

Activity: Locating an Earthquake Epicenter

Background: On October 17, 1989 at 5:04 P.M., a major earthquake struck the San Francisco Bay area. The earthquake was nicknamed the World Series Earthquake because it occurred just before a World Series baseball game was scheduled to begin in Candlestick Park (officially called the Loma Prieta earthquake though). Millions of people witnessed the motion of the earthquake on television. Sixty-seven people lost their lives, and property damage was estimated at \$6 billion.

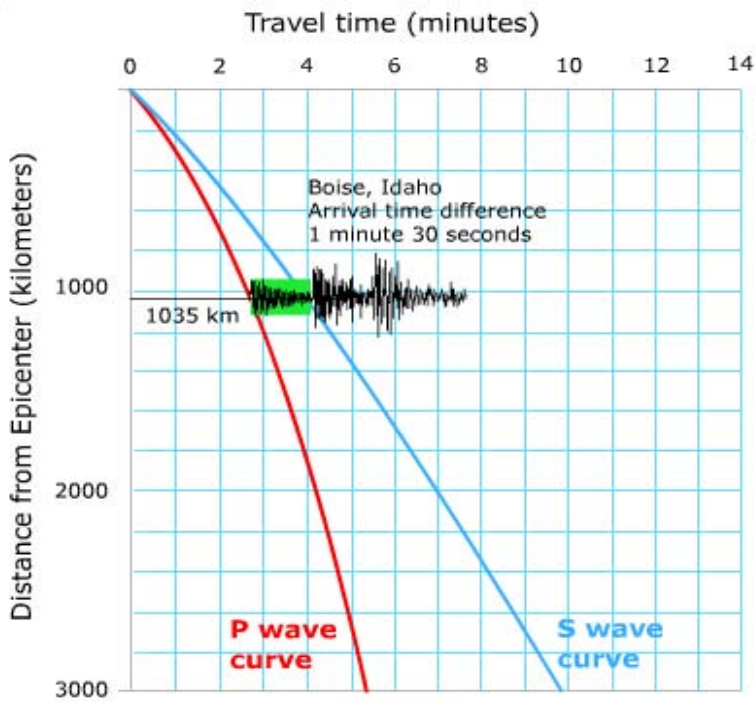


Damage from the earthquake was widespread, but the actual location of the earthquake (the epicenter) was reported almost immediately. With damage all around, how could geologists accurately identify the epicenter of the earthquake? In this exercise you will find out!

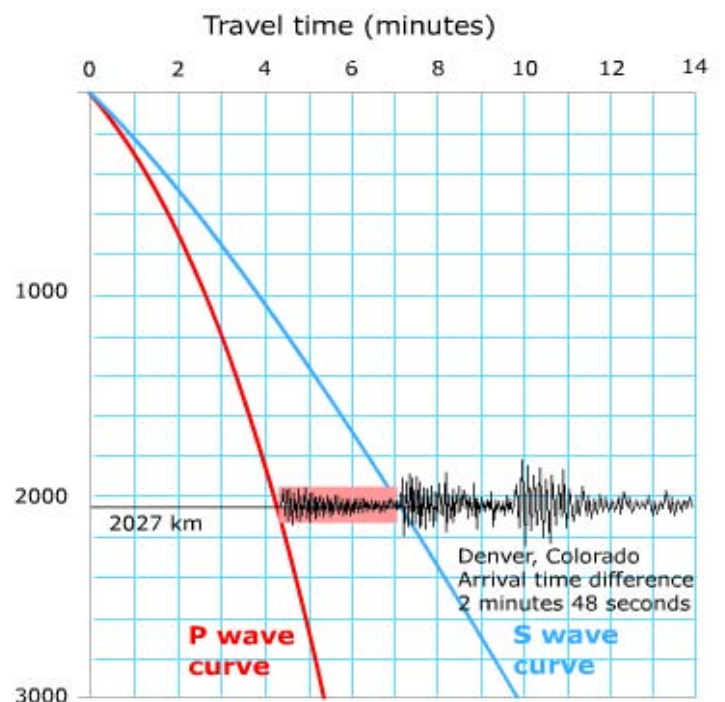
- #1. P and S waves generated by the World Series Earthquake traveled away from the epicenter and were recorded at the three locations on the map below.



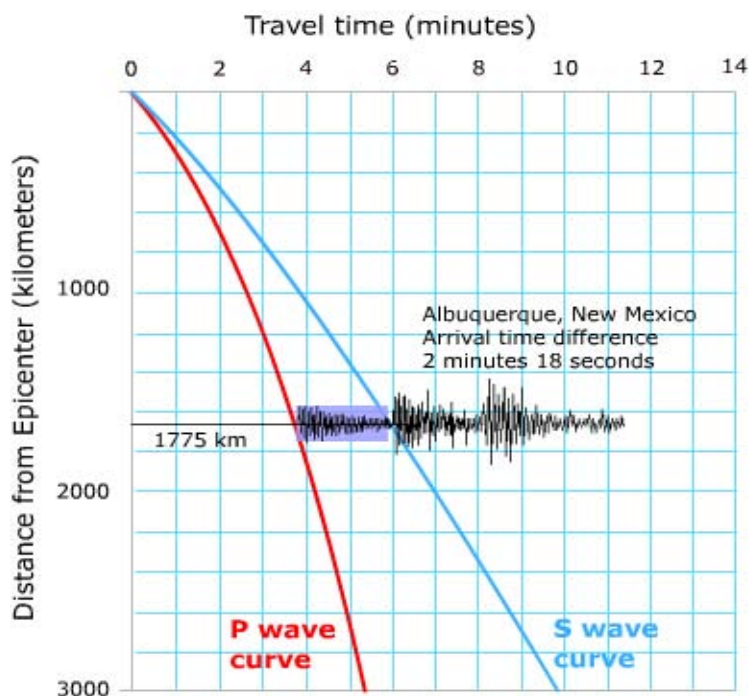
#2. Three seismograms and travel-time curves from each of the stations are shown below. Interpret the seismograms to find the distance from each station to the epicenter. Note, you don't have to do the math to find the distance -- its already give to you!



Distance from the epicenter _____



Distance from the epicenter _____



Distance from the epicenter _____

- #3. Using the known distance to the epicenter from three different locations, draw circles around each of the recording cities with a drawing compass. Each circle should have a radius equal to the epicenter distance that you calculated. The place where the three circles intersect is the epicenter location.

