Covered Area Rainfall Event (18/09/2025 to 25/09/2025)

Excess Rainfall

Event Briefing

Guatemala

03 October 2025

Registered Office: c/o Willis Towers Watson Management (Cayman) Limited, The White House (c/o Regus), 20 Genesis Close, George Town, P.O. Box 30600, Grand Cayman, KY1-1203, Cayman Islands
Email: ccrif@ccrif.org | **Website:** www.ccrif.org

1 INTRODUCTION

This event briefing describes the impact of rainfall on Guatemala, which was associated with a Covered Area Rainfall Event (CARE) starting on 18 September and ending on 25 September 2025. The Rainfall Index Loss (RIL) for the Covered Area Rainfall Event was below the attachment point of Guatemala's Excess Rainfall policy, and therefore no payout is due to the Government of Guatemala. This CARE did not activate the Wet Season Trigger[1] or Localized Event Trigger[2] endorsement of Guatemala's Excess Rainfall policy and therefore no payout under either of these endorsements is due.

2 EVENT DESCRIPTION

On 18 September 2025 at 1200 UTC, a tropical wave was located over the western Caribbean Sea near longitude 89°W, extending from approximately 20°N southward across eastern Guatemala and El Salvador into the eastern Pacific Ocean (Figure 1a). The wave progressed westward at around 11 mph (18 km/h), and along its path over Central America, it supported the development of scattered heavy showers and isolated strong thunderstorms, particularly over the Gulf of Honduras, western Honduras, Nicaragua, and eastern Guatemala, for most of the day.

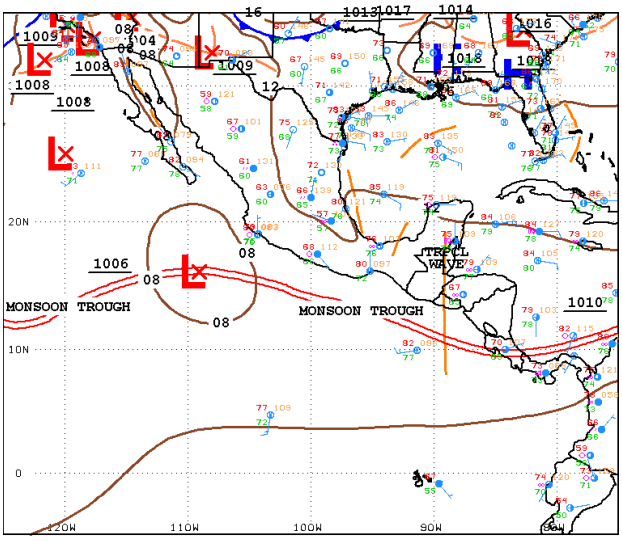
By 19 September, the tropical wave had moved away from Central America, entering the eastern Pacific Ocean. In its wake, Guatemala experienced limited convective activity, with the exception of an isolated thunderstorm over the Gulf of Honduras and eastern parts of the country during the early morning hours.

On 20 September, a broad area of low pressure associated with a developing disturbance (designated Invest 97E) formed approximately 200 miles (320 km) south of Mexico's southern coast (Figure 1b). This system generated a wide area of disorganized showers and thunderstorms affecting southern Mexico, the Gulf of Tehuantepec, and much of Guatemala. In particular, several convective cells developed over Guatemala's central highlands, producing heavy rainfall primarily during the early hours of the day (UTC), which correspond to the late afternoon in local time (Figure 2a). A similar pattern persisted on 21 September, with thunderstorms once again impacting central Guatemala between 0300 and 0600 UTC.

