

WET & HURRICANE SEASON 2017

CLIMATE CHARACTERISTICS

&

MAJOR CLIMATE EVENTS

OVER TRINIDAD & TOBAGO

TO DATE



Trinidad & Tobago
Meteorological Service

Presenter: Marlon Noel

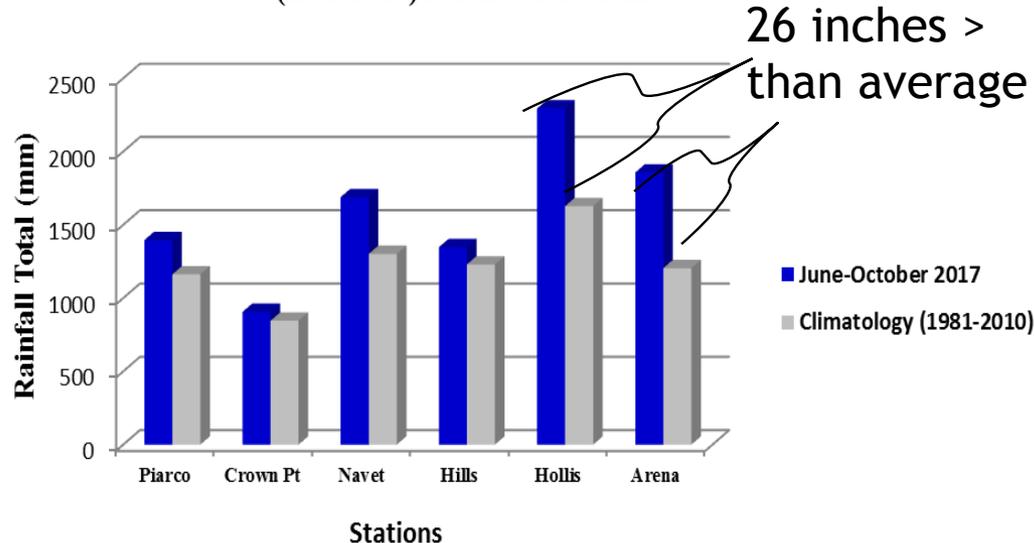
June to October Rainfall Exceeded the Average

Above average rainfall at selected locations.

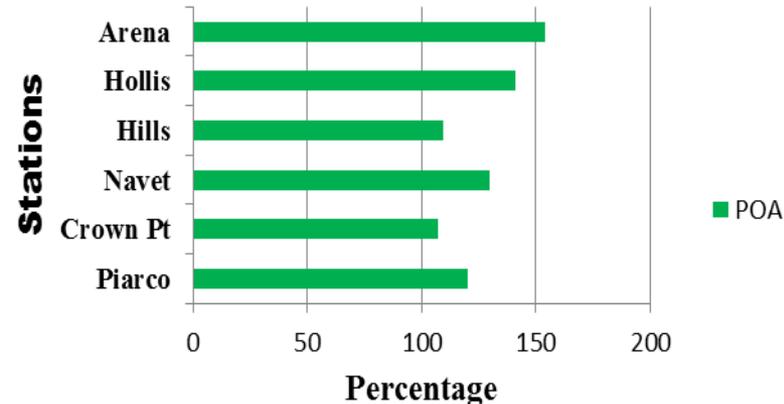
Rainfall : 20-54% more than average in North, Northeast and South Trinidad.

Rainfall is 7-10% more than average in Tobago.

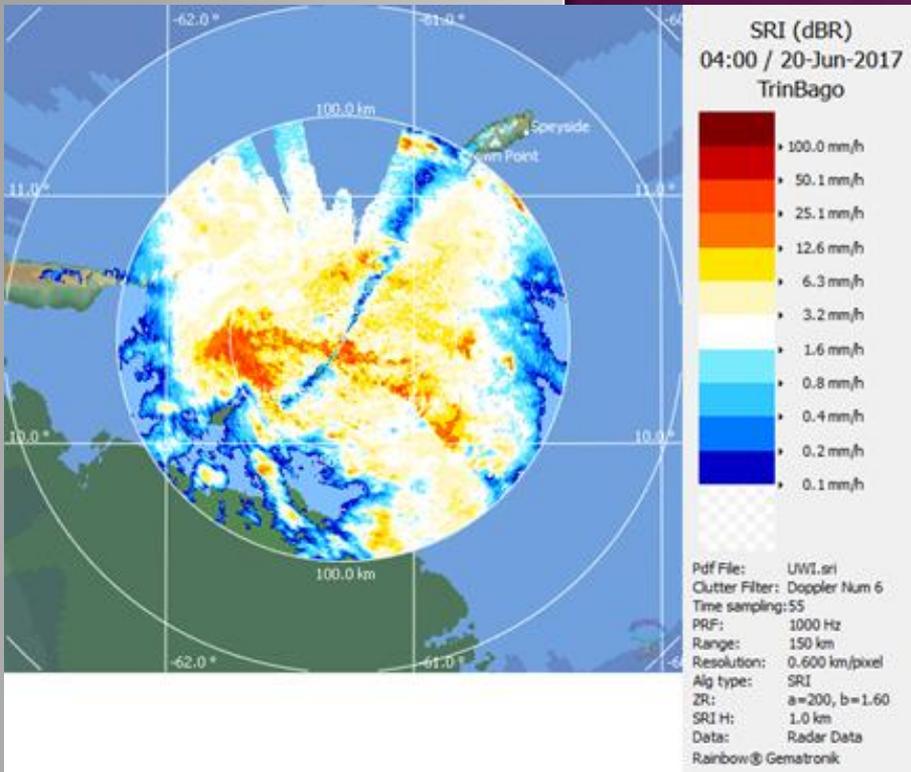
Rainfall Totals June to October 2017 vs June to October Climatology (1981-2010) at Selected Stations



June to October 2017 Percent of Average (POA) Rainfall at Selected Stations

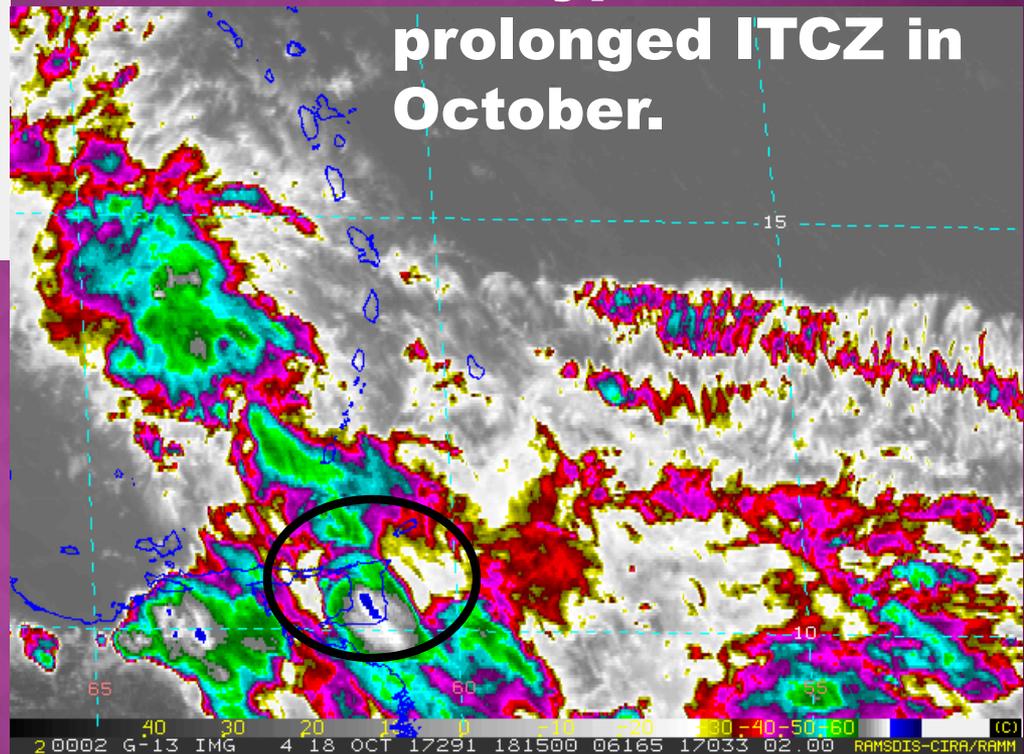


Major Climate Events 2017



2 major severe rainfall events resulted in major disasters

2nd Hyperactive & prolonged ITCZ in October.



