



Integrated processing and analysis of hydrological data – not only for experts

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The advent of the digital data logging results huge amount of hydrological time series from wide variety of hydrological phenomenon and water quality indicators. There are different sampling frequencies, irregular time steps, hand measured control data which are necessary treat in the same database. Some processes (e.g. the concentration of surface water) in small catchments and urban areas change quickly thus at this case for a rigorous study it is necessary to apply high frequency data sampling. Sometimes there is an error and the equidistant times series is broken. The error produced gap in the time series forms an obstacle for some type of calculations.

There are many proprietary softwares process these data and gives solutions for the exercises. It can be found also open source solutions. Some years ago the open source R was chosen for analyzing data, which are measured in the Hidegvíz Valley experimental catchment. This system is an excellent environment to organize and visualize hydrological time series. The contributing package called zoo has good abilities to work with different temporal resolutions. There are also many sophisticated statistical functions (e.g. auto- and cross-correlation functions, spectral analysis, filters, smoothing algorithms, etc.). During the years some functions was developed for data import, semi-automatic data processing, visualizations and analyses.

In the last year in the umbrella of a project brings up a demand for visualize time series from non-R-experts. An easy-to-use graphical user interface was developed to solve this problem instead of cumbersome import/export processes or introduction to R course. This integrated utility uses the integrated Tcl/Tk package and gives possibilities to mouse driven visualization.