



# **Tropical Cyclone Delta (AL262020)**

## **Wind and Storm Surge**

## **Final Event Briefing**

## **Cayman Islands**

**17 October 2020**

## 1 SUMMARY

Tropical Cyclone Delta was the twenty-sixth tropical cyclone and the ninth hurricane in the 2020 Atlantic Hurricane Season. On 5 October, it was upgraded from a tropical depression to a tropical storm while it was over the central Caribbean Sea, south of Jamaica. On 6 October, Tropical Storm Delta rapidly strengthened, becoming a category 4 hurricane at its closest proximity to the Cayman Islands (approximately 115 mi, 185 km, from Grand Cayman). Tropical-storm-force winds from extended over this country.

The final runs of the CCRIF loss model for wind and storm surge produced government losses for the Cayman Islands, which were below the attachment point of this country's Tropical Cyclone policy. Therefore, no payout under this policy is due.

The Aggregated Deductible Cover (ADC) feature for the Cayman Islands' Tropical Cyclone policy was not activated because the modelled losses were below 10 per cent of the minimum payment of the policy. Therefore, no payment under the ADC feature is due for the Cayman Islands.

This event briefing is designed to review the modelled losses due to wind and storm surge calculated by CCRIF's models for affected CCRIF member countries, to be analyzed with respect to members' Tropical Cyclone policies. The Cayman Islands was the only CCRIF member country where wind speeds, computed with the CCRIF SPHERA model, were greater than 39 mph (62.7 km/h) due to Hurricane Delta. A separate report on rainfall impacts on affected CCRIF member countries will be issued if applicable.

## 2 INTRODUCTION

On 5 October 2020 at 1200UTC, the US National Hurricane Center (NHC) reported that a tropical storm named Delta developed south of Jamaica. Its centre was approximately located at 16.4°N and 78.4°W; at about 270 mi (440 km) SE of Grand Cayman, Cayman Islands. The minimum central pressure was 1004 mb and the maximum sustained winds were estimated at 40 mph (65 km/h). The system moved towards the west with an estimated forward velocity of 9 mph (15 km/h).

In the following twelve hours, Tropical Storm Delta developed rapidly due to extremely favourable oceanic and atmospheric conditions (i.e. warm sea surface, moist air mass and low wind shear) and on 6 October at 0000UTC, the NHC reported that the maximum sustained winds increased to 75 mph (120 km/h) and Delta became a Category 1 hurricane. At this time, the centre of the hurricane was located at 16.5°N 79.6°W, approximately 220 mi (335 km) SSE of Grand Cayman, Cayman Islands. The minimum central pressure was estimated at 980 mb. Delta was a small and compact hurricane as hurricane-force winds extended outward up to 15 miles (25 km) from the centre, while tropical-storm-force winds extended outward up to 70 miles (110 km) from the centre. The system continued moving at approximately the same velocity (8 mph, 13 km/h), but steered towards the west-northwest as it was embedded in the flow between a subtropical high over the western Atlantic and the remnants of Tropical

---

### Cyclone Gamma near the Yucatan Peninsula (Figure 1).

On 6 October at 1200UTC, Hurricane Delta strengthened to a Category 4 hurricane, with maximum sustained winds of 110 mph (175 km/h) and minimum central pressure estimated at 962 mb. Its centre was located at 17.8°N 82.0°W, approximately 115 mi (185 km) SSW of Grand Cayman, Cayman Islands (Figure 1). At this time, Delta was located at its minimum distance from the Cayman Islands. The system was well developed but its size was still quite compact, as hurricane-force winds extended outward up to 25 miles (35 km) from the centre, with tropical-storm-force winds up to 90 miles (150 km) from the centre (Figure 2). Figure 3 shows how the winds induced by Delta affected a more extended area over the northeastern quadrant with respect to the hurricane centre. Therefore, tropical-storm-force winds were spread over the Cayman Islands, and in particular over Grand Cayman.

In the following day, Hurricane Delta continued to move towards the northwest at an increased velocity (17 mph, 28 km/h) and on 7 October at 1100UTC, it made landfall on the northeastern coast of the Yucatan Peninsula, Mexico, as a Category 3 hurricane. Several hours later, Delta emerged over the southern Gulf of Mexico with slightly reduced intensity to move across the Gulf of Mexico and make landfall on the Louisiana coast on 9 October.

