



Tropical Cyclone Beryl (AL022018)

Wind and Storm Surge

Event Briefing

Dominica and Montserrat

10 July 2018

1 SUMMARY

Beryl was the first tropical cyclone that reached the hurricane category in the 2018 Atlantic Hurricane Season. It formed as a tropical depression in the Atlantic Ocean on 5 July 2018 at 1500UTC and it became a tropical storm on 5 July at 1830UTC. It reached a hurricane category 1 on 6 July at 0900UTC and kept this intensity until 7 July at 1500UTC, when it was downgraded to a tropical storm. Just before making landfall on the Leeward Islands, the system became an open trough. Nevertheless, tropical-storm-force winds were present over Dominica, Guadeloupe and Montserrat on 9 July at 0000UTC.

The preliminary runs of CCRIF's loss model for wind and storm surge reported zero government losses for Dominica and Montserrat for their Tropical Cyclone policies. Preliminary calculations show that no payouts are due.

This event briefing is designed to review the impact and damages from wind and storm surge but not rainfall for CCRIF member countries. A separate report on rainfall impacts on affected CCRIF member countries will be issued.

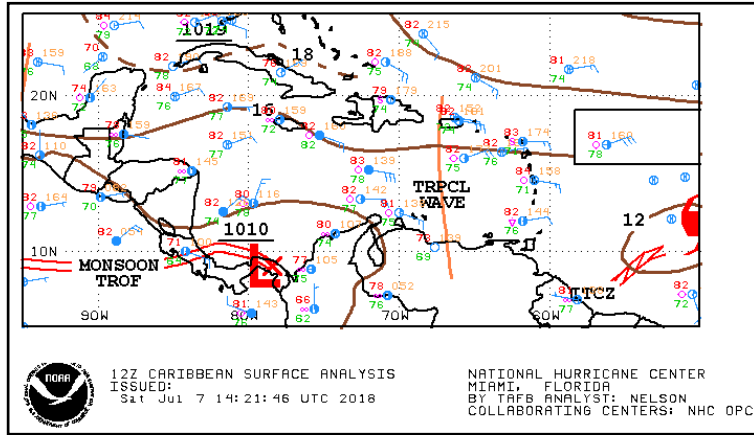
2 INTRODUCTION

On 5 July 2018 at 1500UTC, the US National Hurricane Center (NHC) reported that a small area of low pressure associated with a tropical wave in the central Atlantic Ocean (10.2N, 41.4W) became a tropical depression, with mid-level rotation in the convective clouds. In a few hours, the tropical depression showed a mid-level eye and a closed compact circulation at the surface and it was upgraded to a tropical storm and named Beryl. At 2100UTC of the same day, Tropical Storm Beryl was located at 10.3N, 42.8W and was moving towards the west at almost 16 mph (26 km/h). The maximum sustained winds were estimated at 50 mph (85 km/h) and the minimum central pressure was 1004 mb.

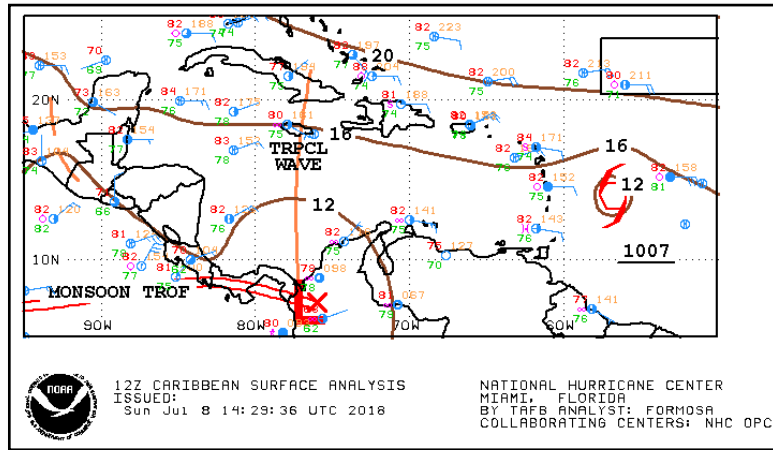
Beryl moved within very low vertical wind shear conditions and over a warm sea surface (about 26-27°C). These favourable conditions, as well as the small size of the cyclone, led to a very rapid intensification of the system, which was further upgraded to hurricane category 1 on 6 July at 0900UTC. Hurricane Beryl presented a compact but well defined cluster of convection around its centre. Maximum sustained winds were maintained at approximately 75-80 mph (120-130 km/h) until 7 July at 1200UTC (Figure 1a), and the minimum central pressure fell to 994-995 mb. During this time, the system moved towards the west-northwest at 14 mph (22 km/h) in the direction of the Lesser Antilles.

