



Tropical Cyclone Beryl (AAL022024)

Wind and Storm Surge

Final Event Briefing

Greater Antilles

13 July 2024

1 SUMMARY

Tropical Cyclone Beryl was the second named cyclone and the first hurricane of the 2024 Atlantic Hurricane Season. On 3 July, Beryl was a Category 4 hurricane and it passed just south of Haiti with a minimum distance of 170 mi, 273km, from the capital, Port-au-Prince. Tropical-storm-force winds spread over the south side of the country and lasted for 9 hours. Later on the same day, Beryl passed just south of Jamaica, with the eyewall brushing Jamaica's southern coast at 2100UTC. Tropical-storm-winds affected Jamaica progressively from east to west, from 3 July at 1200UTC to 4 July at 0600UTC, while hurricane-force winds occurred mainly on the south and west sides of the island from 3 July at 1800UTC to 4 July at 0000UTC.

The final runs of the CCRIF tropical cyclone loss model for wind and storm surge in the Greater Antilles have produced government losses for both Haiti and Jamaica. The government losses for Jamaica are above the Attachment Point of its Tropical Cyclone policy and therefore a payout under this policy is due. For Haiti, the government losses are below the Attachment Point of its Tropical Cyclone policy and therefore no payout under the policy is due.

Although there is a Disaster Alert declaration for Haiti from ReliefWeb (with code 52063) related to Hurricane Beryl, the Aggregated Deductible Cover (ADC) feature for the Tropical Cyclone policy for Haiti has not been activated because the Modelled Losses are below 30% of the Attachment Point of the country's Tropical Cyclone policy. Therefore, no payout under the ADC feature is due for the Government of Haiti.

This event briefing is designed to review the modelled losses due to wind and storm surge calculated by CCRIF's tropical cyclone model for affected CCRIF member countries, to be analyzed with respect to members' Tropical Cyclone policies. Haiti and Jamaica were not the only CCRIF member countries for which the CCRIF loss model for wind and storm surge produced government losses due to Tropical Cyclone Beryl. A specific event briefing report has already been released regarding the CCRIF member countries in the Windward Islands for which the CCRIF loss model for wind and storm surge produced government losses due to Tropical Cyclone Beryl. A separate report on other CCRIF member countries affected by wind and storm surge, with respect to their Tropical Cyclone policies or rainfall impacts on affected CCRIF member countries will be issued if applicable.

Final calculations show that the payment due to the Government of Jamaica is US\$ 16,602,368.74.

2 INTRODUCTION

On 30 June at 1530UTC, the US National Hurricane Center (NHC) reported that tropical cyclone Beryl evolved into a Category 4 hurricane. 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. On the next day, 1 July, Hurricane Beryl passed over the southern Lesser Antilles and affected with tropical-storm-force winds firstly Barbados and Tobago, and later Grenada, Saint Vincent and the Grenadines and Saint Lucia. Moreover, Grenada experienced hurricane-force winds for two hours, before and after the hurricane making landfall on Carriacou

(Grenada) at 1500UTC.

Hurricane Beryl then moved away from the Windward Islands, heading west-northwestwards at 20 mph (31km/h) along the southwestern periphery of a strong subtropical ridge oriented ESE-to-WNW sited over the North Atlantic Ocean. On 2 July, Beryl intensified to a Category 5 hurricane, but during the final hours of the day it weakened again to a Category 4 hurricane, due to the presence of a westerly wind shear over the central Caribbean Sea and the entrainment of dry air in the cyclone circulation.

On 3 July at 0300UTC, Hurricane Beryl was at its minimum distance from Port-au-Prince (Haiti), as its centre was sited near latitude 16.1° North, longitude 72.4° West, about 170 mi (273 km) SSW of the capital of Haiti. The minimum central pressure was 946 mb and the maximum sustained winds were estimated at 145 mph (230 km/h). Hurricane-force winds extended outward up to 40 miles (65 km) from the eye, while tropical-storm-force winds extended outward up to 185 miles (295 km) from it. Tropical-storm-force winds spread over southern Haiti and lasted for the next 9 hours, until 1200 UTC (Figures 1a and 1b). During this time, Beryl continued to move west-northwestwards at unvaried forward velocity, passing S of Haiti and proceeding towards Jamaica.

