



Tropical Cyclone Harvey (AL092017)

Wind and Storm Surge

Preliminary Event Briefing

Windward Islands

20 August 2017

1 SUMMARY

Harvey is the eighth named storm of the 2017 Atlantic Hurricane Season. It formed as a tropical storm on 17 August at 21:00 UTC, east of the Windward Islands. Tropical Storm Harvey caused tropical-storm-force winds (greater than 39 mph or 62 km/h) over three CCRIF member countries; Barbados, Saint Lucia and St. Vincent and the Grenadines. Also, heavy rain was experienced over these countries between 17 August at 20:15 UTC and 18 August at 12:15 UTC.

This event briefing is designed to review the impact and damages from wind and storm surge for CCRIF member countries. An event briefing for damages due to rainfall will be issued separately.

2 INTRODUCTION

On 17 August 2017 at 21:00 UTC, the US National Hurricane Center (NHC) reported that a tropical storm developed east of the Lesser Antilles. Its centre was located at 13.0° N and 55.8° W. At this time, maximum sustained winds were estimated in 40 mph (65 km/h) with higher gusts and the minimum central pressure reported was 1004 mb.

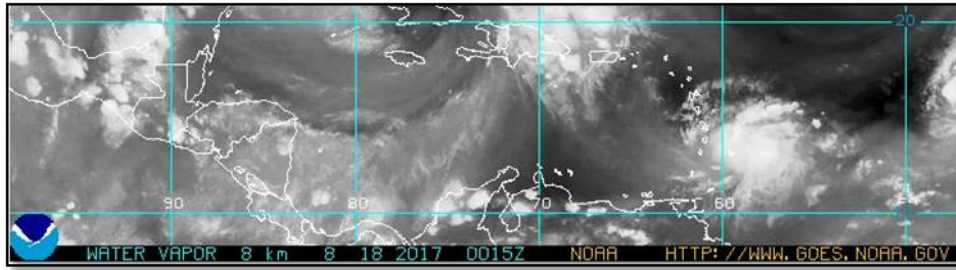
Harvey moved across the Windward Islands to the east of the Caribbean Sea, in an area of moderate easterly vertical shear, a condition which allows only a slow intensification of the system, and it was well embedded in the Trade Winds flow, which produced a continue westward track (Figure 1).

These features remained almost constant during the period ending on 18 August 2017 at 21:00 UTC, when the storm approached and moved through Barbados and the Windward Islands.

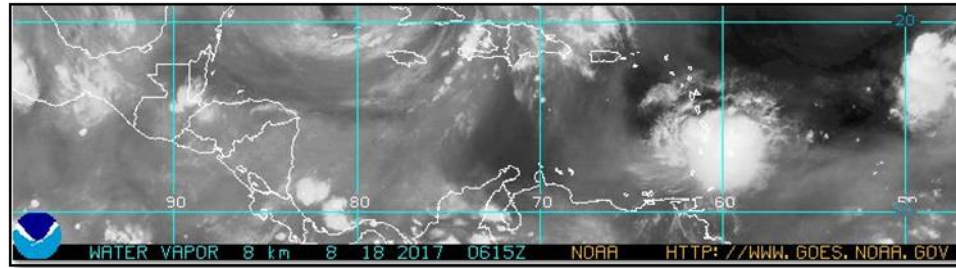
On 18 August at 09:00 UTC, the centre of Harvey approached Barbados, about 28 miles (45 km) south east from the cyclone centre located at 13.1°N and 59.1°W. At that time the area of tropical-storm-force winds extended outward up to 60 miles (95 km) mainly to the north of the centre.

At 12:00 UTC, Harvey was located between Barbados and the Windward Islands, At that time the maximum sustained winds were near 40 mph (65 km/h) with higher gusts and the system was moving at 18 mph (30 km/h), and the minimum central pressure reported by the Grantley Adams International Airport in Barbados was 1006 mb. After three hours, at 15:00 UTC, the centre of Harvey passed over the Windward Islands, affecting St. Vincent and the Grenadines, Saint Lucia and Martinique with tropical-storm-force winds, Fort-de-France, Martinique reported a wind gust of 44 mph (70 km/h), while Hewanorra International Airport in Saint Lucia reported a wind gust of 43 mph (69 km/h).

