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## Extended Abstracts

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title: **Tritium (3H) as an indicator of the connection between river and groundwaters**

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The paper presents results of analyses of  $^3\text{H}$  content in the ground and river waters, as the indicator of possible connection between ground and surface flows. In that sense, the most endangered are alluvial aquifers since they are mostly used for water supply. The analysis of these relations has been carried out on Ljubičevo profile, which belongs to the developed valley of the Great Morava. There are significant sources of ground water used for municipal water supply of Požarevac. The source of this town uses alluvial aquifers, which primarily originate from the river flow of the Great Morava. The level of ground water oscillates during a year. It is directly connected with the level of the river flow of the Great Morava. Thus connected hydraulic bond between river and ground flows enables the intrusion of the aggressive pollutant into the ground water, which might lead to contamination of the alluvial aquifer that is mostly used for municipal water supply.

In order to reach the cognition of degree of possible connection between the river and ground waters, the analysis of tritium content was carried out on the composite samples taken from observation piezometers and exploitation wells of the Požarevac source and from the Great Morava flow near source. Sampling was done for every season. The biggest concentration of the tritium in the river and ground water was noticed during summer period, while the least concentration was noticed during winter and spring period. The reason for such ratio should be sought in a greater evaporation of the river waters during summer when light molecules evaporate, since heavy ones are lagged behind and water is then richer with tritium. Very approximate ratio between tritium concentrations in river and ground waters points out an intensive connection between the river and ground water which confirms the possibility of fast intrusion of pollutant from the river into the aquifer. Their mutual connection represents a joint medium that can be degraded by irresponsible man's activities towards environment, while every deterioration of the quality of the water from river flow directly endangers the quality of ground water. Applied method that used tritium ( $^3\text{H}$ ) as a tracer confirmed functional bond which exists between river and ground flow. Such a bond is possible in the other parts of the Great Morava course. Therefore research on isotopic composition of natural waters in its basin should be systematic and long-term so as to acquaint with hydrodynamic principles, which governs the system river-aquifer. In that sense specified method can serve to ascertain the origin of the water, part of individual components in mixed water, velocity of the water, characteristics of the process of infiltration of surface water into ground water. Ascertainment of these parameters is of significance regarding alluvial aquifers, which are mainly in inundatory area of the river courses where the most excessive pollution occurs.



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