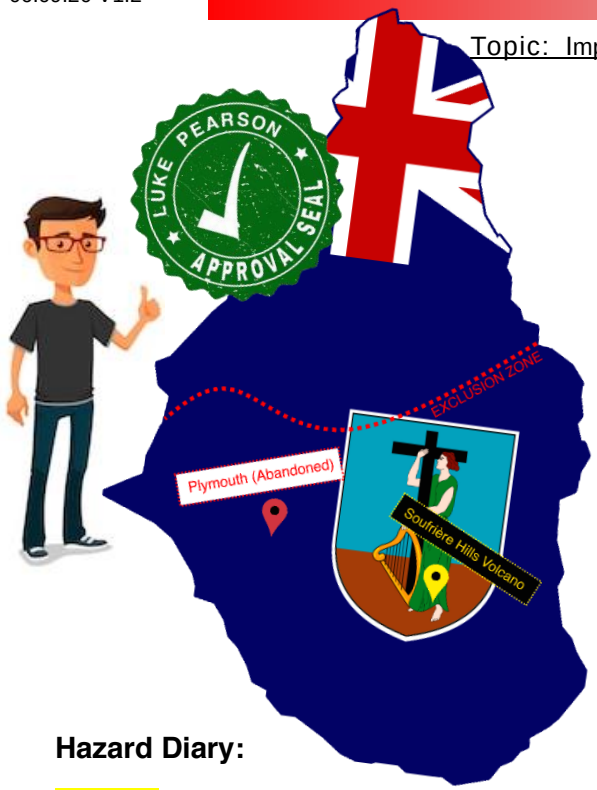
Case Study Fact File Hazards >> Volcanic

Luke Pearson |
geographyportal.co.uk
06.09.20 V1.2

1995 – 1999 Montserrat Eruptions [LIC]

Topic: Impacts and human responses as evidenced by *a recent volcanic event or multiple.*



Background Information:

Montserrat is a small Caribbean island, barely 100km^2, yet has a fascinating history owing to its highly active stratovolcano, the Soufrière Hills. After a period of dormancy, they became active on 18 July 1995 and have continued to erupt ever since. Since then, this has led to over half of the island of Montserrat being cordoned off as an exclusion zone, including their former capital, Plymouth (population 4,000.) Around 2/3 of the population has left since, mainly to neighboring islands and the United Kingdom (as Montserrat is a British Overseas Territory.)

The volcano is fairly unique, owing to how slow but damaging the eruptions were. Its complex nature and patterns of activity include lava dome growth, followed by dome collapse and extensive Vulcanian eruptions (similar to Plinian), punctuated by extensive and often devastating pyroclastic flows.

Help - I've forgotten all about types of Volcanic Eruptions! No fear, click here…

Hazard Diary:

1992/4 – Advanced seismographs detect first signs of eruption

1995 –

July 18 – Eruption of ash and steam up to 40,000ft – reaching 90 miles away and causing a temporary flight ban over the Caribbean. Surge cloud of 100mph gas, ash.

August - December – 5,000 (1/3 of population) evacuated from Plymouth & Surroundings.

1996 –

April – Devastation as much of the South Of The Island was destroyed by mass pyroclastic flows, including the capital.

May – Tephra and flows have now covered nearly half of the island; remaining residents are placed in temporary shelters by Northern coast.

1997 –

June 25 – Most devastating day, 19 people killed by pyroclastic flows who returned to their homes in the danger zone. Poor management is to blame.

September – H.W. Bramble Airport is destroyed, making aid receival difficult as it must be accomplished by sea.

1998 – Eruptions continue every 9 hours or so, causing a massive environmental effect as trees, grasses and ecosystems are suffocated by toxic gases, pyroclastic flows, and tephra.

1999 – Activity calms, and assessments reveal the total destruction of 17 settlements, major roads, and airport.

Responses and Aid Diary:

- The UK Government who had already set up modern tracking and seismology stations in Montserrat pledged a £41 M package for the residents.
- In addition, £10 M of direct aid was provided to help with the immediate response efforts of the navy.
- However, riots among the population followed with protesters claiming the government was not engaged enough in what the locals saw as the "decimation of our island."
- This led to the resignation of the Chief Minister of Montserrat after allegations of him being too pro-British.
- HMS Liverpool evacuated over 7,000 residents to neighboring islands such as Antigua & Barbuda.
- British government then enacted an entry scheme by which anyone from Montserrat could claim residence in the UK, a very controversial policy leading to 2/3 of the population moving away.

'SEEP' Tracker Box

Social Economic Environmental Political

Links & References:

What Case Studies Can This Be Linked To?

You must know at least one volcanic event case study, advisably two though as stated in the specification topic above.
What we recommend learning this with:

- **A* Case Study I 2002 Mount Nyiragongo Eruptions**

  What to know in brief: Mount Nyiragongo is a fairly active volcano along the border of the DRC with Rwanda, some of the poorest nations in the world. (Although Rwanda has been making great strides in recent years.) In 2002, with barely any planning or management in effect, lava spread from the volcano southwards towards Lake Kivu. Around 245 people died from asphyxiation by carbon dioxide, and around 15% of Goma (5000 buildings) collapsed due to lava flows and subsequent earthquakes, resulting in 120,000 homeless.

- **Iceland - Eyjafjallajökull Eruption 2010 [often referred to as E15]**

  What to know in brief: In March 2010, rising magma broke through the crust under the Eyjafjallajökull glacier and lava eruptions began. Although not a deadly eruption, it was one of the largest in modern times, and caused huge international impacts due to the thousands of km^2 large ash clouds, spreading over Europe and Northern Siberia. Some very unique strategies to manage the hazard were employed highly successfully.

Have A Go At A Practice Exam Question:

20 MARKER (AO1 & 2) QUESTION #4

To what extent do you agree with the statement "volcanic events are devastating natural hazards which cannot be effectively managed"?

Many questions will have exemplar answers and mark schemes available, feel free to look at them for information.

Struggling to get a start to answering this question? Here's some help on using the Case Study.

You can argue both sides of this question by using different case studies – hence why you should (nearly) always in my opinion learn two contrasting case studies! I'd recommend using Montserrat as an example of how they can't be managed effectively, and Eyjafjallajökull in Iceland as a counter.

Volcanic Hazards are obviously pretty devastating, but obviously they do vary in size and impacts based upon eruption type (see document on the page above), location, size and much more. They are fairly predictable and lava flows, for example CAN be managed, but it's often not accomplished and in the case of Montserrat, ineffective with huge, long-lasting eruptions. Look at the responses and aid diary for Montserrat – notice that none of them are 'environmental' on the SEEP Tracker. Could this mean that it simply isn't worth trying to manage the environmental impacts of the eruption as they are far too great?

Useful links:

Plymouth -The 'Post-Apocalyptic Capital'
https://www.youtube.com/watch?v=jRRCysLUde8

'Ash to Cash' - Montserrat's Long Term Response
https://www.theguardian.com/world/2016/jan/28/montserrat-volcano-british-territory-geothermal-energy-tourism-sand-mining

'Wish I Were There: Montserrat, the Caribbean's Comeback Kid'
https://www.ft.com/content/a8f6fe3c-830b-11ea-b6e9-a94cffd1d9bf