



Tropical Cyclone Tammy (AAL202023)

Final Event Briefing

Loss Event COAST – TC Component

Saint Lucia

31 October 2023

1 SUMMARY

Tropical Cyclone Tammy was the nineteenth named cyclone and the seventh hurricane of the 2023 Atlantic Hurricane Season. On 20 October at 1400UTC, Tammy became a Category 1 hurricane, while approaching the Windward Islands. During the next two days, it passed north of Barbados, turned northwestward and passed just east of the northern Windward Islands and the Leeward Islands. Hurricane Tammy was characterized by a tight and well-organized inner core, with hurricane-force winds confined to that region. Therefore, despite the proximity of the hurricane centre from the Windward and Leeward Islands, in general they were not affected by hurricane-force winds, but only by tropical-storm-force winds. Among them, only the island of Barbuda (Antigua and Barbuda) experienced hurricane-force winds for some hours around 22 October at 0000UTC, just before and after Tammy's landfall over Barbuda. On 23 October, TC Tammy moved away from the northern Leeward Islands, moving towards the north Atlantic Ocean.

This event briefing is designed to review the modelled losses due to wind and storm surge due to Tammy, calculated by the TC component of CCRIF's fisheries model for Saint Lucia, to be analyzed with respect to its COAST policy. Saint Lucia was the only CCRIF member country for which the CCRIF fisheries loss model for wind and storm surge (i.e. the TC component) produced government losses due to Tropical Cyclone Tammy. A separate report on Adverse Weather impacts (due to rain and high waves) on affected CCRIF member countries that have COAST policies will be issued if applicable.

The final runs of the CCRIF's COAST loss model for wind and storm surge produced losses for Saint Lucia under the TC component of the country's COAST policy. For this event, the losses were below the lower attachment point of the TC component (the Tier 2 attachment point). Therefore, no payout is due under the TC component of the COAST policy for Saint Lucia.

2 INTRODUCTION

On 18 October at 2100UTC, the US National Hurricane Center (NHC) reported that a tropical storm (TS) formed in the central tropical Atlantic Ocean, about 625 mi (1005km) E of the Windward Islands, and it was named Tammy. The system proceeded with estimated forward velocity of 23 mph (37 km/h) towards the west. The minimum central pressure was 1007 mb and the maximum sustained winds were estimated at 40 mph (65 km/h).

During the next two days, the tropical storm proceeded westward over the tropical Atlantic Ocean with progressively slower forward velocity. Tammy was embedded in an environment of high oceanic heat content, due to the warm sea surface temperature. However, the moderate vertical wind shear allowed only a modest strengthening of the storm.

On 20 October at 1400UTC, NHC upgraded Tammy to a Category 1 hurricane, with estimated

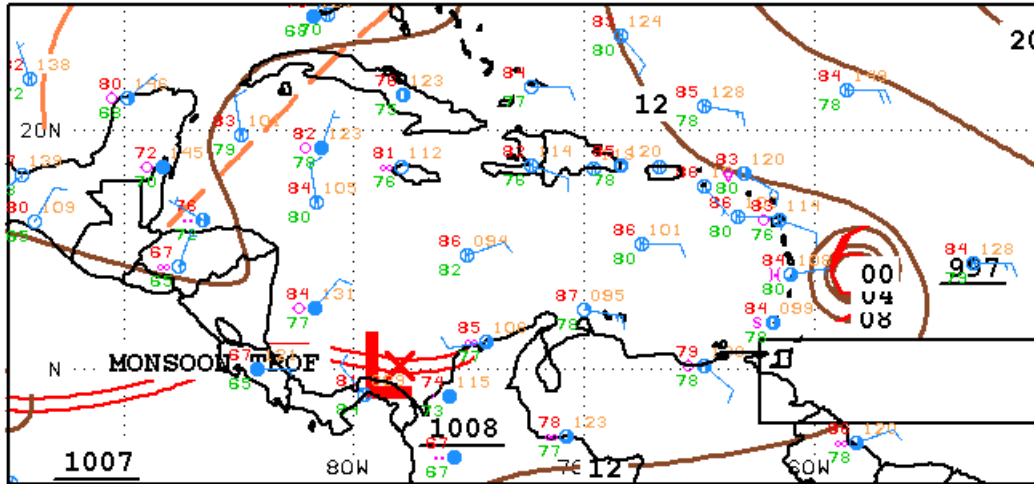
maximum sustained winds at 75mph (120 km/h) and minimum central pressure of 992 mb. At this time, the centre of Tammy was located near latitude 14.1° North, longitude 58.5° West, about 90 mi (150 km) NE of Barbados (Figure 1a). Hurricane Tammy presented a closed eye and a large curved band that wrapped around the eastern and southern portions of the circulation (Figure 2a). Hurricane-force winds extended outward up to 25 miles (35 km) from the circulation centre, while tropical-storm-force winds extended outward up to 140 miles (220 km). Therefore, starting from this time tropical-storm-force winds spread over Barbados (Figure 3a).

