

- JOSE MANUEL MEDINA HIDALGO
- SYNOPTIC METEOROLOGY AND FORECAST OFFICE
- DOMINICAN REPUBLIC
- TROPICAL DESK



MOTIVATION AND OBJECTIVES

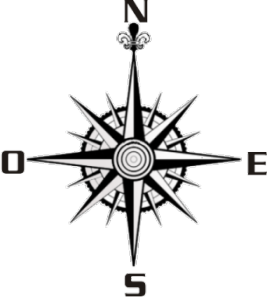
- TO STUDY A CASE OF IMPORTANT HEAVY RAINFALL TYPICAL IN THE TRANSITION MONTHS IN THE DOMINICAN REPUBLIC.
- TO APPLY AND DEVELOP NEW TOOLS TO ANALYZE SIMILAR EVENTS NOT NECESSARILY ASSOCIATED TO THE HURRICANE SEASON.



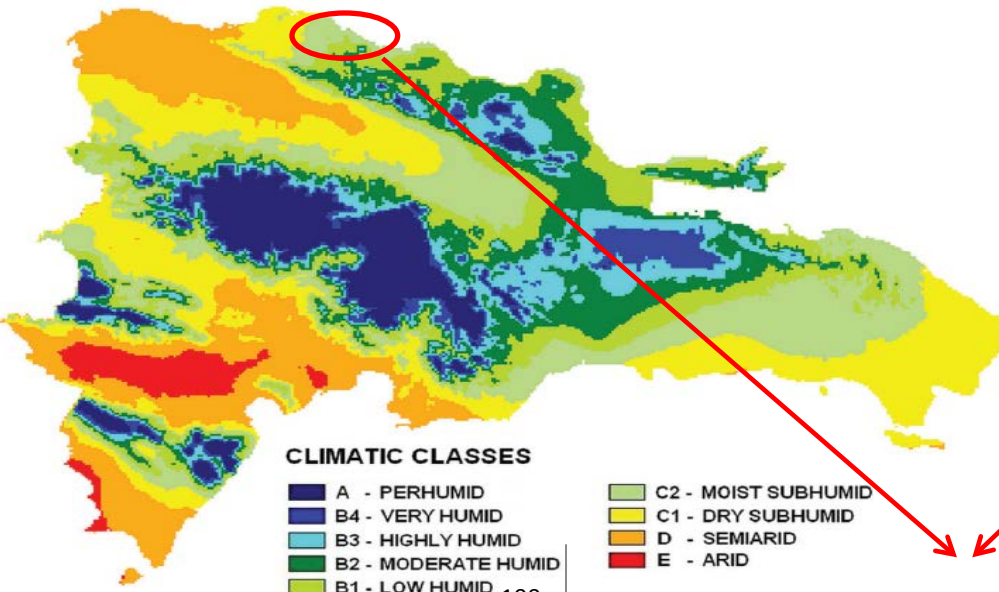
