

Tropical GRIP Forecast Discussion for September 21, 2010

Created 1600 UTC September 21, 2010

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Summary:

The focus for GRIP is squarely on PGI-46L as the field project winds down. The DC-8 is flying PGI-46L, looking for potential interaction with SAL, as well as signs of organization. Furthermore, the DC-8 is flying a leg directly underneath a CloudSat overpass. Meanwhile, the Global Hawk has been placed on alert for a Thursday night/Friday morning flight and the WB-57 is rooting for PGI-46L to get within range later this week. Convection associated with PGI-46L has increased today, and the wave appears much healthier. The ECMWF, with PREDICT sondes incorporated, is forecasting the wave to continue to develop over the next few days, with genesis possible in the 3-4 day range. Other global models also develop the system, and it appears likely that a TC will be in the western Caribbean by the end of the week. Elsewhere, PGI-45L is now Tropical Storm Lisa, however it remains nearly stationary, and will not come within range of GRIP operations before the end of the campaign.

Forecast for 1600 UTC 9/21/2010:

Synoptic Overview:

Activity is once again picking up in the Atlantic. While Igor is quickly losing its final tropical characteristics, Tropical Storm Lisa and AL95 are filling the void. At the surface, no major features of note are present in the Gulf of Mexico or Western Caribbean, and satellite imagery indicates only scattered light convection (**S1 and S2**). However, in the eastern Caribbean, there is a large amount of convection associated with the wave that is PGI-46L, now AL95. The surface wave is located around 62W, while the 700mb pouch is located near 94W. Organization is still minimal with the system, but it has increased substantially since yesterday. Farther east, Tropical Storm Julia formed overnight, and is now located at 17.7N/31.8W with maximum estimated winds of 35kts. Finally, PGI-47L is located at 12.9N/19.2W, however convection is minimal with this system (**S4 and S7**). The other main feature of note at the surface is the remains of the subtropical ridge, now split in two. The duo of Igor and Julia is acting to break down the ridge, and it should weaken further over the east Atlantic during the next 48 hours.

Looking at the upper levels, A large upper level trough off the east coast, digging as far south as the Bahamas, is responsible for strong, southwesterly, upper level winds though much of the NW Atlantic. A small upper level cold low is located at the southern tip of this trough, and a second cold low is located northeast of the lesser Antilles (**C1 and C3**). A pair of upper level ridges are also evident, one centered near 35N/45W in the

central Atlantic, and another located just west of northern Mexico. High upper level winds with the Mexican ridge, and the large trough off the US east coast are responsible for high wind shear in the Gulf of Mexico and much of the NW Atlantic (**C2**). However, wind shear is low through the Caribbean and most of the southern central Atlantic. At lower levels, vorticity has increased at 850hPa with AL95 and Lisa, however no other features of note are evident in the western Atlantic (**C4**).

Over Africa, there is an upper level trough just west of Europe, however the flow is predominantly easterly over Africa (**C5 and C6**). Strong upper level westerlies are present just north of Lisa, however shear remains low over the storm center (**C8**). The weak ridge has causing Lisa to effectively stall for the past 48 hours, and little forward movement in any direction is anticipated in the short term. It is worth noting that Julia was in a similarly marginal environment before undergoing strong intensification, and eventual RI.

Features of Interest:

PGI-46L...AL95:

AL95 is located at 12.8N/64.9W and is moving WNW. The 250-850 mb deep layer mean imposing a continuous westward flow on the area (**46A**). A nearby ASCAT pass indicates shows southwestward winds of approximately 10-15 kts near the surface ahead of the wave axis, indicating a much clearer wave structure today. Convection has increased today, and an increased number of OTs have been observed (**46B**). The pouch remained in moist air under approximately 10 kts of shear with a vorticity maximum behind the storm to the West (**C4 and C2**). A plume of dust that had left the West coast of Africa resides to the NE of the system, and high aerosol concentrations are apparent in the recent AQUA and TERRA passes (**S5**). Visible imagery indicates that dust is still interacting with some of the convection, although the concentration of dust has decreased today. The system remains to be a broad area of unorganized convection with little to no circulation apparent and only a 20% chance of development within the next 48 hrs. However, given the favorable environment, the organization of the system is likely to gradually improve over the next few days.

Although models have been initializing the location of PGI-46L in slightly different positions they do show consensus in the westward movement of the convection over the next 36 hrs, with a possibility of a turn to the NW after that time (**46C**). ECMWF indicated the broad area of low pressure will move with the flow westward having a centralized region of low pressure of about 1000 mb forming by 96 hrs. The low turns north and strengthens as it continues along the Central American coast approaching the Yucatan Peninsula by 144 hrs (**46D**). The GFS has PGI-46L deepening more quickly than ECMWF, with pressures below 1000 mb by 84 hrs and showing a distinct vorticity maximum at 850 mb (**46E**). The system then makes landfall in Nicaragua by 90 hrs with the pressure center dissipating. The area of low pressure then turns northward into the Gulf of Honduras and redevelops over water by 144 hrs, but

does not regain the compact vorticity center it had acquired before landfall. NOGAPS shows very little development of PGI-46L with a large area of low pressures above 1000 mb forming over Nicaragua and Honduras at 120 hrs and spreading out over the Gulf of Honduras by 144 hrs.

Eastern Pacific:

At 1200 UTC the NHC advised that Tropical Storm Georgette had formed in the eastern Pacific centered at 22.1 N and 109.5 W with winds of 35 kt. The storm quickly organized and has developed a relatively circular CDO (**EP1**). Georgette has fairly active convection near the center, but it is currently in a region of moderate to strong shear, with 20 kt near the center and 30 kt over the southern edge of the system (**EP2**). It is forecast to move north-northwest into a region of 5-10 kt shear in the next 12 hours, but it will also be making landfall over the Baja Peninsula during that time, Georgette will quickly weaken to tropical depression status by 0600 UTC tomorrow. All of the model guidance has Georgette peak at 35 kt, and only one shows Georgette tracking into the United States (**EP3**).

There is little of interest in the rest of the eastern Pacific basin except that both the 0000 UTC ECMWF and 0600 UTC GFS runs show eastward propagation of two 850 mb vorticity maxima over the next few days, with the more eastern of the two reflected as a low in the 0600 UTC TPC surface analysis (**EP4**). The GFS develops a nearly stationary region of higher vorticity near 13N and 97W by 72 hours (**EP5**) and eventually begins to wrap the most westward vorticity maximum into the low from today's surface analysis before 126 hours (**EP6**). All three regions then combine and move northwestward as one system by 168 hours. Though this is in the relatively distant future, it is worth noting that Tropical Storm Georgette formed from a combination of vorticity maxima similar to that described above.

Eastern Atlantic:

Believe it or not, Julia has not gone away. The remnants continue to spin with relatively low convective activity in the middle of the Atlantic. Although the remnants are Julia are somewhat irrelevant to targeting at this point, it is worth mentioning that the models continue to recurve Julia around the ridge that is in place over the Atlantic, and the remnants of Julia could have some impact on the track of Tropical Storm Lisa. Most of the models recognize the remnants of Julia as some sort of low-level or surface feature, and each of the major models (ECMWF, GFS, CMC, NOGAPS, HWRF, and GFDL), indicate Lisa and Julia will come in close proximity to one another.

Overnight, PGI-45 finally gained enough convection to be classified as a tropical depression and soon after, Tropical Storm Lisa. The center is collocated with the center of the central dense overcast (**EA1**) and the outflow extends far off to the north and east with some outflow to the south. In general, the center of Lisa sits an area of low shear (**C2**) and high SSTs. However, there high shear just north of Lisa and low SSTs to the east. This trough is forecast to move out to the northeast while the ridge over the central

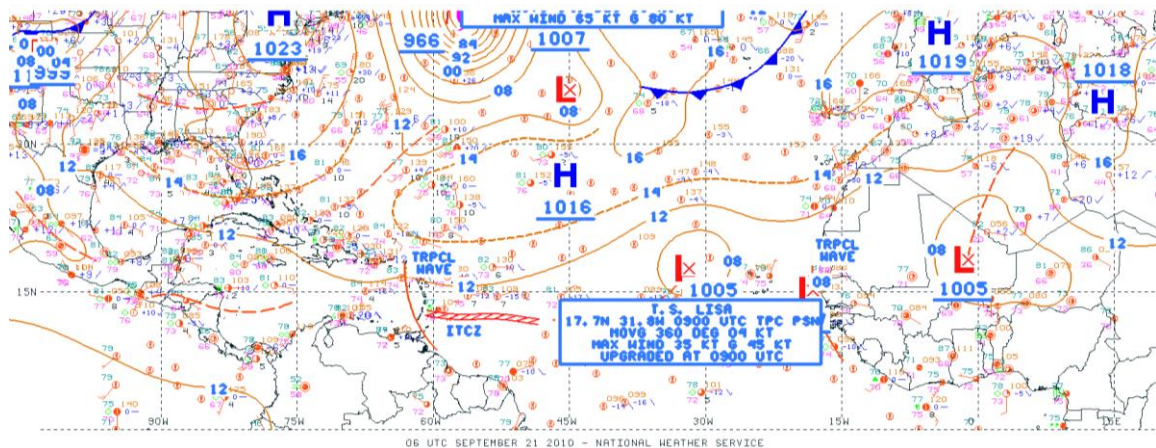
Atlantic is forecast to build back. The official forecast track takes Lisa to the north slowly, but the model tracks vary greatly (EA2). The disparity in the model forecast tracks is largely due to the uncertainty associated with the interaction of Lisa with the southernmost part of the trough and the recurving remnants of Hurricane Julia. If the trough moves out quickly and allows the ridge to build quickly, there is no reason to think that Lisa will not develop a more westward track in conjunction with the building ridge. Though, if the ridge is slow to build, Lisa will likely have a more northerly component of motion. The model guidance intensity forecasts for Tropical Storm Lisa (EA3) are essentially divided between models that forecast slow intensification and models that forecast no intensification at all. The spread in the intensity forecast is likely a direct result of the deviation in track forecasts.

PGI-47L, now over the Atlantic, is given scarcely a chance to develop in the models. In fact, it may soon be caught by the upper-level trough that currently lies to the north of Tropical Storm Lisa. All of the pouch forecasts (EA4) dissipate this wave in the next 12 to 24 hours, but because the 2010 Atlantic tropical season has shown tenacity for all of these tropical waves to develop, this wave still needs to be monitored.