In the subsequent hours, Hurricane Beryl encountered less conducive conditions: the vertical wind shear increased due to the strengthening of both the low-level easterlies and the upper-level westerlies and the surrounding environment became drier and more stable. Therefore, Beryl's intensity decreased: the maximum sustained winds decreased to approximately 60 mph (95 km/h) and the minimum central pressure increased to 1007 mb. Thus, on 7 July at 1500UTC the cyclone was downgraded to a tropical storm. The cyclone continued to move west-north-westward at a slightly higher speed (16-17 mph, 26-28 km/h) toward the Leeward Islands (Figure 1b). The centre of the tropical storm was located at 12.1N, 51.1W with all the associated deep convection displaced to the east and southeast of it (Figure 2a).

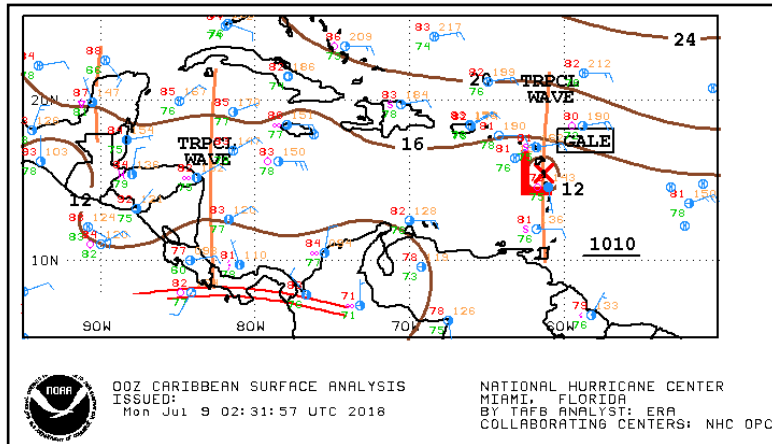
Due to the unfavourable environmental conditions, Beryl continued to weaken as it approached the Leeward Islands. On 8 July at 2100UTC it degenerated into an open trough of low pressure, just before landing in Dominica and Guadeloupe (landing occurred on 9 July at 0000UTC, Figure 1c). Even though the circulation was no longer a closed system, the maximum sustained winds were almost 45 mph (75 km/h) and tropical-storm-force winds extended outward up to 45 miles (75 km) mainly to the north and northeast of the remnant of the system centre. Dominica was affected by this wind intensity at the time of landing (Figure 1c). Deep convection was still active when the system passed over Dominica, Guadeloupe and Montserrat, leading to locally heavy precipitation over the islands and the surrounding waters (Figure 2b).



