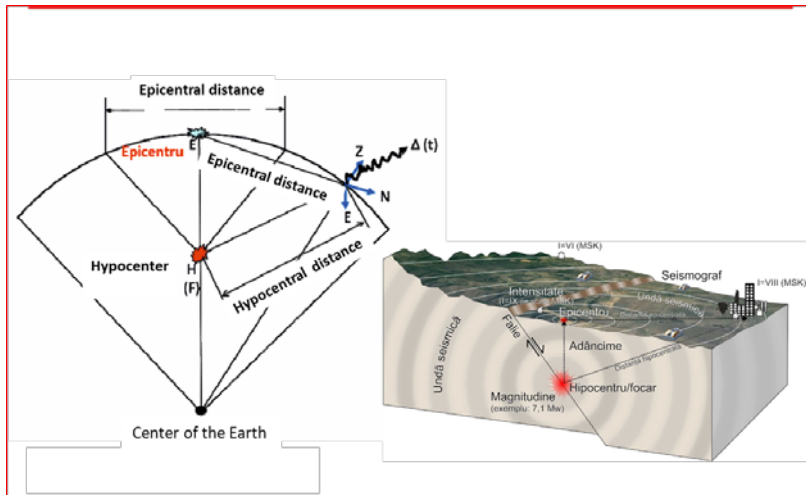


WORKSHEET

Earthquake parameters



Epicenter—the point (map location) on the Earth's surface directly above the **hypocenter**, or **focus** of an earthquake.

Fault—a fracture or zone of fractures in rock along which the two sides have been displaced relative to each other.

Hypocenter— commonly termed the **focus**, this is the point within the earth where an earthquake rupture starts. It is directly below

epicenter generally between 1–50 km depth, but can be as deep as 600km in subduction zones.

Intensity—The intensity is a number (written as a Roman numeral) describing the severity of an earthquake in terms of its effects on the earth's surface and on humans and their structures (i.e., what is experienced).

Magnitude—a number that characterizes the relative size of an earthquake. Magnitude is based on measurement of the maximum motion recorded by a seismograph.

Seismogram—the real-time record of earthquake ground motion recorded by a seismograph. Seismograms are the records (paper copy or computer image) used to calculate the location and magnitude of an earthquake..

Seismograph—an instrument that records vibrations of the Earth, especially earthquakes. Seismograph generally refers to the seismometer plus a recording device as a single unit.

Seismic Wave—an elastic wave generated by an impulse such as an earthquake or an explosion. Seismic waves may travel either through the earth's interior (P and S waves; the fastest waves) or along or near the earth's surface (Rayleigh and Love waves). Seismic waves travel at speeds of several kilometers per second.

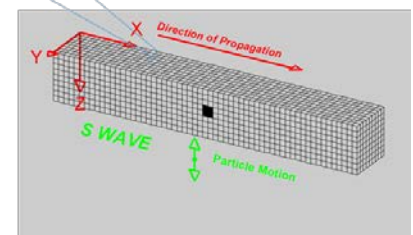
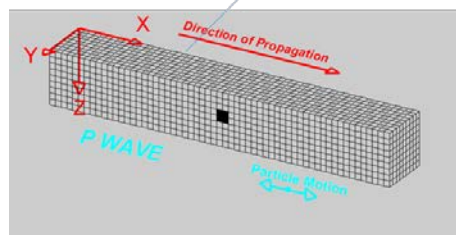
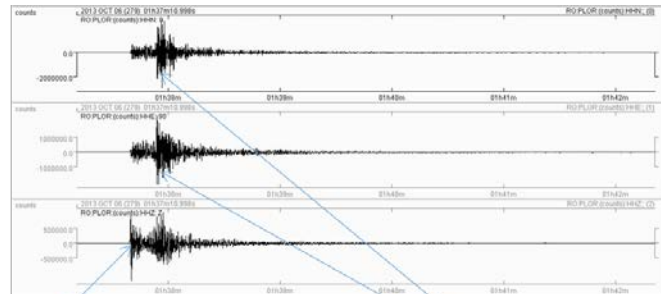
Seismic waves travel throughout the Earth.

The seismic waves generated by an earthquake can be recorded and measured on a seismograph. The record produced by a seismograph is called a seismogram.

There are many different types of waves that can be distinguished. There are two major types P and S waves.

The first type are called **P-waves** or primary waves, because they are the fastest type of seismic wave and are the first waves that a seismogram records.

The second major type of seismic wave is called an S-wave. **S-waves** are shear waves. S-waves are slower than P-waves. The particle motion in shear waves is perpendicular to the direction of the wave.



CLASSROOM ACTIVITY: You can get students to “make waves” in your class. It is even possible to demonstrate that P waves move faster than S waves by having students model P-wave and S-wave motions like a “wave” going around a stadium at a sporting event. A description of this activity can be found John Lahr’s web sit. URL:

http://www.jclahr.com/science/earth_science/human_waves/

For the S wave, linking arms or arms over the shoulder enables adjacent “molecules” to shear down in response to the movement of its neighbor.

The S wave through water has students stand side by side as in the P wave demonstration. Here the first student bows over, but because (s)he doesn’t bump the next student the wave dies instantly. It is the S wave that showed seismologists the out core of the Earth is a liquid.