



Tropical Cyclone OTTO (AL162016 & EP222016)

Wind and Storm Surge

Preliminary Event Briefing

26 November 2016

1 SUMMARY

Otto is the 16th named storm of the 2016 Atlantic Hurricane Season and was formed as a Tropical Storm over the southwestern Caribbean Sea near the coast of Panama on 21 November 2016 as an extremely late event in the calendar year. According to the National Oceanic and Atmospheric Administration's best track database, only 18 storms with at least tropical storm strength formed in late November within the last 65 years in the western Caribbean Sea, and only 9 of them reached Hurricane strength.

Hurricane Otto affected one CCRIF member in Central America: Nicaragua, and affected other countries in the region, namely Panama and Costa Rica. Heavy rains and strong winds were experienced in these countries, resulting in flooding, landslides and some damage to infrastructure.

The preliminary runs of CCRIF's loss model for wind and storm surge produced government losses in Nicaragua above its Tropical Cyclone policy's attachment point, and preliminary calculations show that a payout of US\$1,110,193 is due.

Tropical Cyclone policies are designed to cover impacts from wind and storm surge but not rainfall. Coverage for the peril of rainfall is offered by CCRIF but none of the countries affected by Hurricane Otto purchased Excess Rainfall policies.

2 INTRODUCTION

On 21 November 2016 at 1800 UTC, the National Hurricane Center (NHC) reported that a Tropical Storm had developed in the southwestern Caribbean Sea, and was named Otto, the 16th storm of the 2016 Atlantic Hurricane Season. The storm was located at 11.5° N and 79.3° W, approximately 175 mi (285 km) ESE of San Andres Island, 305 mi (495 km) E of Bluefields, Nicaragua with maximum sustained winds of 50 mph (85 km/h).

Otto was stationary during the first 24 hours, strengthening over the southwestern Caribbean Sea.

On 22 November 2016 at 1500 UTC, Otto was strengthening close to Hurricane force and the Governments of Costa Rica and Nicaragua issued a Hurricane Watch¹. The storm was located at 10.4° N and 79.2° W, approximately 330 mi (530 km) ESE of Bluefields, Nicaragua, 260 mi (420 km) E of Limon, Costa Rica, with maximum sustained winds of 70 mph (110 km/h).

¹ A Hurricane Watch means that hurricane conditions are possible within the specified area.

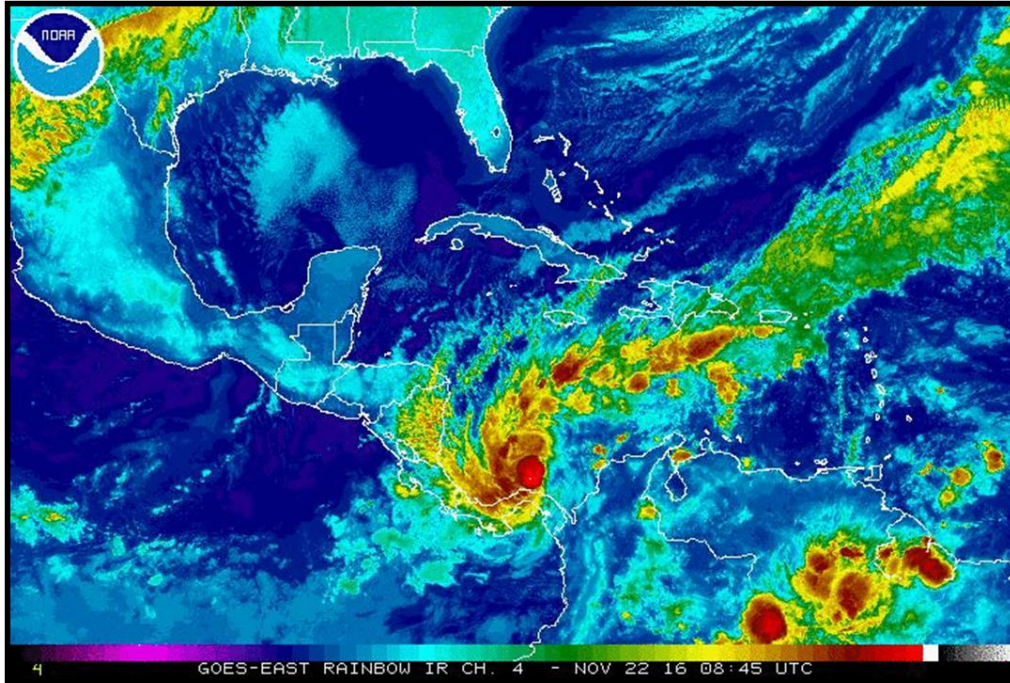


Figure 1 Satellite image of Tropical Storm Otto. Source: National Hurricane Centre (NHC)

At 2100 UTC on 22 November 2016, Otto became the seventh hurricane of the 2016 season.

