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3D-model of the deep geothermal potential of the federal state Hesse / Germany

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The scope of the project is the development of a three-dimensional model of the deep geothermal potentials in the State of Hesse. The project is funded by the Hessian Ministry for Economics, Transport, Urban and Regional Development and in cooperation with the Hessian Agency for the Environment and Geology. In a first step, a structural model will be developed. Therefore, stratigraphical information from drillings will be spatially joined with data from seismic surveys and information on tectonic faults and other available data.

Additionally, available geothermal data such as temperature logs, permeabilities and thermal conductivities of the formations, stable isotope data etc. will be added to the model. Furthermore, geothermal characteristics will be measured. Core samples will be measured under dry and cold conditions and will be compared with simulated in-situ conditions. Formations with yet only less available data (e.g., Permian red beds "Rotliegendes") will be studied and sampled in outcrops.

The model will not substitute the necessary detailed exploration for a geothermal project but it will help for a first estimate for the planning.

In a first step, the Hessian part of the Upper Rhine Graben will be examined and during the project the whole area of Hesse will be investigated. Also the "colder" regions in the northern part will be addressed in the frame of this project. Here, first results of the Upper Rhine Graben will be presented.