

Jamaica's Earthquake History

Although Jamaica is in a seismically active region, seismologists claim that large earthquakes are comparatively rare through usually of relatively high intensity. The majority of earthquakes are minor ones of low intensity. The island experiences much less seismic activity than the Eastern Caribbean or Central American region. Jamaica's reputation for earthquakes rests on two major disasters, those of 1692 and 1907.

About 200 earthquakes are located in and around Jamaica per year most of which are minor, having magnitudes less than 4.0. The most seismically active areas are the Blue Mountain block in eastern Jamaica and the Montpelier-Newmarket belt in western Jamaica. Other areas of notable seismicity include the near offshore south-west of Black River on the south coast, and offshore Buff Bay on the north-east coast.

Jamaica is associated with the Gonave micro-plate, which is demarcated by the Oriente Fracture Zone (OFZ) to the north, the Walton (WFZ) and Enriquillo Fault Zones (EFZ) to the south and the Cayman Spreading Centre (CSC) to the west. The OFZ, spanning a distance of over 1000 kilometres, from south of Grand Cayman to the north coast of Haiti, is known to be a left-lateral strike-slip fault which means there is a relative westerly drift of Cuba (on the North American Plate) with respect to Jamaica.

The Walton and Enriquillo Faults are also left-lateral strike-slip features that separate the Gonave sliver from the Caribbean Plate to the south. Measurements made using Global Positioning System (GPS) indicate 18 mm/year of lateral strain and 3mm/yr of convergence on the OFZ near south-eastern Cuba, and 8-11 mm/yr on Jamaica.

Earthquake of 1692

Earthquakes in the area were not uncommon, but were usually rather small. In 1688, a tremor had toppled three homes. But four years later, on June 7 1692, within the space of less than 30 seconds, a massive earthquake devastates the infamous town of Port Royal in Jamaica, killing thousands. The strong tremors, soil liquefaction and a tsunami brought on by the earthquake combined to destroy the town, putting half of Port Royal under 40 feet of water. The HMS Swan was carried from the harbor and deposited on top of a building on the island. It turned out to be a refuge for survivors.

On the main island, Spanish Town was also demolished. Even the north side of the island experienced great tragedy. Fifty people were killed in a landslide. In all, about 3,000 people lost their lives on June 7. There was little respite in the aftermath--widespread looting began that evening and thousands more died in the following weeks due to sickness and injury. The city of Kingston was built and remains to this day the largest city in Jamaica.

What was left of Port Royal later became an important British Naval station, but the town never regained its former prosperity. Disaster dogged it: a fire in 1703, hurricanes in 1721, 1726 and 1744, another disastrous fire in 1815, and an earthquake in 1907. In modern times, the hurricane of 1951 left only 10 out of 260 modern buildings standing. After this, the government rebuilt the town supervised by a statutory body known as the Brotherhood of Port Royal. Today it is little more than a fishing village with perennial (unrealized) plans to restore it as a cultural centre and tourist attraction.

Port Royal remains a historical treasure chest with most of its archaeological riches still buried in the sand or beneath the sea.

In 1744 October, 20, Jamaica suffered from storm and earth-quake. Port Royal and Kingston were severely affected and Savanna-la-mar was destroyed. Twelve persons were drowned.

Earthquake of 1907

On 14 January 1907, the capital, Kingston, was severely damaged by a magnitude 6.5 earthquake and following fires that burnt 56 acres of the city. The earthquake destroyed a large part of Kingston. Within twenty minutes fire blazed through the streets of Kingston - and lasted for up to four days - in many cases finishing off what the earthquake had started. It was also not long before rampant looting broke out and armed guards had to be posted throughout the city.

Days later Kingston resembled a ghost town - empty, silent, dark and broken. £2,000,000 of damage was assessed and over 800 people lost their lives. Only a few received proper burial. Some were buried in large trenches in the May Pen Cemetery and some were burnt without ceremony.

Fortunately within the next few months there was no rain. In Kingston with many people forced to live in the open air, the fear that rain would lead to the outbreak of epidemics like typhoid, dysentery or even the plague was very real. Port Royal, located six miles to the south of Kingston suffered moderate damage.

In March 1957, fifty years later, another earthquake, the heaviest since 1907, struck the island. This time the western side was the most affected. Luckily, few lives were lost but there was severe property damage - the St. James Parish Church was wrecked and in Port Royal a 180m long strip of coast disappeared beneath the sea.

Jamaica itself is traversed by a number of geological faults that feature Quaternary left-lateral offsets. In eastern Jamaica there is the Plantain Garden fault that runs into the Yallahs, Blue Mountain, Wagwater and Silver Hill faults, which together control the tectonics of the Blue Mountain block. In western Jamaica the topography is influenced by the South Coast, Spur Tree and Montpelier-Newmarket faults that exhibit large downthrows to the south and west, respectively. Earthquakes occurring across the country today predominantly exhibit strike-slip faulting, which mirrors the movements along the OFZ.

Most Damaging Earthquakes in Jamaica		Year	Date	Maximum Intensity		
(EMS) *	Places Affected	Observed Damage	1667	-	VIII - Landslide	1688
March 1	VII Port Royal	Houses and ships damaged	1692	June 7	X	Port Royal,
Kingston, Vere Plains. Also felt strongly island-wide		3,000 dead; buildings collapsed; liquefaction, subsidence, landslides and water ejected	1771	Sept 3	VII	Port Royal, Kingston
felt on boats in port.	1812	November 11	VIII	Kingston	Several people killed; walls fell,	
buildings damaged	1824	April 10	VII	Kingston; Spanish Town, St. Catherine; Old Harbour,		
Clarendon	Loud noise accompanied shock; some houses fell		1839	November 5	VII	Montego Bay, St. James
Kingston, Port Royal	Government buildings declared unsafe due to damage		1907	Jan 14	IX	
and slumps; localized tsunamis; statues rotated; near total destruction of damage - est. 2 million pounds sterling in damage	1914	August 3	VII	Eastern Jamaica	Buildings cracked, doors and windows out of plumb; clocks stopped; stocks in drug stores broken	
Landslides; many homeless; breakages of merchandise in shops			1943	July 15	VII	St. Elizabeth
Bay, St. James and felt island-wide		4 dead; landslides; bridges damaged; rotation of spires and monuments; springs increased flow and muddied ; utility poles and lines broken; breakages of items off shelves	1957	March 1	VIII	Montego Bay, St. James and
Jan 13	VII Kingston and St. Andrew. Also felt island-wide	2 dead; items thrown off shelves and broke; most were frightened; heavy furniture's shifted; water splashed out of containers and pools; much non-structural damage; few cases of structural damage	2005	June 12	VII	Central Jamaica - Felt strongest at Aenon Town and Top Alston in Clarendon; Silent Hill, Manchester; Wait-a-bit and Lemon Walk, Trelawny
Moderate to heavy structural damage on most vulnerable structures; some people had to be dug out of collapsed dwelling; minor injuries from falling objects						

(EMS)* - European Macroseismic Scale