

ABSTRACT

Submitted Master's thesis aims at calculation, evaluation and interpretation of temperature and geothermic characteristics on the Bešeňová elevation hydrogeothermal structure located at the western margin of the Liptovská kotlina Basin.

Following heads are dedicated to describe essential principles of geothermal energy use and utilization both, in worldwide and in Slovakia with subsequent detailed description of geology, tectonics, static geothermal parameters and hydrogeothermal systems of the basin.

A crucial object of the thesis is to calculate, describe and interpret geothermal parameters of the system applying stationary approach all necessary and beneficial for onward on-situ geothermal infrastructure development or redesign.

A complete work relates to a 3D model of deep vertical geological structure, where several zones are distinguished according to controlling geothermic and hydraulic properties they contribute on overall geothermal characteristics of a hydrogeothermal system: the Huty and Zuberec Fm., Borové Fm., the Choč Nappe Mid Triassic carbonates and the Křížna Nappe zones: Jurassic – Mid Cretaceous succession, Late Triassic siliciclastics, Mid Triassic carbonates and Early Triassic siliciclastics. Confirm to previous works, a horizon of the Křížna Nappe Mid Triassic carbonates is recognized as major (bottom) reservoir within a stratified complex, described at an temperatures interval ranging 35-95 °C, heat flow variations of 53-71 mW/m² and geothermic gradient varying the 20-26 °C/km.