

## **Hydrostat v1.0, a Java Application for Extreme Events Frequency Analysis**

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**Abstract.** The correct estimation of a flood discharge associated to a specific return period is a common engineering problem. Because of the social and economic importance that over/under estimating it may imply, statistical methods have been developed that use historical data for forecasting extreme events (e.g., floods and rains) for different return periods. A frequency analysis software for extreme events (**HydroStat v1.0**) was developed that uses three different probability distribution functions: Log Normal, Gumbel and Wakeby; the first two are widely used in hydrometeorological data, and the third is a versatile and flexible distribution but not as commonly used. The software includes different Plotting Position expressions (e.g., Weibull, Blom, Gringorten, Landwehr and Cunnane), several fitting methods for parameter estimation (e.g., Moments, L-moment and Probability-Weighted Moment), and different Goodness of Fit Tests (e.g., Kolmogorov -Smirnov, Chi Square, Graphic Test Graphic Correlation Coefficient, the Standard Error of Fitting.) In this paper we present a description of the software and some useful applications.

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