



Tropical Cyclone Julia (aep182022)

Wind and Storm Surge

Final Event Briefing

Nicaragua

18 October 2022

1 SUMMARY

Tropical Cyclone Julia was the tenth named storm and the fifth hurricane of the 2022 Atlantic Hurricane Season. On 9 October at 0715 UTC, the centre of Julia made landfall near Bluefields, Nicaragua, as a category 1 hurricane. It remained at hurricane strength for the next eight hours, while moving across Nicaragua and was then downgraded to a tropical storm, continuing to cross Nicaragua. At 2100 UTC, it moved offshore and emerged over the Pacific Ocean, thus becoming the eighteenth named storm of the 2022 Pacific Hurricane Season. Julia then proceeded along the Pacific coast of Central America and dissipated over Guatemala.

The final runs of the CCRIF loss model for wind and storm surge produced government losses for Nicaragua, which were above the attachment point of the country's Tropical Cyclone policy, thus triggering the policy. A payment of US\$8,924,577.4 is due under Nicaragua's Tropical Cyclone policy.

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. Nicaragua was the only CCRIF member country for which the CCRIF loss model for wind and storm surge produced government losses due to Tropical Cyclone Julia. A separate report on rainfall impacts on affected CCRIF member countries will be issued if applicable

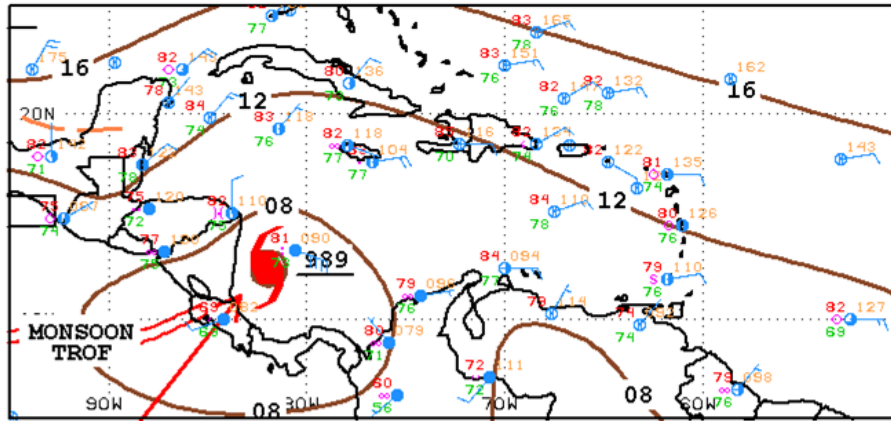
2 INTRODUCTION

On 7 October at 1500UTC, the US National Hurricane Center (NHC) informed that a tropical storm formed off the Guajira Peninsula, Colombia, and it was named Julia. Its centre was sited near latitude 12.7° North, longitude 73.1° West, about 700 mi (1180 km) E of Nicaragua. The system proceeded with estimated forward velocity of 18 mph (30 km/h) towards the west as it moved along the southern side of a high pressure area located over the southern Gulf of Mexico. The minimum central pressure was 1002 mb and the maximum sustained winds were estimated at 40 mph (65 km/h).

During the next day, 8 October, the tropical storm continued to move westward over the warm waters of the southwestern Caribbean Sea, where the oceanic heat content favored the intensification of the system. Additionally, a reduction in the wind shear further supported the strengthening of the tropical storm. The minimum central pressure gradually decreased and the system improved in organization and intensity, while it approached Nicaragua.

On 8 October at 2300UTC, the NHC reported that Julia became a category 1 hurricane. At this time, the centre of Hurricane Julia was located near latitude 12.5° North, longitude 81.7° West, about 120 mi (193 km) W of the Nicaragua coast, Figure 1a. The minimum central pressure was 990 mb and the maximum sustained winds were estimated at 75 mph (120 km/h). The satellite imagery showed a strong convective burst in the vicinity of the circulation centre and extended