República Dominicana



REPUBLICA DOMINICANA

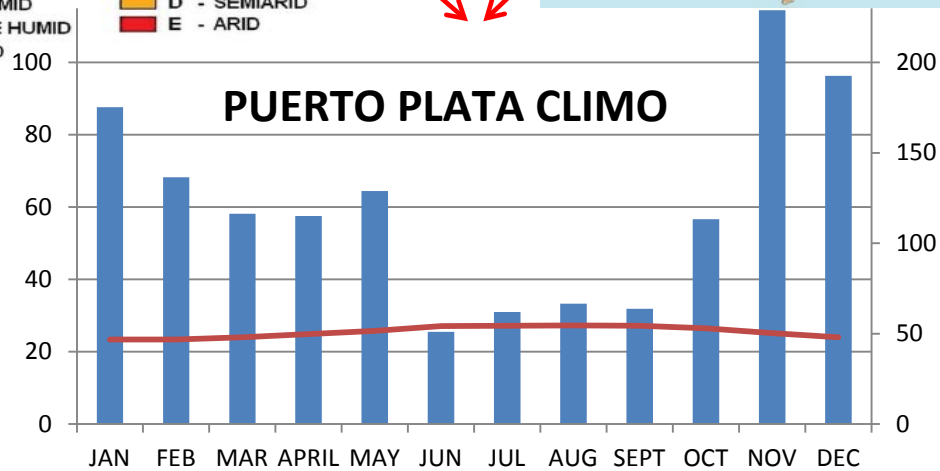


LOCATION



CLIMATIC CLASSES

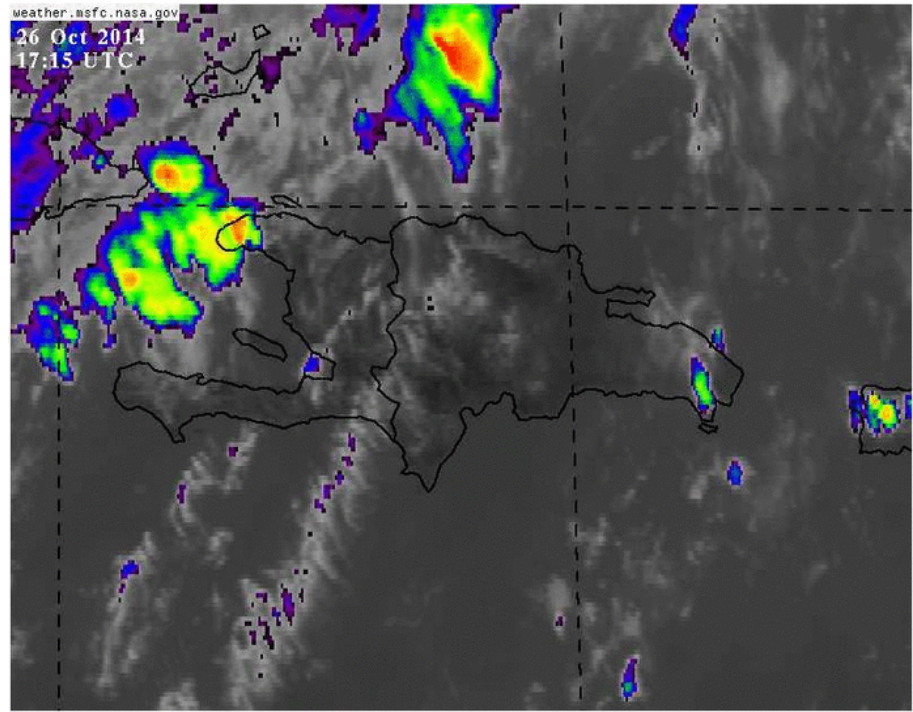
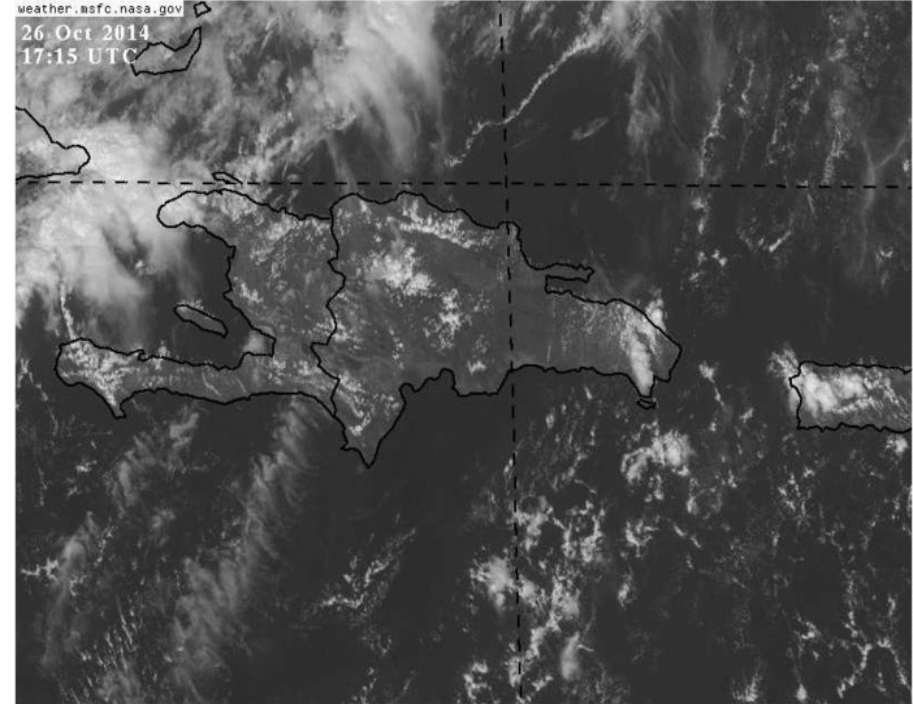
- A - PERHUMID
- B4 - VERY HUMID
- B3 - HIGHLY HUMID
- B2 - MODERATE HUMID
- B1 - LOW HUMID
- C2 - MOIST SUBHUMID
- C1 - DRY SUBHUMID
- D - SEMIARID
- E - ARID

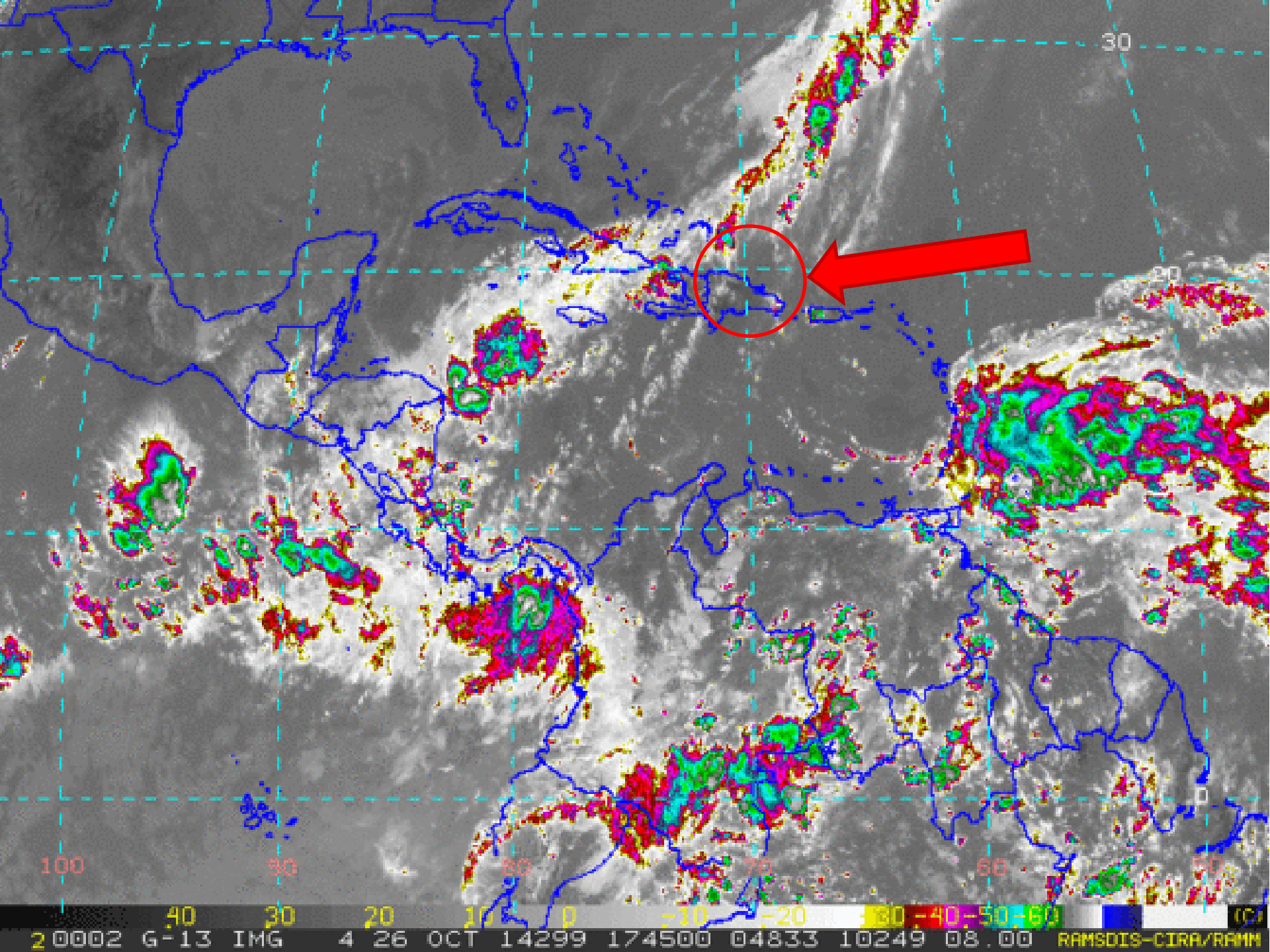


PRECIPITACION NORMAL (mm)
 TEMPERATURA MEDIA NORMAL (°C)