At 1200 UTC, tropical-storm-force winds started to affect eastern Jamaica. At this time, Beryl presented unvaried intensity and its centre was located near latitude 16.9° North, longitude 75.3° West, about 125 mi (200 km) SE of Kingston, Jamaica (Figure 2). In the next 12 hours, Beryl's centre passed just south of Jamaica (Figures 1b, 1c and 1d). From the satellite images, the hurricane appeared to be experiencing the effects of a moderate northwesterly wind shear. The eye became cloud-filled and the hurricane's cloud pattern was elongated northeast to southwest and ragged (Figure 3). Nevertheless, very deep convection persisted in the eyewall and the core of the hurricane remained intact. Consequently, Beryl remained a Category 4 hurricane during the time it was in the vicinity of Jamaica, with maximum sustained winds estimated at near 140 mph (225 km/h), hurricane-force winds extended outward up to 45 miles (75 km) from the hurricane's centre and tropical-storm-force winds extended outward up to 185 miles (295 km) from it. On the whole, tropical-storm-winds affected Jamaica progressively from east to west, from 3 July at 1200UTC to 4 July at 0600UTC (Figures 1b, 1c and 1d). Moreover, hurricane-force winds spread mainly on the south and west sides of the island from 3 July at 1800UTC to 4 July at 0000UTC (Figures 1b, 1c and 1d). In particular at 2100UTC, the northern eyewall brushed the southern coast of Jamaica, with hurricane conditions occurring along the southern coast within a radius of 45 miles (75km) from the eye position.

On 4 July at 0600UTC, Beryl moved away from Jamaica as a Category 3 hurricane and it proceeded towards the Cayman Islands with unmodified direction and forward velocity.

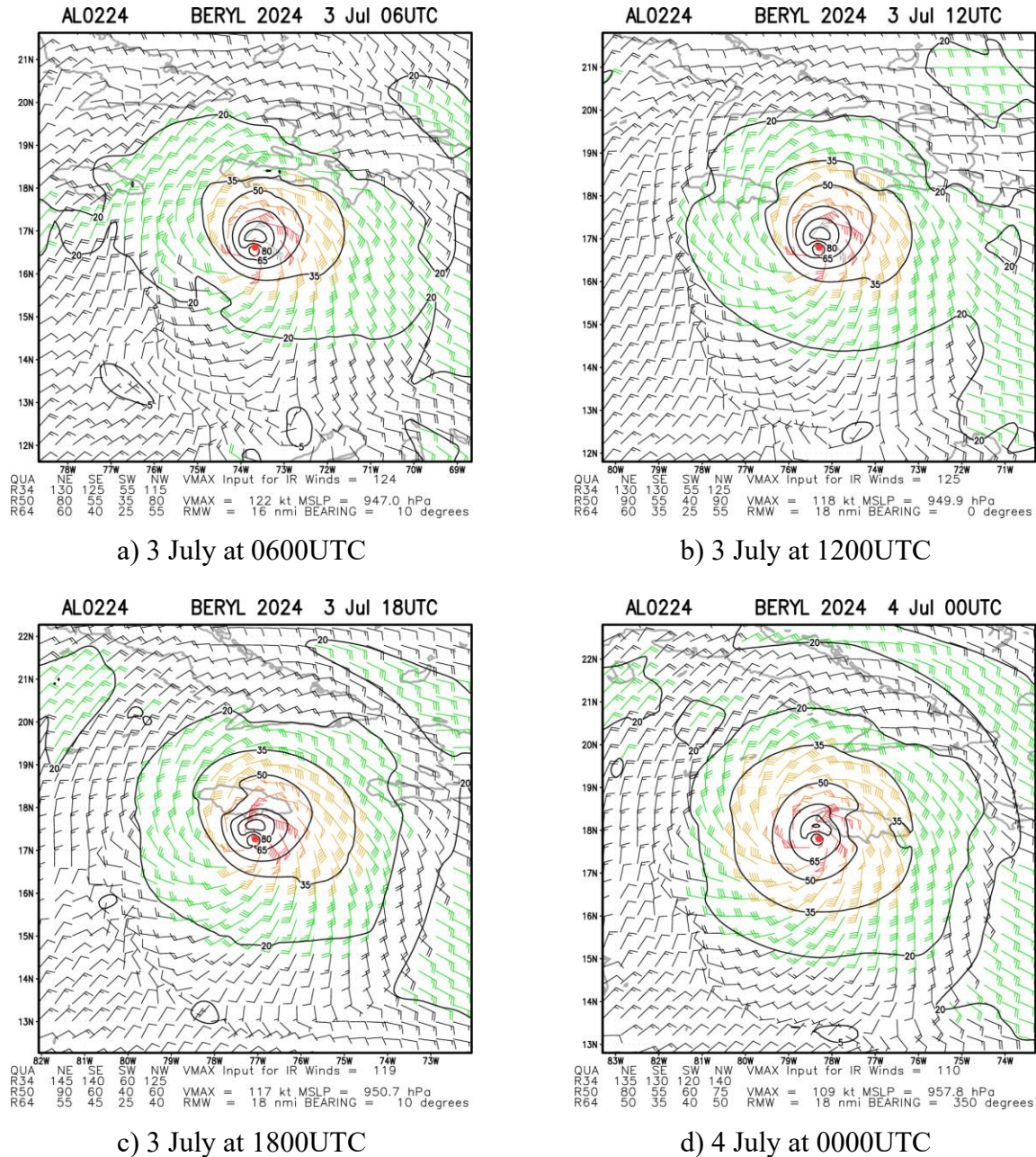
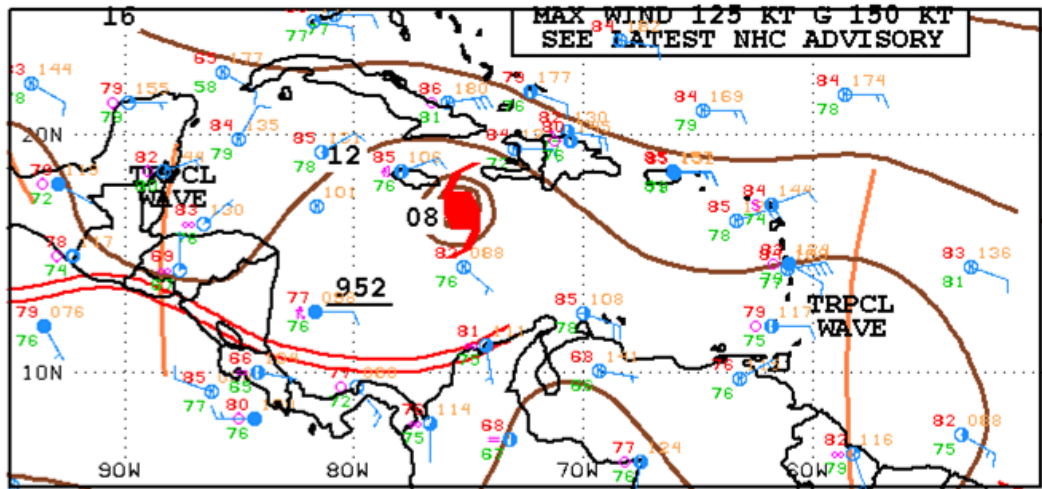


