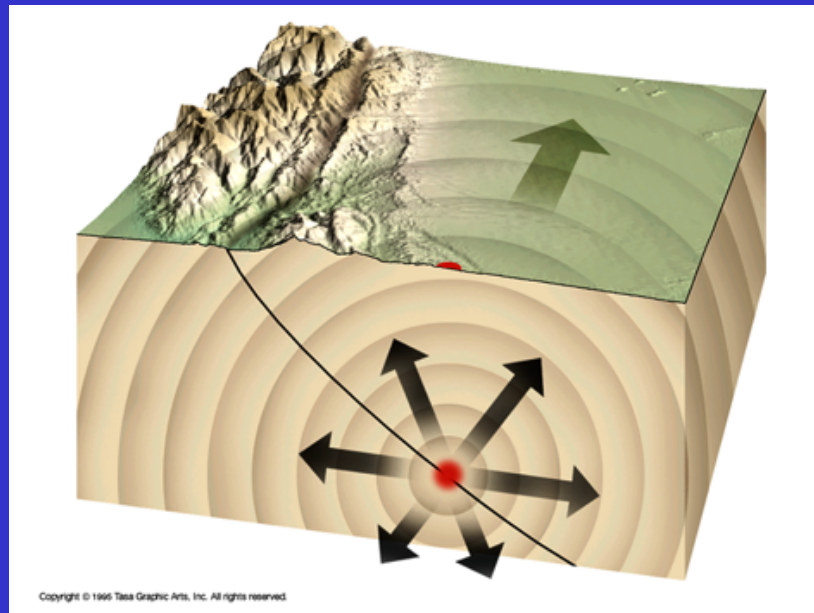


Earthquakes

CGC1D1 - Mr. Wittmann

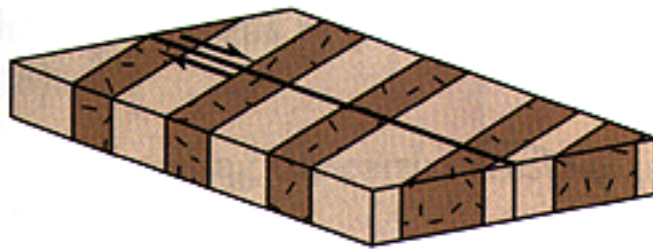


- Earthquakes are the shaking or vibration of the ground as a result of rock suddenly breaking along a fault.
- Focus (hypocenter) = rupture point
- Epicenter = point on surface above the focus
- Foreshocks
- Aftershocks




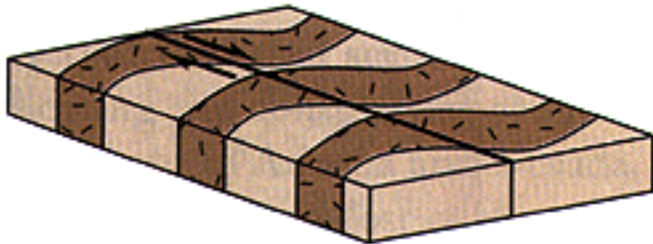
The Earthquake Cycle

- Elastic Rebound Theory
- Earthquakes are a ‘release of energy’ in the form of seismic waves (vibrations in crust).
 - Plate movement
 - Rocks “locked together” (frictional bond)
 - Strain builds in rocks
 - Rocks bend & rupture/break

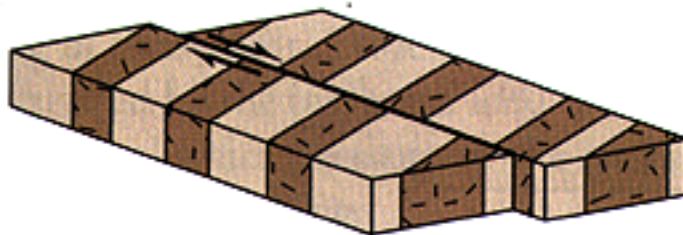


(a) Starting position of no strain and no displacement

 Rock units that cross the fault
Fault showing sense of displacement (in this case horizontal right-lateral strike slip)



(b) Elastic strain accumulates (rocks bend)