a) 7 July at 1200UTC

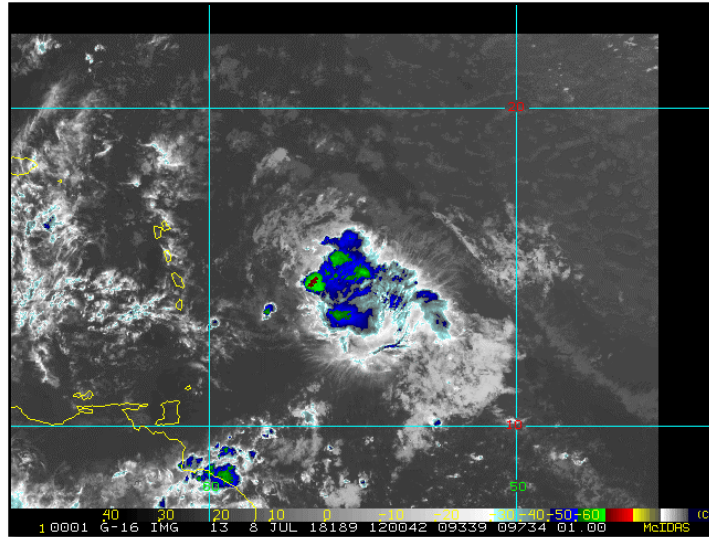


b) 8 July at 1200UTC

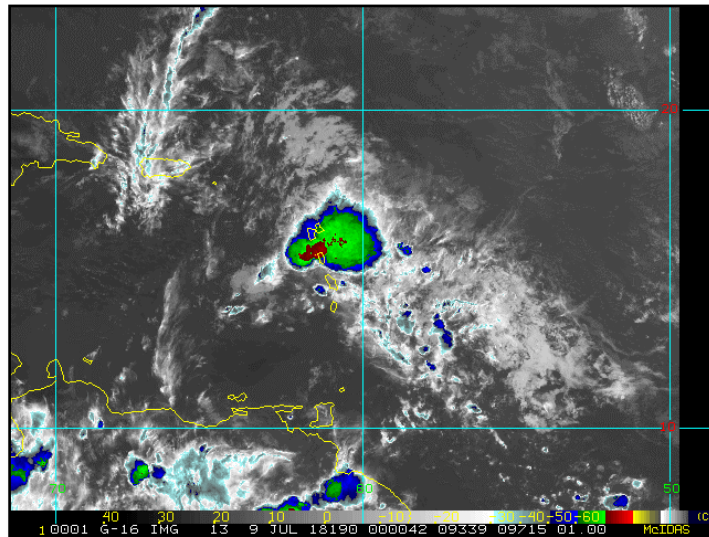


c) 9 July at 0000UTC

Figure 1 Surface analysis over the Caribbean area at three different times.
Source: National Hurricane Center (NHC)



a) 8 July at 1200UTC



b) 9 July at 0000UTC

Figure 2 Enhanced infrared imagery over the western tropical Atlantic Ocean, collected at different times. Colours indicate the cloud canopy temperature, with yellow to red colours indicating the colder canopy and green to blue the warmer canopy. Cold cloud canopy indicates deep convection. Source: NOAA, National Environmental Satellite, Data and Information Service.

The remnants of Beryl continued to move west-north-westward at almost 26 mph (43 km/h). Along its track, it passed across the north-eastern Caribbean Sea to the south of the US and British Virgin Islands and Puerto Rico, spreading perturbed conditions with strong gusty winds and locally heavy rain over these regions. At the time of writing this report, Beryl was a dissipating open through. However, it is possible that the more conducive conditions present over the northern Caribbean Sea will regenerate convection and tropical storm conditions over The Bahamas.

3 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 Dominica and Montserrat, Tropical Cyclone Beryl qualified as a Reportable Event¹.

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

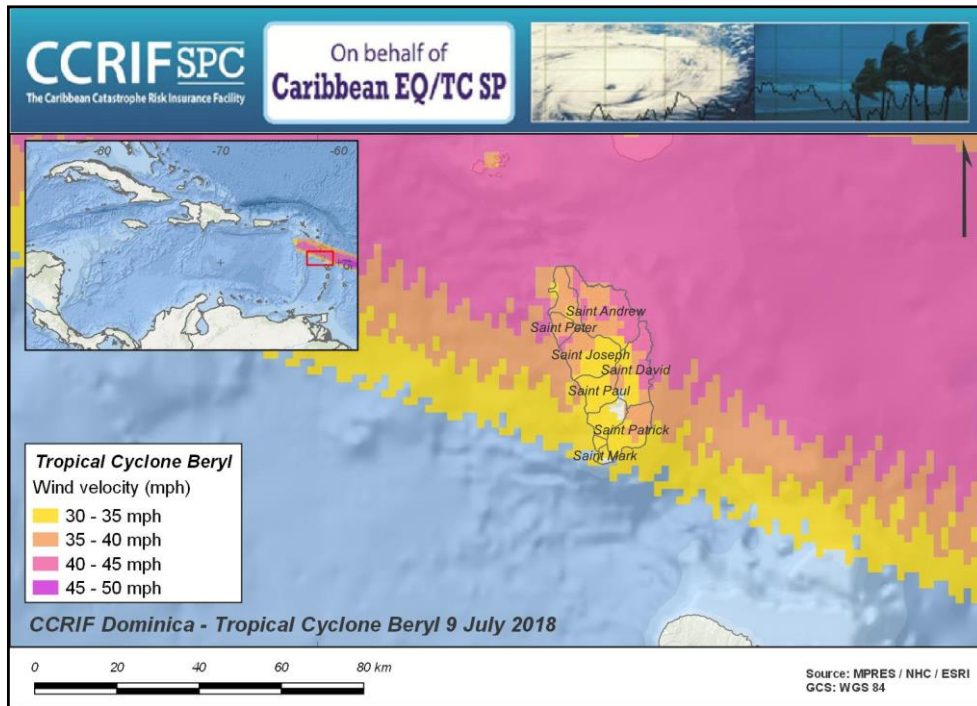


Figure 3 Map showing the wind field associated with Tropical Cyclone Beryl in Dominica.
Source: NHC & CCRIF/MPRES

