Tropical Cyclone Beryl (AAL022024)

Final Event Briefing

Triggering Event (Grenada)

COAST – TC Component

09 July 2024

Registered Office: CCRIF SPC c/o Sagicor Insurance Managers Ltd., 198 North Church Street
2nd Floor Sagicor House, P.O. Box 1087, Grand Cayman KY1-1102, Cayman Islands
Email: ccrif@ccrif.org | Website: ccrif.org | Twitter: @ccrif_pr | Facebook: CCRIF SPC

1 SUMMARY

Tropical Cyclone Beryl is the second named cyclone and the first hurricane of the 2024 Atlantic Hurricane Season. On 30 June at 1530UTC, Beryl became a Category 4 hurricane while approaching the Windward Islands. During the next day, 1 July, it crossed the waters between Barbados and Tobago, spreading tropical-storm-force conditions over these countries for several hours. Later on the same day, Hurricane Beryl made landfall on the island of Carriacou (part of Grenada), with its centre passing about 30 mi (50 km) NNE of Grenada. Both Grenada and the island of Carriacou experienced hurricane-force winds on 1 July between 1400UTC and 1600UTC. Saint Lucia and St. Vincent and the Grenadines were affected by tropical-storm-force winds from 0900UTC until 1800UTC. TC Beryl then moved away from the Windward Islands, towards the central Caribbean Sea.

This event briefing is designed to review the modelled losses due to wind and storm surge due to Beryl, calculated by the Tropical Cyclone (TC) component of CCRIF's fisheries model for Grenada, to be analyzed with respect to its COAST policy. A separate report on the Adverse Weather component (impacts due to rain and high waves) on this CCRIF member country that have COAST policy will be issued if applicable.

The final runs of the CCRIF's COAST loss model for wind and storm surge produced government losses due to Tropical Cyclone Beryl for Grenada under the TC component of the county COAST policy. For this event, the losses in Grenada were above the upper attachment point of the TC component (the Tier 3 attachment point). Therefore, a payout of US$1,066,667 (Tier 3 payout) is due under the TC component of the COAST policy for Grenada.

2 INTRODUCTION

On 29 June at 0300UTC, the US National Hurricane Center (NHC) reported that a tropical storm formed in the central tropical Atlantic Ocean, and it was named Beryl. Its centre was sited near latitude 9.3° North, longitude 43.6° West, about 1110 mi (1800 km) ESE of Barbados. The system proceeded with estimated forward velocity of 18 mph (30 km/h) towards the west, along the southern periphery of a strong subtropical ridge. The minimum central pressure was 1006 mb and the maximum sustained winds were estimated at 40 mph (65 km/h).

In the next 18 hours, the tropical storm rapidly intensified due to the low wind shear, the high moisture content and the warm surface temperature over the tropical Atlantic, and on 29 June at 2100UTC, the NHC reported that it became a hurricane. At this time, the centre of Beryl was located near latitude 10.1° North, longitude 49.3° West, about 720 mi (1,110 km) ESE of Barbados. It proceeded westward with increased forward velocity (22 mph, 35km/h). The favourable environmental conditions continued to support the rapid intensification of the hurricane, and few hours later, on 30 June at 0300UTC, it presented a small closed eyewall at the surface and maximum sustained winds estimated at 85 mph (140 km/h).

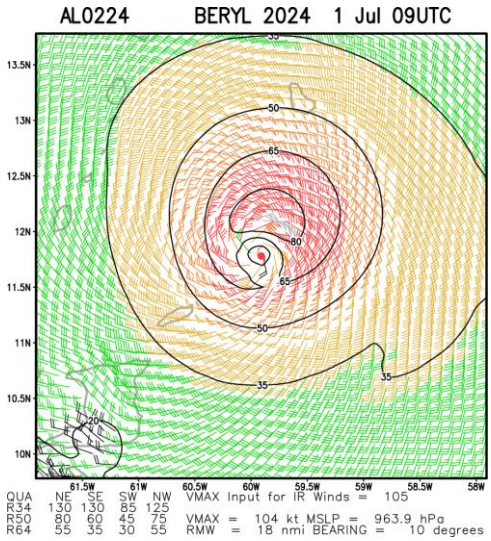
In the next 12 hours, Hurricane Beryl continued to strengthen rapidly and on 30 June at 1530UTC, the NHC reported that it had evolved into a Category 4 hurricane. The maximum sustained winds

were estimated at 130 mph (215 km/h) and the minimum central pressure dropped to 962 mb. At this time, Beryl was getting closer to the Windward Islands, as its centre was sited near latitude 10.8° North, longitude 54.9° West, about 350 mi (565 km) ESE of Barbados.