On 23 November 2016 at 300 UTC, Hurricane Otto was located at 10.7° N and 79.8° W approximately 285 mi (460 km) ESE of Bluefields, Nicaragua, and 225 mi (360 km) ENE of Limon, Costa Rica, with maximum sustained winds of 75 mph (120 km/h) and the Governments of Nicaragua and Costa Rica issued a Hurricane Warning².

At that time, Hurricane Otto was moving westwards very slowly between 2.5 and 5 mph (between 4 and 7 km/h) approaching the Central America region.

On 24 November 2016 at 1100 UTC, Otto became a Category 2 Hurricane.

On 24 November 2016 at 1800 UTC, Otto made landfall on the southern Nicaraguan coast near the town of San Juan de Nicaragua, located at 11.0° N and 83.9° W, with maximum sustained winds of 110 mph (175 km/h).

Hurricane Otto moved farther inland over southern Nicaragua, spreading torrential rains over Nicaragua and Costa Rica.

² A Hurricane Warning means that hurricane conditions are expected somewhere within the warning area.

On 25 November 2016 at 300 UTC, Otto weakened to a Tropical Storm inland over north-western Costa Rica and was located at 10.9° N and 85.6° W, approximately 20 mi (30 km) N of Liberia, Costa Rica, with maximum sustained winds of 70 mph (110 km/h).

On 25 November 2016 at 600 UTC, Otto left Central America territory and was located in the Eastern Pacific Ocean at 10.8° N and 86.2° W, approximately 55 mi (90 km) WNW of Liberia, Costa Rica.

Otto then moved away from the Central America region.

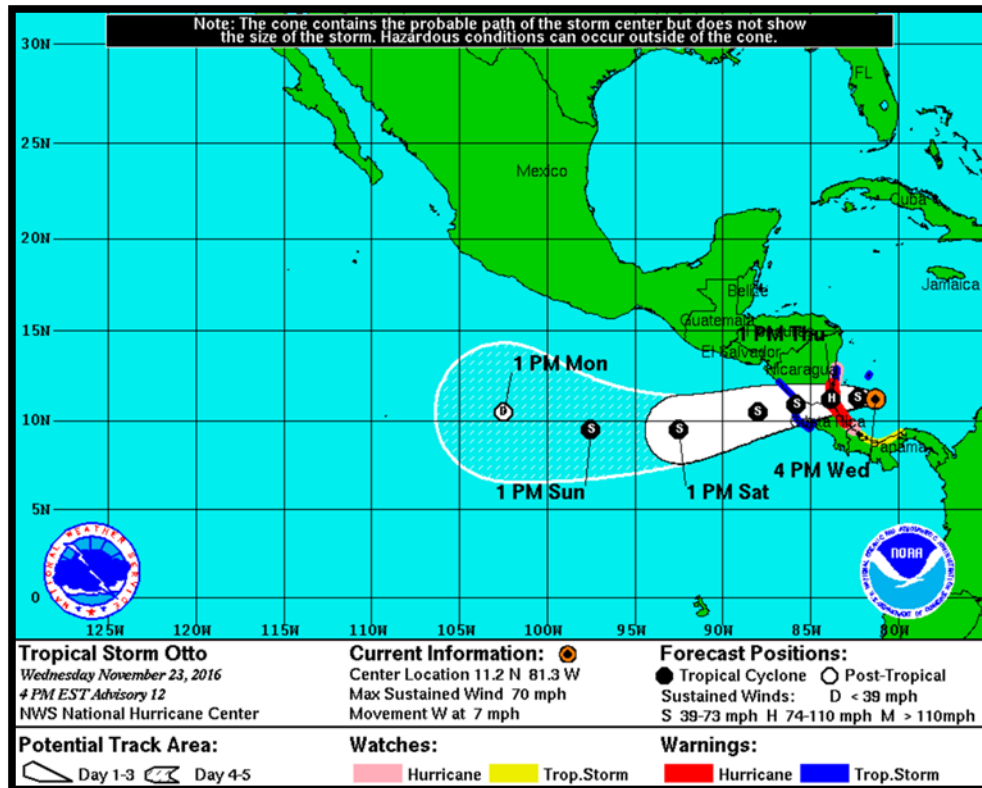


Figure 2 Map showing the most likely path of TC Otto through Central America. Source: National Hurricane Center (NHC)

CCRIF SPC MODEL OUTPUTS

Under CCRIF’s loss calculation protocol, a CCRIF Multi-Peril Risk Estimation System (MPRES) report is required for any tropical cyclone affecting at least one member country with winds greater than 39 mph (62 km/h). Tropical Cyclone Otto qualified as a Triggering Event³ in Nicaragua, which experienced Hurricane Category 2 force winds. The wind footprint (Figure 3 and 4) and surge field (Figure 5) are two of the outputs from the CCRIF model which show the regions affected by certain magnitudes of wind velocity and storm surge.

