



Tropical Cyclone Laura (AL132020)

Wind and Storm Surge

Final Event Briefing

Leeward Islands

2 September 2020

1 SUMMARY

Tropical Cyclone Laura was the thirteenth tropical cyclone in the 2020 Atlantic Hurricane Season and the earliest twelfth named storm on record in the North Atlantic basin. On 21 August, it was upgraded from a tropical depression to a tropical storm while it was over the tropical Atlantic, just to the east of the northern Leeward Islands. On the same day, its centre passed between Antigua and Barbuda, Montserrat and Saint Kitts and Nevis, spreading tropical-storm-force winds over these countries.

The final runs of the CCRIF loss model for wind and storm surge produced government losses for Antigua and Barbuda, Montserrat and Saint Kitts and Nevis. For all three Tropical Cyclone policies, the government losses were below the attachment point. Therefore, no payouts under these policies for Antigua and Barbuda, Montserrat and Saint Kitts and Nevis are due.

However, the Aggregated Deductible Cover (ADC) feature for the Tropical Cyclone policies for Antigua and Barbuda and Saint Kitts and Nevis were activated because a disaster alert declaration for these two countries from ReliefWeb related to Tropical Cyclone Laura was issued and the modelled losses were above 10 per cent of the minimum payment for each Tropical Cyclone policy. Therefore, a payment under the ADC is due for Antigua and Barbuda and Saint Kitts and Nevis. Final calculations show that payouts are due to each country as follows:

Tropical Cyclone Policy	ADC Payment
Antigua and Barbuda	US\$70,256.70
Saint Kitts and Nevis	US\$32,167.80
Total	US\$102,424.50

Although there was a disaster alert declaration for Montserrat from ReliefWeb related to Tropical Cyclone Laura, the ADC for Montserrat's 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 is due for Montserrat.

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 will be issued if applicable.

2 INTRODUCTION

On 16 August, the NHC started to monitor a tropical wave located over the eastern Atlantic, as a potential genesis of a tropical cyclone. On 18 August, a low pressure developed within the tropical wave and on 20 August, a well-defined closed circulation was evidenced at the surface around the centre of the disturbance. Consequently, on 20 August at 0300UTC the US National Hurricane Center (NHC) reported that the system developed as a tropical depression, and it was named Tropical Depression Thirteen. Its centre was located at 14.6N 47.9W over the central tropical Atlantic. The environmental conditions were moderately favourable for the depression to strengthen as it presented a low to moderate wind shear and a moist air mass surrounding the depression. These conditions promoted the gradual strengthening of the tropical cyclone and on 21 August at 1305UTC, the NHC reported that it was upgraded to a tropical storm, and it was named Tropical Storm Laura. At this stage, the system was located over the tropical western Atlantic and presented a poorly organized structure with a low-defined convective band and a general ragged appearance to the cloud pattern. The estimated centre of circulation was located at 17.0N 59.8W, to the east-southeast of the northern Leeward Islands (Figure 1). The minimum central pressure was 1008 mb and the maximum sustained winds were estimated at 45 mph (75 km/h). Tropical-storm-force winds extended outward for 150 miles (240 km) from the centre, primarily over the north quadrant. The system was moving towards the west along the south periphery of the Bermuda-Azores high pressure system located over the Atlantic Ocean. Its forward velocity was estimated at 18 mph (30 km/h) and it was directed towards the northern Leeward Islands.

On the same day at 2100UTC, Laura approached the northern Leeward Islands (Figure 1). The force of the tropical storm and its appearance were generally unchanged (Figure 2). The centre of the tropical storm was located at 17.1N 61.2W and it was located at approximately 40 mi (65 km) to the east of Antigua. Tropical-storm-force winds spread over Antigua and Barbuda, Montserrat and Saint Kitts and Nevis. Three hours later, on 22 August at 0000UTC, the centre of Laura was over the waters to the south of Saint Kitts and Nevis and to the west of Montserrat, at a distance of approximately 23 mi (38 km) from Charleston, Saint Kitts and Nevis, and approximately 25 mi (40 km) from Plymouth, Montserrat. Antigua and Barbuda, Montserrat and Saint Kitts and Nevis were still affected by tropical-storm-force winds.