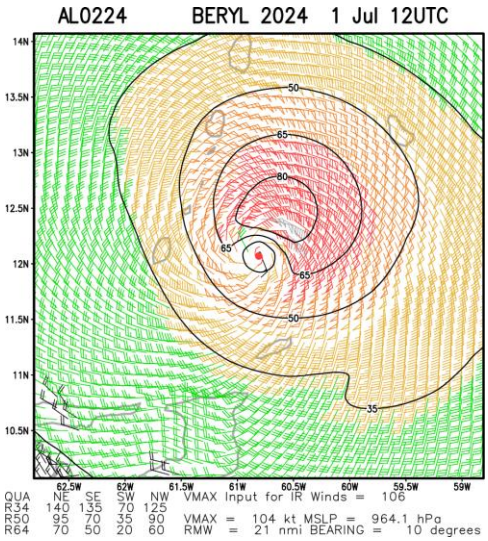
During the final hours of 30 June and the first hours of 1 July, Beryl continued to move closer to the Windward Islands, with almost unchanged intensity and forward velocity. Despite the environmental conditions that were still supportive for the intensification of the hurricane, an eyewall replacement cycle hindered the furtherstrengthening of the system. Indeed, a new outer eye formed outside the small inner core, weakening the latter and gradually becoming dominant. For this reason, when Beryl started to affect the Windward Islands with tropical-storm force winds, on 1 July at 0600 UTC, it had weakened to a Category 3 hurricane, with maximum sustained winds estimated at 120 mph (195 km/h). At this time, Beryl's centre was located near latitude 11.5° North, longitude 59.1° West, about 110 mi (175 km) SSE of Barbados. Hurricane-force winds extended outward up to 30 miles (45 km) from Beryl's centre and tropical-storm-force winds extended outward up to 115miles (185 km).

Barbados was the first country among the Windward Islands to be affected by Beryl's winds. At 0900UTC, tropical-storm-force winds started to affect also Trinidad and Tobago, Grenada and Saint Vincent and the Grenadines (Figure 1a). During the next three hours, the eye replacement completed its cycle and at 1200UTC Hurricane Beryl strengthened again, becoming a Category 4 hurricane again (Figures 2 and 3). At this time, the hurricane's centre was located near latitude 12° North, longitude 60.5° West, about 70 mi (125 km) E of Grenada and about 90 mi (165 km) SSE of Saint Vincent and the Grenadines (Figures 2 and 3). Tropical-storm-force winds continued to affecti Barbados, Tobago, Grenada, and Saint Vincent and the Grenadines, while also beginning to affect Saint Lucia (Figure 1b). Hurricane-force winds started to affect Carriacou (Grenada) at 1400UTC, when the hurricane centre was about 25mi (40 km) SE of the island. One hour later, at 1500UTC, Beryl made landfall on Carriacou , with maximum sustained winds estimated at 150 mph (240 km/h), Figure 1c. At this time the main island of Grenada also began to experience hurricane-force winds. Until 1600UTC, life-threatening winds were were experienced on Carriacou and Grenada, due to the eyewall passing over or very close to these islands. At its closest, the centre of Beryl passed 30 mi (50 km) NNE of Grenada.

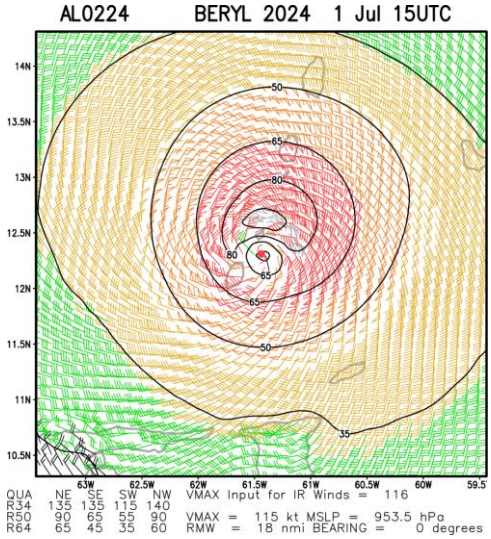
Hurricane Beryl then moved away from the southern Windward Islands, proceeding west-northwestwards at almost 20 mph (31km/h), towards the central Caribbean Sea. Tropical-storm-force winds ceased over Saint Lucia at 1800UTC, but continued to affect Saint Vincent and the Grenadines and Grenada until 2100UTC (Figure 1d).