1st Tropical Storm Bret in June

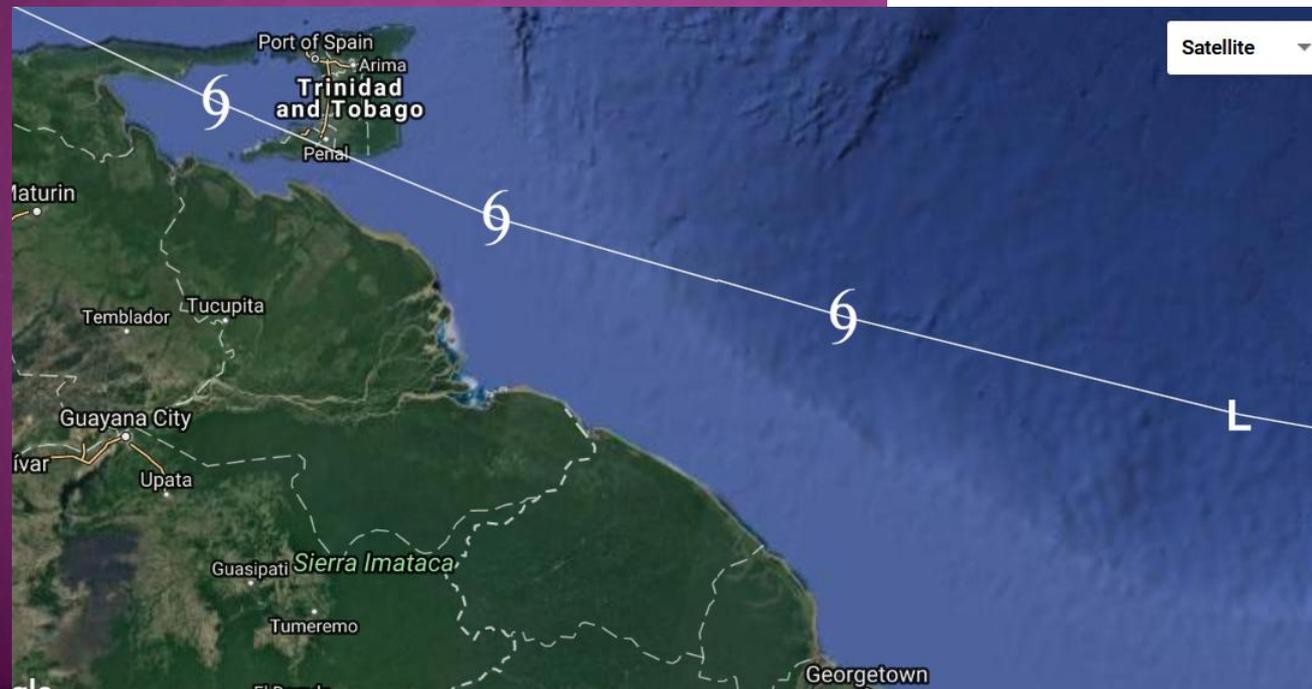
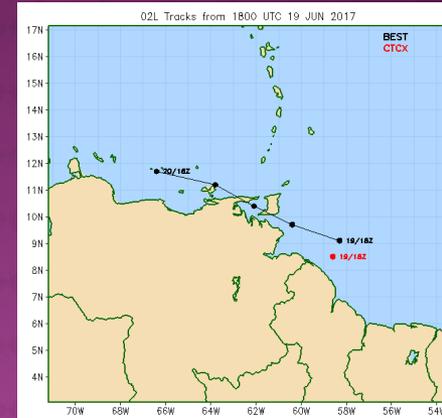
Record Breaking TS Bret

TS Bret formed on June 19, 2017 at 2:00pm (9.1N , 58.3W)

Earliest storm on record to form in the Atlantic MDR

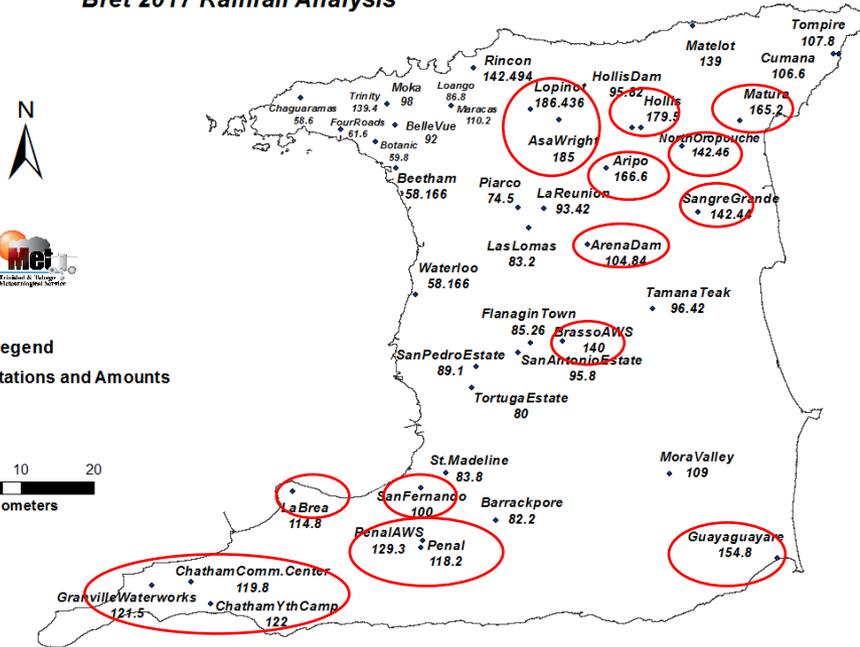
Lowest latitude storm in the month of June since 1933