SYNOPTIC CONTEXT

- AFTER ~3 DAYS OF FAIR WEATHER UNDER THE INFLUENCE OF A MID-LEVEL RIDGE, THE NORTHERN PART OF THE DOMINICAN REPUBLIC WAS AFFECTED BY HEAVY RAINFALL.
- STRONG T-STORMS OCCURRED IN THE AFTERNOON OF OCT 26 WITH A SHEAR LINE INTERACTING WITH THE NORTHERN MOUNTAINS.
- DEEP CONVECTION FIRST DEVELOPED IN THE CENTRAL VALLEY TRIGGERED BY THE DIURNAL CYCLE
- THEN REFORMED TO THE NORTH IN THE SHEAR LINE CONVERGENCE REGION, AND WHERE SOUTHEASTERLY MID-UPPER SHEAR RELAXED THE RIDGE.





30

100

90

80

70

60

50

40

40

30

20

10

0

-10

-20

-30

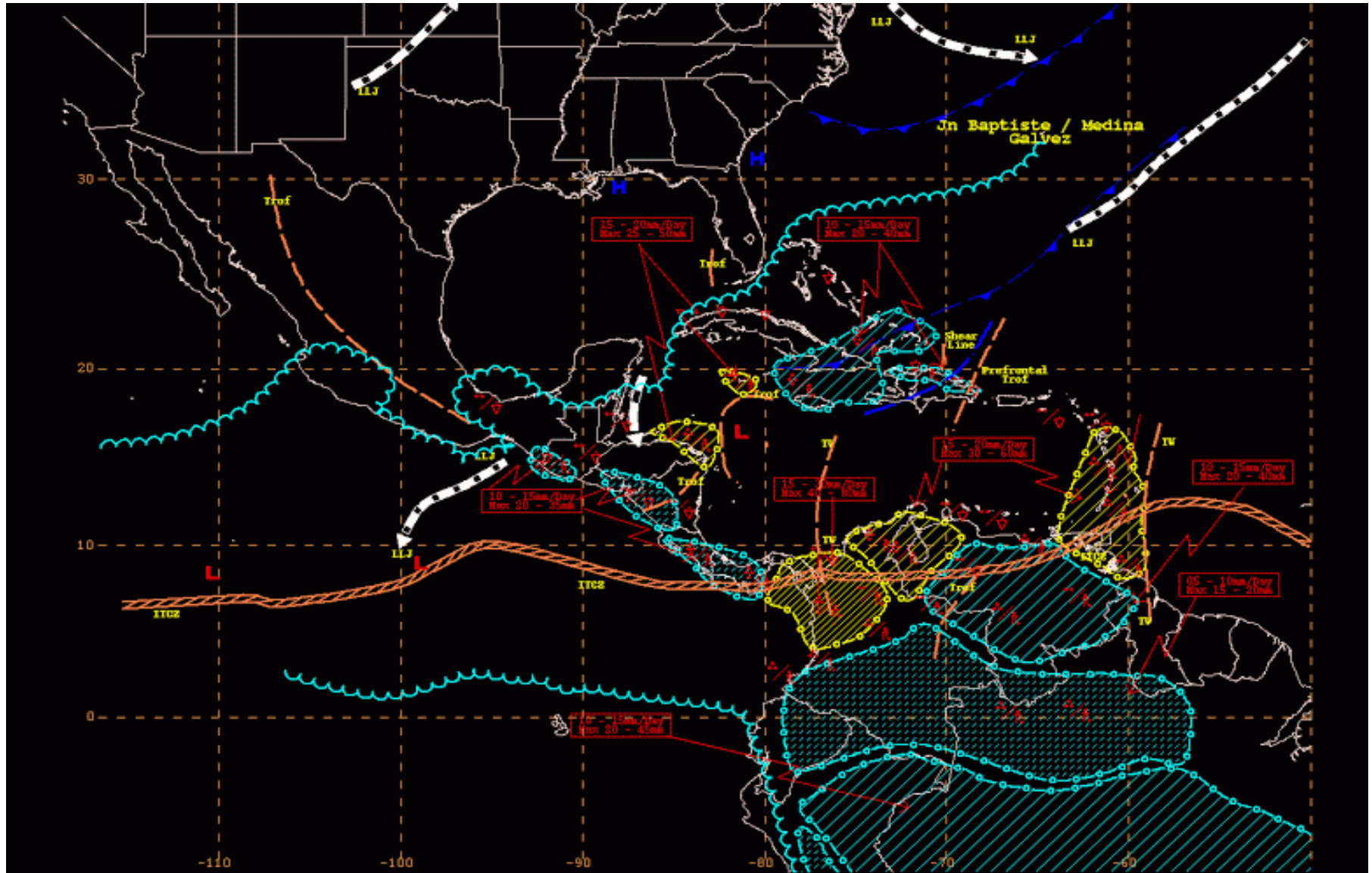
-40

-50

-60

(C)

