



# Caribbean Regional Technical Workshop on CCRIF Models

## Session 8: The Elephant in the Room CCRIF Parametric Insurance Policies and Policy Payouts

With financial support from the European Union in the framework of the Caribbean Regional Resilience Building Facility, managed by the Global Facility for Disaster Reduction and Recovery (GFDRR)

CARIBBEAN REGIONAL RESILIENCE BUILDING FACILITY

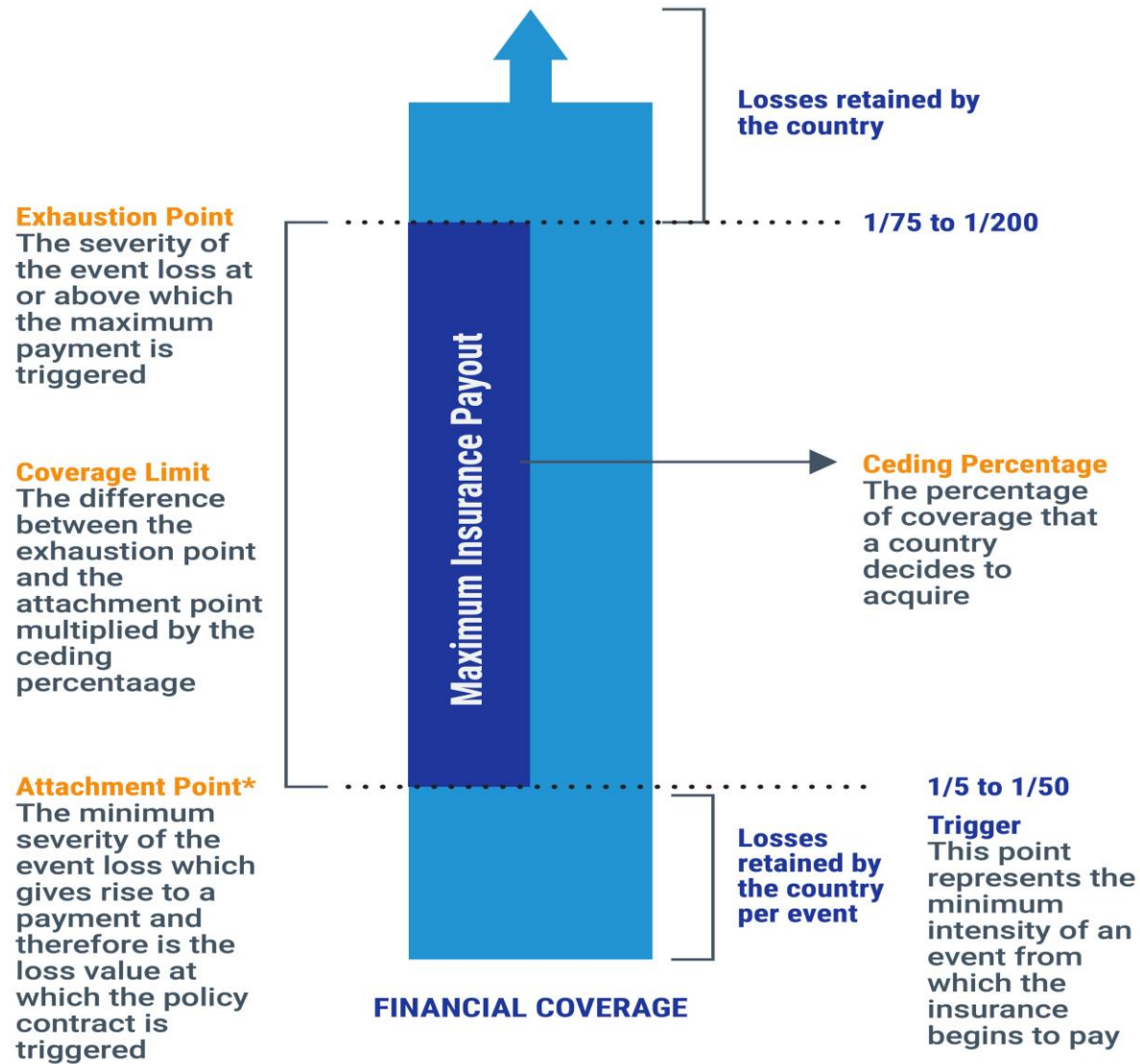


**GFDRR**  
Global Facility for Disaster Reduction and Recovery



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# CCRIF Policy Elements



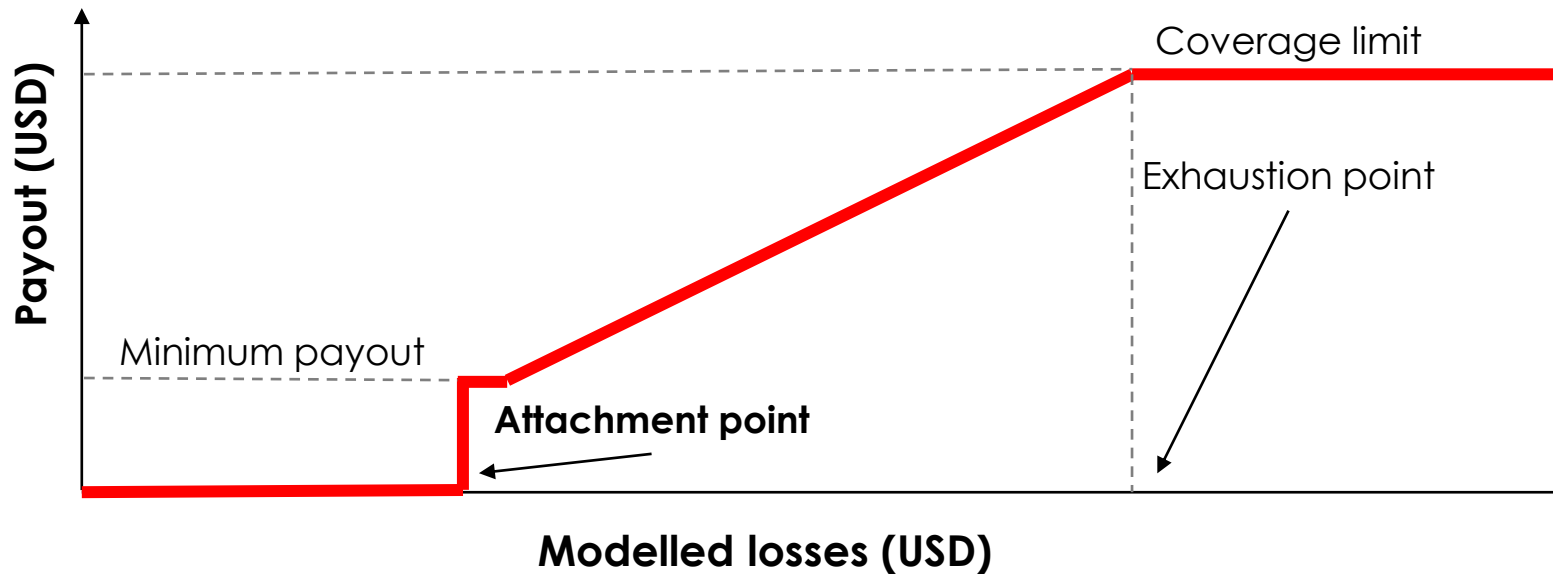
CCRIF policy premiums depend on the selection by Governments of 3 elements:

- Attachment Point
- Ceding Percentage
- Exhaustion Point

These are informed by the country's risk profiles

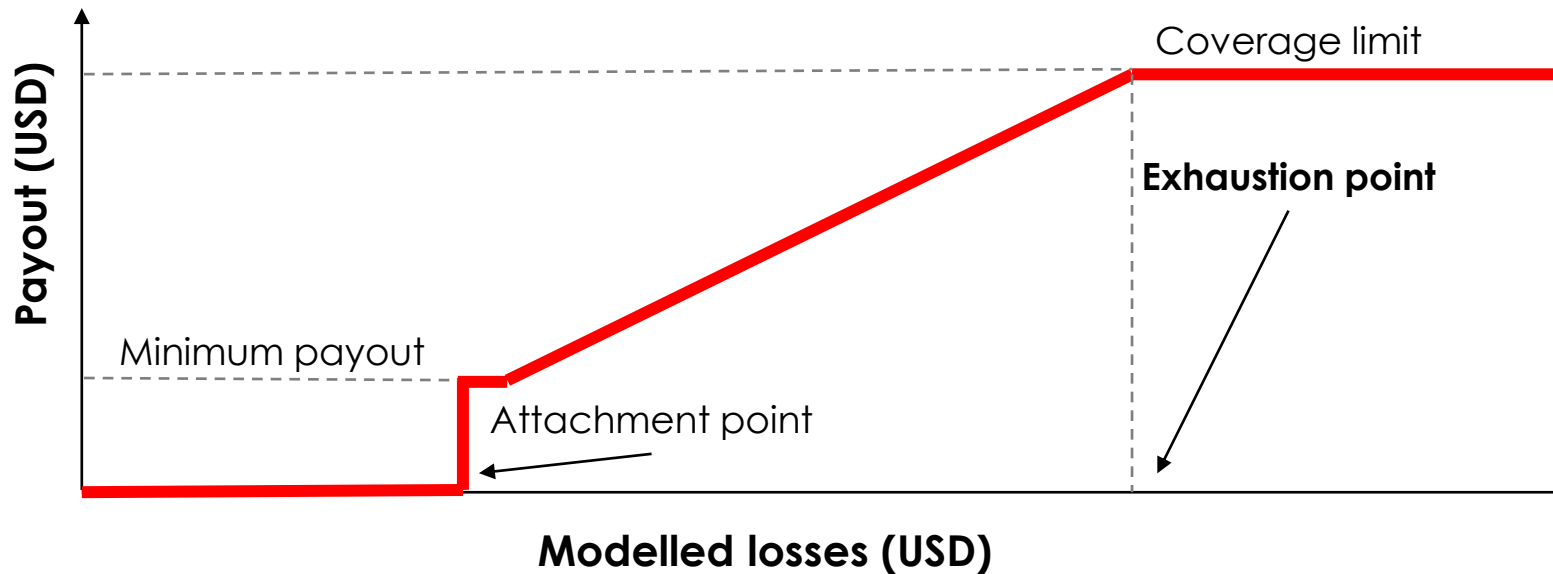
**A CCRIF policy is triggered when the modelled loss for an event in a member country exceeds the attachment point specified in the country's policy contract.**

# Attachment point



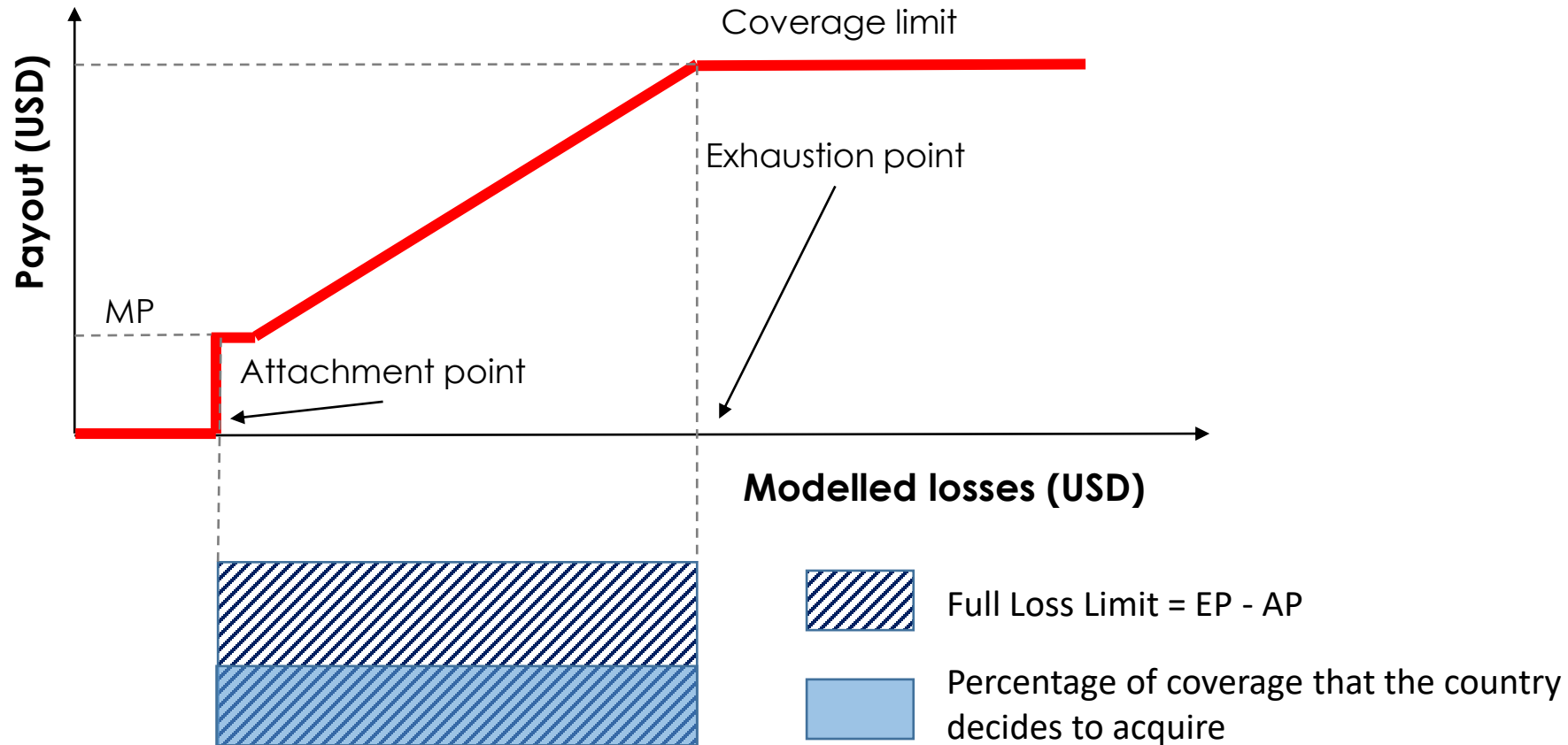
- Modelled loss threshold above which the policy contract is triggered and a payout is due.
- The country covers all losses below the AP for any event.
- It applies equally to each individual event (no accumulation of losses).
- As the modelled loss increases above the AP, the corresponding payout increases up to the EP.
- Countries generally select the AP as a return period.
- With all other policy parameters constant, a lower AP means a higher premium, but it would trigger for less severe events.