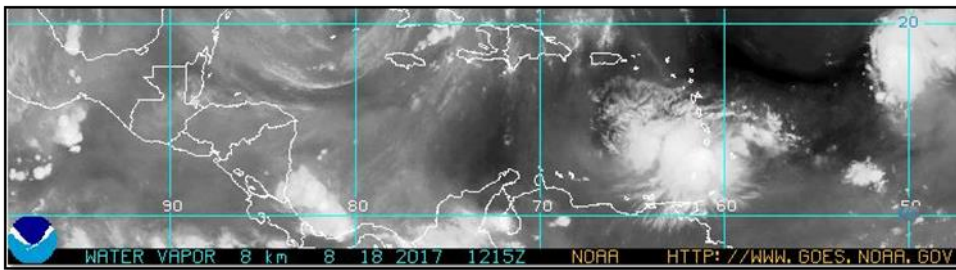
At 00:15 UTC on 19 August, Harvey left the Windward Islands, continuing its movement westward over the eastern Caribbean Sea. The tropical storm activity continued until 21:00 UTC, when Harvey degenerated into a tropical wave. At that time, the remnants of Harvey were located near latitude 14.3°N and longitude 71.8°W.



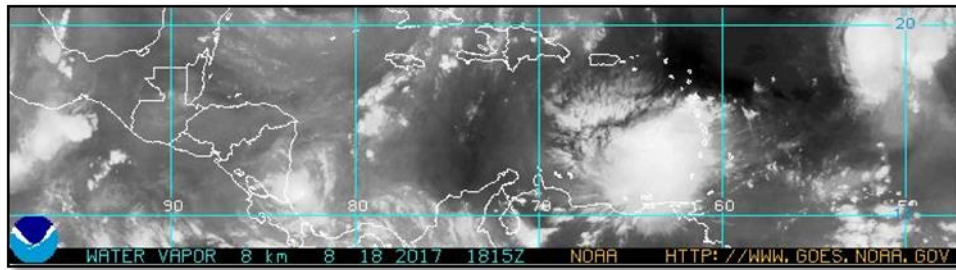
a) 18 August at 00:15 UTC (00:15 Z)



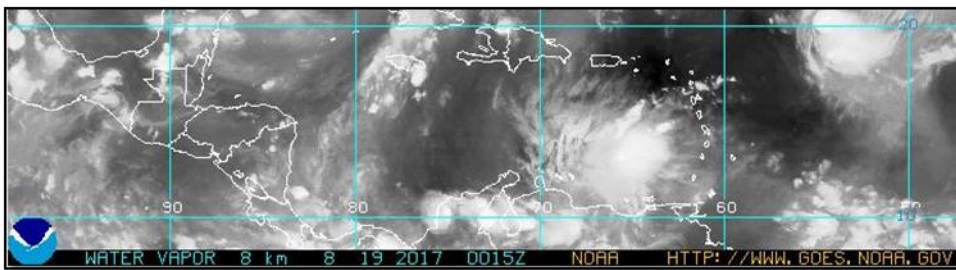
b) 18 August at 06:15 UTC (06:15 Z)



c) 18 August at 12:15 UTC (12:15 Z)



d) 18 August at 18:15 UTC (18:15 Z)



e) 19 August at 00:15 UTC (00:15 Z)

Figure 1 Water vapour (WV). Source: <https://www.goes.noaa.gov/>

CCRIF SPC MODEL OUTPUTS

Under CCRIF's loss calculation protocol, a CCRIF Multi-Peril Risk Estimation System (MPRES) report is required for any tropical cyclone affecting at least one member country with winds greater than 39 mph (62.7 km/h). For Barbados, Saint Lucia and St. Vincent and the Grenadines, Tropical Cyclone Harvey qualified as a Reportable Event¹.

The wind footprint (Figure 2, Figure 4 and Figure 6) and surge field (Figure 3, Figure 5 and Figure 7) are two of the outputs from the CCRIF model, these figures show the regions affected by certain magnitudes of wind velocity and storm surge in each country.

