Abstract

This thesis is concerned with analysis and brief evaluation of hydrological data provided by Lesy hl. m. Prahy company. Processing and assessment of data was carried out within two separate parts. First by means of statistical analysis and in the second section by a visual model using GIS application, method called GWR (geographically weighed regression). The data was processed through the statistical method of scattering, factoring and cluster analysis. To enable this data research a modification using MS Excel application was necessary followed by formation of a script in R application. These adjustments were inevitable due to a high number of records. The data is constituted by values of the following indicators: BSK, CHSK, nitrogen nitrate, dissolved oxygen and undissolved matter, measured within a range of eleven years in various drawing profiles of fifteen Prague streams. In the second part of this work the model was created by GWR method and by experimental attainment of various factors which could hypotethically affect the quality of surface water in the capital city of Prague.

By means of statistical methods existence of several places that are negatively affected by urbanizations and human activity has been proven. Out of htese places the most affected is Komoransky stream. This fact has been confirmed by GWR visualization, which, besides other things prove that selected factors (lenght of roads in the catchment area and the type of land use) have connection to researched indicators.

Key words: R application, analysis of variance, cluster analysis, factor analysis, geographic information system, geographically weighted regression, urbanized streams, surface water quality