Tropical Cyclone Ernesto (AAL052024)

Wind and Storm Surge

Preliminary Event Briefing

Leeward Islands

15 August 2024

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1 SUMMARY

Tropical Cyclone Ernesto is the fifth named cyclone and the third hurricane of the 2024 Atlantic Hurricane Season. On 13 August at 0000UTC, Ernesto formed as a tropical storm while approaching the Leeward Islands. During the day, it passed over Montserrat, and within the vicinity of Antigua and Barbuda, Saint Kitts and Nevis, Sint Maarten, and Anguilla, spreading tropical-storm-force conditions over these countries in only six hours. On 14 August at 0000UTC, it made landfall over the British Virgin Islands, bringing tropical-storm-force winds over this country. Ernesto then moved away from the Caribbean Sea, proceeding towards Bermuda over the north Atlantic Ocean, and it became a hurricane on 14 August at 1500UTC.

The preliminary runs of the CCRIF tropical cyclone loss model for wind and storm surge have produced government losses for Montserrat, Antigua and Barbuda, Saint Kitts and Nevis and the British Virgin Islands (loss event[1]). The government losses for these countries are below the Attachment Point of their Tropical Cyclone policies and therefore no payout under these policies is due.

Conditions are not fulfilled to proceed to an Aggregate Deductible Cover (ADC)[2] payment on the Tropical Cyclone policies for any of these countries.

Although the wind speed was above 39 mph in Anguilla and Sint Maarten, the preliminary runs of the CCRIF tropical cyclone loss model for wind and storm surge have produced zero government losses for these countries. For this reason, Tropical Cyclone Ernesto is considered a reportable event[3] for Anguilla and Sint Maarten.

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. Montserrat, Antigua and Barbuda, Saint Kitts and Nevis and the British Virgin Islands were the only CCRIF member countries for which the CCRIF loss model for wind and storm surge produced government losses due to Tropical Cyclone Ernesto at the time of writing this report. 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.

2 INTRODUCTION

On 13 August at 0000UTC, the US National Hurricane Center (NHC) reported that a tropical storm formed in the western tropical Atlantic Ocean, and it was named Ernesto. Its centre was

[1] Any Tropical Cyclone event which produces a modelled loss greater than zero in one or more policyholder countries.
[2] The ADC is activated if the modelled loss value is between 30% and 50% of a country's policy Attachment Point and a Disaster Alert is issued by ReliefWeb within 7 days after the event.
The ADC can also be activated if the modelled loss value is between 50% of the Attachment point and the Attachment point of the country policy.
[3] Any named Tropical Cyclone event (*i.e.* one that reaches Tropical Storm status or higher) within a box bounded by the following – Latitude 4° and 34°N, Longitude 95° and 53°W – 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

sited near latitude 16.0° North, longitude 58.5° West, about 230 mi (370 km) ESE of Antigua. The system proceeded with estimated forward velocity of 28 mph (44 km/h) westward, along the southern periphery of a strong ridge situated just north of the system over the subtropical Atlantic Ocean. The minimum central pressure was 1009 mb and the maximum sustained winds were estimated at 40 mph (65 km/h).

In the next 12 hours, the tropical storm slowly intensified due to moderately favourable oceanic and atmospheric conditions. It was still in its formative stage and it maintained a broad ragged shape during these hours, with a developing center of circulation and convective banding features around it (Figure 1). Between 0900UTC and 1500UTC, the centre of tropical storm Ernesto passed over or very close to Guadeloupe and Montserrat (Figure 2), with slightly increased intensity (maximum sustained winds were estimated at 45 mph, 75 km/h). During this time, Ernesto passed SE of Antigua and Barbuda, at a minimum distance of 34 mi (55 km). Tropical-storm-force winds were experienced over both Montserrat and Antigua and Barbuda, primarily around 1200UTC (Figure 3a).

