

**REPORT ON 2005 HURRICANE SEASON  
TO THE ANNUAL DMS MEETING  
BY METEOROLOGICAL SERVICE, JAMAICA**

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**Introduction**

The year 2005 has been an interesting one for Jamaica, insofar as the weather is concerned. Along with the fact that it was a record-breaking year for the Atlantic Hurricane Season, it will also be remembered as the one in which the island was threatened twice, in just as many weeks, by hurricanes moving through the Caribbean Sea. The year began, as usual, with the passage of a few Frontal Systems over the northwestern Caribbean, resulting in below-normal temperatures but also characterizing the dry season. The island experienced drought conditions through March with some parishes recording severe drought less than 20 percent of normal rainfall. This was broken in April by a Mid-Upper Level Trough that produced flash-flooding in sections of the country. More flooding occurred in May, as a Low-Pressure Area developed over the western Caribbean.

Jamaicans were prepared for the start of the Hurricane Season when the Eastern Pacific's Tropical Storm Adrian developed and appeared to be heading across the Central American isthmus into the Caribbean. This, along with the grim forecasts for the Season, raised the alertness of the population and made the job of public awareness and education an easy one for the Service. Adrian, however, never made it through Honduras.

The Atlantic's first storm, Arlene, developed over the western Caribbean and moved over the waters west of Jamaica in early-June. Although Arlene did not affect the island's weather directly, other prevailing conditions resulted in more episodes of flash-flooding through to the end of the month.

**Dennis**

The first direct threat for the Season occurred in July when Hurricane Dennis entered the eastern Caribbean as a Tropical Wave, developed into a Tropical Storm south of Puerto Rico and was projected just off Jamaica's east coast by July 7, 2005. A Hurricane Watch was issued at 5:00 p.m. on July 5. This also included Evacuation Orders for fishermen and other small craft operators on the cays and banks. 12 hours later, the Watch was upgraded to a Hurricane Warning as Dennis strengthened. Category 2 status was reached by 7:00 a.m. on July 7 while the system slowed down noticeably.

The path that Hurricane Dennis took was just as forecasted, except for the rate of intensification and the speed of movement. Its closest pass was about 50 kilometres northeast of Port Antonio in the early afternoon. Dennis became a Category 3 hurricane at 4:00 p.m. and reached Category 4 by 10:00 the same evening. By that time, it had started to move away from Jamaica.

The Hurricane Warning was finally discontinued for the island at 5:00 a.m. on July 8, 2005, while Dennis was located near 250 kilometres north of Montego Bay. A total of 20 bulletins were issued.

The Meteorological Service's Doppler radar remained operational during the approach and passage of Hurricane Dennis, defining the areas of rainfall activity associated with the cyclone.

The highest rainfall total over the three-day period was detected at Mavis Bank in St. Andrew and measured 623.2mm. The most in one day was 497.6 on July 7, which exceeded the 50-year return period. The rate of rainfall at that station reached 65mm/hr between 5:00 and 6:00 p.m.

Although Hurricane Dennis, at its closest proximity to Jamaica, was a Category 2 hurricane with hurricane-force winds extending approximately 75 kilometres from its centre, the winds recorded at stations across the island were barely representative of tropical storm-force. Strongest winds were reported in Montego Bay during the afternoon of July 7, averaging 60 knots, or 111 km/h. The lowest recorded pressure was 996.5 millibars at 1:00 p.m. on July 7 along the island's northeast coast.

There was one (1) report of death by drowning as a result of Hurricane Dennis. Preliminary estimates of damage amounted to J\$1.9 billion.

## **Emily**

Hurricane Emily emerged, developed and progressed during the week of July 11-17, 2005. Its genesis as a Tropical Wave over the tropical Atlantic Ocean was keenly watched across Jamaica, especially coming in the wake of Hurricane Dennis' passage along the island's north coast just a few days earlier.

Initial projections had the centre of the tropical depression passing through the Lesser Antilles in the vicinity of Guadeloupe, and continuing towards and over the Dominican Republic between July 15 and 16. Gradually, the forecast track was shifted more and more to the left, increasing the chance of impact over Jamaica. By the time Emily was south of Barbados and entering the eastern Caribbean Sea as a Tropical Storm, a more accurate prediction of its path through the Region had it remaining over the waters south of Jamaica on July 16.

