Eyjafjallajökull, Iceland - 2010

Type of Plate Boundary

The volcano is situated on a **constructive plate boundary** between the **North American** and **Eurasian plate**. Eyjafjallajökull is a **500m long fissure volcano**, that erupts basalt. Basaltic lava is fluid in nature.
There is a **glacier** above the volcano.

Hazards

10km high ash plume, containing **sulphur**, was emitted. This reached the stratosphere and caused huge problems for air-travel in Europe.

Some **earthquakes**

Flooding from a **jökulhaup river** due to the melting of the glacier.

Warning Signs

Shallow **earthquakes**.

Deformation of the crust.

Minor eruptions.

Impacts

£ Economic
- The ash plume stopped **100,000 jet engines**, just in Europe.
- However, the channel tunnel and ferries did extra business. 😊
- Europe lost **US$2.6 billion GDP**.
- Horticulture lost **£3 million a day**.
- The ash made Icelandic soil so **fertile** farmers could produce rapeseed oil and grapes. 😊

👤 Social
- **700** people evacuated due to the flooding from the melted glacier.
- The **ash contaminated drinking water** supplies.
- Ash caused **respiratory illnesses** for some locals.
- Cancelled flights left many stranded in different countries.

🌍 Environmental
- Less **aircraft noise** and **2.8 million tonnes less CO2** due to flight bans. 😊
- Jökulhaup river became **100x** its normal capacity.
- Fluoride deposits on grazing land **poisoned cattle**.
- Fertiliser for the surrounding land was not needed. 😊
- Surrounding rivers were silted with ash.

Management

Preparedness
Diggers were in position to dam rivers.
Texts were sent to locals with a **30 minute warning**.

Immediate responses
700 locals **evacuated**.
100,000 European **flights cancelled** during 6-day ban.
Exclusion zone created.

Long term responses
The Icelandic government **rebuilt river banks**, even higher than before.

🌋 Montserrat, The Caribbean 1995-1997 🌋

Type of plate boundary

The volcano is situated on a **destructive plate boundary**, where the **North American plate is subducting under the Caribbean plate**.

The Soufriere Hills volcano is a **composite cone volcano** , erupting Andesitic magma. Andesitic magma is viscous, and therefore causes **explosive** eruptions.

Warning signs

In **1995**, there were earthquakes and small eruptions.

Lava dome began to grow.

In June 1997, small earthquakes caused a **pyroclastic flow** burying the 'Spanish Point' community.

In September 1997, there were **74** Magmatic eruptions.

Hazards

4-5 million m³ of material released in 20 minutes.

Lava dome collapsed.

Pyroclastic flow and lahars also followed.

Impacts

💷 Economic
- Most buildings in the capital of **Plymouth** were destroyed.
- £1 billion in losses.
- Many **businesses** were destroyed.
- After an **exclusion zone** was set up, fishing boats were not allowed near, affecting the fishing industry.

👤 Social
- **19** people died when the lava dome collapsed
- **2/3 of homes on Montserrat were destroyed**, causing widespread homelessness
- By 1998, **70%** of the population had left the island.
- **50% of water supplies were destroyed**, which took 2 years to repair.
- There are no **universities** on Montserrat anymore, limiting education prospects.
- Ash caused respiratory problems.

🌍 Environmental
- **Vegetation and farmland** destroyed.
- **60% of the island** was declared unsafe for human habitation.
- The ash improved **soil fertility**. 😊

Management

Preparedness
Montserrat is a former British colony. The UK government didn't even know it was a volcano!
No **emergency plans**.
After warning signs in 1995, **no one evacuated** as they did not think it was long-term.

Immediate responses
People **evacuated** from the South to the underdeveloped North.
Temporary infrastructure built.
£17 million in aid donated from the UK.

Long term responses
No **long-term contingency plan**.
£41 million in long term aid to develop the North of the island.
A new **hospital** has been **adapted** from a school in the north.
Ports and airports eventually reopened.