# Exhaustion point



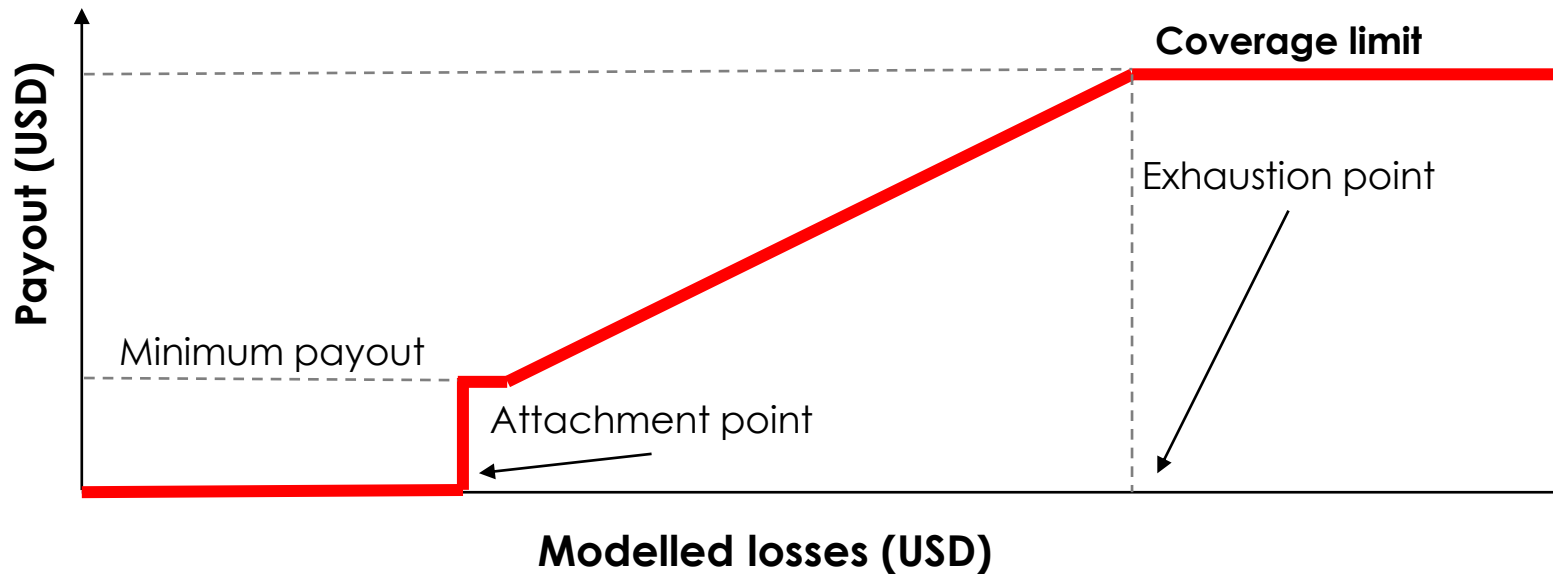
- Modelled loss threshold at or above which the maximum payout is triggered.
- Losses above the EP are retained by the country.
- As the modelled loss increases above the EP, the corresponding payout remains constant (equal to the Coverage Limit).
- Countries generally select the EP as a return period.
- With all other policy parameters constant, a higher EP means a greater maximum payout but a higher premium.

