

Soil experiments- Technical report of group B

For the soil experiments, various measures were performed at two transects in the field. The figure below shows which measurements were performed by our group on Tuesday May 16th in the afternoon. During this day, it was dry, the temperature was around 15 degrees Celsius and there was a wind in the downstream direction. The transect with piezometers A and B is located upstream of the dam and the transect with piezometers D is located downstream of the dam.

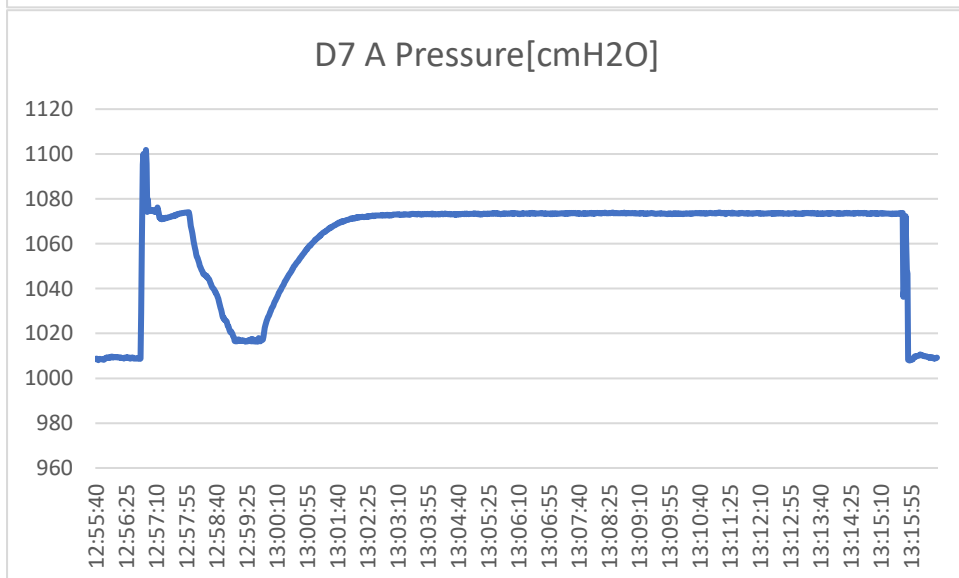
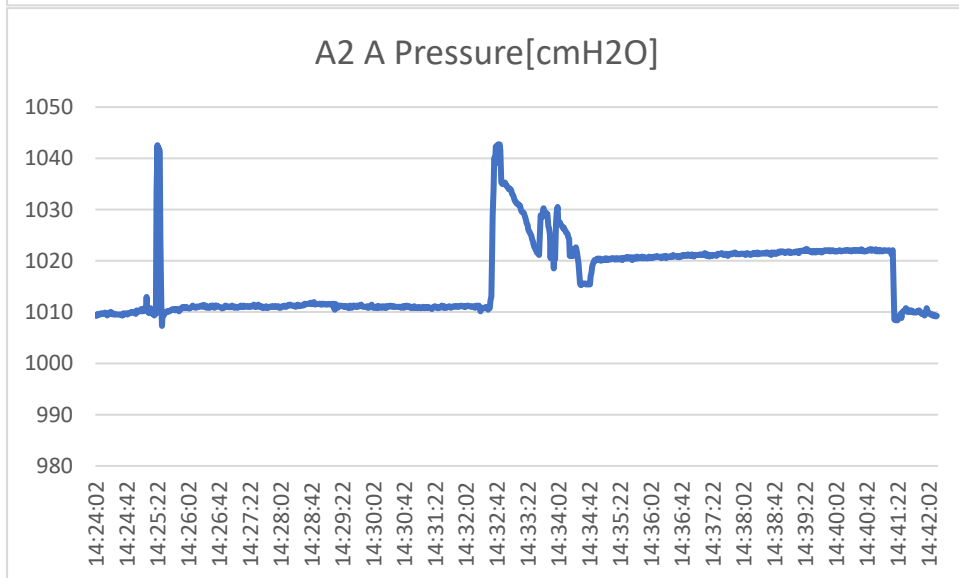
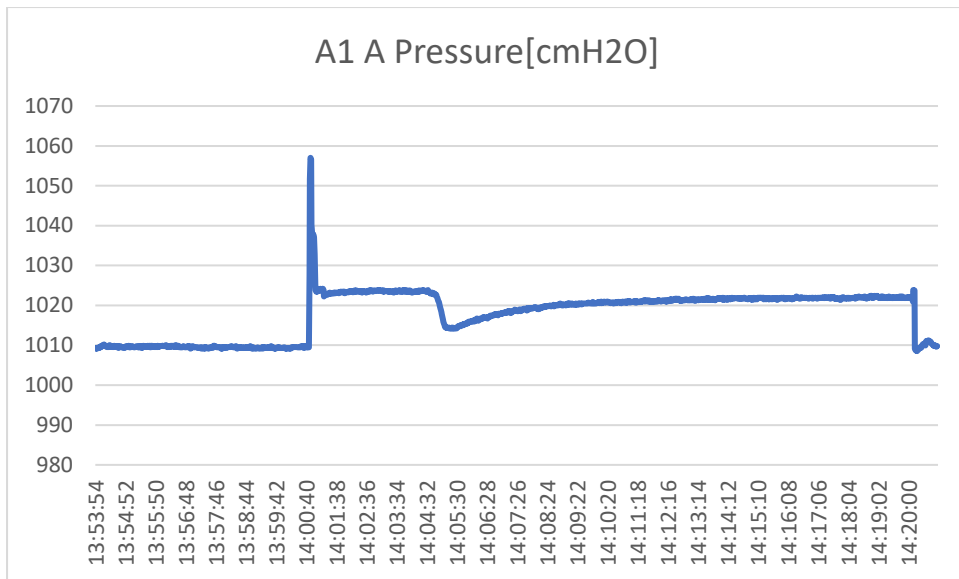
Experiments (figure 1)

