



## **Valuation of selected indicators of water quality by extreme rainfall-drain events in dependence on land-use representation in artificially drained areas**

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The study is aimed at exploring the relationship between the biogeochemical and hydrological parameters describing the natural conditions and the reciprocal interactions between the concentration changes (nitrates, phosphates and suspended solids) in surface waters and discharge dynamics during extreme rainfall-runoff events. The relationship between concentrations and runoffs are explained by the c-q (concentration-discharge) hysteretic loops. The statistical method used for cross analyzing the impact of parameters is RDA analysis. The relationships between the particular parameters were examined through correlation and regression methods. The results proved very strong negative relationship between the relative length of the hydrograph rising limb and biogeochemical parameter which describes the relative change of phosphate concentration and positive relationship between the total amount of antecedent precipitation and the relative concentration change of suspended solids. The relationship is much stronger in localities used as arable land in contrast to artificially drained locality used as permanent grassland where no dependence was found. The hysteretic loops from the experimental localities express these concentration changes during the rainfall-runoff events: for suspended solids describe the effect of flushing (their concentration rises with the discharge increase in the initial phase of the hydrograph) in contrast to nitrates and phosphates which describe the effect of diluting (their concentrations rapidly decrease on the rising limb of the hydrograph).