



Thermo-Hydro-Mechanical-Chemical Coupled Modeling of Geothermal Doublet Systems in Limestones -revised

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Limestone aquifers in Southern Germany have been used within the last decade very successfully for geothermal heating and – to a lesser extent – for power generation. As an example the region around Munich has been extensively explored. While the extent of usage of this reservoir is increasing there is also an increased interest in better understanding of the reservoir properties and its change in the course of operation. For instance, the observed production and injection pressures are partly hard to explain. They may be related to mechanical or chemical processes, or both.

Based on extensive data of outcrop studies and drillings, a data-base for the relevant physical properties of the respective limestones has been compiled. The data include thermal conductivity, density, specific heat capacity, permeability, as well as mechanical properties like thermal expansion coefficient and elasticity modules.

By using the hydro-thermo-chemical simulator FEFLOW together with an extension for thermo- and hydro-mechanical coupling the relevant processes are studied and compared with observed data.

At the EGU Meeting in 2015 results of an initial study have been presented. This time results based on a completely new model setup and also using newly developed code will be presented.

As a conclusion main challenges while modeling THMC fracture flow by using a multi-continua approach will be discussed.