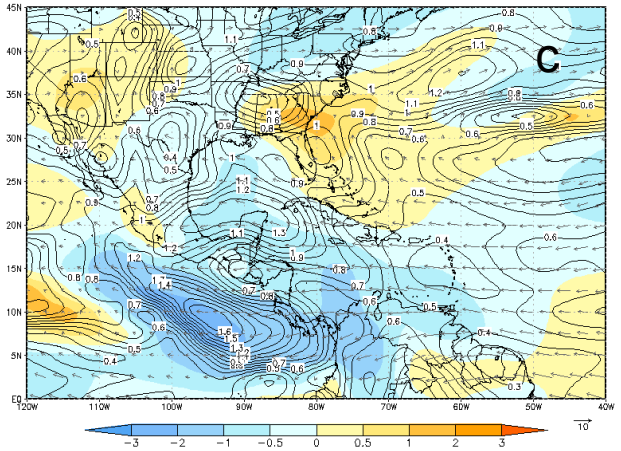
Vertical wind shear (200-850 hpa, in ms^{-1})



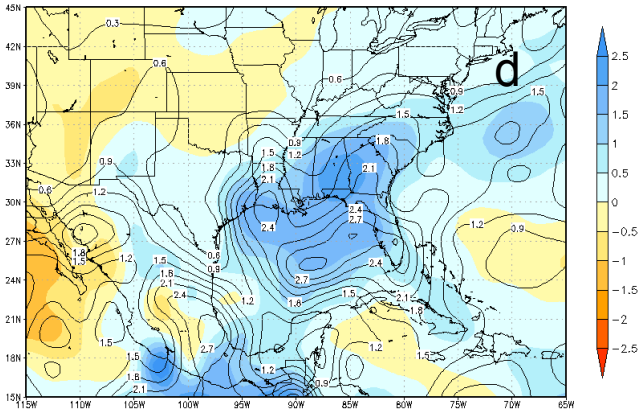
200 hPa winds ms^{-1}



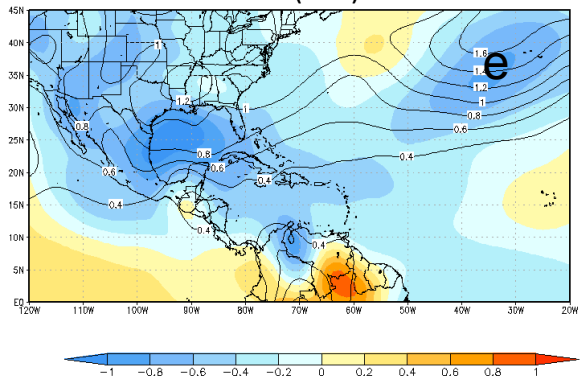
850 hPa winds ms^{-1}



Precipitation ($mmday^{-1}$)



MSLP (hPa)



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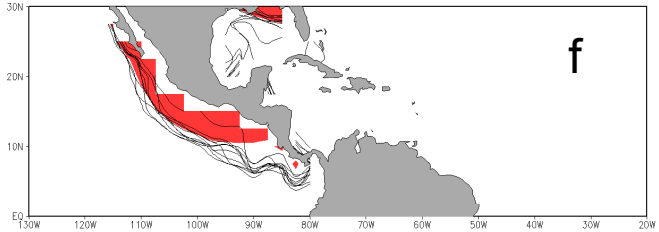
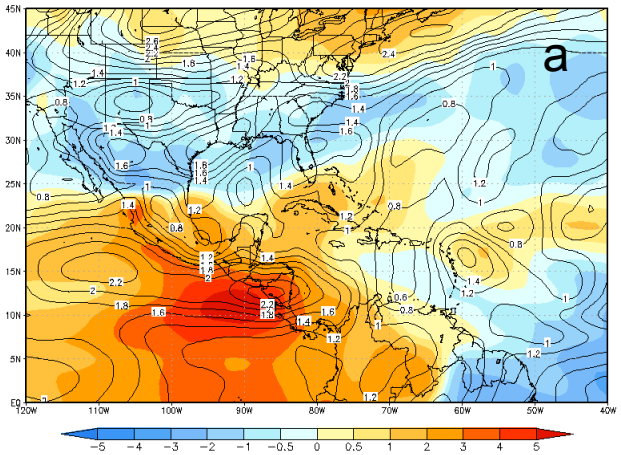


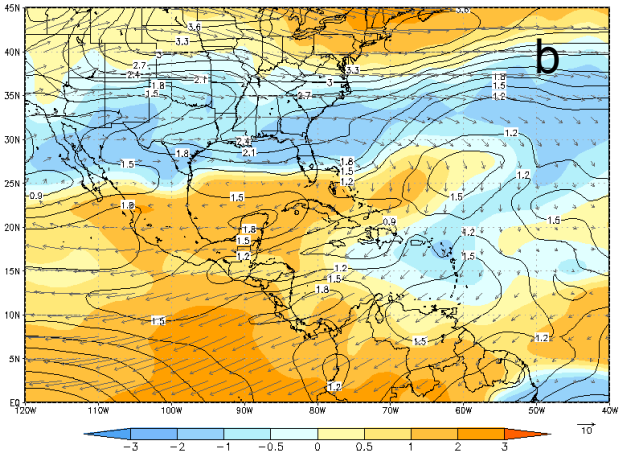
MDR anomalous shear value of ensemble mean: -0.2096m/s; suggests moderate easterly shear