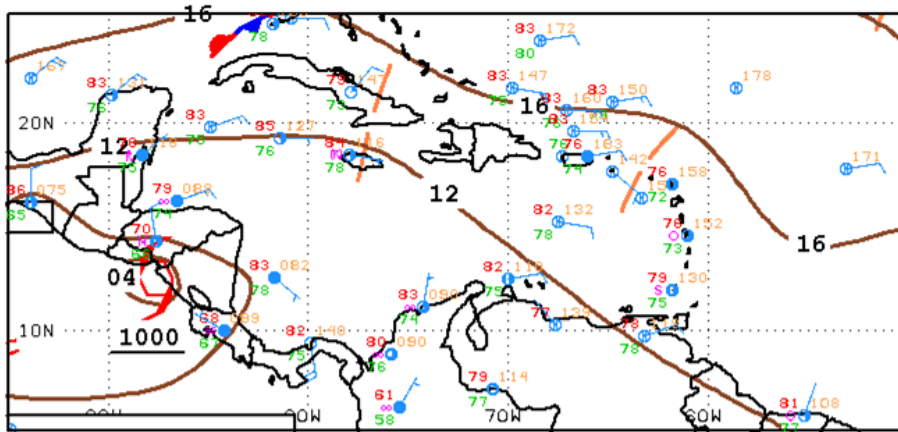
rainbands, particularly active over the western sector (Figure 2a). Hurricane-force winds extended outward up to 30 mi (50 km) from the hurricane centre, while tropical-storm-force winds extended outward up to 115 miles (185 km) from the centre. Nicaragua’s Atlantic coast began to be affected by tropical-storm-force winds within the next hour.



00Z CARIBBEAN SURFACE ANALYSIS
ISSUED:
Sun Oct 9 02:25:49 UTC 2022

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

a) 9 October at 0000UTC



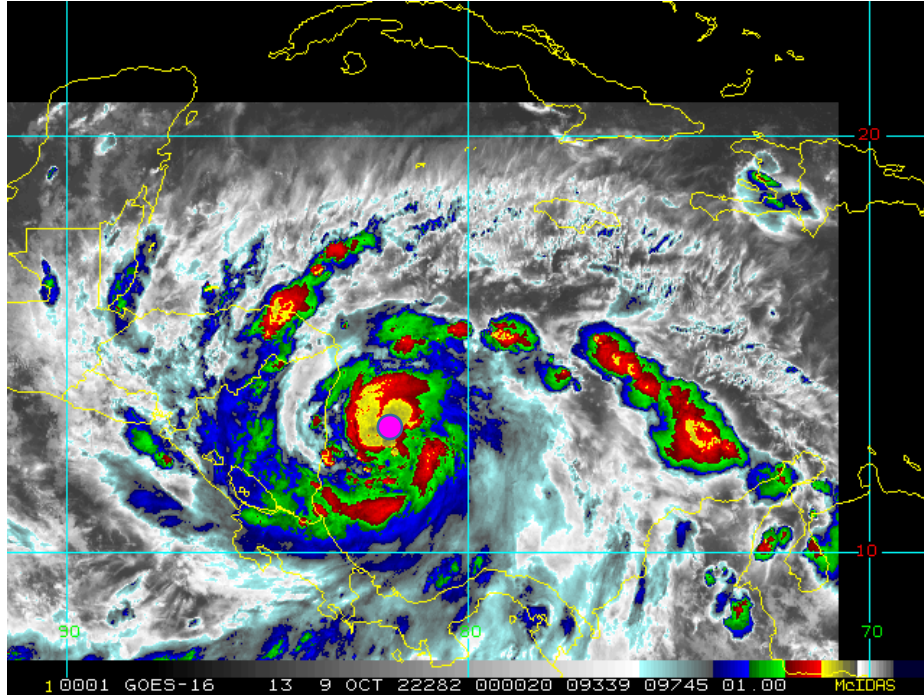
00Z CARIBBEAN SURFACE ANALYSIS
ISSUED:
Mon Oct 10 02:32:03 UTC 2022