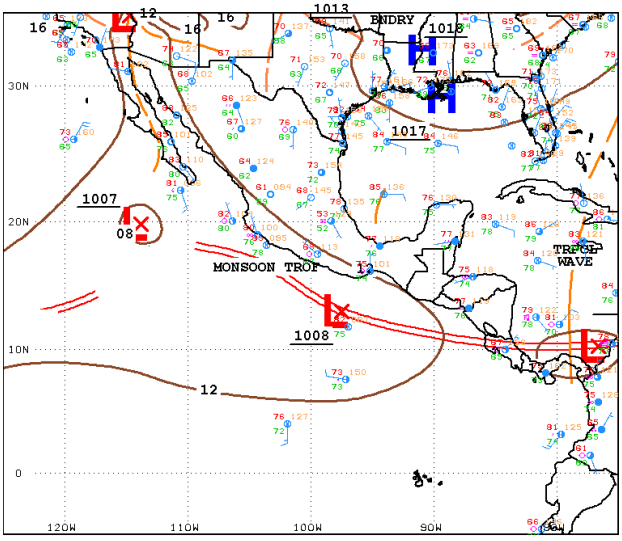
On 22 and 23 September, a second phase of unsettled weather developed due to the approach of another tropical wave, which brought abundant upper-level moisture and enhanced atmospheric instability across Central America. On 23 September, the wave's axis was located near longitude 88°W, stretching from the coast of Quintana Roo southward across Belize and into western Honduras. It moved westward at speeds between 6 and 11 mph (9 and 18 km/h). This system supported widespread showers and thunderstorms across Belize, Guatemala, western Honduras and Nicaragua, on both days mostly between 0000 and 0900 UTC (Figure 2b).

[1] The Wet Index (WI) was below the Wet Season Trigger Activation Threshold (AT_{WST})
[2] The Local Index (LI) was below the Localized Event Trigger Activation Threshold (AT_{LET})

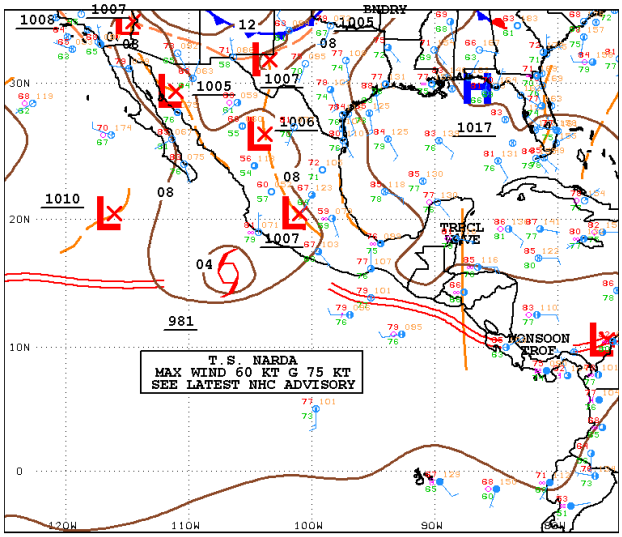
By 24 and 25 September, this second tropical wave had moved into the eastern Pacific, ushering in a more stable atmospheric regime over northern Central America. However, some scattered showers and isolated moderate thunderstorms persisted over the Gulf of Honduras and extended inland toward eastern Guatemala near Puerto Barrios. Aside from these, no significant rainfall events were observed across the rest of the country.



