



## **PREAMBLE**

The Atlantic Basin Hurricane Season of 2005 goes down in history as a unique and record breaking one. Many first time meteorological and meteorological related events occurred during this unique season. The twin island Republic of Trinidad and Tobago experienced record breaking waves of four (4) to five (5) metres pounding our coastline. Extreme midday and early afternoon flooding episodes became the norm for a greater part of the season. Trinidadians love to say that God lives here but this time around they believed that he probably took a small vacation.

## **INTRODUCTION**

Trinidad and Tobago saw a late start to the 2005 dry season with weather advisories being issued up to the 20<sup>th</sup> January. There was also an early start to the rainy season with the first severe weather bulletin being issued on the Sunday 29<sup>th</sup> May.

Bulletins were issued for four tropical depressions and one major hurricane that impacted on our shores. Bulletins were also issued for two rough-seas events and many other severe weather and flooding events due to land/sea relationship.

Over the entire six month Hurricane Season the monthly mean temperature was higher than the Long Term Mean (LTM). June, July, and August recorded a mean temperature 0.9°C higher than the LTM for the respective months. September mean temperature was 1.3°C higher than the LTM. There was a complete breakdown in the wind-field, with the monthly mean wind being less than the LTM for all months of the season.

## **SYSTEMS AND THEIR IMPACTS**

Before proceeding further there is need to highlight weather activities in January of 2005. Trinidad and Tobago experienced some torrential and persistent rainfall in January up to the 20<sup>th</sup>. From the 7<sup>th</sup> to the 20<sup>th</sup> more than 26 bulletins were issued for flash flooding, riverine flooding and mudslides/landslides.

The Trinidad and Tobago Meteorological Services issued its first Severe Weather Bulletin, for the 2005 season, three days before the start of the official Hurricane Season. A moderately active tropical wave with favourable upper level support passed over the twin island state. This resulted in heavy showers and thundershowers over Tobago for

about six hours. No major flooding occurred but street and flash flooding were reported in some areas.

During the month of June there were a couple occurrences of severe weather both associated with the ITCZ . These occurred on the 4<sup>th</sup> and 29<sup>th</sup> with Tobago and parts of Northern Trinidad being most affected in the first instance and Southern Trinidad by the latter. Some flooding, landslides and fallen trees associated with wind gusts were the main effects. Sixteen bulletins were issued during this month.

**Hurricane Emily: see figures 1, 2 and 3**

The TTMS issued the first Information Bulletin on TD#5 at 8:15 a.m. on Monday 11<sup>th</sup> July. At this time the depression was located near 10.8°N latitude and 43.6°W longitude, and moving west near 19 km\h.

Information Bulletin #3 issued at 6 a.m. on 12<sup>th</sup> July indicated that Emily was now a Tropical Storm. At this time Emily was located 1360 km east of the Windward Islands moving west at 24 km\h.

The first Advisory issued at 11 a.m. placed Tobago under a Tropical Storm (TS) Watch and Grenada and its Dependencies under a Hurricane Watch. At 6 p.m. Tobago was placed under a TS Warning and a Hurricane Watch. Advisories were now being issued every 6 hours.

At midnight of the 12<sup>th</sup>, Tobago was placed under a Hurricane Warning and Trinidad under a TS Warning and Hurricane Watch. At this time TS Emily was about 720km east of Trinidad moving westward at 32 km\h.

At 3 p.m. on Wednesday 13<sup>th</sup> the islands were placed under TS Warnings since Emily was forecast to remain a TS while passing over these islands.

Tropical Storm Advisory #10 issued at 11:15 p.m. indicated that Emily had intensified into a hurricane and was now located 72 km NNW of Tobago. A Tropical Storm Warning remained in effect for Trinidad and Tobago while the TS Warning for Grenada and its Dependencies was upgraded to a Hurricane Warning.

At 5:10 a.m. on Thursday 14<sup>th</sup> July Tropical Storm Warnings were discontinued for Trinidad and Tobago but the Hurricane Warning remained in effect for Grenada and its Dependencies.

Hurricane Advisory #4 issued at 11:10 a.m. on 14<sup>th</sup> July was the last bulletin issued by the TTMS on Hurricane Emily. At this time the Hurricane Warnings for Grenada and its Dependencies were discontinued.

The passage of Hurricane Emily caused widespread devastation including flooding and landslides. About eighteen hours before the passage, the Prime Minister correctly advised

the nation that business owners should send their employees home, schools were also closed early. The result was massive traffic jams on all the main roads and highways leading out of the capital.

