An Observation Analysis Tool for time-series analysis and sensor management in the FREEWAT GIS environment for water resources management

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In situ time-series are an important aspect of environmental modelling, especially with the advancement of numerical simulation techniques and increased model complexity. In order to make use of the increasing data available through the requirements of the EU Water Framework Directive, the FREEWAT GIS environment incorporates the newly developed Observation Analysis Tool for time-series analysis. The tool is used to import time-series data into QGIS from local CSV files, online sensors using the istSOS service, or MODFLOW model result files and enables visualisation, pre-processing of data for model development, and post-processing of model results. OAT can be used as a pre-processor for calibration observations, integrating the creation of observations for calibration directly from sensor time-series. The tool consists in an expandable Python library of processing methods and an interface integrated in the QGIS FREEWAT plug-in which includes a large number of modelling capabilities, data management tools and calibration capacity.