

Flow system interpretation of the second largest karst system of Hungary – hydraulic and hydrogeochemical characterization

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ABSTRACT

The Bükk Mountains is the second largest karst system of Hungary where the karst waters are intensely utilized resources. Cold waters are used for drinking water supply and all around of the foothills lukewarm and thermal waters are used for balneological and geothermal heating purposes. Therefore, protection and sustainable use of these resources is an important issue, which requires good understanding on the hydrogeological functioning of the karst system.

During the hydraulic evaluation of the area the groundwater flow system was investigated based on measured hydraulic data. The Bükk Mountains have a complex geological history with complicated structures, so this study tried to analyse the role of the amending effects of these structures on the flow pattern. The research gives a spatial overview about the geochemical composition of the karst waters and examines the karst systems with radionuclides and organic parameters beyond the classical hydrogeochemical methods (in-situ field parameters, basic water chemistry) in order to identify different fluid components. During the evaluation of the data, multivariate data analysis (cluster analysis, discriminant analysis) was applied.

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