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Geothermal potential of Triassic limestones of the Pannonian Basins System: New insights from a deep borehole of Central Hungary

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The geothermal potential of the Pannonian Basins System was recently addressed by outcrop analogue studies [1] and reviewed on a regional scale [2]. However, high-resolution data from boreholes and their impact on existing geothermal models are lacking. Petro- and thermophysical rock properties are key parameters in geothermal reservoir characterization and the data gained from deep boreholes are used to validate outcrop analogue data of potential exploration target formations. Here, we present new data from a deep borehole, drilled in the Pilis Mountains, central Hungary.

The borehole intersected Oligocene sandstones and clay, Eocene carbonates, and Triassic limestones and dolomites. The Triassic limestones show very low matrix permeabilities, while dolomitic successions have higher permeabilities. Thermal conductivity and specific heat capacity are high. Reservoir permeability may be enhanced by the joint and fracture system. However, the very low permeable rocks are classified as petrothermal systems [3] and need reservoir stimulation for techno-economic utilization [4]. In order to identify best suitable exploration areas within Hungary, a volumetric approach is used to estimate the technically recoverable electrical energy.

References

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[3] Sass I, Götz AE (2012) *Terra Nova* 24: 142-147

[4] Huenges E (2010) *Geothermal Energy Systems – Exploration, Development, and Utilization*: Wiley-VCH

