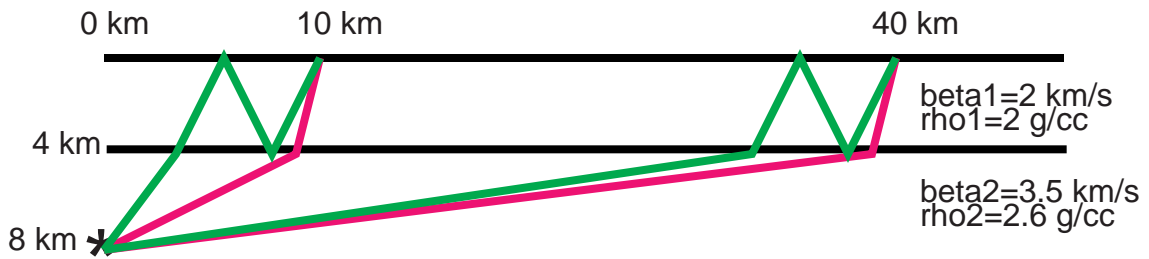


EPS130 Homework 4



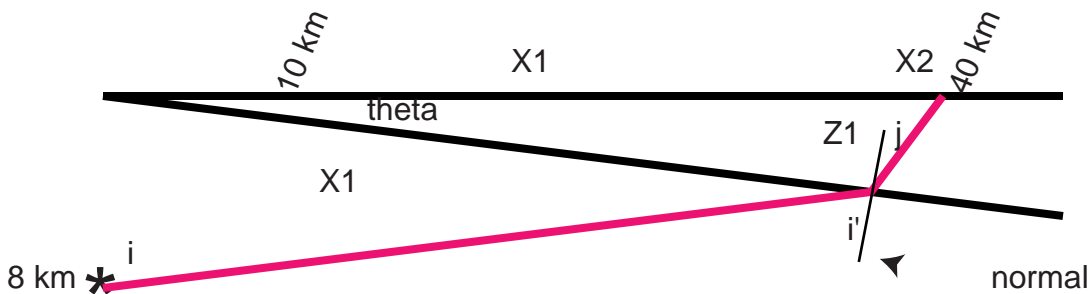
Exercise 1.

Assuming that the amplitude of the SH wave is 1 in every direction that it leaves the source calculate the ray parameter, traveltimes and the amplitude of the direct arrival using the approach described in class for station distances of 10 and 40 km.

Exercise 2.

Again assuming that the multiple S wave (green) leaves the source with unit amplitude calculate the ray parameter, traveltimes and the transmission coefficient (amplitude) for stations at distances of 10 and 40 km.

How would the relative amplitudes (multiple/direct) change if the source depth was changed to 5 km? Provide a brief discussion of the process by which the amplitudes change.



Exercise 3.

The diagram above describes a dipping interface with the same media contrast as in exercises 1 and 2 that is defined by the angle θ . i is the takeoff angle and i' and j are the incident angles measured from the normal to the dipping interface.

Calculate the arrival time and transmission coefficient (amplitude) assuming an initial amplitude of 1, $\theta = 5^\circ$, and compare the result with what was obtained in exercise 1.