# Ceding Percentage



- Fraction of the risk between the attachment and the exhaustion point that the country is transferring to CCRIF.
- With all other policy parameters constant, a higher CP means a greater payout but a higher premium.

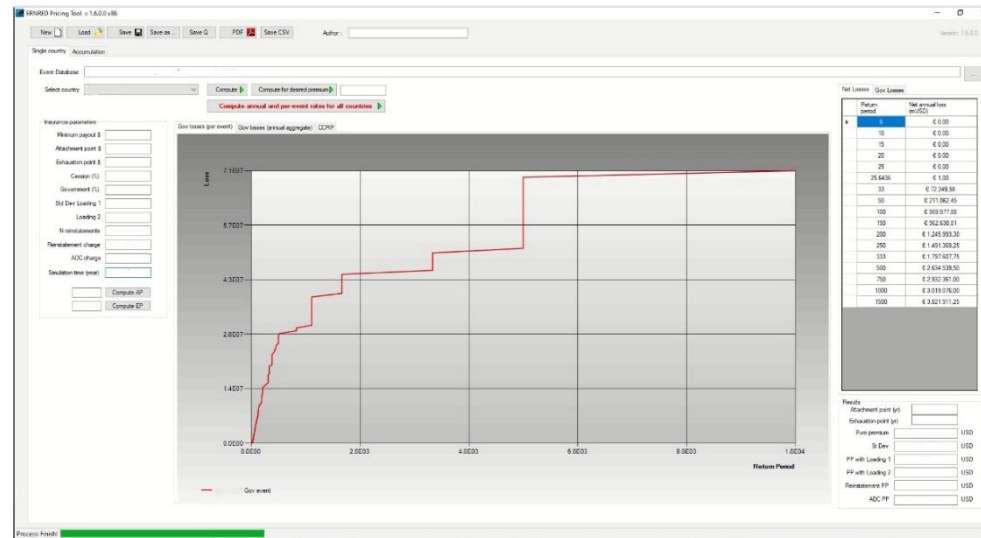
# Coverage limit



$$\text{Coverage limit} = (\text{Exhaustion point} - \text{Attachment point}) \times \text{Ceding percentage}$$

- Maximum payout amount, to be paid for an event if modelled losses are above the exhaustion point.
- Maximum amount that can be paid out under the contract in any one year for any one peril, whether that limit is due to payout from one large event or from multiple smaller events.
- Member countries can receive multiple payouts during a policy cycle, until the Coverage Limit is reached.

# Determination of Premium Cost



- The cost of coverage for a country is directly proportional to the amount of risk being transferred by that country to CCRIF.
- It is based on:
  - the frequency with which the modelled losses are expected to exceed the selected attachment point.
  - the selected attachment point, exhaustion point and ceding percentage.
- Standard pricing approaches are used.
- CCRIF does not charge any “earnings” component as it operates as a not-for-profit organization.

# Elements of CCRIF Policies - Exercise

## Attachment Point

- Why would a country increase its AP?
- What kinds of events will a higher AP provide coverage for?

## Exhaustion Point

- Why would a country increase its EP?
- What kinds of events will a higher EP provide coverage for?

## Ceding percentage

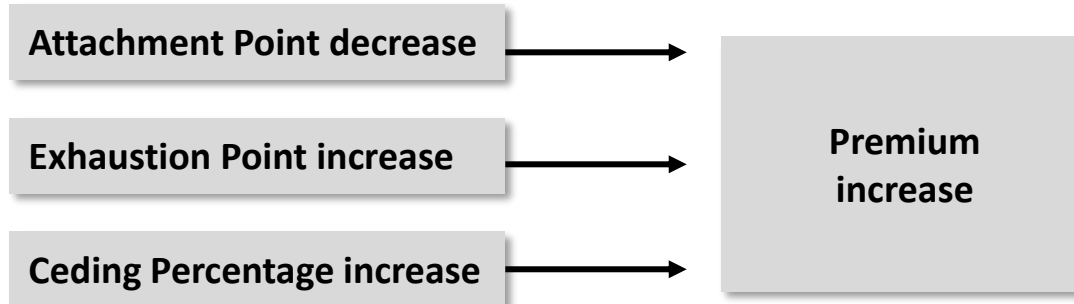
- Why would a country increase its ceding percentage?