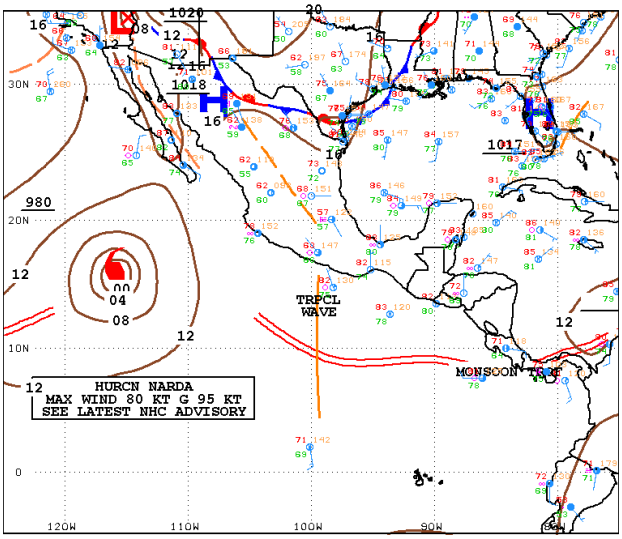
a) 18 September at 1200UTC



b) 20 September at 1200UTC

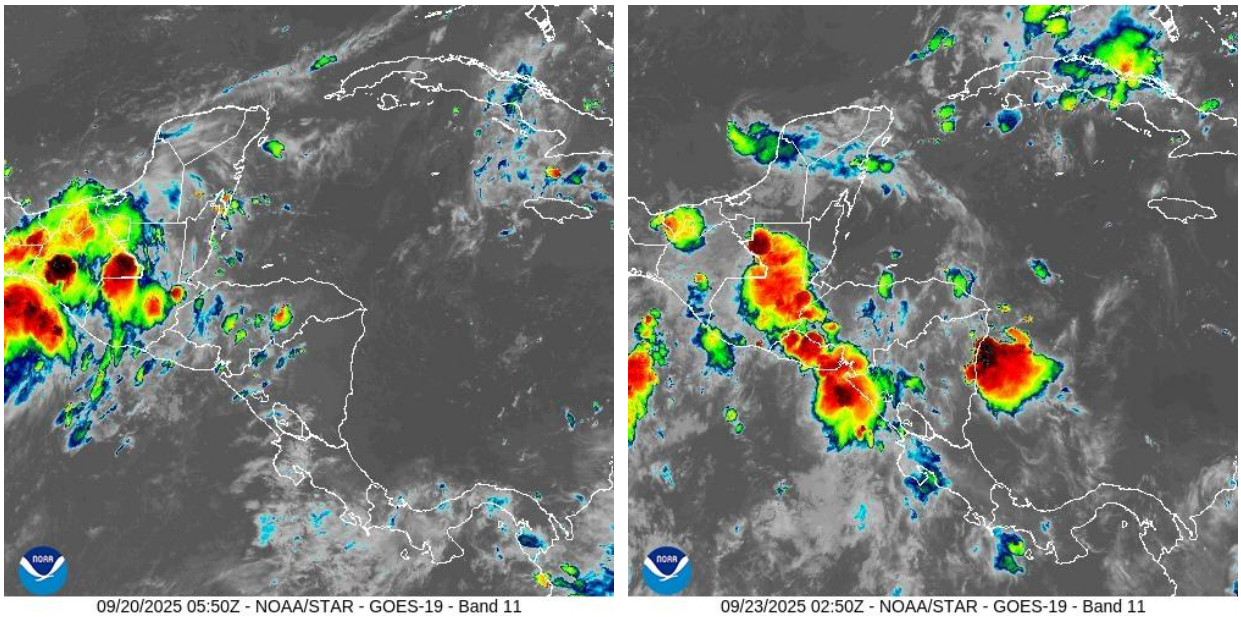


c) 23 September at 1200UTC



d) 25 September at 1200UTC

Figure 1 Surface analysis over the Central America and eastern Pacific Ocean at different times as indicated in the labels. Source: US National Hurricane centre[3]



a) 20 September at 0550UTC b) 23 September at 0250UTC

Figure 2 Satellite imagery on 20 and 23 September 2025 at different times as indicated by 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. Source: NOAA, National Environmental Satellite, Data and Information Service[4].

3 REPORTED IMPACTS

At the time of writing this report, the information about damage in Guatemala due to this Covered Area Rainfall Event during the indicated period is described below.

According to reports from CONRED (National Coordinator for Disaster Reduction),[5] in Concepción Las Minas, Chiquimula, there was damage to the main street of El Cementerio neighbourhood. In San Lucas Sacatepéquez, branches and fallen trees blocked lanes and affected vehicular passage.

On Santa Lucía Avenue, La Antigua, Guatemala flooding was reported; on sector El Coco and Montufar and Retalhuleu Cantons flooded homes were reported.

Heavy rains generated flooding in homes located in the urban area of Las Cruces, Petén. Municipal personnel and the Immediate Response Brigade (BRI) carried out a Damage Assessment and Needs Analysis (EDAN) in the area.

[3] National Oceanic and Atmospheric Administration - FTP, National Hurricane centre, review date: 18, 20, 23 and 25 September 2025, available at: *https://www.nhc.noaa.gov/tafb /EPAC12 Z.gif*

[4] RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://cdn.star.nesdis.noaa.gov/GOES16/ABI/SECTOR/pr/11/

[5] CONRED: Emergencias por lluvias registradas en las últimas horas

a) Flooding in Las Cruces, Petén[6].

b) Flooding and Damage Assessment and Needs AnalysisLos Ángeles, Chisec, Alta Verapaz[7]

c) Flooding in Quiché, Los Amates, Izabal[8]