¹ Any named Tropical Cyclone event (i.e. one that reaches Tropical Storm status or higher) which produces modelled winds of at least 39 mph in one or more grid cells of at least one CCRIF policyholder country but does not generate a modelled loss greater than zero.

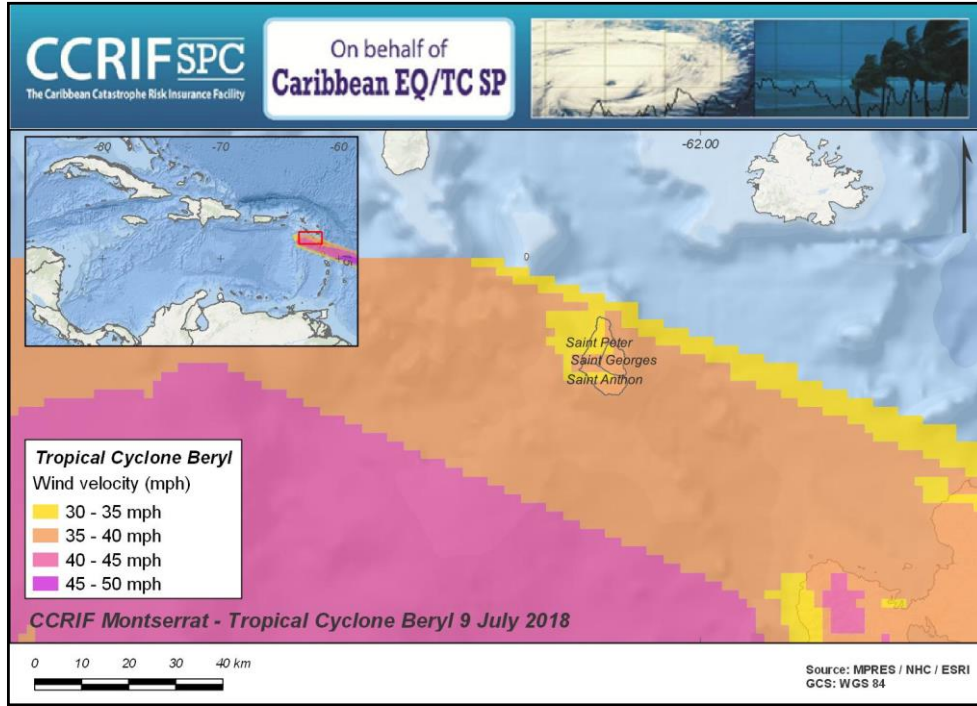


Figure 4 Map showing the wind field associated with Tropical Cyclone Beryl in Montserrat.
Source: NHC & CCRIF/MPRES

