



Parameter Estimation of the Geothermal Reservoir at Soultz-sous-Forêts

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Geothermal electricity production is limited to natural active volcanic zones like Iceland or Indonesia. To provide geothermal electricity in non-volcanic areas hot dry rock or enhanced geothermal system technologies have been developed. The geothermal site at Soultz-sous-Forêts was the first electricity producing enhanced geothermal system in a non-volcanic area. For the usage of this resource it is essential to understand the structure and the properties of the reservoir. In order to enhance the connectivity several hydraulic and chemical stimulations have been performed. In 2005 a long term circulation test have been carried out in order to estimate the impacts of several hydraulic stimulations.

For the usage of geothermal resources it is essential to understand the structure and the properties (permeability, porosity and dispersivity) of the reservoir. Until know it was not possible to fit all three boreholes (GPK2, GPK3 and GPK4) to the available data set. For our investigation we use an improved version of the reservoir simulator SHEMAT called shemat-suite. The data set comprises pressure (production), tracer and temperature data of the tracer circulation test in 2005.

We will present results for the parameter estimation of two approaches. Applying a pressure inversion which uses a new implemented borehole model will improve the convergence of the inversion process and lead to more sophisticated results. Besides from that we will present new results concerning the complete reservoir (three boreholes) at 5 km depth.