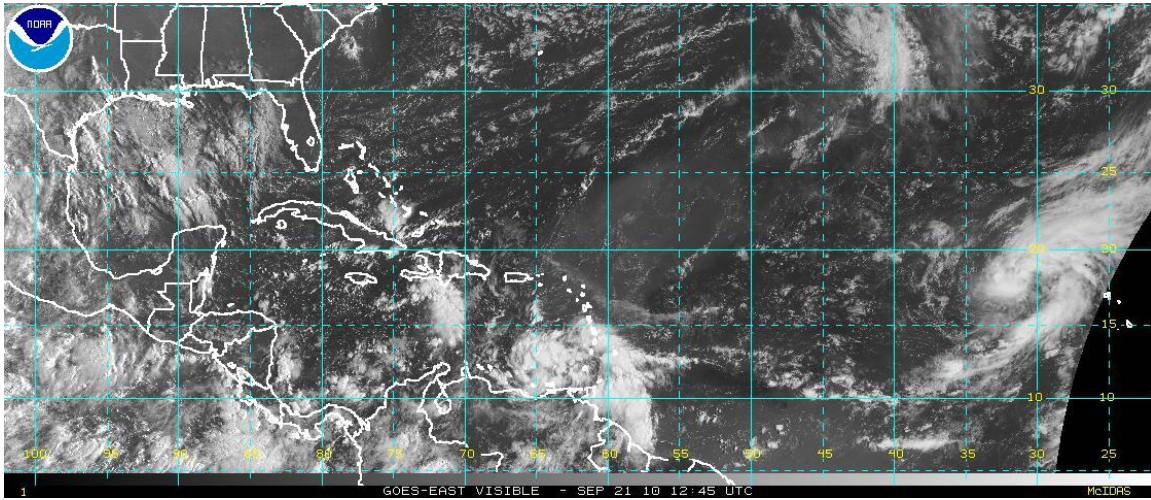
Forecasters: Zelinsky, Wood, Leary, Kofron, Stovern

Images used in discussion:

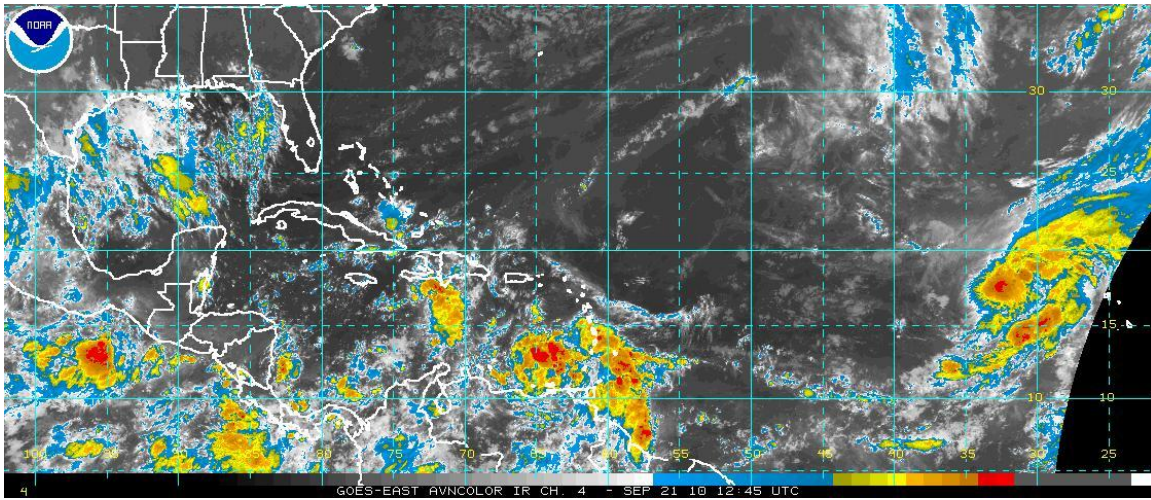
S1



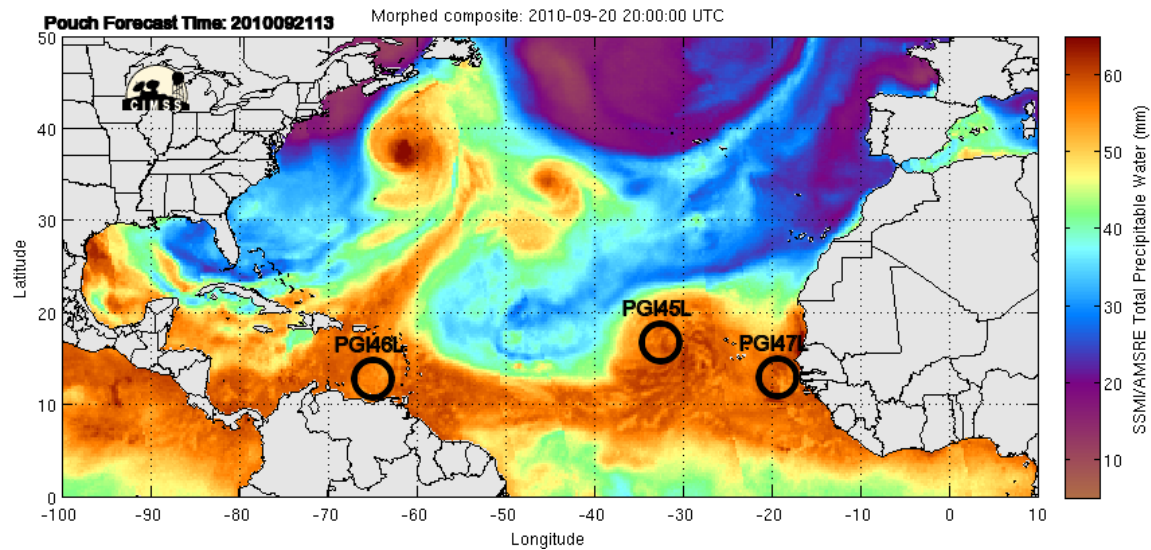
S2 GOES Visible



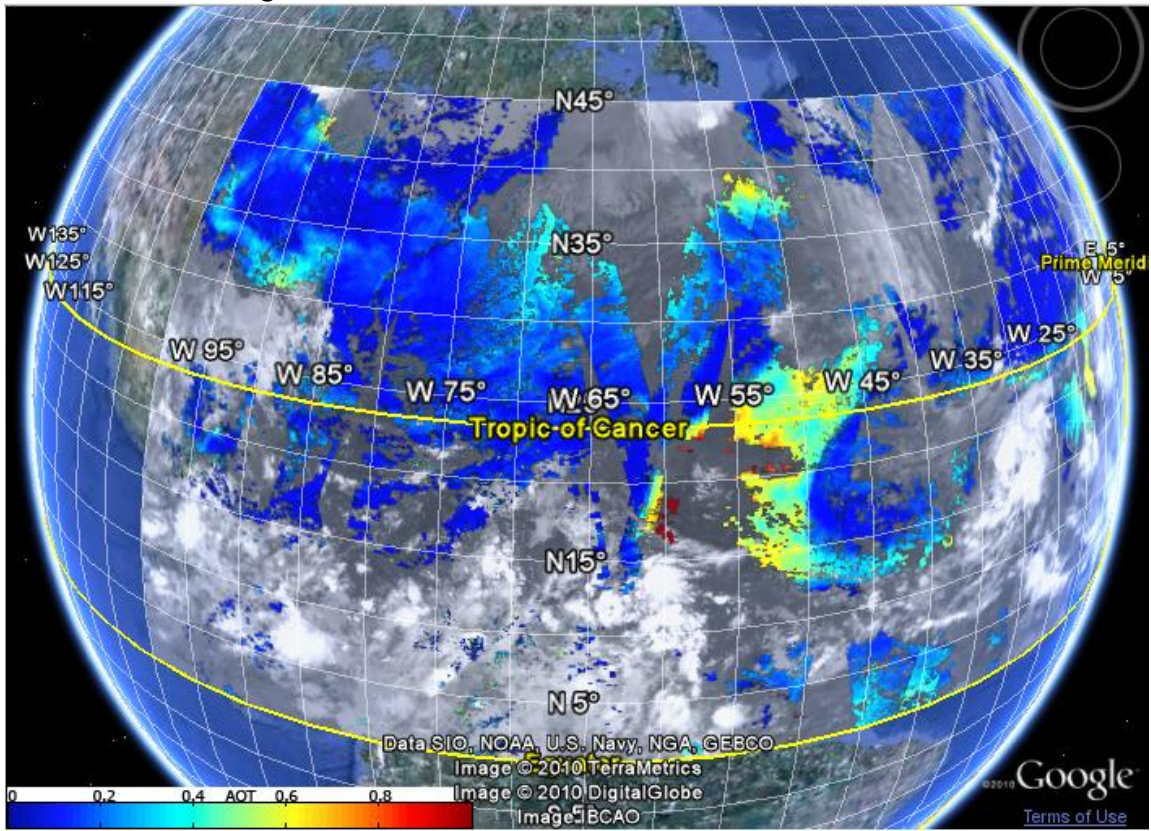
S3- GOES IR



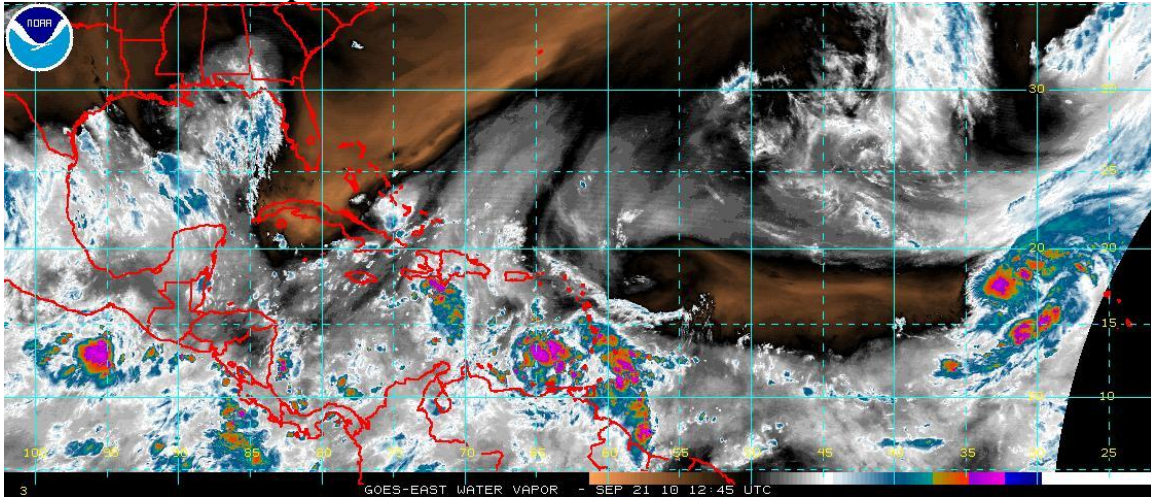
S4- CIMSS TPW with Pouch Positions



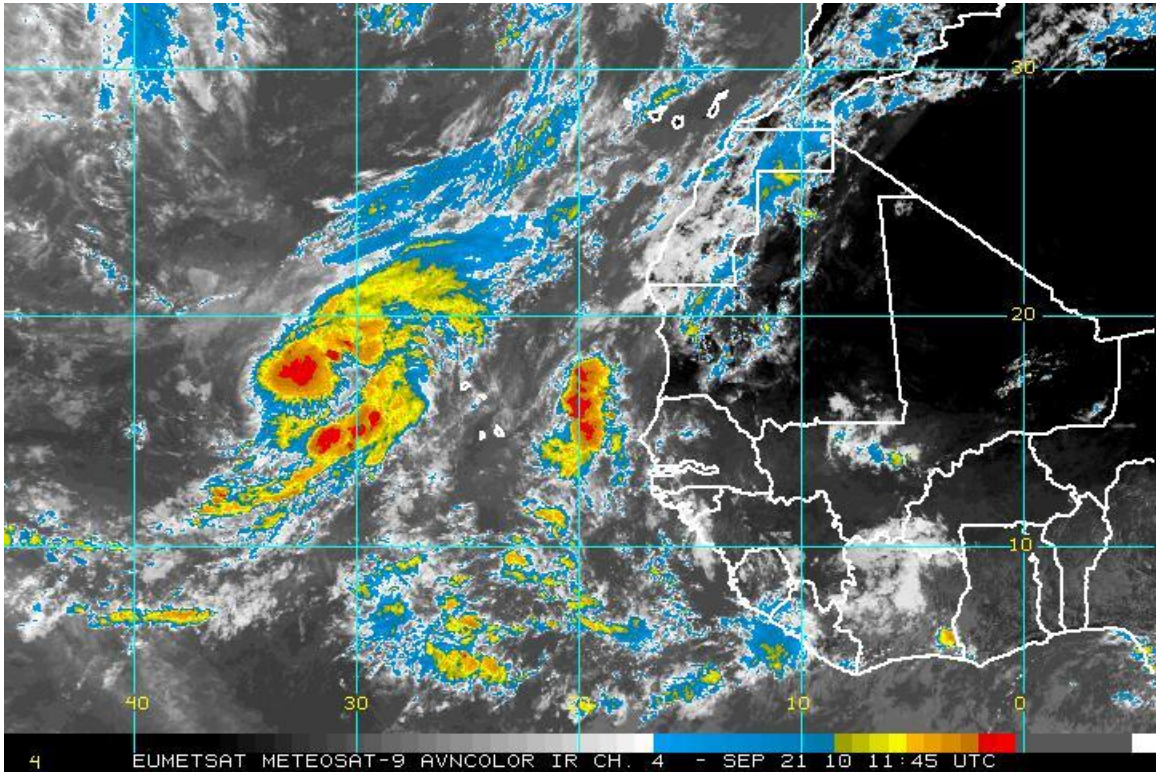
S5 TERRA and AQUA AOT:



S6- GOES Water Vapor

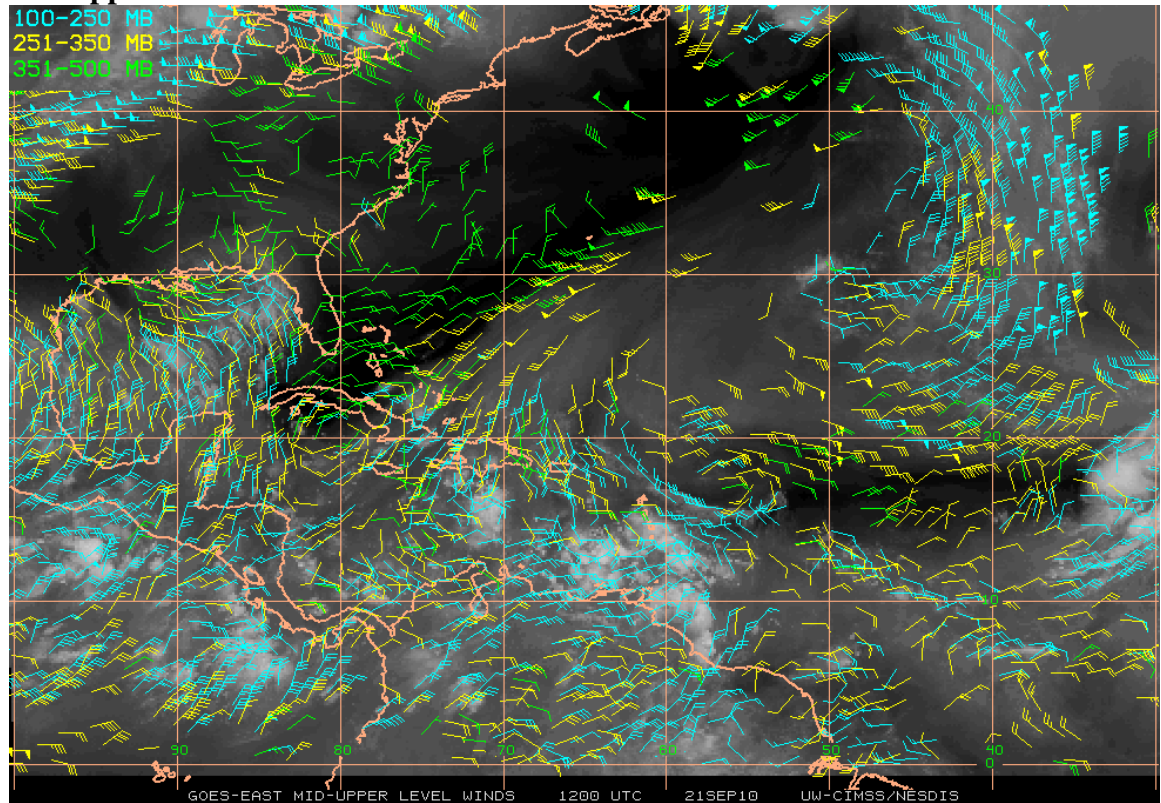


S7 METEOSAT IR

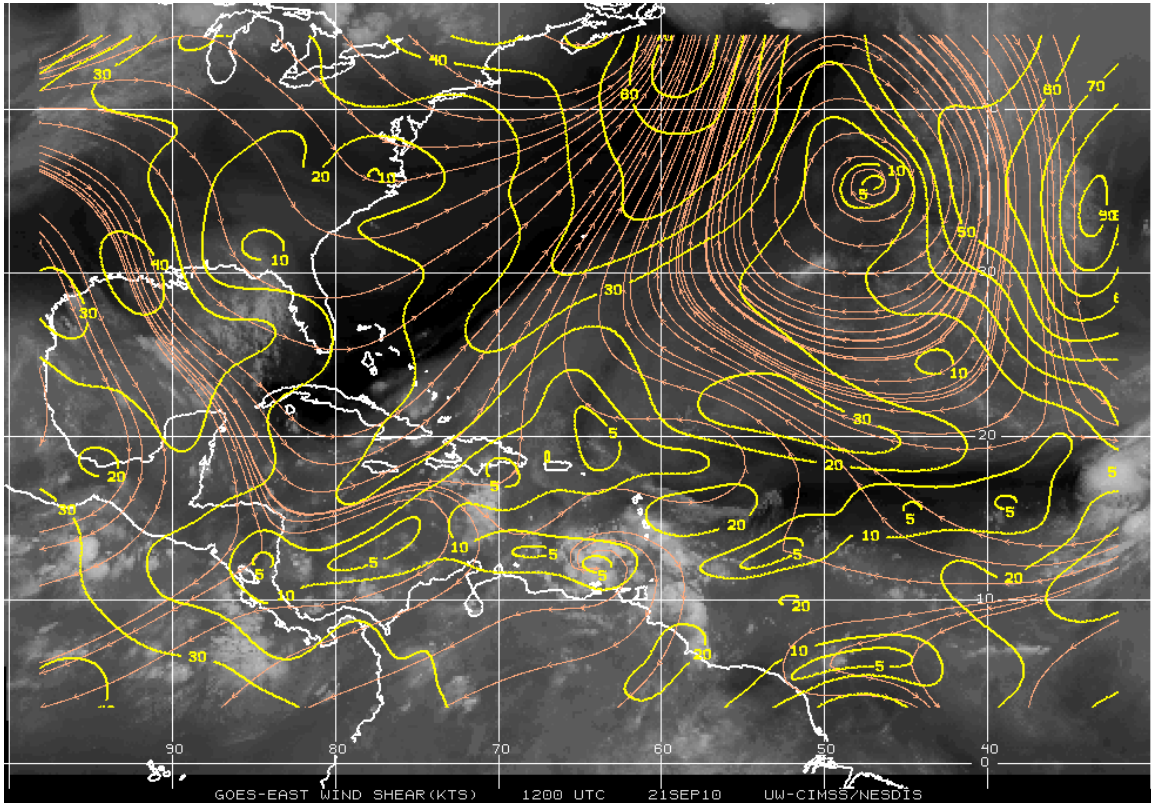


CIMSS Analyses:

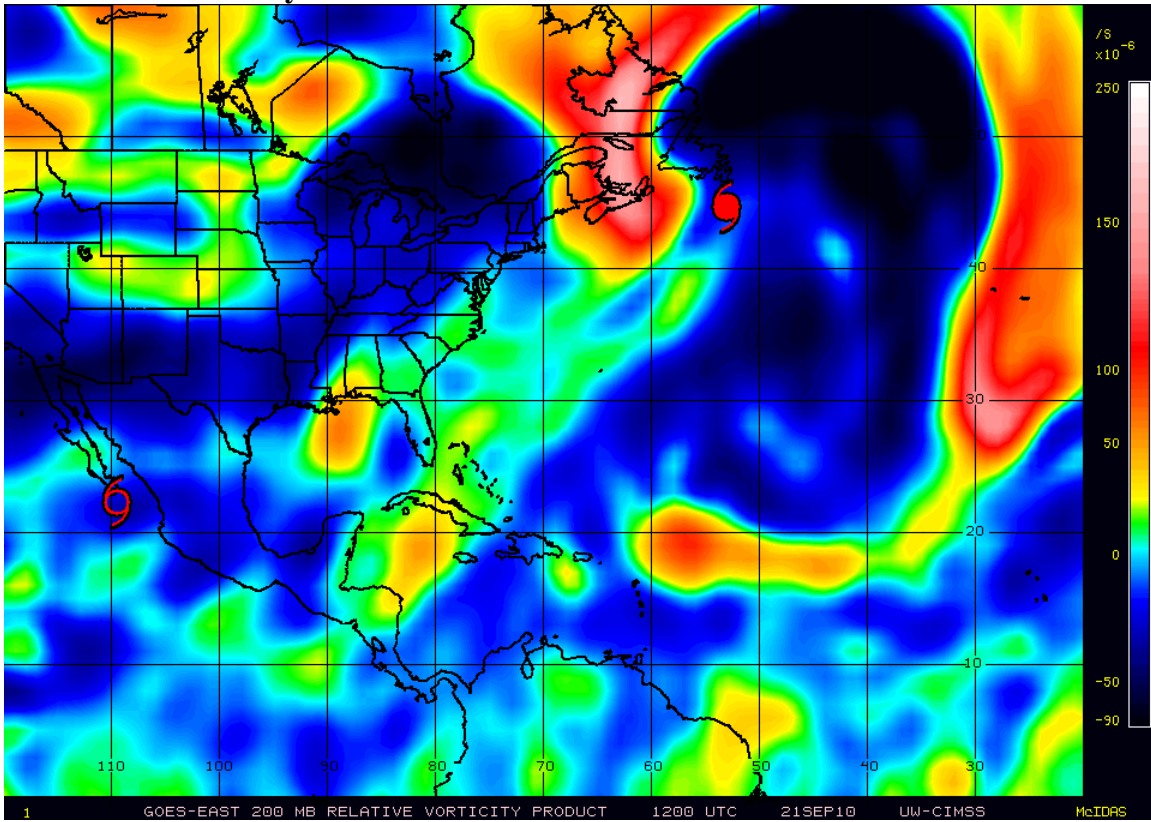
C1- Upper Level Winds



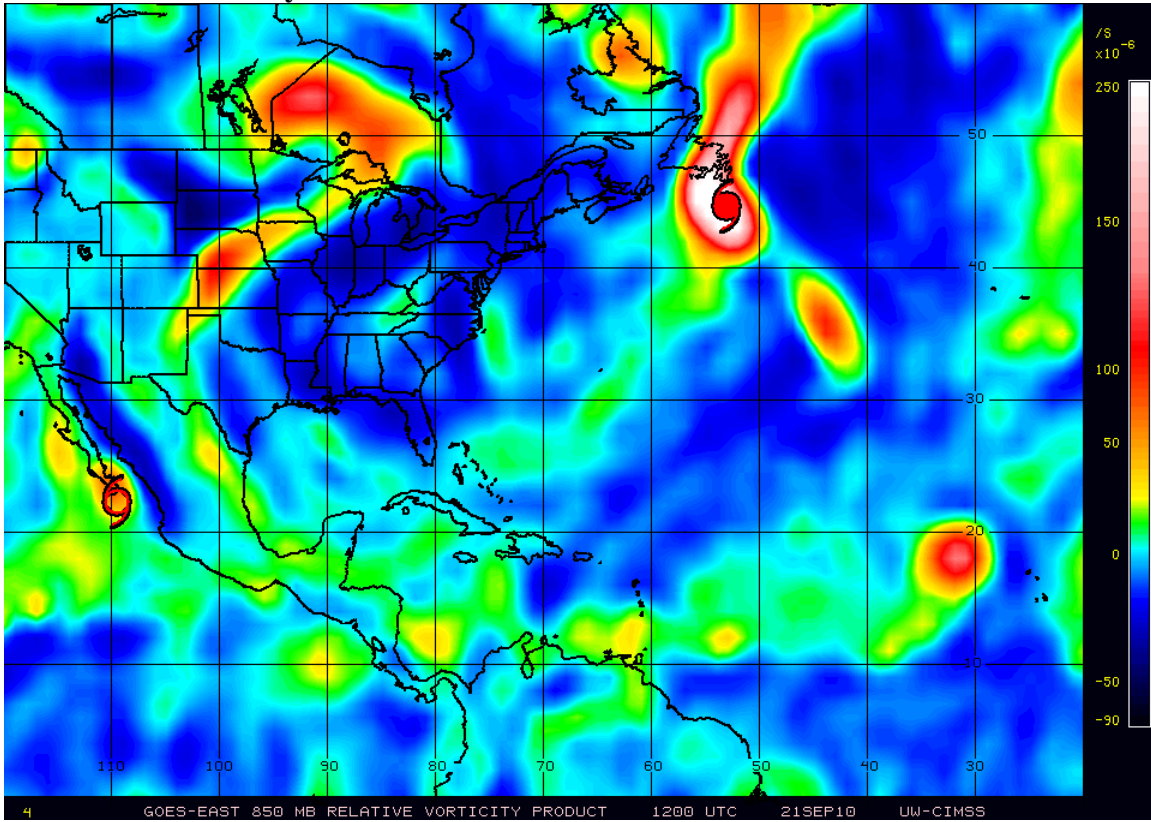
C2- Wind Shear



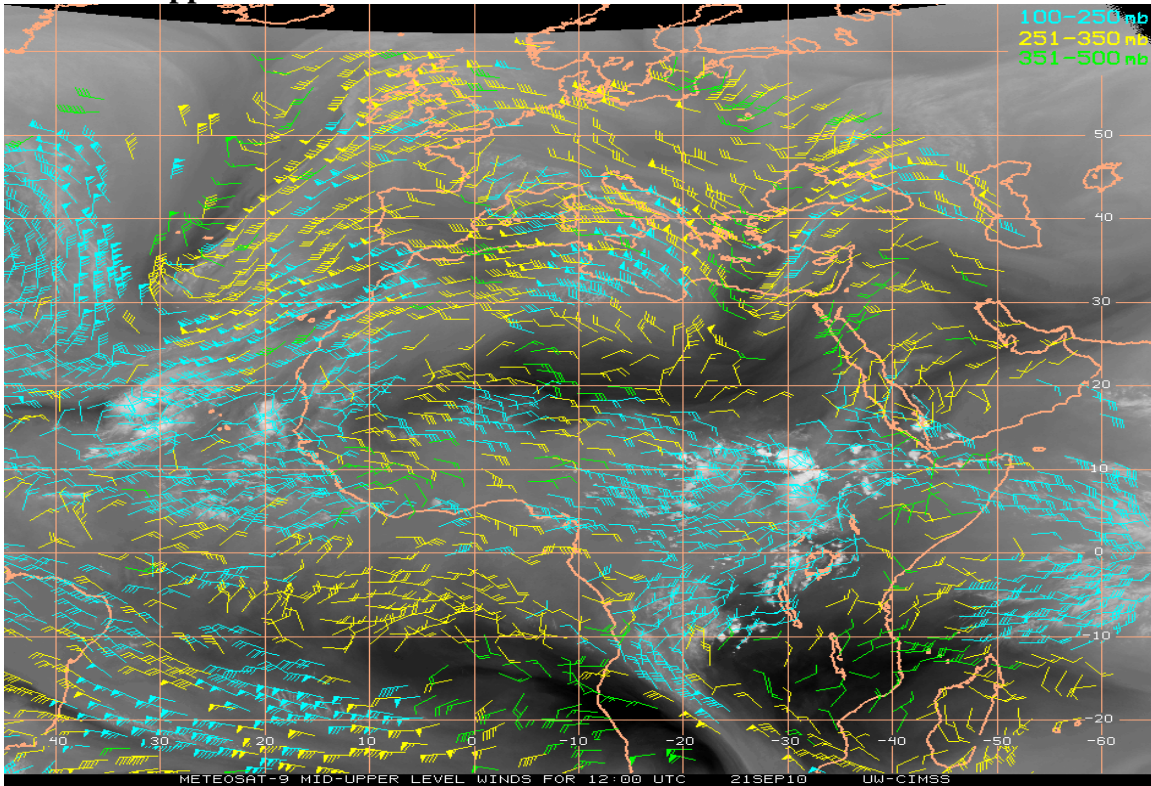
C3- 200 hPa Vorticity



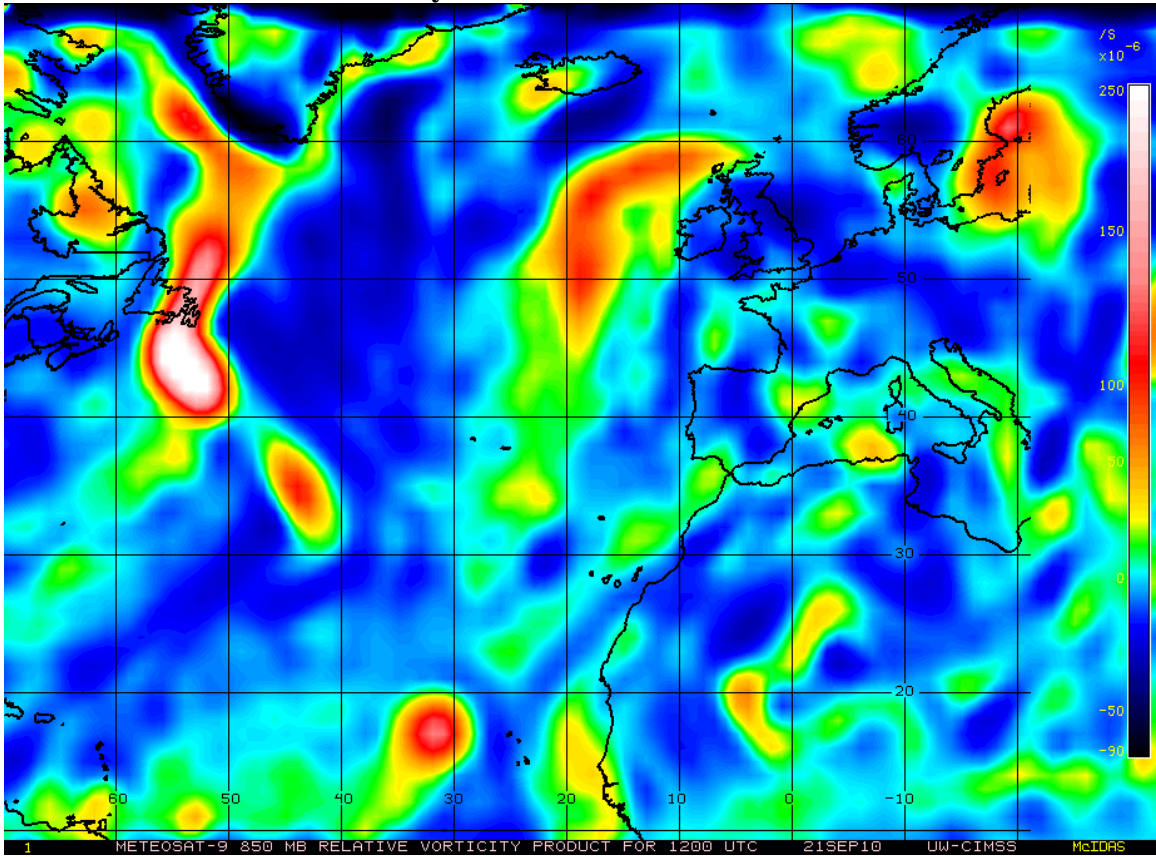
C4- 850 hPa Vorticity



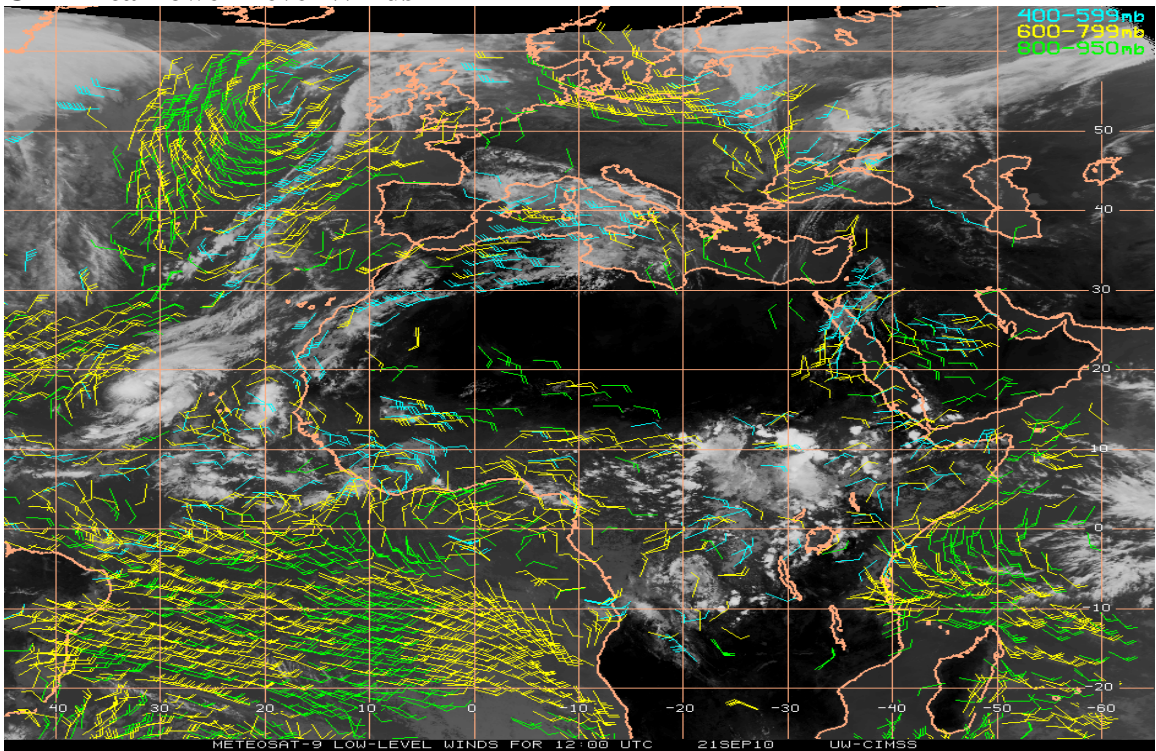
C5 Africa Upper Level Winds:



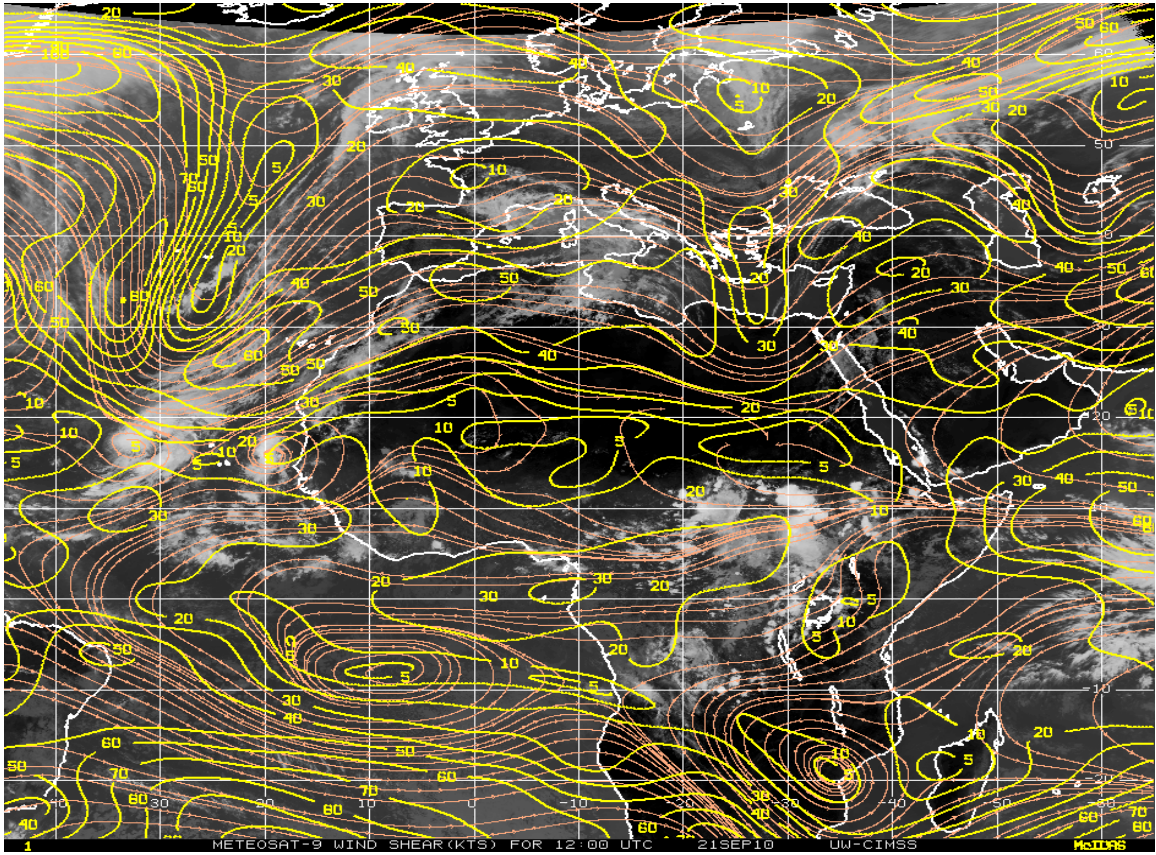
C6 Africa Lower Level Vorticity



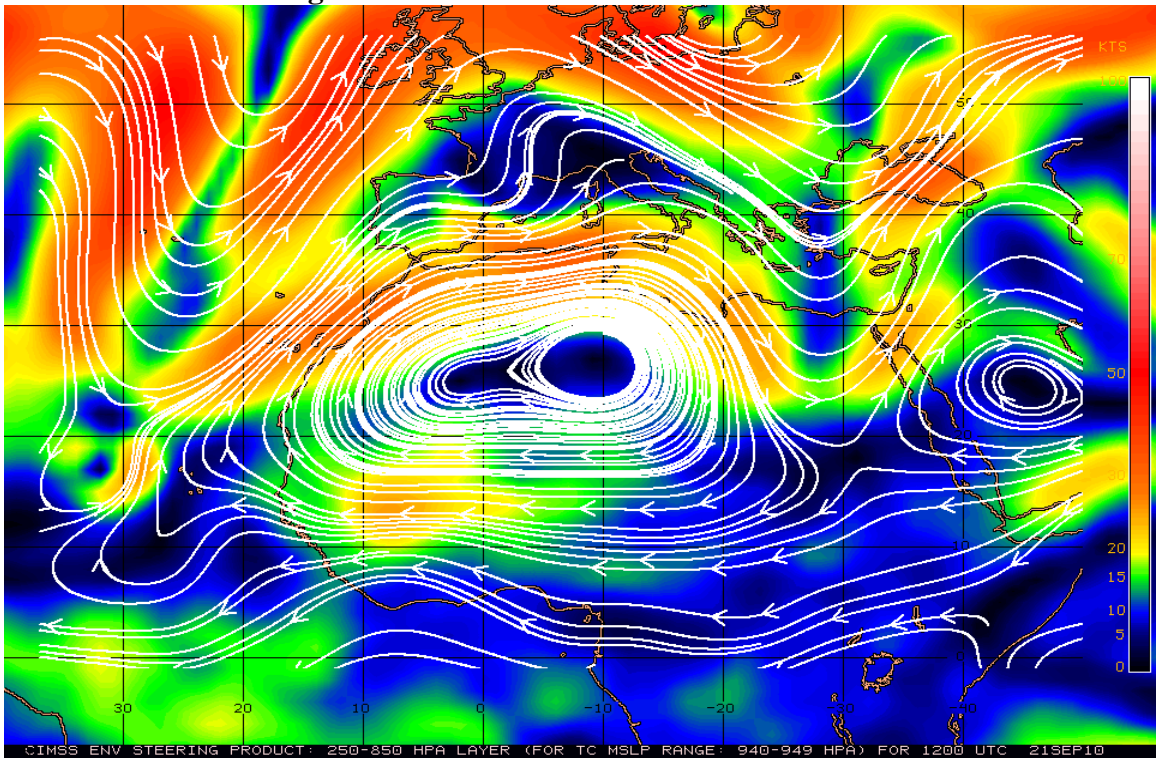
C7 Africa Lower Level Winds



C8 Africa Wind Shear

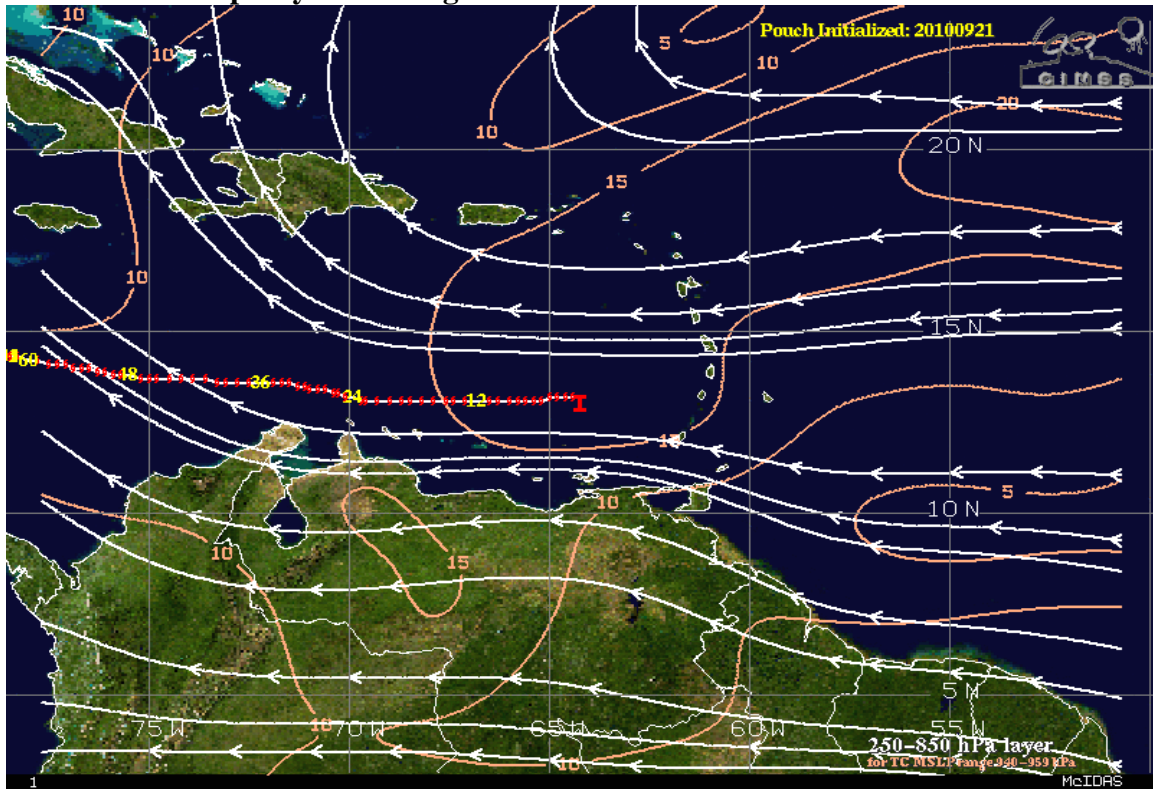


C9 850-200mb Steering Flow over Africa

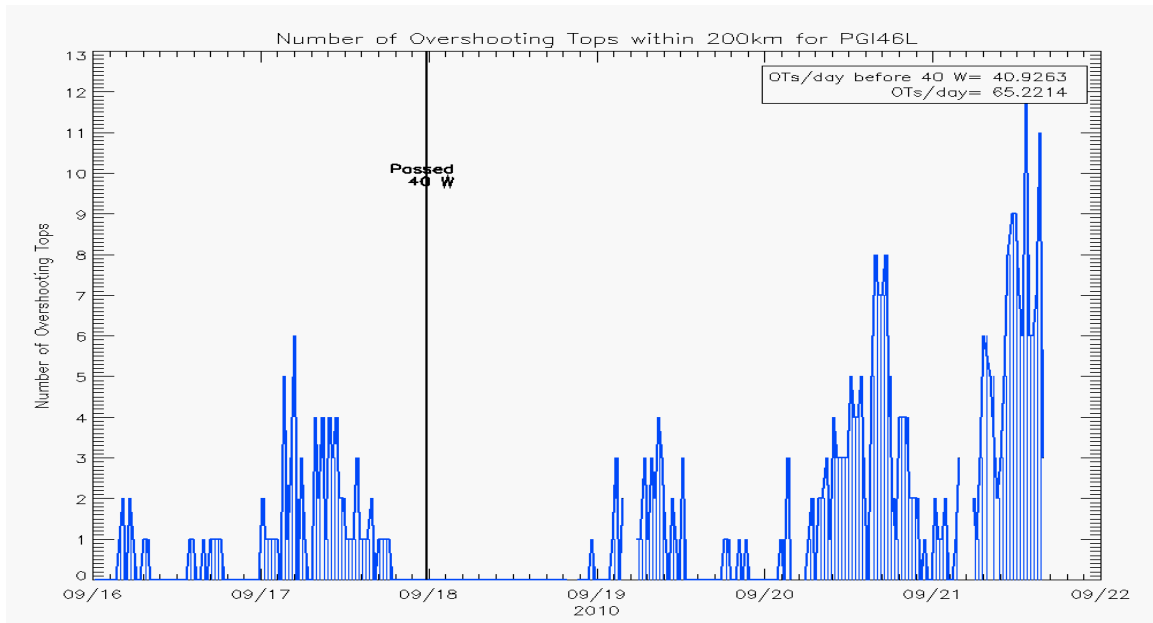


PGI-46L...AL94:

