CCRIF SPC
The Caribbean Catastrophe Risk Insurance Facility

# Tropical Cyclone Beryl (AAL022024)

## Wind and Storm Surge

## Final Event Briefing

## Cayman Islands

**12 July 2024**

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# 1 SUMMARY

Tropical Cyclone Beryl was the second named cyclone and the first hurricane of the 2024 Atlantic Hurricane Season. On 4 July, Beryl weakened from a Category 4 to a Category 3 hurricane, while passing just south of the Cayman Islands. Tropical-storm-force winds spread over the country, firstly over the easternmost islands, Cayman Brac and Little Cayman and later over Grand Cayman, and lasted for 12 hours, until 1500UTC.Beryl then moved away from the Cayman Islands, heading for the Yucatan Peninsula.

The final runs of the CCRIF tropical cyclone loss model for wind and storm surge have produced government losses for the Cayman Islands The government losses are below the Attachment Point of the Government's Tropical Cyclone policy and therefore no payout under the policy is due. However, for the tropical cyclone policy, conditions are fulfilled to activate the Aggregate Deductible Cover (ADC)[1] policy feature or endorsement: modelled losses are greater than 50 per cent of its Attachment Point. Therefore, an ADC payment is due to the Government of the Cayman Islands.

The final runs of the CCRIF tropical cyclone loss model for wind and storm surge have produced losses for the Cayman Turtle Conservation and Education Centre Ltd. The losses are above the Attachment Point of the CTCEC Tropical Cyclone policy and therefore a payout of US$119,474.00, equal to the minimum payment, is due.

This event briefing is designed to review the final 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. The Cayman Islands were not the only CCRIF member country for which the CCRIF loss model for wind and storm surge produced government losses due to Tropical Cyclone Beryl. Specific event briefing reports have been released regarding the CCRIF member countries in the southern Lesser Antilles[2] and the Greater Antilles[3] for which the CCRIF loss model for wind and storm surge produced government losses due to TC Beryl..

Final calculations show that a payment of US$ 539,568.36 is due to the Government of the Cayman Islands under the ADC policy endorsement of its TC policy. In addition, a payment of US$119,474.00, corresponding to the minimum payment, is due to the Cayman Turtle Conservation and Education Centre Ltd.

# 2 INTRODUCTION

On 30 June at 1530UTC, the US National Hurricane Center (NHC) reported that Tropical Cyclone

[1]The ADC policy endorsement is activated under either of the following conditions: 1) if the modelled loss value is between 50% and 100% of the Attachment Point of the country's tropical cyclone or earthquake policy or 2) if the modelled loss value is between 30% and 50% of the Attachment Point and a Disaster Alert is issued by ReliefWeb within 7 days after the event. .

[2] Briefing: 20240701_CCRIF_PreliminaryEventBriefing_TC-Beryl_Windward_Islands.pdf

