



M.Sc. Topic

Quantifying the Effects of Climate Change on Drinking Water Quality in Water Supply Pipes

Motivation

Many technological installations in the subsurface are affected by soil temperature: drinking water supply grids, shallow geothermal energy, district heating grids, buried power transmission lines. These are all installed in the first few meters below ground surface and therefore the soil temperature in the vicinity of these installations is strongly governed by the soil surface boundary.

We aim to quantify the influence of various parameters on the water temperature in drinking water supply pipes using field data, numerical models, and statistical methods. For this purpose, we maintain a pilot scale test field that is heavily instrumented and measures temperature and soil moisture finely resolved in space and time. We aim to estimate the temperatures in the water of the pipes given hydrometeorological parameters, soil properties, pipe properties, and the velocity of the water in the pipes.

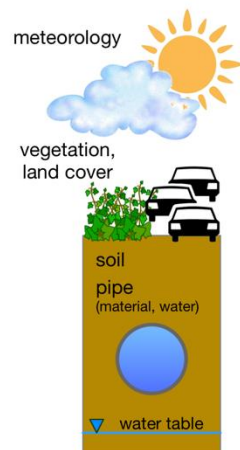


Figure 1: View of our test field with the weather station, from which we use hydro-meteorological data, in the background.



We are urgently looking for a motivated M.Sc. student who is interested in performing experimental work, obtaining field data, and statistical analysis of the obtained data, and is interested in numerical modelling of coupled heat and moisture transport in the shallow subsurface.

Supervision: PD Dr.-Ing. Claus Haslauer

Formulation of Problem/Examiners: PD Dr.-Ing. Claus Haslauer (VEGAS), PD Dr.-Ing. Sergey Olyadishkin (LS3), Dr.-Ing. Esad Osmancevic (RBS Wave)

Starting Date: As soon as possible / to be discussed

We are looking forward to hear from you and would happily discuss details of the project with you. Please contact us if you are interested and would like to know more details!