Emily left widespread flooding in at least eighteen areas of both islands and one house was washed away in Arima. Fire Services reported over 40 distress calls throughout the nation. The East Dry River and the Maraval River both spilled over resulting in massive flooding in the capital city and its outskirts. Landslides occurred along the Northern Range in Trinidad and the Main Ridge in Tobago as a portion of the North Coast Road collapsed.

In Louis D'Or, Tobago, an electricity pole fell on a house and six of twelve electrical feeders tripped resulting in massive power outages across Tobago. Eleven thousand (11,000) consumers were affected. Power outages also occurred in some western districts in Trinidad. The contents of cesspools and pit-latrines overflowed into the streets and drains of Felicity and Chaguanas. A fifteen foot section of the Old Southern Main Road was washed away by the raging flood waters. Three hundred and fifty acres of rice were submerged and rice farmers claimed losses of over one million dollars. The impact of this flooding episode was also felt over the next weekend in the markets. At the markets sweet peppers and tomatoes were being sold at fifteen dollars (\$15) per pound.

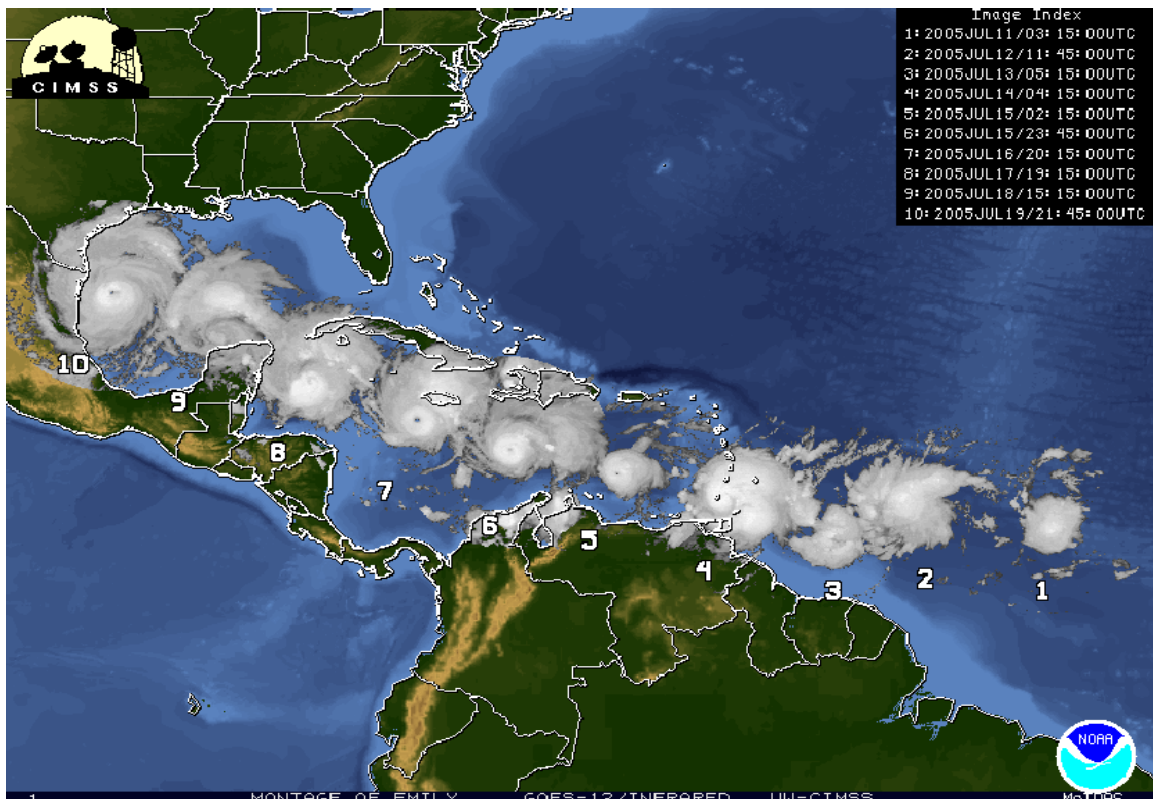
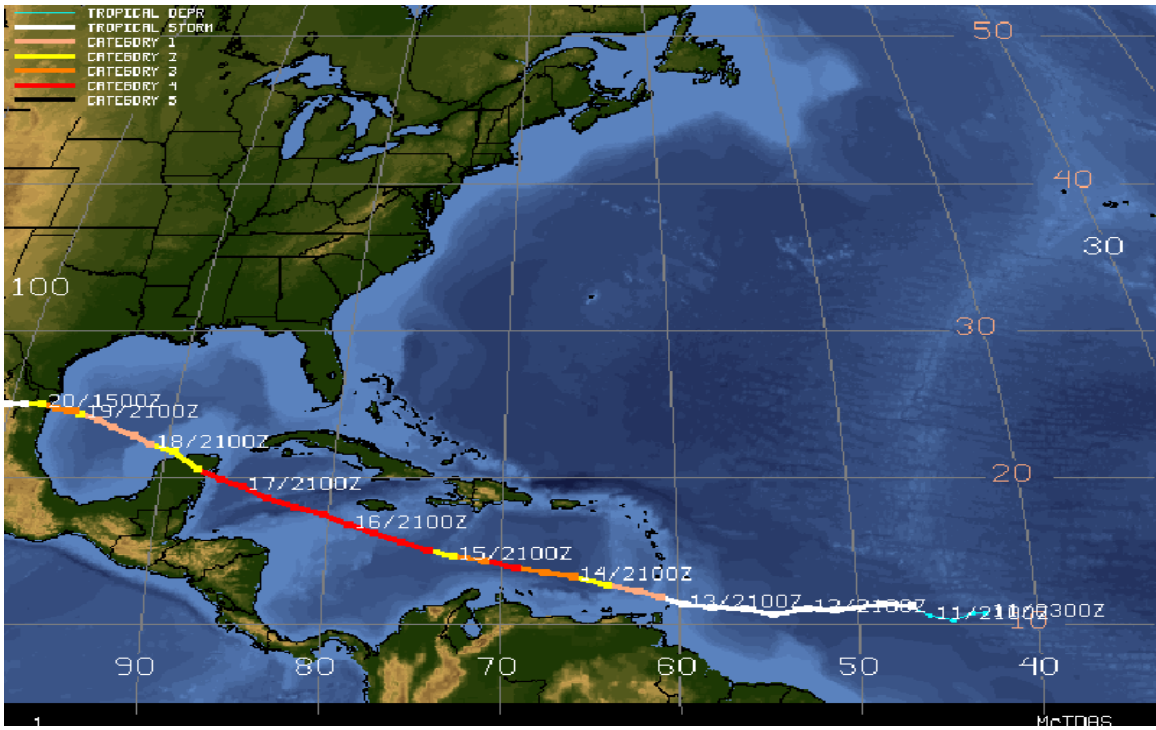
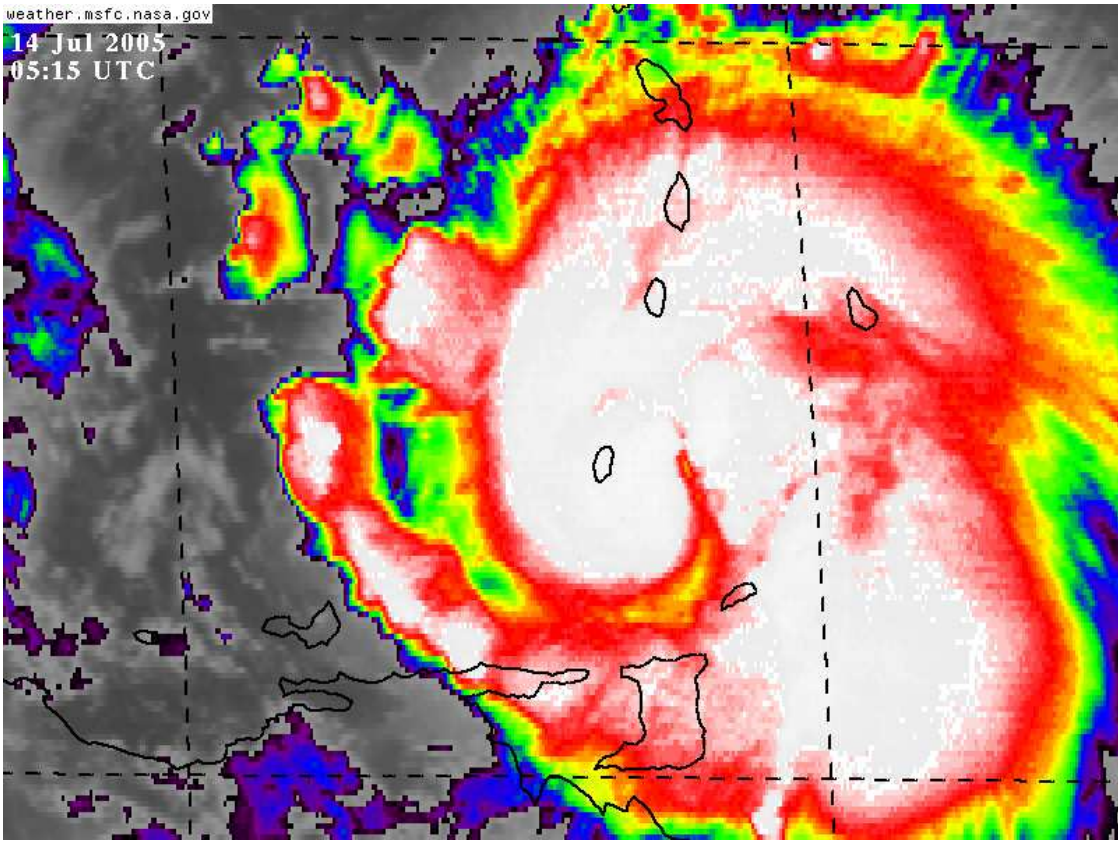


