

ABSTRACT

The main aim of this thesis is to establish a mathematical model of groundwater flow in the Melechov massif. The investigated domain is 1000 meters deep. This objective was solved in at Melechov massif because it was selected by Radioactive Waste Repository Authority (RAWRA) as a test site. Various methods have been tested at this site to assess their fitness to identify a proper place for a repository of high radioactive waste. The ability to evaluate rock characteristics without corrupting the natural settings of geological environment is substantial for testing of these methods.

The numerical model was built and solved in FEFLOW, a groundwater flow modelling software developed by WASY.

A seven-layered stationary model has been developed. The model domain extends over the test site which is essentially necessary to determine the boundary conditions reliably. The model involves all known values of hydraulic parameters and it is set so that the groundwater increment agrees/accords with its real values in accord with known hydraulic parameters.