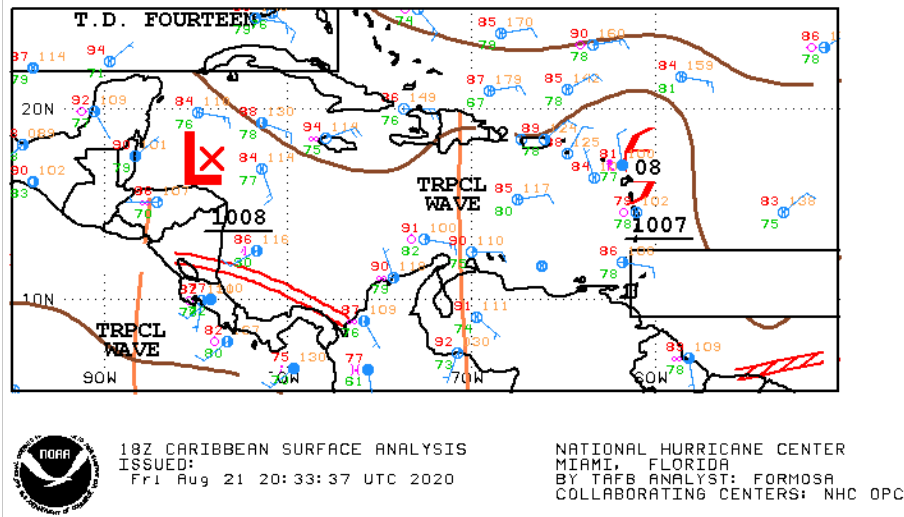


Figure 1 Surface analysis over the Caribbean area on 21 August at 1800UTC. Tropical Storm Laura is visible over the waters to the east of the northern Leeward Islands. Source: US National Hurricane Center¹

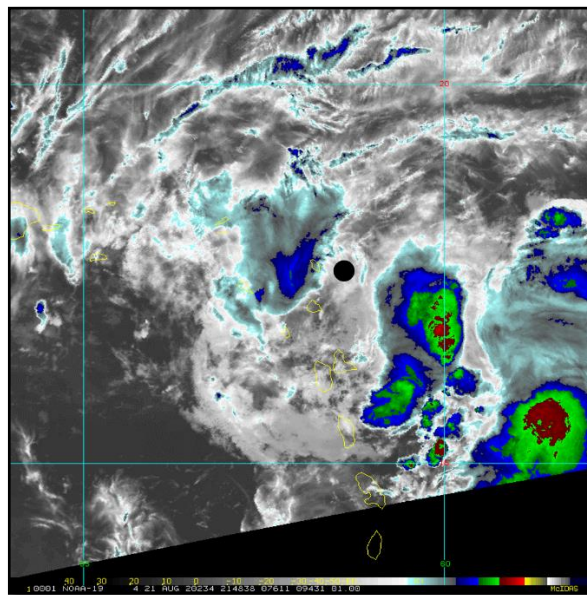


Figure 2 Satellite imagery at different times as indicated by the captions from thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between -50°C and -70°C), while the red/yellow colours represent very high altitude clouds (top cloud lower than -70°C). High altitude clouds indicate strong convection associated with intense precipitation. The centre of Tropical Storm Laura is indicated by the black dot. Source: NOAA, National Environmental Satellite, Data and Information Service².

¹ National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 21 August 2020, available at: https://www.nhc.noaa.gov/tafb/CAR_18Z.gif

² RAMSDIS Online Archive, NOAA Satellite and Information Service, review date: 21 August 2020, available at: http://rammb.cira.colostate.edu/ramsdgis/online/archive.asp?data_folder=tropical/tropical_ge_14km_wv&width=640&height=480

Six hours later, the tropical storm left the Leeward Islands heading for the Caribbean Sea. The system moved with slightly increased forward velocity (21 mph, 33 km/h) towards the west-northwest. During the following days, the tropical storm intensified, becoming a category 1 hurricane while it moved over the south-east waters of the Gulf of Mexico.

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 Laura qualified as a Triggering Event by Aggregated Deductible Cover (Endorsement) for Antigua and Barbuda and Barbuda and Saint Kitts and Nevis and as a Loss Event for Montserrat.

The wind footprint (Figure 4, 5 and 6) and surge field are two of the outputs from the CCRIF model, which show the regions affected by certain extents of Tropical Cyclone Laura in each country. Due to the physical conditions of Tropical Storm Laura, storm surge was insignificant, did not contribute to the damage, and is therefore not shown on a hazard map.