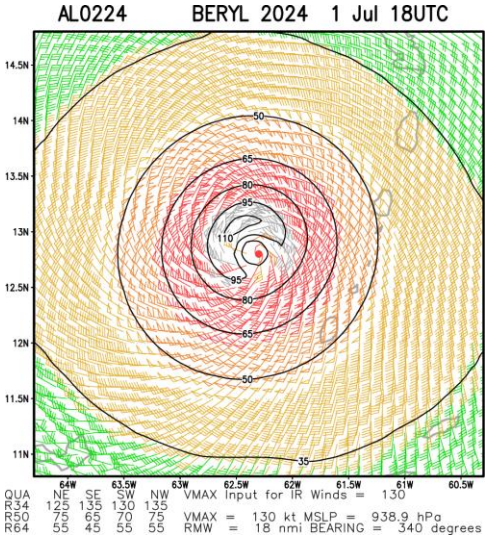
a) 1 July at 0900UTC



b) 1 July at 1200UTC



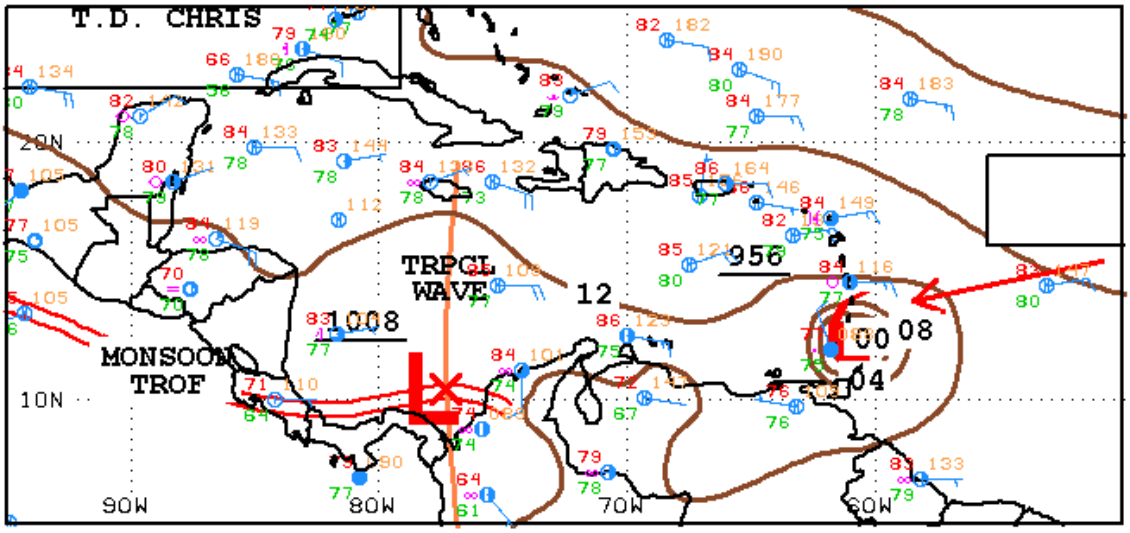
c) 1 July at 1500UTC

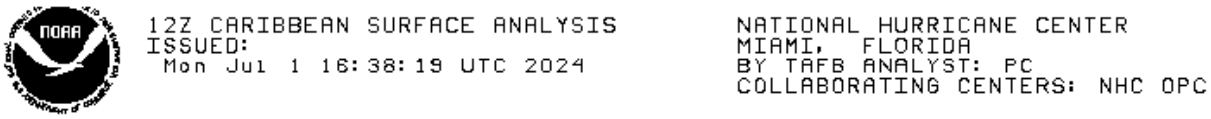


d) 1 July at 180UTC

Figure 1 Multi-platform satellite based tropical cyclone surface wind analysis estimated on 1 July, 2024 at different times as indicated by the labels. Contouring indicates wind intensity at 20 kn (23 mph, 37 km/h), at 35 kn (40 mph, 65 km/h), 50 kn (57mph, 93 km/h), 65 kn (75 mph, 120 km/h), 80 kn (92 mph, 148 km/h), 95 kn (109 mph, 176 km/h), 110 kn (127mph, 204 km/h),Source: NOAA, National Environmental Satellite, Data and Information Service[1]