TS Bret made landfall on Trinidad maximum sustained winds of 65 Km/h

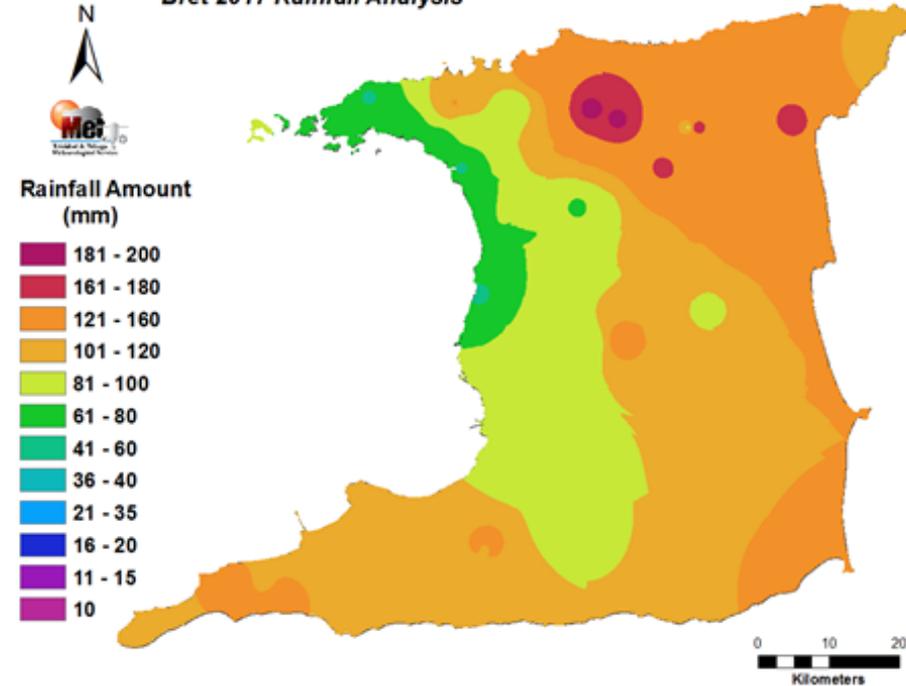


TS BRET RAINFALL REGIONAL CONCENTRATED

Bret 2017 Rainfall Analysis



Bret 2017 Rainfall Analysis

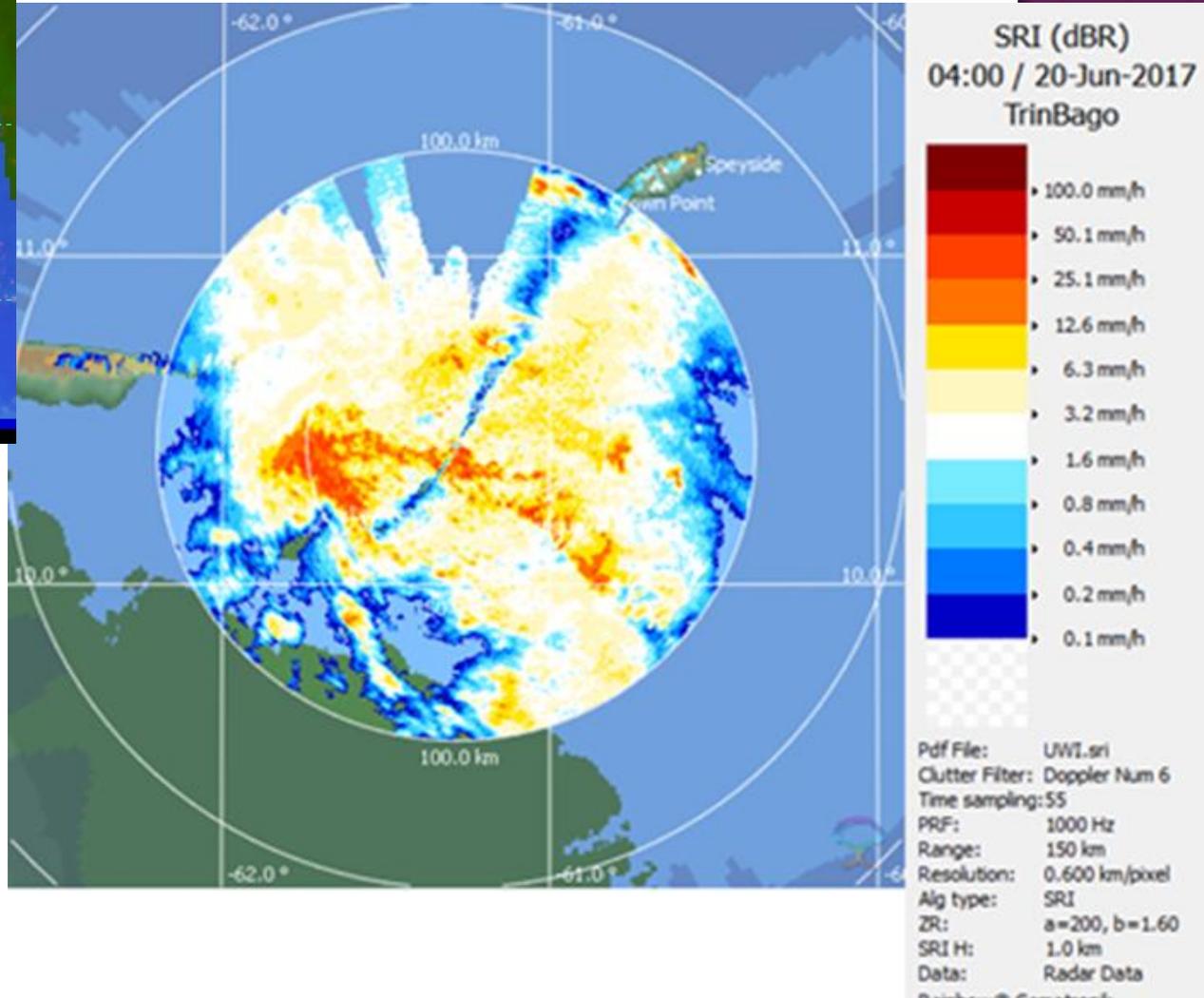
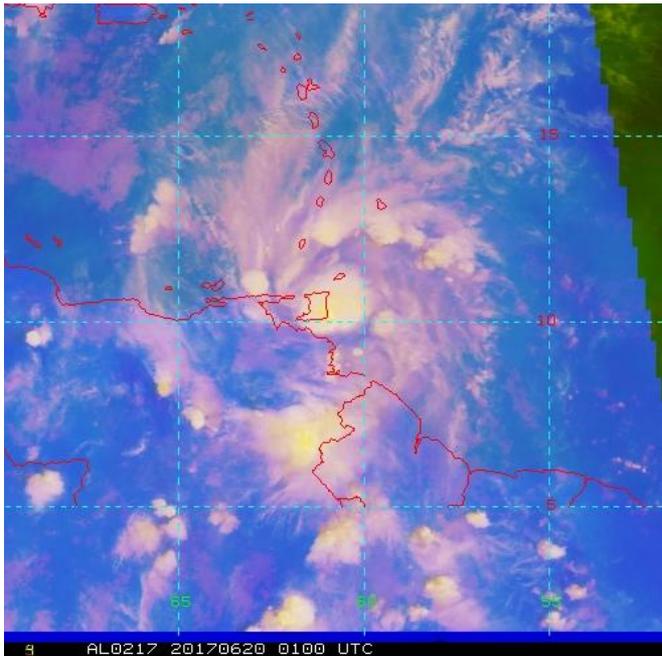


Rainfall totals in excess of 4 inches occurred in number of areas

Rainfall totals close to 7 inches occurred in a few areas:

- ❖ Lopinot 186.4 mm
- ❖ Hollis Quare 179.5 mm
- ❖ Aripo 166.6 mm
- ❖ Guayaguayare 154.8 mm
- ❖ Navet 120.6 mm

TS Bret Significant Rainfall Region Concentrated to Trinidad



COMMUNITIES AFFECTED

1. **ODPM: 400,000 affected by Brett**

[Derek Achong](#)

Published:

Wednesday, June 28, 2017

<http://www.guardian.co.tt/news/2017-06-28/odpm-400000-affected-brett>

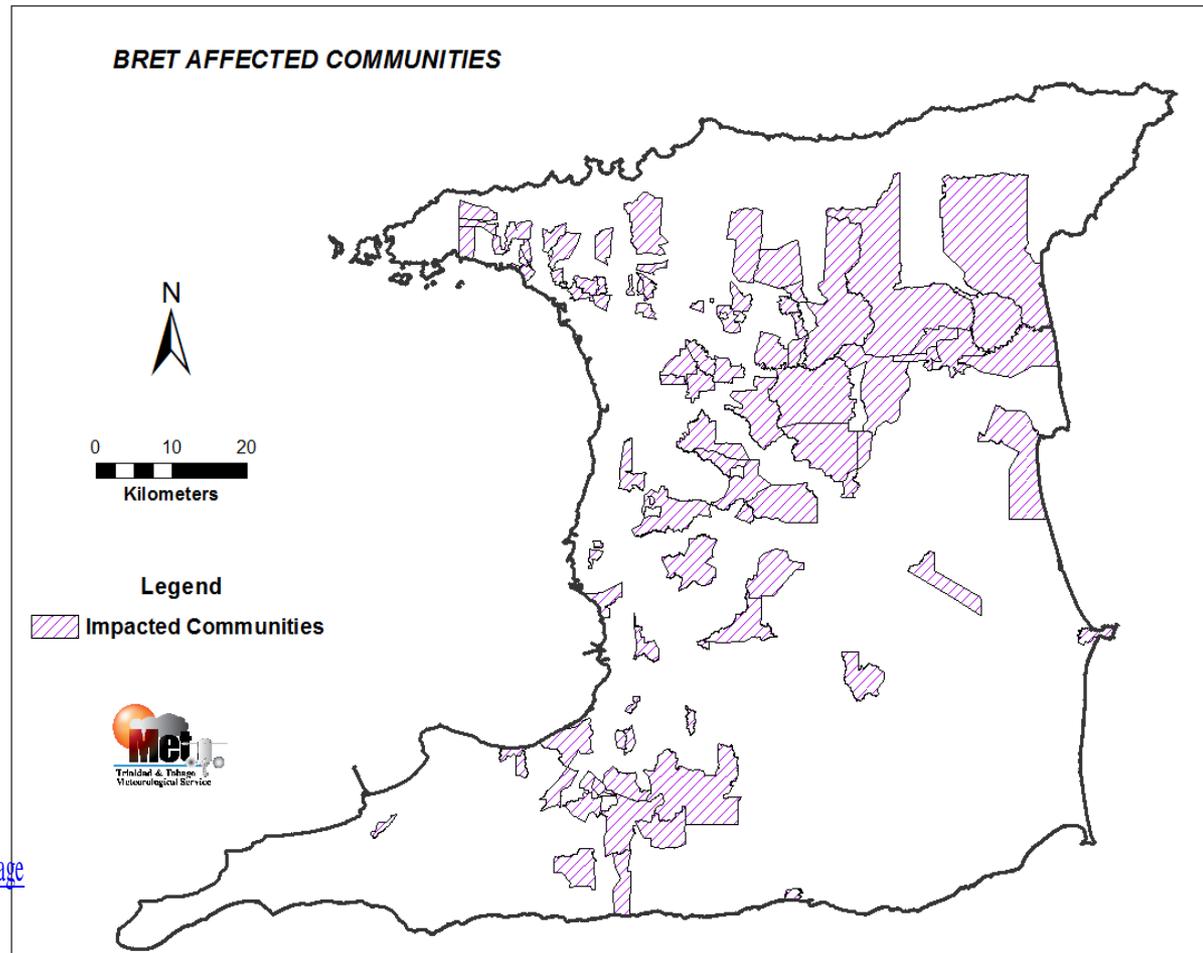
1. **Barrackpore after Bret: \$millions in damage**

Published on Jun 20, 2017, 12:49 pm AST

By [CarolynKissoon](#) Multimedia Desk

South Bureau

<http://www.trinidadexpress.com/20170620/news/barrackpore-after-bret-millions-in-damage>