Figure1.



**Figure 2**



**Figure 3**

## **August West Coast Convergence**

Six Bulletins were issued by the TTMS for the month of August. The 22<sup>nd</sup>, 25<sup>th</sup> and 26<sup>th</sup> saw torrential afternoon thundershowers along the west coast of Trinidad as flash flooding occurred in Port-of-Spain leaving commuters stranded. The southbound lane of the Sir Solomon Hochoy Highway was flooded on the 22<sup>nd</sup> causing massive vehicular traffic jams. On the 25<sup>th</sup> a bridge in Santa Cruz Valley was washed away.

## **Hurricane Philippe**

At 10:00 a.m. on September 15, Information Bulletin #1 was issued by the TTMS for an area of disturbed weather associated with a low pressure center. The center was located at 9N latitude and 46W longitude. Information Bulletin #8 informed the public on the 17<sup>th</sup> that the area of disturbed weather had now intensified into Tropical Depression #17 centered near 13N 55W. By 11p.m. on the 17<sup>th</sup> the system had intensified further to a Tropical Storm centered near 14.1N 55.2W. Information Bulletin #14 on the 18<sup>th</sup> of September identified Philippe as a Hurricane with its centre near 16.5N 55.9W. The last bulletin issued by the TTMS for this system was at 6:00 a.m., on the 20<sup>th</sup> September.

A feeder band from Tropical Storm Philippe produced torrential thunderstorms that affected Northern Trinidad resulting in landslides along the Northern Range on September 18.

Two days later the ITCZ was modulated northward over Trinidad causing heavy showers and gusty winds that left one house roofless.

A total of nineteen bulletins were issued for the month of September.

## **4 – 5 m Waves Pound Trinidad and Tobago Coastlines (October 16)**

Seas: moderate, occasionally rough.

Waves: 2.5m, occasionally 3.0m in open waters.

The above was part of the 10:00 a.m. Public Forecast for Sunday 16<sup>th</sup> October 2005. However at 3:00 p.m. the TTMS was obligated to issue the first of five Rough seas Bulletins for this event. The Bulletins were eventually discontinued at 6:00 p.m. on Tuesday 18<sup>th</sup> October.



The origin of these 4-5 m waves has been identified as a 968 hpa low pressure system that stood off the coast of New-Foundland (see Figure 4) and generated swells some five days before. These swells would have traveled from the south-southeast of the center, and reached the coastal areas of Trinidad and Tobago on the 16<sup>th</sup> October.