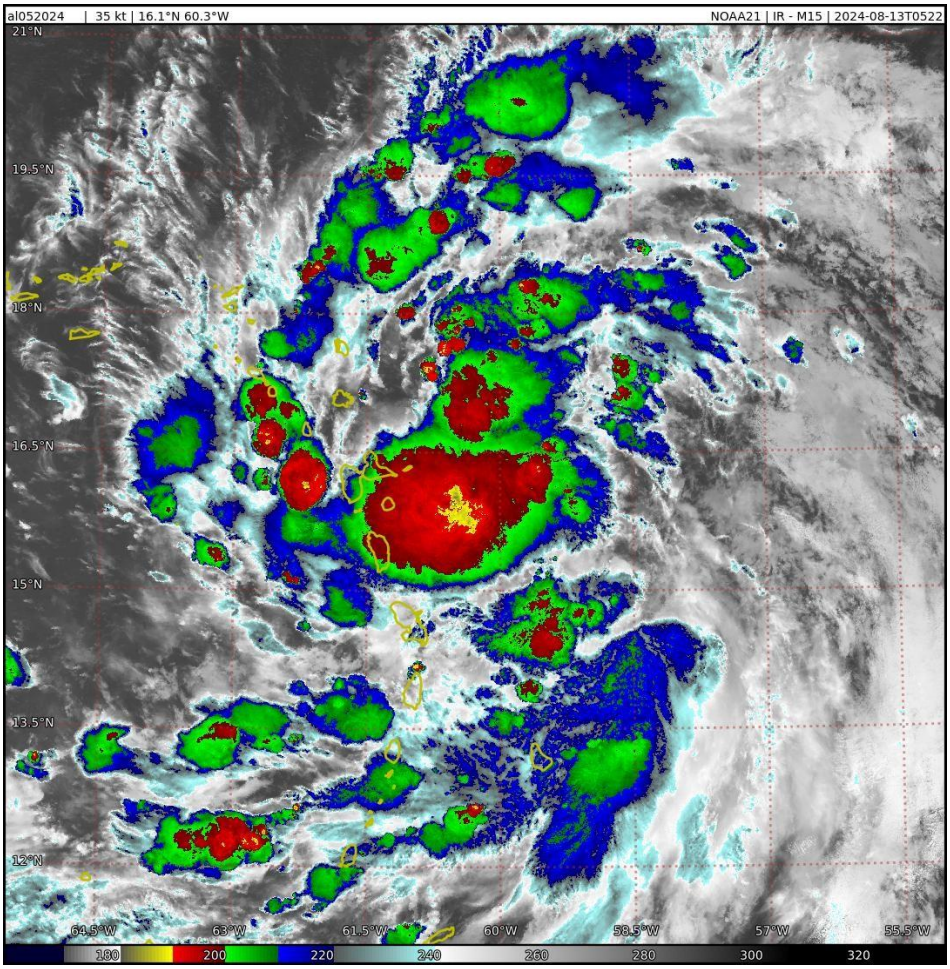


Figure 1 Satellite imagery on 13 August, 2024 at 0522UTC from the thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between -50°C and -70°C), while

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[5].