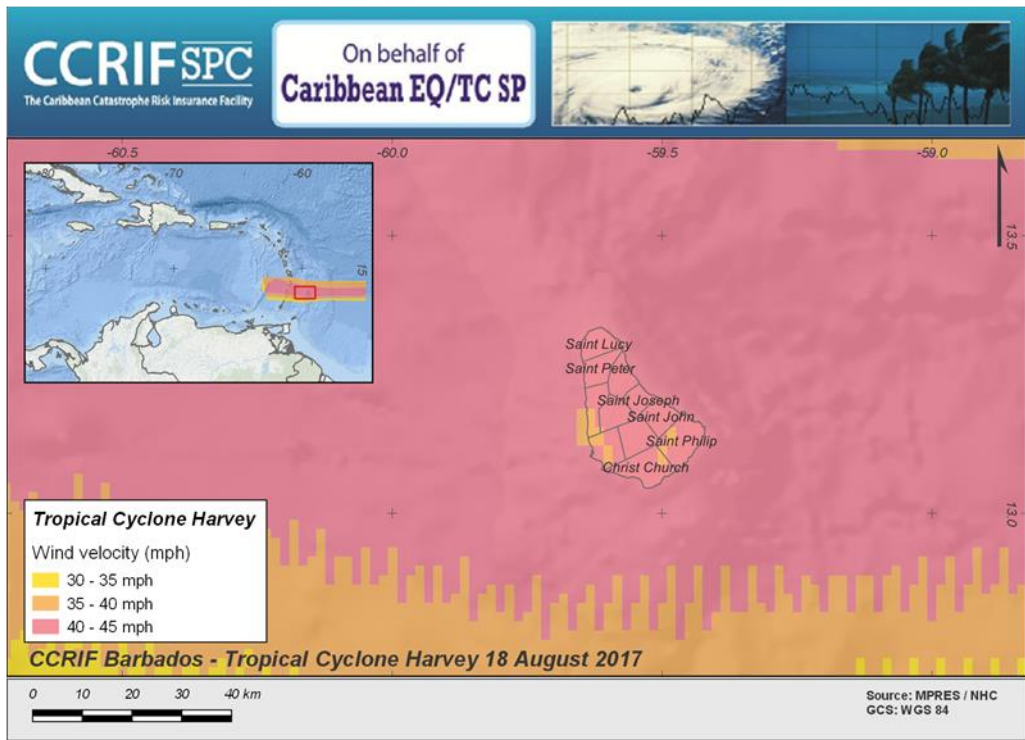


Figure 2 Map showing the wind field associated with Tropical Cyclone Harvey on Barbados.
Source: NHC & CCRIF/MPRES

¹ An event occurs but does not register a loss in any CCRIF country within the MPRES loss model.

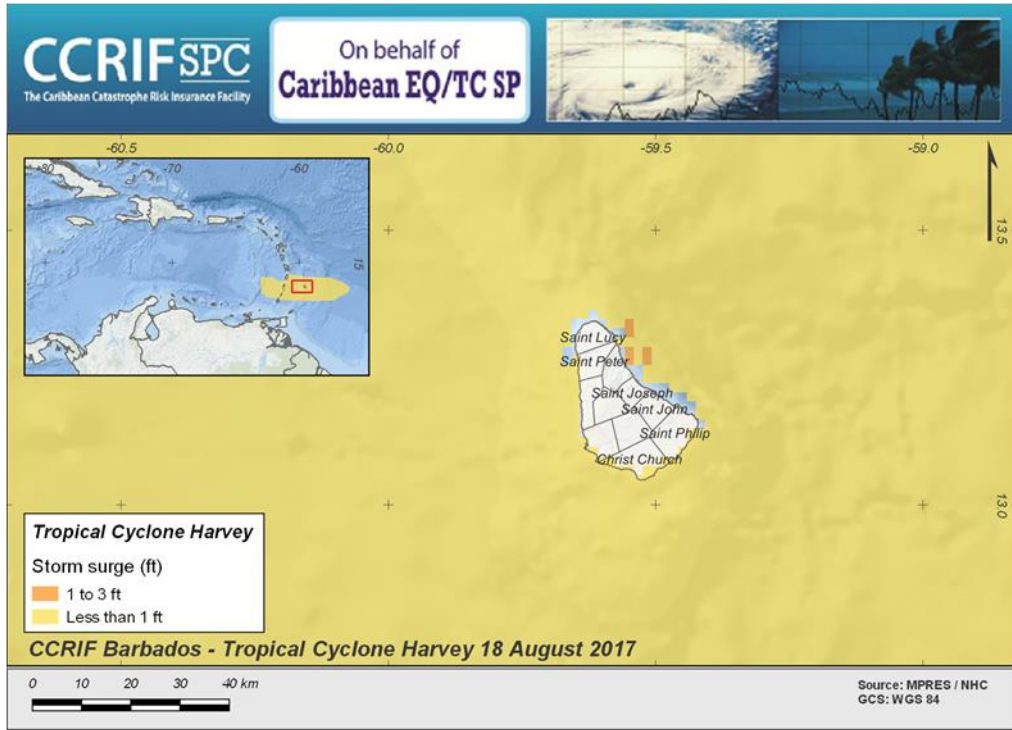


Figure 3 Map showing the storm surge field associated with Tropical Cyclone Harvey on Barbados.
Source: NHC & CCRIF/MPRES