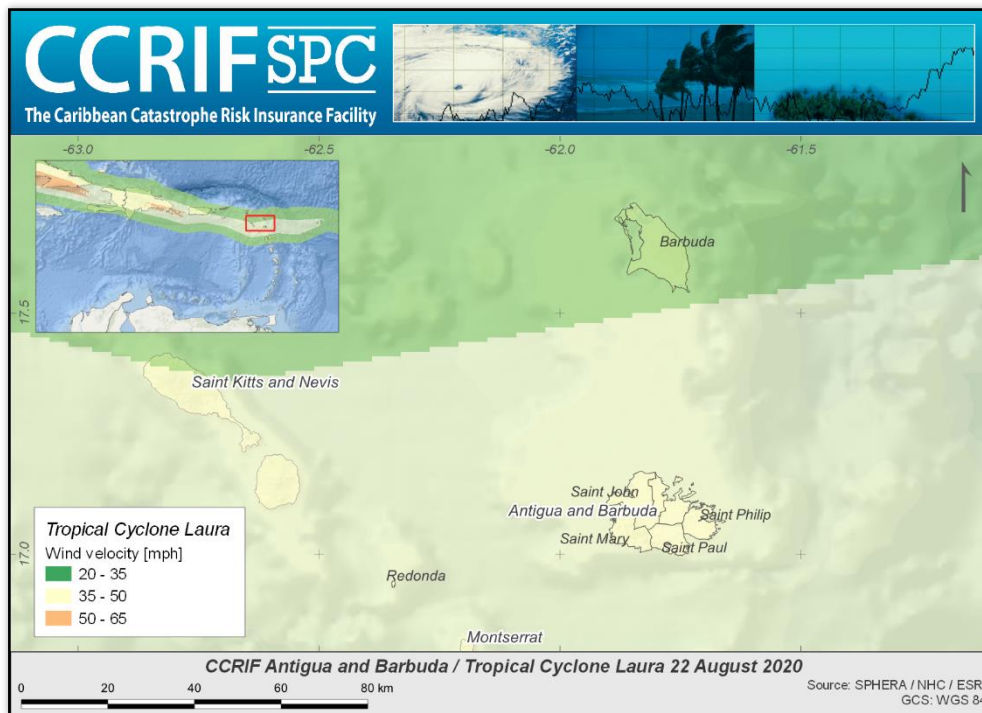


Figure 4 Map showing the wind field associated with Tropical Cyclone Laura in Antigua and Barbuda.
Source: NHC & CCRIF/SPHERA

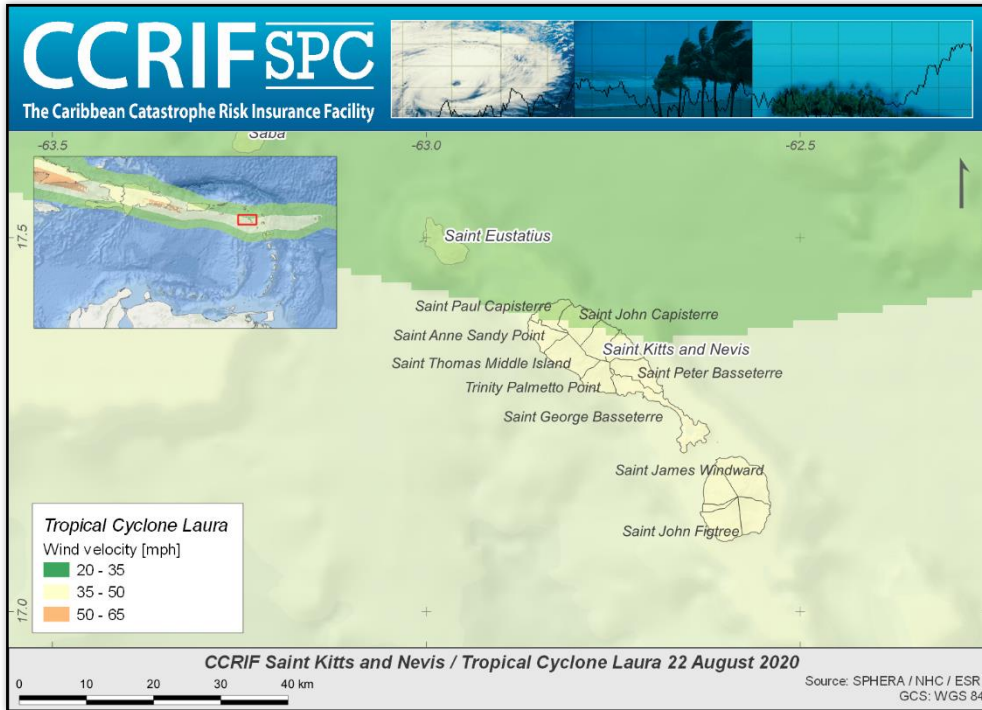


Figure 5 Map showing the wind field associated with Tropical Cyclone Laura in Saint Kitts and Nevis. Source: NHC & CCRIF/SPHERA