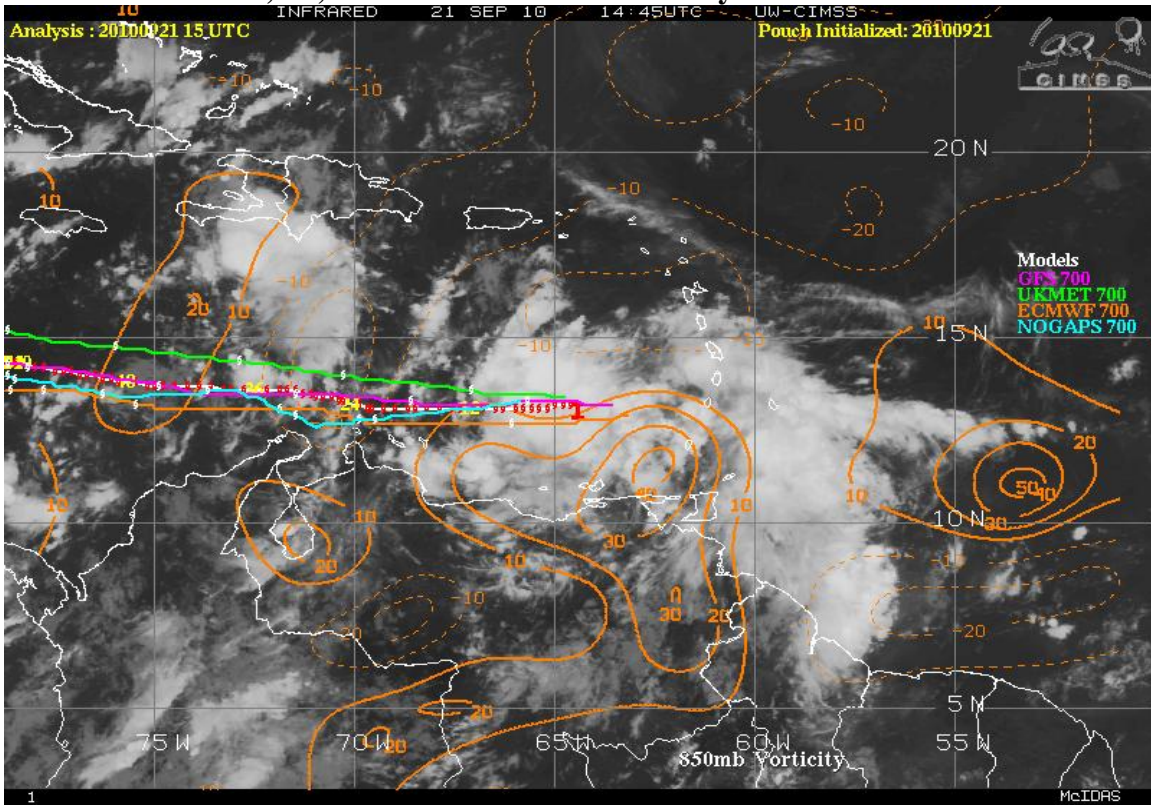
46A CIMSS Deep Layer Steering Flow



46B

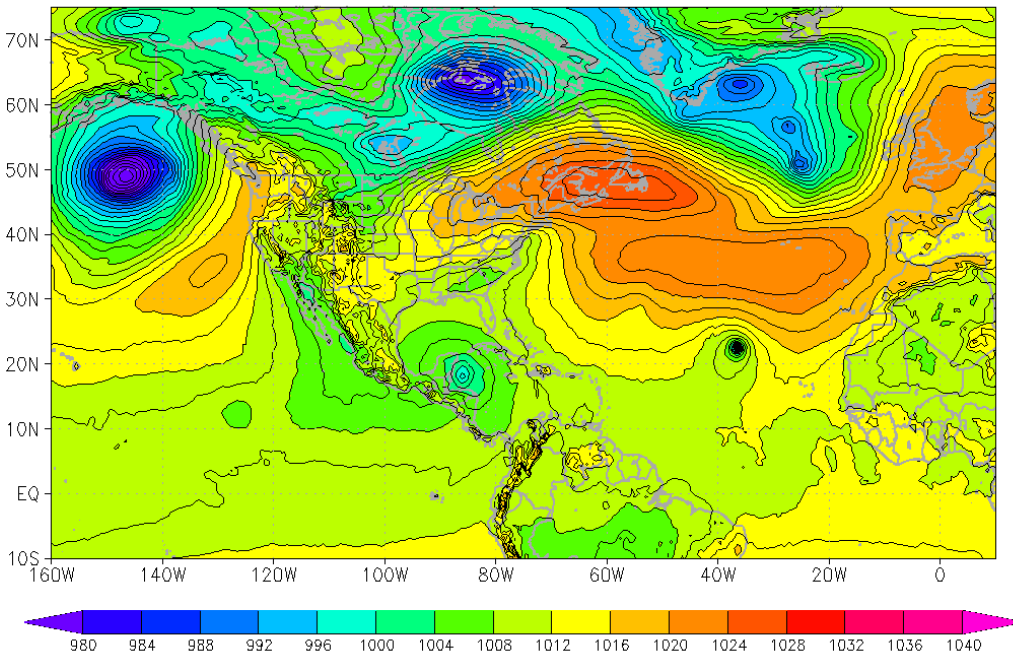


46C Model Tracks, IR, and CIMSS 850hPa Vorticity

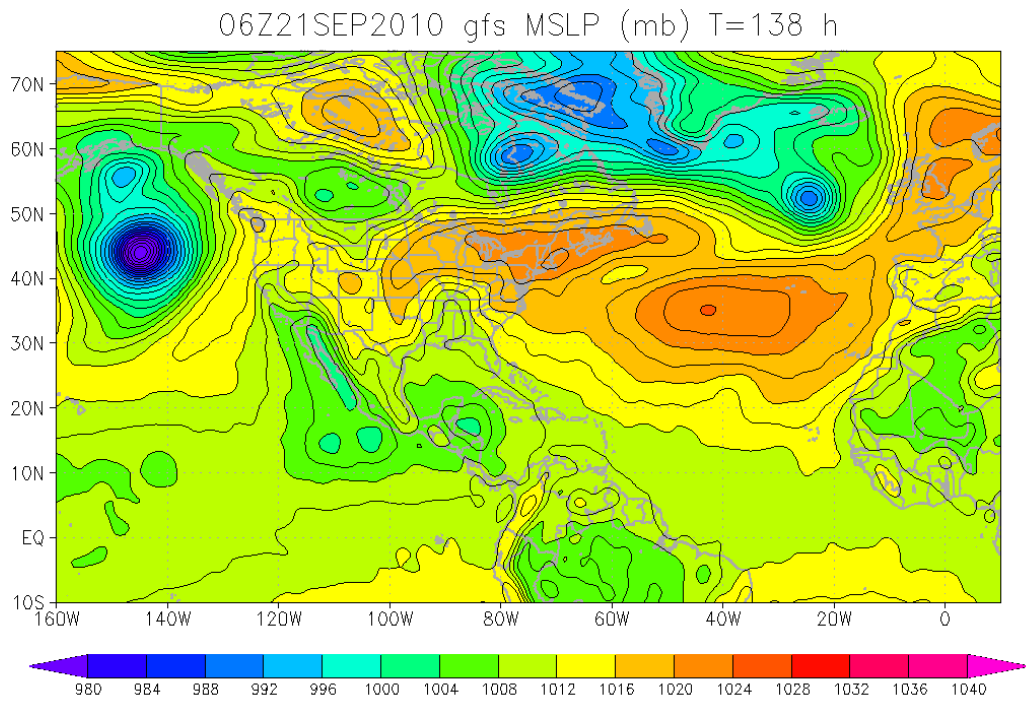


46D- 0000UTC ECMWF

00Z21SEP2010 ecmwf-oper MSLP (mb) T=144 h

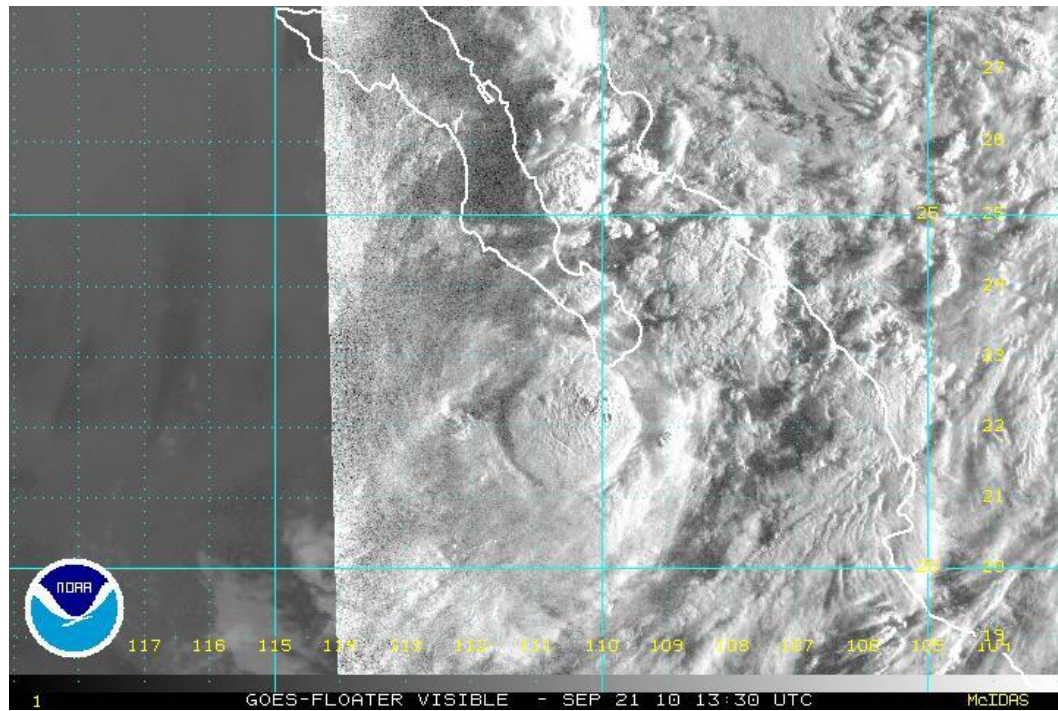


46E 0600UTC GFS

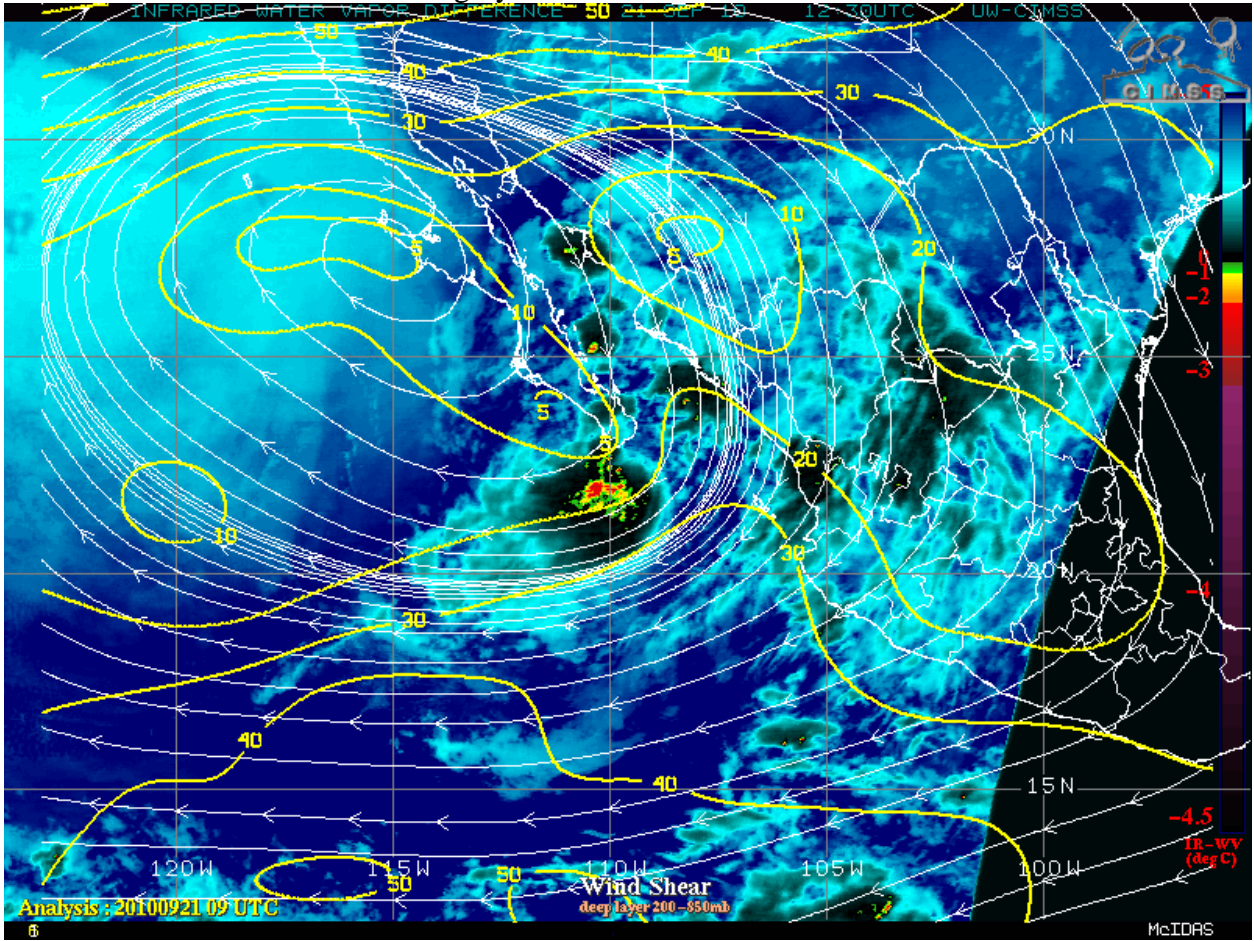


Eastern Pacific:

EP1



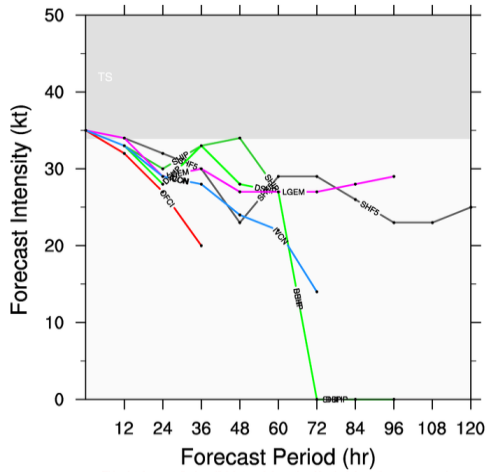
