



Covered Area Rainfall Event (01/11/2024 to 03/11/2024)

Excess Rainfall

Event Briefing

British Virgin Islands

11 November 2024

1 INTRODUCTION

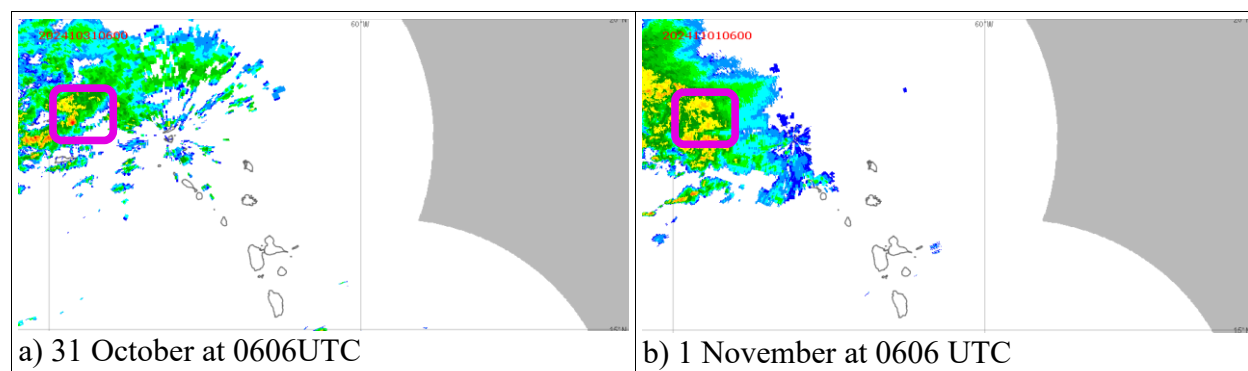
This event briefing describes the impact of rainfall on the British Virgin Islands, which was associated with a Covered Area Rainfall Event (CARE) starting on 01 November 2024 and ending on 03 November 2024. The Rainfall Index Loss (RIL) for the Covered Area Rainfall Event was below the attachment point of the British Virgin Islands' Excess Rainfall policy, therefore no payout is due to the Government of [the](#) Virgin Islands.

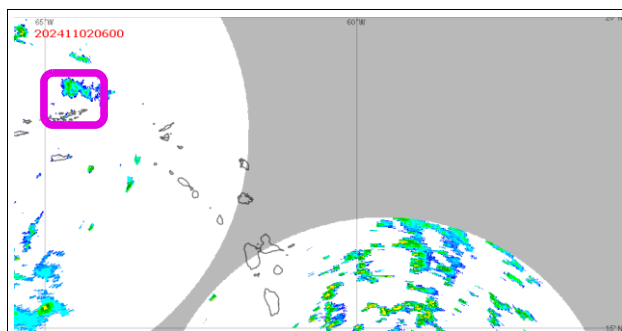
2 EVENT DESCRIPTION

On 31 October 2024, a large area of showers and thunderstorms affected the Atlantic waters north of the Leeward Islands, Virgin Islands, Puerto Rico and Hispaniola, from latitude 18°North to 23.5°North between longitude 48°West and 69°West. This convective activity was ahead of an upper-level trough that crossed Hispaniola and that during the day moved eastward. The abundant tropical moisture in place and the presence of the upper-level trough supported the development of this intense convective activity. The British Virgin Islands was affected intermittently by moderate to heavy precipitation through the day, mainly in the morning hours, around 0600UTC, and in the last part of the day, after 1800UTC, as shown by radar imagery (Figure 1a).

On the next day, 1 November, the trough moved over the Atlantic waters to the north of the Leeward Islands (Figure 2a), as the region experienced high levels of tropical moisture. This generated numerous moderate to scattered strong thunderstorms over approximately the same area that was affected the previous day, including the Virgin Islands and the Leeward Islands. Locally heavy rainfall spread over the British Virgin Islands in the first hours of the day, mainly between 0300UTC and 0600UTC, as reported by radar imagery (Figure 1b).

