



Haiti

Earthquake

7 October 2018

Event Briefing

9 October 2018

1 INTRODUCTION

A magnitude 5.9 earthquake occurred at 00:11:49 UTC on 7 October 2018, (6 October 2018 19:11:50 local time and date), 18.7 km (11.6 mi) SE of Port-de-Paix, Nord-Ouest department, Haiti; 19 km (11.8 mi) SE of Ti Port-de-Paix, Nord-Ouest, Haiti and 72.2 km (44.9 mi) SSE of Gonayiv, Artibonite, Haiti. Initial estimates from the United States Geological Survey (USGS) located the epicentre of the event (Figure 1) at 20.041°N, 72.975°W and at a depth of 11.7 km (7.27 mi).

Later that day at 20:00:17 UTC (15:00:17 local time), a magnitude 5.2 earthquake – considered an aftershock of the 5.9 earthquake¹– occurred 15.8 km (9.8 mi) SSE of Port-de-Paix, Nord-Ouest, Haiti. The USGS initial estimates located the aftershock epicentre at 20.060°N, 72.912°W and at a depth of 10.0 km (6.2 mi) see Figure 2.

Haiti was the only CCRIF member country where peak ground acceleration, computed with the MPRES model, was greater than 0.01g for this earthquake.

The preliminary runs of CCRIF's loss model for peak ground acceleration produced government losses for Haiti. The losses were below the attachment point of its Earthquake (EQ) policy but activated the Aggregate Deductible Cover (ADC) feature of that policy. Preliminary analysis show that a payment of US\$91,437.50 is due under the ADC feature.

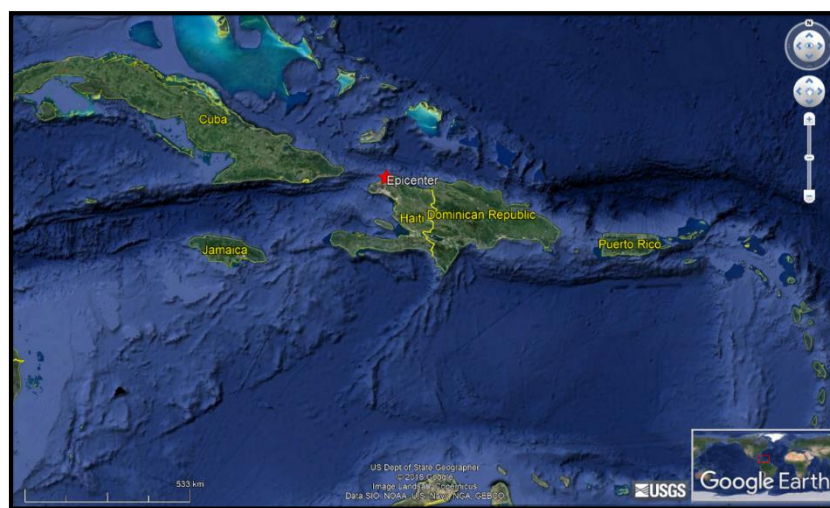


Figure 1 Information from the Earthquake Hazards Program of the United States Geological Survey, regarding the M5.9 earthquake event on 7 October, 2018 / 00:11:49 UTC. Source: USGS (<https://earthquake.usgs.gov>).

¹ Caribbean Earthquake Event: An earthquake occurring during the Policy Period with a source moment magnitude of 5.0 or greater and resulting in a peak ground acceleration of at least 0.01g in at least one 30-arcsecond (~900 metres) grid cell within the Covered Area, based on the CCRIF Second-Generation Model (EQ) (irrespective of the location of the epicentre of the earthquake) as reported by the Caribbean Earthquake Reporting Agencies, provided that if multiple Caribbean Earthquake Events occur within a specific Caribbean 25 Day Period and within a radius of 50 kilometres of the location of the Caribbean Earthquake Event starting the Caribbean 25 Day Period, the Caribbean Earthquake Event shall be the earthquake with the highest resulting Modelled Loss (EQ). The distance between two Caribbean Earthquake Events shall be calculated using the formula defining Hypocentral Offset Distance.

The Hypocentral Offset Distance between events magnitude 5.9 and magnitude 5.2 is 7 kilometers.



