



Mechanisms controlling the recent thermal field – results from 3D modeling in the NEGB

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We evaluate processes that influence the present regional geothermal field for a study area in Brandenburg, Northeast German Basin. This part of the area is morphologically differentiated due to the presence of mobilized Zechstein salt that formed salt-diapirs, pillows and other salt structures. The Zechstein salt decouples both tectonical structures and the fluid regime in the basin.

Recent development of geothermal technologies requires a better knowledge of local temperature anomalies as well as of hydraulic conditions. Therefore, we develop a detailed 3D structural model of Brandenburg to use it as base for modeling the recent thermal field.

Our first model integrates the regional distribution of Permian to Quarternary sediment thicknesses as three dimensional units. The stratigraphical units of the model are assigned physical properties such as: thickness and depth of the layer, lithology, porosity, density, permeability, heat capacity, heat conductivity, pressure gradients. We evaluate the sensitivity of modeling results with respect to these parameters. Furthermore, we evaluate the difference of boundary conditions. Results are compared to observed temperatures and hydraulic measurements.