



Trough System (8-12 November 2014)

Excess Rainfall

Event Briefing

28 November 2014

1 INTRODUCTION

A low pressure trough moving through the Western Atlantic brought continued rainfall to Haiti from 9 to 11 November 2014. The trough had affected Anguilla and St. Kitts and Nevis a few days earlier¹, making Haiti the third CCRIF member country with an Excess Rainfall policy² to be affected by the system.

The Caribbean Rainfall Model (operated by Kinetic Analysis Corporation (KAC)) indicated that a Covered Area Rainfall Event (CARE) was generated in Haiti starting on 8 November 2014 and ending on 10 November 2014.

At the time of this briefing, CCRIF is in the process of attaining official reports on damage on the ground from Haitian authorities as well as through a liaison at CDEMA.

2 DAILY MODEL RAINFALL DATA

Haiti's Meteorological Services recorded 300 mm of rainfall over the period 8:00 am on 9 November to 8:00 pm on 11 November (1300 UTC 9 November to 0100 UTC 12 November) at the Hugo Chavez International Airport in Cap-Haitien. The rainfall measurement, used as input to the Caribbean Rainfall Model, over the same period in the corresponding iTRMM Grid Cell in Haiti, was 148.14 mm. However, the maximum accumulated precipitation produced by the model was 1,592.22 mm which fell on the southern side of the boundary between the departments of Sud and Nippes. The terrain is very mountainous with elevations of approximately 1,100 m and drains south into Baie Anglaise. Although the terrain is steeply sloping and mountainous, it is not heavily forested or developed.

The discrepancy in rainfall amounts recorded at the airport and produced by CCRIF's Rainfall Model is due to different precipitation measurement systems. Airports use a rain gauge while CCRIF's model is based on satellite remote sensed data. A rain gauge provides a single discrete rainfall measurement while CCRIF's model data are based on broad spatial coverage. In essence, the rain gauge registers data at one location at the airport, whereas CCRIF's Rainfall Model captures data for the entire ~1 km² grid cell (in this instance, the cell which includes the airport rain gauge).

Figure 1 shows the accumulated rainfall, as interpolated iTRMM values, over Haiti from 8 to 12 November 2014.

¹ <http://ccrif.org/publications/event-briefing-excess-rainfall-trough-system>

² Eight member countries have purchased Excess Rainfall policies. These are: Anguilla, Barbados, Dominica, Grenada, Haiti, Saint Lucia, St. Kitts and Nevis and St. Vincent and the Grenadines.

