Earthquakes

Forces in Earth's Crust:

Stress - A force that acts on rock to change its shape or volume.

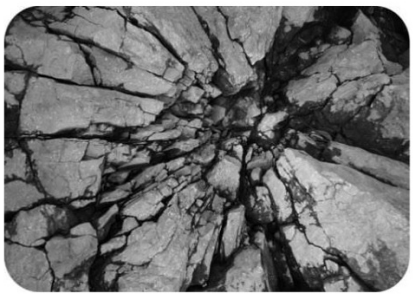
Often expressed as force per unit of area. Stress increases as force increases, stress adds energy to the rock. The energy is stored in the rock until it breaks or changes shape.

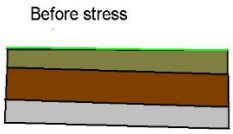
Tension, compression and shearing work over millions of years to change the shape and volume of a rock.

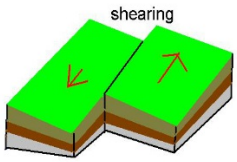
Tension

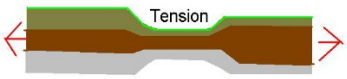
Compression

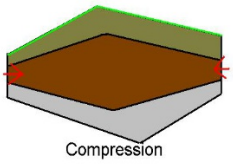
Shearing

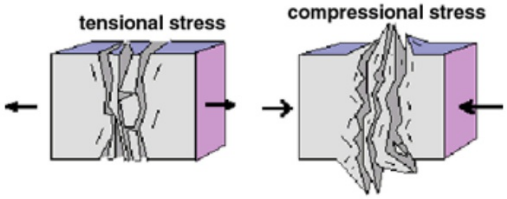


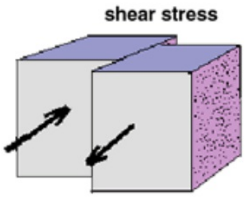








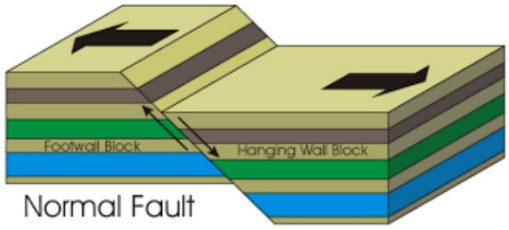




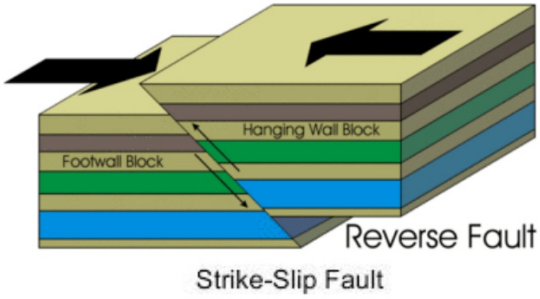
https://www.youtube.com/watch?v=errbXXyeGD4

Fault Formation

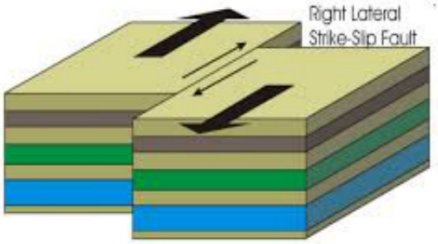
When enough stress builds up in rock, the rock breaks creating a fault.