**How do these changes affect policy premium?**



# Elements of CCRIF Policies - Demonstration

	Original Policy Scenario	Change in Attachment Point	Change in Exhaustion Point	Change in Ceding Percentage
Attachment Point (\$)	\$120,158,789	\$169,416,559	\$120,158,789	\$120,158,789
Attachment Point (yrs)	10	15	10	10
Exhaustion Point (\$)	\$1,032,458,571	\$1,032,458,571	\$1,449,365,357	\$1,032,458,571
Exhaustion Point (yrs)	100	100	150	100
Ceding Percentage	50%	50%	50%	75%
Coverage limit (Maximum payout) (\$)	\$456,149,891	\$431,521,006	\$664,603,284	\$684,224,837
Premium (\$)	\$713,391	\$617,772	\$841,498	\$1,070,087



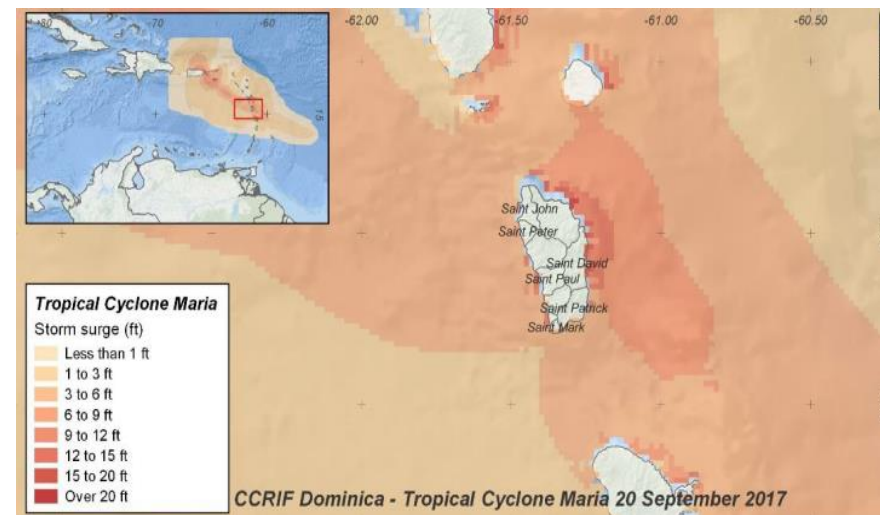
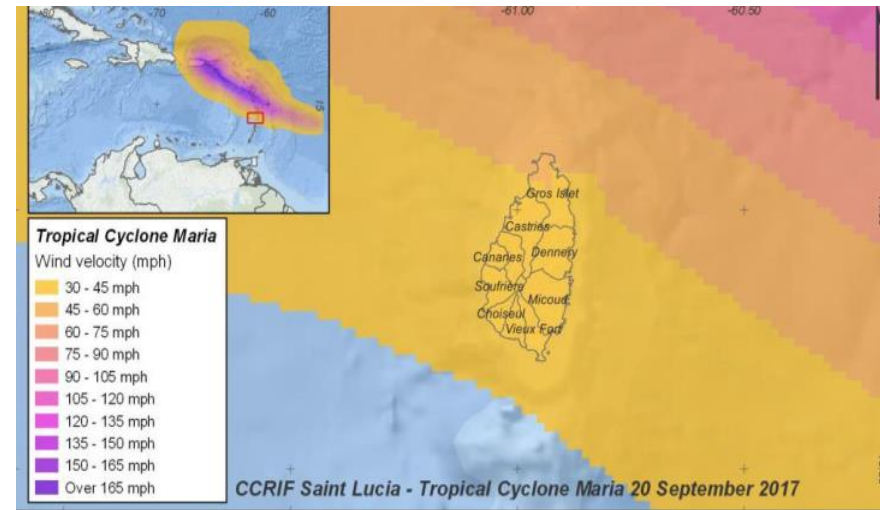
# How CCRIF Policies are Triggered and Payouts Calculated – TC

**A CCRIF policy is triggered when the modelled loss for an event in a member country exceeds the attachment point specified in the policy contract.**

A payout to a country depends on the

- **storm's intensity, track and storm surge**
- relative to the distribution and exposure of government assets
- and on the **attachment and exhaustion points** and coverage limit that the country has selected.