During the next 12 hours, Tammy moved west-northwest at near 7 mph (11 km/h), heading toward the southern Leeward Islands. On 21 October at 0000UTC, the centre of Tammy was located near latitude 14.5° North, longitude 59.7° West, about 90 mi (140 km) E of Martinique, about 95 mi (150 km) NE of Saint Lucia and about 124 mi (200km) SE of Dominica. Hurricane-force winds extended outward up to 25 miles (35 km) from the circulation centre and tropical-storm-force winds extended outward up to 125 miles (205 km). Thus, Saint Lucia and Dominica began to experience tropical-storm-force winds, while strong winds were still affecting Barbados (Figure 3b).

After 12 hours, on 21 October at 1200UTC, Hurricane Tammy slightly strengthened, due to the inflow of more humid air. The estimated maximum sustained winds increased to 80 mph (130 km/h) and the minimum central pressure decreased to 988 mb. The infrared satellite imagery showed that the hurricane had a relatively small central area of thunderstorms surrounding the circulation centre and a prominent trailing convective band to the south, but no evidence of an eye (Figure 2b). Moreover, the eyewall had become more pronounced although it was open on the south side (Figure 3c). At this time, Tammy was at its minimum distance from Dominica, since the centre of circulation was sited near latitude 15.7° North, longitude 60.6° West, about 50 mi (80 km) E of this country (Figure 1b). Tropical-storm-force winds were still affecting Dominica, while they ceased in Barbados and Saint Lucia (Figure 3c).

Tammy turned northwest with nearly the same forward velocity (9 mph, 15 km/h) and during the next 12 hours it crossed the waters just east of the Leeward Islands. On 22 October at 0000UTC, Tammy's centre of circulation was sited near latitude 17.5° North, longitude 61.6° West, about 15 mi (25 km) ESE of Barbuda (Antigua and Barbuda) and about 30 mi (50 km) NNE of Antigua. The NHC reported a slight intensification of the hurricane, with the estimated maximum sustained winds increasing to 85 mph (140 km/h) and unvaried minimum central pressure. Tammy maintained a tight and well-organized inner core, and the aircraft data indicated that the hurricane-force winds were confined to that region (Figure 3d). For this reason, only the island of Barbuda started to experience hurricane-force winds, while Antigua and the other countries in a radius of 125 mi (205 km) from the hurricane centre, i.e. Montserrat and Saint Kitts and Nevis, were affected by tropical-storm-force winds (Figure 3d). One hour later, at 0115UTC, Tammy made landfall in Barbuda, passing along the eastern coast of the island, and continued to affect it with hurricane-force winds.

