

Is God a Trini?

The occurrence of natural hazards in the Caribbean

Akela Silverton

Abstract:

Trinidadians or ‘Trinis’ feel secure. They are continually being spared the devastation caused by geohazards in the neighbouring Caribbean islands. This may be a result of Trinidad’s favourable location or the belief that ‘God is a Trini.’ This paper focuses on the occurrence of geohazards in the Caribbean. Ways in which human alteration of the environment leads to an increase in the incidence of hazards are discussed. The role of geoscientists and governmental agencies in minimising the risks and maximising public awareness of geohazards are emphasised. In addition, techniques and methodologies that could be employed to assess and reduce the impact of these geohazards are suggested. Mitigation, awareness and responses to geohazardous events will determine the existence of life in the uncertain future.

‘Trinis’, as we call ourselves, are nationals of the beautiful island of Trinidad. Trinidad has long and continually been spared the devastation and havoc that natural hazards bring to the Caribbean area. This has encouraged those living on Trinidad to claim, “God is a Trini!” According to geoscientists, however, the paucity of geohazardous events here can be attributed to Trinidad’s location, geography and climate.

Trinidad is a small chunk of land just off the coast of northern South America, but is politically part of the English speaking Caribbean, the islands of which form a broad arc that extends approximately 4,000 km from Florida (U.S.A.) to Venezuela. The main geographical characteristic of the Caribbean region is volcanic mountains. These are seated along the major tectonic plate boundary of the Caribbean and Atlantic plate in the Lesser Antilles. Thus, the region is highly seismic and prone to earthquakes and volcanic activity. In addition, the proximity to the low pressure Inter Tropical Convergence Zone (ITCZ) results in hurricanes impacting on the region. During the rainy/hurricane season (July – December), intense flooding can affect the Caribbean’s

agricultural areas, and can also impact on important urban centres. These geohazards – volcanic eruptions, earthquakes, hurricanes, and flooding – are ruining Caribbean societies leading to loss of life and property, and forced migration. The occurrence of these geohazardous events, particularly hurricanes, is infrequent in Trinidad.

The potential hurricane risks vary from one island to the next. The islands of the Western Caribbean - such as Jamaica, Cuba, and Cayman Islands - and the Eastern Caribbean – such as St. Vincent, St. Kitts and Nevis - are more likely to be affected by hurricanes than those of the Southernmost Caribbean - such as Aruba, Barbados, Curacao, Bonaire, Grenada, and Trinidad and Tobago - because of their respective locations. According to Caribbean online hurricane reports, the southernmost islands of the Caribbean rarely get hit by hurricanes. However, in 2004 the Category 5 Hurricane Ivan flattened Grenada, and did major damage to Tobago, St Vincent, Cayman Islands, and Jamaica. Trinidad, being only a few miles away from its sister isle, Tobago, was spared. Clearly, luck plays a role in which islands get hit, and when. One is truly left to ponder if God is really a Trini.

What human beings do, or what they fail to do is a key factor as to whether natural hazards will be manifested as natural disasters. Deforestation increases the threat of landslides coupled with the silting up of waterways, resulting in flooding. Past experiences, in addition to the nature and possible impacts of geohazards, alter the responses to them. For example, Jamaican citizens are continually being affected by major flood activities in its low-lying areas, due to torrential rains and hurricanes, such as the recent 2007 Hurricane Noel on the island. Based on their past experiences, Jamaicans immediately responded to the ensuing flood threat, in an attempt to reduce the obvious devastation. Some Jamaicans migrated to highland areas, while those who remained in the lowlands ensured that all their family, friends and belongings were safe. Trinidadians, however, are not as quick in response to floods and hurricanes or any other natural hazards such as earthquake and volcanic activity. Their belief that ‘God is a Trini’ reassures them that protection against any threat to life or property is unnecessary.

