

# **Tropical Cyclone Rafael (AL172012)**

## **Event Briefing, Eastern Caribbean Impacts**

*Caribbean Risk Managers Ltd  
Facility Supervisor*

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Facility Supervisor: Caribbean Risk Managers Ltd  
Email: [ccrif@ccrif.org](mailto:ccrif@ccrif.org)  
Tel (Barbados): +1 (246) 426-1525; Tel (Jamaica): +1 (876) 922-9604



# 1 INTRODUCTION

On 12 October 2012, the National Hurricane Centre produced a weather outlook on a low pressure area which later became more organised and was named Tropical Storm Rafael. Located 125 miles (200 km) west south west of Dominica, Tropical Storm warnings and watches were in effect for many of the islands of the Lesser Antilles. As it moved in a northwesterly direction the system passed west of Saint Kitts and Nevis and by the evening of 13 October 2012 the center of Rafael was between Saint Martin and Saint Croix.

Rafael was upgraded to a Category 1 Hurricane with winds of 85 mph (140 km/h) upon clearing the Lesser Antilles chain. By the afternoon of 16 October 2012, the outer bands of Rafael began to affect Bermuda with heavy rains. Hurricane force winds extended outward up to 35 miles (55 km) from the centre and tropical storm force winds extended outward up to 205 miles (335 km).



**Figure 1** Map showing the path of Tropical Cyclone Rafael. *Source: NHC.*

## **2 CCRIF MODEL OUTPUTS**

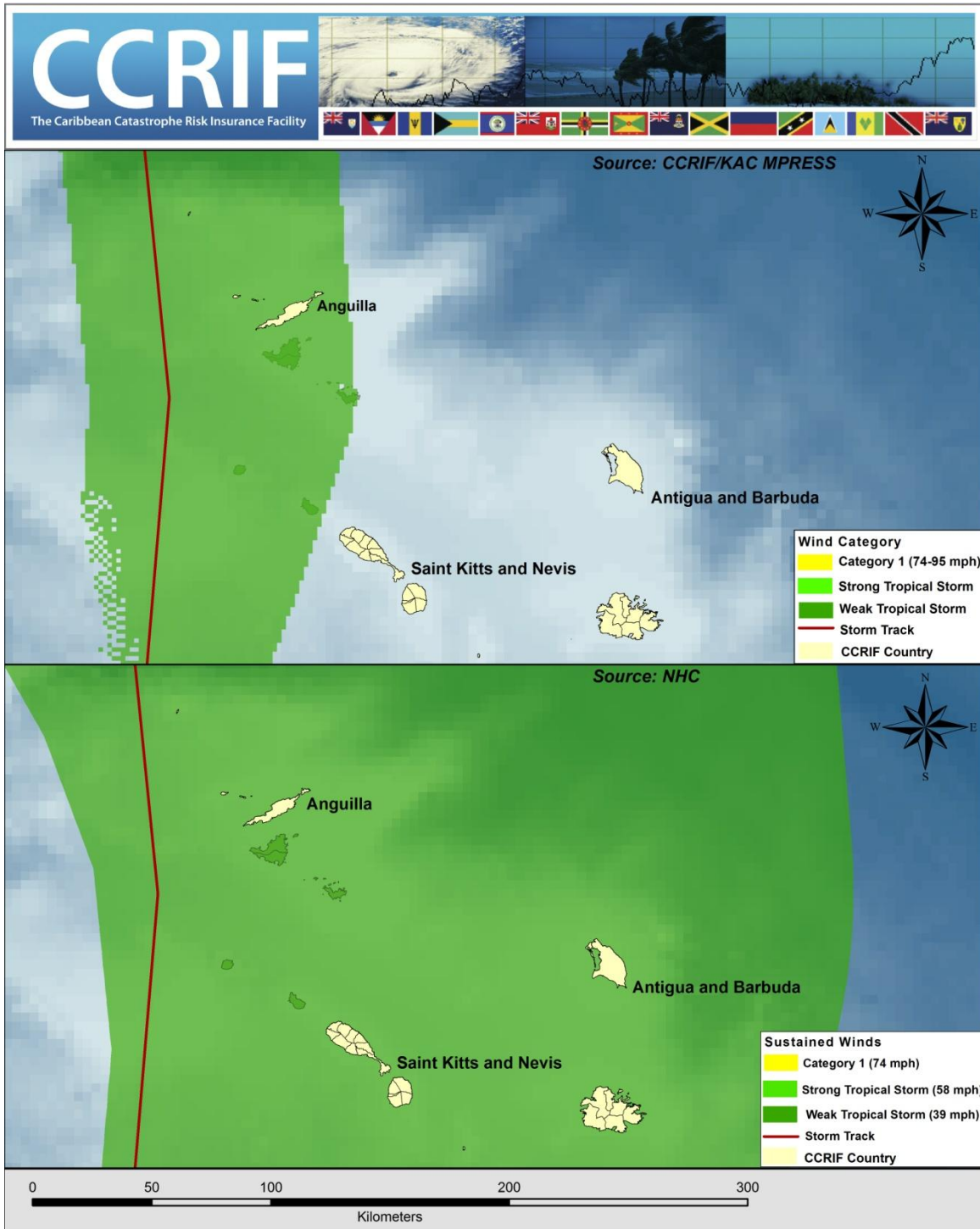
Under CCRIF's loss calculation protocol, a CCRIF Multi-Peril Risk Estimation System (MPRES) report is required for any tropical cyclone affecting at least one of the 16 member countries with winds of greater than 39 mph. Tropical Cyclone Rafael qualified as a reportable event with two countries experiencing at least Tropical Storm force winds.

The wind footprint is one of the outputs from the CCRIF model. The modelled wind speed is consistent with surface wind speed estimates from NOAA-NHC (both the public wind footprint issued with each Advisory – see Figure 2 - and from the NHC research department's H\*WIND algorithm, which rationalises all actual wind speed measurements collected on the ground and from flights and satellites.) CCRIF will also be requesting ground-based wind and other storm information from the relevant national and/or regional meteorological agencies in order to further verify the modelled wind field and storm surge.

## **3 IMPACTS**

Based on the MPRES footprint, the CCRIF member countries affected by at least tropical storm force winds in the Eastern Caribbean Region from Rafael were Saint Kitts and Nevis and Anguilla. Rafael reportedly produced heavy rains as it passed over the northern region of the Lesser Antilles. The St. Kitts Meteorological Office confirmed that St. Kitts experienced peak sustained winds of Tropical Storm strength and approximately 12.31 inches of accumulated rainfall while Nevis experienced approximately 7 inches.

There were no reports of significant damage as a result of the storm as it crossed the Lesser Antilles chain. This is corroborated by preliminary runs of the CCRIF loss model that generated only small government losses in the affected countries, which in both cases were below each country's trigger level and therefore no payout is due.



**Figure 2** Comparison of NHC and CCRIF model wind footprint. *Source: NHC & CCRIF/KAC MPRES.*