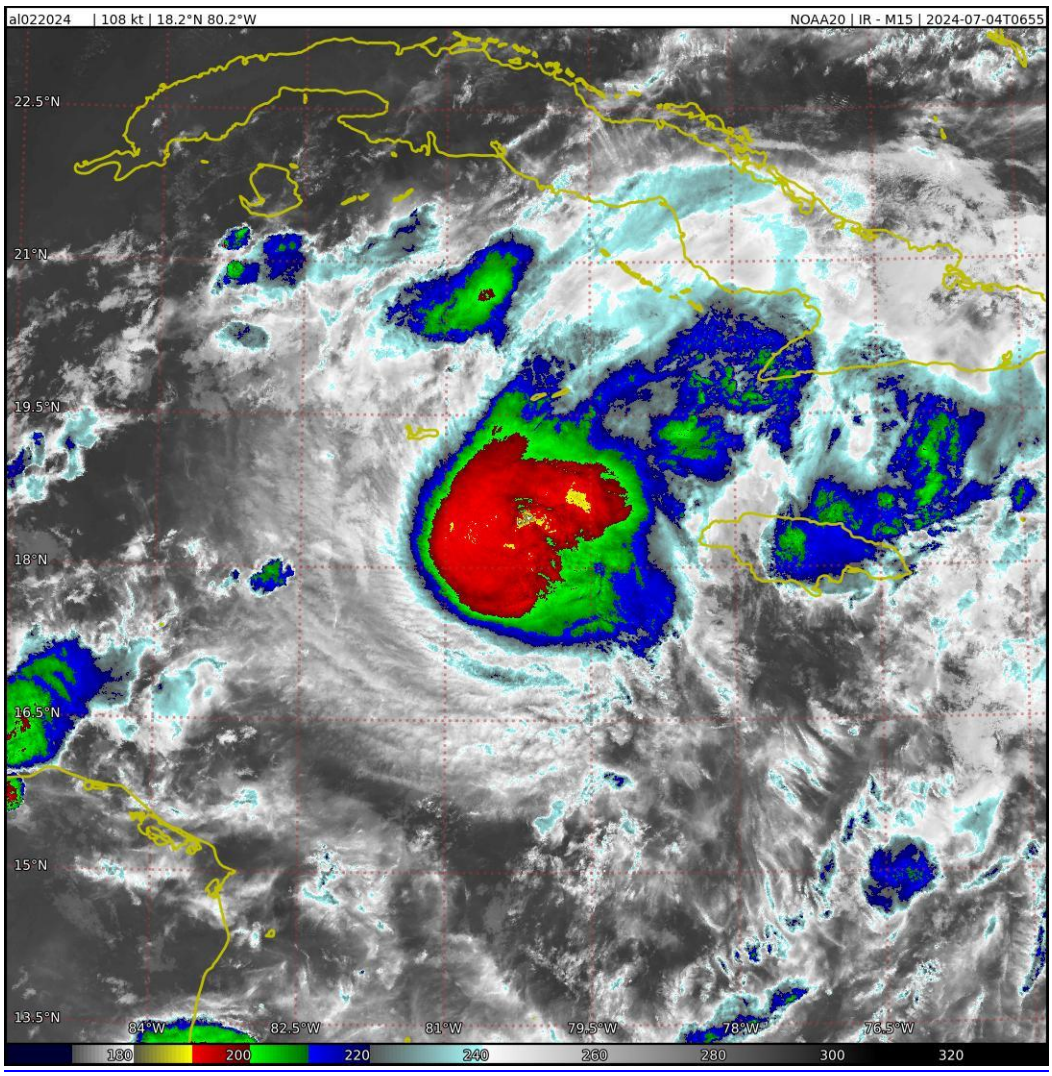
[3] Briefing: 20240705_CCRIF_PreliminaryEventBriefing_TC-Beryl_Greater_Antilles.pdf

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, affecting them with tropical-storm-force winds – Barbados and Tobago at first, and later Grenada, Saint Vincent and the Grenadines and Saint Lucia. 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 (31 km/h) along the southwestern periphery of a strong subtropical ridge oriented ESE-to-WNW sited over the North Atlantic Ocean. On 3 July, Beryl passed just south of Haiti and Jamaica, spreading tropical-storm conditions over the southern portion of Haiti and over all of Jamaica.Hurricane-force winds blew over the south and western portions of Jamaica as the hurricane moved east to west.