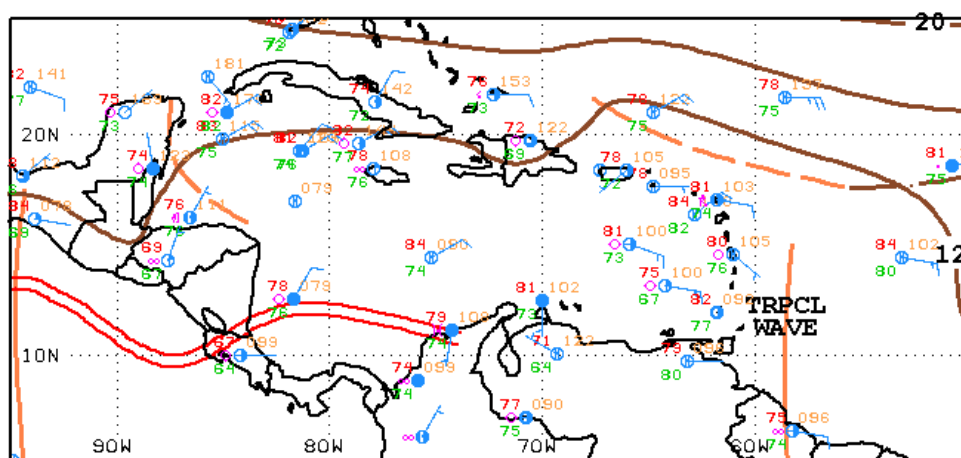
On 2 November, the upper-level trough persisted over approximately the same region, i.e. to the north of the Leeward Islands, and extended eastward (Figure 2b). The combination of the trough with the high humidity in the upper troposphere yielded to the development of scattered moderate to isolated strong thunderstorms over a broad area, from latitude 15°North to 23°North between longitude 50°West and 72°West. In particular, the most intense and dense thunderstorms were observed over a region east of the area affected the previous day, in particular over the Atlantic waters just east of the Leeward Islands, from latitude 18°North to 21°North between longitude 52°West and 61°West. The British Virgin Islands was marginally affected by the associated heavy rainfall, with a short rainfall episode at 0000UTC (Figure 1c).





c) 2 November at 0606UTC

Figure 1. Radar imagery on 31 October, 1 and 2 November, 2024, at 0606UTC from the radar composite over the Caribbean and Central America region. Blue/green colours represent low to moderate rainfall, while the yellow/red colours represent intense and very intense precipitation. Source: Barbados Radar Composite¹. The violet square indicates the British Virgin Islands location

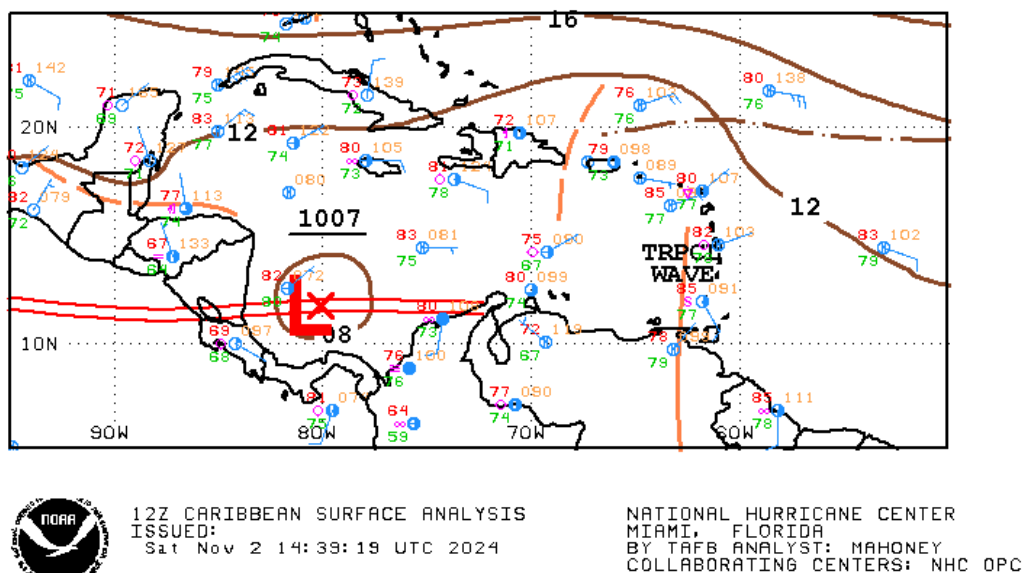


12Z CARIBBEAN SURFACE ANALYSIS
ISSUED:
Fri Nov 1 14:26:23 UTC 2024

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

a) 1 November at 1200 UTC

1 Barbados Radar Composite, available on 31 October, 1 and 2 November at:
https://www.barbadosweather.org/BMS_Radar_Composite_Resp.php#



b) 2 November at 1200UTC

Figure 2. Surface analysis over the Caribbean Sea area on 1 and 2 November 2024 at 1200 UTC. Source: US National Hurricane Center²

3 REPORTED IMPACTS

At the time of writing this report, the information about damage in the British Virgin Islands due to this Covered Area Rainfall Event during the indicated period is limited.