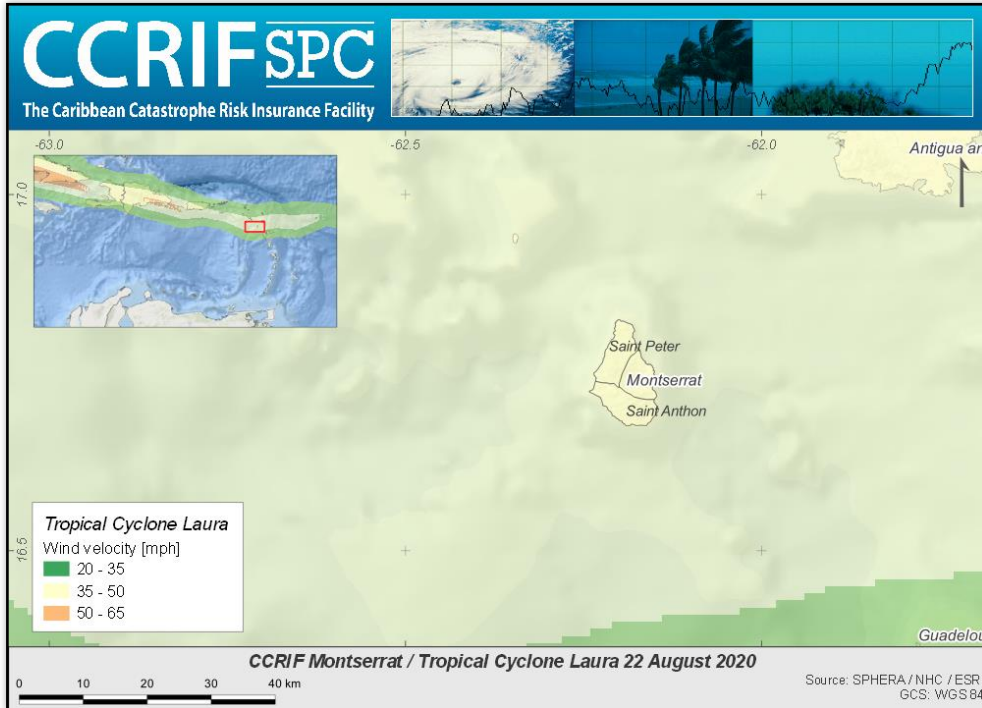


Figure 6 Map showing the wind field associated with Tropical Cyclone Laura in Montserrat. Source: NHC & CCRIF/SPHERA

4 IMPACTS

Antigua and Barbuda

Ten days after the passage of Tropical Storm Laura, no information was available related to damage or loss in Antigua and Barbuda due to this event. According to the weather reports from the Antigua and Barbuda Meteorological Service, Tropical Storm Laura was closely monitored and a Tropical Storm Warning was put into effect. Also as a precautionary measure in Antigua the government offices and schools were closed.

Saint Kitts and Nevis

National Emergency Management Agency (NEMA) National Disaster Coordinator Mr. Abdias Samuel reported that there was no loss of life or damages caused by the passage of Tropical Storm Laura.

According to information published in the news³, due to the Tropical Storm Laura, the greatest damage was generated by falling trees and roads obstructed. The International Federation of Red Cross and Red Crescent Societies (IFRC) reported interruptions of electric power that affected approximately 4,000 persons.

Prior to the arrival of Tropical Storm Laura, Saint Kitts and Nevis' authorities, including the Nevis Disaster Management Department, took precautionary measures such as activating the Emergency Operations Centre and a Tropical Storm Warning was put into effect. Also as a precautionary measure the government offices were closed at 1:00 PM on August 21.

Montserrat

Ten days after the passage of Tropical Storm Laura, no information was available related to damage or loss in Montserrat due to this event. According to the reports from the Disaster Management Coordination Agency, Tropical Storm Laura was closely monitored. Prior to the arrival of Tropical Storm Laura, Montserrat's authorities took precautionary measures such as activating a Tropical Storm Warning and as a precautionary measure the government offices were closed.

Due to the arrival of Tropical Storm Laura in the Leeward Islands, a Tropical Storm Warning also was put into effect for Anguilla, Sint Maarten, Saint Martin, Saint Barthelemy, the British Virgin Islands, U.S. Virgin Islands, Saba, Saint Eustatius, Vieques and Culebra. As a precautionary measure in Anguilla the government offices and schools were closed. In the British Virgin Islands all ports were closed.

³ The St. Kitts & Nevis Observer, review date: 24 August 2020, available at: <https://www.thestkittsnevisobserver.com/>

5 CCRIF LOSS MODEL

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