



Modeling the thermal field in the North East German Basin with special focus on the impact of salt structures

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The recent structural setting of the North East German Basin is mainly controlled by the presence of a thick sequence of Zechstein salt acting as a decoupling horizon between the Mesozoic and Cenozoic strata and the Upper Permian pre-Zechstein sediments. Apart from affecting the structural evolution of the basin, the salt structures locally modify the regional geothermal field. These interactions result in an active convective system within the basin as also constrained by (hydro)-geochemical studies.

In order to properly investigate these features, numerical simulations of the geothermal field are carried out on both a basin-wide scale as well as smaller and more detailed scales.

Based on a detailed 3D structural model of the North East German Basin, the present-day regional geothermal field is modelled. The goal of the regional study is to quantify the interaction of the different physical rock properties and the thickness of the structural layers with regard to the resulting steady-state conductive thermal field.

The present-day regional geothermal field of the North East German Basin provides proper boundary and initial conditions to be used in more refined and smaller-scale models, thus yielding essential information to better understand structures and details of the convective flow system affecting the basin.