FACULTY OF ENGINEERING AND TECHNOLOGY

Lecture-36

Natural disaster-part 4

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Volcanic eruption

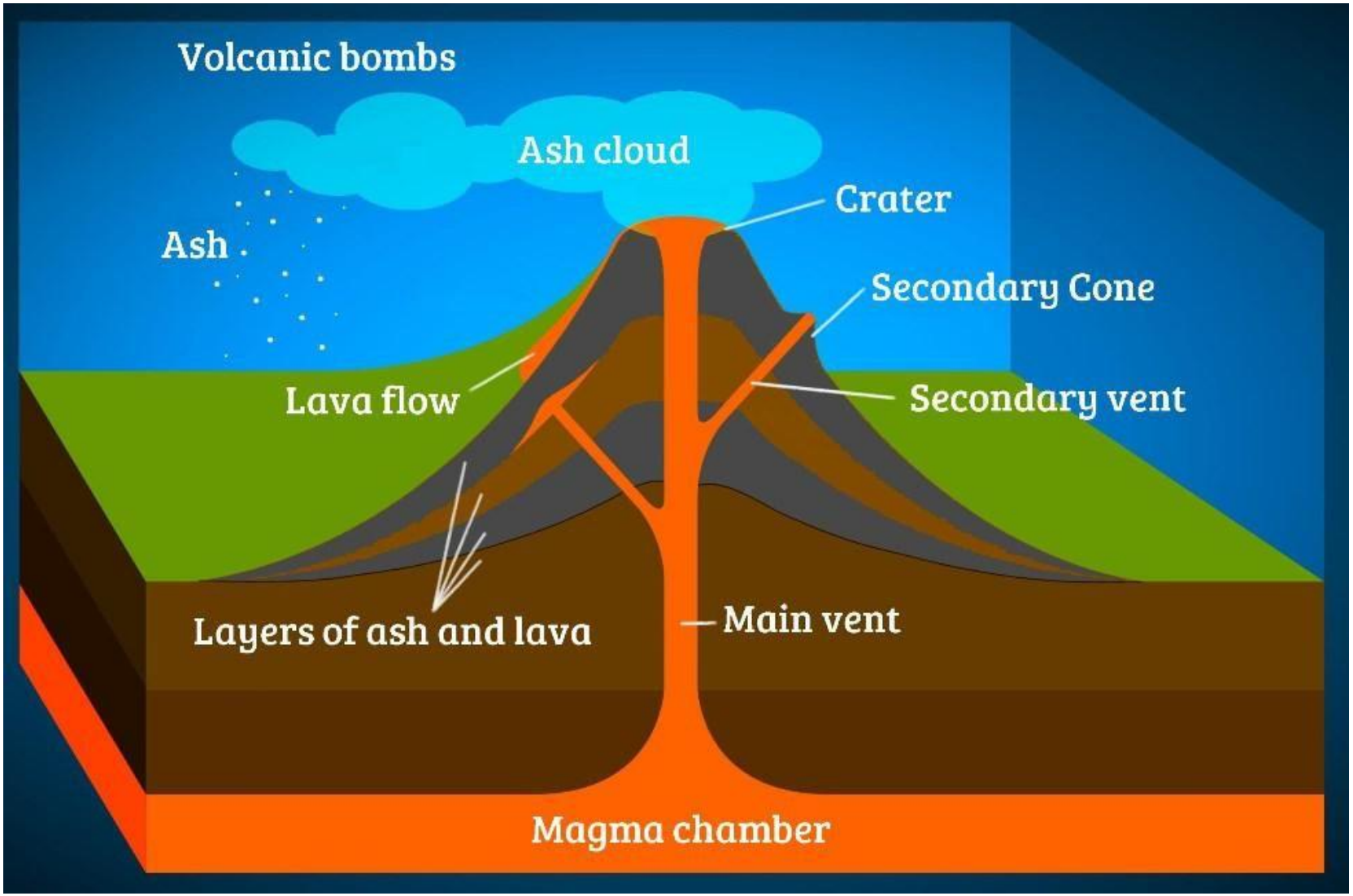
Volcano

- A **volcano** is a rupture in the crust of a planetary-mass object, such as Earth, that allows hot lava, volcanic ash, and gases to escape from a magma chamber below the surface.
- On Earth, volcanoes are most often found where tectonic plates are diverging or converging, and most are found underwater.
- Volcanoes can also form where there is stretching and thinning of the crust's plates.