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

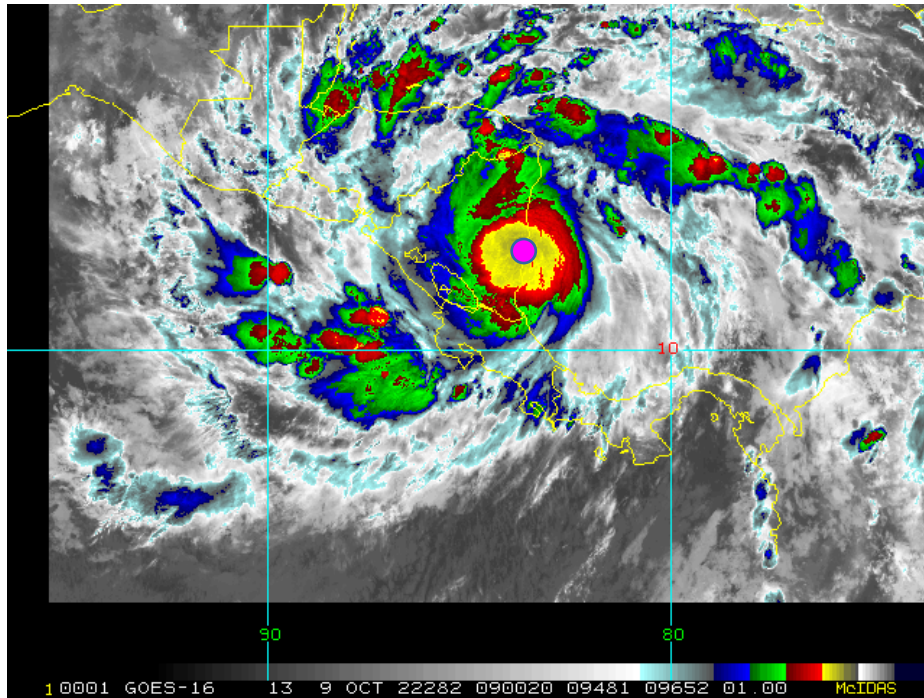
b) 10 October at 0000UTC

Figure 1 Surface analysis over the Caribbean area on 9 and 10 October, 2022 at 0000UTC. Source: US National Hurricane Center¹

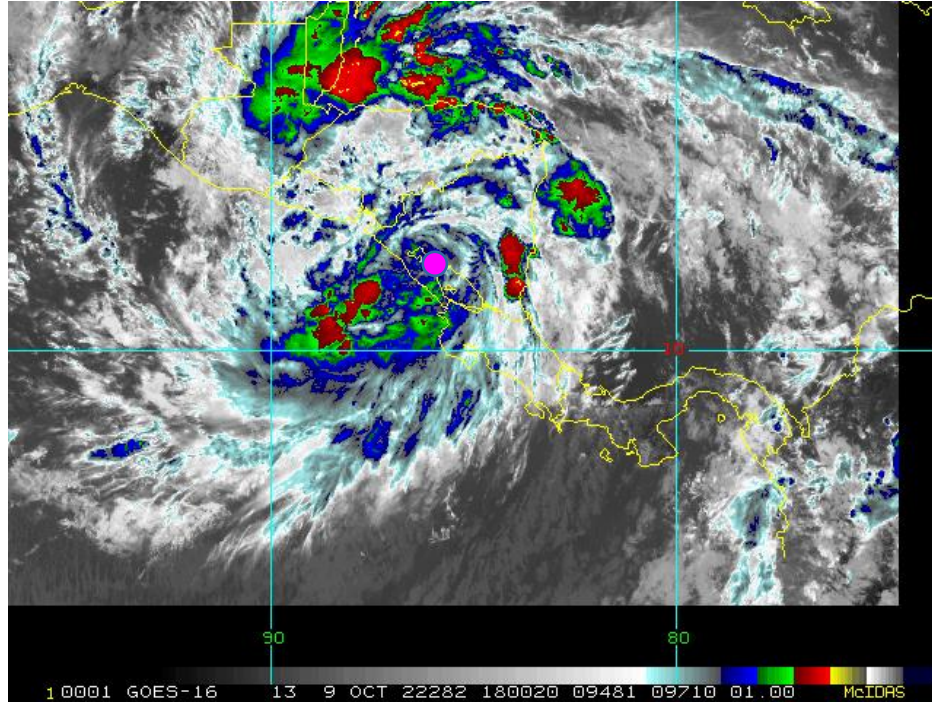
¹National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 17 September 2022, available at: https://www.nhc.noaa.gov/tafb/CAR_12Z.gif