The Meteorological Service moved to a Hurricane Watch in its 7<sup>th</sup> Bulletin at 5:00 p.m. on July 14 and upgraded the Watch to a Hurricane Warning by 5:00 a.m. the next morning. Jamaicans were advised that the eye of the hurricane would pass in the vicinity of the Pedro Cays, south of the island.

Jamaica began to feel the effects of the tropical cyclone, now a Category 4 hurricane, during the morning of July 16 with moderate to heavy showers spreading from eastern to central and then to western parishes. Hurricane Emily began its passage over Jamaica's southern waters at that time and was at its closest proximity while passing close to 150 kilometres of the southwestern coastline.

The system eventually started to move farther away from the island at about 4:00 p.m. on July 16, while rainfall associated with the system persisted until the morning of July 17, 2005. The Hurricane Warning was discontinued in Bulletin #25 at 4:00 a.m. with the centre located about 390 kilometres west of Negril Point.

The radar remained operational throughout the event. The highest one-day rainfall total was 297mm on July 17, while the highest two-day total for the event was 392mm; both in southwestern Jamaica.

Although Hurricane Emily, at its closest proximity to Jamaica, was a strong Category 4 hurricane with hurricane-force winds extending approximately 110 kilometres, and tropical storm-force winds about 240 kilometres from its centre, the winds recorded at stations across the island were not representative of tropical storm-force. Unofficial reports to the Meteorological Service seemed to suggest that the strongest winds were experienced over southwestern sections of the island; however, only near-gale strength was recorded at one station in that area. Elsewhere, gale-force winds were recorded in Montego Bay during the evening of July 16. Minimum recorded pressure was 1009.5 millibars at 3:41 p.m. on July 16 in Kingston.

Reports indicate that five (5) lives were lost in Jamaica as a consequence of Hurricane Emily.

### **Wilma**

Ironically, the traditionally most active part of the Hurricane Season was relatively quiet for Jamaica. The next real threat occurred in October with the development of Hurricane Wilma. This was reminiscent of Hurricane Michelle in 2001. This hurricane has gone down in the record books as the most intense hurricane to have ever developed in any Atlantic Hurricane Season, having generated sustained wind speeds of 280 km/h. The tropical cyclone traced a very slow path while developing over the western Caribbean Sea from a non-descript area of low-pressure. During this time, bands of rainfall associated with the system persisted over the island of Jamaica and produced serious flooding in various regions of the country for a period of almost eight days from October 13 to 20.

Wilma approached Jamaica as a cluster of disturbed weather early in October, and was defined as an area of low-pressure near Jamaica by the end of the second week of the month. Upper-level conditions then became more conducive for tropical cyclone development and the local Doppler radar began to detect an increase in showers over sections of the island. A Severe Weather Alert was issued for all parishes and later upgraded to a Flash Flood Watch on October 14. A Flash Flood Warning was issued on the following day.

By 5:00 p.m. on October 15, the low-pressure system was classified as the Season's 24<sup>th</sup> Tropical Depression with wind speeds reaching over 45 km/h. The centre was located about 90 km southwest of Negril Point, Jamaica. The slow movement of the system, combined with the extent of its outer bands, maintained a blanket of rainfall over the island for the next two days. Heaviest activity remained in the south.

During this time, there was an erratic southward movement of the system as it developed into a Tropical Storm on the morning of October 17, and into a Category 1 hurricane on the morning of October 18. The intensity of showers, although showing a slight decrease over eastern and some northern parishes, persisted across the island. Rapid intensification of Wilma took place during the twelve hours between 5:00 p.m. on October 18 to 5:00 a.m. on October 19 as the hurricane exploded into Category 5 status with maximum sustained winds of an unprecedented 280 km/h.

A tightening of the rain-bands associated with Wilma, and its resumption of a westward and then north-westward forward motion, resulted in fewer showers over Jamaica and the discontinuation of the Flash Flood Warning for the island at 5:00 p.m. on October 20.

The island was severely impacted by the heavy and persistent rainfall that occurred during the period October 13-20, 2005. An elevated ground water table, the result of rainfall of the days preceding these events, exacerbated the widespread damage. The highest one-day rainfall total occurred in south-central Jamaica and amounted to 278mm on October 17.

### **Conclusion**

Although Hurricane Beta and Tropical Storm Gamma posed some concern to us in Jamaica, neither was considered a threat to the country. The 2005 Hurricane Season turned out, nevertheless, to be a particularly wet one for us. The traditional, primary rainy season that peaks in October had been predicted by the CIMH Precipitation Outlook to have an overwhelming chance of normal or above-normal rainfall, and was proven to be accurate.

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