Former legislator of Virgin Gorda, Mrs. Shereen D. Flax-Charles reported heavy rainfall from 1 to 3, November. She also reported flooding and leaking roofs in the Nurse Iris O’Neal Clinic. She added that part of this flooding was the poor drainage system.³

The Taddy Bay International Airport on Virgin Gorda was temporary closed due to heavy rainfall. However, it was scheduled to reopen on 2 November, resuming its full operations.⁴

There were no reports in the other islands in the British Virgin Islands.

2 National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review dates: 1 and 2 November 2024, available at: https://www.nhc.noaa.gov/tafb/CAR_12Z.gif

3 Virgin Islands News Online: [VG residents assist after Nurse Iris O’Neal Clinic floods | Virgin Islands News Online](#)

4 BVI News: [Virgin Gorda airport reopens after heavy rains disrupt operations](#)

4 RAINFALL MODEL OUTPUTS

All data sources used by the XSR 3.0 model, CMORPH, IMERG, WRF5, WRF7, WRF11 and WRF15⁵, detected the occurrence of precipitation over the British Virgin Islands and the surrounding waters during the period 30 October to 03 November 2024. Each data source reported a specific distribution and accumulation of rainfall, as discussed below and shown in Figure 5. A CARE for the British Virgin Islands was activated on 01 November and lasted until 03 November. The CARE was activated due to the use of the 12-hour and the 48-hour aggregation intervals for precipitation⁶ and thus the period considered by the XSR 3.0 model for the loss estimate based on the accumulated precipitation in the British Virgin Islands was 30 October to 03 November 2024.

CMORPH	CMORPH reported total accumulated values of precipitation between 175 mm and 200 mm over the eastern part of the British Virgin Islands, over Virgin Gorda, while lower values, between 100 mm and 175 mm, were reported over the rest of the country.
IMERG	IMERG reported total accumulated values of precipitation between 200 mm and 225 mm over Virgin Gorda. Lower values were reported over the rest of the country, with values between 150 mm and 200mm.
WRF5	WRF5 showed total accumulated values of precipitation between 125 mm and 150 mm over the areas of Road Town, Kingston, Wesley Will and Parham town, in Tortola. Lower values, between 100 mm and 125 mm, were reported over the rest of the country.
WRF7	WRF7 showed total accumulated values of precipitation between 100 mm and 125 mm over most of the central and eastern islands, while lower values, between 75 mm and 100 mm, were reported over the western islands.
WRF11	WRF11 reported accumulated values of precipitation between 25 mm and 50 mm over most of the British Virgin Islands, with higher values, between 125mm and 175 mm over Anegada.
WRF15	WRF15 reported accumulated values of precipitation lower than 50 mm over

5 CMORPH Model: the satellite-based rainfall precipitation estimates provided by the NOAA Climate Prediction Center (CPC) using the so-called Morphing Technique http://www.cpc.ncep.noaa.gov/products/janowiak/cmorph_description.html. Further details are provided in the Definitions section of this report

IMERG Model: The satellite-based rainfall estimation model developed by NASA, expressed in mm, derived by aggregating the IMERG 30-minute Rainfall Data at 10km spatial resolution and available at <https://jsimpsonhttps.pps.eosdis.nasa.gov/imerg/late>. Further details in the Definitions section of this report

WRF5, WRF7, WRF11 and WRF15 Models: the Weather Research and Forecasting Model weather model-based Configuration #1 and #2 data <https://www.mmm.ucar.edu/weather-research-and-forecasting-model>. These data are initialised by the NCEP FNL dataset. (NCEP FNL Operational Model Global Tropospheric Analyses [<http://rda.ucar.edu/datasets/ds083.2/>]). Further details are provided in the Definitions section of this report.

6 The two aggregation periods correspond to the Rainfall Aggregation Period #1 and Rainfall Aggregation Period #2, as indicated in the Schedule. Further details in the Definitions section of this report.

all of the British Virgin Islands.

