

Abstract

The retention potential of landscapes, along with the water regime of spring areas, are important hydrological topics of research, particularly in the current context of increasing extreme drought frequencies. The present work is focused on monitoring the mountain peat bogs, which, due to their overall frequency of occurrence in the spring area of the Vydra river, represent a significant constituent of the rainfall-runoff process of the area of interest. The specific hydopedological features of the organogenous soils (Histosol type soil) provide the high retention potential of the area, however, the influence of these soils on the runoff process is determined by complex physico-geographical factors. The general opinion on the hydrological function of the peat bogs has changed in recent years and the most important factor in the runoff formation in the mountain area of the Šumava Mts. is now thought to be the actual saturation of the headwater, which is predominantly composed of hydromorphic and organogenous soils.

The organogenous soils are significant water reservoirs and have an important impact on the landscape. However, they may also intensify the extreme values of the watercourses during extreme precipitation events. The fundamental part of this work focuses on detailed observations of the groundwater level dynamics, which is the key factor for the future development of these precious sites and for the comprehension of the hydrological regime of the peatlands. Evaluation of the runoff processes in the mountain peat bogs also requires a detailed observation of the physico-chemical peat water properties. The specific properties of peat waters can be identified in the watercourses and, thus, the involvement of the mountain peat bog in the runoff process can be proven. The impact of organogenous soils on the ongoing hydrological processes in the spring area of the Vydra river is undeniable. Nevertheless, the amount of infiltrated water, the means of water flow, and the supply of the watercourses raise important questions leading to recognition of the hydrological links in the landscape.

Key words: peat bog, hydrological function, retention potential, groundwater level, hydrological regime, Histosol, Šumava Mts., Vydra river