EP2-CIMSS IRWV difference imagery and 0900 UTC 200-850 mb shear



EP3

TROPICAL STORM GEORGETTE (EP12)

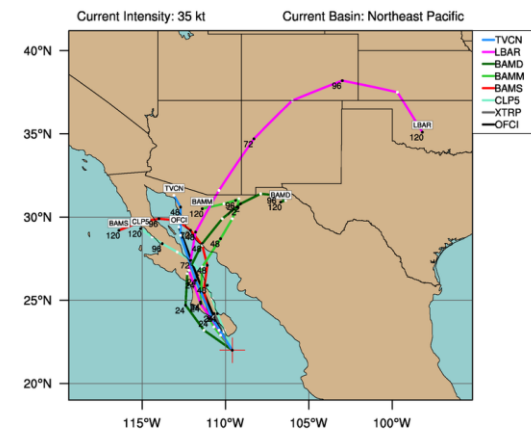
Early-cycle intensity guidance
valid 1200 UTC, 21 September 2010



This plot does not display official storm information. Use for information purposes only. DO NOT USE FOR LIFE AND DEATH DECISIONS!

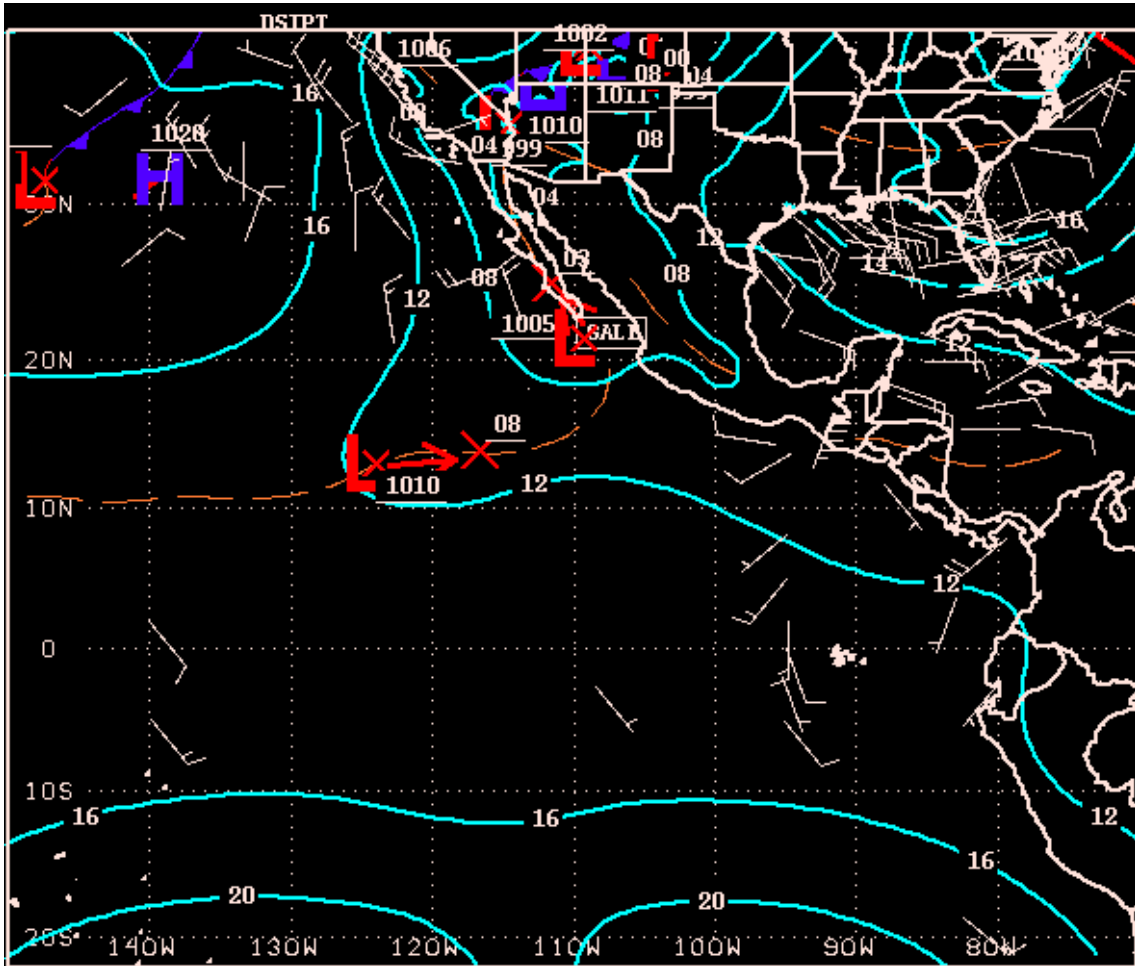
TROPICAL STORM GEORGETTE (EP12)