a) 9 October at 0000UTC



b) 9 October at 0900UTC



c) 9 October at 1800UTC

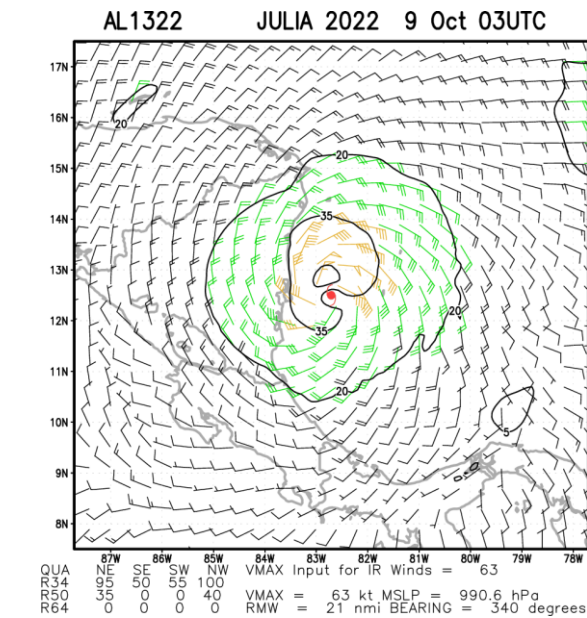
Figure 2 Satellite imagery on 9 October, 2022 at different times as indicated in the labels from the thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between -50°C and -70°C), while the red/yellow colours represent very high altitude clouds (top cloud lower than -70°C). High altitude clouds indicate strong convection associated with intense precipitation. The centre of Tropical Cyclone Julia is indicated by the purple dot. Source: NOAA, National Environmental Satellite, Data and Information Service².

During the next eight hours, Julia continued its rapid intensification while approaching Nicaragua and on 9 October at 0715UTC, it made landfall along the coast near Laguna de Perlas, near latitude 12.4° North, longitude 83.6° West, about 30 mi (50 km) NNE of Bluefields, Nicaragua. The minimum central pressure dropped to 982 mb and the maximum sustained winds increased to 85 mph (140 km/h) with higher gusts. Hurricane-force winds extended outward up to 35 mi (55 km) from the centre, spreading over the coastal areas of Nicaragua near the area of landfall, while tropical-storm-force winds extended over eastern Nicaragua outward up to 115 miles (185 km) from the hurricane centre. At 0900UTC, the Bluefields International Airport in Nicaragua reported sustained winds of 58 mph (93 km/h).

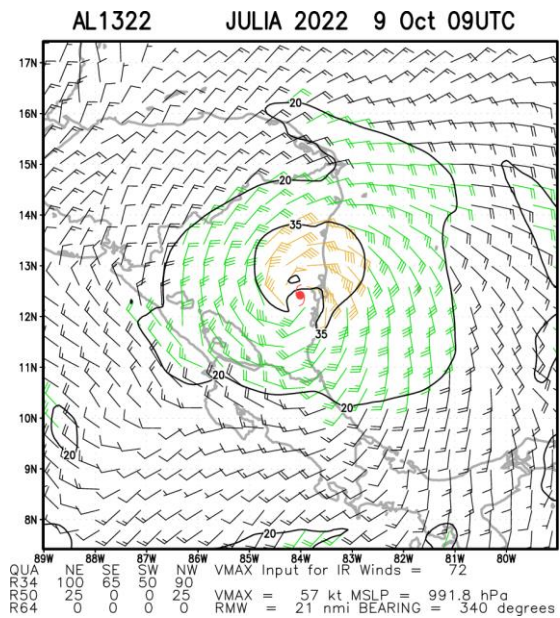
Julia remained a hurricane for eight hours after landfall, while moving westward across Nicaragua with a forward velocity of 16 mph (26 km/h). However, the interaction with the land gradually reduced its strength and at 1500UTC, it was downgraded to tropical storm. At this time, its centre was sited near latitude 12.4° North, longitude 84.6° West, about 115 mi (190 km) E of Managua,