1. **South Trinidad worst hit by Bret**

<http://www.cnc3.co.tt/news/south-trinidad-worst-hit-bret>

COMMUNITIES AFFECTED

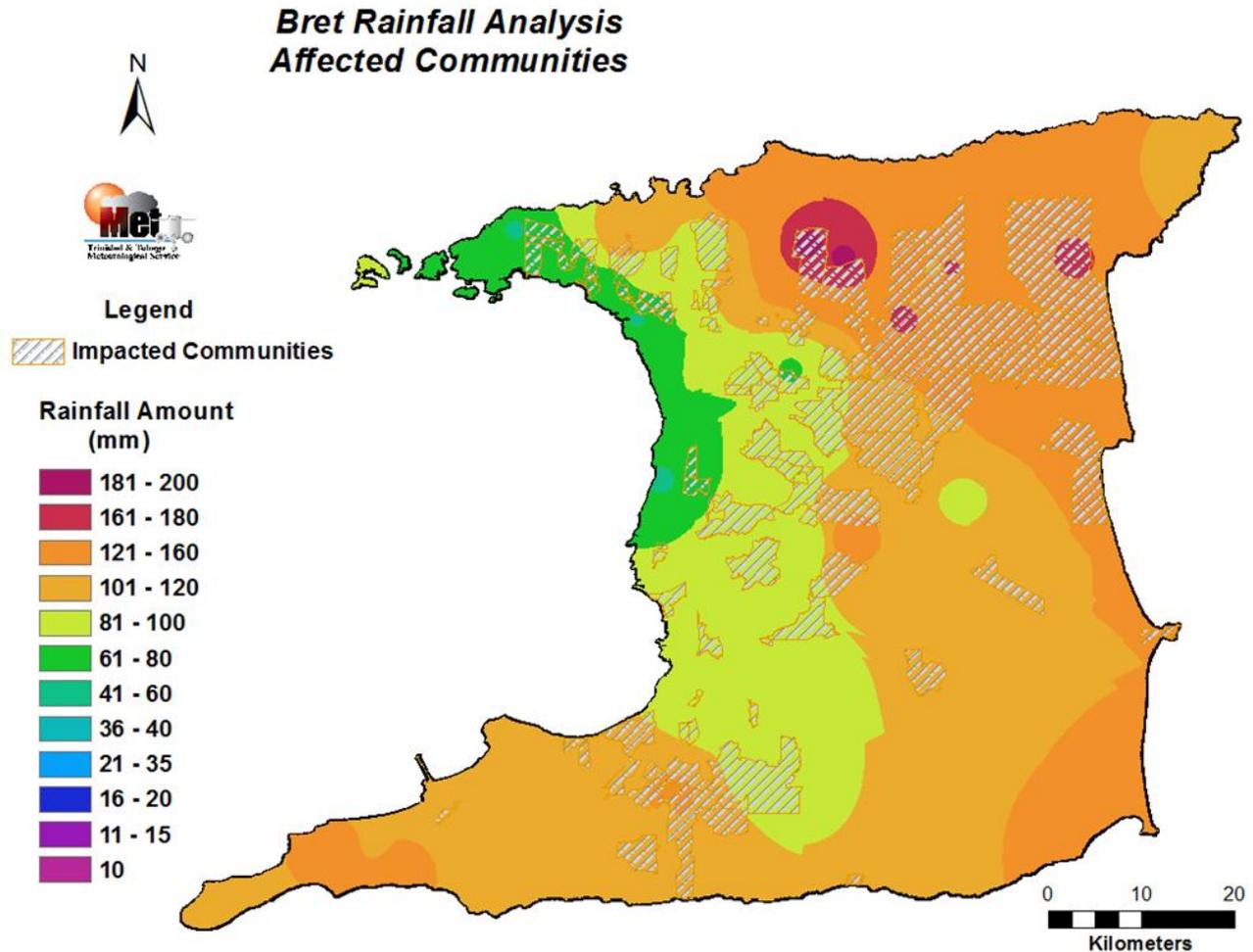
Widespread flooding

Multiple downed trees, downed power lines

Multiple reports of damaged roofs and homes

Widespread power outages

2 Deaths



Images of Flooding



Image Courtesy: CNC 3 Television (Alvin Birbal of Barrackpore)

BIG LIME BOX  **\$49⁹⁹** 1 SPICY SAND 2PC CHICKEN 2 REG. SIDE 2 MEDIUM. DR

Home

\$9M paid out for Bret damage so far

   Like 69

Kalifa Clyne

Published: Sunday, August 6, 2017

While the damage from Tropical Storm Bret is still racking up a bill, approximately \$9 million dollars in grants have already been paid by Government to assist citizens in the aftermath of the storm, which pummelled the nation in June.

The grants have been paid mainly by the Ministry of Social Development and Family Services and the National Commission for Self Help Ltd.

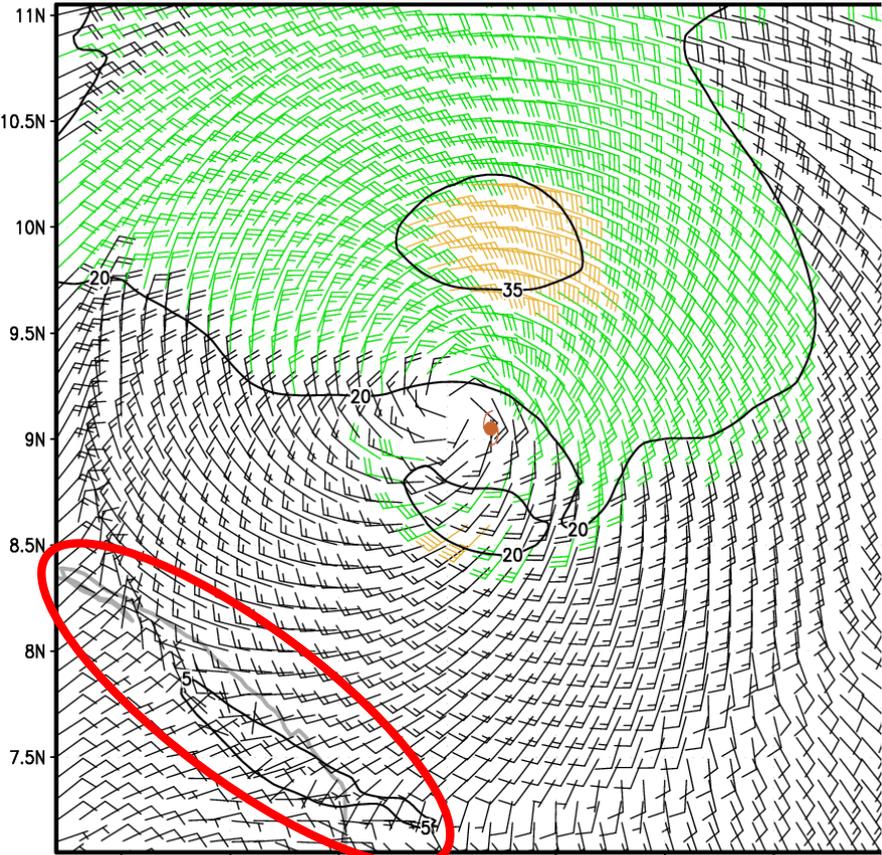


Videsh Sirjoo salvages a tank of cooking gas from his flooded apartment at Caparo during Tropical Storm Bret. PHOTO: MICHEAL BRUCE