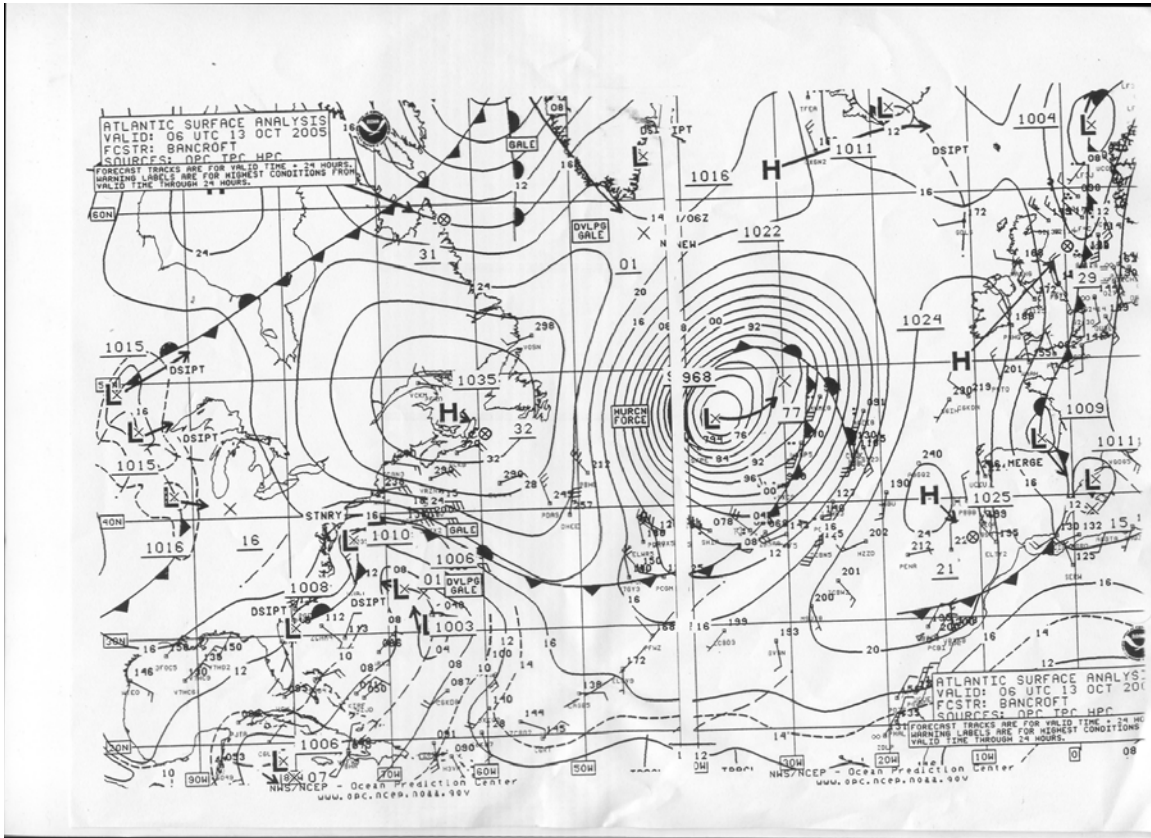


Figure 4

Manzanilla, Matelot, Maracas and King's Wharf were affected in Trinidad, whilst Castara, Black Rock and Plymouth were affected in Tobago. One person was reported missing in Tobago. The beachfronts and coastlines were affected by debris, silt deposit and soil erosion of the coastline. A few boats were also damaged and coastal flooding occurred in most areas. Fifty (50) homes were affected by rising water in the Siparia region and one (1) house was partially destroyed. (ODPM)



## **November Debacle:**

The second peak of our rainy season occurs during November and this year nature confirmed this particular aspect of our climatological records. Precipitation was almost unabated for the first two weeks due to an active ITCZ enhanced by an upper level trough while Tropical Depression #27, which subsequently became Tropical Storm Gamma, contributed significantly to rainfall amounts during the latter part of this two week period. Widespread flooding resulted and damage could be described as catastrophic.

The first bulletin on this event was issued on Monday 14, at 10.45am. Bulletins continued till Wednesday 16, informing citizens of severe flooding.

### **Impacts of this event**

Landslips and flooding affected Borde Narve in the Penal area and flooding in the Rochard/Barrackpore vicinity. Severe flooding also occurred in the Mathura, Matelot, Valencia, Vega-de-Oropouche, Paharry Village, Cumaca Road, Fishing Pond/North Oropouche and parts of the Eastern main Road. Bridges collapsed, with one house being washed away displacing a family of five, and landslides occurred near hilly areas.

In the Couva/Tabaquite/Talparo Region there were reports of extreme flooding, so too in the Tunapuna/Piarco Region where the largest river, the Caroni, overflowed its banks marooning residents in El Carmen, Kelly Village, Caroni Village, St. Helena and La Paille villages.

Landslides occurred across the Northern Range, especially northeastern areas. Tobago felt the wrath of this disaster as Mason Hall, Scarborough, Northside Road and Windward Road experienced floods and landslides.

One hundred (100) persons were rescued from raging flood waters in the Vega-de-Oropouche region and ten (10) in the Carapo area.

The cost of damages was estimated to be in the millions not to mention the sudden exorbitant rises in the retail cost of market produce thereafter.







File photo on Trinidad Guardian on 16<sup>th</sup> November.







**Above-normal seas 26<sup>th</sup> – 27<sup>th</sup> November**

Four (4) rough-seas bulletins were issued during Saturday 26<sup>th</sup> and Sunday 27<sup>th</sup> November warning of higher than normal northerly waves emanating from Tropical Storm Delta, which had been quasi-stationery to the north east of the islands fro a few days. Fortunately this event did not result in any emergency situation.

Submitted by

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