Figure 1 Multi-platform satellite based tropical cyclone surface wind analysis estimated on 3 and 4 July, 2024 at different times as indicated by the labels. Contouring indicates wind intensity at 20 kn (23 mph, 37 km/h), at 35 kn (40 mph, 65 km/h), 50 kn (57mph, 93 km/h), 65 kn (75 mph, 120 km/h), 80 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 Service¹

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



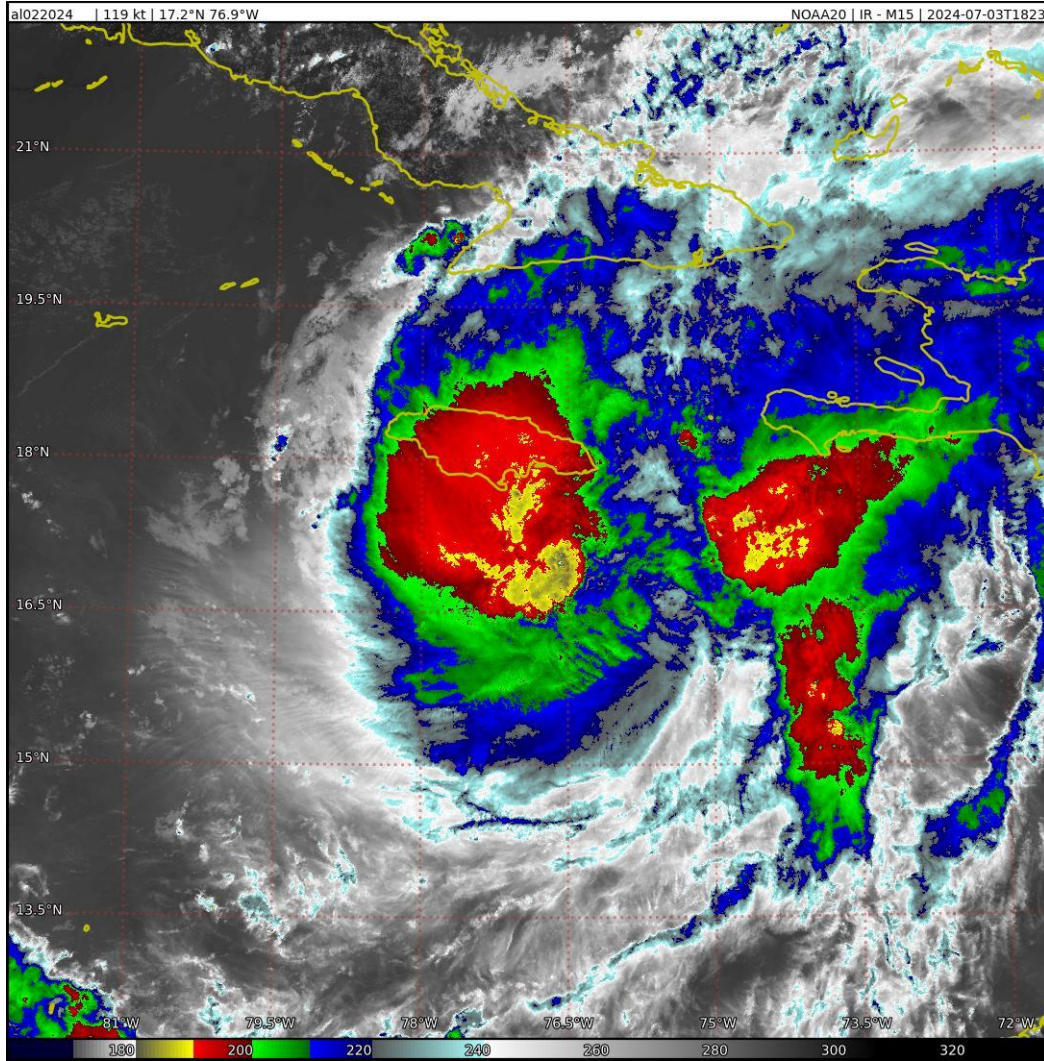
12Z CARIBBEAN SURFACE ANALYSIS
ISSUED:
Wed Jul 3 14:28:45 UTC 2024

NATIONAL HURRICANE CENTER
MIAMI, FLORIDA
BY TAFB ANALYST: NR
COLLABORATING CENTERS: NHC OPC

03 July at 1200UTC

Figure 2 Surface analysis over the Caribbean area on 3 July 2024 at 1200UTC. Source: US National Hurricane Center²

²National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 3 July 2024, available at: https://www.nhc.noaa.gov/tafb/CAR_12Z.gif



03 July at 1823UTC

Figure 3 Satellite imagery on 3 July, 2024 at 1823UTC 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 Service³.