Once the trigger level (**attachment point**) has been reached, the payout increases as the modelled loss increases, due to higher hazard intensity, a closer track and/or greater storm surge for the storm (relative to the distribution and exposure of assets) until the **coverage limit** has been reached.



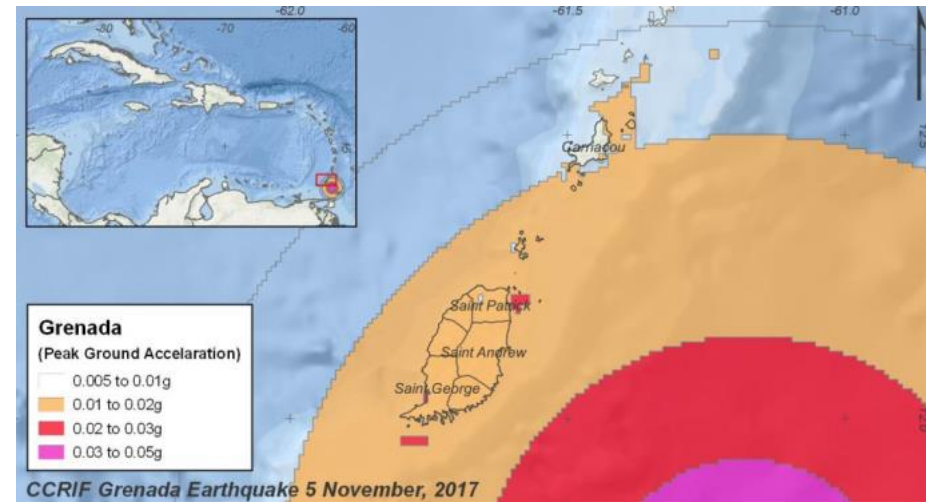
# How CCRIF Policies are Triggered and Payouts Calculated – EQ

**A CCRIF policy is triggered when the modelled loss for an event in a member country exceeds the attachment point specified in the policy contract.**

A payout to a country depends on:

- **Source magnitude and hypocentre (location and depth) of the earthquake** which is translated into a ground shaking intensity
- Relative to the distribution and exposure of government assets
- and on the **attachment and exhaustion points** and **coverage limit** that the country has selected

Once the trigger level (**attachment point**) has been reached, The payout increases as the level of losses increases, and losses are directly calculated from the amount of ground shaking in the affected country and what assets are exposed to what level of shaking – until the **coverage limit** has been reached



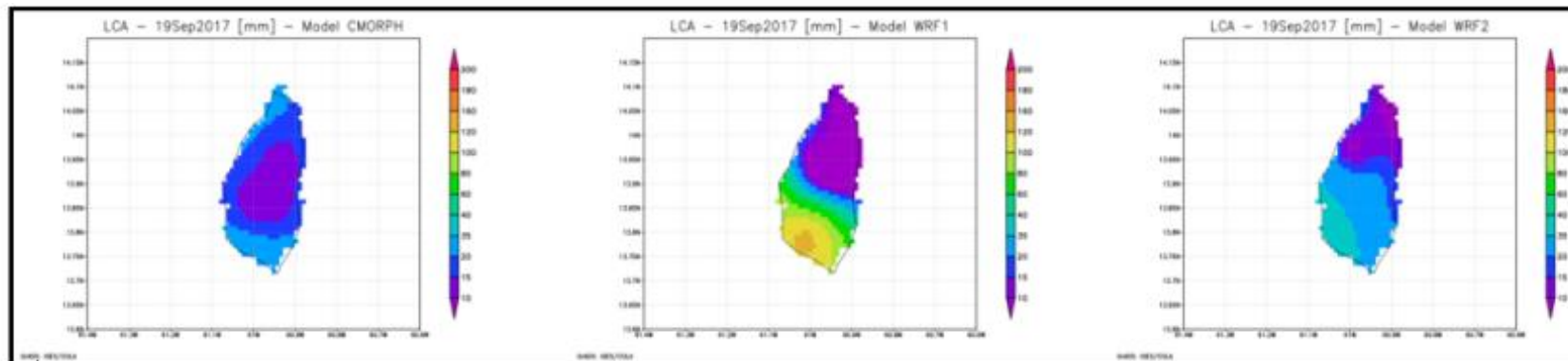
# How CCRIF Policies are Triggered and Payouts Calculated – XSR