PRELIMINARY POST ANALYSIS

AL0217

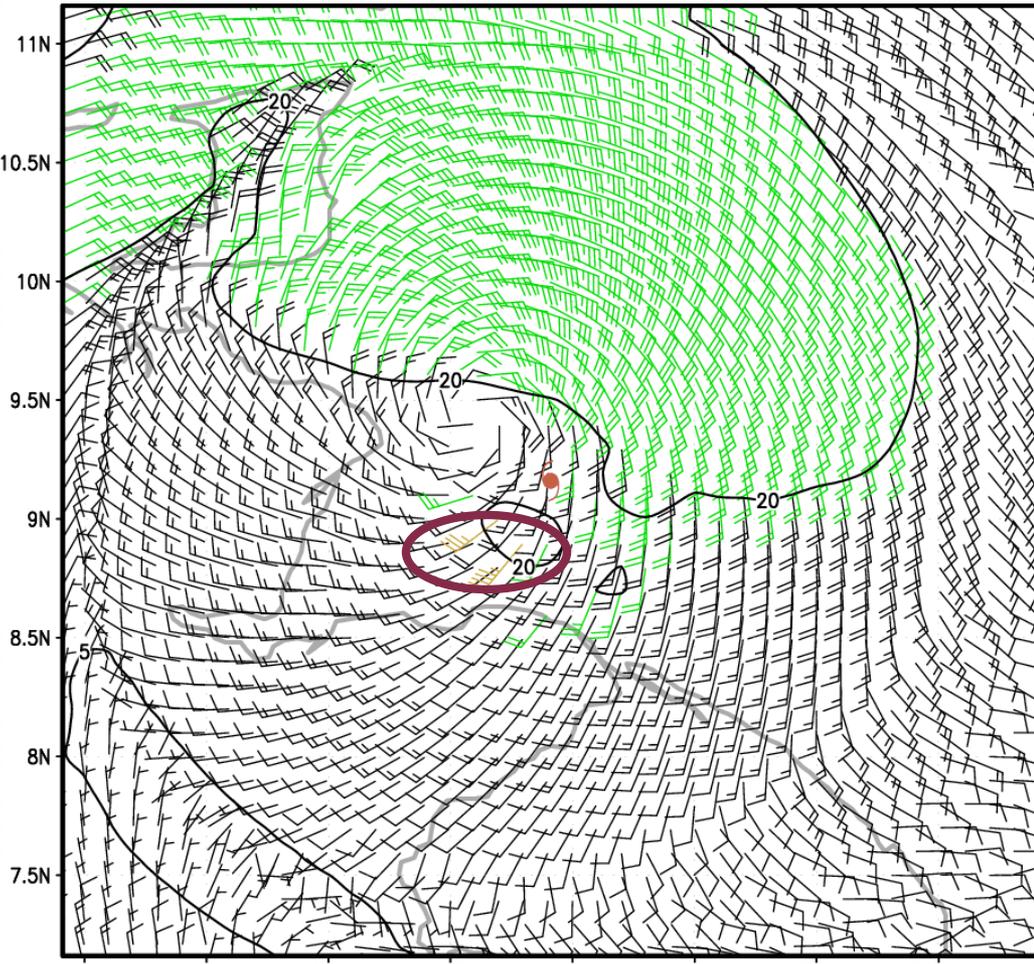
TWO 2017 19 Jun 18UTC



QUA	59.5W	59W	58.5W	58W	57.5W	57W	56.5W	56W
R34	75	35	35	75	VMAX Input for IR Winds = 37			
R50	0	0	0	0	VMAX = 48 kt MSLP = 1000.0 hPa			
R64	0	0	0	0	RMW = 30 nmi BEARING = 180 degr			

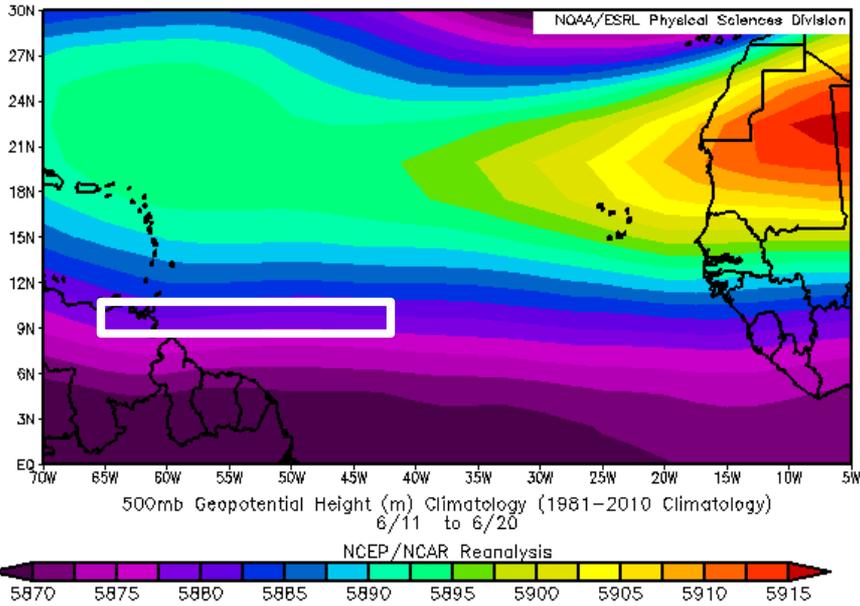
AL0217

BRET 2017 20 Jun 00UTC

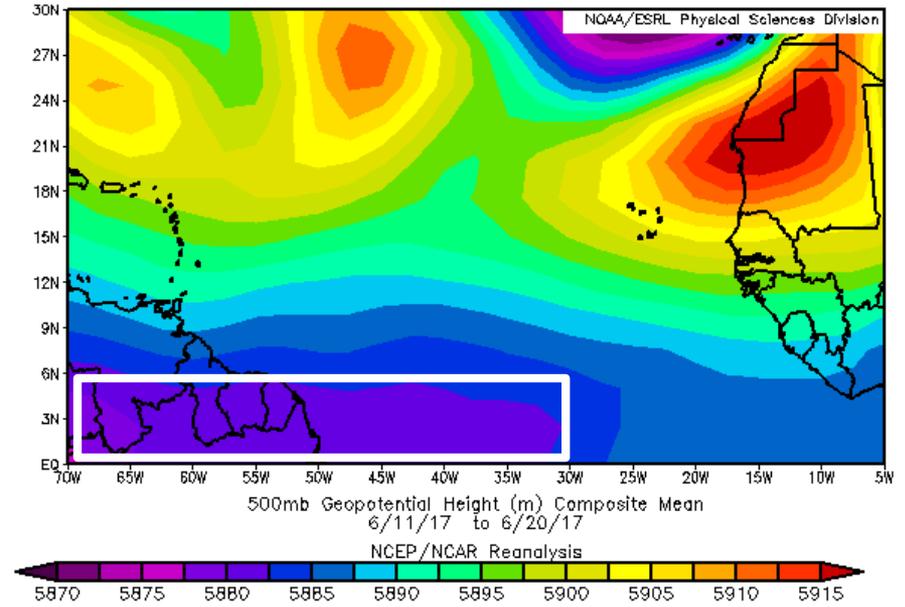


QUA	62W	61.5W	61W	60.5W	60W	59.5W	59W	58.5W
R34	75	35	20	75	VMAX Input for IR Winds = 36			
R50	0	0	0	0	VMAX = 44 kt MSLP = 1002.1 hPa			
R64	0	0	0	0	RMW = 21 nmi BEARING = 200 degrees			

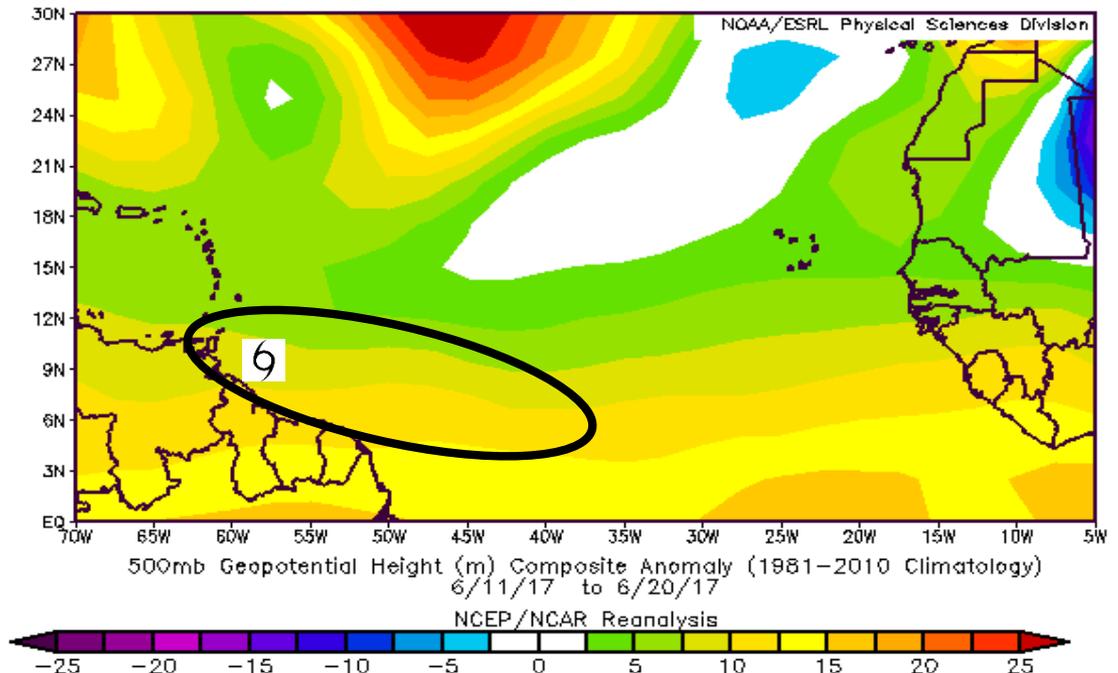
NASH 500mb Geo-potential Height Climatology June 11-20

