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Hydrognomon – open source software for the analysis of hydrological data

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Hydrognomon is a software tool for the processing of hydrological data. It is an open source application running on standard Microsoft Windows platforms, and it is part of the openmeteo.org framework. Data are imported through standard text files, spreadsheets or by typing. Standard hydrological data processing techniques include time step aggregation and regularization, interpolation, regression analysis and infilling of missing values, consistency tests, data filtering, graphical and tabular visualisation of time series, etc. It supports several time steps, from the finest minute scales up to decades; specific cases of irregular time steps and offsets are also supported. The program also includes common hydrological applications, such as evapotranspiration modelling, stage-discharge analysis, homogeneity tests, areal integration of point data series, processing of hydrometric data, as well as lumped hydrological modelling with automatic calibration facilities. Here the emphasis is given on the statistical module of Hydrognomon, which provides tools for data exploration, fitting of distribution functions, statistical prediction, Monte-Carlo simulation, determination of confidence limits, analysis of extremes, and construction of ombrian (intensity-duration-frequency) curves. Hydrognomon is available for download from http://www.hydrognomon.org/.