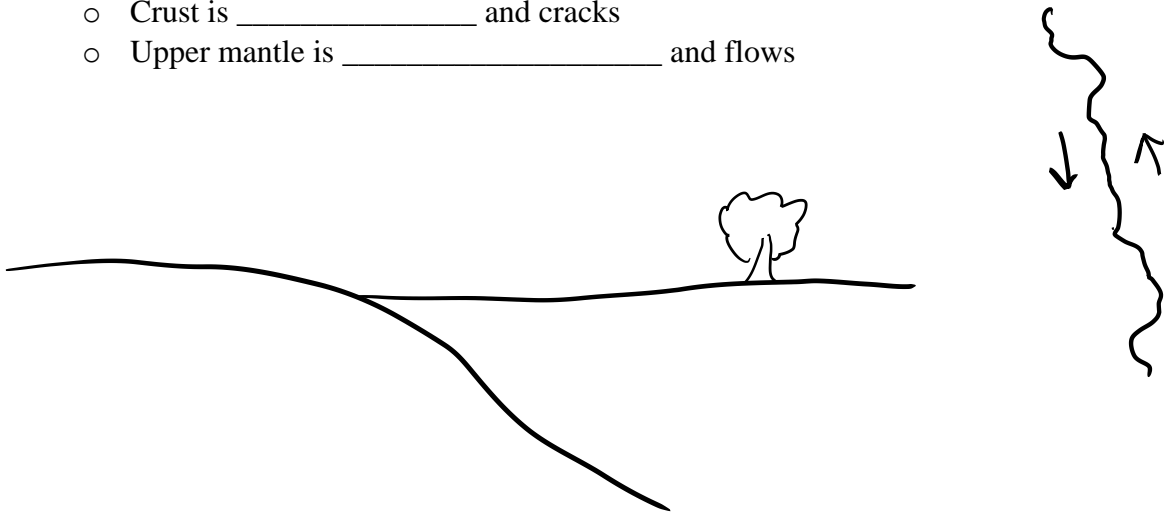


Notes Outline: Chapter 12

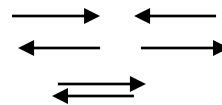
Earthquakes & Volcanoes (pgs. 269-302)

12.1: Earthquakes

- Mvmt of Earth's _____ from the release of _____ b/t 2 stuck plates
- Happen _____, most go _____
 - _____: tremors b/f a major quake
 - _____: tremors a/f a major quake
- _____: an area that is broken on Earth's surface
 - Crust is _____ and cracks
 - Upper mantle is _____ and flows



- _____: ground becomes saturated with water & soil acts like a liquid.
- **Stick-Slip Motion**
 1. 2 objects in _____, & at least 1 can _____
 2. Need _____ to cause mvmt
 3. _____ (resistance)
- **4 Main Areas Quakes Happen**
 1. _____
 2. _____
 3. _____
 4. _____: usually an old fault line, middle of a plate
 - Quakes happen where the _____ moves.
- Quakes convert _____ into _____ in the form of seismic waves
 - Measured with a _____



- **2 categories of seismic waves**

- **Body Waves**

- _____ Earth; 2 types
 - ____-waves: faster, travel in same direction rock moves, s & l
 - ____-waves: slower, travel perpendicular to rock mvmt, s only
 - Wave speed depends on _____, _____, and _____ of rock
 - ____ T, ____ speed
 - ____ density, ____ speed
 - Waves can be _____ (bent) or _____

- **Surface Waves**

- On crust's _____
 - _____
 - Move ____ & ____ OR side-side
 - Cause most _____

- Earthquakes DO NOT _____ people! _____ Do!