Normal Faults



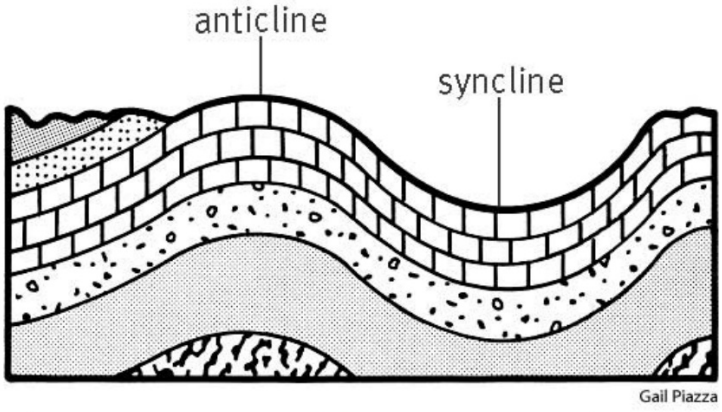
Reverse Faults

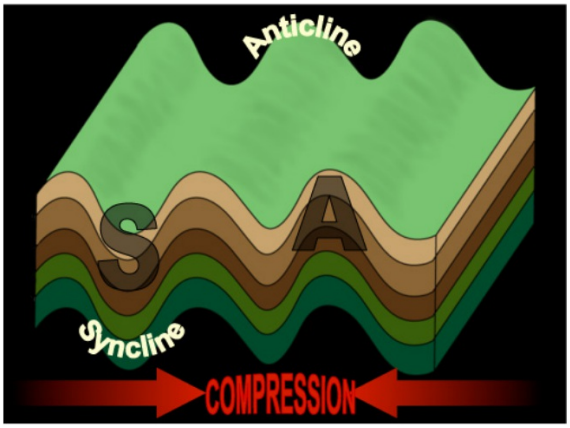


Strike-slip Faults

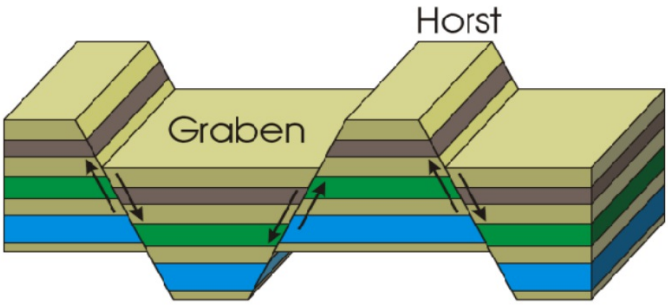
https://www.youtube.com/watch?v=W1FJL2K4Yrc

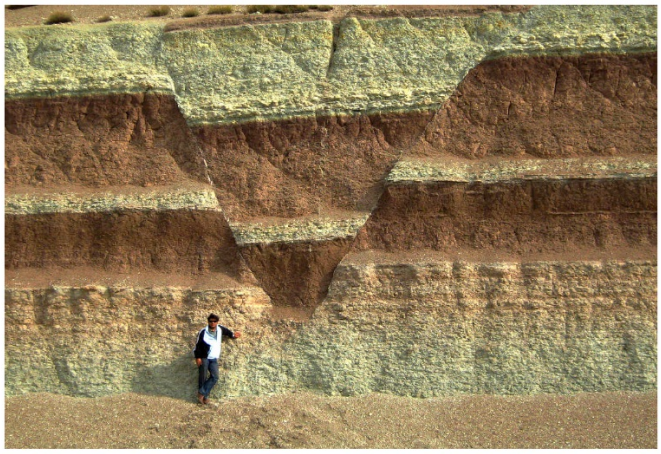
Over long periods of time the forces of plate movement can change a flat plain into features such as anticlines and synclines, fault-block mountains and plateaus.