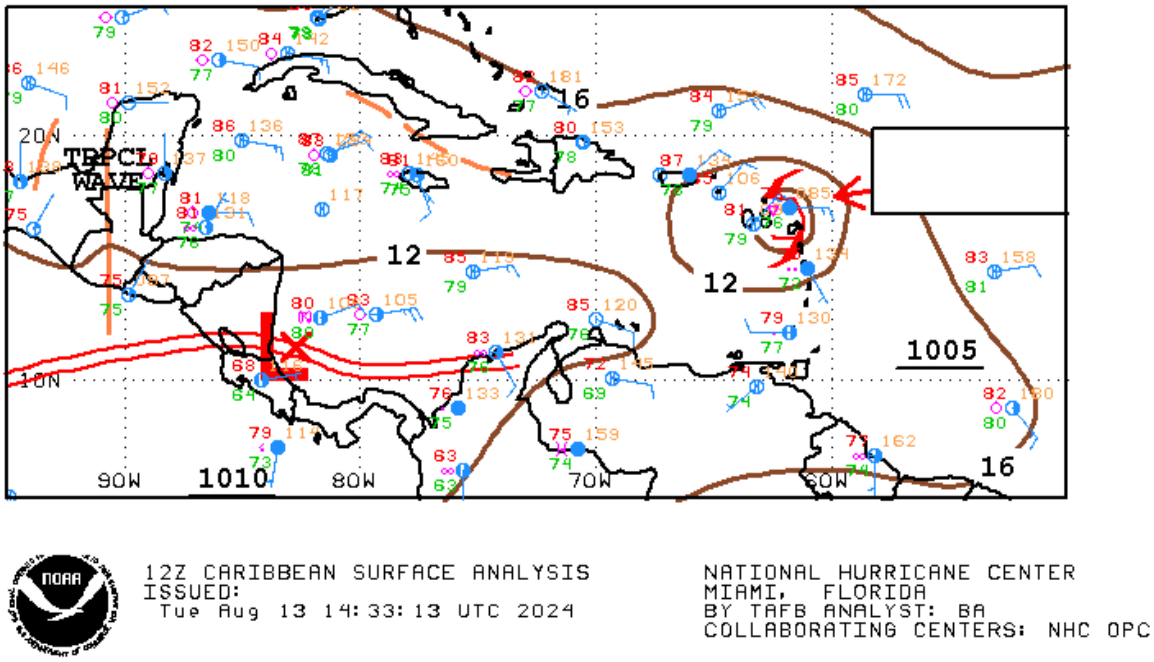
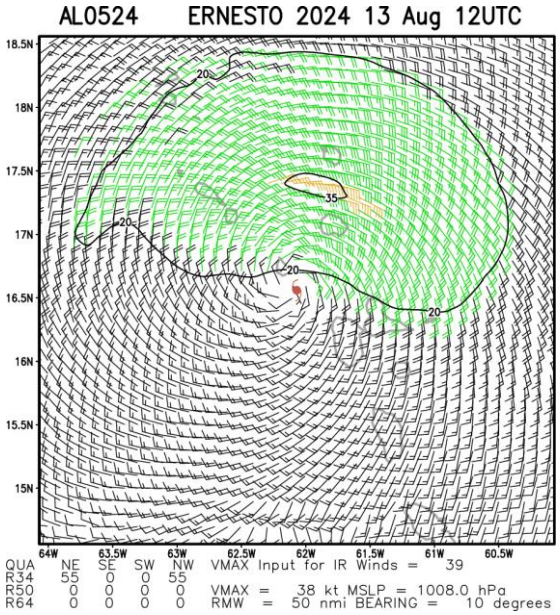


Figure 2 Surface analysis over the Caribbean area on 13 August 2024 at 1200UTC. Source: US National Hurricane Center[6]

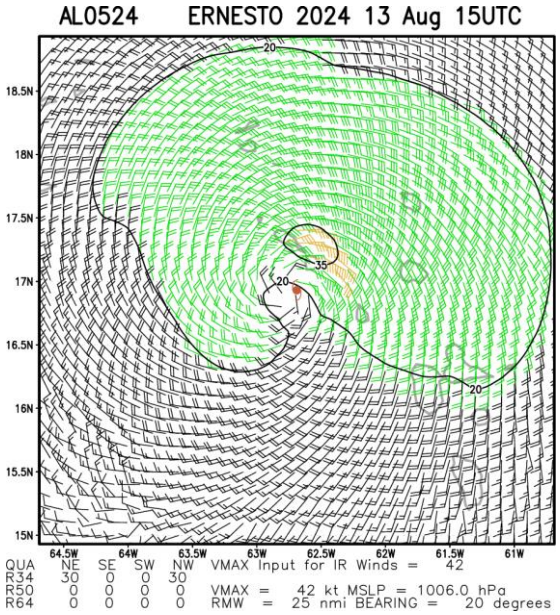
In the next three hours, between 1500UTC and 1800UTC, Ernesto passed just south of Saint Kitts and Nevis, about 16 mi (26 km) offshore from its southern coast, while at 1800UTC, it was at its minimum distance from Sint Maarten (48 mi, 77 km SW of Sint Maarten) and from Anguilla (57 mi, 92 km SW of Anguilla). At this time, the maximum sustained winds were estimated at 60 mph (95 km/h), with the most intense winds concentrated to the northeast of the system centre, as visible in Figures 3b and 3c. Tropical-storm-force winds affected Saint Kitts and Nevis, Sint Maarten and marginally Anguilla in approximately 6 hours of its reported path. At this time, Ernesto turned towards the west-northwest, heading towards the British Virgin Islands with reduced forward velocity (18 mph, 30 km/h).

