The Tale of Three Caribbean Volcanoes: Islands' History, Geography and Vulnerability

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The Caribbean population exposed to volcanic hazards is, at 1.3%, very small. However, this figure does not reveal the high proportion, at 13%, of global fatalities attributable to volcanic hazards. Although the world's largest single loss from a volcanic eruption - 28,000 killed - occurred on Martinique in 1902, there is concern that another Caribbean volcano, Soufrière on Montserrat, which has been erupting for almost a year, may also explode. The following is a closer look at the history of three island volcanoes.

Soufrière on Montserrat

Montserrat is one of the Leeward Islands in the eastern Caribbean, 40 km southwest of Antigua. Sixteen km long, with an area of 102 square km, the island comprises three mountain ranges. Soufrière rises to 901 m.

The present series of eruptions of Soufrière commenced in 1996, reaching heights of 4,500 m; numerous intermittent pyroclasts of fragmental lava, cinders, ash and dust, consolidated and compacted, flowed down the mountain. Deposits covered large areas of lowland to the sea. On 15 and 16 January 1997 larger eruptions resulted in extensive pyroclastic flows depositing a new deltaic formation of land at the mouth of a river flowing from the mountain. Volcanic dust settled over a large area, including the capital town of Plymouth, and rivers and streams were heavily silted.

Nearly 4,000 people left Montserrat since eruptions began. The southern part of the island, including ash-covered Plymouth, was evacuated. People have been in temporary shelters for more than a year. Since there is uncertainty about the future of the island, officials have been hesitating about providing permanent housing and infrastructure.

In fact, there is concern that more serious explosions could occur if current series of eruptions of the mountain expose the magma within it.

Mont Pelée on Martinique

Mont Pelée's four explosions and an eruption of 8 May 1902 totally destroyed the town of St. Pierre and its population of 28,000.

The violence of the explosion was the result of the nearly solid viscosity of the...
magma, which blocked the volcano pipe. The combination of blast from explosions and the heat of incandescent gas devastated buildings, burned and suffocated inhabitants, caused fires and further explosions. A museum now commemorates tragic events of 1902.

In the months preceding the explosion, there had been sulphurous gas, roaring and rumbling, earth tremors, eruptions and ash falls. However, the authorities discouraged evacuation. The island governor even took up residence in St. Pierre to calm fears - and died in the ensuing explosion. Mont Pelée erupted again in 1929 but less violently.

**Soufrière on St. Vincent**

St. Vincent is to the south of the chain of islands of the Lesser Antilles and 160 km south of Mont Pelée. It is 30 km long; Soufrière's altitude is 1220 m.

Soufrière erupted most recently on 13 April 1979, exploding ash to a height of nearly 20 km and causing glowing avalanches of lava, dust, and scorching gas. Activity continued for several weeks.

Between 15,000 and 20,000 people were quickly evacuated from the immediate areas. Evacuation went on for two months as part of a compromise between public safety and the minimum of socio-economic disruption.

After the most dangerous period had passed people were given the option of returning or remaining longer in refugee shelters. There was wide acquiescence of precautionary measures and although there was a major volcanic eruption, no lives were lost.