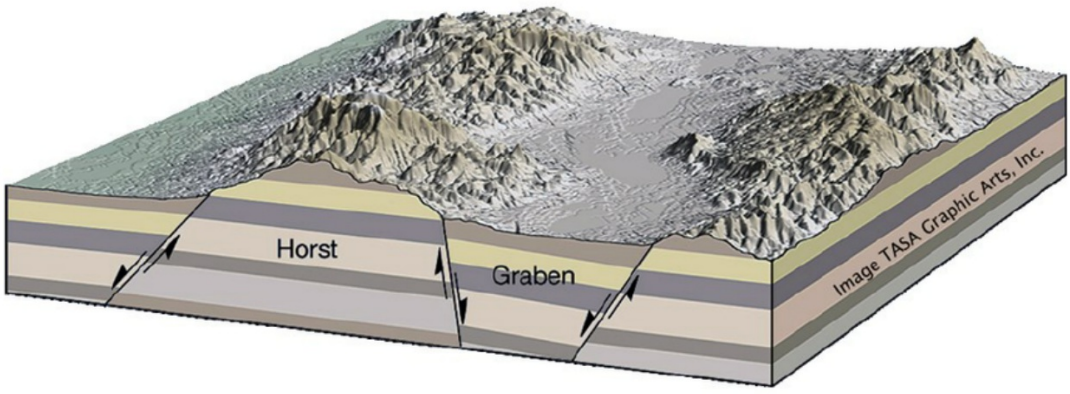




Fault-block Mountains

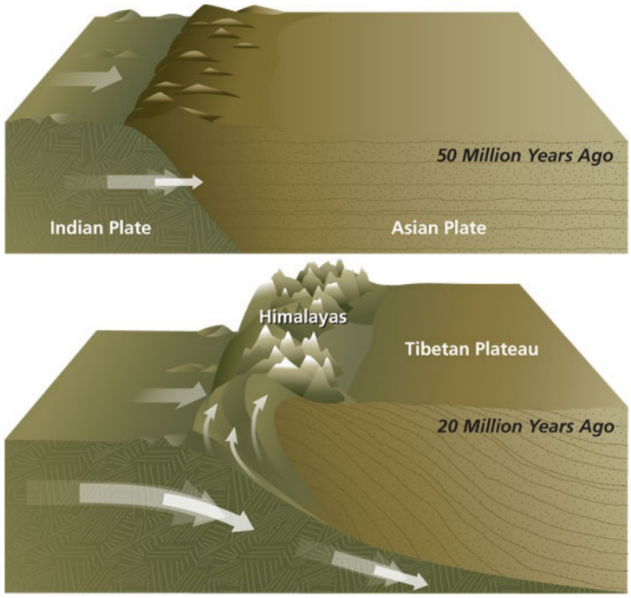






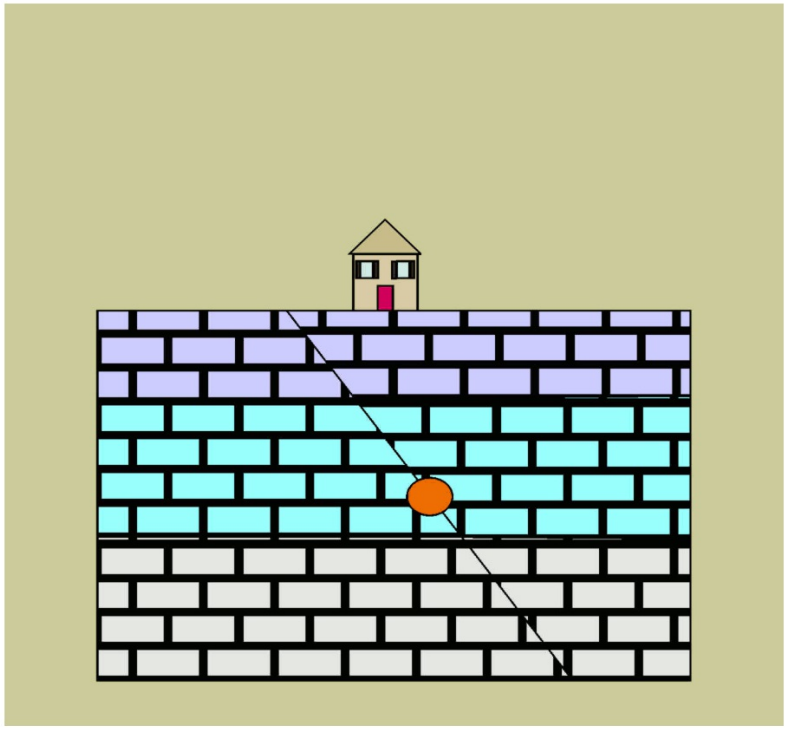
Plateau

Large area of land high above sea level. Formed when earths forces push up a large area.



