

Seismic exercise - Applied Geophysics

Location: Lauswiesen pumping site – Tübingen ([Google Map](#))

*** Please be on time** 🤨

In the field:

The main goal of this exercise is to learn how to map shallow subsurface using refraction seismic. To achieve this goal, we will perform the following tasks:

1. Learning about all the field equipment (especially seismometers)
2. Collecting data with P-wave geophones in different frequencies (1, 10, 40 and 100 Hz)
3. Collecting data with P-wave geophones (short profile)
4. Collecting data with S-wave geophones (short profile)
5. Discussing the concept of refraction seismic, picking and Phantoming
6. You will design a profile to perform refraction seismic to map the subsurface
7. Collecting data

For your report:

What goes into your report? Everything you did 😊.

I recommend:

1. Short introduction
2. Study area (describe the site)
3. Method (refraction seismic)
4. Tools (What kind of equipment did you use and how do they work)
5. Results:
 - Comparing geophones (show the seismogram)
 - Comparing P-wave and S-wave geophones (compare the seismograms)
 - The long profile (this is the most important part)
 - Show the seismograms and how you picked the first arrivals
 - Show the travel time curve in the best way (very important)
 - Interpret the travel time curve
 - Apply phantoming if possible
 - How many layers do you see? (explain)
 - What is the wave velocity in each layer? (explain)
 - What is the thickness of the layers (depth of the boundaries)
 - Do you see the groundwater table?
 - Do you see any dipping layer? How do you know?
6. Discussion (discuss your results)
 - Do not explain/interpret the results in the result section. Do it here.
7. Conclusion

*** Do not limit your report to the structure above.**

Contact me if have any question: mohammadreza.ershadi@uni-tuebingen.de
Reza Ershadi (15.06.2022)