



Possibilities of recession curve analysis in karst water management, Gömör-Torna Karst, Hungary and Slovakia

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Temporal variations of the groundwater flow characteristics are important, yet often neglected in water management. Although, the potential risks and hazards endangering groundwater quality and quantity cannot be handled as a steady-state. It is especially true for karst aquifers, where fast and dramatic changes in water levels and discharges, or even flow directions are not rare. Due to the predicted effects of the climate change, as more frequent occurrence of extreme weather conditions, the importance of this aspect will grow in the future.

The analysis of the recession curves of karst springs may help to understand the origin of the discharged water (from which subsystem are they discharged) and some decades long curves display under which infiltration conditions and with which probability the subsystems become active.

The test site of the examination is the transboundary aquifer of the Gömör-Torna Karst (Hungary and Slovakia). Long-term (ca. 60 years long) daily spring discharge and precipitation data series of 4 karst springs were analyzed. The analyses were carried out on both manually and automatically generated master recession curves, in order to avoid the disturbances of single recession periods.

The results serve the more precise understanding of the flow system of the karst area. Complementing vulnerability assessment techniques, recession curve analysis helps to provide more appropriate bases for water management, taking into consideration the effects of temporal variations as well.