Applied Geophysics – GEO 5660/6660
## Lab# 1, January 28th: Picking Seismic Phase Arrival Times;
Using programs *Refract & Reflect*

DUE: 3:00 PM, Tuesday, Feb. 4th, 2020
(Email lab write-ups to rgmcdermott@aggiemail.usu.edu)

1. In seismic refraction studies, we pick the time of first arrival of seismic energy. In the seismogram below, *mark the time of first arrival for each geophone*. Time is on the y/vertical axis and geophone number is on the x/horizontal axis.
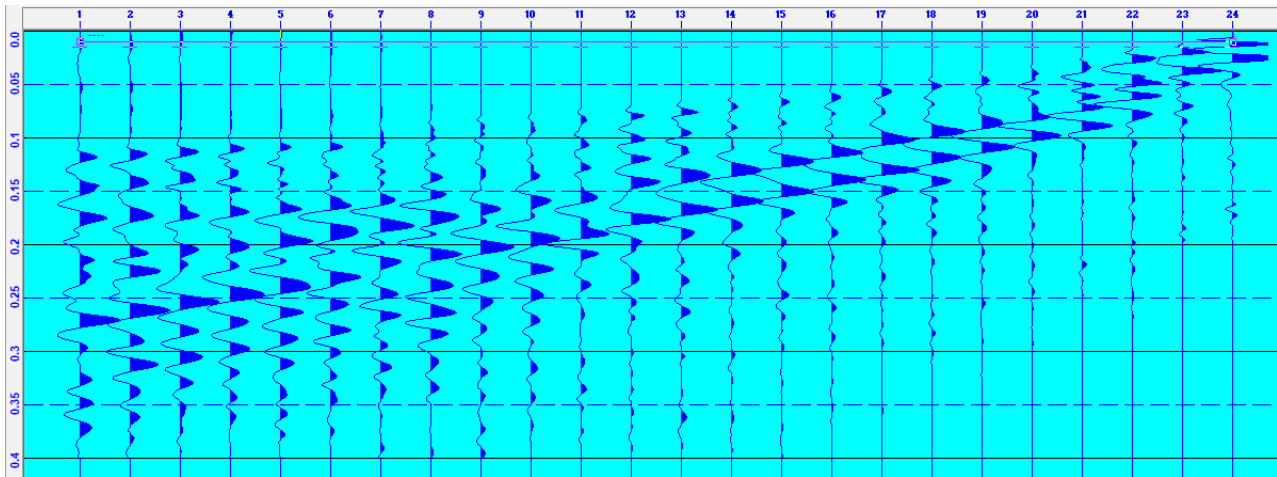
2. Model, using **Refract**, travel time curves for the following scenarios. Use 20 geophones, a 5 m spacing between geophones, and a 5 m shot offset.

      a. a 9.4 m layer (V_2=2 km/s) over an infinite space (V_1=5 km/s)
      b. a 3 m layer (V_3=2 km/s) over a 3 m layer (V_2=1 km/s) over an infinite space (V_1=5 km/s)

3. Write a short paragraph comparing and contrasting the travel times derived from these models. How would you distinguish these two Earth structures based on the predicted data?

4. Model the *same two scenarios as above* with **Reflect** (be sure to check "reflections" at the bottom of the window). What additional information, if any, does this give you (in 2-3 sentences)?

Your reports should include any relevant plots, numerical data (i.e., bottom table in window) and short blurbs (nothing formal) for where you are asked to comment. Submit your assignment as a single document (Word, PDF, etc). *Include your name in the filename.*