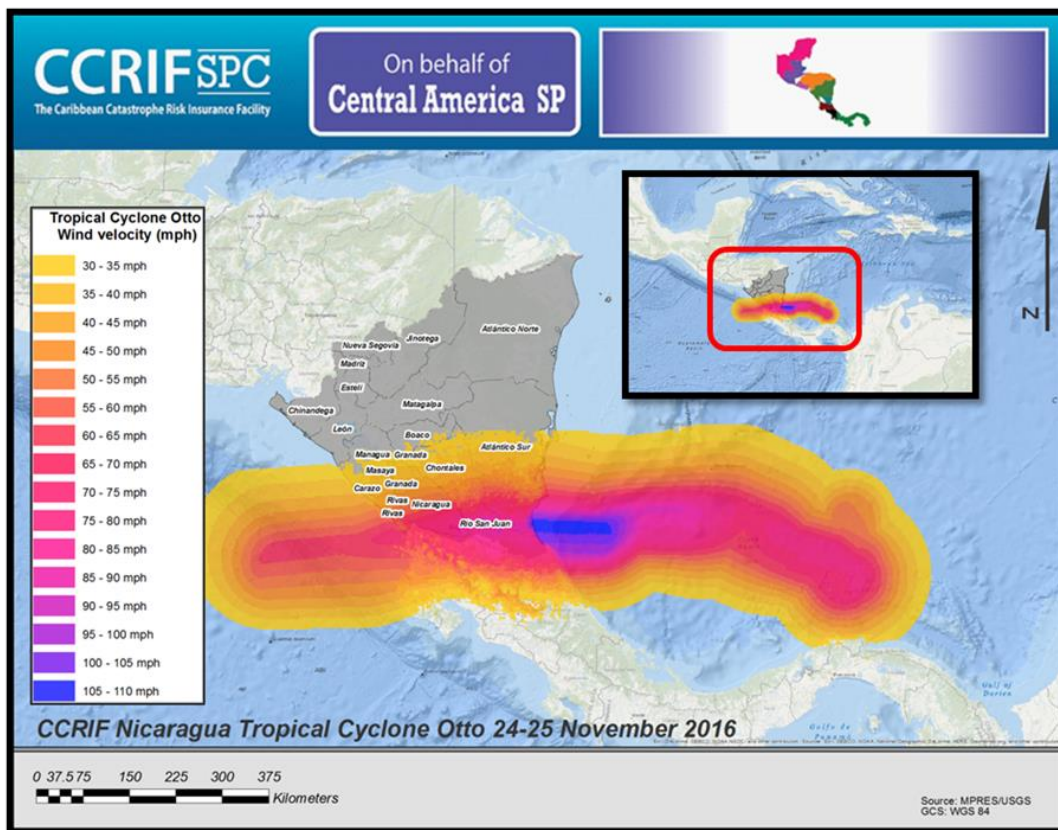


Figure 3 Map showing the path and wind field associated with Tropical Cyclone Otto.

³ A Triggering Event is any Tropical Cyclone event which produces a modelled loss sufficiently high to trigger a payout under the CCRIF policy conditions in one or more countries.