1 RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al022024

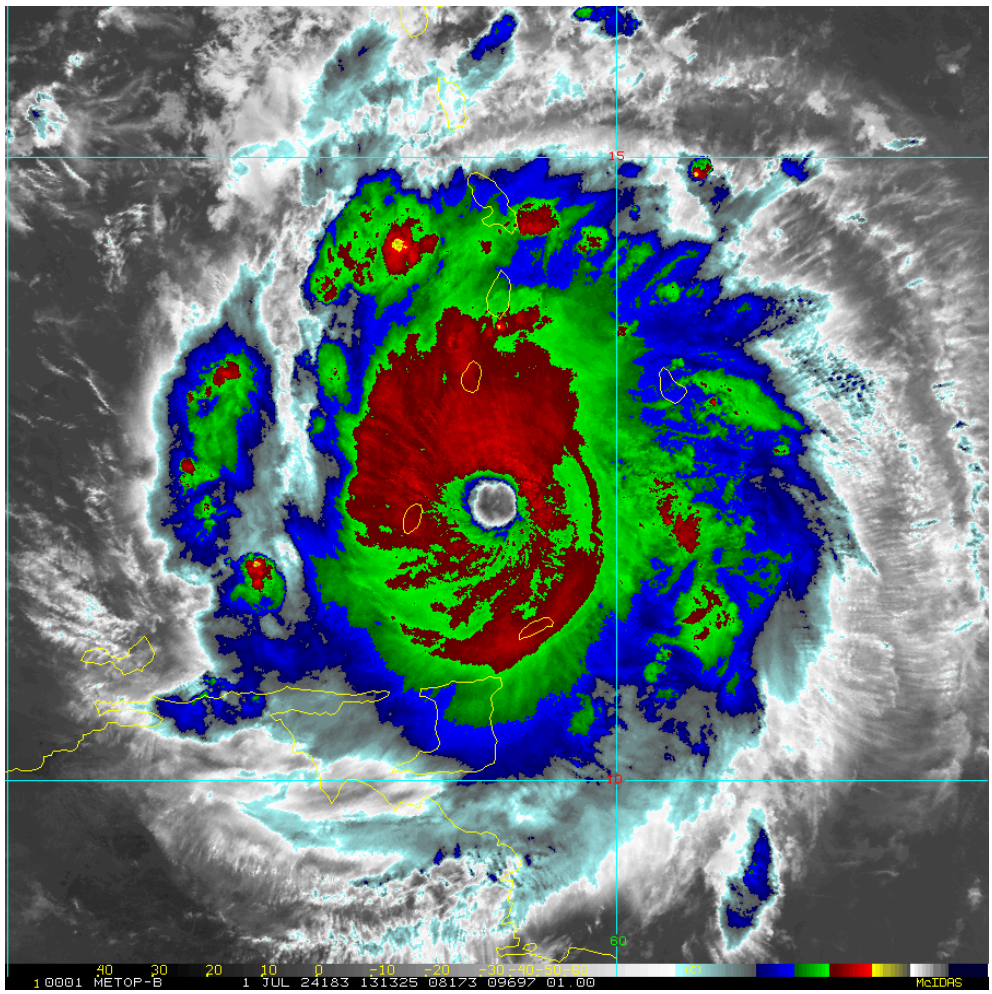




01 July at 1200UTC

Figure 2 Surface analysis over the Caribbean area on 1 July 2024 at 1200UTC. Source: US National Hurricane Center[2]

2 National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 1 July 2024, available at: *https://www.nhc.noaa.gov/tafb/CAR_12Z.gif*



01 July at 1330UTC

Figure 3 Satellite imagery on 1 July, 2024 at 1330UTC from the thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between -50°C and -70°C), while the red/yellow colours represent very high altitude clouds (top cloud lower than -70°C). High altitude clouds indicate strong convection associated with intense precipitation. Source: NOAA, National Environmental Satellite, Data and Information Service[3].

