SIMULATION OF THE RESTORATION OF THE MEANDER JORDAN OF THE ORLICE RIVER AND ITS IMPACT ON THE ADJACENT QUATERNARY AQUIFER

ROZMAN, D.[1,2]; HRKAL, Z.[1,2]

[1]TGM Water Research Institute, p.r.i.
[2]Faculty of Science, Charles University

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An urgent issue of the water management institutions in the Czech Republic is enhancement of the water retention in the environment. One of the solutions presented by Elbe river basin authority is restoration of the meander Jordan of the Orlice River. Reactivation of the original channel and a technical solution, which will raise the water level to its original height, will have a significant impact on the local hydrological situation. The restoration will mitigate climatic extremes like floods and droughts. A direct impact will be slower surface water runoff and due to higher water level less intense drainage of the groundwater to the river. T. G. Masaryk Water Research Institute started with monitoring of the adjacent Quaternary aquifer at the end of year 2018. The achieved data characterize the situation before the planned restoration. Groundwater level is continually measured in four new monitoring boreholes. This study presents results of a numeric model, which simulates the expected effect of the restoration on the groundwater resources. The simulations include current situation before the restoration, situation after restoration with 1 m raise in water level and situation after restoration with 2 m raise in water level. The results also enabled quantification of the potential groundwater storage increase.