Early-cycle track guidance valid 1200 UTC, 21 September 2010

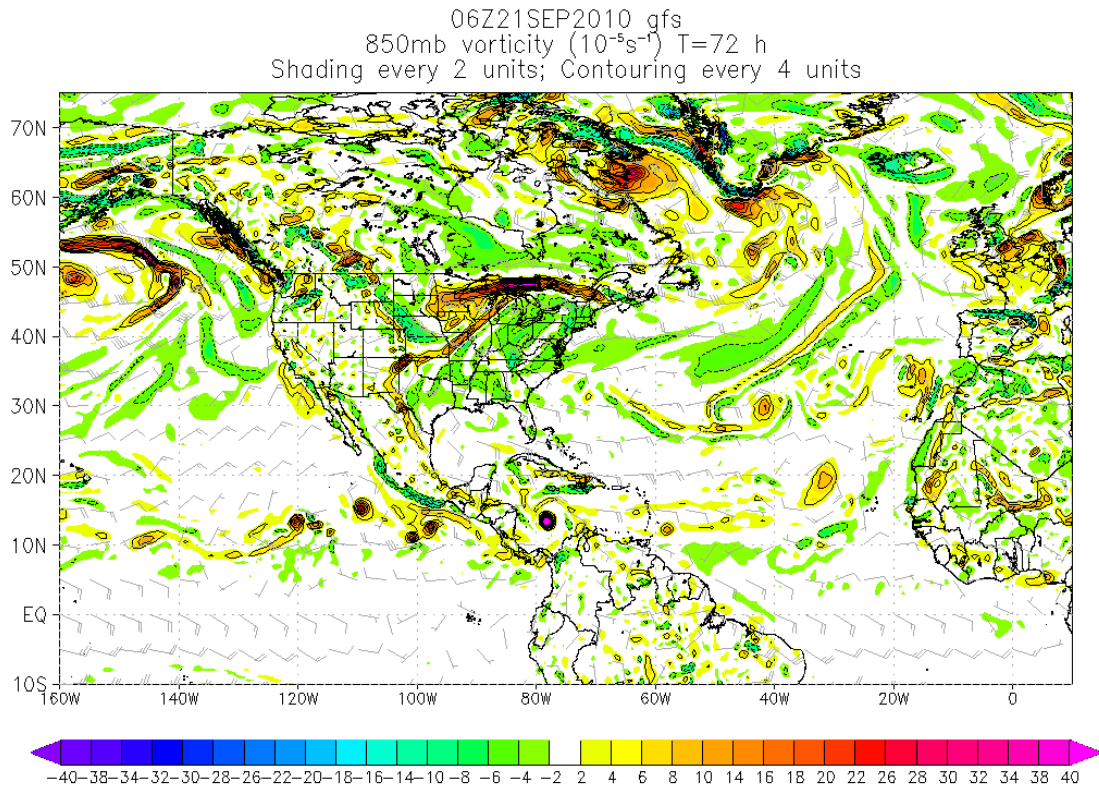


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EP4

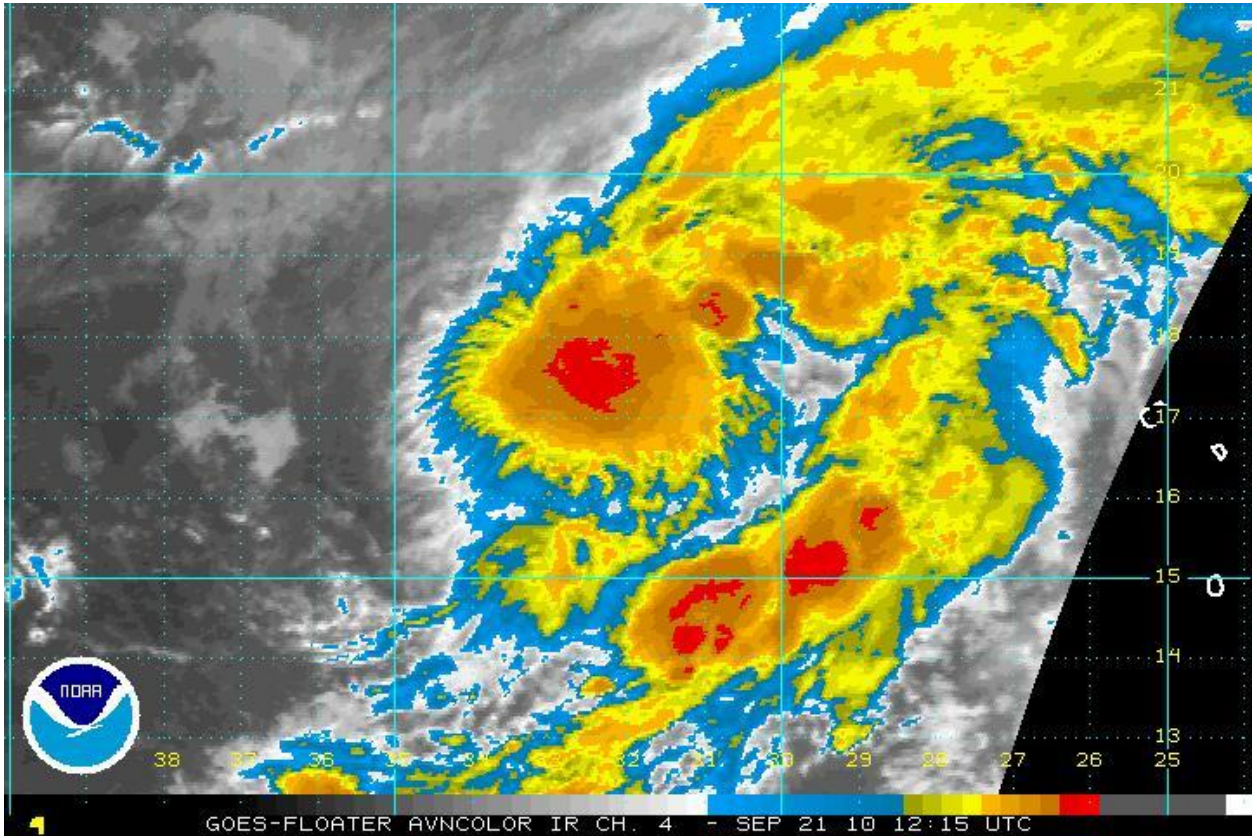


EP5

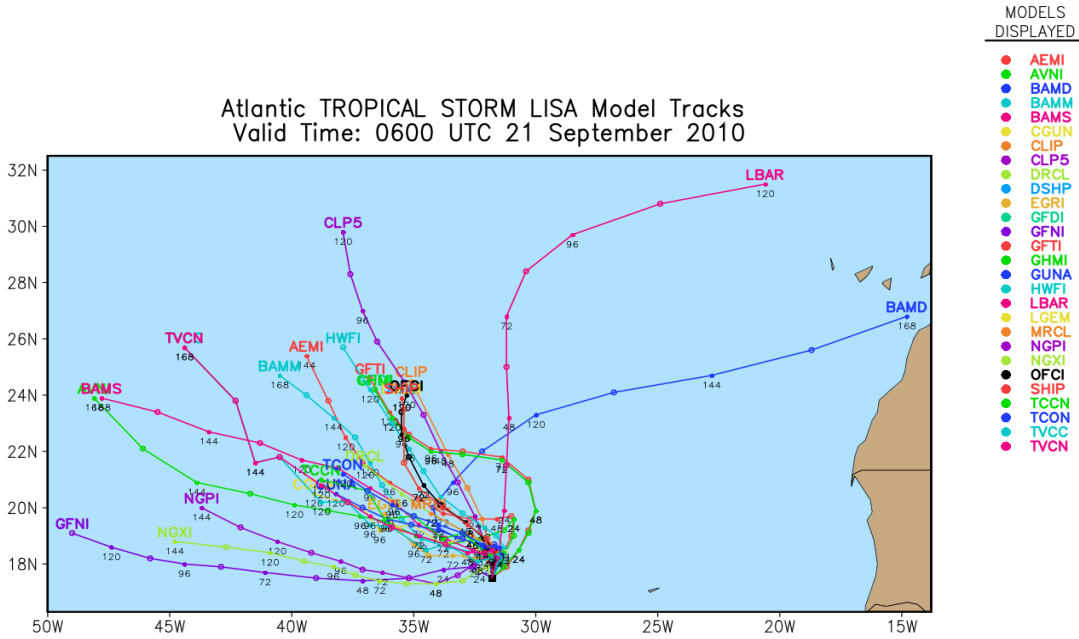


Eastern Atlantic:

EA1



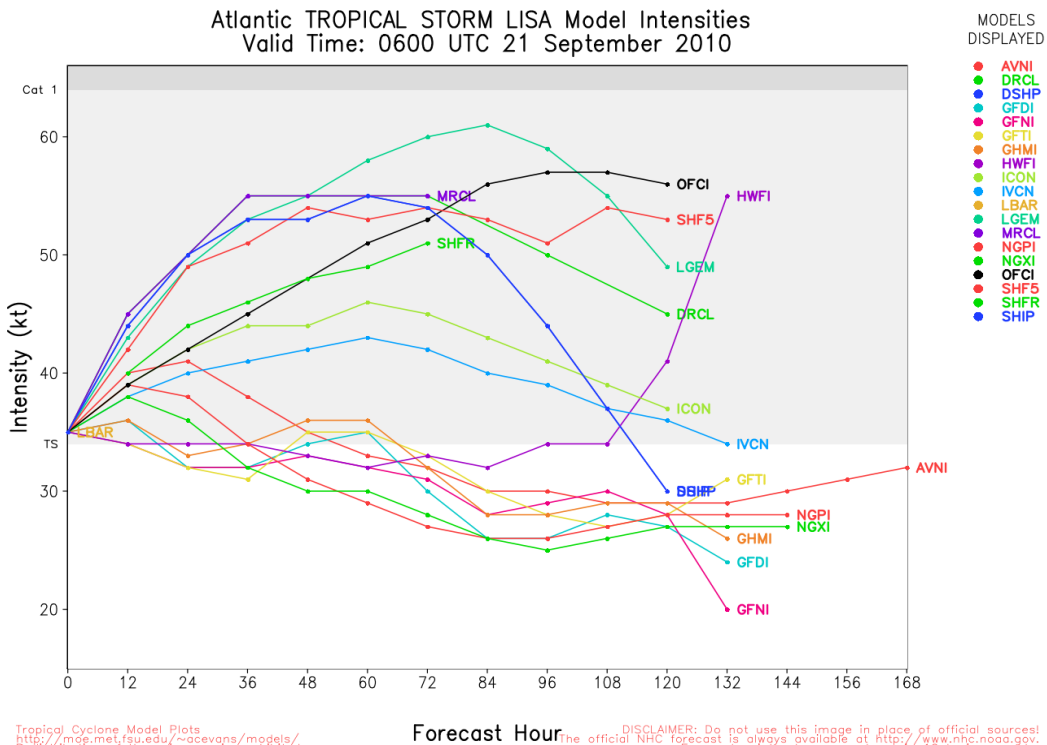
EA2



Tropical Cyclone Model Plots
http://moe.met.fsu.edu/~acevans/models/
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The official NHC forecast is always available at http://www.nhc.noaa.gov.
Forecast points above are shown in 12 hr increments. Initial points denoted by black squares.

EA3

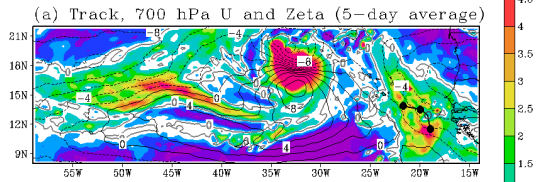


Tropical Cyclone Model Plots
http://moe.met.fsu.edu/~acevans/models/
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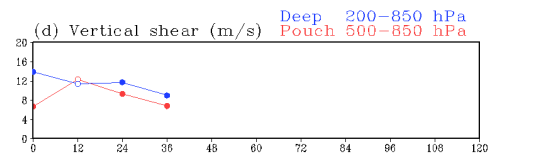
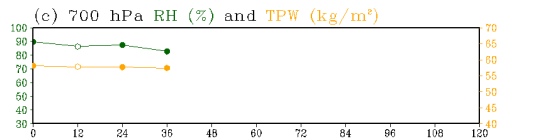
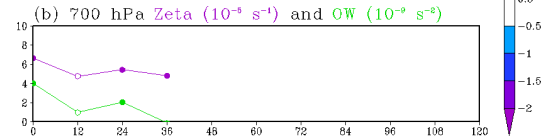
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The official NHC forecast is always available at http://www.nhc.noaa.gov.
Forecast points above are shown in 12 hr increments.

EA4- ECMWF and GFS Pouch Diagnostics for PGI-47L

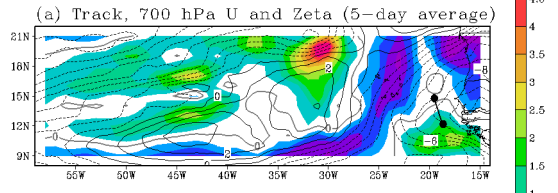
PGI47L: 5-Day Forecast Based on ECMWF
 Initialized at 2010092100



3x3 degree box averages following the pouch:



PGI47L: 5-Day Forecast Based on GFS
 Initialized at 2010092100



3x3 degree box averages following the pouch:

