



Tropical Cyclone Elsa (AL052021)

Wind and Storm Surge

Final Event Briefing

Haiti and Jamaica

14 July 2021

1 SUMMARY

Tropical Cyclone Elsa was the fifth tropical cyclone in the 2021 Atlantic Hurricane Season. On July 2 it intensified and became Hurricane Elsa, west of Barbados and east of Saint Vincent and the Grenadines. On the same day, the US National Hurricane Center (NHC) reported that it was strengthening as it was moving toward the eastern Caribbean sea. It brought tropical-storm-force winds over Haiti and Jamaica while passing near these countries.

Barbados, Saint Lucia, St. Vincent and the Grenadines, Grenada, Haiti and Jamaica were the only CCRIF member countries where wind speeds, computed with the CCRIF SPHERA model, were greater than 39 mph (62.7 km/h) due to Hurricane Elsa. This report describes the performance of the CCRIF models on Haiti and Jamaica due to Elsa. Other reports are being provided for Barbados, Saint Lucia, St. Vincent and the Grenadines, and Grenada.

Final runs of the CCRIF loss model for wind and storm surge produced government losses for both Haiti and Jamaica which were below the attachment point of each country's tropical cyclone policy. Therefore, no payments under the policies for Haiti and Jamaica are due.

However, the Aggregated Deductible Cover (ADC) for the tropical cyclone policy for Haiti was activated. Final calculations show that a payment of US\$343,055 is due under the ADC feature for Haiti.

Although there was a disaster alert declaration for Jamaica from ReliefWeb related to Hurricane Elsa, the ADC for Jamaica's tropical cyclone policy was not activated because the modelled losses were below 10 per cent of the minimum payment of the policy and therefore no payment under the ADC is due.

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. A separate report on rainfall impacts on affected CCRIF member countries with excess rainfall policies will be issued if applicable.

2 INTRODUCTION

On 2 July at 1800 UTC, the US National Hurricane Center (NHC) reported that Hurricane Elsa, which formed earlier the same day from Tropical Storm at 1145 UTC west of Barbados and east of Saint Vincent and the Grenadines, was strengthening as it was moving toward the eastern Caribbean sea. Its centre was near latitude 13.7 North, longitude 62.5 West, moving toward the west-northwest at a velocity of almost 29 mph (46 km/h). Estimated maximum sustained winds were near 85 mph (140 km/h) with higher gusts and a minimum central pressure was 991 mb. During the next 6 hours the minimum central pressure, maximum sustained winds and estimated velocity remained almost unchanged.

The following day, on 3 July, the minimum central pressure increased, while maximum sustained winds decreased. At 1200 UTC it was reported that Hurricane Elsa was moving very quickly toward the west-northwest at velocity of near 31 mph (50 km/h). The centre was located near latitude 16.5 North, longitude 70.3 West, approaching the Dominican Republic/Haiti and Jamaica. Maximum sustained winds were near 75 mph (120 km/h) with higher gusts. The minimum central pressure was estimated to be 999 mb. At 1500 UTC it was noted that conditions continued to deteriorate over portions of the Dominican Republic and Haiti. Thus, a Hurricane Warning was in effect for the southern portion of Haiti from Port-au-Prince to the southern part of the border with the Dominican Republic. According to the NHC, Hurricane Elsa transitioned to a Tropical Storm Elsa within this period. The centre of now Tropical Storm Elsa was located near latitude 17.0 North, longitude 71.6 West, about 40 miles (70 km) S of Isla Beata, Dominican Republic and about 350 miles (560 km) E of Kingston, Jamaica. The Government of Jamaica issued a Tropical Storm Warning. Tropical Storm Elsa continued moving toward the west-northwest at a velocity of almost 29 mph (46 km/h), with maximum sustained winds near 70 mph (110 km/h) with higher gusts over the next several hours.

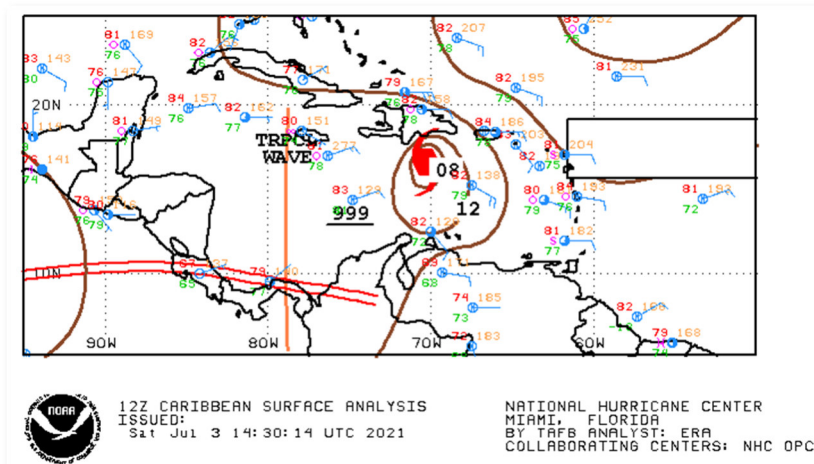


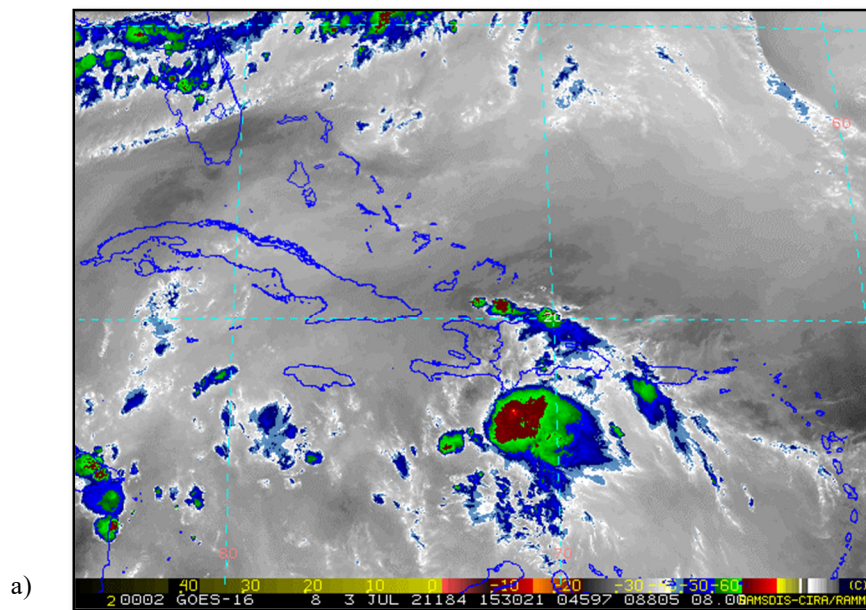
Figure 1 Surface analysis over the Caribbean area on 3 July at the time as indicated by the label.
Source: US National Hurricane Center¹

¹ National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review dates: 3 July 2021, available at: https://www.nhc.noaa.gov/tafb/CAR_12Z.gif

Consequently, the centre of Tropical Storm Elsa passed south of the southwestern peninsula of Haiti, approaching Jamaica. Tropical storm conditions were in force and tropical-storm-force winds extended outward up to 125 miles (205 km) mainly to the north of the centre. The velocity and maximum sustained winds were unchanged and the estimated minimum central pressure was 1002 mb. The velocity decreased over the next few hours.

The next day, on 4 July, the Tropical Storm Elsa continued moving to the west-northwest at a velocity of almost 14 mph (22 km/h), with maximum sustained winds near 65 mph (100 km/h) and minimum central pressure of 1007 mb. At 1200 UTC the centre of Tropical Storm Elsa was located near latitude 18.3 North, longitude 76.2 West, about 45 miles (70 km) ENE of Kingston, Jamaica. Maximum sustained winds, minimum central pressure and velocity were almost unchanged. Tropical-storm-force winds continued to extend outward up to 125 miles (205 km) from the centre.

The constant motion to the west-northwest continued over the next several hours at a velocity of approximately 13 mph (20 km/h), passing near Jamaica while approaching central Cuba and heading to Florida.



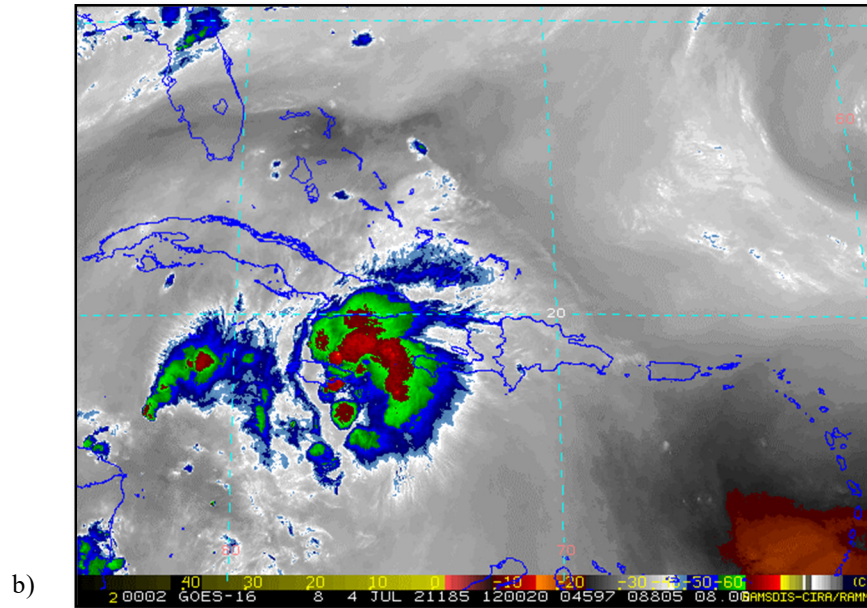


Figure 2 Satellite imagery at 1500 UTC (a) on 3 July and 1200 UTC (b) on 4 July as indicated in the label from thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between -50°C and -70°C), while the red/yellow colours represent very high altitude clouds (top cloud lower than -70°C). High altitude clouds indicate strong convection associated with intense precipitation. Source: NOAA Satellite and Information Service².

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).

Tropical Cyclone Elsa qualified as a Triggering Event by Aggregated Deductible Cover³ (ADC – Endorsement) for Haiti and as a Loss Event⁴ for Jamaica.

The wind footprint (Figures 3 and 4) and surge field are two of the outputs from the CCRIF model, which show the regions affected by certain extents of Tropical Cyclone Elsa in each country. Due to the relatively low wind speeds, storm surge was insignificant, did not contribute to the damage, and is therefore not shown on the hazard maps.

² RAMSDIS Online Archive, NOAA Satellite and Information Service, review date: 4 July 2021, available at: https://rammb.cira.colostate.edu/ramsdis/online/images/rmtc/rmtcsasec4ir304/rmtcsasec4ir304_20210703153021.gif
https://rammb.cira.colostate.edu/ramsdis/online/images/rmtc/rmtcsasec4ir304/rmtcsasec4ir304_20210704120020.gif

³ 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.

⁴ Any Tropical Cyclone event which produces a modelled loss greater than zero in one or more policyholder countries.

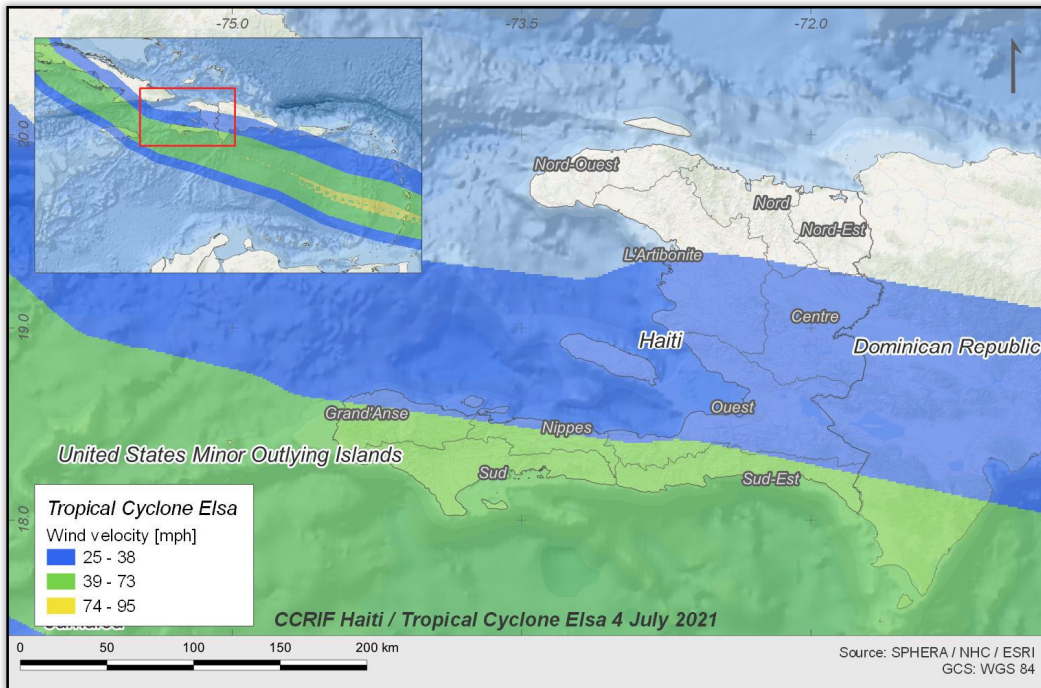


Figure 3 Map showing the wind field associated with Tropical Cyclone Elsa in Haiti.
Source: NHC & CCRIF/SPHERA

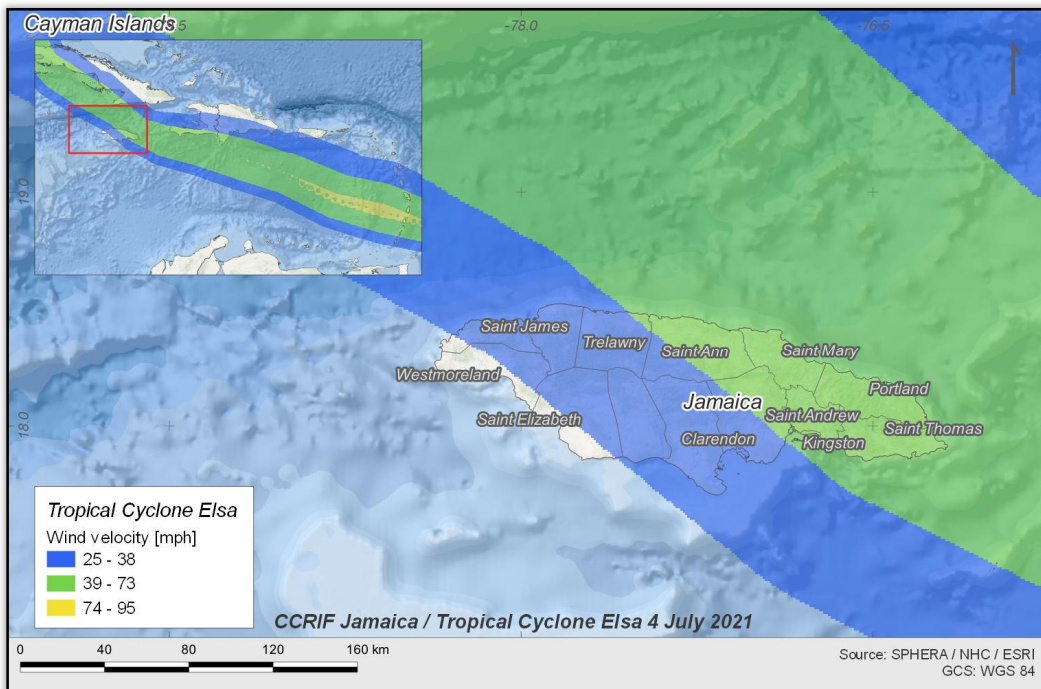


Figure 4 Map showing the wind field associated with Tropical Cyclone Elsa in Jamaica.
Source: NHC & CCRIF/SPHERA

4 IMPACTS

Haiti

According to the assessments provided by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), the damage in Haiti was minimal⁵, with no damage to roads and infrastructure reported and no significant impacts reported on livestock⁶. The damage caused by Elsa was mainly due to the falling trees, blown-off roofs and impacts on some banana and corn plantations. The Pestel and Jérémie rivers were overflowed⁷.

Prior to the arrival of Tropical Storm Elsa, the Hydrometeorological Unit of Haiti (UHM) decreed the level of “red vigilance” (risk of strong to violent impacts) particularly for the departments of Sud-Est, Sud, Ouest, Nippes and Grande-Anse. Haiti’s authorities took precautionary measures such as activating the National Emergency Operation Centre (COUN). Also as a precautionary measure, 251 shelters were opened in the Grand’Anse, Sud and Sud-Est departments, which were used by a few hundred occupants.

Jamaica

According to the assessments provided by the Caribbean Disaster Emergency Management Agency (CDEMA), the damage in Jamaica was not significant following the passage of Tropical Storm Elsa⁶. The majority of the impacts pertained to flooded and blocked roads. Power service was also affected in some areas. Due to the passage of Elsa some communities in Kingston, Saint Andrew, Saint Thomas, Saint Catherine and Clarendon recorded flooding⁸.

According to the reports from the Meteorological Service Jamaica and the Office of Disaster Preparedness and Emergency Management (ODPEM), Tropical Storm Elsa was closely monitored. Prior to the arrival of Tropical Storm Elsa, Jamaica’s authorities took precautionary measures such as activating the National Emergency Operation Centre (EOC). As additional prevention measures the authorities opened some emergency shelters and temporarily suspended air traffic⁹.

⁵ United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Situation Report No. 1 (As of 4 July 2021), review date: 6 July 2021, available at: [HAITI: Tropical Storm Elsa](#)

⁶ Caribbean Disaster Emergency Management Agency (CDEMA), Situation Report No. 3 (As of 4:00 PM on July 6, 2021), review date: 6 July 2021, available at: [Tropical Storm Elsa](#)

⁷ Organisation Panaméricaine de la Santé (OPS), Situation Report (As of 4 July 2021), review date: 14 July 2021, available at: [Tropical Storm Elsa - HAITI](#)

⁸ IRIE FM, review date: 14 July 2021, available at: [Assessment and cleanup efforts to start today following passage of Tropical Storm Elsa](#)

⁹ Jamaica Observer, review date: 14 July 2021, available at: [Elsa stalls flights](#)

5 CCRIF LOSS MODEL

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