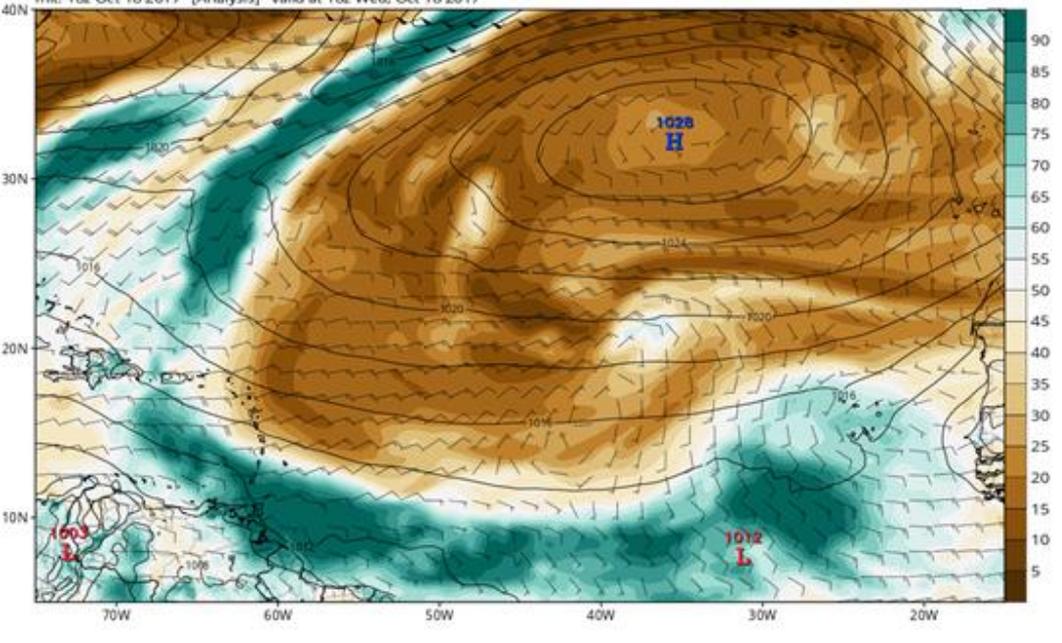


5880 geo-potential much further south than usual in 2017



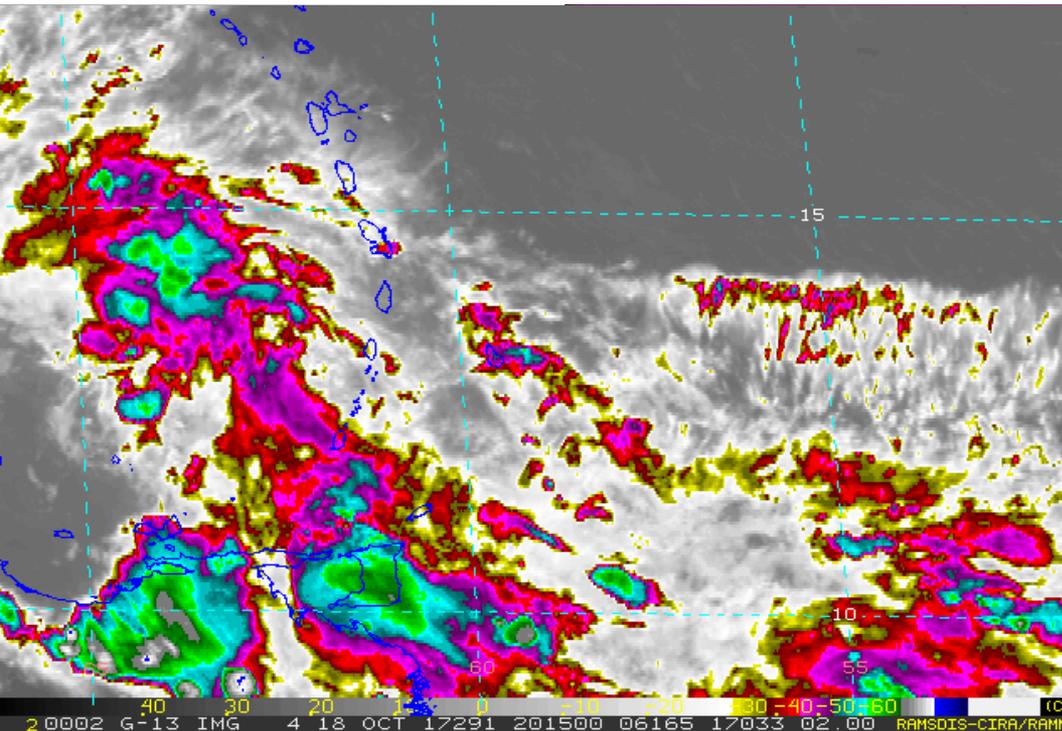
Much higher than usual 500mb Gph near T&T, suggesting stronger than usual North Atlantic Sub-Tropical High present. Difference between climatology and actual shows positive.





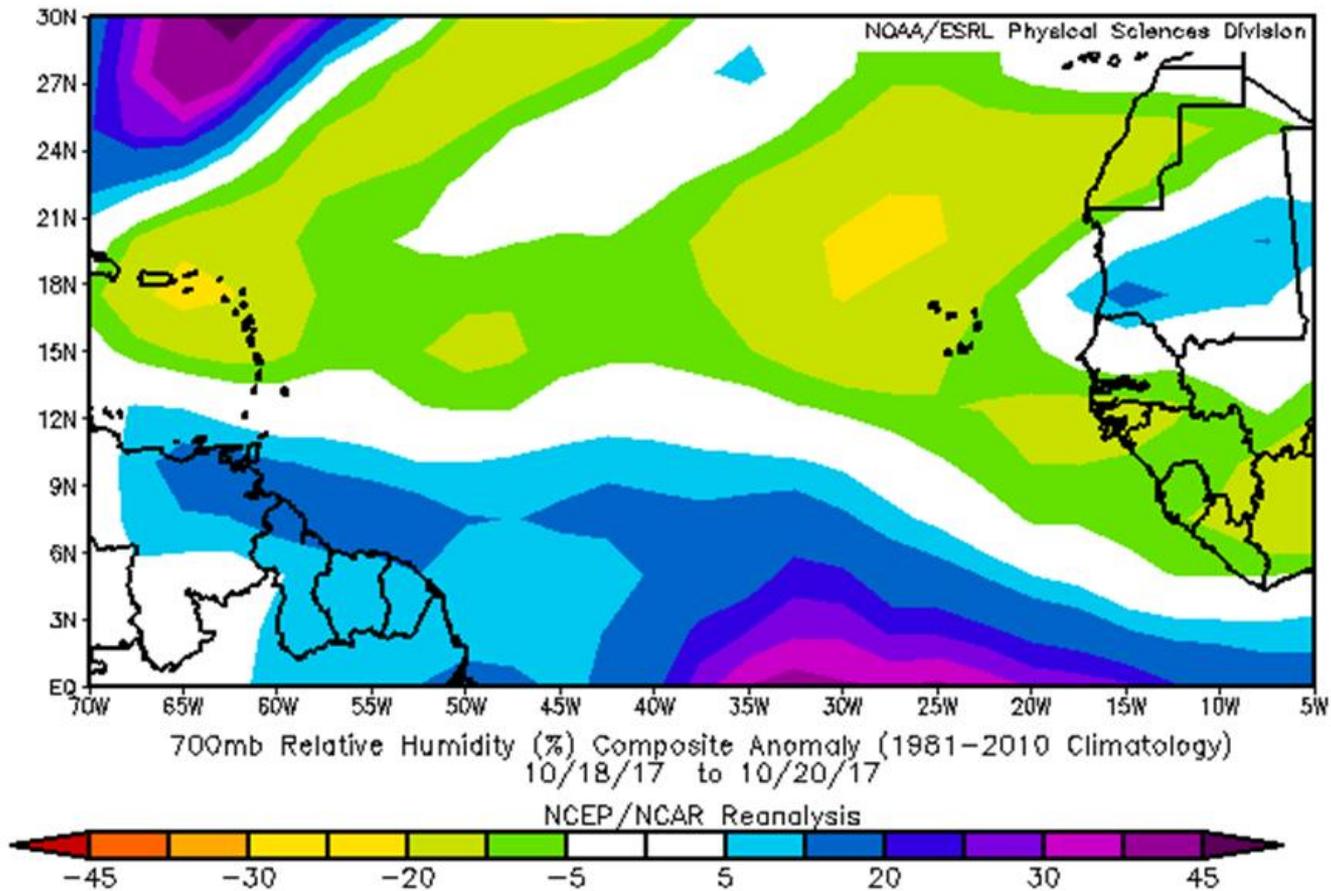
Prolonged ITCZ Event October 18-20, 2017