Earthquakes:

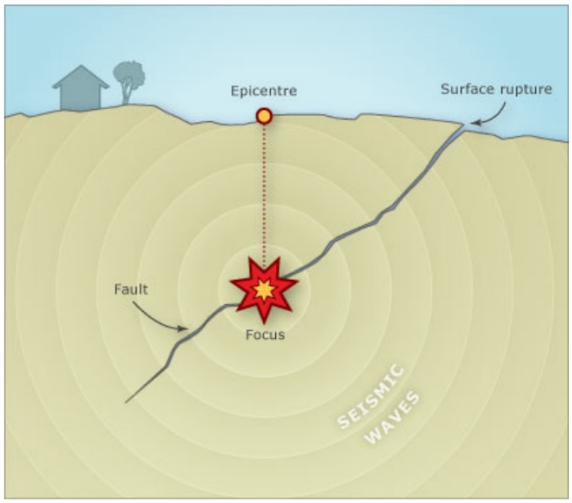
Shaking and trembling that result in movement of rock beneath the earths surface.

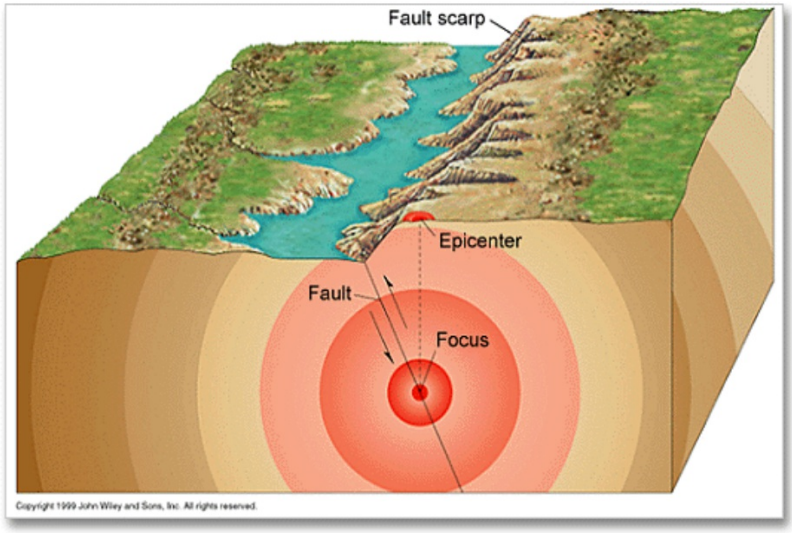


https://www.youtube.com/watch?v=hYGig_-xdPM

Focus

Epicenter



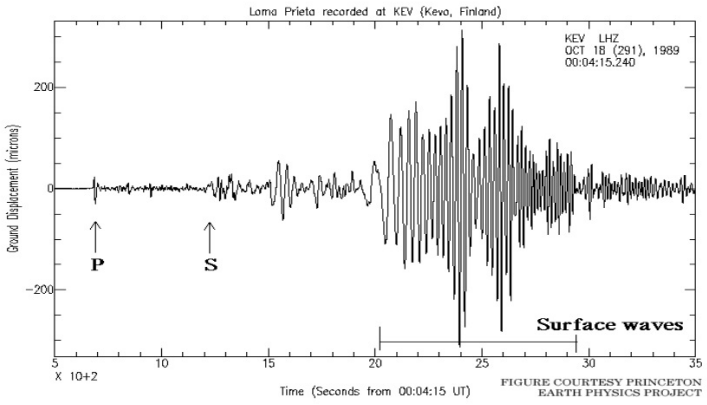


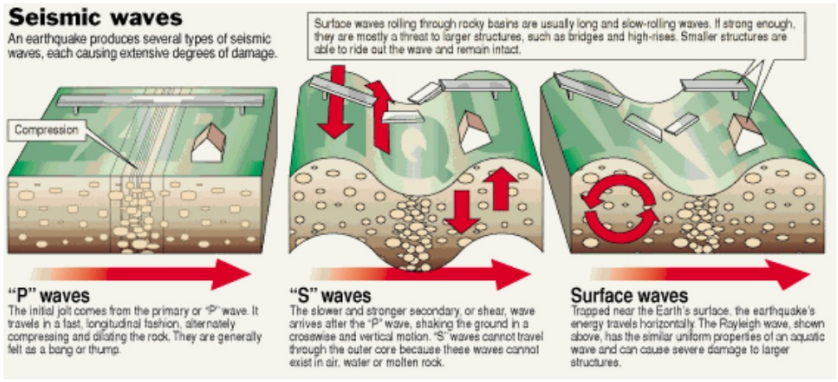
Seismic waves are vibrations similar to sound waves. They travel through the earth carrying energy released by an earthquake.