Volcanic and earthquake activity are attributable to seismic events in the Eastern Caribbean, which is associated with a subduction zone at the junction of the Caribbean and Atlantic Plate. This leads to a moderate level of inter-plate seismicity. Major earthquakes in the region led scientist to ponder, not if, but when the effects of tsunamis would be felt in the Caribbean. Trinidad, on the other hand, is not as severely affected by earthquakes, even though it is also located in a highly seismic area – near the strike-slip boundary of the Caribbean and South American plate. Nevertheless, there is an urgent need for ‘Trinis’ to take action against any natural hazard. After the 2006 earthquake experience - a 6.1 magnitude earthquake centered just miles off Trinidad shook the island, but did minimal damage – I had to ask myself, “Is God really a Trini?” I will vividly remember that day, since it was the most intense earthquake I ever felt.

“I was in the laboratory examining rocks and identifying mineral compositions for a class assessment. On feeling the entire building shake, the possibility of an earthquake was the most distant thought from my mind. Another shock came immediately after, and it was then my classmates and I tried to hide under a desk, which in our case, was the cupboards in which the microscopes were stored. The lecturers however told us to leave everything and get to the muster point immediately.”

This experience was one of a kind, and it generated an effect on some Trinidadians, drawing to their attention the need to be aware and prepared for unpredictable natural hazards.

On another note, Caribbean islands such as Montserrat and St. Vincent, in close proximity to Trinidad, are being severely affected by volcanism. The severity of eruptions of the Soufriere Hills Volcano, Montserrat, caused severe disruption of the economic and social life of the island. This resulted in more than half the population migrating regionally to countries like Trinidad, which does not form part of the volcanic chain of islands of the Lesser Antilles. However, as there is a volcanic threat to Trinidad by the undersea Kick ‘em Jenny volcano Grenada, say 100 miles away, ‘Trinis’ must realize there is a need for a wake up call.

In an attempt to reduce the impact of any geohazardous events, the Organization of American States (1990) stated that geographical information systems (GIS) may be used to store, retrieve and analyze geohazard data. Also, the location of past occurrences of natural hazardous events, and the conditions under which they occur can be identified using remote sensing techniques. Combined assessment of several hazards and critical facilities such as hospitals or fire stations on a single map, can serve to assess the vulnerability of people and property to geohazards. As local geoscientists, we can reduce the impacts of these hazards locally, by ensuring that governmental agencies implement programs designed to reduce environmental degradation.

Community flood warning systems can be put into place, as was recently done in Jamaica (Caribbean Disaster Emergency Response Agency, CDERA, 2007). This system is based on the dissemination of both observed and anticipated rainfall, as well as, the observed river stage at an upstream station. According to Ahmad (1992), volcanic eruptions, can be prevented, if perhaps there was some means of tapping and bleeding off the magma source - responsible for eruptions – for geothermal energy. In this way, the natural environment would be modified to better suit mankind, due to the increase in available renewable energy and less destruction. These methods, by which the occurrence of natural hazards may diminish, can be coupled with the launching of natural hazard awareness campaigns to promote public awareness.

Some Trinidadians are attempting to become more aware of the geohazards, whose life threatening effects they are continually being spared. School visits targeting the younger, future generation were recently arranged. Also the first Disaster Management Online Programme was recently launched by British Virgin Islands, in an attempt to promote awareness and mitigation strategies, among all Caribbean citizens (CDERA, 2007). Caribbean citizens, including Trinidadians are attempting to help themselves in the plight to alleviate disasters caused by natural hazards. Being more aware, some Trinidadians should know what to do before, during, and after any natural hazard. Geoscientists play a major role in interacting with the public and governmental agencies responsible for ensuring effective response to these geohazards. They also serve

to interpret the mitigation techniques in an attempt to minimize any threat geohazards pose to the public.

The lack of preparation and the necessary defensive measures that should be employed for a hazard - such as the Trinidad earthquake - need to be overcome. We as geoscientist should work as a team, and adopt a multi-disciplinary approach to such hazards which are unpredictable. We should then interact with governments and other bodies to help them frame policies and plans that will raise public awareness, minimise hazards and reduce people's vulnerability to disasters (IYPE, 2007).

So, is God a Trini? Honestly, I don't know. Perhaps one day, I'll meet him and find out. Nevertheless, we should be prepared, especially since we have minor occurrences of geohazards, but not to the extreme extent as those in other Caribbean islands. God helps those who help themselves. So, Trini or not, we should be one step ahead of the natural hazards, and be properly aware and prepared. Effective initiatives by governments, geoscientist, and the public at large would reduce the long-term impact of natural hazards.

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