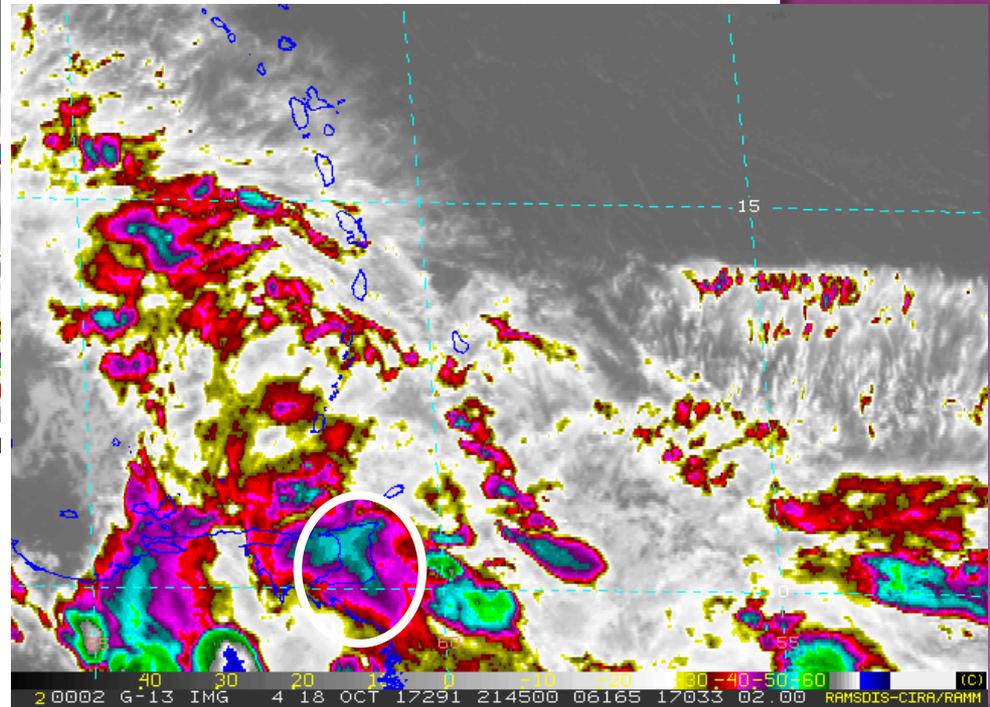
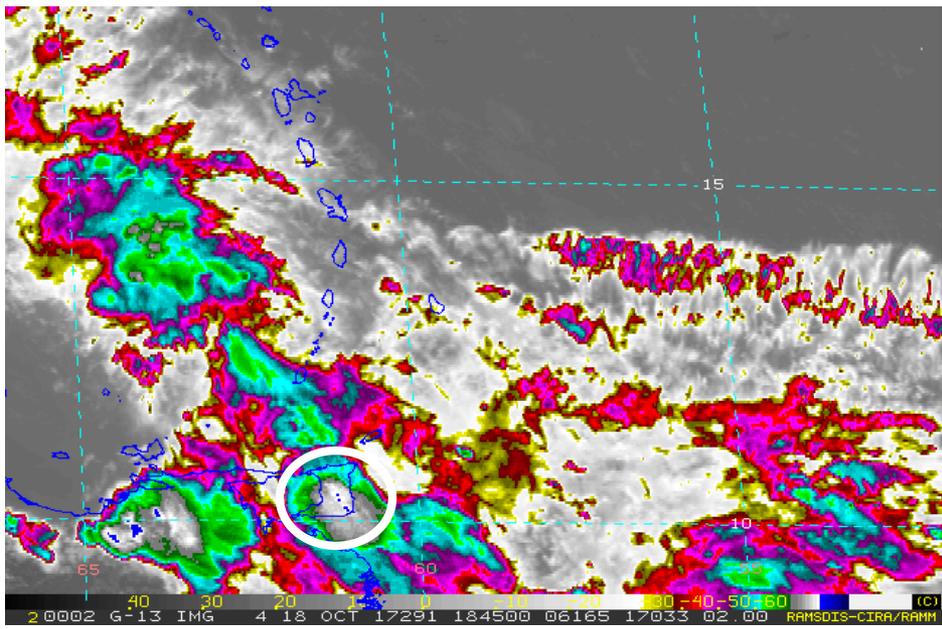
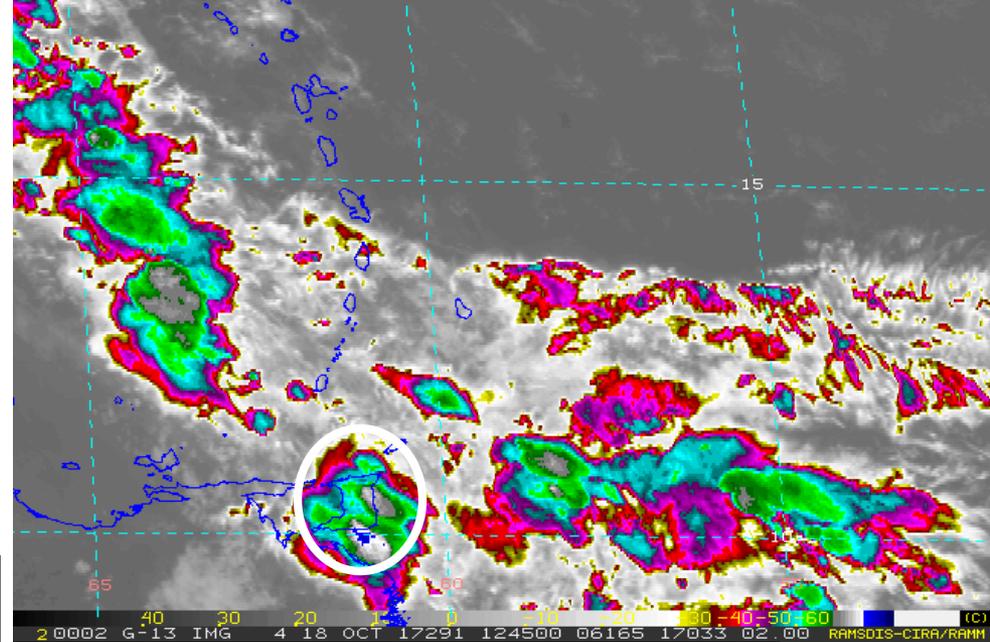
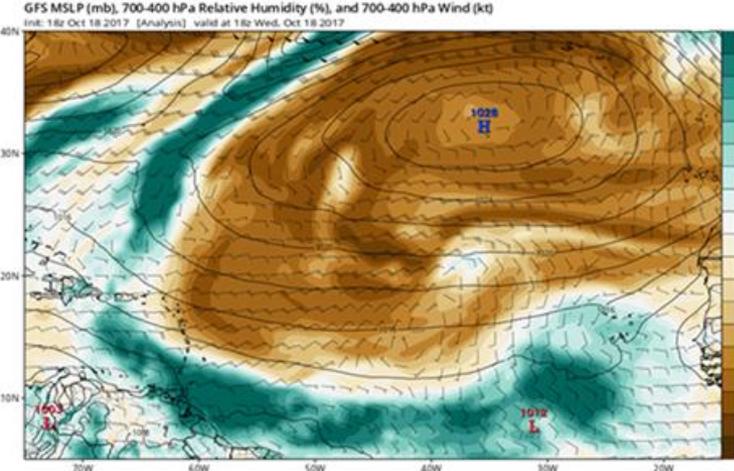
**Synoptic-scale river of
anomalously moisture flow
towards Trinidad and
Tobago**



**Deep, severe and prolonged
convective activity associated
with the ITCZ**

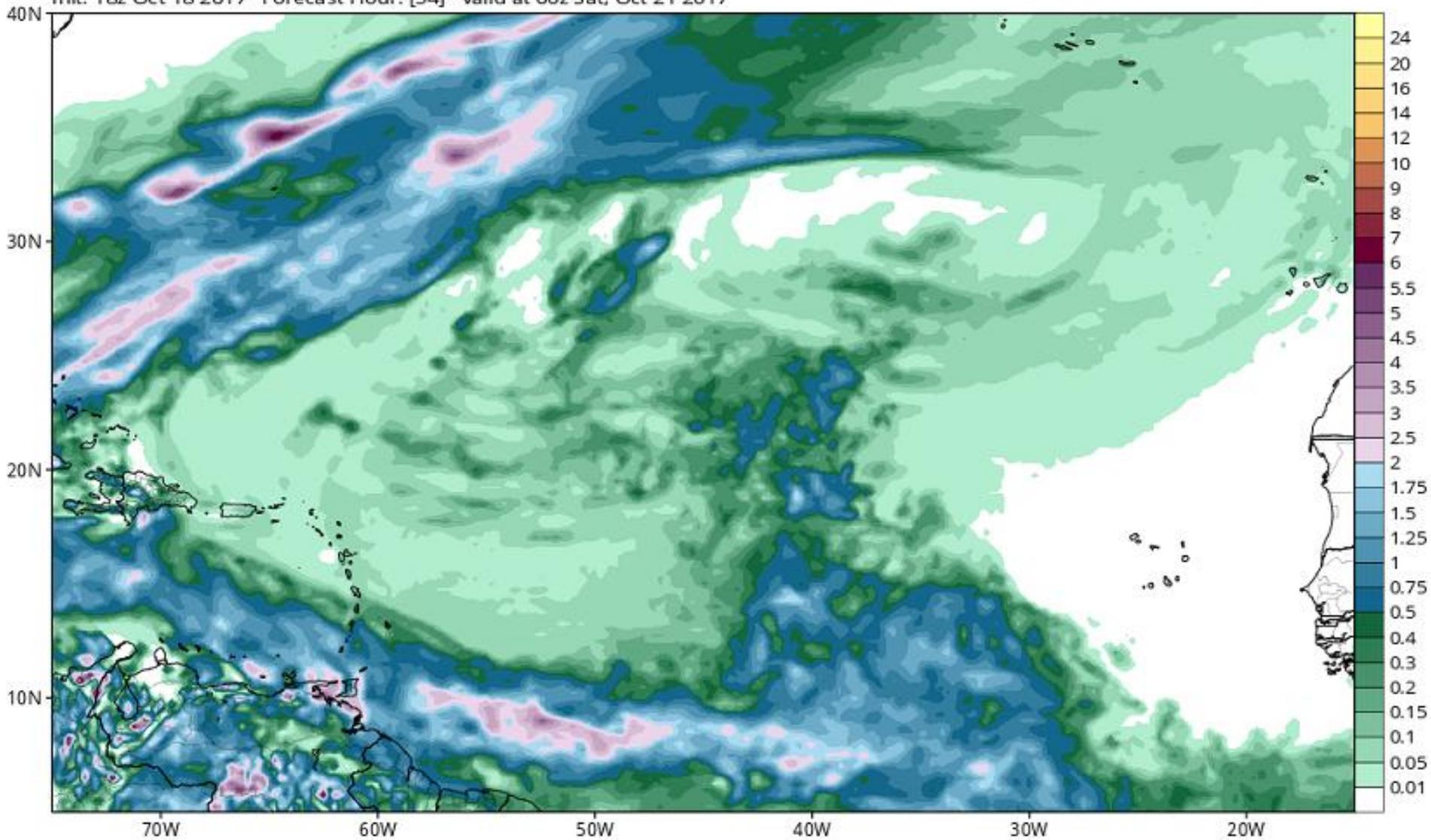
Anomalous Deep Layer Pregnant With Copious Moisture