Volcanic eruption

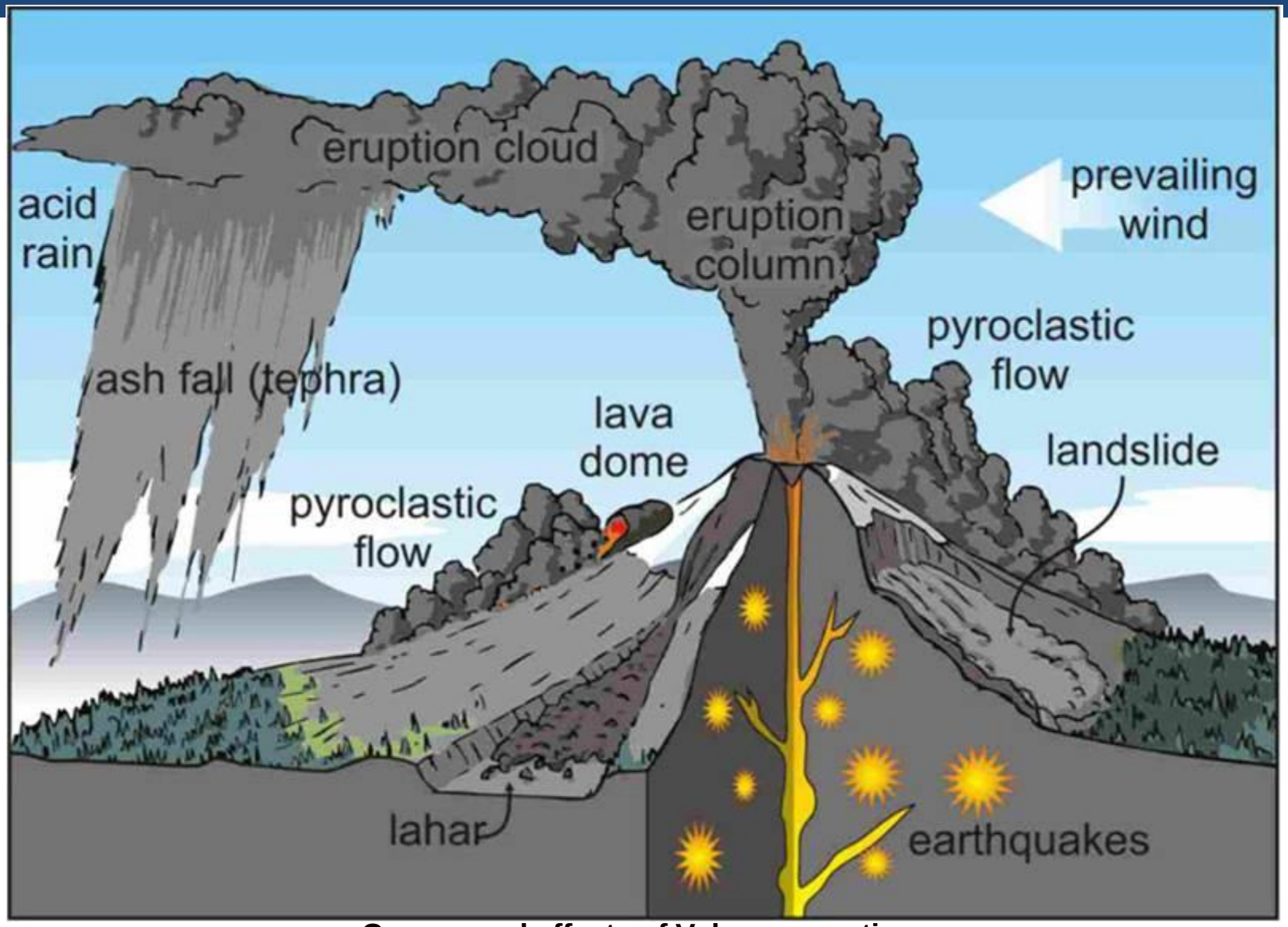
- Volcanic eruptions happen when lava and gas are discharged from a volcanic vent.
- The most common consequences of this are population movements as large numbers of people are often forced to flee the moving lava flow.
- Volcanic eruptions often cause temporary food shortages and volcanic ash landslides called Lahar.

Sources: https://en.wikipedia.org/wiki/Volcano



Structure of a Volcano

Sources: https://images.app.goo.gl/4qaFd1ZUmXP84E1a6



Causes and effects of Volcano eruption

Sources: https://images.app.goo.gl/M4muBaNHBtQ35s188

Avalanches

- Avalanches occur when a mass of snow falls, rolls, or slides down an incline due to gravity.
- Avalanches can be set off spontaneously, by such factors as increased precipitation or snowpack weakening, or by external means such as humans, animals, and earthquakes.
- Avalanches primarily composed of flowing snow and air and large avalanches have the capability to capture and move ice, rocks, and trees.
- They occur in two general forms:
  - **Slab avalanches** made of tightly packed snow, triggered by a collapse of an underlying weak snow layer, and
  - **Loose snow avalanches** made of looser snow.
- Slab avalanches have a distinct, broad fracture line. They can occur only when a bonded layer of snow (the slab) is lying on top of a weak layer over a sufficiently large area. Triggering requires the application of an additional load and a slope angle of at least 30°.

- Loose snow avalanches occur from a point of triggering as they plummet downhill. This type of avalanche often occurs during or shortly after snowfall, or when significant warming occurs. A loose snow avalanche consisting of dry powder generally requires a slope angle of 40°. Especially when the snow is wet, these avalanches can reach considerable size in continuously steep terrain.
- After being set off, avalanches usually accelerate rapidly and grow in mass and volume as they capture more snow.
- If an avalanche moves fast enough, some of the snow may mix with the air, forming a powder snow avalanche.
- They are most frequent in winter or spring, but may occur at any time of year.
- In mountainous areas, avalanches are among the most serious natural hazards to life and property, and therefore great efforts are required for avalanche control.
- Avalanches can be described by their size, destructive potential, initiation mechanism, composition, and dynamics.

Sources: https://en.wikipedia.org/wiki/Avalanche; https://www.slf.ch/en/avalanches/avalanche-science-and-prevention/avalanche-types.html#:~:text=Slab%20avalanches%20have%20a%20distinct,of%20at%20least%2030%C2%B0.

Sources: https://images.app.goo.gl/T7q6wWPT3D7zqxEc6;
https://images.app.goo.gl/AdeNrsHUwK4Xdmy39


THANK YOU :)