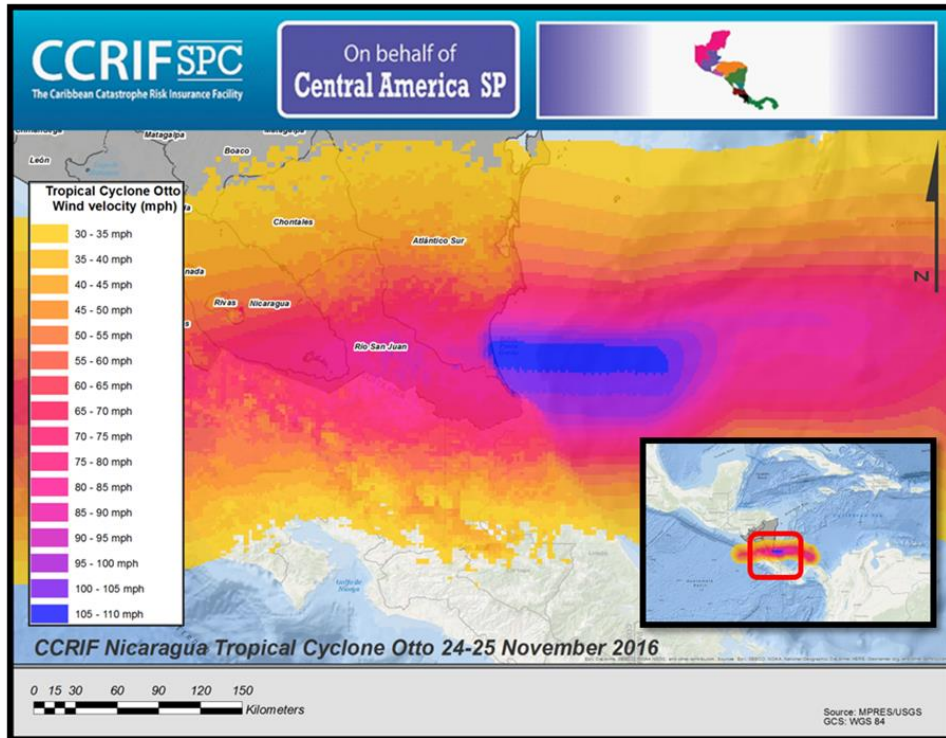


Figure 4 Map showing the path and wind field associated with Tropical Cyclone Otto in Nicaragua.

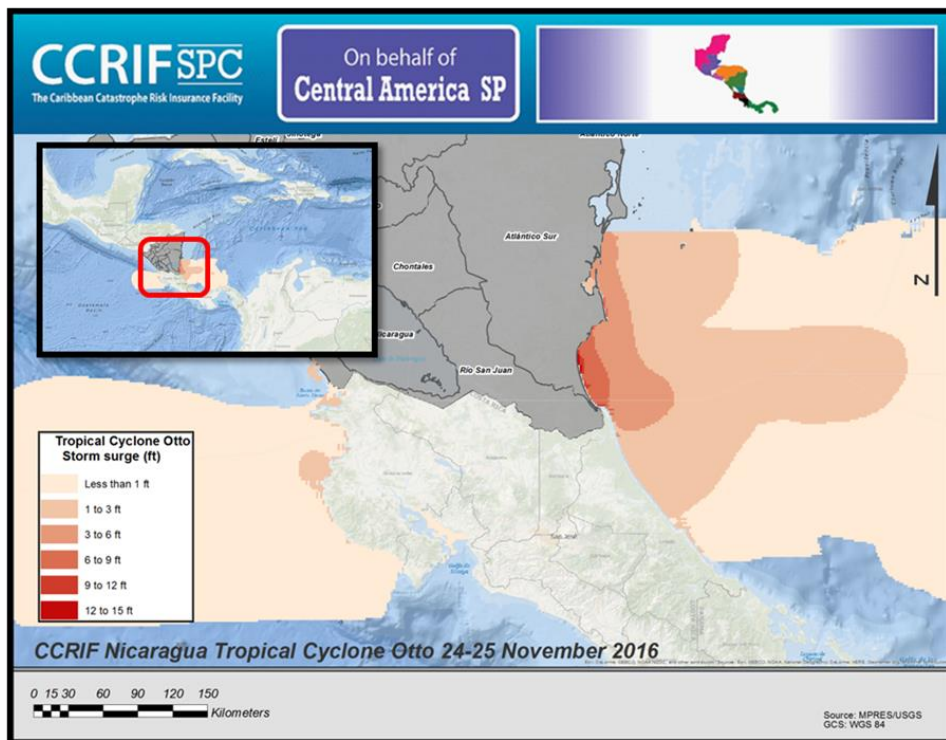


Figure 5 Map showing the Surge Strom associated with Tropical Storm Otto in Nicaragua

3 IMPACTS

Nicaragua

According to the Nicaragua's Disaster Management Agency (SINAPRED), the damage has not yet been quantified but there are reports of dozens of houses damaged, fallen trees and failure of electricity facilities.

The Government of Nicaragua evacuated approximately 10,572 people prior to the arrival of Hurricane Otto.

The most affected regions were Bluefields, Laguna Perlas, Corn Island, Little Corn Island and San Juan de Nicaragua.

Atlántico Sur and Rio San Juan departments reported floods, landslides and interruptions in the potable water and electricity supplies.

The Government did not have any reports of loss of life at the time of this report.



Figure 6 Desolation and destruction after Hurricane Otto in Nicaragua. Source: El Nuevo Diario - Nicaragua

4 CCRIF LOSS MODEL

Modelled losses due to wind and storm surge and any resultant payouts are based on the conditions selected by member countries for their Tropical Cyclone policies. Preliminary runs of CCRIF's loss model shows that for Nicaragua, the modelled loss was above the Tropical Cyclone policy attachment point and therefore a payout of US\$1,110,193 is due.

For further information, please contact: ERN-RED, CCRIF SPC Risk Management Specialist.

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