Figure 2 Information from the Earthquake Hazards Program of the United States Geological Survey, regarding the aftershock M5.2 earthquake event on 7 October 2018 / 20:00:17 UTC.. Source: USGS (<https://earthquake.usgs.gov>).

This event briefing is designed to review the possible impact and damages using the seismic parameters reported by the USGS for earthquakes equal to or greater than magnitude 5.0.

2 CCRIF MODEL OUTPUTS

Under CCRIF's loss calculation protocol, a CCRIF Multi-Peril Risk Estimation System (MPRES) report is required for any earthquake with a magnitude of greater than or equal to 5.0 that occurs within the region monitored by CCRIF and which generates a peak ground acceleration of at least 0.01 g in one or more grid cells of at least one member country. Based on the MPRES footprint for these two earthquakes, peak ground acceleration between 0.005g and 0.50g was estimated in Haiti (M5.9 earthquake: Figure 3 and aftershock M5.2 Figure 4), for which the MPRES loss estimation was below the attachment point.

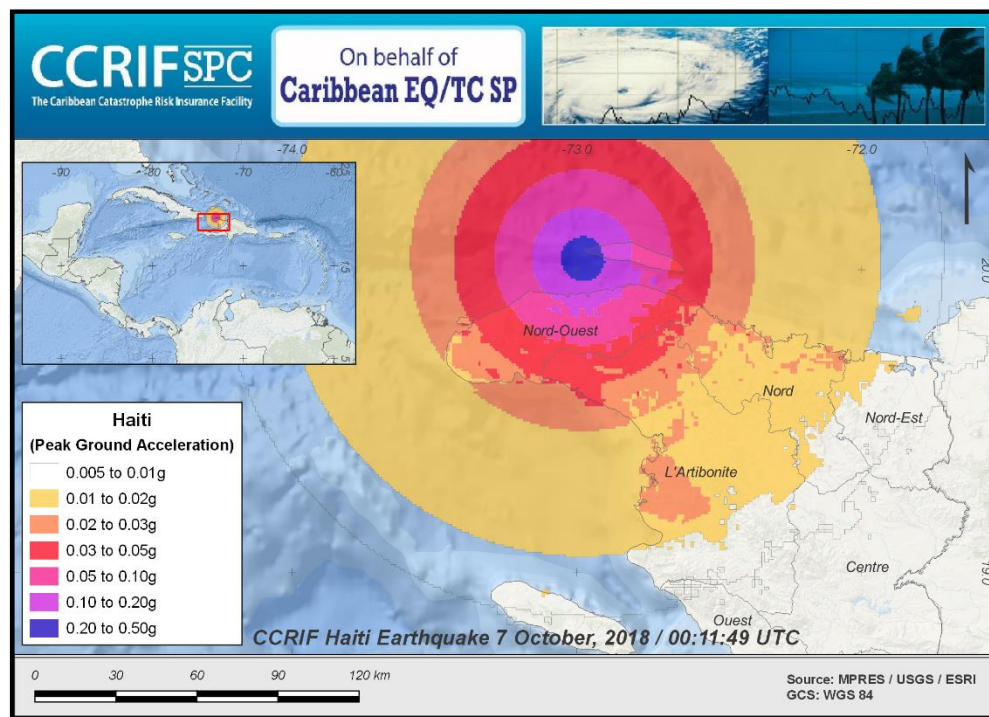


Figure 3 Map showing the peak ground acceleration computed using MPRES model in Haiti following the magnitude 5.9 earthquake on 7 October 2018 / 00:11:49 UTC. Source: USGS & CCRIF MPRES.