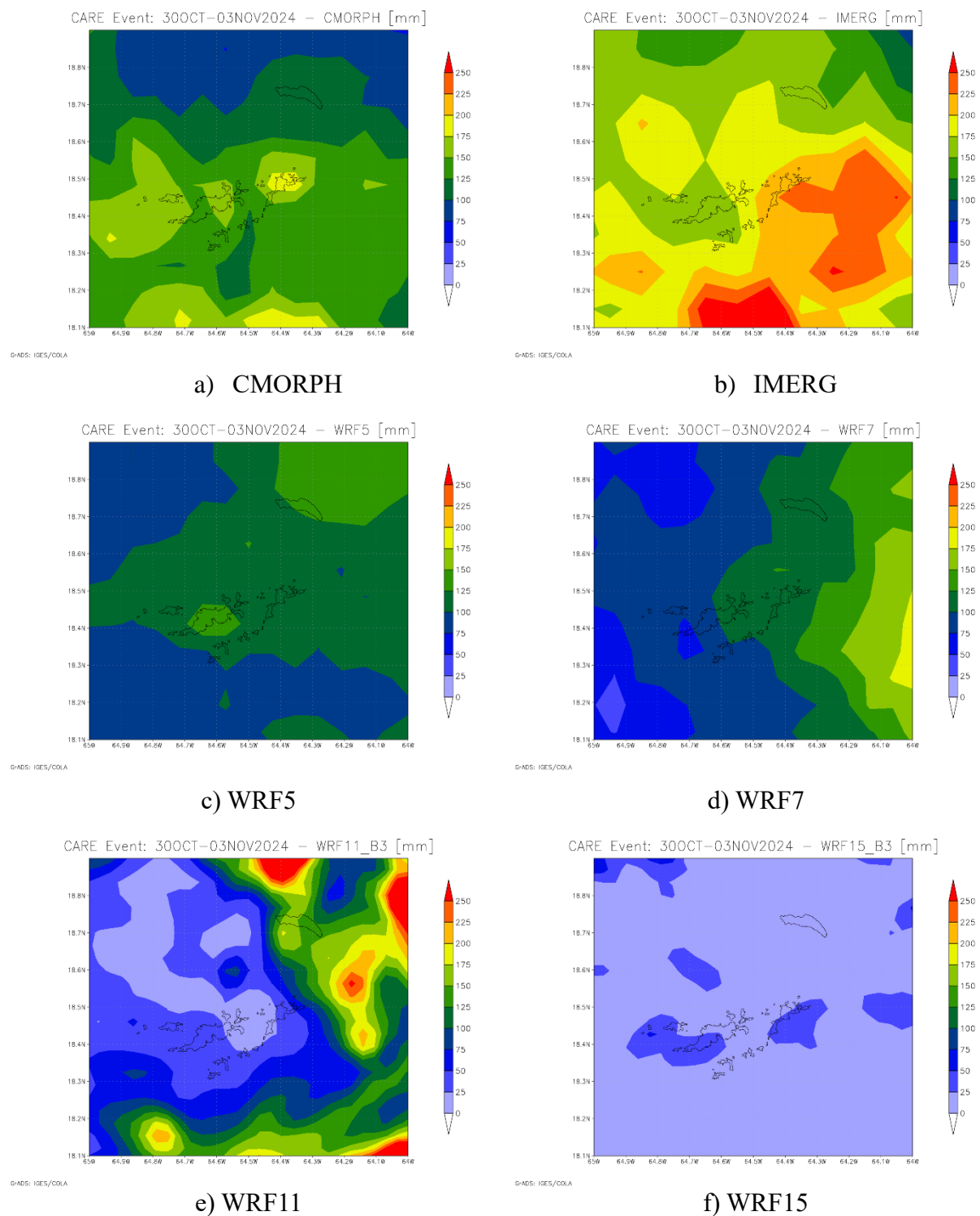


Figure 5 Total accumulated precipitation during the period 30 October and 03 November, 2024

estimated by CMORPH (a), IMERG (b), WRF5 (c), WRF7 (d), WRF11 (e), WRF15 (f). Source: CCRIF SPC