Figure 4 Damages by flooding reported by CONRED

4 RAINFALL MODEL OUTPUTS

All data sources used by the CCRIF Excess Rainfall XSR 3.1 model, CMORPH, IMERG, WRF5, WRF7, WRF11 and WRF15[9], detected the occurrence of precipitation over Guatemala

[6] Conred ha atendido 875 emergencias por lluvias durante septiembre
[7] Conred. En coordinación con la COMRED y EDAN
[8] Conred. Se registró inundación en ruta a aldea Quiché
[9] CMORPH Model: the satellite-based rainfall precipitation estimates provided by the NOAA Climate Prediction centre (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 reportIMERG 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 reportWRF5, WRF7, WRF11 and WRF15 Models: the Weather Research and Forecasting Model weather model-based

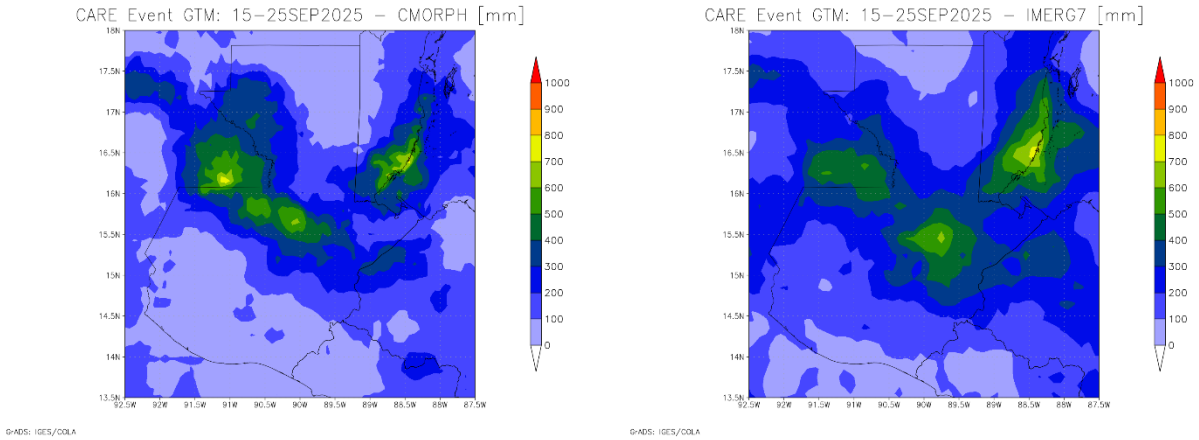
during the period 15 to 25 September 2025. Each data source reported a specific distribution and accumulation of rainfall, as discussed below and shown in Figure 3. A CARE for Guatemala was activated on 18 September and closed on 25 September. The CARE was activated due to the use of the 24-hour and the 72-hour aggregation intervals for precipitation[10] and thus the period considered by the XSR 3.1 model for the loss estimate based on the accumulated precipitation in Guatemala was 15 to 25 September 2025.

Table 1: Report from XSR 3.1 Data Sources on the Precipitation over Guatemala, September 15 to 25, 2025

CMORPH	CMORPH reported total accumulated values of precipitation higher than 300 mm over the central portion of Guatemala and over a small area in the north of the country, with the highest values, between 600 mm and 700 mm, over Norte Region. Lower values were reported over the rest of Guatemala.
IMERG	IMERG reported total accumulated values of precipitation higher than 100 mm over most of Guatemala, with the highest values, between 500 mm and 700 mm, over Norte Region.
WRF5	WRF5 showed total accumulated values of precipitation higher than 100 mm over most of Guatemala, with the highest values, between 300 mm and 700 mm, over some areas of the central and south Noroccidental, Norte, Suroccidental and Central Regions. Lower values were reported over the rest of Guatemala.
WRF7	WRF7 showed total accumulated values of precipitation higher than 300 mm only in some areas in the southwestern portion of Guatemala. The highest values, between 700 mm and 900 mm, were reported in a small area in Huehuetenango Department.
WRF11	WRF11 showed total accumulated values of precipitation higher than 100 mm over most of the country, with the highest values, higher than 1000 mm, in some small areas in the southwestern portion of Guatemala.
WRF15	WRF15 reported accumulated values of precipitation greater than 400 mm in two different areas in the central and south part of the country. The more extensive area with accumulated values of precipitation greater than 800 mm is in the Norte Region. Lower values were reported over the rest of Guatemala.