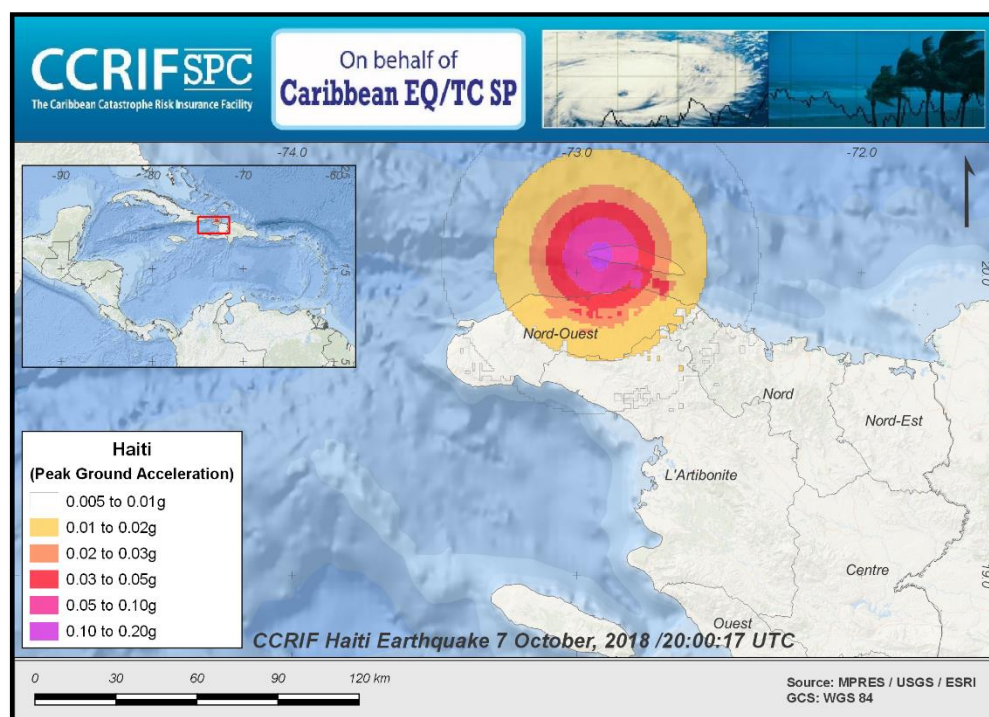


Figure 4 Map showing the peak ground acceleration computed using MPRES model in Haiti following the earthquake aftershock of magnitude 5.2, on 7 October 2018 / 20:00:17 UTC. Source: USGS & CCRIF MPRES.

3 IMPACTS

At the time of this report, Jerry Chandler, Director of Haiti's Directorate of Civil Protection has reported that the earthquake has resulted in the death of 15 persons with another 300 persons injured². Also, 40 houses were reported destroyed or damaged.

According to information published by ReliefWeb³, no major damage to transportation and public infrastructure has been reported, except one cultural centre which collapsed in Gros Morne.

According to the Office for the Coordination of Humanitarian Affairs the earthquake was felt across the majority of the departments of Haiti.

The USGS "Did You Feel It?" online tool reported that the M5.9 earthquake⁴ was felt within a radius of 219 km (136.08 mi) from the epicentre by 54 persons as a "weak shake with no damage" to "strong shake with light damage" (Mercalli intensities: II to VI). For the earthquake⁵ aftershock of M5.2, within a radius of 180 km (111.8 mi) from the epicentre, 11 persons reported the earthquake as a "no felt with no damage" to "weak shake with no damage" (Mercalli intensities: I to III).

4 TRIGGER POTENTIAL

The preliminary runs of CCRIF's loss model for peak ground acceleration produced government losses for Haiti. The losses were below the attachment point of the country's Earthquake (EQ) policy but activated the Aggregate Deductible Cover (ADC) feature of that policy.

Preliminary calculations show that a payment of US\$91,437.50 is due under the ADC feature of Haiti's EQ policy.

CCRIF expresses sympathy with the Government and people of Haiti for the loss of life and impacts on communities and infrastructure caused by these earthquakes.

For further information, please contact ERN-RED, the CCRIF SPC Risk Management Specialist.

Evaluación de Riesgos Naturales

Vito Alessio Robles No.179

Col. Hda Gpe Chimalistac.

Del. Álvaro Obregón. Cp 01050, México D.F.

+52 (55) 5616-8161, 62, 64

cavelar@ccrif.org

²<https://www.reuters.com/article/us-haiti-quake/haiti-quake-death-toll-rises-to-15-and-300-injured-idUSKCN1MI23F>

³ <https://reliefweb.int/report/haiti/haiti-2018-earthquake-situation-report-no2-07-october-2018>

⁴ Did You Feel It?, United States Geological Survey, M5.9 earthquake review date: 9 October 2018, available at: <https://earthquake.usgs.gov/earthquakes/eventpage/us1000h8an/dyfi/intensity>

⁵ Did You Feel It?, United States Geological Survey, aftershock M5.2 earthquake review date: 9 October 2018, available at: <https://earthquake.usgs.gov/earthquakes/eventpage/us1000h8hi/dyfi/intensity>