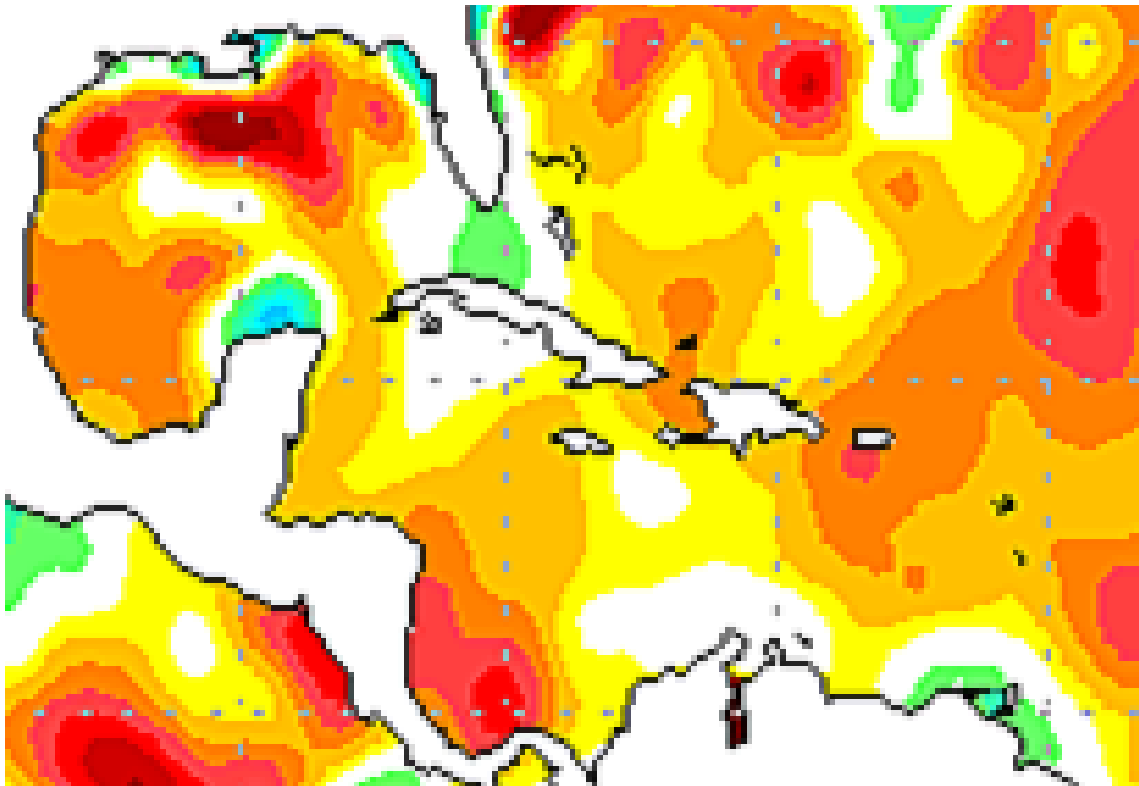
SYNOPTIC CONTEXT/TROPICAL DESK FORECAST



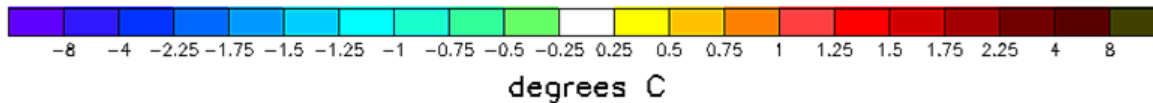
SST ANOMALIES

NOAA/NWS/NCEP/EMC Marine Modeling and Analysis Branch

RTG_SST Anomaly (0.5 deg X 0.5 deg) for 26 Oct 2014



**SEA SURFACE
TEMPERATURES WERE
SLIGHTLY ABOVE
CLIMATOLOGY (~0.5C)**



TIME SECTION FOR PUERTO PLATA

(GFS DATA OCT-26-2014 0000Z)

INPUT CHARACTER COMMANDS AND DELIMITERS OR EODT
GFS:MOPP@380 71W= 72 0 210= 0 210S= 0 24 -FL-1-OCT241400 GFS215
2014 10 26 0-THTA CDO CLEAR&SNC 1-3 ADVTEMP WIND LETN-01 CLRJ DOTSA

STORMS ~F12 - F24.

