

## FREQUENTLY ASKED QUESTIONS (FAQs) **VOLCANOES**

### **What is a volcano?**

Volcanoes are vents or openings in the Earth's crust through which, hot, molten rock (called magma) and gases from the interior of the Earth are released. Sometimes, but not always, the solid parts pile up around the vent to form a volcanic mountain. Some volcanoes are literally slits or holes in the ground while others are broad mountains with gentle slopes. Volcanoes in the Eastern Caribbean are mainly steep-sided and roughly conical in shape.

### **How many volcanoes are there in the Eastern Caribbean?**

There are 19 'live' (likely to erupt again) volcanoes in the Eastern Caribbean. Every island from Grenada to Saba is subject to the direct threat of volcanic eruptions. Islands such as Grenada, St. Vincent, St. Lucia, Martinique, Dominica, Guadeloupe, Montserrat, Nevis, St. Kitts, St. Eustatius and Saba have 'live' volcanic centres, while other islands such as Anguilla, Antigua, Barbuda, Barbados, British Virgin Islands, most of the Grenadines and Trinidad & Tobago (which are not volcanic) are close to volcanic islands and are, therefore, subject to volcanic hazards such as severe ash falls and volcanically-generated tsunamis.

### **What are some of the effects of volcanoes?**

- Pyroclastic Flows (mixture of ash, rock and gases)
- Ash Falls
- Lava Flows
- Lahars or Mudflows
- Lightning Strikes
- Ballistic Projectiles
- Volcanic Gases
- Lateral Blasts (horizontal explosions)
- Debris Avalanches
- Tsunamis

### **Can earthquakes trigger volcanic eruptions?**

Earthquakes are not necessarily linked to volcanic activity. Some earthquakes are due to tectonic activity (plates shifting), hence not related to volcanoes, while some others are due to magma trying to find its way up a volcano (volcanic earthquakes). Volcanic earthquakes are generally indicative of an increase of volcanic activity but don't necessarily lead to an eruption. Tectonic earthquakes can "shake" a volcano and can potentially help triggering an eruption. However, they can also potentially stop an eruption. No direct links between tectonic earthquake activity and eruptions in the Eastern Caribbean have been found so far.

### **Can eruptions occur without warning and destroy the entire island?**

It is unlikely that an eruption will occur without warning. Volcanic eruptions in the Eastern Caribbean are usually preceded by recognizable symptoms, such as small earthquakes, changes in gas chemistry, and/or ground deformation (swelling of the mountain) long before an eruption occurs. The Seismic Research Centre operates a monitoring system which should enable scientists to provide sufficient warning to the authorities prior to an eruption so that appropriate action can be taken.

### **Are all the volcanoes in the Caribbean connected so that an erupting volcano on one island will trigger the others nearby?**

No, volcanoes in the Caribbean are not connected. Volcanoes on individual islands are formed by the same process, i.e. subduction at the plate boundary, but they do not share the same magma chamber, and are not linked by long underground magma conduits. A volcanic eruption on one island, therefore, cannot trigger an eruption on another island.

### **If a volcano has not erupted in a long time how do scientists know that it is still 'live'?**

A volcano is considered active (i.e., "live") when signs of activity can still be detected. These signs can be occasional volcanic seismic activity, gas emitted on an around the volcano, ground deformation. Apart from the occurrence of gas vents, most of these signs are generally only detectable with specialized monitoring equipment (e.g., seismometers, GPS).

## Why are there so many volcanoes in the Eastern Caribbean called 'Soufriere'?

The term "soufriere" comes from the French "soufre", which means sulphur. In many volcanic areas, sulphur is naturally deposited at the surface by the volcanic gases and has traditionally been extracted and used by people. A "soufriere" is by definition such a place where sulphur is naturally deposited and is often associated with a volcano (e.g., Soufriere Hills Volcano, in Montserrat or the town Soufriere in Dominica).

## Do changes in the weather (e.g. a strong heat wave or thunderstorm) signal that the volcano is in a state of unrest and may erupt at any moment?

Volcanoes are caused by processes beneath the surface of the Earth and the factors which may trigger eruptions are totally unconnected to the atmospheric processes which cause changes in weather. Heat waves, overcast conditions at the summit or any other weather phenomena do not indicate anything about the state of the volcano. However, heavy rains during an eruption may trigger mudflows (lahars) and lightning can occur from eruption columns.



## Have there been any volcanic disasters in the Eastern Caribbean?

Yes, in the past 300 years there have been a number of volcanic disasters. These are summarized below.

Volcano	Year/s
Soufriere (St. Vincent)	1718, 1812, 1902, 1979
Mt Pelé (Martinique)	1902
Soufriere (Guadeloupe)	1976-77
Soufriere (St. Vincent)	1979
Soufriere Hills (Montserrat)	1995- present

## How do I protect myself during an eruption?

- Follow the instructions issued by authorities. During a volcanic crisis NEMO and The UWI Seismic Research Centre are the official sources of information.
- Leave the area promptly if told to do so. Avoid areas downwind of the volcano. Get to high ground away from the volcano.
- STAY INDOORS. Close all windows and doors.
- If possible, bring all animals and livestock into closed shelter and store machinery indoors.
- Beware of mudflows or lahars. Avoid low-lying areas, where poisonous gases can settle and flash floods can be most dangerous.
- Stay out of the high hazard areas as identified by the authorities. These are also shown in the red and orange on your island's volcanic hazard map. **DO NOT** attempt to get close to have a look at the erupting volcano!
- If possible, help others, who may require special assistance – infants, elderly, disabled.

## How can I connect with the UWI-SRC?

Join us on Facebook: <http://www.facebook.com/uwiseismic>

Follow us on Twitter: <http://twitter.com/uwiseismic>

Send us an Email: [uwiseismic@uwiseismic.com](mailto:uwiseismic@uwiseismic.com)

[www.uwiseismic.com](http://www.uwiseismic.com) +1-868-662-4659