ABSTRACT

The aim of this thesis is an overall assessment of the hydrogeological conditions of the Český Brod Permian Carboniferous and overall the balance of upper groundwater aquifer in the northern part of the Český Brod Permian Carboniferous using a mathematical model. For the realization of the model was used ZABAGED data provided by the Czech Office for Surveying, Mapping and Cadastre, which is located in Prague 8 Kobylsích. The mathematical model was created using computer applications such as FeFlow 5. 2, ArcGIS for Desktop 10. 1 and Surfer 10. 7. 972.

The result of this work is to evaluate the overall balance of precipitation, surface water and groundwater in the upper aquifer north of Český Brod Permian Carboniferous, respectively, in the hydrologic basin of the Upper and Middle Elbe, in the hydrological basin fourth Order river Vyrovka (HEIS.VUV.cz). The evaluation was done by comparing the data obtained from the studied opinions and based on data obtained from calculations of the mathematical model. The results of the mathematical model were also compared with the original model hydroizohyps, which was created based on the coordinates of the individual wells in a given area and treble steady groundwater levels, coordinate and treble levels of selected points on each watercourse. Before completing the mathematical model in the FeFlow this model only information about groundwater flow in the upper aquifer of the area.