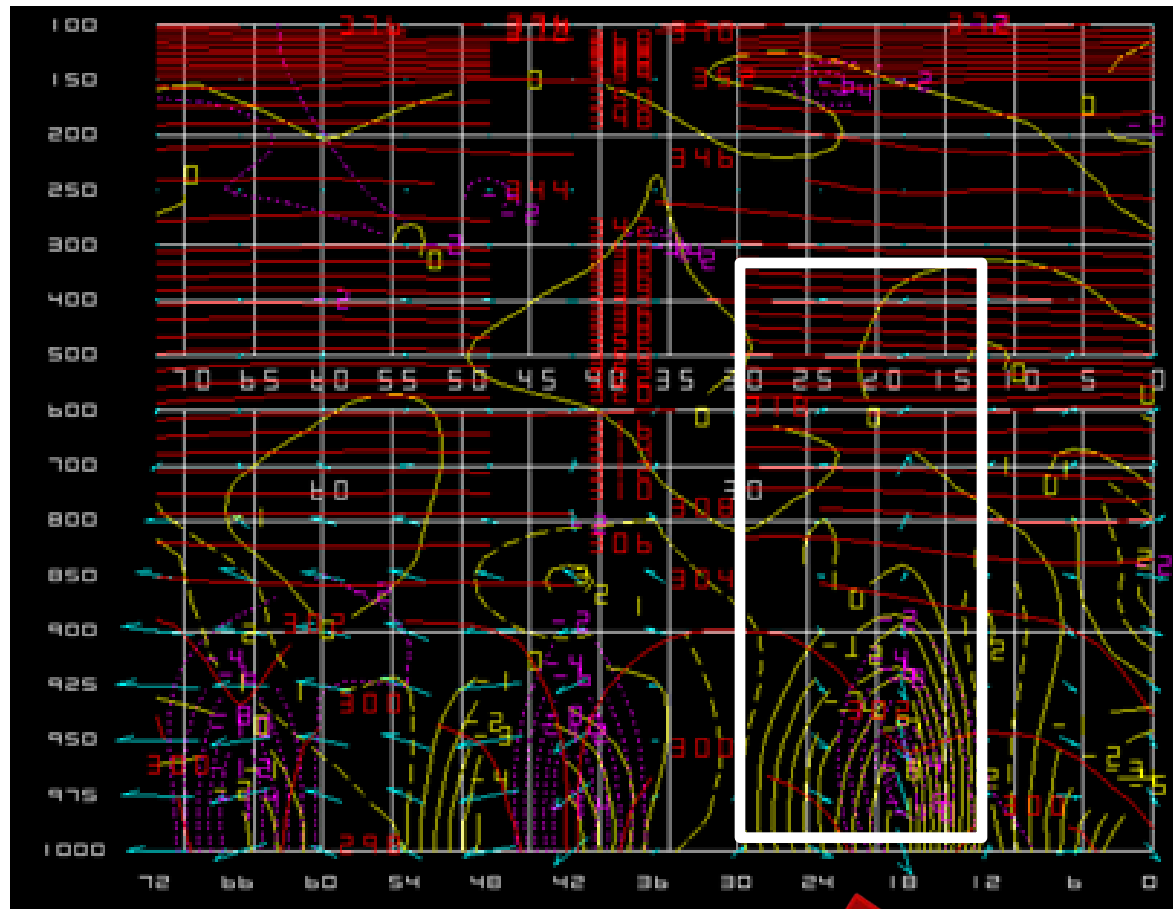
**COLD AIR MASS
ADVECTED INTO THE
NORTHERN COAST.**

**MOISTURE FLUX
CONVERGENCE (MFC)**

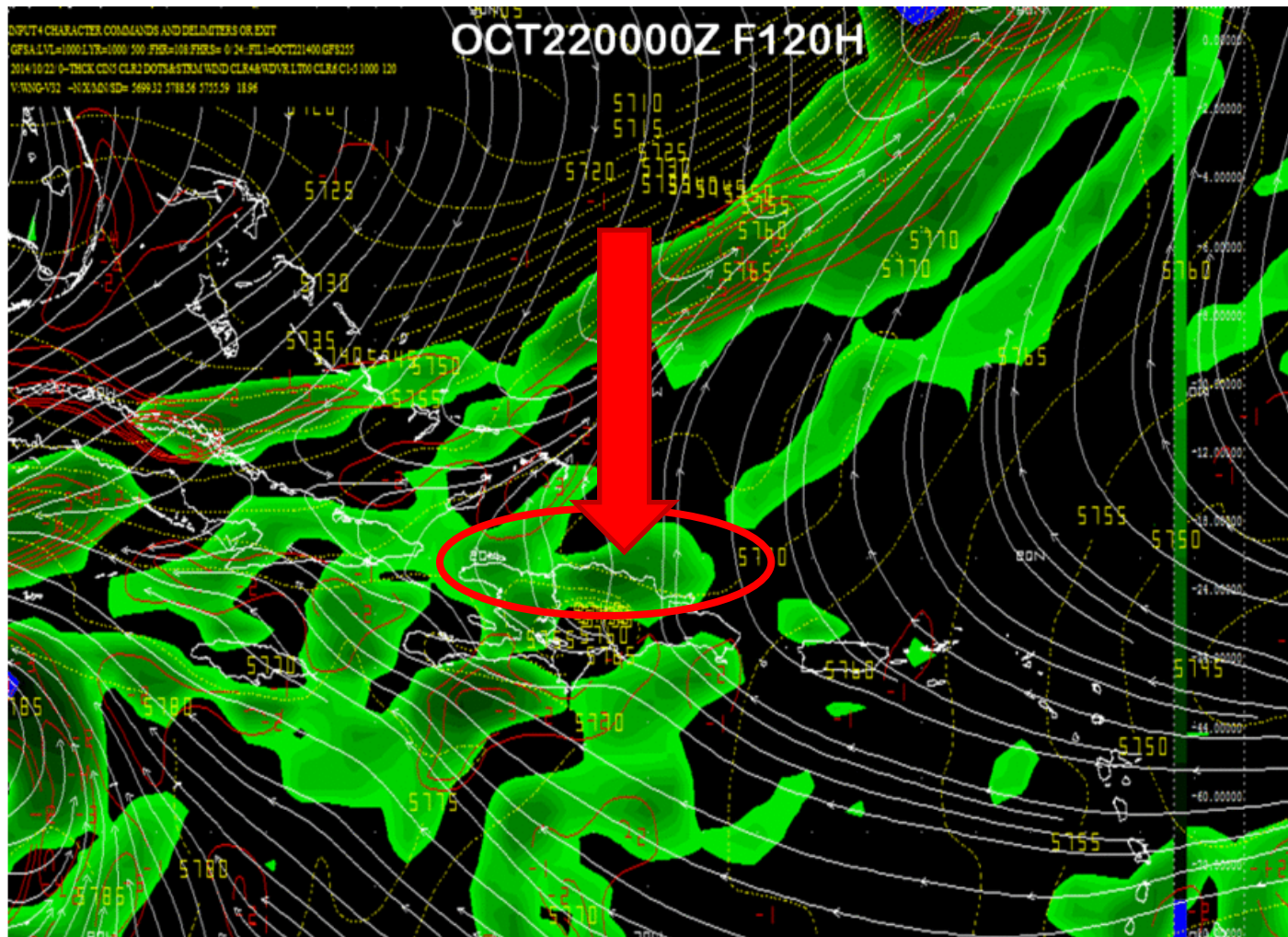
MOISTURE FLUX

POTENTIAL TEMPERATURE

**TEMPERATURE
ADVECTION**



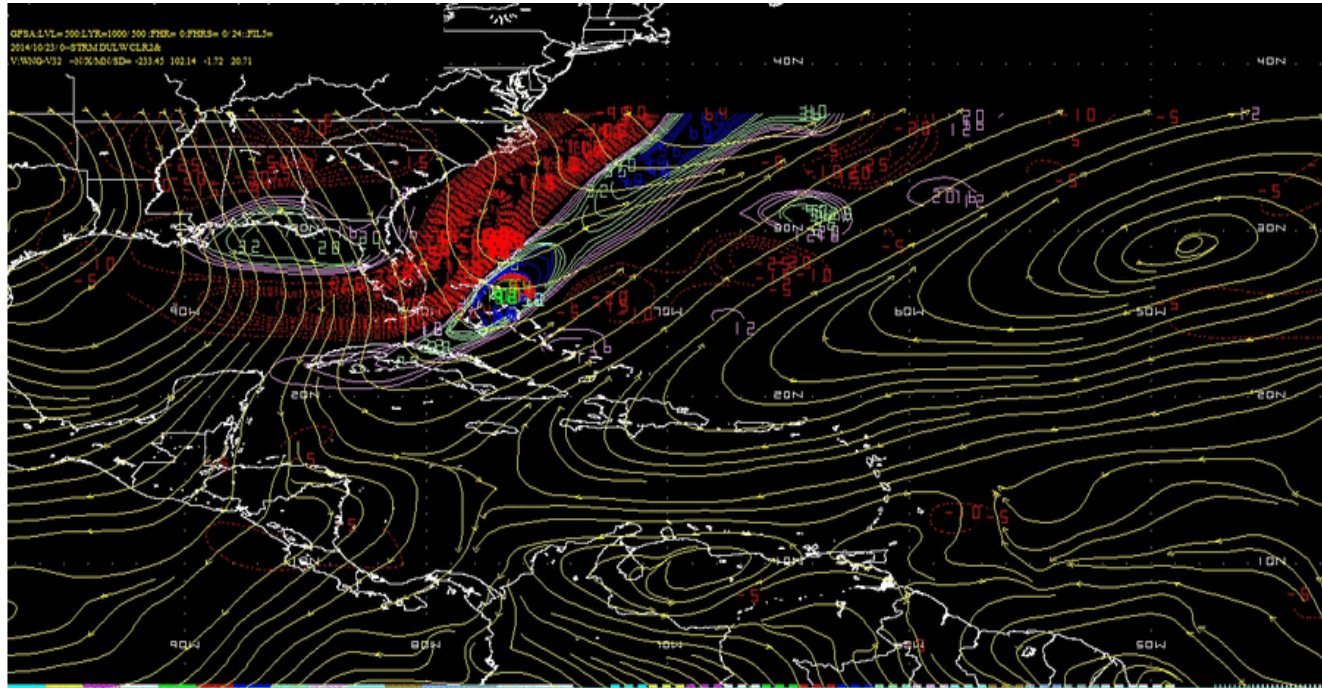
DAILY MOISTURE FLUX CONVERGENCE (MFC) AVERAGED OVER 1000-900 HPA



