Volcanic Hazard Case Study: Eyjafjallajökull eruption, Iceland 2010

1 **Describe the location** of the case study.

2 **Identify** two primary impacts of the eruption.

3 **State** one secondary economic impact of the eruption.

4 **Explain** how plate movement created the eruption.

5 **Suggest** why the eruption had such a large impact on Europe.

14 **Explain** why nobody died as a result of this large eruption.

Farm in Þorvaldseyri, at the foot of Eyjafjallajökull

6 **Identify** one way that the eruption brought benefit to Iceland.

13 **What** is the Mid-Atlantic Ridge?

7 **Name** the tectonic plates that Iceland sits on.

12 **Theorise** why some people called the area a 'volcanic Disneyland'.

11 **Suggest** how technology was used to mitigate the eruption.

10 **Outline** why Iceland is part of two continents.

9 From the photograph, **describe** local impacts of the eruption.

8 **Describe** how authorities responded to the eruption.

Would you like more information on the Eyjafjallajökull case study?

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Eyjafjallajökull eruption, Iceland 2010: Suggested Answers

1 Describe the location of the case study.

Eyjafjallajökull is a small ice-cap in southern Iceland. The name means ‘island mountain glacier’. Below the ice is a volcano. Iceland is in the Atlantic Ocean.

2 Identify two primary impacts of the eruption.

e.g. ash clouds, ash fall, lava flow, fire fountains (lava fountains), toxic gas emissions, etc.

3 State one secondary economic impact of the eruption.

e.g. Airlines lost $2 billion in cancelled flights; London lost £102 million in lost tourism; supermarkets ran low on imported food, etc.

4 Explain how plate movement created the eruption.

Iceland sits on the Mid-Atlantic Ridge, where the Eurasian and North American plates are separating. This divergence allows magma to the surface.

5 Suggest why the eruption had such a large impact on Europe.

Winds in the upper atmosphere spread volcanic ash across northern Europe, causing chaos to air travel with over 92’000 flights cancelled.

14 Explain why nobody died as a result of this large eruption.

This area is very rural with low populations. The eruption was predicted and warnings given in time to evacuate. Roads were closed and policed to ensure minimal exposure.

Farm in Þorvaldseyri, at the foot of Eyjafjallajökull

6 Identify one way that the eruption brought benefit to Iceland.

Tourism increased to the area following the eruption (and during the eruption for many Icelandic people), bringing economic investment.

13 What is the Mid-Atlantic Ridge?

The spreading ridge along the seabed of the Atlantic Ocean, where plates diverge to allow magma to reach the surface. Constant effusive eruptions underwater lead to ‘seafloor spreading’ that creates new land on oceanic crust.

7 Name the tectonic plates that Iceland sits on.

North American and Eurasian plates.

12 Theorise why some people called the area a ‘volcanic Disneyland’.

Following the eruption, there was an increase in volcano tours, glacier hikes, helicopter flights, etc. that led to a boom in investment. Even the farm in the photo became a museum.

11 Suggest how technology was used to mitigate the eruption.

Computer simulation predicted the second more explosive eruption that led to evacuation and reduced loss of life. Text messages warned local people to evacuate.

10 Outline why Iceland is part of two continents.

Iceland formed at a hotspot over a spreading ridge, the Mid-Atlantic Ridge, which is the division between the North American and Eurasian plate. So Iceland is geologically part of North America & Europe.

9 From the photograph, describe local impacts of the eruption.

20 farms such as this in the photograph were damaged or destroyed. Crops and grazing land was destroyed. Animals suffered respiratory illness for years after due to ash in soil.

8 Describe how authorities responded to the eruption.

e.g. Residents were warned via social media, mainstream media, and text message; roads were closed; local populations & animals were evacuated; temporary roads replaced those washed away.

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