²RAMSDIS Online Archive, NOAA Satellite and Information Service, available at:
https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=all32022

Nicaragua. The maximum sustained winds were estimated at 75 mph (120 km/h), with higher gusts. Tropical-storm-force winds extended outward up to 115 miles (185 km) from the centre of the tropical storm, affecting most of the country. Despite the interaction with the land resulting in a considerable weakening of Julia, its fast forward motion caused the surface circulation to remain intact. Consequently, Julia reached Nicaragua’s Pacific coast as a tropical storm. On 9 October shortly after 2100UTC, its centre reached the Pacific Ocean near latitude 12.5° North, longitude 87.2° West, about 67 mi (108 km) NW of Managua, Nicaragua. As Julia moved across Nicaragua, almost the entire country was affected by tropical-storm-force winds, while the region of central eastern Nicaragua around the centre of the storm with a radius of 30 to 35mi (50 to 55km) was affected by hurricane-force winds (Figure 3).



a) 9 October at 0300UTC



b) 9 October at 0900UTC

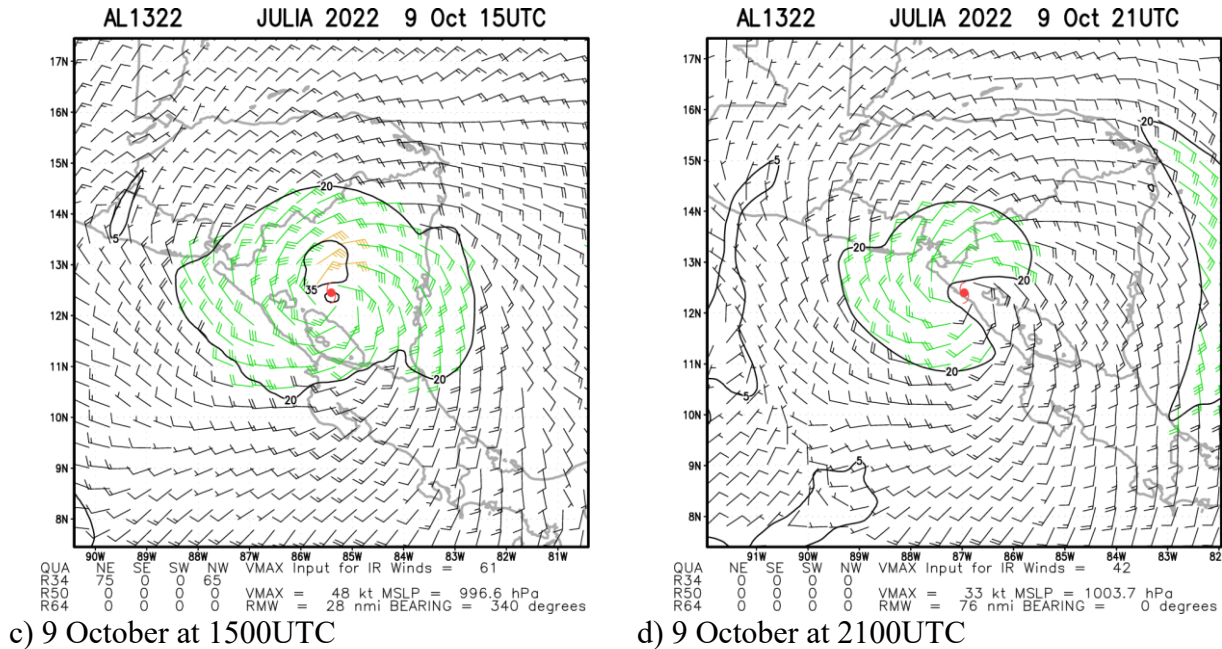


Figure 3 Multi-platform satellite based tropical cyclone surface wind analysis estimated on 9 October, 2022 at different times as indicated by the labels. Contouring indicates wind intensity at 20 kn (23 mph, 37 km/h), at 35 kn (40 mph, 65 km/h) and 50 kn (56 mph, 92 km/h). Source: NOAA, National Environmental Satellite, Data and Information Service³

Over the Pacific Ocean, Julia continued to weaken. It steered toward the northwest, moving closely along the coast of Nicaragua, Honduras and El Salvador. On 10 October at 0900UTC, it made landfall on El Salvador and rapidly was downgraded to a tropical depression. It dissipated over Guatemala, in the vicinity of Guatemala City.

