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INSTITUTE OF GEOLOGY&PALEONTOLOGY

The geothermal resources of the North German Basin – contributions of a 'classical' approach to improved reservoir predictions

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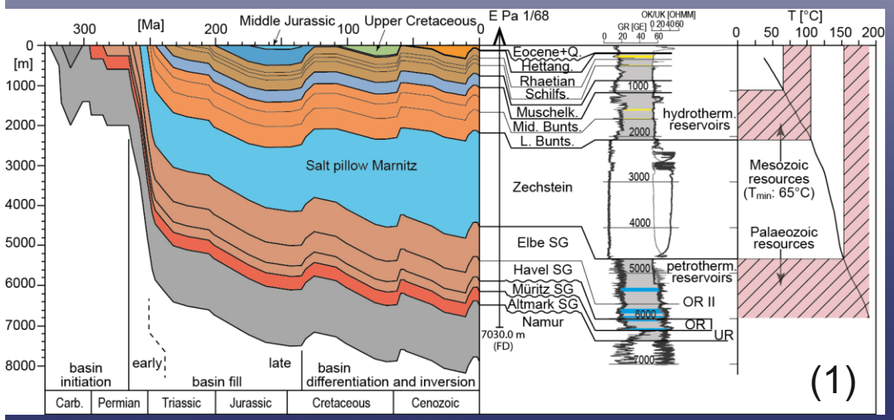
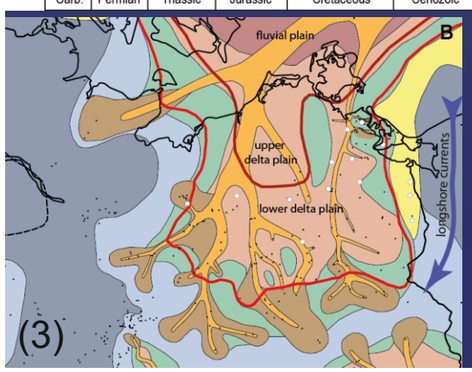
The North German Basin yields enormous resources of heat in place bound to the Mesozoic and Palaeozoic basin fill (1), but only Mesozoic sandstone reservoirs could be developed at a few localities so far. These development examples of hydrothermal reservoirs are operated using doublet systems to run district heating grids (2). Considering these few examples, and the fact that any attempt to develop petrothermal reservoirs failed or never went beyond the feasibility phase, geothermal energy is an underutilized energy resource of northern Germany. The limited development of Mesozoic reservoirs results from high exploration risks at individual localities, related to high expectations on reservoir quality, and moderate fluid temperatures below 80°C (low enthalpy), hampering the direct heat transfer to district heating grids.Recently, improved reservoir predictions based on a 'classical' approach enabled the development of a highly-productive Triassic sandstone at 1,300 m depth.





Prediction and targeting of the reservoir in the subsurface of Schwerin, a previously underexplored locality, benefited from a new set of basin-wide high-resolution maps of Mesozoic reservoirs (3). Along with progress in heat pump technology, now enabling the operation of moderate-temperature reservoirs, Schwerin has become the best-practice example of mid-deep geothermics in North Germany, and may have implications for other low-enthalpy basins in Central Europe.

(2)