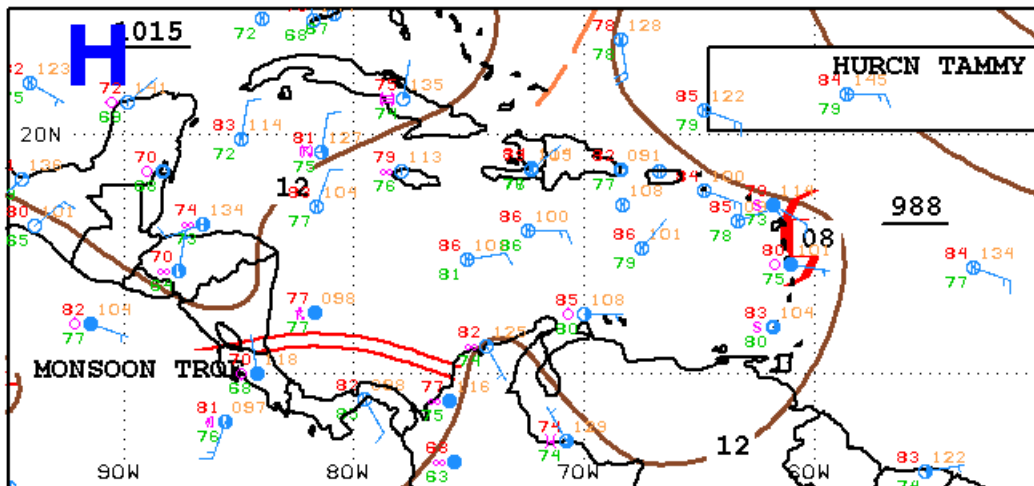
During the next 12 hours, Hurricane Tammy proceeded north-northwestward at almost unchanged forward velocity (10 mph, 17 km/h), passing just east of Anguilla. It then moved away from the northern Leewards Islands, towards the northern Atlantic Ocean.



12Z CARIBBEAN SURFACE ANALYSIS
ISSUED:
Fri Oct 20 14:31:09 UTC 2023

NATIONAL HURRICANE CENTER
MIAMI, FLORIDA
BY TAFB ANALYST: KRV
COLLABORATING CENTERS: NHC OPC

a) 20 October at 1200UTC



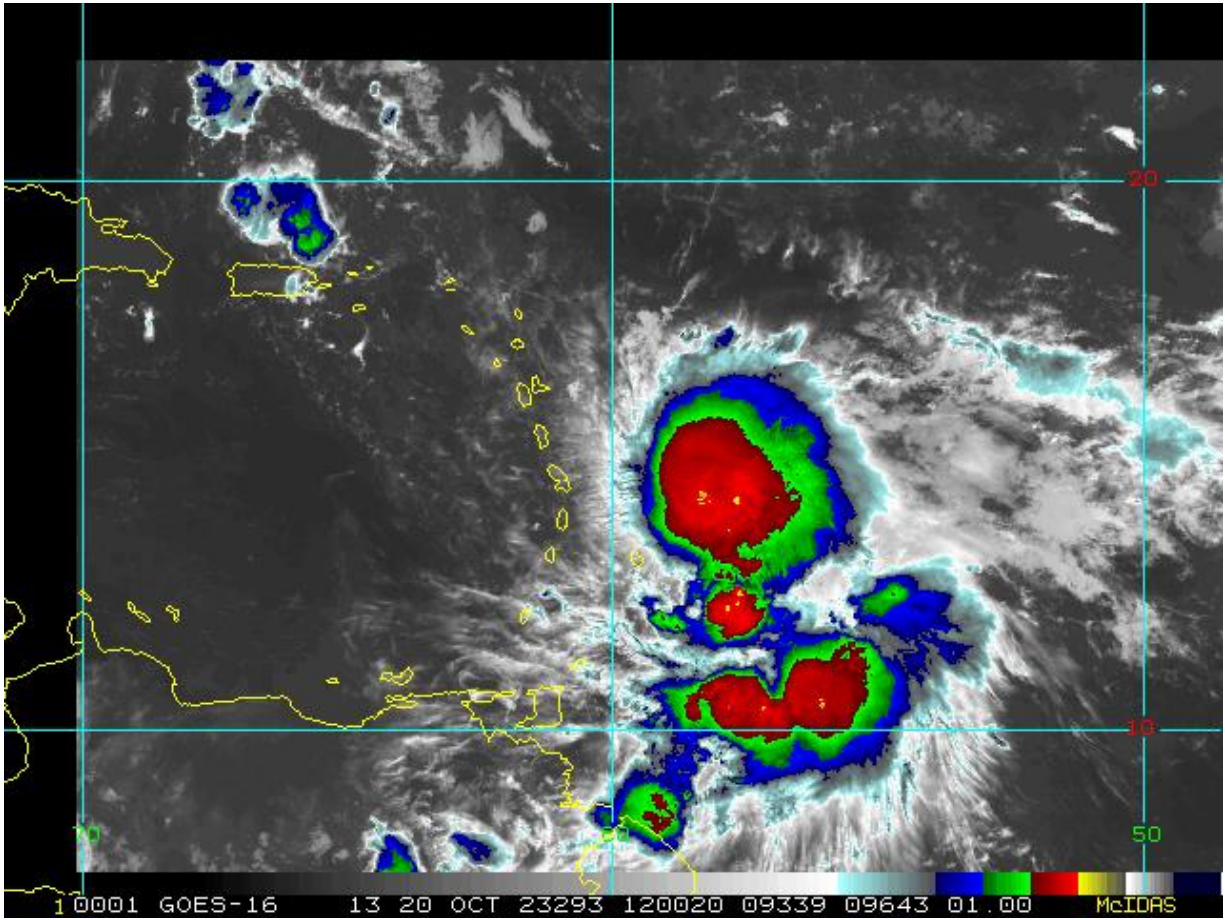
12Z CARIBBEAN SURFACE ANALYSIS
ISSUED:
Sat Oct 21 14:38:55 UTC 2023

