

ABSTRACT

Diploma thesis is focused on changes of organic carbon (OC) in surface waters in headwater areas. Thesis is in its theoretical part focused on the literature study of currently published research results of the issue. The important part is finding the possible causes of OC variability, especially landcover and soil environment. The practical part is devoted to research in experimental basins of KFGG, namely in the upper Vydra, Blanice and Rolava. The aim of this work is to clarify the relationships between organic matter concentrations and discharge rates regarding to hydrological extremes. Furthermore, the influence of river basin size and various landcover and variability of concentrations and relationship with other indicators of biogeochemism is studied. The relationship between OC and discharge rate is positive and in most river basins strong or very strong. The weakest relationship was monitored on the profiles with the highest proportion of peatlands in the river basin. In these catchments, the highest average concentrations of OC were determined in autumn, in catchments with the lower proportion of peatlands it is in summer. Analysis of rainfall-runoff events confirmed the positive relationship of OC and discharge. The lag time of the maximum OC concentration beyond the maximum discharge rate is in the range 3:50-11:20. The OC leaching into surface waters and the variability of its concentrations is influenced mainly by the involvement of different peat layers in the outflow according to the groundwater level in the peat bog and the associated aeration of the peat layers and the availability of organic matter.

Key words: total organic carbon (TOC), dissolved organic carbon (DOC), climate change, rainfall-runoff regime, peat bog