Seismic Waves

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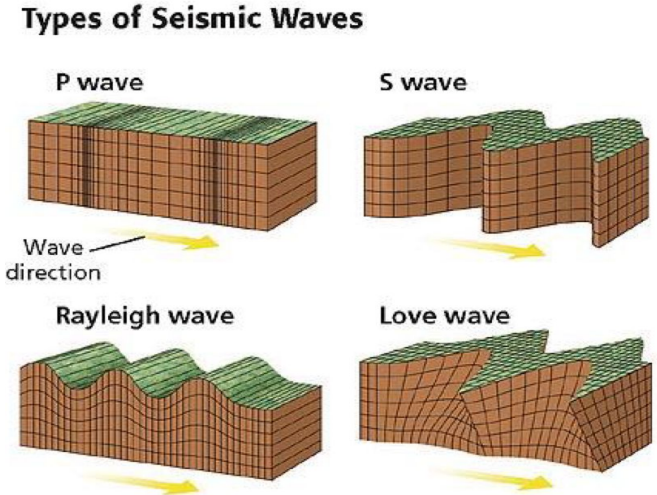
What Are Seismic Waves?

Seismic waves are energy caused by an explosion / sudden breaking of rock. This energy travels through parts of the earth creating an Earthquake. All the data from the wave is recorded on a machine called a seismograph.

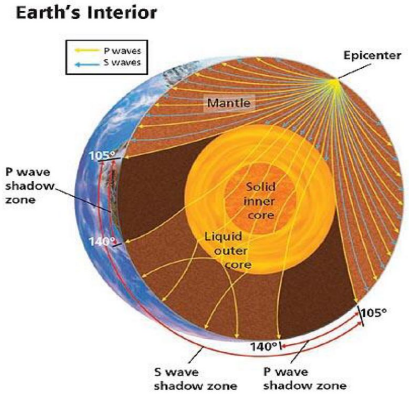


(Bryan Lanahan)

Parts Of A Seismic Wave

Earthquakes radiate seismic energy as both body and surface waves. Traveling through the interior of the earth, body waves arrive before the surface waves emitted by an earthquake. These waves are of a higher frequency than surface waves. The first kind of body wave is the P wave or primary wave.

Earthquakes are created by seismic energy. Body and surface waves are also created by this energy. Surface waves travel through the interior of Earth. Body waves have the highest frequency.

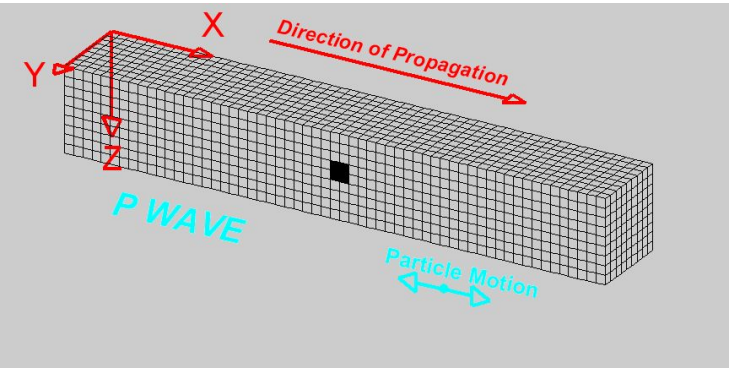


(Bryan Lanahan)

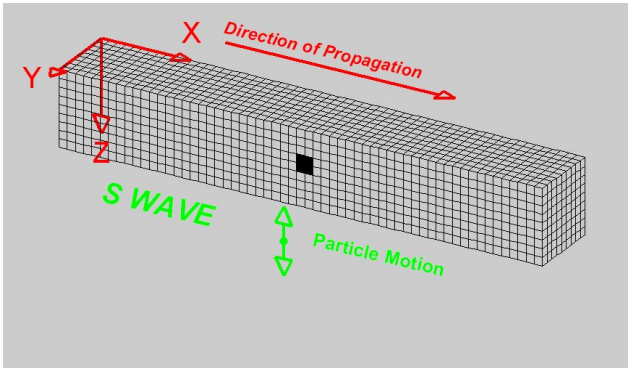
Primary and Secondary Waves (Body Waves)

Primary Waves - Primary Waves, or P waves for short, are faster than Secondary waves, so they are detected first. They can move through both solids and liquids, meaning that it can travel through both the liquid outer core, and the solid inner core and the solid mantle.

Secondary Waves - Secondary waves, or S waves for short, are the second wave to be felt or detected. It travels slower than Primary waves, and it can only travel through Solid rock, making it unable to travel through the liquid outer core. S waves are stronger than P waves, and they cause the most damage during an earthquake.



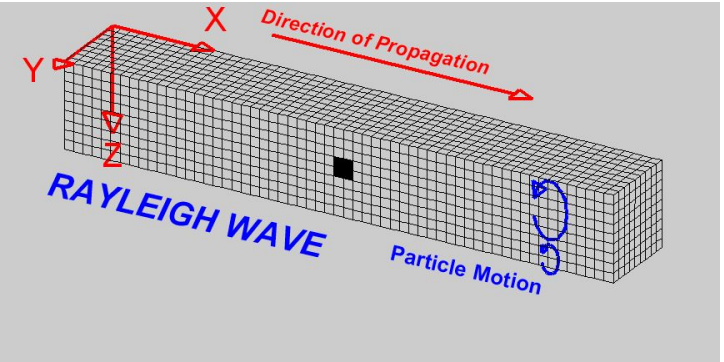
(Dominic Mruzek)



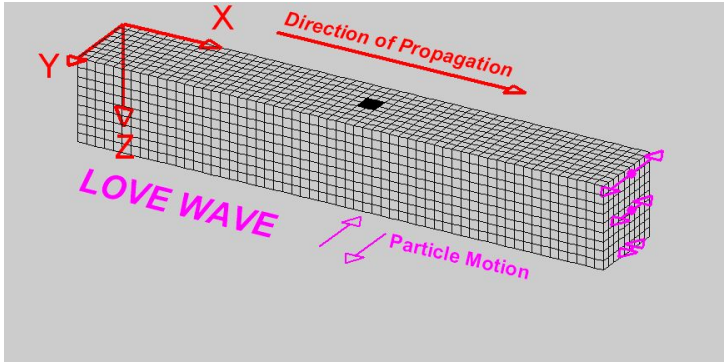
Rayleigh and Love Waves (Surface Waves)

Rayleigh Waves - It rolls along the ground and it moves the ground up and down, and side-to-side in the same direction that the wave is moving

Love Waves - It is the fastest surface wave and moves the ground side-to-side



(Dillon Klee)



The Other Forms of Waves in Science

There are three main categories of waves, there are longitudinal waves, sound waves, and transverse waves. Longitudinal waves are a movement of particles parallel to the motion of the energy. The second type of wave is a transverse wave, the movement of the particles are at right angles (perpendicular) to the motion of the energy. The third type of wave is a surface wave, where particles travel in a circular motion, these waves occur at interfaces. Waves that we encounter in our daily life are sound waves, visible light waves, microwaves, stadium waves, earthquake waves, sine waves and cosine waves.

http://scienceprimer.com/embed/waveType.min.html

(John Palermo)

Links for Additional Information

https://www.toppr.com/guides/physics/waves/types-of-waves/
https://www.acs.psu.edu/drussell/demos/waves/wavemotion.html

http://scienceprimer.com/embed/waveType.min.html