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). Nicaragua was affected by Tropical Cyclone Julia, which qualified as a Triggering Event⁴. Figure 4 shows the wind footprint for the regions affected by Tropical Cyclone Julia in Nicaragua.

³RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al132022

⁴ Any Tropical Cyclone event which produces a modelled loss sufficiently high to trigger a payout under the CCRIF policy conditions as in force on the date of the event in one or more policyholder countries.

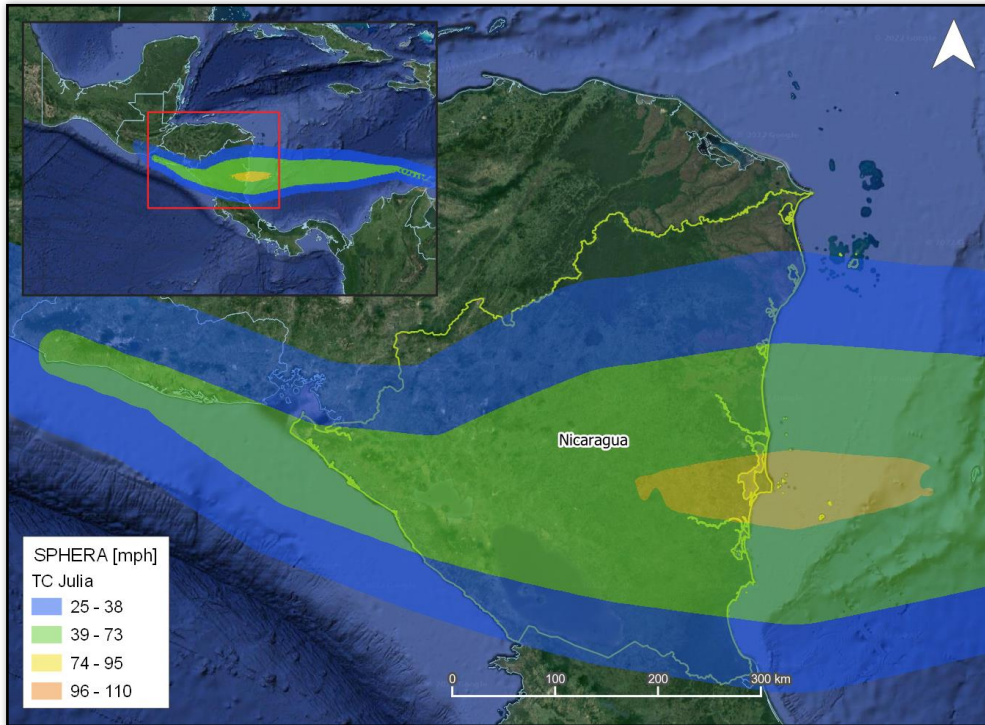


Figure 4 Map showing the wind field associated with Tropical Cyclone Julia in Nicaragua.
Source: NHC & CCRIF/SPHERA

4 IMPACTS

According to reports from regional media, Tropical Cyclone Julia’s trajectory caused torrential rainfall, an increase in the flow of rivers, falling trees and detached roofs, completely flooded neighborhoods, damage to bridges and power supply disruptions, interrupting communication to the population in some areas.

The director of Nicaragua’s Disaster Prevention System (SINAPRED)⁵ reported that more than 13,000 families were evacuated and more than 800 houses were flooded.

⁵ [Así ha sido el paso de la tormenta tropical Julia por el Caribe y Centroamérica \(cnn.com\)](https://www.cnn.com)



a) Flood in Chontales



b) Falling trees



c) Flood in San Miguel



d) Flood in El Rama by river overflow



Figure 5 Damage in Nicaragua

5 CCRIF LOSS MODEL

The final runs of the CCRIF loss model for wind and storm surge produced government losses for Nicaragua, which were above the attachment point of this country's Tropical Cyclone policy, thus triggering the policy. A payment of US\$8,924,577.4 is due under Nicaragua's Tropical Cyclone policy

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