On 4 July, Hurricane Beryl continued to proceed with unvaried forward velocity and direction, proceeding west-northwestwards towards the Cayman Islands. At 0300UTC, its centre was located near latitude 18.0° North, longitude 79.2° West, about 160 mi (255 km) SE of Grand Cayman. At this time, the satellite images and the NOAA reports indicated that the eye became cloud filled with the eyewall open on the southwest side (Figure 1). Despite the degraded structure, Beryl was still a Category 4 hurricane, with maximum sustained winds estimated at 130 mph (215 km/h) and minimum central pressure at 961 mb. Hurricane-force winds extended outward up to 45 miles (75 km) from the centre, while tropical-storm-force winds extended outward up to 185 miles (295 km) from the centre (Figure 2). Starting at this time, i.e. 0300UTC, tropical-storm-force winds spread over the Cayman Islands, initially over the easternmost islands, i.e. Cayman Brac and Little Cayman, and later over Grand Cayman (Figure 2a). During the next 12 hours, the Cayman Islands experienced tropical-storm conditions, while Beryl was passing just south of the country (Figure 2). At its minimum distance, at 1200 TC, the centre of the hurricane passed 50 mi (80 km) SW of Grand Cayman (Figure 2c). During this time interval, Beryl weakened to a Category 3 hurricane, due to the wind shear effect. The maximum sustained winds decreaced to 120 mph (195 km/h), but the area affected by tropical-storm-force winds remained almost unchanged (i.e. 175 mi, 280 km, from the hurricane centre). At 1500UTC, the tropical-storm-force winds gradually ceased over the Cayman Islands, leaving Cayman Brac and Little Cayman and later Grand Cayman (Figure 2d), while Beryl continued to proceed west-northwestwards towards the Yucatan Peninsula.

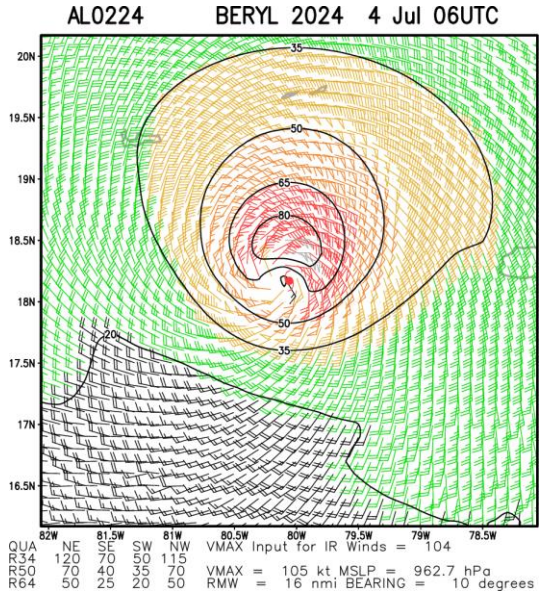
At the time of writing this report, Beryl has already made landfall over the Yucatan Peninsula and is crossing over the Gulf of Mexico, heading for Texas (The United States).



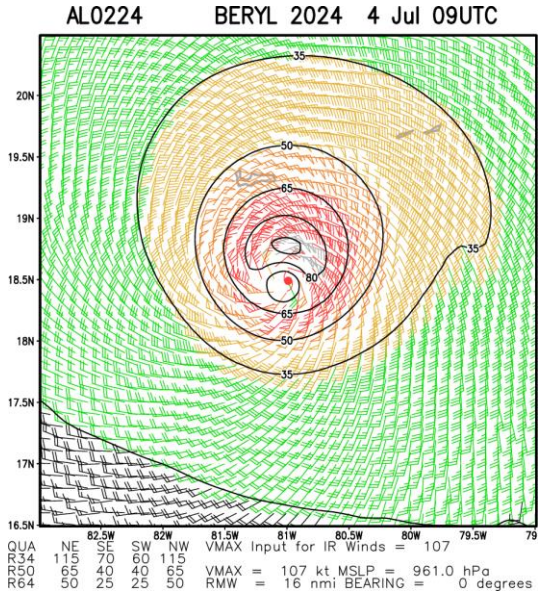

04 July at 0655UTC

Figure 1 Satellite imagery on 4 July, 2024 at 0655UTC 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[4].