Six hours later, on 14 August at 0000UTC, Tropical Storm Ernesto crossed the British Virgin Islands, with its centre located near latitude 18.4° North, longitude 64.7° West, about 6 mi (9 km) WSW of Road Town, the capital city. As shown in Figure 3d, the most intense winds were reported northeast of the system centre, affecting the British Virgin Islands with tropical-storm-force winds.

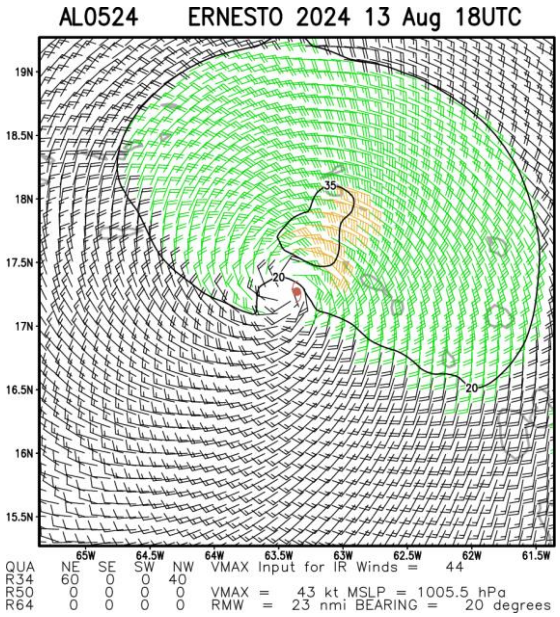
[5] RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: rammbdata.cira.colostate.edu
[6] National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 13 August 2024, available at: *https://www.nhc.noaa.gov/tafb /CAR 12 Z.gif*



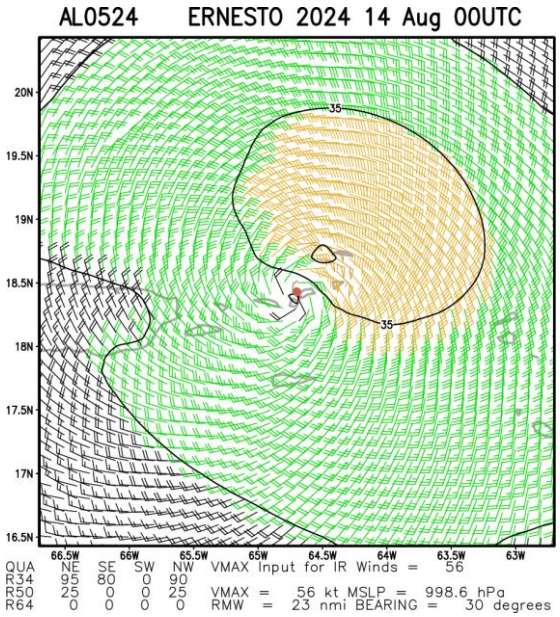
a) 13 August at 1200UTC



b) 13 August at 1500UTC



c) 13 August at 1800UTC



d) 14 August at 0000UTC

Figure 3 Multi-platform satellite based tropical cyclone surface wind analysis estimated on 13 and 14 August, 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) and 50 kn (57mph, 93 km/h). Source: NOAA, National Environmental Satellite, Data and Information Service[7]

[7] RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://rammbdata.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al052024

In the following hours, Ernesto turned northwestward, leaving the Caribbean Sea and moving toward the north Atlantic Ocean. The environmental conditions over these waters supported a quicker strengthening of the system, which became a Category 1 hurricane at 1500UTC, while its centre was located north of Puerto Rico. At the time of writing this report, Hurricane Ernesto is moving over the north Atlantic Ocean, heading towards Bermuda.

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 Ernesto. For Montserrat, Antigua and Barbuda, Saint Kitts and Nevis and the British Virgin Islands, it qualifies as a Loss Event[8] and for Anguilla and Sint Maarten it qualifies as a Reportable Event[9].