NATIONAL HURRICANE CENTER
MIAMI, FLORIDA
BY TAFB ANALYST: MAHONEY
COLLABORATING CENTERS: NHC OPC

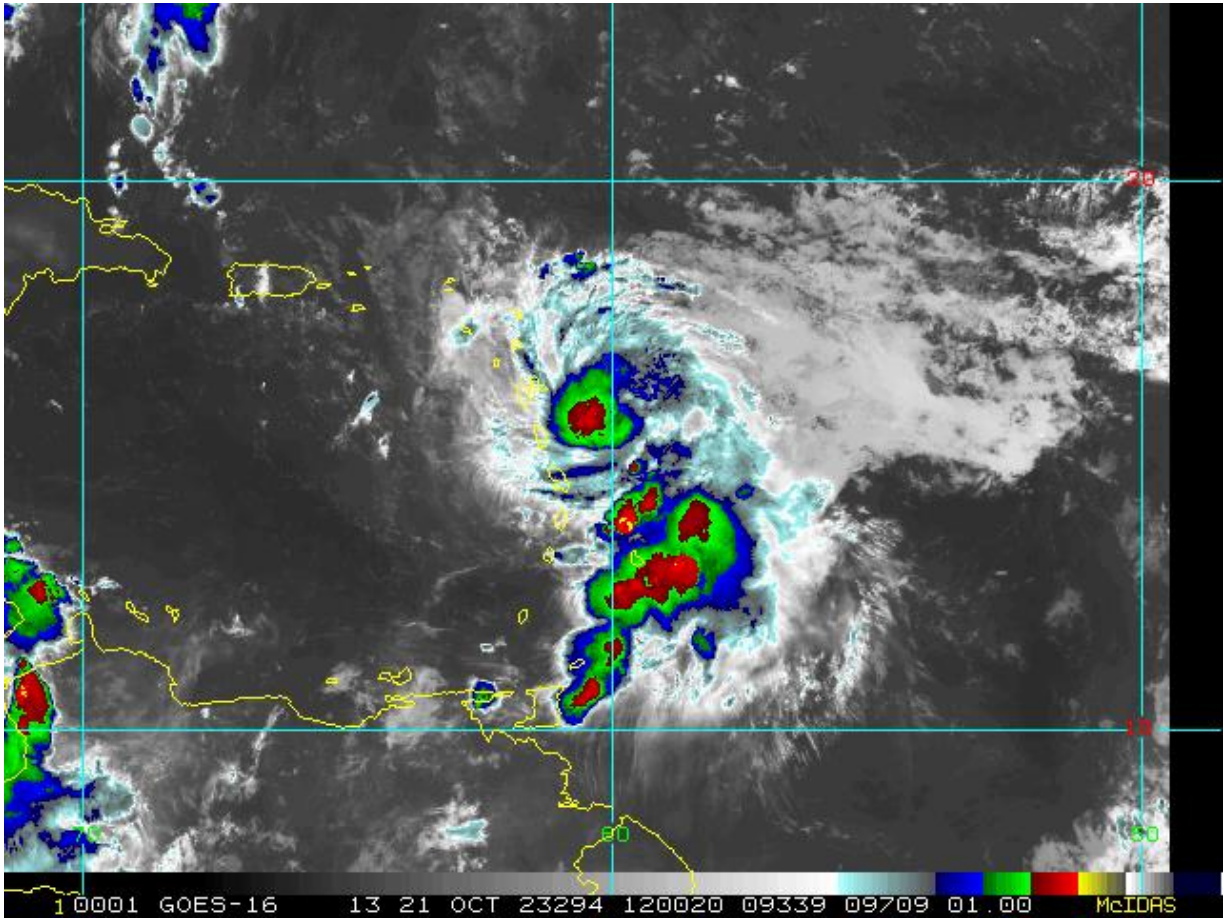
b) 21 October at 1200UTC

Figure 1 Surface analysis over the Caribbean area on 20 and 21 October, 2023 at 1200UTC. Source: US National Hurricane Center¹

¹ National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 20 and 21 October 2023, available at: https://www.nhc.noaa.gov/tafb/CAR_12Z.gif