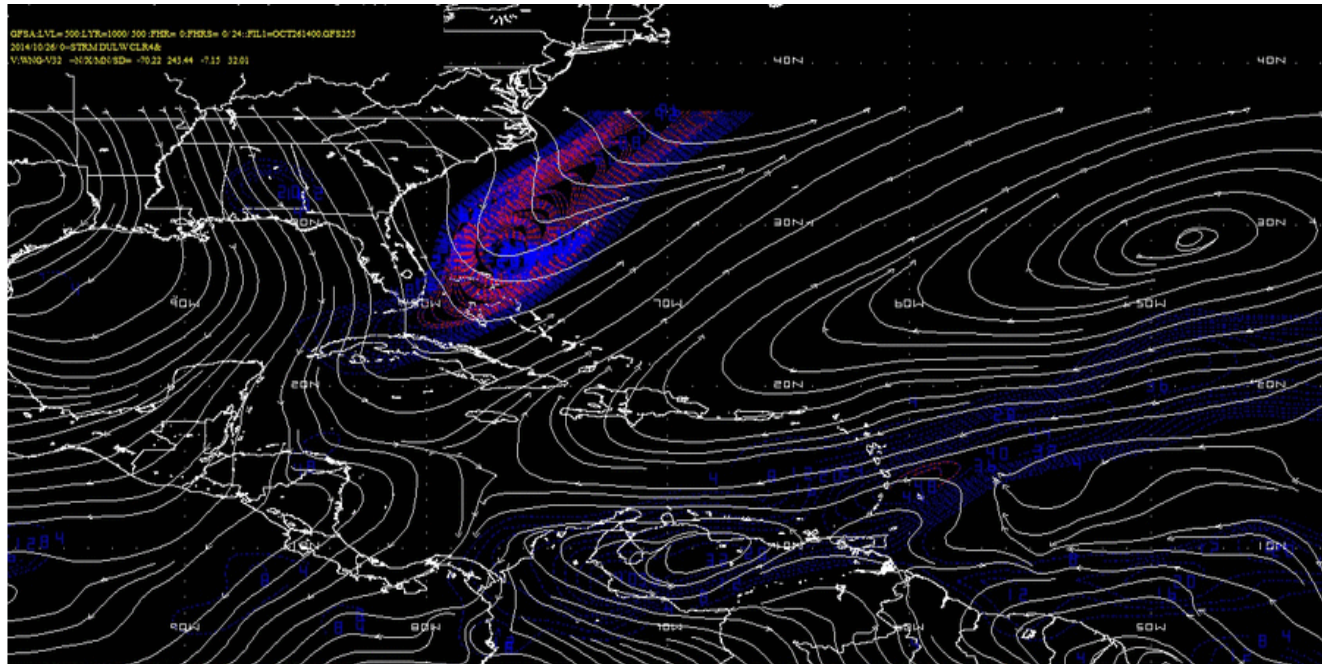
**VORTICITY ADVECTION AND
FLOW INTEGRATED IN A LAYER
FROM 500 HPA TO 200 HPA.**

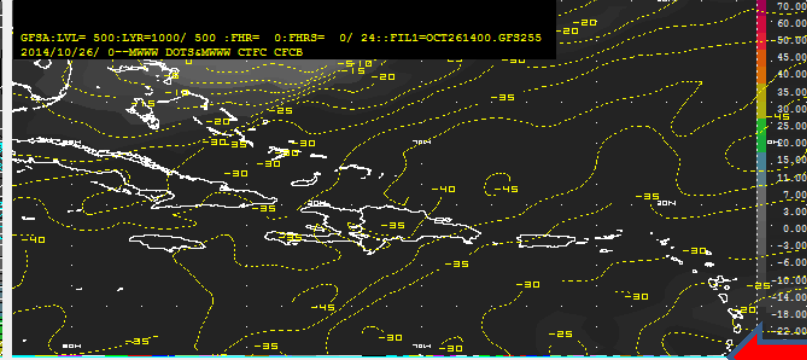
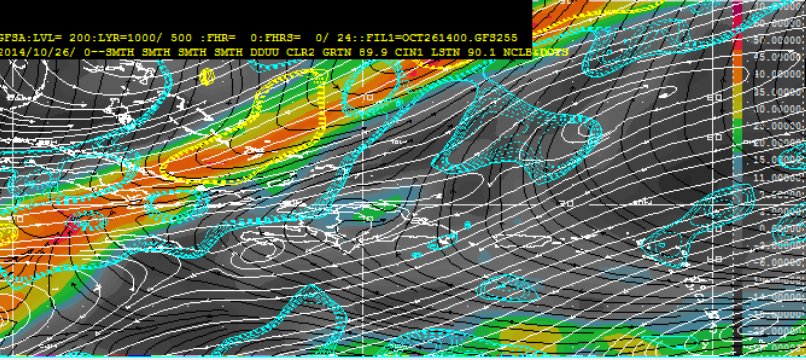
**-RED DOTTED LINES ARE NEGATIVE
ADVECTION (ANTICYCLONIC)**

**-OTHERS COLORS (SOLID LINES) ARE
POSITIVE ADVECTION (CYCLONIC).**