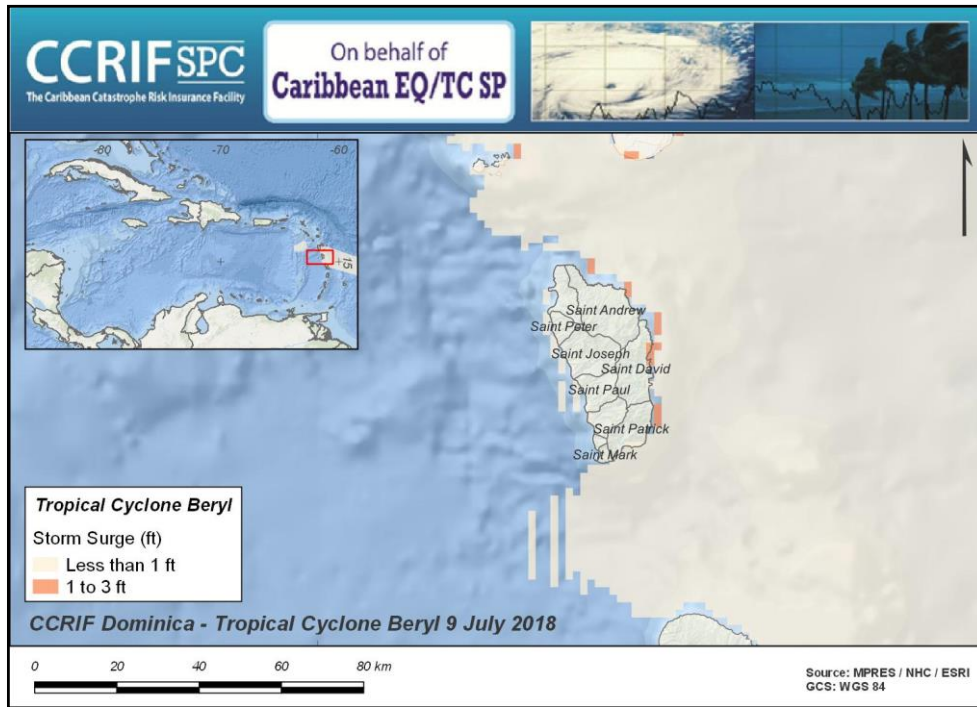


Figure 5 Map showing the storm surge field associated with Tropical Cyclone Beryl in Dominica.
Source: NHC & CCRIF/MPRES

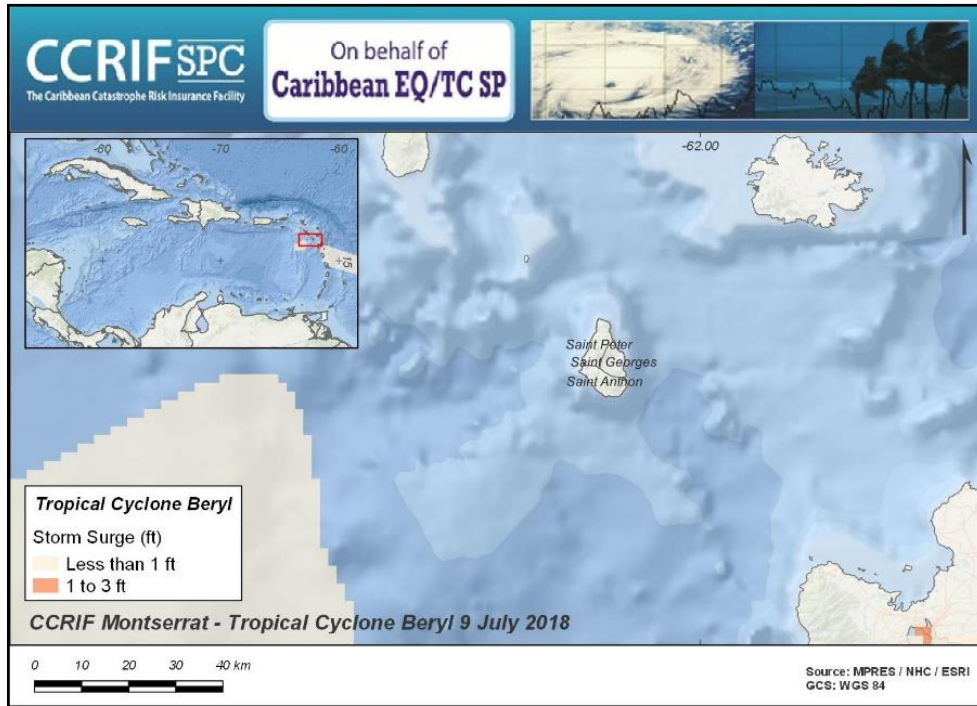


Figure 6 Map showing the storm surge field associated with Tropical Cyclone Beryl in Montserrat.
Source: NHC & CCRIF/MPRES

4 IMPACTS

At the time of this report, no information was available related to damages or losses in Dominica or Montserrat due to Tropical Cyclone Beryl.

Prior to the arrival of Tropical Cyclone Beryl, the authorities of Dominica and Montserrat carried out precautionary measures such as temporarily suspending air and maritime traffic. The temporary interruption of commercial services was also implemented.

5 CCRIF LOSS MODEL

The lack of impact reports corroborates the preliminary runs of CCRIF's loss model that generated no government losses for Dominica and Montserrat related to TC Beryl, and therefore no payout is due.

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

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