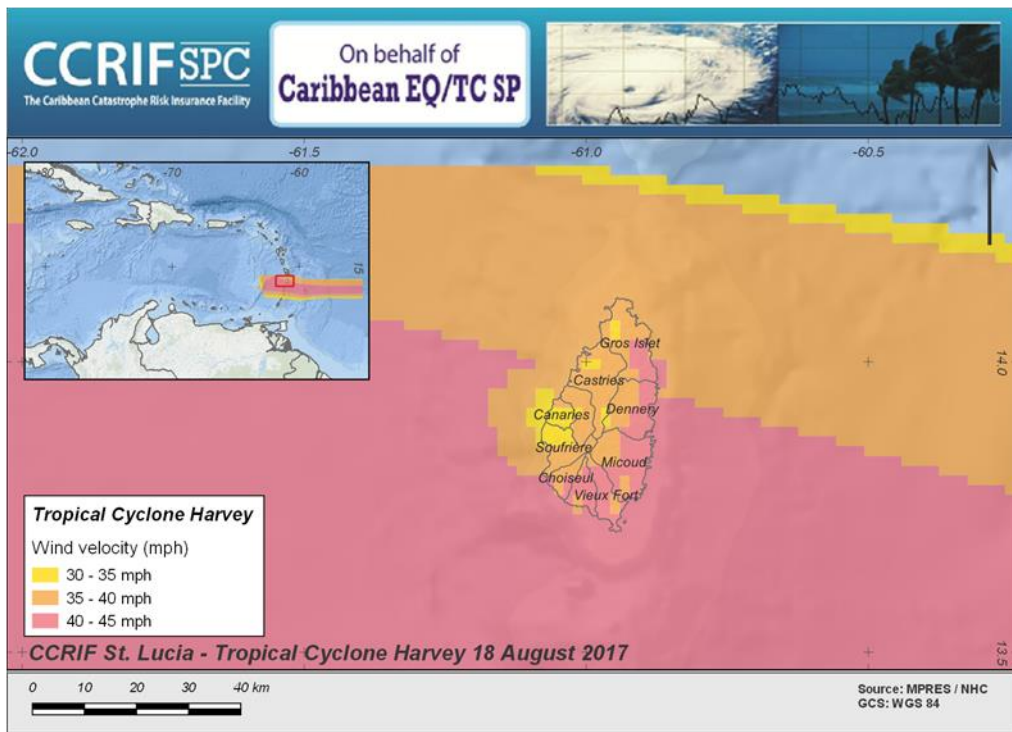


Figure 4 Map showing the wind field associated with Tropical Cyclone Harvey on Saint Lucia.
Source: NHC & CCRIF/MPRES

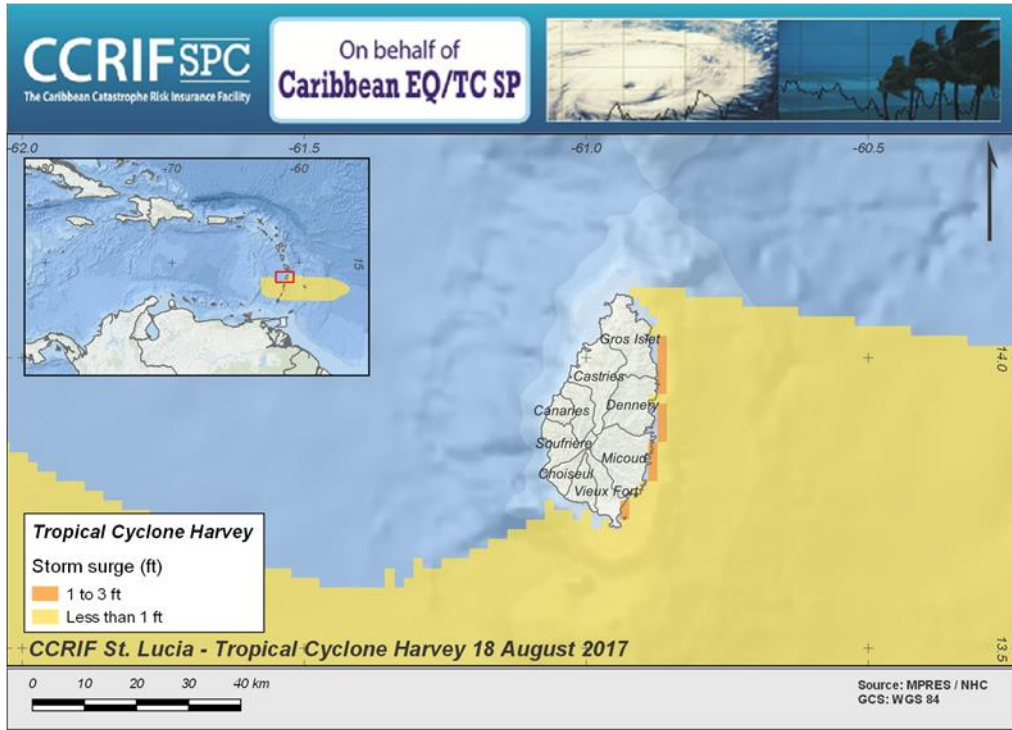


Figure 5 Map showing the storm surge field associated with Tropical Cyclone Harvey on Saint Lucia.
Source: NHC & CCRIF/MPRES

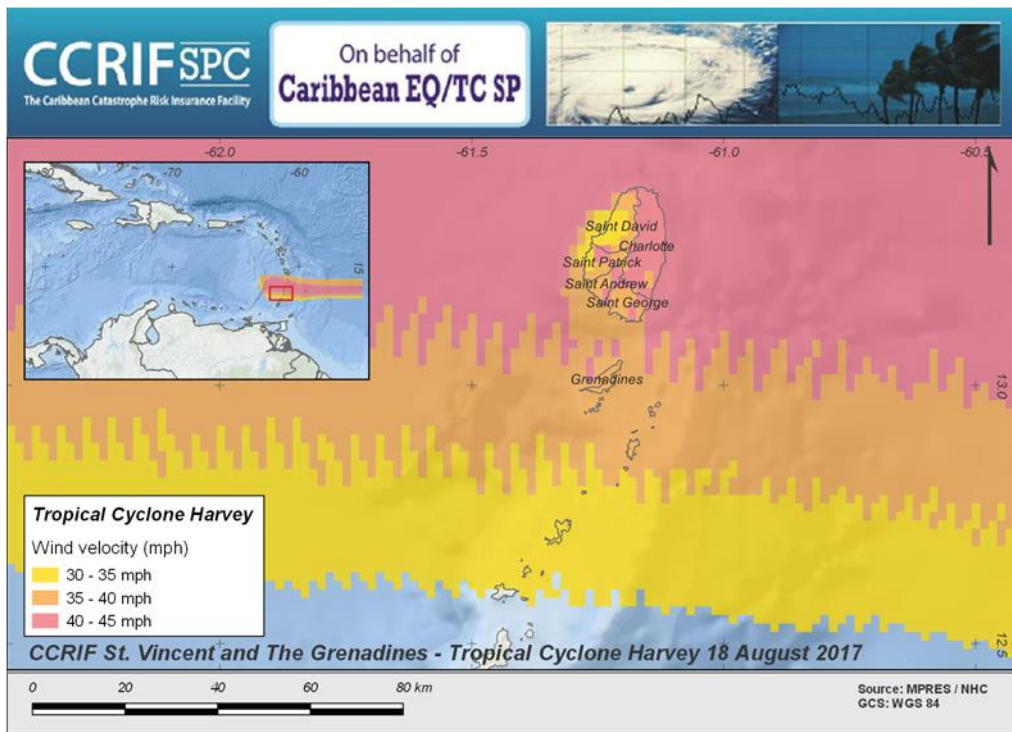


Figure 6 Map showing the wind field associated with Tropical Cyclone Harvey on St. Vincent and the Grenadines.
Source: NHC & CCRIF/MPRES