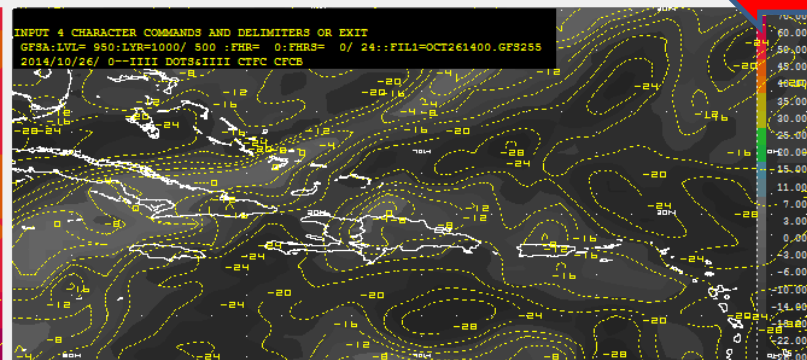
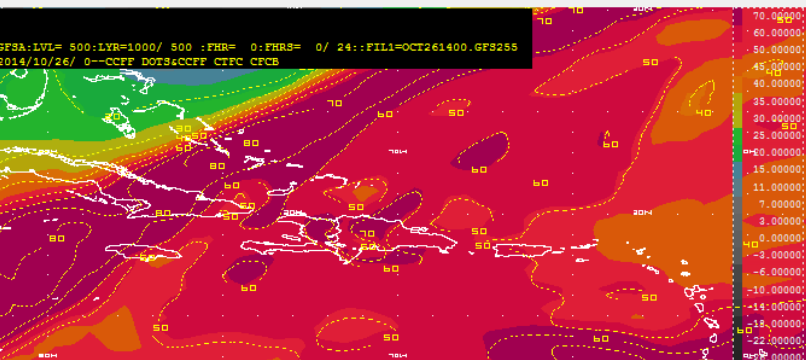


**CYCLONIC VORTICITY AND FLOW
INTEGRATED IN A LAYER FROM
500 HPA TO 200 HPA.**

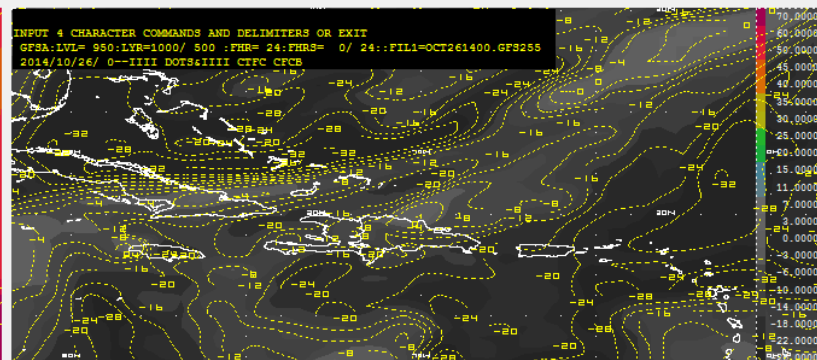
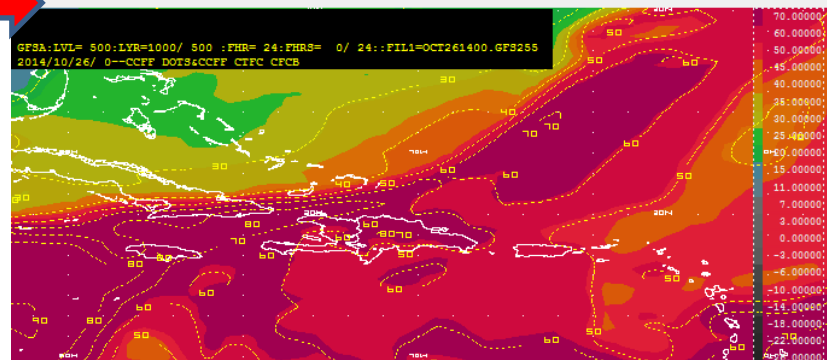
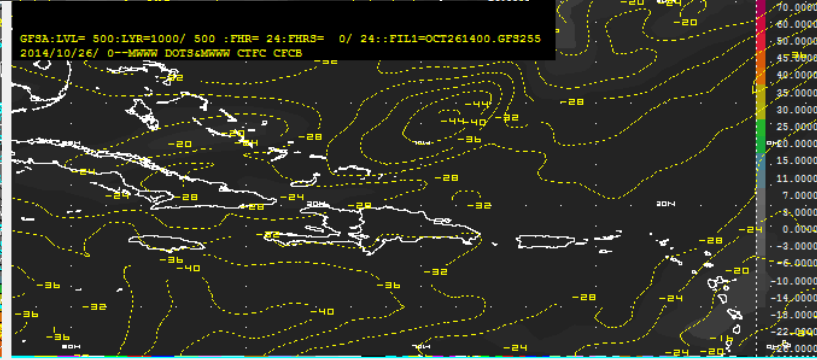
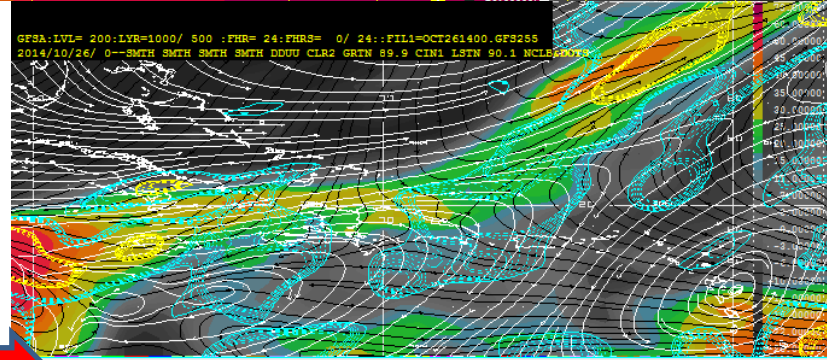




