



Volcanoes and Magma

What is a Volcano?

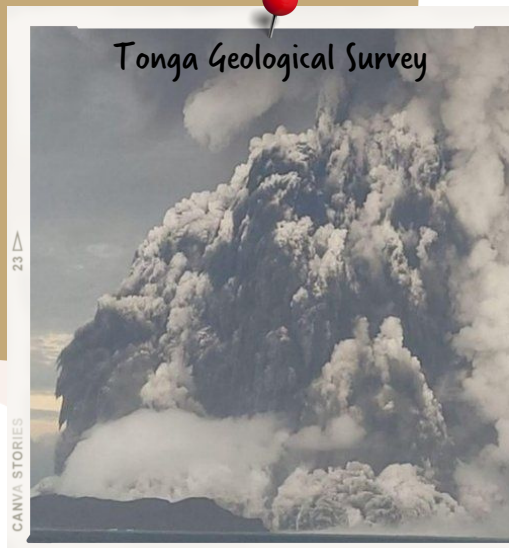
A volcano is an opening on the surface of a planet (or moon) that releases material significantly hotter than its surroundings. On Earth, volcanoes can erupt hot molten rock called magma (or lava when it is on the surface)

Volcano Type	Effusive	Explosive
	Shield	Strato
Temperature	(~ 1,100 - 1,200°C)	(~ 700 - 800°C)
Viscosity	(Runny)	(Sticky)
Gases	(~ 0.5 - 2%)	(~ 4 - 6%)
SiO_2	(~ 55%)	(~ 70%)
Water	(dehydrated)	(hydrated)

1 Island Arcs

- ocean - ocean subduction
- High Viscosity
- Explosive eruptions
- Strato Volcano

E.g. Hunga Tonga, Tonga



2 Hotspots

- Low Viscosity
- Effusive eruptions
- Shield Volcano

E.g. Kilauea, Hawaii



3 Mid ocean Ridges

- ocean - ocean rift zone
- Low Viscosity
- Effusive eruptions
- Shield Volcano

E.g. Fagradalsfjall, Iceland



4 Volcanic Arcs

- Continent - ocean subduction
- High Viscosity
- Explosive eruptions
- Strato Volcano

E.g. Mt Vesuvius, Italy



Something to think about...

Why do some Icelandic volcanoes have explosive eruptions?