**A CCRIF policy is triggered when the modelled loss for an event in a member country exceeds the attachment point specified in the policy contract.**

A payout to a country depends on the

- **peak aggregate rainfall for the event**
- the distribution of high rainfall relative to exposure and the proportion of the country/exposure impacted
- vulnerability of the exposed assets
- distribution and value of the exposed assets
- and on the **attachment and exhaustion points** and **coverage limit** that the country has selected

Once the trigger level (**attachment point**) has been reached, as the Rainfall Index Loss increases, the payout increases until the maximum payout (**coverage limit**) has been reached.



# Additional Features of CCRIF TC and EQ Policies

In 2017, CCRIF introduced two new policy features for tropical cyclone and earthquake policies: the **Reinstatement of Sum Insured Cover** and **Aggregated Deductible Cover**.

These features are voluntary endorsements to the main policies and allow member countries to access coverage designed to be supplemental to the existing TC and EQ policy structures.



## Reinstatement of Sum Insured Cover

**RSIC**

- Establishes a reinstatement of cover provision after the initial cover has been exhausted.
- Can be provided once during the policy year.
- This prevents a country of being exposed until the next policy year in case the coverage limit is exhausted.

In 2017, the maximum payout was made to Antigua and Barbuda following TC Irma. Through the RSIC, the country's TC policy was reinstated immediately, allowing the policy to trigger a payout from TC Maria under the Aggregated Deductible Cover.

# Additional Features of CCRIF TC and EQ Policies



ADC

## Aggregated Deductible Cover

- Provides a minimum payment for TC or EQ events that do not trigger a CCRIF policy because the modelled loss is below the attachment point.
- It was also designed to reduce basis risk.
- It aims to reduce the probability of a missed event.
- The sum insured available for this product is up to the annual net premium.

The ADC provides payouts in situations where:

- There is a modelled loss that falls between 50% and 100% of the attachment point in the main TC/EQ policy.
- The modelled loss is larger than 10% of the minimum payment and less than or equal to 50% of the attachment point and there is a disaster alert declaration from ReliefWeb related to a monitored event.

**Since 2017, CCRIF has made 25 ADC payments totalling US\$3.3 million to 11 member governments**

# Understanding Country Policy Characteristics

## Sample tropical cyclone coverage

	TROPICAL CYCLONE
Annual Premium per peril (US\$)	\$100,000
Attachment Point/Return Period (years)	10
Exhaustion Point/Return Period (years)	50
Attachment Point (\$ of loss)	\$12,500,000
Exhaustion Point (\$ of loss)	\$50,000,000
Full Loss Limit (US\$)	\$37,500,000
Ceding Percentage	60%
Coverage Limit (US\$)	\$22,500,000
5-yr event, policy payout	
12-yr event, policy payout	
25-yr event, policy payout	
50-yr event, policy payout	
80-yr event, policy payout	

# Understanding Country Policy Characteristics

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Exhaustion Point (\$ of loss)	\$50,000,000
Full Loss Limit (US\$)	\$37,500,000
Ceding Percentage	60%
Coverage Limit (US\$)	\$22,500,000
5-yr event, policy payout	0
12-yr event, policy payout	\$ 1,275,065
25-yr event, policy payout	\$ 18,488,876
50-yr event, policy payout	\$ 22,500,000
80-yr event, policy payout	\$22,500,000



# Group Exercise-Selection of Policy Options

These are fictitious figures for illustrative purposes only, and these do not have any relationship with any of the current policies available for CCRIF's member countries

Tropical Cyclone	Current policy	Option 1	Option 2	Option 3
Premium (\$)	\$13,966	\$13,966	\$13,966	\$13,966
Attachment Point (yrs)	21	21	30	30
Exhaustion Point (yrs)	50	40	50	200
Attachment Point (\$)	\$55,659	\$55,659	\$308,953	\$308,953
Exhaustion Point (\$)	\$589,888	\$477,780	\$589,888	\$890,188
Ceding percentage	45.00%	52.99%	99.83%	63.48%
Full Limit (\$)	\$534,229	\$422,121	\$280,935	\$581,235
Coverage Limit (= Max payout) (\$)	\$240,403	\$223,682	\$280,470	\$368,968