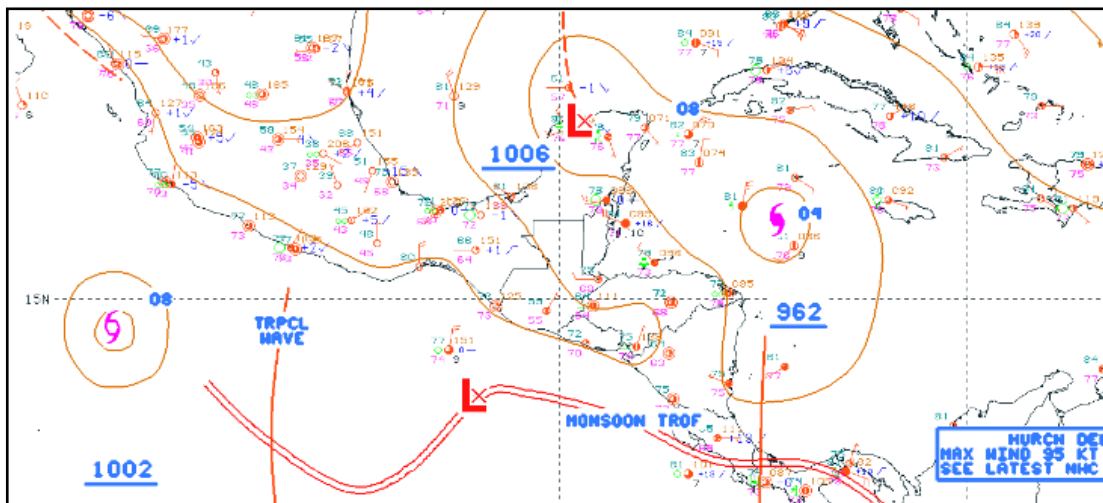


Figure 1 Surface analysis over the Caribbean area on 6 October at 1200UTC. Hurricane Delta was located south-southwest of the Cayman Islands. Source: US National Hurricane Center<sup>1</sup>

---

<sup>1</sup> National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 6 October 2020, available at: [https://www.nhc.noaa.gov/tafb/EPAC\\_00Z.gif](https://www.nhc.noaa.gov/tafb/EPAC_00Z.gif)

---

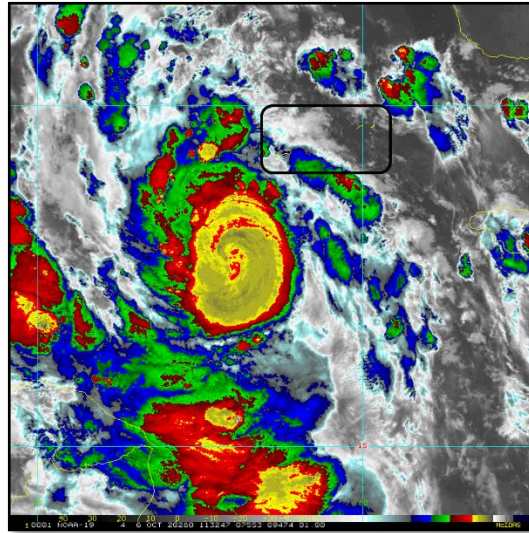


Figure 2 Satellite imagery on 23 August at 1348UTC from thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between  $-50^{\circ}\text{C}$  and  $-70^{\circ}\text{C}$ ), while the red/yellow colours represent very high altitude clouds (top cloud lower than  $-70^{\circ}\text{C}$ ). High altitude clouds indicate strong convection associated with intense precipitation. The Cayman Islands is indicated by the black square. Source: NOAA, National Environmental Satellite, Data and Information Service<sup>2</sup>.

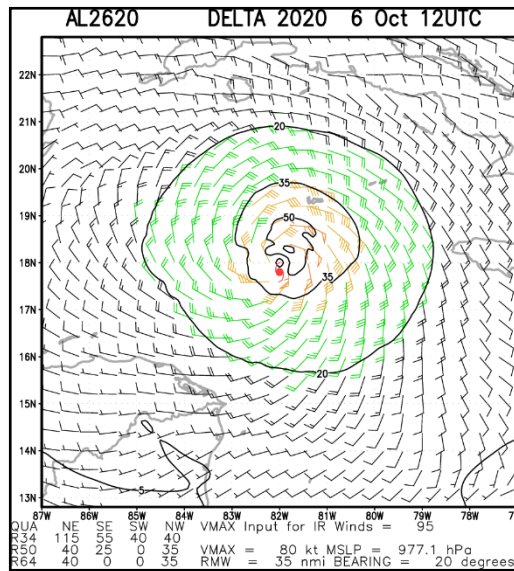


Figure 3 Multiplatform satellite based tropical cyclone surface wind analysis estimated on 6 October at 1200UTC. Contouring indicates wind intensity at 20 kn (23 mph, 37 km/h) and at 35 kn (40 mph, 65 km/h) and at 50 kn (56 mph, 93 km/h). Source: NOAA, National Environmental Satellite, Data and Information Service<sup>3</sup>.