3 RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al022024

3 CCRIF SPC MODEL OUTPUTS

Under CCRIF's loss calculation protocol, a CCRIF System for Probabilistic Hazard Evaluation and Risk Assessment (SPHERA) report is required for any tropical cyclone affecting at least one member country with winds greater than 39 mph (62.7 km/h). A COAST report is required for any CCRIF member country that has a COAST policy, which meets this criterion.

Grenada was affected by Tropical Cyclone Beryl, which qualified as a Triggering Event[4] for the TC component of its COAST policy.

Figure 4 shows the wind footprint for the region around Grenada affected by Tropical Cyclone Beryl.

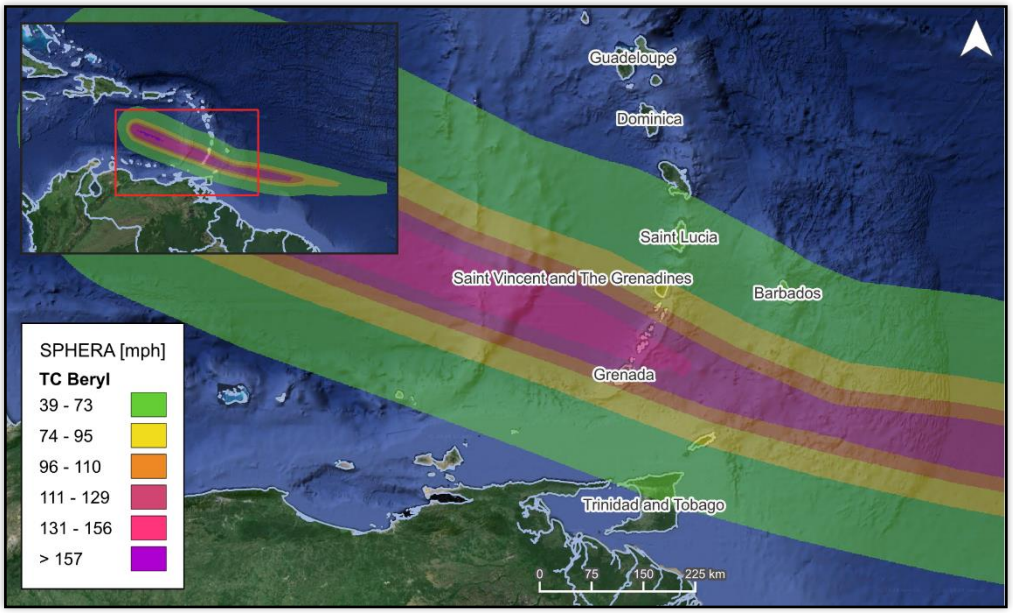


Figure 4 Map showing the wind field associated with Tropical Cyclone Beryl around the Windward Islands
Source: NHC & CCRIF/SPHERA

4 IMPACTS

At the time of writing this report, the available information on damage to the fisheries sector in Grenada due to Hurricane Beryl is shown below.

On 30 June 30, the Governor-General of Grenada declared a state of emergency in the country at 7am, due to the arrival of Hurricane Beryl.[5]

According to Yachting World, the worst hit areas were the Grenadian islands of Carriacou and Petite Martinique, where the marine infrastructure was severely affected.[6]

4 Any Tropical Cyclone event which produces a modelled loss sufficiently high to trigger a payout under the CCRIF policy conditions as in force on the date of the event in one or more policyholder countries.
5 Caribbean Loop News: Hurricane Beryl: Grenada to go on lockdown from 7pm | Loop Caribbean News (loopnews.com)
6 Yatching World: WATCH: Hurricane Beryl causes devastation in Grenada, yachts destroyed - Yachting World

Figure 5 Images that show the damage in Carriacou, Grenada, shared by Pierrick Quédinet on Facebook.

5 TRIGGER POTENTIAL

The final runs of CCRIF's COAST fisheries loss model for wind and storm surge produced government losses due to Tropical Cyclone Beryl for Grenada under the TC component of the country COAST policy.

The losses in Grenada were above the upper attachment point of the TC component (the Tier 3 attachment point). Therefore, a payout of US$1,066,667 (Tier 3 payout) is due under the TC component of the COAST policy for Grenada.

For additional information, please contact CCRIF SPC at: pr@ccrif.org