Daily rainfall maps by CMORPH, IMERG, WRF5, WRF7, WRF11 and WRF15 over the exposure map of XSR 3.0 are not included here and they can be downloaded at the following links for 12-hour aggregation and 48-hour aggregation respectively:

https://wemap.ccrif.org/OUTPUT/CCRIF/XSR/Events/VGB/CARE_3_2024/daily_prec_short.mp4

https://wemap.ccrif.org/OUTPUT/CCRIF/XSR/Events/VGB/CARE_3_2024/daily_prec_long.mp4

The Rainfall Index Loss (RIL) was above the loss threshold for the British Virgin Islands for three of the data sources used by XSR3.0: CMORPH, WRF5 and WRF7. The RIL was the highest for WRF5. No Disaster Alert declaration was issued by ReliefWeb for the British Virgin Islands related to the rain events during this period.

The final RIL (RIL_{FINAL}) was calculated as the average of the RILs above the threshold: CMORPH, WRF5 and WRF7. The RIL_{FINAL} was below the attachment point of the British Virgin Islands' Excess Rainfall policy and therefore the policy was not triggered. Therefore, a payout is not due to the Government of the Virgin Islands under its Excess Rainfall policy.

The Wet Season Trigger (WST) endorsement of the XSR3.0 model did not identify this CARE as a "Wet Season" event⁷. Therefore, no payment is due under the Wet Season Trigger endorsement of the British Virgin Islands' Excess Rainfall policy.

5 TRIGGER POTENTIAL

The Rainfall Index Loss calculated for this Covered Area Rainfall Event (CARE) was below the attachment point of the British Virgin Islands' Excess Rainfall policy and therefore no payout is due.

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

⁷ The WST endorsement is designed to provide a predetermined payout for rainfall events occurring amidst already saturated soil conditions, effectively capturing the heightened risk of flooding and landslides. It is activated based on two factors: the Wet Index (the average 1-month Standardized Precipitation Index for all grid cells in the country) and Wet Periods (the period of time where the Wet Index exceeds 1, which indicates that the soil is wetter than its long-term average and serves as an indicator of soil saturation). The WST policy endorsement provides a payment when one or more CAREs with a modelled loss greater than zero occur within a Wet Period and the corresponding value of the Wet Index during the Wet Period exceeds a predetermined threshold. Wet season event (WE). Any period of consecutive days, during which the Wet Index (WI) is equal or greater than 1.

DEFINITIONS

<i>Active Exposure Cell Percentage Threshold</i>	The percentage of the total number of XSR Exposure Grid Cells within the Covered Area of the Insured, that must be exceeded to trigger a Covered Area Rainfall Event.
<i>Active Exposure Grid Cells</i>	The XSR Exposure Grid Cells for which in the same single day the Aggregate Rainfall #1 value computed using the CMORPH-based Rainfall Estimate equals or exceeds the Rainfall Event Threshold #1 or the Aggregate Rainfall #2 value computed using the CMORPH-based Rainfall Estimate equals or exceeds the Rainfall Event Threshold #2.
<i>Aggregate Rainfall #1</i>	The rainfall amount accumulated over the Rainfall Aggregation Period #1 (as defined in the Schedule) measured in millimeters (mm) in any of the XSR Exposure Grid Cells in the Covered Area of the Insured. For a given day and a Rainfall Aggregation Period #1 of n hours, the Aggregate Rainfall #1 is the maximum amount of rainfall accumulated over any of the n-hour windows that intersect the day itself considering a time interval of 3 hours.
<i>Aggregate Rainfall #2</i>	The rainfall amount accumulated over the Rainfall Aggregation Period #2 (as defined in the Schedule) measured in millimeters (mm) in any of the XSR Exposure Grid Cells in the Covered Area of the Insured. For a given day and a Rainfall Aggregation Period #2 of n hours, the Aggregate Rainfall #2 is the maximum amount of rainfall accumulated over any of the n-hour windows that intersect the day itself considering a time interval of 3 hours.
<i>Calculation Agent</i>	Entity charged with undertaking the primary calculation of the Rainfall Index Loss.
<i>CMORPH-based Maximum Aggregate Rainfall #1</i>	The maximum value during the Covered Area Rainfall Event of the Aggregate Rainfall #1 computed using the CMORPH-based Rainfall Estimates in any given XSR Exposure Grid Cell over the Covered Area of the Insured.
<i>CMORPH-based Maximum Aggregate Rainfall #2</i>	The maximum value during the Covered Area Rainfall Event of the Aggregate Rainfall #2 computed using the CMORPH-based Rainfall Estimates in any given XSR Exposure Grid Cell over the Covered Area of the Insured.
<i>CMORPH-based Covered Area Rainfall Parameters</i>	The CMORPH Model information provided on a continuous basis by the XSR Model Data Reporting Agency used by the Calculation Agent to obtain the CMORPH-based Rainfall