3RAMSDIS 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

A CCRIF System for Probabilistic Hazard Evaluation and Risk Assessment (SPHERA) report is issued for any tropical cyclone affecting at least one member country with winds greater than 39 mph (62.7 km/h). Several countries were affected by Tropical Cyclone Beryl. For Jamaica, Beryl qualified as a Triggering event⁴ and for Haiti it qualified as Loss Event⁵.

The wind footprint is one of the outputs from CCRIF's model. Figure 4 shows the wind footprint for the regions around the Greater Antilles affected by Tropical Cyclone Beryl.

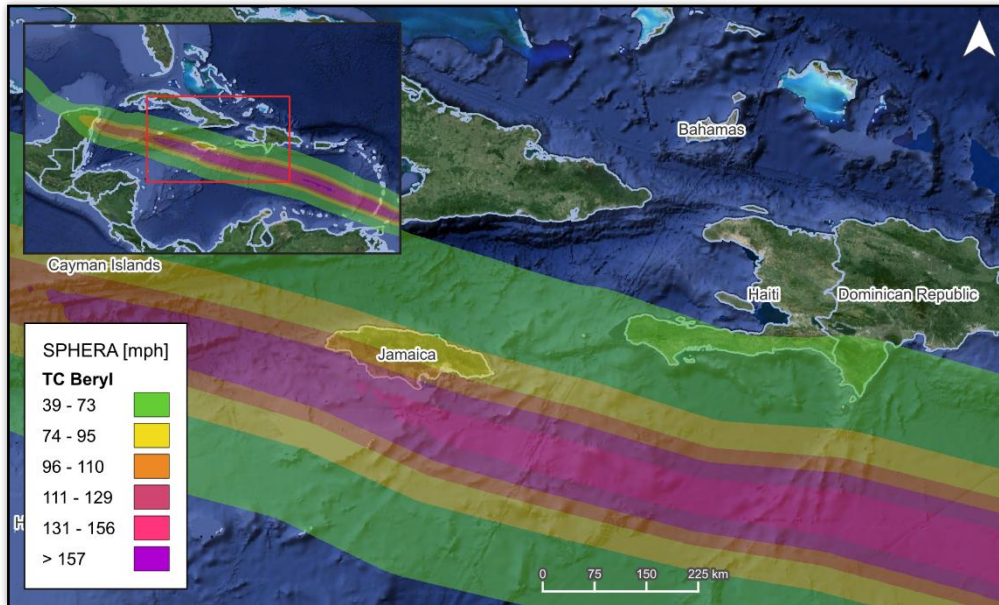


Figure 4 Map showing the wind field associated with Tropical Cyclone Beryl around the Greater Antilles.
Source: NHC & CCRIF/SPHERA

4 IMPACTS

At the time of writing this report, the available information on damage in Jamaica and Haiti due to Hurricane Beryl is shown below.

