

Hydrochemical characteristics of a spring snowmelt flood in the Upper Wieprz River basin (Roztocze region) in year 2006

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Abstract: In order to help develop a better understanding of relevant catchment processes, this paper presents the changes in physico-chemical features of the Wieprz River water during the spring snowmelt flood of 2006. The obtained results showed that the groundwater sampled from the springs and the water sampled from the river had a similar and quite stable composition of the basic physicochemical features in the period of solely groundwater feeding (the river is fed only with the water coming from underground sources). The physico-chemical composition of river water during snowmelt depended on the contribution of surface runoff in total outflow and the flood phase. The correlation coefficients between the discharge in the Wieprz River and the concentrations in the studied indices were significantly negative: pH, SEC, HCO_3 , Ca, Mg, Na, Sr, SiO_2 , Cl, SO_4 , F. Significantly positive correlations associated with an increase in discharge were observed in the case of: K, NO_3 , NO_2 , total organic carbon, chemical oxygen demand and biochemical oxygen demand. Step and bidirectional responses were noted during the snowmelt flood in the case of the content of NH_4 and PO_4 .

Key words: chemical composition, outflow, Roztocze region, spring snowmelt flood