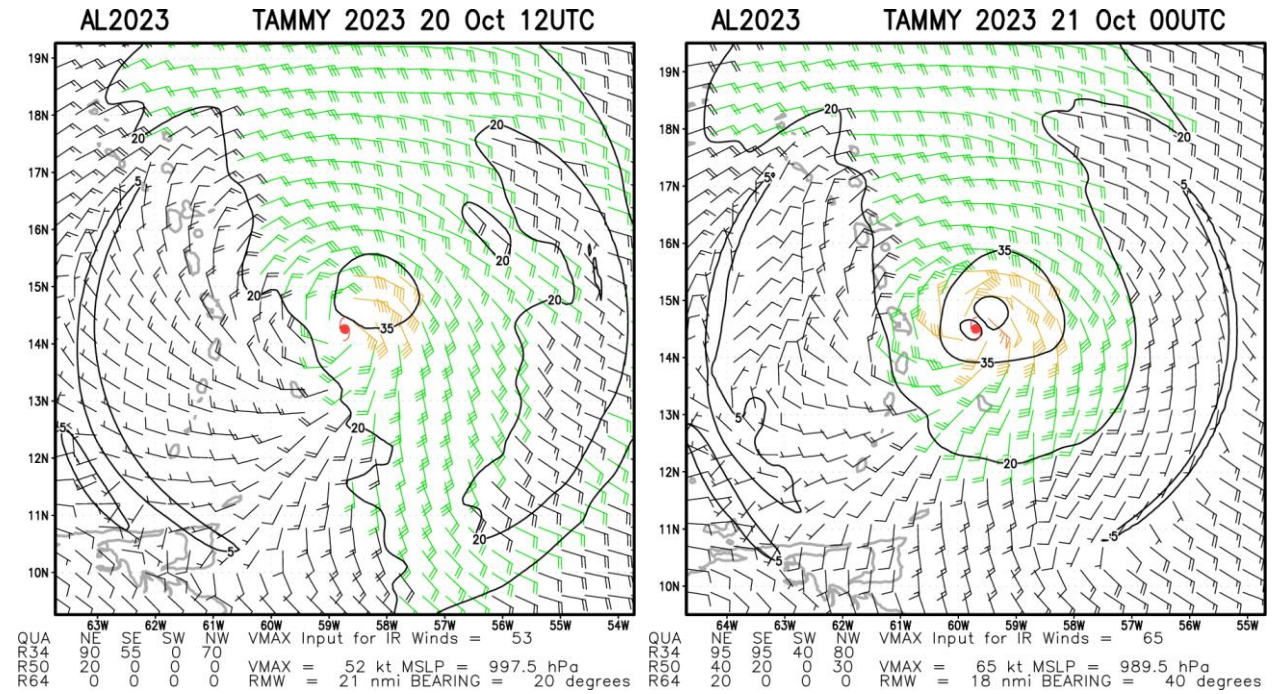
a) 20 October at 1200UTC



b) 21 October at 1200UTC

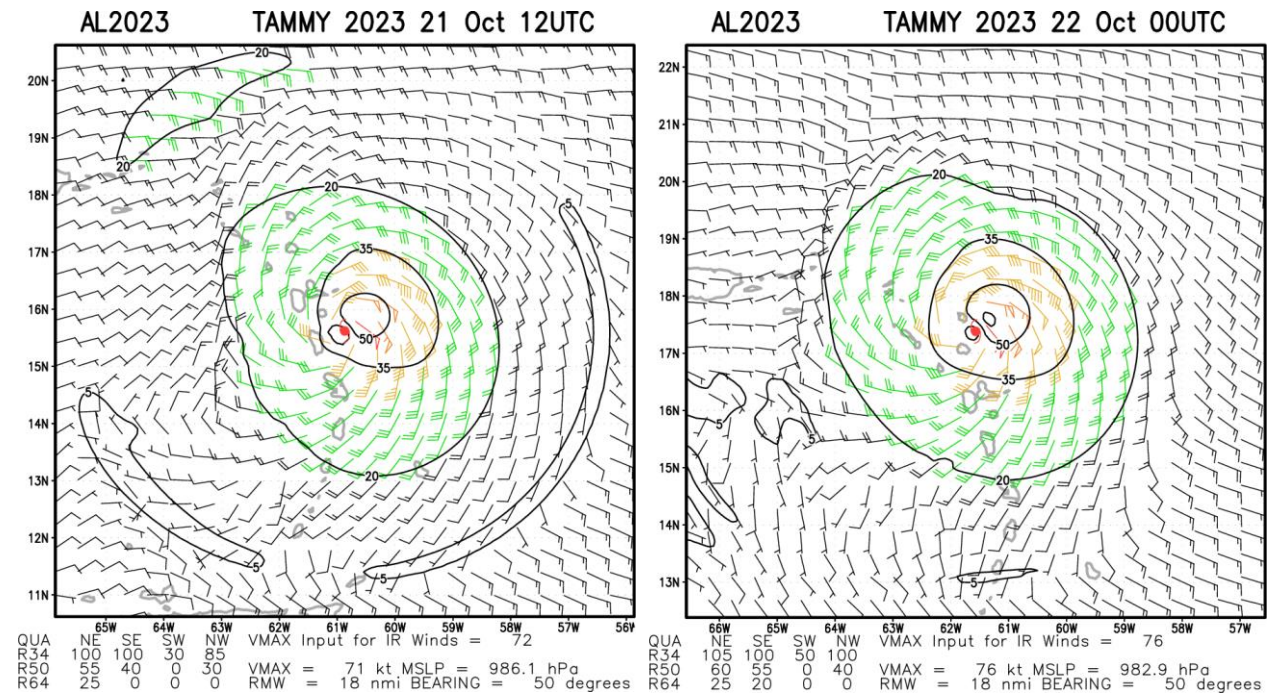
Figure 2 Satellite imagery on 20 and 21 October, 2023 at 1200UTC from the thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between -50°C and -70°C), while the red/yellow colours represent very high altitude clouds (top cloud lower than -70°C). High altitude clouds indicate strong convection associated with intense precipitation. Source: NOAA, National Environmental Satellite, Data and Information Service².

