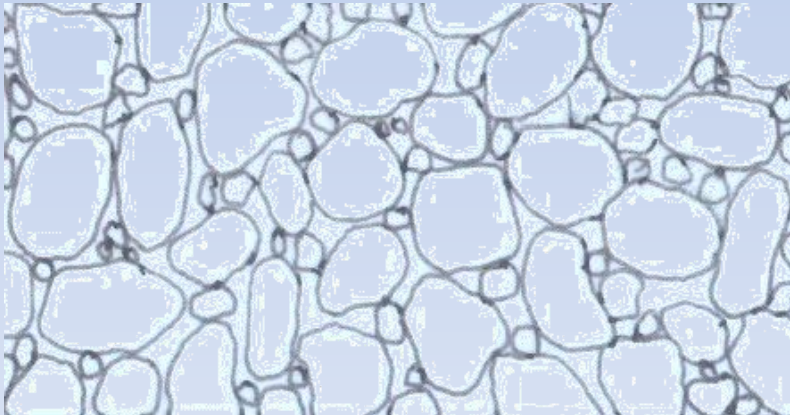


ADVANCED SHALLOW GEOTHERMAL ENERGY PRODUCTION

AN INTRODUCTION TO THE PROJECT GEOTHERMIE - MODELLREGION FÜRSTENFELD



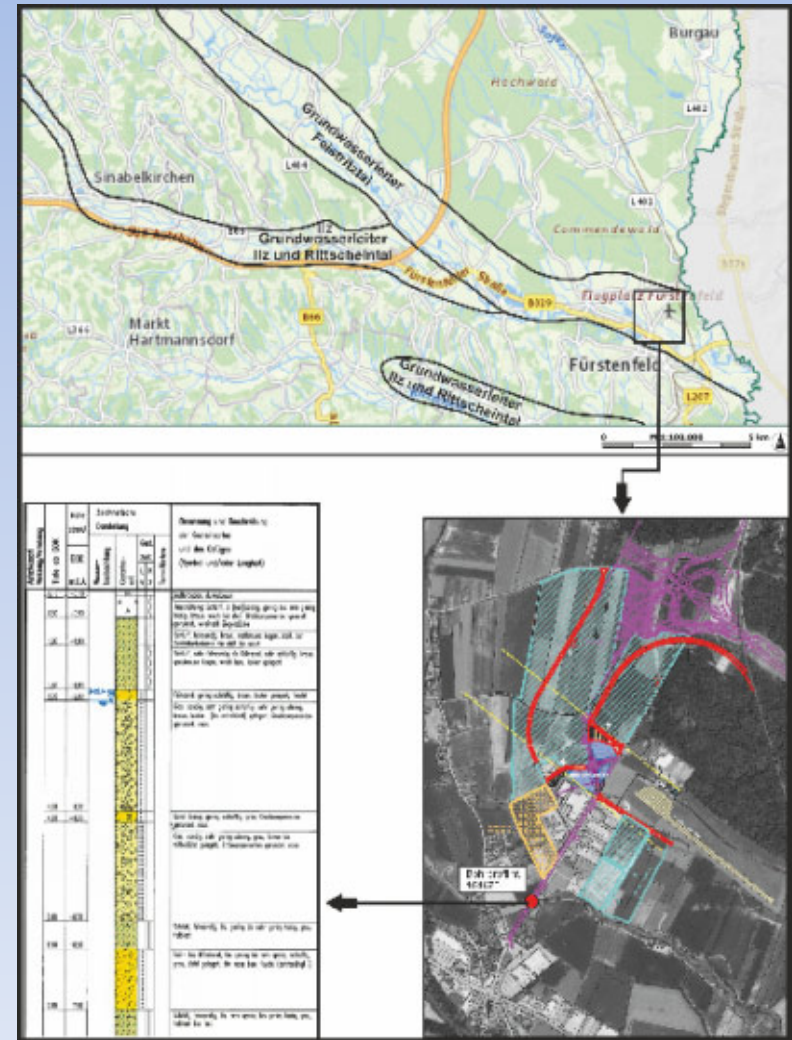
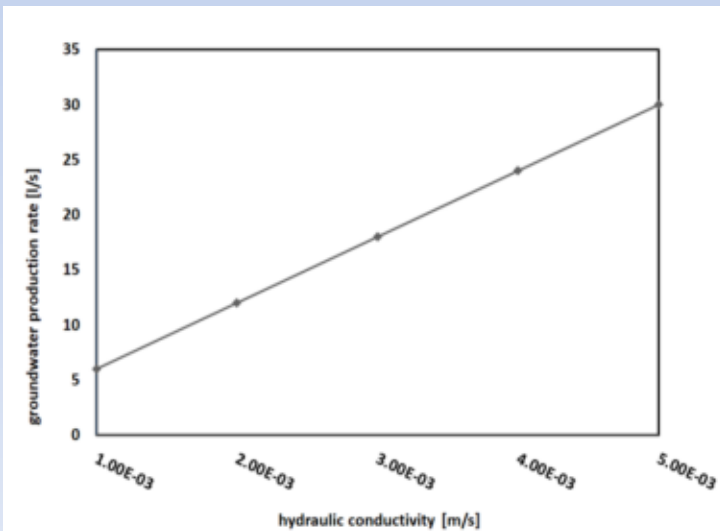
Involved companies

Technisches Büro Böchzelt
Technische Universität Graz
Impulsregion Fürstenfeld
Energierregion Oststeiermark
Geosys

First step: Evaluation underground profiles & extensive web inquiry.

$$Q = kf * hm * s$$

- Q Groundwater production rate [l/s]
- kf Hydraulic conductivity of the underground [m/s]
- s Groundwater drawdown under static water level[m]
- h Drawn down water level over bottom [m]
- hm $h + s/2$



Second step: Underground examinations to define the hydraulic conductivity.

- underground examinations through trail pits
- trail pit with line of sight to the aquifer
- silty, gravelly, strong stony, coarse sand aquifer material
- hydraulic conductivity of around 1 E-3 m/s .
- aquifer thickness of 5,5 m



Third step: Numerical model

- coupled flow and heat transport model
- spatial expansion of the thermal plume
- The thermal energy output can be increased due to a thermal aquifer energy storage approach