GDI
OCT26
000Z
FOO



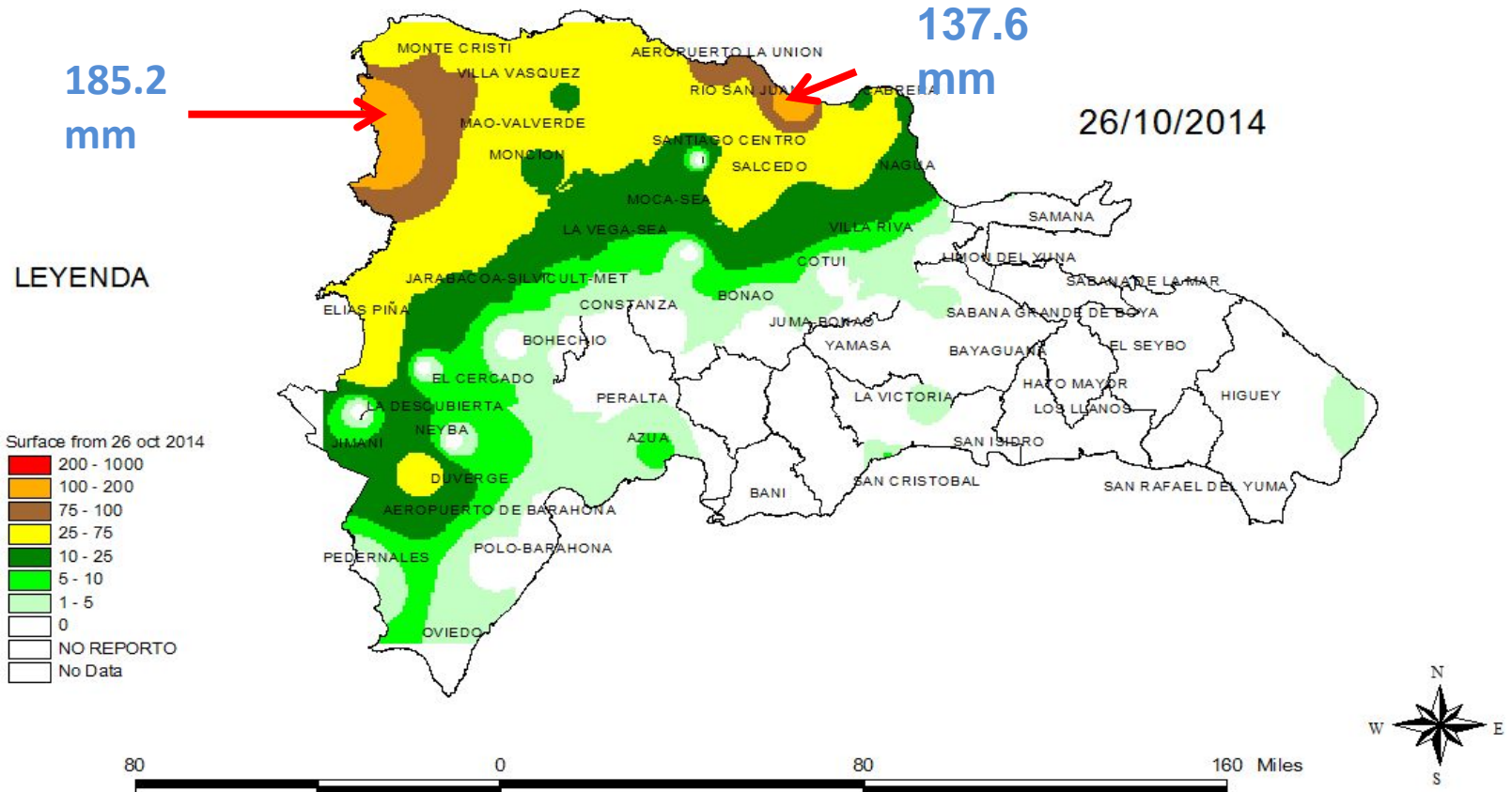
GDI
OCT26
000Z
F24



OBSERVED RAINFALL

OFICINA NACIONAL DE METEOROLOGIA
 Departamento Meteorologia Operativa
 Division de Hidrometeorologia

Registro de Lluvias Acumuladas



CONCLUSIONS

- THE MID LEVEL TROUGH PATTERN PROVIDED VORTICITY ADVECTION THAT RELAXED THE MID-UPPER LEVEL RIDGE AND ASSOCIATED DIVERGENCE ALOFT.
- WARM WATER ANOMALIES IN THE ATLANTIC CAN BE A RELEVANT PARAMETER FOR THIS KIND OF SITUATIONS.
- HIGHER RAINFALL AMOUNTS ARE EXPECTED IN INTERACTION WITH OROGRAPHY.