2 RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al202023



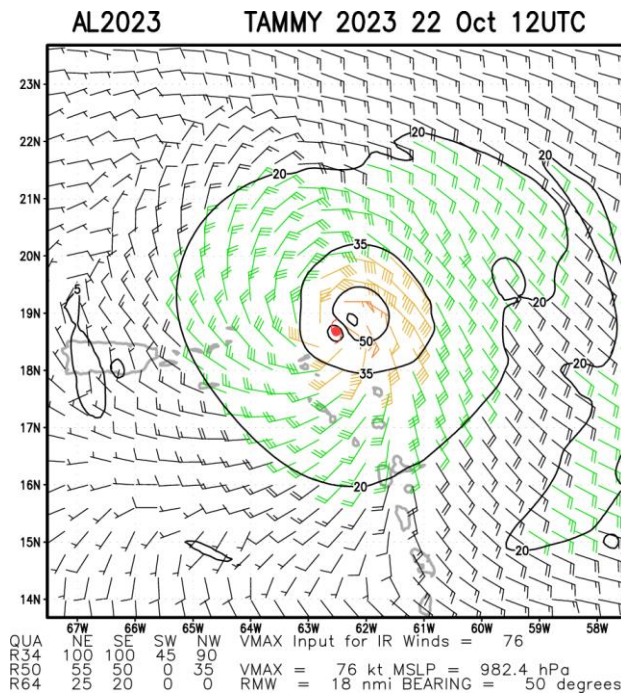
a) 20 October at 1200UTC

b) 21 October at 0000UTC



c) 21 October at 1200UTC

d) 22 October at 0000UTC



e) 22 October at 1200UTC

Figure 3 Multi-platform satellite based tropical cyclone surface wind analysis estimated on 20-22 October, 2023 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 at 50 kn (57 mph, 92 km/h). Source: NOAA, National Environmental Satellite, Data and Information Service³

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). A COAST report is required for any CCRIF member country that has a COAST policy, which meets this criterion. Saint Lucia was affected by Tropical Cyclone Tammy, which qualified as a Loss Event for the TC component of its COAST policy⁴. Figure 4 shows the wind footprint for the region around Saint Lucia affected by Tropical Cyclone Tammy.

³ RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al202023

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

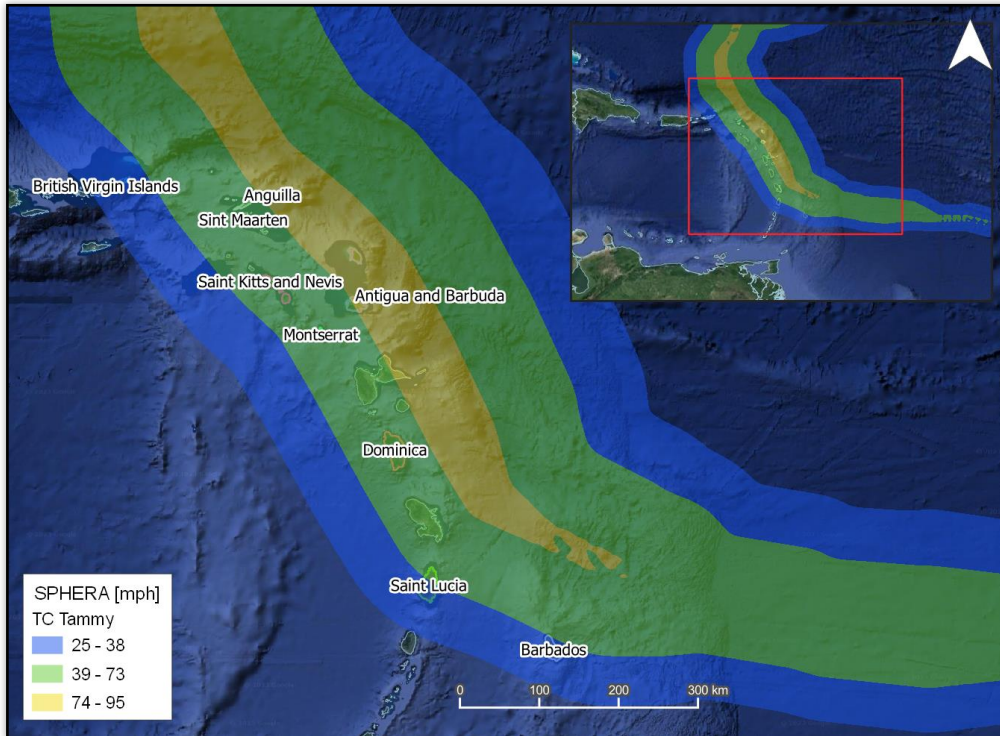


Figure 4 Map showing the wind field associated with Tropical Cyclone Tammy around Saint Lucia
Source: NHC & CCRIF/SPHERA

4 IMPACTS

At the time of writing this report, there was no available information on damage to the fisheries sector of Saint Lucia due to Hurricane Tammy.

5 CCRIF LOSS MODEL

The final runs of the CCRIF Fisheries model using the input data downloaded from the National Hurricane Center on 22 October 2023, demonstrated that the event qualifies as a Loss Event for the Tropical Cyclone (TC) component of Saint Lucia's COAST policy. For this event, the losses were below the lower attachment point of the TC component (the Tier 2 attachment point). Therefore, no payout is due under the TC component of the COAST policy for Saint Lucia.

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