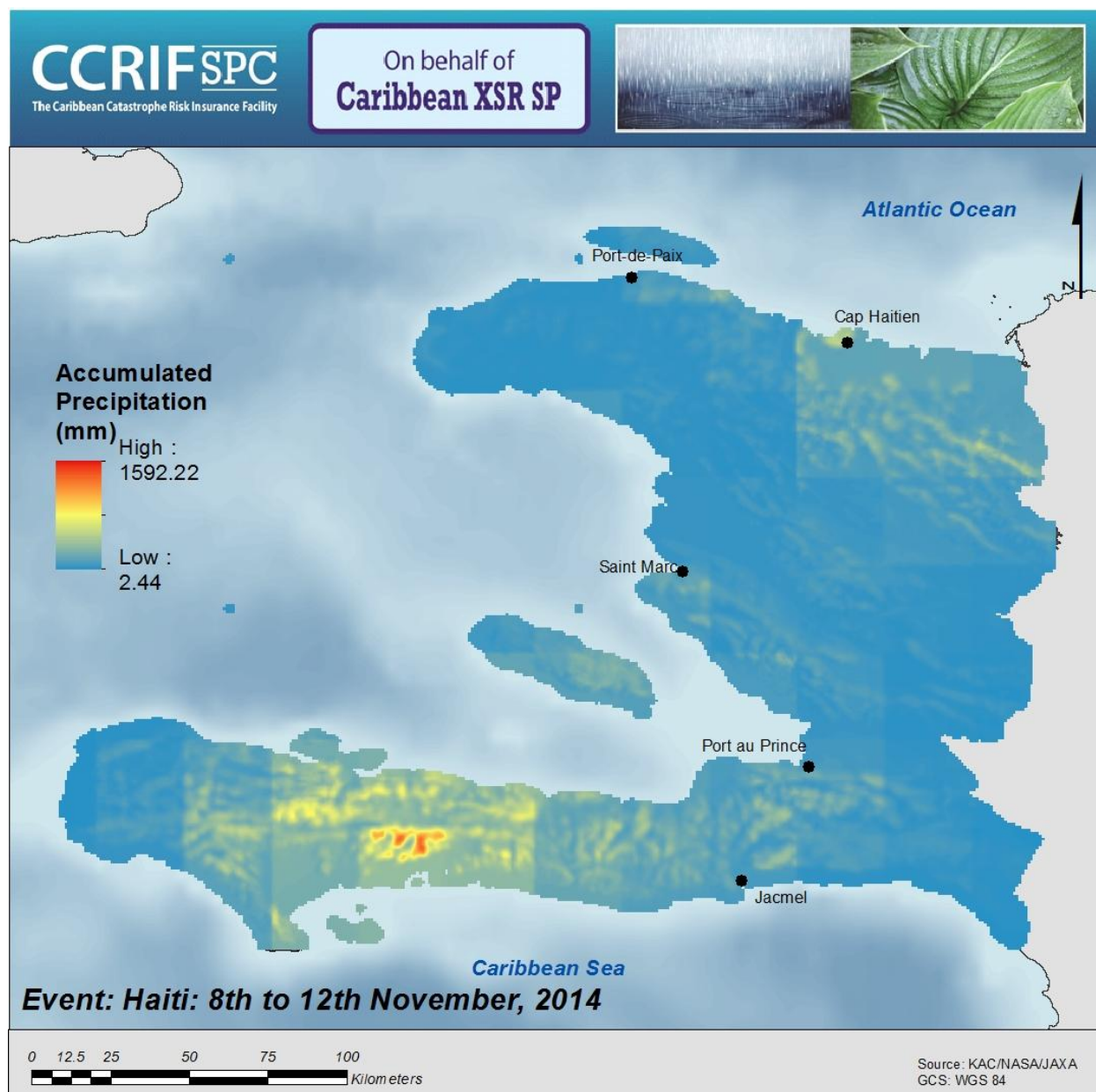


Figure 1 Map showing accumulated rainfall in Haiti, 8-12 November 2014

3 RAINFALL MODEL OUTPUTS

The Caribbean Rainfall Model uses a 3-day running aggregate of rainfall measurements for Haiti, meaning that the rainfall attributed to a particular day is the total sum of the rainfall on that day itself and the two following days.

The Caribbean Rainfall Model produced Maximum Aggregate Rainfall of 1,592.22 mm on 9 November 2014 (includes rainfall for 9, 10 and 11 November). The maximum number of ongoing iTRMM Grid Cell Events (iGCEs) was 16,176.

4 TRIGGER POTENTIAL

The number of ongoing iGCEs in Haiti exceeded the required threshold (8,274) to trigger the CARE on 8 November and remained above the threshold until 10 November.

It must be noted that the Rainfall Index Loss for a CARE cannot be determined until the Aggregate Rainfall in each iTRMM Grid Cell that had an ongoing iGCE that contributed to the CARE has fallen below 75 mm for at least 2 days (1 day in the case of those countries for which the model uses 2-day Aggregate Rainfall). In this instance, the CARE's contributing iGCEs ended on 14 November.

The Rainfall Index Losses calculated for Haiti's CARE did not exceed the attachment point on its Excess Rainfall policy and therefore no payout is due.

For further information, please contact Caribbean Risk Managers Ltd., the CCRIF SPC Facility Supervisor.

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DEFINITIONS

<i>Active Percentage</i>	The percentage of the total number of iTRMM Grid Cells, within the Covered Area of the Insured, in which an iTRMM Grid Cell Event must be occurring to trigger a Covered Area Rainfall Event. The Active Percentage is defined in the Schedule.
<i>Aggregate Rainfall</i>	<p>The value of Aggregate Rainfall, as measured in millimetres (mm), using the iTRMM Precipitation Data over the Covered Area and evaluated by the Calculation Agent as part of the Rainfall Index Loss Calculation Methodology. For a given day:</p> <p>(a) 2-day aggregate - the total sum of rainfall on the day itself, and the day after; or</p> <p>(b) 3-day aggregate - the total sum of rainfall on the day itself, and the two following days.</p>
<i>Caribbean Rainfall Model</i>	The computer model used to calculate the iTRMM Grid Cell Event Loss and the Rainfall Index Loss.
<i>Covered Area Rainfall Event</i>	Any continuous period of days during which the number of iTRMM Grid Cell Events is greater than or equal to the product of (a) Active Percentage multiplied by (b) the total number of iTRMM Grid Cells within the Covered Area.
<i>Covered Area</i>	The territory of the Insured as represented in the Caribbean Rainfall Model.
<i>iTRMM Grid Cell (grid cell)</i>	The 30 arc-second by 30 arc-second grid of cells each of which is attributed with an exposure value and, for those with exposure value greater than zero, to which an Aggregate Rainfall Amount is attributed each day.
<i>iTRMM Grid Cell Event (cell event)</i>	Any continuous period of days during which the Aggregate Rainfall value equals or exceeds the Rainfall Event Threshold in an iTRMM Grid Cell. For Covered Areas that have 3-day aggregation periods, an iTRMM Grid Cell Event is only considered to be over once there have been two or more consecutive days where the Aggregate Rainfall does not exceed the Rainfall Event Threshold.

<i>Maximum Aggregate Rainfall</i>	The highest Aggregate Rainfall amount during an iTRMM Grid Cell Event for each iTRMM Grid Cell in which there is an iTRMM Grid Cell Event.
<i>Rainfall Event Threshold</i>	Aggregate Rainfall level which, when exceeded, starts an iTRMM Grid Cell Event.
<i>Rainfall Index Loss</i>	For any Covered Area Rainfall Event affecting the Insured, the US Dollar loss calculated by the Calculation Agent using the Caribbean Rainfall Model.