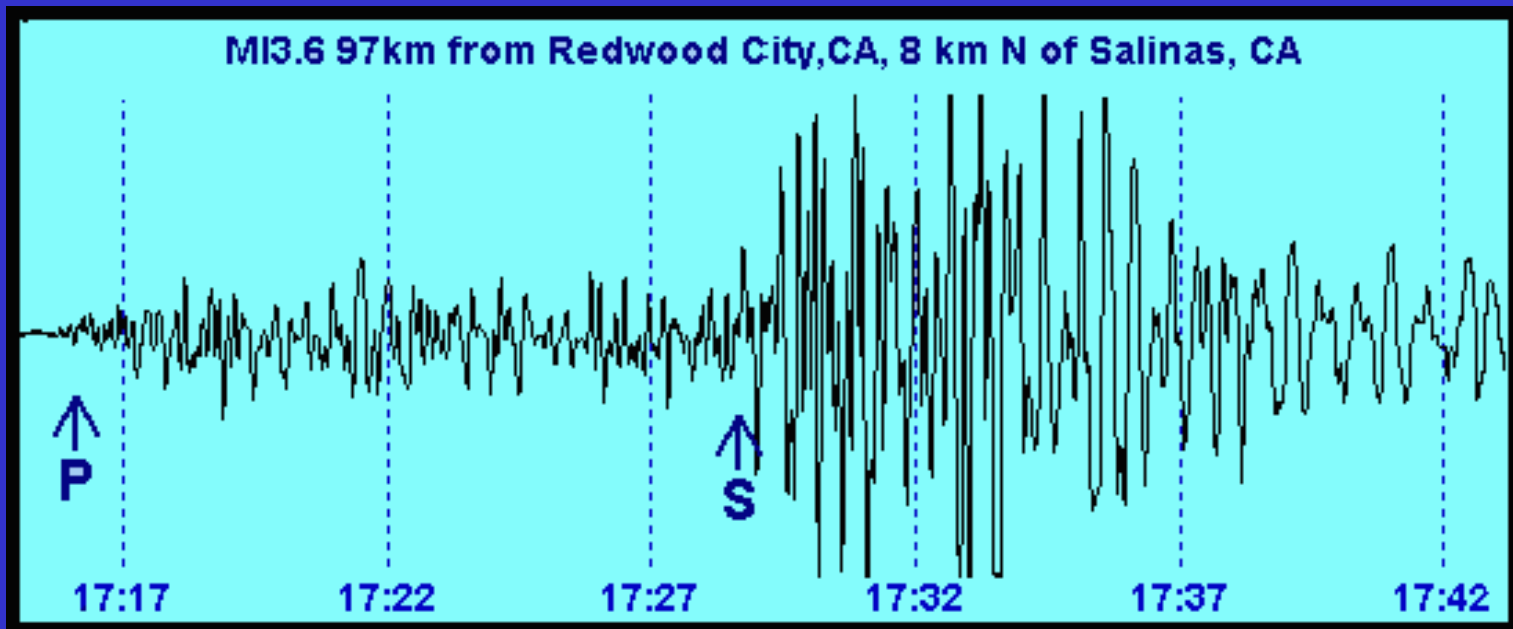
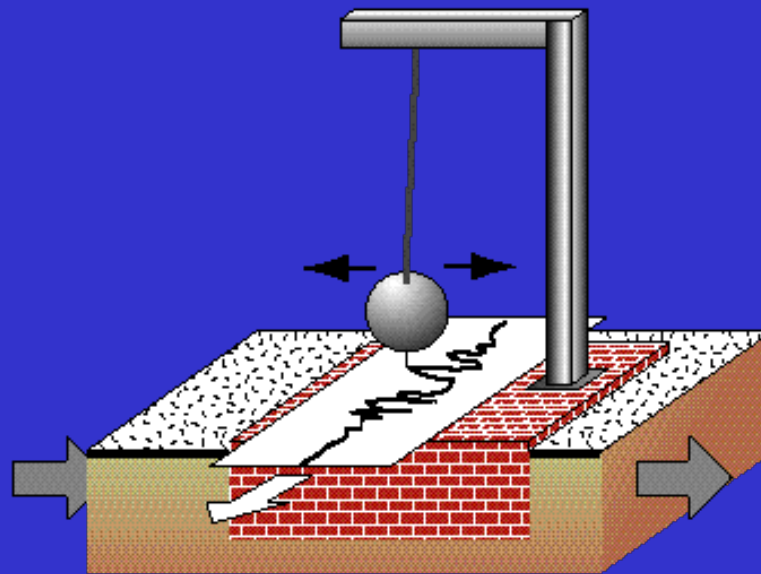
(c) Rupture (earthquake) occurs and rocks rebound. Elastic strain (bending) is released and is replaced by horizontal displacement.

Seismic Waves

- Some of the waves that are generated by an earthquake travel within the earth and others travel along the surface.
 1. **Body waves**
 - traveling within the earth
 2. **Surface waves**
 - traveling along the surface
 - cause the most damage to buildings during an earthquake.

Surface Waves

- Surface waves can set up **liquefaction** in **alluvium**.
- This is where the most extensive damage to buildings occurs.
 - **Liquefaction:** wavelike, almost liquid, rolling of surface
 - **Alluvium:** fine material deposited by water over many years.
- Seismograph: records the vibrations of the crust (Richter Scale)





San Francisco Aftermath, 1906 Magnitude: 7.9



San Francisco Aftermath, 1906 Magnitude: 7.9

THE END