



## **Geothermal models on different scales – understanding and geothermal characterization of a fault zone before simulating – a case study from the Munich region (Germany)**

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A challenging task for geothermal exploration is the geothermal characterization of fault zones, which seems to play an important role for the exploration of the geothermal Malm Aquifer in the Munich region. The results of an actualized regional thermo-hydraulic model of the Munich region as well as flow-, temperature- and stress analysis for a more detailed local THM-model in the realm of a geothermal power plant are presented. Whereas the main focus of the actualized regional model lies in the forecast of potential temperature or hydraulic pressure interferences of geothermal doublet or triplet systems, the more detailed local model contributes to the understanding of flow, temperature distribution and induced microseismicity, which might occur during production or injection. The flow regime was described with the diagnostic plot derived from the analysis of pump tests. The temperature distribution in a well was modeled (Comsol). Joints and faults in a well were investigated to their reactivation potential in the recent stress field (slip-tendency analysis, GMI-software). Unfortunately only scarce data for geomechanical analysis are registered in the standard exploration scheme for geothermal wells in the Munich region, especially for determining the minimum horizontal stress. It is therefore highly recommended to extend the well measuring and logging program in the future.