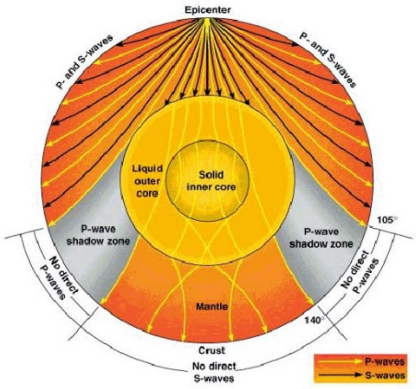
P Waves

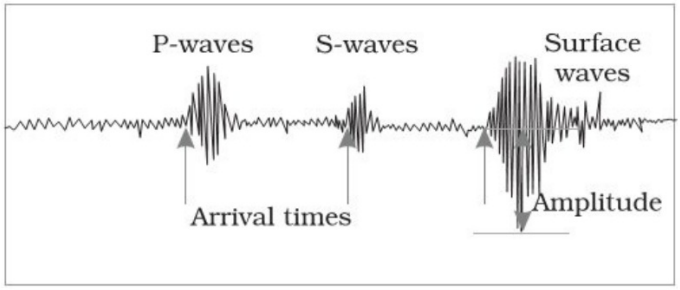
S Waves

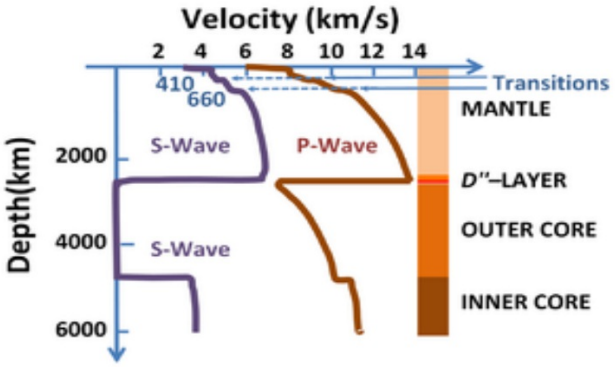
Surface Wave

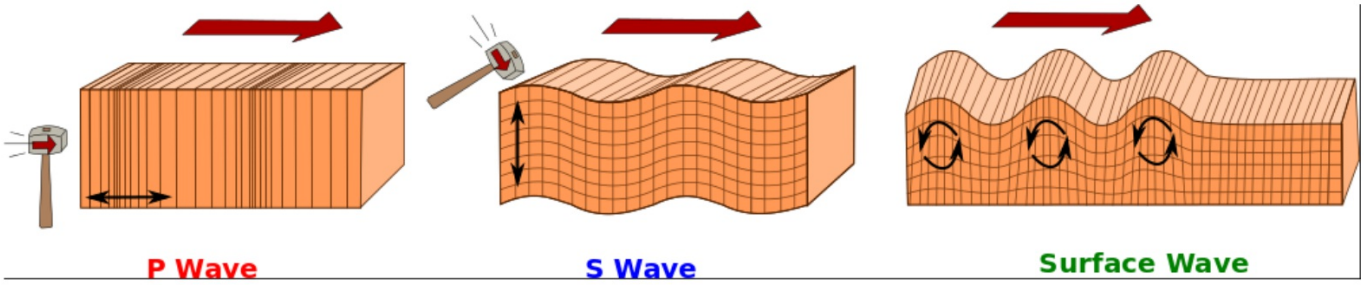












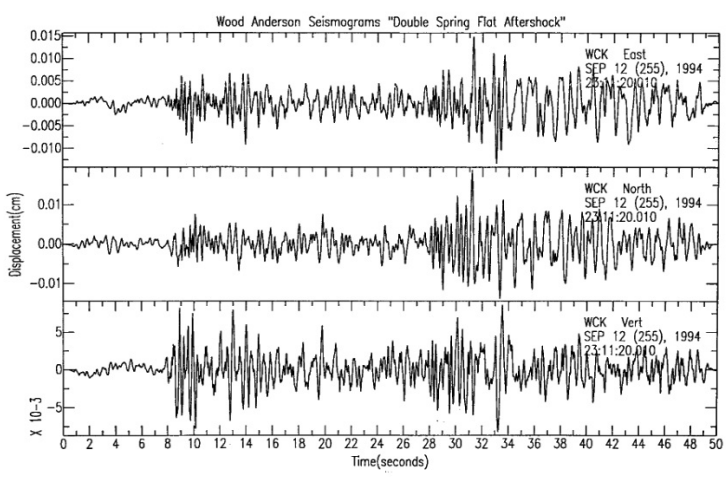
https://www.youtube.com/watch?v=wDfIgoXaXis

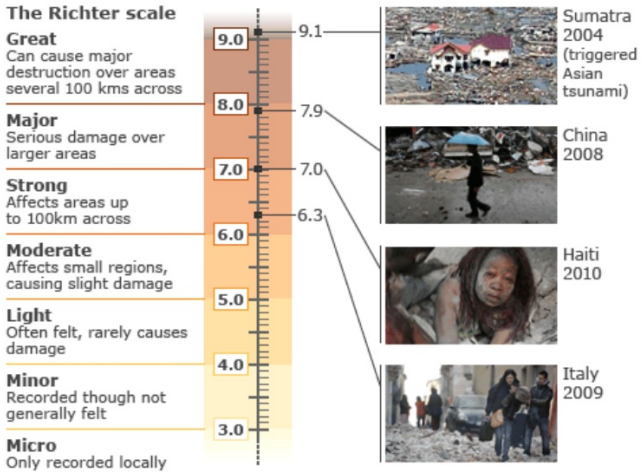
How Are Earthquakes Measured?

Modified Mercalli Scale - Amount of damage or shaking that is felt.

Richter Scale - The size (magnitude) of an earthquake measured on a seismograph.

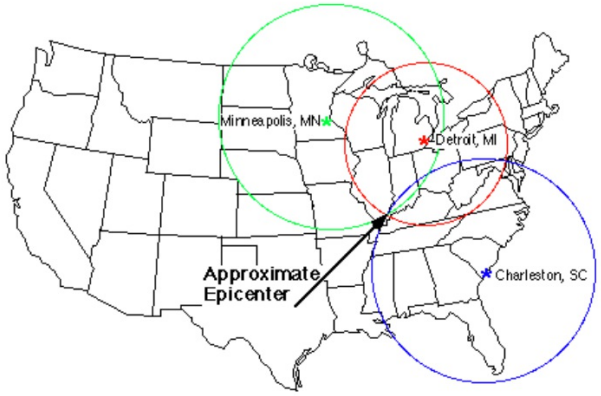
Moment Magnitude Scale - Rates the total energy an earthquake releases.