- **How to locate?**

- Use _____ times of s & p waves
 - Greater difference = quake is _____
 - Need ____ stations

●

●

●

- **Measuring Earthquakes: 3 methods**

1. _____ Scale
 - a. Ranks on a scale ____ - ____
 - b. Based on _____ of seismic waves
 - c. Every step up the scale increases the strength by ____x

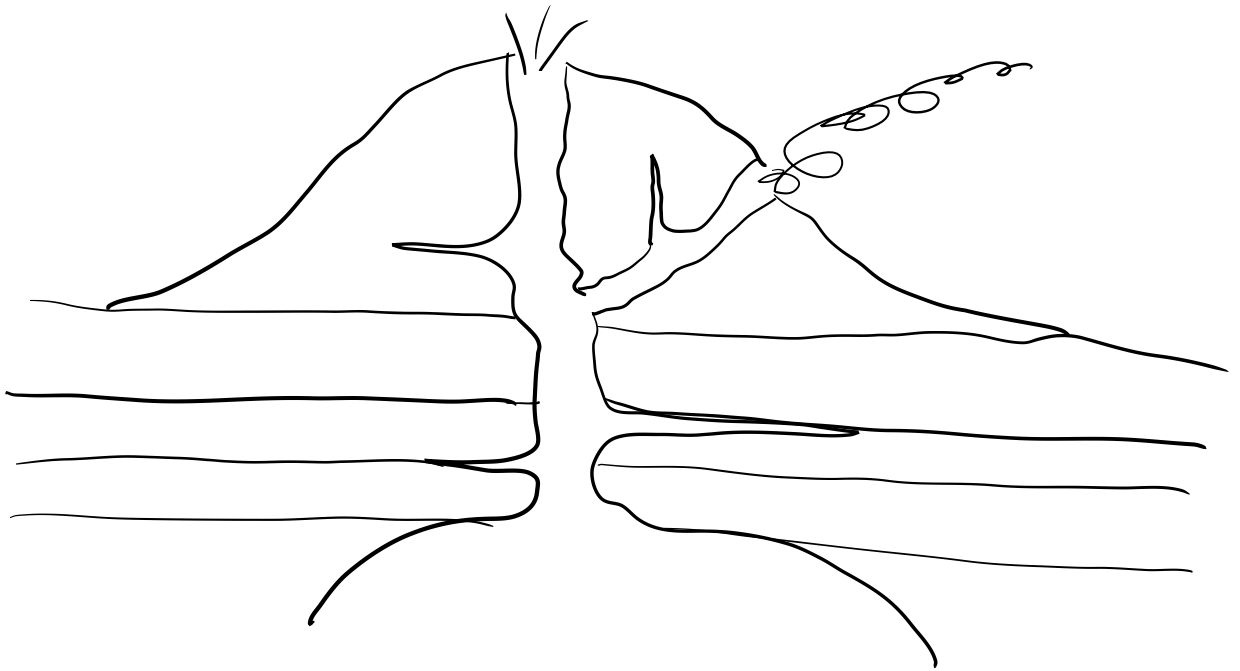
Example:

2. Moment - _____ Scale
 - a. Measures _____ E released
 - b. Similar to Richter scale
 - c. Scale ____ to ____

3. Modified _____ Scale
 - a. _____ categories
 - b. Rank by _____

12.2: Volcanoes

- a _____ through which molten rock & gases reach the surface
 - _____: molten rock still underground
 - _____: molten rock above ground
- _____ chamber: an area where magma is stored underground
- **Volcano Anatomy**



- **Volcano features: Post-eruption**
 - _____: formed from volcano collapsing, bowl-shaped
 - _____ dome: mound in a caldera that forms if magma returns up conduit
 - _____ **lake**: forms when pool lava in caldera and cools
- **Life of a Volcano**
 - _____ volcano: erupting, or recently erupted
 - _____ volcano: hasn't erupted lately, but may still erupt
 - _____ volcano: no longer can erupt, in process of eroding

- **How to Melt Rock?**

- Need to lower melting T (NOT hot enough in mantle to melt rock)
 - ____ P, ____ melting point
 - ____ water, ____ melting point

