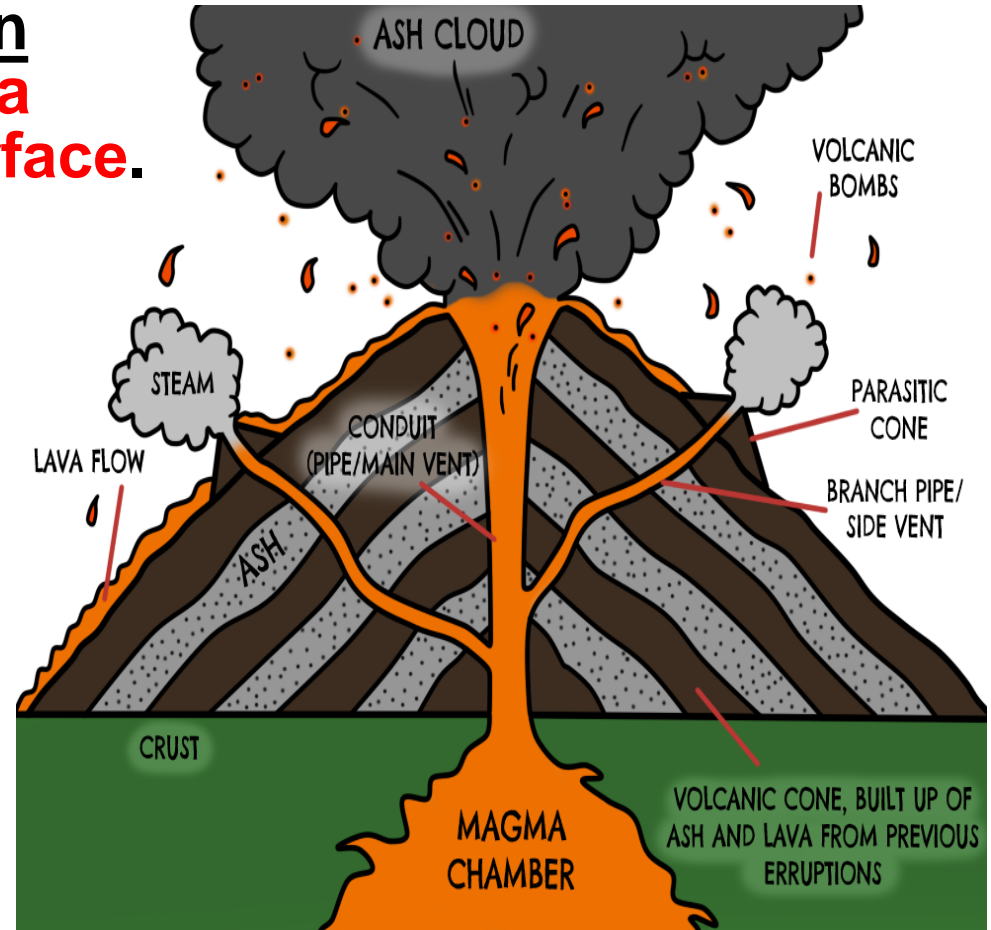


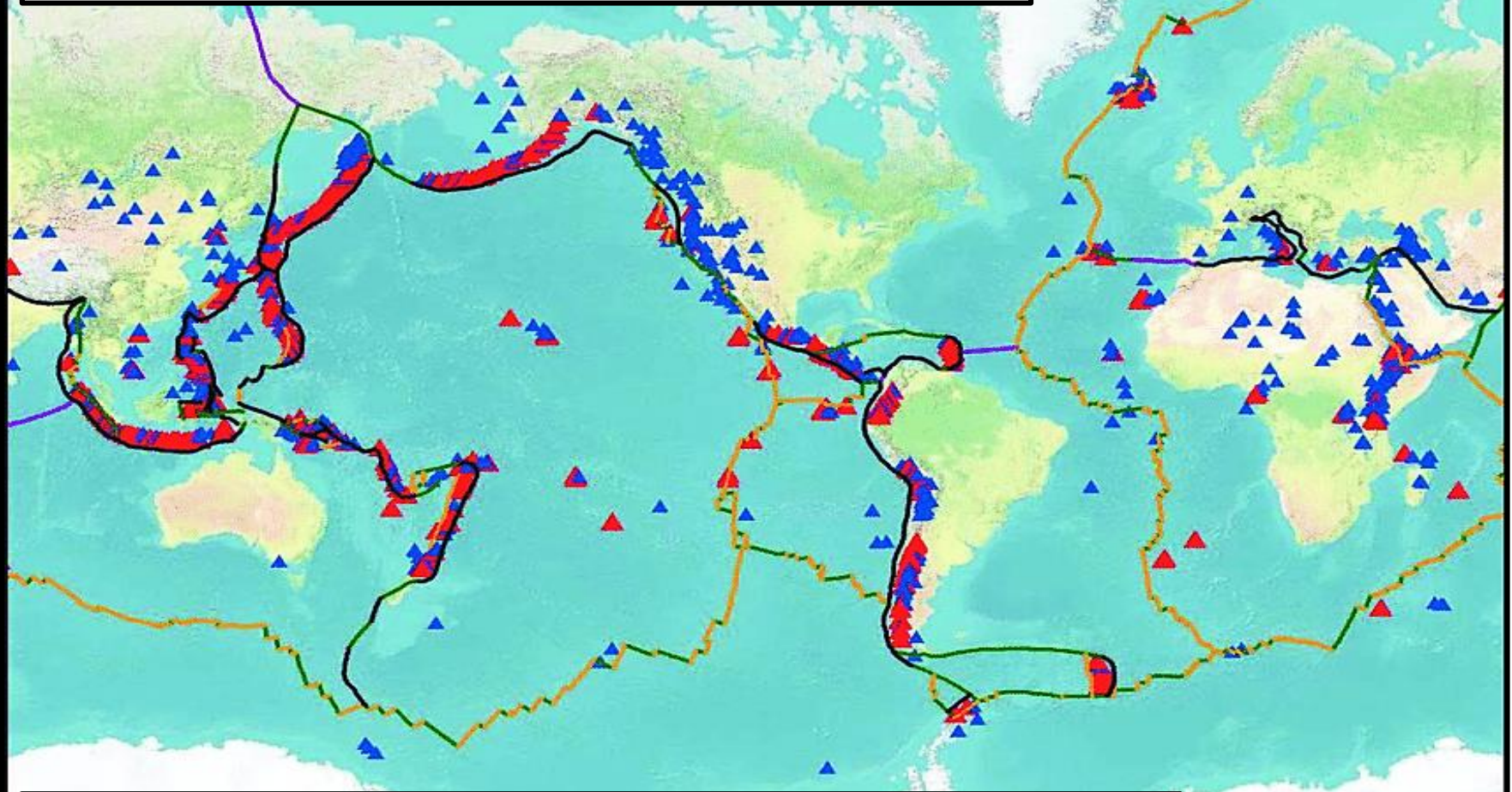
What is Volcanism?

- A volcano is a mountain that forms when **magma reaches the Earth's surface**.
- Magma develops and collects in areas called **magma chambers**.
- Magma is less dense than the solid rock around it.
- Magma can also easily migrate (flow) if a structural zone allows movement.
- When a **rupture on the crust** is present, magma rises to the surface and escapes, resulting in **volcanism**.



Volcano Distribution

during the current geological epoch



△ Activity since 1900, △ Activity since ~11700 YA

0 5,000 km

Volcanic Activity



- **Active** - activity present in the last few centuries:
 - Mauna Loa, HI (1984)
 - Mt. St. Helens, WA (1980)
- **Dormant** - “quiet” for the last hundreds to thousands of years, but still have potential to erupt:
 - Mt. Elbrus, Russia (~2000 years ago)
- **Extinct** - no eruption in historical times, unlikely to erupt again, no longer have magma supply:
 - Castle Rock, Edinburgh, Scotland (~350 million years ago)