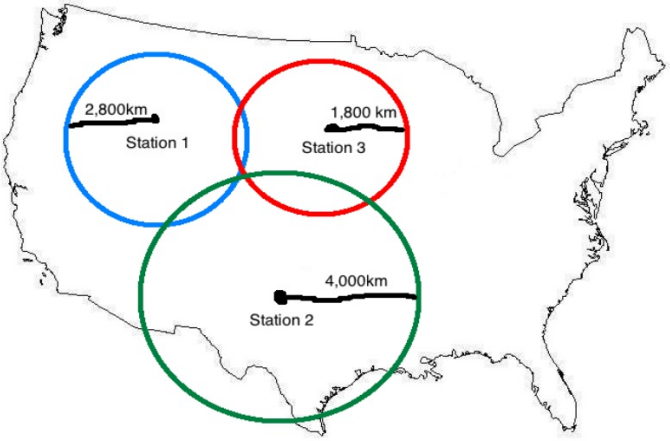


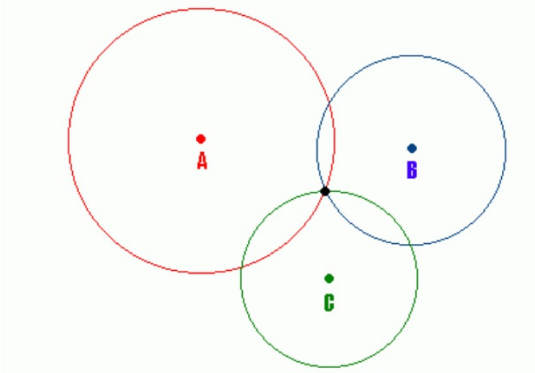


Locating an Epicenter

Geologists use seismic waves to locate an earthquakes epicenter.

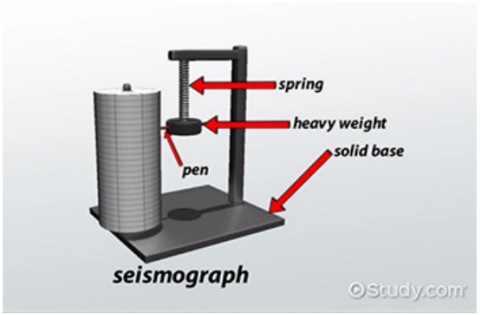


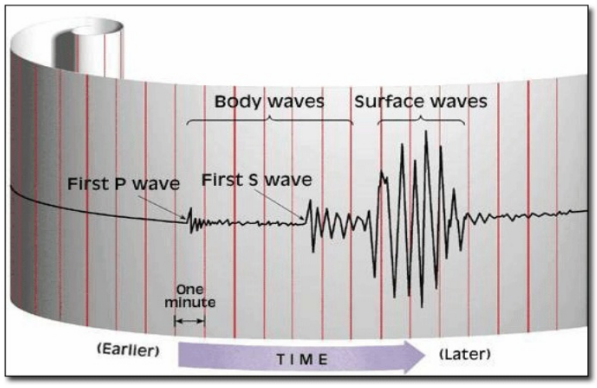


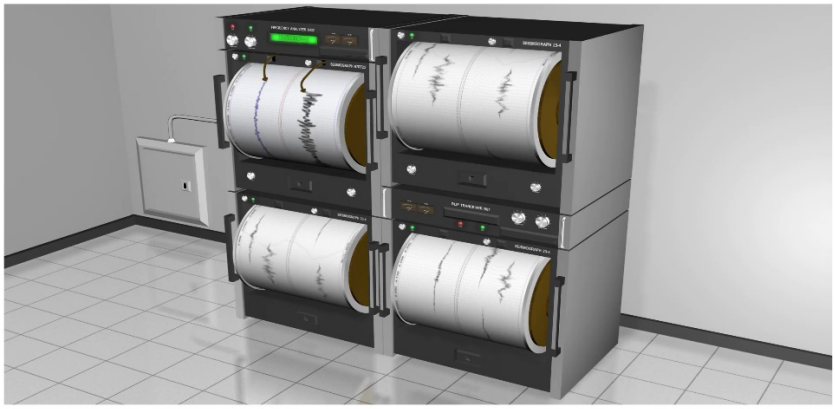


Earthquake epicenter requires at least 3 recording stations to localize.

How Seismographs Work







https://www.youtube.com/watch?v=Gbd1FcuLJLQ

https://www.youtube.com/watch?v=Nl8v1iSRtxA

Earthquake Risk Around the World