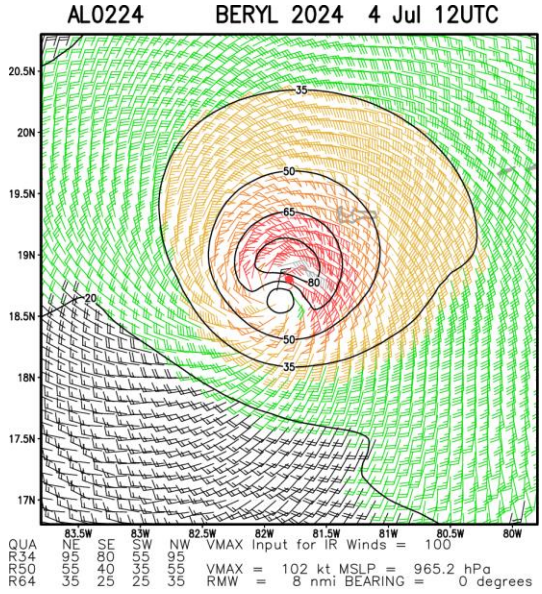
[4]RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al022024



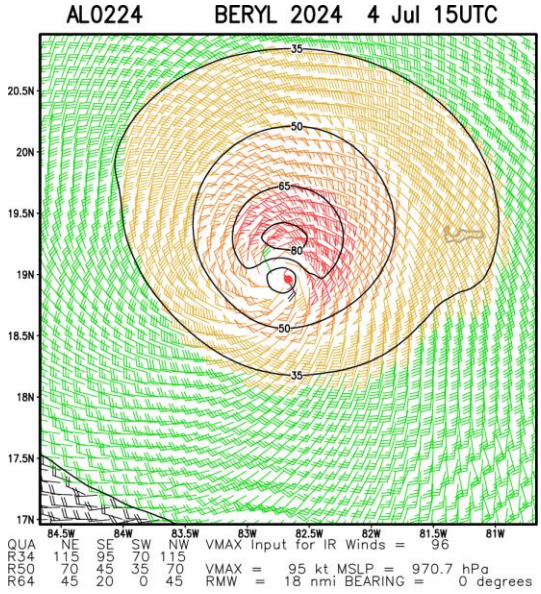

a) 4 July at 0600UTC




b) 4 July at 0900UTC




c) 4 July at 1200UTC




d) 4 July at 1500UTC

Figure 2 Multi-platform satellite based tropical cyclone surface wind analysis estimated on 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 Service[5]

[5]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

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 Cayman Islands, Beryl qualified as a Triggering Event under the Aggregated Deductible Cover (ADC) [6] endorsement of its Tropical Cyclone policy.