- **Magma Types**

- Type/shape of volcano depends on _____ type
 - **Silica**
 - ____-Si: runny, may form basalt
 - ____-Si: thick & sticky, more viscous; forms andesitic (andesite) & rhyolitic (granite) magmas
 - **Dissolved Gas**
 - ____ gas: not many bubbles, quiet eruptions
 - ____ gas: lots of bubbles, more explosive eruptions

- **Volcanoes- low Si**

- _____ volcano: flat, wide, low gas
 - *Example:*
- Fire _____: high gas, like shaking a soda before opening, lava cinders fall to ground
- _____ cones: high gas, produce fire fountains, found at base of other volcanoes & in calderas
 - *Example:*

- **Volcanoes –high Si**

- _____ volcanoes: tall, explosive, typical picturesque volcano, may bulge before an eruption, bulge DOES NOT = eruption
 - _____: volcanic glass, formed from low gas, high Si
 - _____: lots of holes, floats
 - _____: small rock particles, like fine sand, drifts
 - *Example:*

- **Explosive Eruptions**

- _____ flows: destructive, cloud of volcanic material that rushes down side of volcano, fast, HOT!
- **Lava bombs:** large pieces of _____ thrown from a volcano
- _____: volcanic mudflow, happens if snow & ice are on volcano

- **Volcanoes & Plate boundaries**

- *Divergent*

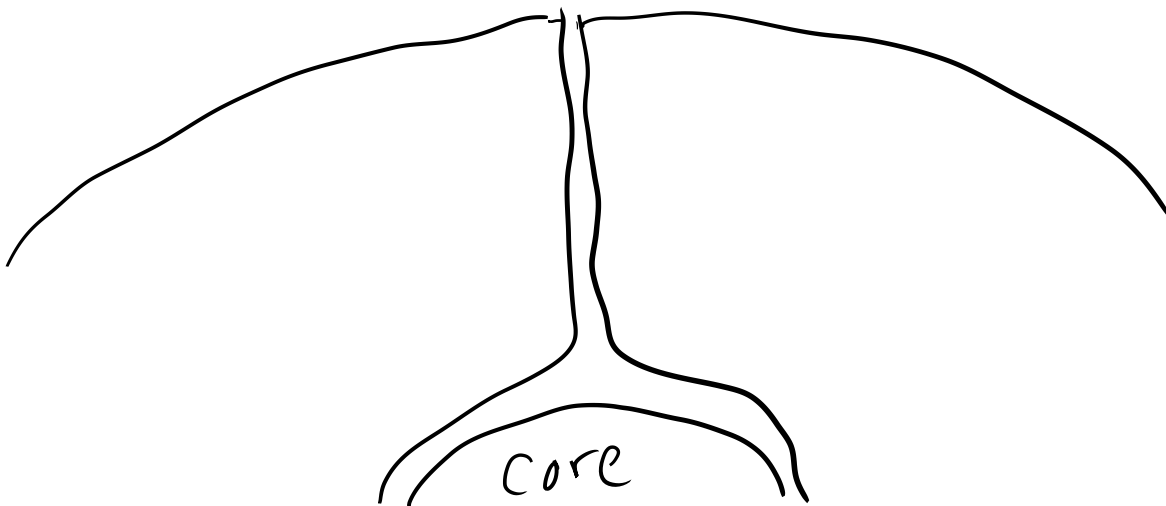
- _____-ocean _____
 - _____ magma
 - _____ lava: forms underwater

- *Convergent*

- _____ zones
 - Ring of Fire: _____ zones, many active volcanoes and earthquakes here, located in _____ ocean
 - Volcanic _____ arc: series of volcanoes, formed at subduction zones
 - _____ & sediments carried downward
 - Si-_____ magma
 - Forms _____, less dense
 - *Example:*

- *Hot spots*

- Top of a _____
 - Volcanic island _____: series of volcanoes formed as plate moves over a hot spot
 - Si-_____ magma
 - *Example:*



- **Measuring Plate Motion**

- Can use the _____, age, & _____ of a volcanic island chain to calculate _____ & movement of a plate
 - New Hawaiian Island! Loihi