<sup>2</sup> RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: [https://rammb-data.cira.colostate.edu/tc\\_realtime/storm.asp?storm\\_identifier=al262020](https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al262020)

<sup>3</sup> RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: [https://rammb-data.cira.colostate.edu/tc\\_realtime/storm.asp?storm\\_identifier=al262020](https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al262020)

### 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).

Based on the SPHERA footprint for this tropical cyclone, wind speeds between 23.2 mph (37.3 km/h) and 44.3 mph (71.4 km/h) were estimated across the Cayman Islands. The wind footprint (Figure 4) and surge field are two of the outputs from the CCRIF model, which show the regions affected by certain extents of Tropical Cyclone Delta in the Cayman Islands. Due to the physical conditions of Tropical Cyclone Delta across the Cayman Islands, the storm surge was insignificant, did not contribute to the damage, and is therefore not shown on a hazard map.

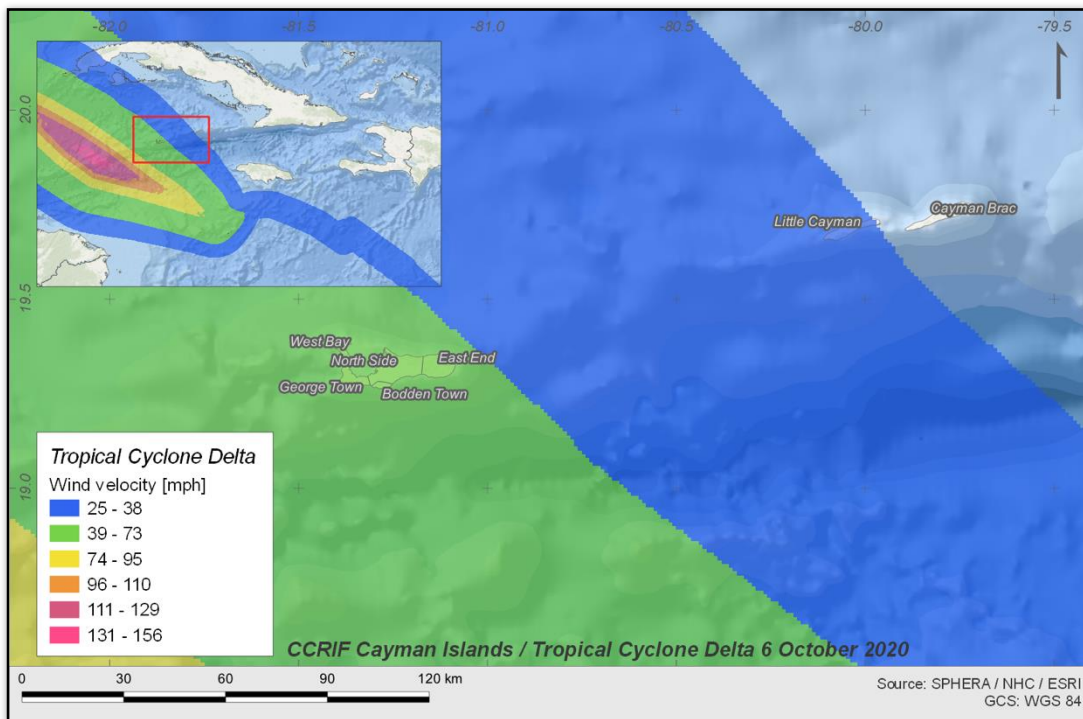


Figure 4 Map showing the wind field associated with Tropical Cyclone Delta in Cayman Islands.  
Source: NHC & CCRIF/SPHERA

### 4 IMPACTS

Ten days after the passage of Tropical Cyclone Delta and according to a government statement<sup>4</sup>, Deputy Governor Franz Manderson reported that “We have once again been spared from a devastating hurricane and we are very grateful for this near miss whilst we remained fully prepared”. Interruptions in utility services were reported due to Tropical Cyclone Delta.

<sup>4</sup> Cayman Compass, ‘All-clear issued; severe marine warning in place’. review date: 7 October 2020, available at: <https://www.caymancompass.com/>

Prior to the arrival of Delta, the Cayman Islands' authorities took precautionary measures such as activating the National Emergency Operations Centre (NEOC); putting into effect a Tropical Storm Warning and Severe Marine Warnings; opening the Red Cross emergency shelter; closing the government offices and schools; and temporarily suspending air traffic.

## **5 CCRIF LOSS MODEL**

For the Cayman Islands, the final runs of CCRIF's loss model for wind and storm surge generated government losses, but these losses were below the attachment point of the country's Tropical Cyclone policy and therefore no payout under the policy is due. The Aggregated Deductible Cover (ADC) for the policy was not activated because the modelled losses were below 10 per cent of the minimum payment. Therefore, no payment under the ADC feature for Cayman Islands' Tropical Cyclone policy is due.

For additional information, please contact CCRIF SPC at: [pr@ccrif.org](mailto:pr@ccrif.org)