- The head was measured in a number of piezometers by writing down the depth at which a measuring tape reached the water table in the tube. We also installed two new piezometer tubes, B1 and B2, at which the group of the next day would be able to measure the head.
- Using a diver, we measured the water pressure in the piezometer tubes over time after pumping out the water, to get an idea of how fast the water exfiltrates. This can help to determine the transmissivity of the soil
- Using the same diver, we measured the water pressure in manually dug holes over time after filling them with water, hence measuring the infiltration over time. This test is called inverse Auger (in figure 1 referred to as 'Reverse Auger') and similarly informs about the soil transmissivity. Table 1 shows some details about these measurements, which were performed once at each transect.

Table 1: details of the inverse Auger tests

Inverse Auger Hole	time	depth (m)	diameter (m)
H1 (D6-D7)	13:00	0.39	0.08
H2(A1-A2)	15:00	0.36	0.08

- Using a soil moisture probe, the percentage of water (soil moisture) was measured around the piezometers that our group installed. This was done three times as indicated in the figure, and the mean value was used
- At these same piezometers, we also collected soil samples (one per tube). This was done by temporarily removing the top layer of the soil, pushing a cannister into the soil, taking it out and then sealing it without compressing it. We have tried to make sure that this sample properly represents the soil in situ.²
- Using a Theodolite, we measured the elevation at different piezometers. This can help to determine the head at each piezometer along the transects with reference to a datum. For the downstream transect, the base of the tripod on which the Theodolite rests was 0.93 m above the bridge. For the upstream transect, there was no clear reference point for the Theodolite so only the relative elevation between piezometers should be used.



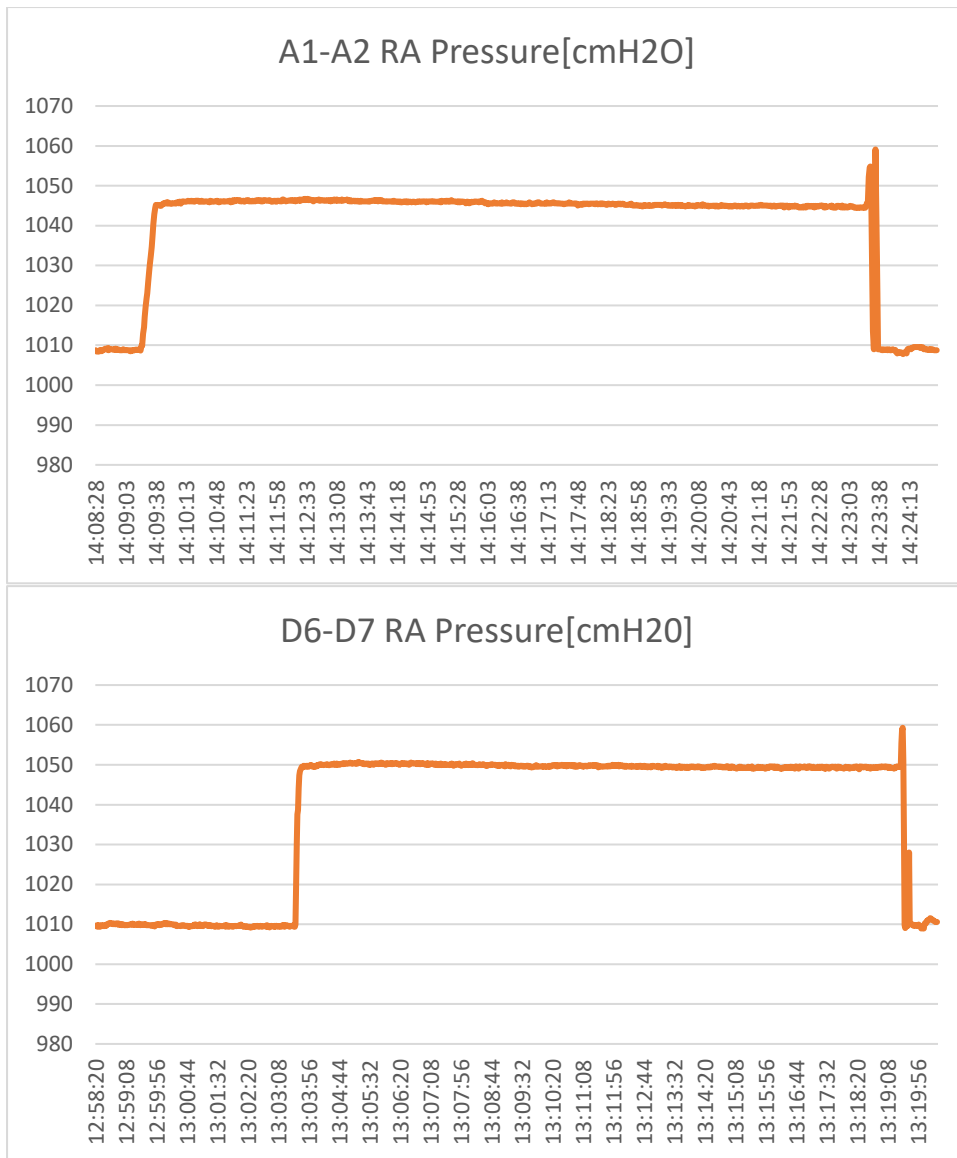


Figure 2 – 6 (from top to bottom): Auger and inverse auger tests. Data retrieved from divers using the appropriate software.