ECPC-COAPS

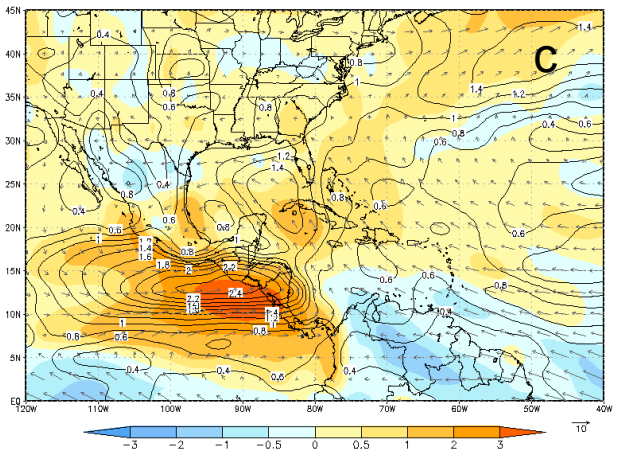
Vertical wind shear (200-850 hpa, in ms^{-1})



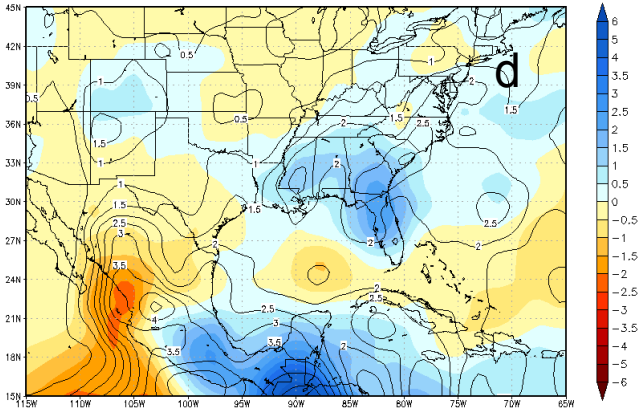
200 hPa winds ms^{-1}



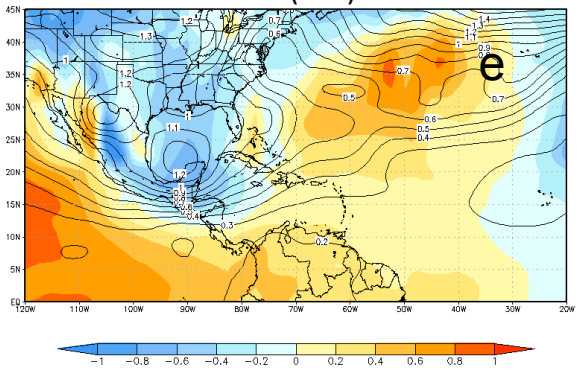
850 hPa winds ms^{-1}



Precipitation ($mmday^{-1}$)



MSLP (hPa)



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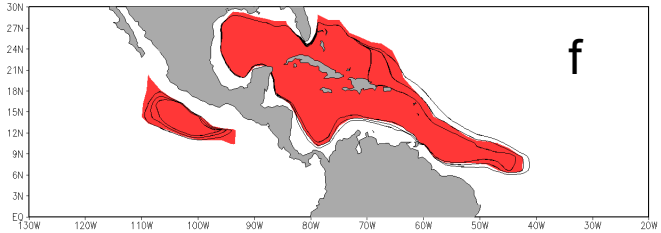
28.5^{0}C isotherm of SST



MDR anomalous shear value of ensemble mean: 0.1293m/s; suggests moderate westerly shear

Summary of Model Forecasts

Feature	NCEP CFS v1	NASA GMAO	CCSM3	CWB	POAMA	ECPC-COAPS	Model's CONSEN.
AWP area anomaly	Large	Large[1]	Large[1]	Not Avail.	No AWP	Near normal (from IRI)	Large
Vertical shear anomaly in MDR	Moderate (Westerly)	Weak (Westerly)	Strong (Easterly)	Strong (Westerly)	Moderate (Easterly)	Moderate (Westerly)	Moderate (Westerly)
Strength of NASH or Bermuda high[2]	Weak	Weak	Weak[4]	Weak	Weak	Weak	Weak
Mid-west rain anomaly[3]							
Southern Mexican rain anomaly[3]							

1: Appearance of 28.5^{0}C isotherm in ensembles over AWP is considered large anomaly in models where climatology of the model does not show AWP.

2: Based on the MSLP anomalies. 925hPa winds would have been better than 850hPa winds.

3: Unworthy of interpreting summer seasonal rainfall anomaly from these models

4. Based on 850 anomalous winds alone

Heuristic model forecasts

If we interpret the model forecasts and the current conditions then we anticipate the **likelihood** of the following to happen in ASO 2011 based on our understanding (and research) of the AWP impacts on remote and local climate:

a) A slightly larger than normal AWP to occur
b) A slightly weaker than normal Bermuda/North Atlantic subtropical high
c) A near normal vertical shear

Based on a), b) and c) above we anticipate from our past research work the **likelihood** of the following to happen in ASO 2011:

i) Slightly below normal rainfall over mid-west US
ii) Slightly above normal rainfall over southern Mexico
iii) Slightly below normal summer rainfall activity along the northern US Gulf coast
iv) Slightly above normal hurricane activity based on 1950-2010 climatology

We have a **stronger** consensus that the warming of the AWP in the ASO will not grow much further from what it is now. There is a likelihood that the Sea Surface Temperature may drop slightly, although it will continue to remain a large AWP year for ASO 2011.