

Locating the Epicenter of an Earthquake

Key Ideas

1. _____-waves travel faster than _____-waves.
2. The difference in time (i.e. _____) between the _____ and the _____ may be used to calculate the distance between the _____ and the _____.
3. Although we now know the distance to the epicenter, we do not know the _____ to the epicenter.
4. To find the actual location of the epicenter we will need at least _____ seismic stations and use a method called _____.

Instructions

1. Determine the lag time between the p-wave and the s-wave from the seismogram.
2. Use the time lag between the p-wave and the s-wave to determine the distance between the epicenter and the seismic station.

Method A: Distance = (Time Lag/5 sec)(60km)

Method B: P-wave/S-wave graph (see other side)

- Move left to right along the graph until the distance between the p-wave and s-wave lines is equal to the lag time. Once you find this point, draw a line straight down to the x-axis and that is the distance to the epicenter.
3. Repeat for 2 more seismic stations
 4. Triangulate the position of the epicenter by drawing circles around each seismic station with a radius scaled to the distance between the epicenter and the seismic station. The epicenter is located where all 3 circles converge.
 5. More than 3 seismic stations may be used for greater precision.

