

G 457 - April 2, 2010

Earthquakes

What is an Earthquakes – Released energy in the Earth's crust that causes seismic waves.

Elastic Rebound Theory – As rocks deform due to stress, they accumulate energy similar to a rubber band. When the strain becomes too great the rocks rupture and the energy is released all at once as a series of seismic waves.

Earthquake Terms

Seismology – Study of Earthquakes

Focus – Place where Earthquake occurs.

Epicenter – Surface location directly above focus.

Wave – Disturbance of ground, traveling disturbance.

Wave Front – Ripple moving out from focus.

Ray – Perpendicular to wave front, move through earth.

Seismic Wave – A disturbance of the earth.

Body Wave – Travel through the Earth's interior.

- **(P)rimary Wave** – Compressional Wave
- **(S)econdary Wave** – Shear Wave, does not enter core.

Surface Waves

- **(L)ove Wave** – Rare, very damaging, rapidly disperses, and shearing motion.
- **(R)ayleigh Wave** – Circular oscillation (similar to ocean waves) no deformation below $\frac{1}{2}$ wavelength.

Comparative velocity of Waves

- **Fastest:** P – S – Surface – Slowest

Waves can interact, increase intensity, decrease, or cancel movement.