Currently erupting volcanoes

2021-11-04

www.volcanodiscovery.com

-  : in eruption
-  : minor activity

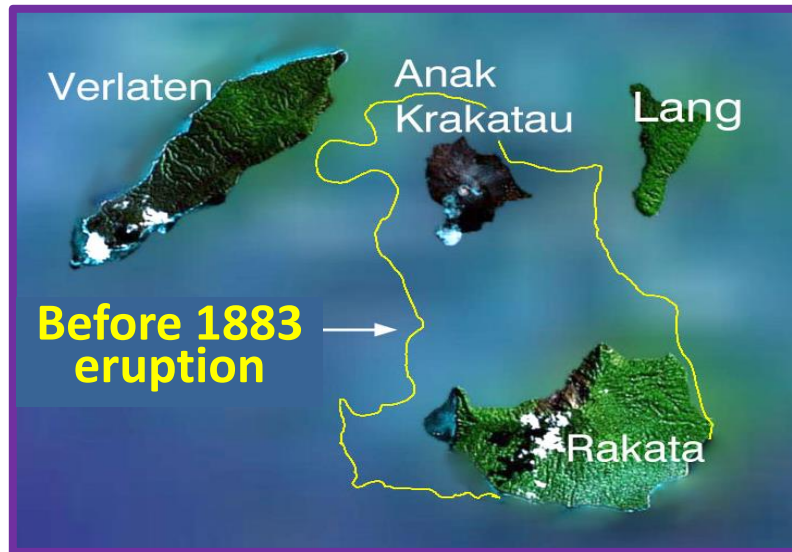
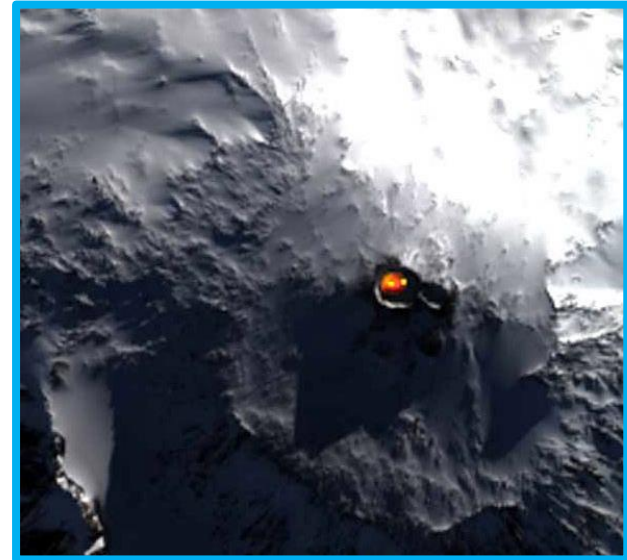


42 volcanos are active RIGHT NOW!

Notable Volcanoes

Mt. Erebus, Antarctica •

Southernmost active volcano on Earth.



NOW

THEN

• Krakatoa, Indonesia

1883 explosive eruption produced huge tsunamis as well as loudest sound ever heard in modern history.



Volcanic Eruption: Non-explosive

- Most volcanoes erupt basalt, a fluid **low viscosity lava** that erupts *effusively* (quietly) and forms *flows* with occasional *fountains*.



- **Higher viscosity lava** with low gas content produces bulging lava *domes*.

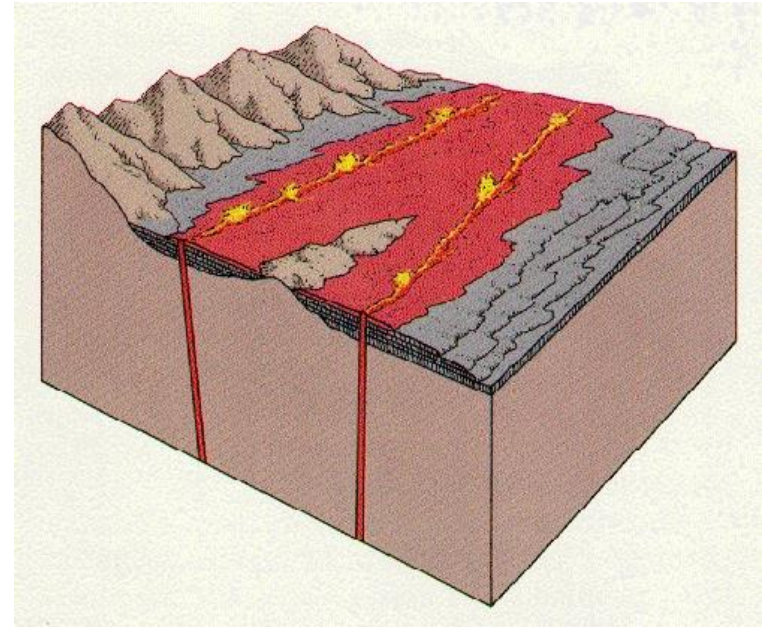
Flood Basalts



Columbia Flood Basalts in WA

- Multiple, “quiet” eruptions
- Lava *plateau* forms
- Flood basalt volcanism has been connected to major mass extinction events in the past.

- Large (10-100 square miles) outpourings of very low viscosity basaltic lava



Volcanic Eruption: Explosive

Very high viscosity magma prevents the release of volcanic gases; gases accumulate, and the magma pressure builds up... until it is blasted out in an explosion!



Explosive Eruption Diagram

