

URANIUM AND RADIUM IN THE DRINKING KARST WATERS? - KARST RESEARCH WITH NATURAL TRACERS IN THE BÜKK KARST REGION, HUNGARY

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The second largest karst system of Hungary is the Bükk Mountains. The stored karst water in carbonates is used in number of way e.g. drinking water purposes, balneology 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, that the water achieve the consumer in perfect, clean condition. The prevention to entering of the pollution to the system and the spreading is possible with just the good knowledge of the behaviour of the whole system. In karst aquifers it is vitally important because of the vulnerability of the system and a rapid answer to the internal processes.

The aim of the present study is to give a spatial overview about the geochemical composition of the karst waters and to examine the karst systems with radionuclides beyond the classical hydrogeochemical parameters. With the help of radionuclides we have the opportunity of researching, which requires no external, artificial intervention. The natural radionuclides, the ²³⁸U, ²³⁴U, ²²⁶Ra and ²²²Rn, are ubiquitous in groundwater, and they have a different geochemical behaviour. Along the flow path fractionation occurs depending on the redox conditions, so the applications of these radionuclides help us for the better understanding the mixing processes and the relationships of cold, lukewarm and thermal waters. Therefore, knowledge of the complex, karst aquifers are important, because the stored water ultimately improve the quality of life of the people.