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.

[10] 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.



a) CMORPH b) IMERG7

c) WRF5 d) WRF7

e) WRF11 f) WRF15

Figure 3 Total accumulated precipitation during the period 15 to 25 September 2025 estimated by CMORPH (a), IMERG7 (b), WRF5 (c), WRF7 (d), WRF11 (e), WRF15 (f). Source: CCRIF SPC

The Rainfall Index Loss (RIL) was above the loss threshold for Guatemala for all the six data

sources used by XSR 3.1: CMORPH, IMERG, WRF5, WRF7, WRF11 and WRF15. The RIL was the highest for CMORPH.

The final RIL (RIL_{FINAL}) was calculated as the average of all the six RILs from CMORPH, IMERG, WRF5, WRF7, WRF11 and WRF15. The RIL_{FINAL} was below the attachment point of the country's Excess Rainfall policy, and thus the policy was not triggered. Therefore, no payout is due under this Excess Rainfall policy to the Government of Guatemala.

The Wet Season Trigger (WST) endorsement of the XSR3.1 model did not identify this CARE as a "Wet Season" event[11]. Therefore, no payout is due under the Wet Season Trigger endorsement of Guatemala's Excess Rainfall policy.

The Localized Event Trigger (LET) component of the XSR3.1 model did not identify this CARE as a localized event[12]. Therefore, no payout is due under the Local Event Trigger endorsement of the Guatemala's Excess Rainfall policy.

5 TRIGGER POTENTIAL

The Rainfall Index Loss calculated for the Covered Area Rainfall Event (CARE) for Guatemala was below the attachment point of Guatemala's Excess Rainfall policy, and therefore no payout is due. This CARE did not activate the Wet Season Trigger or Localized Event Trigger endorsement of the Excess Rainfall policy and therefore no payout under either of these endorsements is due.

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

[11] 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 and lower than the policy Attachment Point 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.

12 The LET is designed to cover rainfall events that affect only a small portion of the country. To determine a qualifying localized event, two conditions must be met: the average precipitation in the 10% of the area with highest precipitation – known as the "Local Exposure" - from (i) either of the satellite datasets (CMORPH or IMERG) and (ii) at least three of the six WRF models must be greater than the local precipitation threshold (LPT).

DEFINITIONS

Active Exposure Cell Percentage Threshold	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.
Active Exposure Grid Cells	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.
Aggregate Rainfall #1	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.
Aggregate Rainfall #2	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.
Calculation Agent	Entity charged with undertaking the primary calculation of the Rainfall Index Loss.
CMORPH-based Maximum Aggregate Rainfall #1	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.
CMORPH-based Maximum Aggregate Rainfall #2	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.
CMORPH-based Covered Area Rainfall Parameters	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'.
CMORPH Model	The satellite-based rainfall estimation model provided by NOAA CPC as described in the Rainfall Estimation Models section of the Policy.
Covered Area	The territory of the Insured as represented in the XSR Rainfall Model.
Covered Area Rainfall Event	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.
Country Disaster Alert	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.
Maximum Aggregate Rainfall #1	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.
Maximum Aggregate Rainfall #2	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.
Rainfall Event Threshold #1	Aggregate Rainfall #1 level as defined in the Schedule which should be exceeded to trigger an Active Exposure Cell.

Rainfall Event Threshold #2	Aggregate Rainfall #2 level as defined in the Schedule which should be exceeded to trigger an Active Exposure Cell.
Rainfall Aggregation Period #1	The number of hours over which the Aggregate Rainfall #1 is computed for all XSR Exposure Grid Cells during a Covered Area Rainfall Event.
Rainfall Aggregation Period #2	The number of hours over which the Aggregate Rainfall #2 is computed for all XSR Exposure Grid Cells during a Covered Area Rainfall Event.
Rainfall Index Loss	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.
WRF5 Model	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.
WRF7 Model	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.
XSR Rainfall Model	The computer model used to calculate the Rainfall Index Loss, as described in the Attachment entitled 'Calculation of Rainfall Index Loss and Policy Payment'.
XSR Exposure Grid Cells	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.
XSR Grid Cell Exposure Value	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.