	Estimates using the XSR Rainfall Model. Parameters are drawn from XSR Exposure Grid Cells within the Covered Area of the Insured, by their respective latitude and longitude. Measurement units and precision of data ingested by the XSR Rainfall Model are identical to those provided by the XSR Model Data Reporting Agency and are further elaborated in the Attachment entitled ‘Calculation of Rainfall Index Loss and Policy Payment’.
<i>CMORPH Model</i>	The satellite-based rainfall estimation model provided by NOAA CPC as described in the Rainfall Estimation Models section of the Policy.
<i>Covered Area</i>	The territory of the Insured as represented in the XSR Rainfall Model.
<i>Covered Area Rainfall Event</i>	Any period of days, with an interruption less than or equals to the Event Tolerance Period, during which the number of Active Exposure Grid Cells is greater than or equal to the product of (a) Active Exposure Cell Percentage Threshold multiplied by (b) the total number of XSR Exposure Grid Cells within the Covered Area.
<i>Country Disaster Alert</i>	An official disaster alert issued by ReliefWeb (http://reliefweb.int/) for the country in question for one of the following types of events: tropical cyclone, flood, flash flood and severe local storm. Any disaster alert issued later than seven (7) days after the completion of the Covered Area Rainfall Event (CARE) event will not be considered. The Disaster Alert description issued by ReliefWeb and/or its attached documentation must include specific reference to the CARE dates with a tolerance period of 2 calendar days.
<i>Maximum Aggregate Rainfall #1</i>	The highest value during a Covered Area Rainfall Event of the Aggregate Rainfall #1 amount in any of the XSR Exposure Grid Cells in the Covered Area of the Insured computed.
<i>Maximum Aggregate Rainfall #2</i>	The highest value during a Covered Area Rainfall Event of the Aggregate Rainfall #2 amount in any of the XSR Exposure Grid Cells in the Covered Area of the Insured computed.
<i>Rainfall Event Threshold #1</i>	Aggregate Rainfall #1 level as defined in the Schedule which should be exceeded to trigger an Active Exposure Cell.
<i>Rainfall Event Threshold #2</i>	Aggregate Rainfall #2 level as defined in the Schedule which should be exceeded to trigger an Active Exposure Cell.

<i>Rainfall Aggregation Period #1</i>	The number of hours over which the Aggregate Rainfall #1 is computed for all XSR Exposure Grid Cells during a Covered Area Rainfall Event.
<i>Rainfall Aggregation Period #2</i>	The number of hours over which the Aggregate Rainfall #2 is computed for all XSR Exposure Grid Cells during a Covered Area Rainfall 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 XSR Rainfall Model, as described in the Attachment entitled ‘Calculation of Rainfall Index Loss and Policy Payment’. The Rainfall Index Loss can only be calculated once the Covered Area Rainfall Event is completed.
<i>WRF5 Model</i>	The weather research and forecasting rainfall model by NOAA with Configuration #5 data initialized with and assimilating the data provided by the National Center for Environmental Prediction as described in the Rainfall Estimation Models and in the Input Data to the Rainfall Estimation Models sections of this Attachment.
<i>WRF7 Model</i>	The weather research and forecasting rainfall model by NOAA with Configuration #7 data initialized with and assimilating the data provided by the National Center for Environmental Prediction as described in the Rainfall Estimation Models and in the Input Data to the Rainfall Estimation Models sections of this Attachment.
<i>XSR Rainfall Model</i>	The computer model used to calculate the Rainfall Index Loss, as described in the Attachment entitled ‘Calculation of Rainfall Index Loss and Policy Payment’.
<i>XSR Exposure Grid Cells</i>	The 30 arc-second by 30 arc-second grid of cells each of which is attributed with an XSR Grid Cell Exposure Value greater than zero.
<i>XSR Grid Cell Exposure Value</i>	The value, used to calculate the CMORPH-based Exposure Grid Cell Loss, the WRF5-based Exposure Grid Cell Loss, and the WRF7-based Exposure Grid Cell Loss.