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

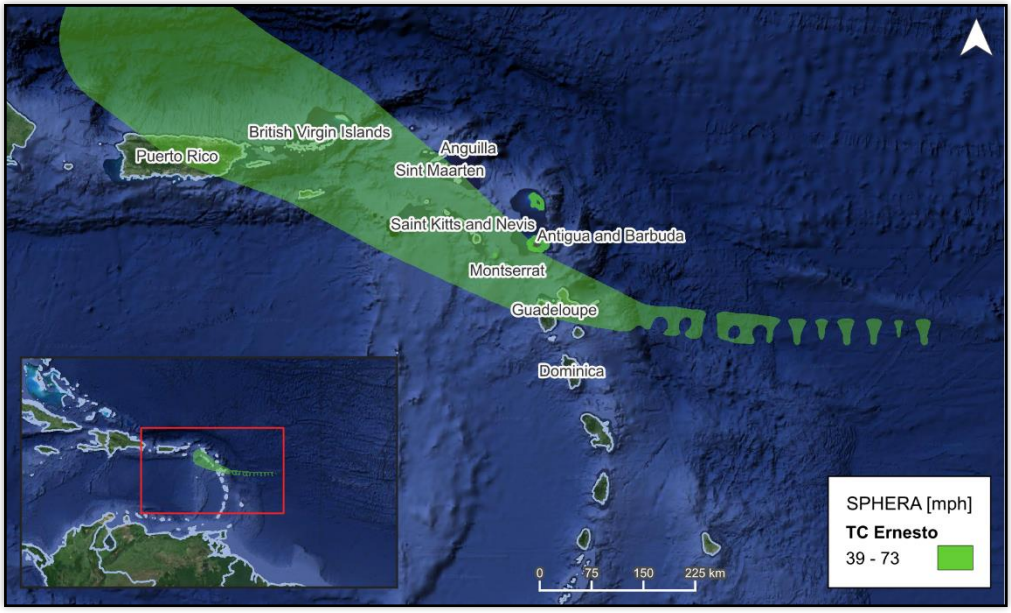


Figure 4 Map showing the wind field associated with Tropical Cyclone Ernesto around the Leeward Islands.
Source: NHC & CCRIF/SPHERA

[8] Any Tropical Cyclone event which produces a modelled loss greater than zero in one or more policyholder countries.
[9] Any named Tropical Cyclone event (*i.e.* one that reaches Tropical Storm status or higher) within a box bounded by the following – Latitude 4° and 34°N, Longitude 95° and 53°W – 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

4 REPORTED IMPACTS

At the time of writing this report, the available information on damage in the Caribbean countries due to Tropical Storm Ernesto is shown below.

On August 13, 2924, Tropical Storm Ernesto moved across the Leeward Islands, bringing strong winds and heavy rainfall to the islands. Residents of Antigua reported dangerous surf (hazardous beach and boating conditions).[10]

In Saint Kitts and Nevis power outages across the country were reported due to the blinding rain and fierce winds. [11]

The British Virgin Islands experienced strong winds and rain, as well as power outages. Some residents at Cane Garden Bay reported flooded areas. The storm has also caused fallen trees[12].

Figure 5 Fallen trees in Cane Garden Bay

5 TRIGGER POTENTIAL

The preliminary runs of the CCRIF tropical cyclone loss model for wind and storm surge produced government losses for Montserrat, Antigua and Barbuda, Saint Kitts and Nevis and the British Virgin Islands. However, the government losses for these countries were below the Attachment Point of each country's Tropical Cyclone policy. Therefore, no payouts under these policies are due.

The preliminary runs of the CCRIF loss model for wind and storm surge did not produce any government losses for Anguilla and Sint Maarten, although tropical-storm-winds were shown

[10] Antigua Observer: Tropical Storm Warning remains in effect for Antigua & Barbuda as Ernesto passes over Leeward Islands - Antigua Observer Newspaper
[11] The Weather Channel: Tropical Storm Ernesto Batters Leeward Islands - Videos from The Weather Channel
[12] BVI News: Tropical Storm Ernesto batters BVI with rain and winds (bvinews.com)

over portions of these countries. Therefore, no payouts under the Tropical Cyclone policies of these countries are due.

The Aggregate Deductible Cover (ADC) feature for the Tropical Cyclone policies for these countries were not activated because the modelled losses were below 30% of the Minimum Payment of the respective countries' Tropical Cyclone policy. Therefore, no payments under the ADC feature are due.

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