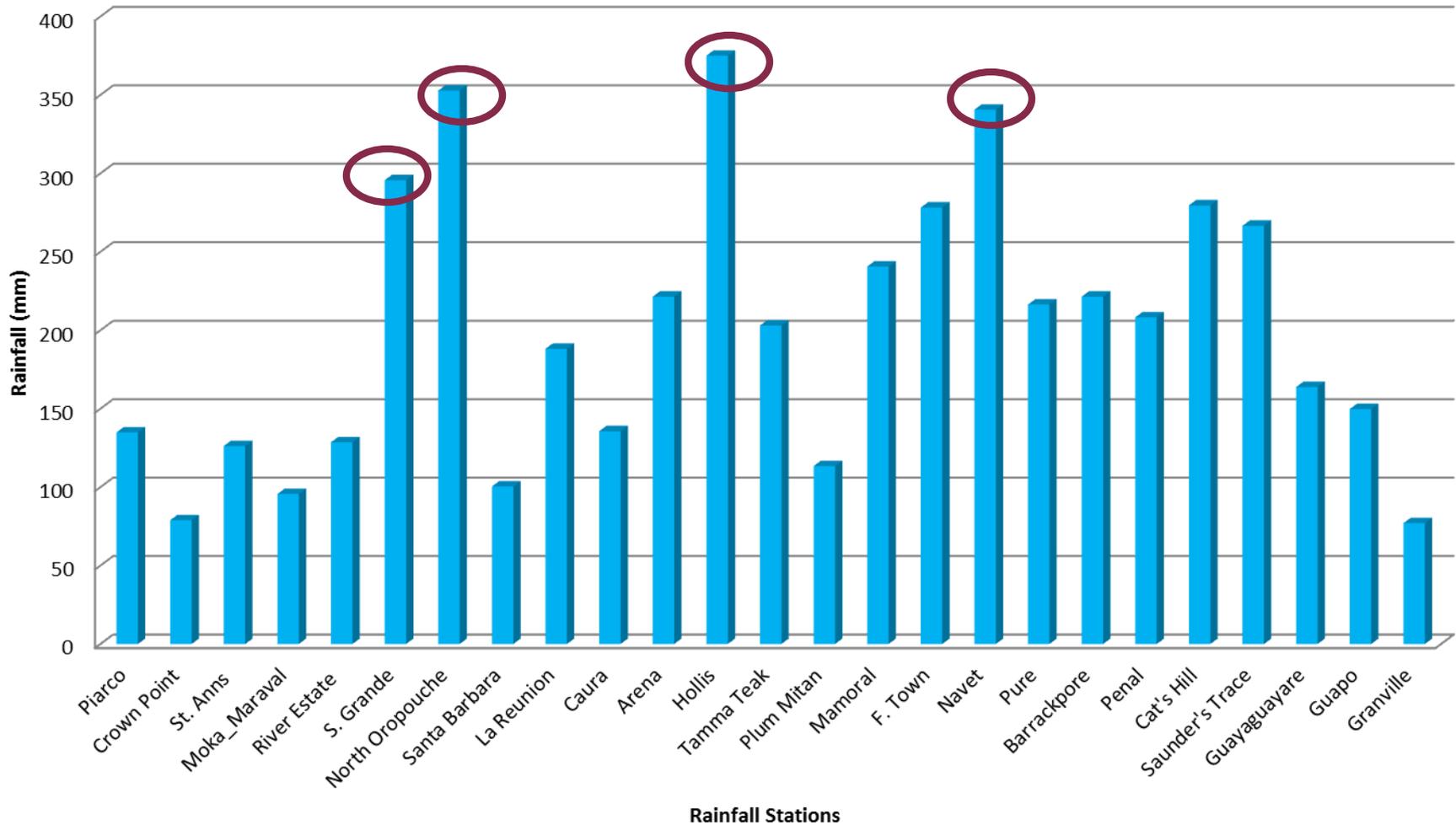
GFS Total Accumulated Precipitation (inches) from 18z18Oct2017 to 00z21Oct2017

Init: 18z Oct 18 2017 Forecast Hour: [54] valid at 00z Sat, Oct 21 2017



Record Breaking Rainfall: 200 Year Return Period in Some Locations

**3-Day Accumulated Rainfall Total (October 18-20, 2017)
Selected Stations in Trinidad and Tobago**





THE GREAT FLOOD OF 2017



HOMES BECAME POOLS

THE GREAT FLOOD OF 2017



YARDS BECAME DIVING POOLS

THE GREAT FLOOD OF 2017



Streets Became Rivers

Lessons Learnt From TS Bret & The Great Flood Of 2017

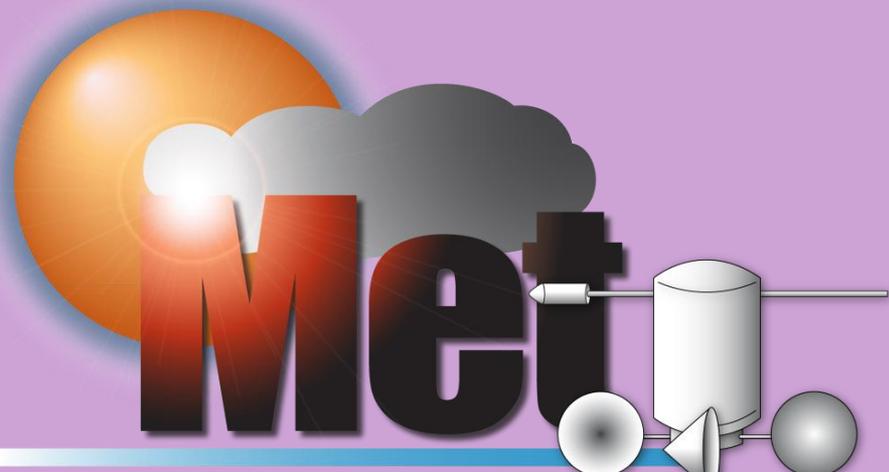
TTMET Early warning system performed reasonably well.

Local meteorologists:

- ◉ Need to pay particular attention to perturbations forming at low latitudes and embedded in the ITCZ.**
- ◉ Local meteorologist must pay attention to deep-layered river-like moisture flow associated with the ITCZ.**
- ◉ Antecedent conditions are critical in providing impact based forecasting.**
- ◉ When in doubt err on the side of caution.**
- ◉ There is still a significant amount of uncertainty forecasting tracks of Tropical Storms.**
- ◉ Flooding continues to be the country's main hydro-meteorological hazard.**

CONCLUSION

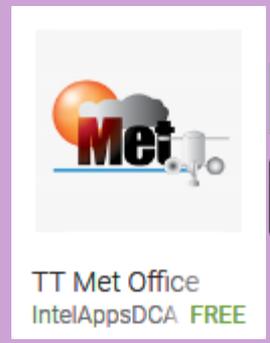
- ◉ **Prolonged intense rainfall events easily overwhelms existing drainage infrastructure in T&T.**
- ◉ **Despite increased hydro-climatic stressors, business-as-usual behaviours continue among some citizens.**
- ◉ **Increasing Trinidad and Tobago's resilience to high impact extreme weather and climate events remains a priority for T&T.**
- ◉ **These event provide opportunities to investigate ways of increasing the country's resilience to climate stressors.**



Trinidad & Tobago
Meteorological Service

www.metoffice.gov.tt

Feedback: metfeedback@gov.tt



THANK YOU