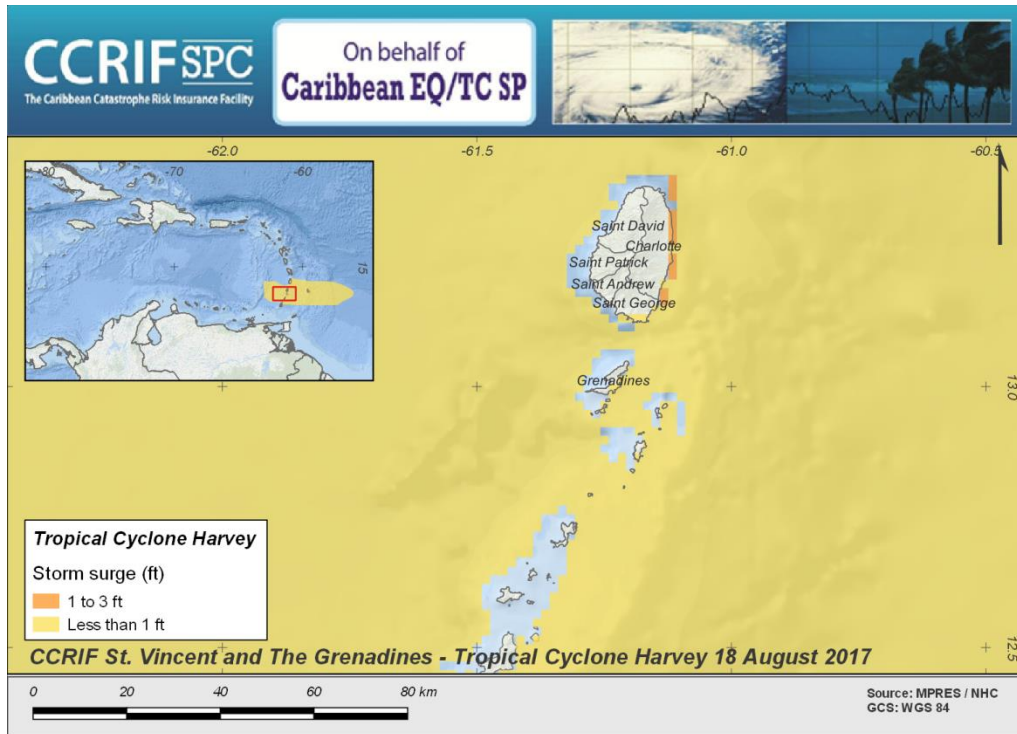


Figure 7 Map showing the storm surge field associated with Tropical Cyclone Harvey on St. Vincent and the Grenadines. Source: NHC & CCRIF/MPRES

3 IMPACTS

Barbados

According to the update from the Department of Emergency Management (DEM):

- The entire island was affected by power outages with the majority of cases being reported in the parishes of St. Michael, St. Joseph, St. Lucy and Christ Church.
- Flooding was recorded in St. Lucy, Christ Church, St. James and St. Peter.
- Infrastructural damage was reported in Christ Church and St. Peter.
- Several houses in the Providence and Parish Land communities were damaged extensively, with roofs, windows and doors torn off by the gusty winds of the storm.
- The meteorological office reported that some flash flooding had already occurred and it cautioned residents in flood prone areas to exercise caution and remain on alert.



Figure 8 Damage caused by Tropical Storm Harvey in Barbados – August 2017.

Sources: [Loop New Barbados](#) and [Barbados Today](#)

Saint Lucia

According to the National Emergency Management Organisation (NEMO), damages had not yet been quantified at the time of this report, however:

- Shelters were open in the evening of 17 August.
- The National Emergency Operations Centre (NEOC) was partially activated.

St. Vincent and the Grenadines

According to the Director of the National Emergency Management Organisation (NEMO), full damage assessment will begin in the next few days, but preliminary data indicated the following:

- In Edinboro, Bequia, Mustique, Fancy, Owia, Sandy Bay and Calliaqua, houses were damaged by flooding.
- Shelters were open in the evening of 17 August; fifteen citizens moved there.
- No casualties were reported.
- Some northern Vincentian communities were cut off when a major roadway collapsed.
- Some landslides were reported in Carapan, Belmont and South Wood.
- Airport services and business activities returned to normal in the afternoon of 18 August.

4 CCRIF LOSS MODEL

The aforementioned reports from the national disaster management agencies in the three member countries corroborate the preliminary runs of the CCRIF loss model that generated no government losses for Barbados, Saint Lucia and St. Vincent and the Grenadines. Therefore no payout is due to these countries on their Tropical Cyclone policies.

For further information, please contact ERN-RED, the CCRIF SPC Risk Management Specialist.

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