The hurricane caused widespread damage in Jamaica, primarily in the southwestern areas of the country. About 65 per cent of customers were left without power. This situation impacted the airports, and the three major ones were closed.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 Any Tropical Cyclone event which produces a modelled loss greater than zero in one or more policyholder countries.

6 [Abc News: Hurricane Beryl leaves widespread damage in Jamaica, targets Mexico and Texas - ABC News \(go.com\)](https://abcnews.go.com)

In the capital of Jamaica, Kingston, a significant number of roofs were lost due to heavy rainfall and strong winds. Also houses were damaged and trees uprooted, electrical light poles fell down and most roads were inaccessible⁷.



Figure 5 Workers saving pieces of fences (Joe Raedle) and flooded streets (Reuters) in Kingston

The Office of Disaster Preparedness and Emergency Management (ODPEM) reported that the main road in Port Royal and Crescent Road towards Spanish Town were blocked due to fallen utility poles⁸. The Jamaican Urban Transit Company helped to transport people during this event.

According to CDEMA, approximately 250 reports of blocked roads were received by the National Work Agency. Several of them reported several fallen trees.

The agriculture sector also was damaged, the worst affected parishes of these sectors include Clarendon, Manchester and St. Elizabeth. Specifically, the damages included plantain, banana and fruit trees.⁹

More than 100 residents in Old Harbour Bay were evacuated and transported to Old Harbour High School, assisted by the service members of the Jamaica Defense Force (JDF) in collaboration with the Jamaica Constabulary Force (JCF) and the Jamaica Urban Transit Company (JUTC)¹⁰.

7 BBC News: [Hurricane Beryl: Many Jamaicans without power after storm thunders through \(bbc.com\)](https://www.bbc.com/news/world-latin-america-64888888)

8 Jamaica Loop News: [ODPEM warns of impassable roads amid Hurricane Beryl | Loop Jamaica \(loopnews.com\)](https://www.loopnews.com/news/odpem-warns-of-impassable-roads-amid-hurricane-beryl/)

9 CDEMA: [Slide 1 \(cdema.org\)](https://www.cdema.org/jamaica/news/beryl-damage-reports)

10 Jamaica Loop News: [Hurricane Beryl: Over 100 residents evacuated from Old Harbour Bay | Loop Jamaica \(loopnews.com\)](https://www.loopnews.com/news/hurricane-beryl-over-100-residents-evacuated-from-old-harbour-bay/)



Figure 6 Jamaica Defense Force helping residents (Source: JDF social media).

In Haiti, several municipalities in the southeastern area of the country reported coastal floods .

Emmanuel Pierre, head of Civil Protection, reported no overflowed rivers and very little damage to dwellings. In addition to flooding in the southeast, several fishing boats were swept away by the water and the two mobile telephone companies were out of service¹¹.

The agricultural sector in Grand Boucan and in the South Department also was affected. ¹²



Figure 1 Street flooded in Haiti / Agenzia Fides ¹³

11 SWI: [El huracán Beryl causa "muy pocos daños" en Haití, según afirman autoridades - SWI swissinfo.ch](#)

12 Haiti Loop News: [Beryl-Haiti: "minor damage" recorded, end of orange vigilance | Loop Haiti \(loopnews.com\)](#)

13 Agenzia Fide: [AMERICA/HAITI - Camillians after Hurricane Beryl: "We are still alive, thank God!" - Agenzia Fides](#)

5 TRIGGER POTENTIAL

The final runs of the CCRIF tropical cyclone loss model for wind and storm surge produced government losses for Jamaica, which are above the attachment point of the Tropical Cyclone policy and therefore a payout of US\$16,602,368.74 under the policy is due.

The modelled loss in Haiti is below 30 per cent of the Attachment Point of its Tropical Cyclone policy, and despite a Disaster Alert issued by ReliefWeb, the ADC feature for the Tropical Cyclone policy is not activated, therefore, no payout under the ADC feature is due for the Government of Haiti.

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