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

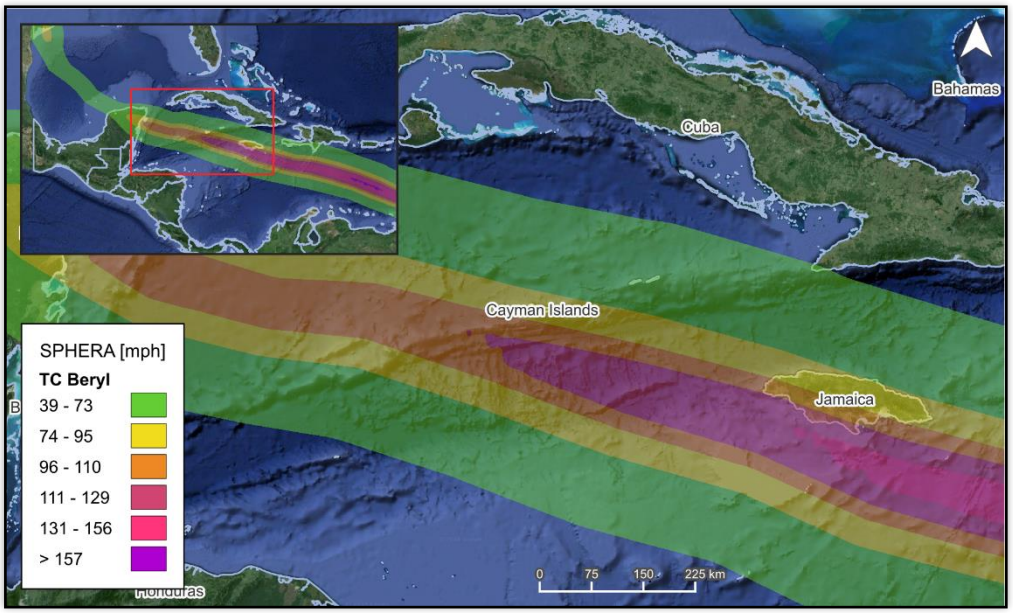



Figure 3 Map showing the wind field associated with Tropical Cyclone Beryl around the Greater Antilles. Source: NHC & CCRIF/SPHERA

# 4 IMPACTS

At the time of writing this report, the available information on damage indicates that Beryl struck the Cayman Islands as Category 3 hurricane, causing storm surges and heavy seas. The storm impacted especially the south coast of Grand Cayman, leaving other areas relatively unscathed. [7]

6 The Aggregated Deductible Cover (ADC) is a special feature of CCRIF's tropical cyclone (TC) and earthquake (EQ) parametric insurance policies. The ADC is designed to potentially provide a payment for TC and EQ events that are objectively not sufficient to trigger the country's main policy because the modelled loss is below the Underlying Policy Attachment Point.

[7] Cayman Compass: Hurricane Beryl hits Cayman - Cayman Compass

Storm surge battered shutters and inundated homes that were close to the waterfront at South Church Street in George Town. This flooding affected several properties, damaging their ground floors. [8]

The following photos show how the storm affected some of the properties at Windsor Village.

Figure 4 Shutters splintered in the storm and doors blown apart at Windsor Village. – Photo: James Whittaker

South Sound Road was inundated with waves and filled with debris, causing damage to the streets. The Police Department reported this road as unsafe and impassable by motorists and immediately blocked the street.

Across Grand Cayman, there were few reports of serious damage and fortunately no fatalities or injuries. However, approximately 3,000 households lost electricity during the hurricane, but had the service restored the next day.

Figure 5 Utility crews supervise electricity lines near Frank Sound. – Photo: Dana Kampa

Figure 6 Floodwaters plague the West bay Plams complex. – Photo: Reshma Ragoonath

8 Cayman Compass: Storm surge batters down shutters at oceanfront condo complex - Cayman Compass

In terms of water service, the Water Authority – Cayman shut off water supplies on Wednesday night, and also restored service next day. [9]

Figure 7 Clean-up crews pile up debris along the roadside. – Photo: James Whittaker

On the agricultural sector, the reports according to CDEMA are likely impact to the mango, plantain and avocado crops.[10]

The Cayman Turtle Centre reported no damage to their infrastructure and reported that all animals were safe. The Centre is still closed and doing cleaning maintenance, according to their social media on Instagram. [11] Cleaning maintenance include clearing debris from the place, the animals were placed in temporary hurricane-proof housing. [12]

# 5 TRIGGER POTENTIAL

Final calculations show that a payment of US$ 539,568.36 is due to the Government of the Cayman Islands under the Aggregate Deductible Coverage (ADC) endorsement of its Tropical Cyclone policy.

The final runs of the CCRIF tropical cyclone loss model for wind and storm surge have produced losses for the Cayman Turtle Conservation and Education Centre Ltd. The losses are above the Attachment Point of its Tropical Cyclone policy and therefore a payout of US$119,474.00, equal to the minimum payment, is due.

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

9 Cayman Compass: Hurricane Beryl leaves Cayman battered but not beaten (caymancompass.com)
10 CDEMA: Slide 1 (cdema.org)
11 Cayman Turtle Centre Instagram: Cayman Turtle Centre
12 Cayman iNEWS: Cayman Turtle Centre prepares to re-open this weekend after Hurricane Beryl clean-up - IEyeNews