



MODELING THE MECHANISMS OF WATER RECHARGE OF THE RASCHE SPRING BY USING OF TRITIUM SIMULATIONS SUPPORTED BY THE T(^3He) METHOD

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In addition to the relevant geological, hydro-geological and hydro-meteorological data, the distribution of the Environmental isotopes, O-18/O-16, H-2/H-1 and Tritium concentrations in the local hydrological cycle (precipitation, surface, ground and Spring waters), have been observed and analyzed, all in order to determine the mechanism of recharge of the Rasche Spring, main supplier with potable water of the Skopje City, Republic of Macedonia. Although the Tritium content into the precipitation is approaching the natural level 4-10 TU, it still can be used as an efficient tool in hydrological investigations and in particular, for the observed hydro systems where historical Tritium data are available. The obtained so far results, by creating computer model, offered determination of the volume of the groundwater aquifer that is feeding the Rasche Spring, receiving a figure of $4,683 \times 10^9 \text{ m}^3$ with a MRT = 27 years. These results were confirmed by T (^3He) dating and noble gas data, as well, giving an additional possibility to estimate the vulnerability and better conservation of the investigated Spring waters.

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