



## **Trends in Romanian streamflow over the second half of the 20-th century**

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Streamflow records from 60 undisturbed watersheds in Romania are analyzed for trends with the Mann-Kendall nonparametric test in three study periods (1951-2000, 1961-2000, 1971-2000), in order to analyze the annual and seasonal changes in the daily streamflow distribution.

To discriminate trends from stochastic fluctuations and from the influence of serial correlation in the time series, the series presenting positive lag-1 serial correlation after detrending were prewhitened by applying a first order autoregressive filter to the data prior to trend analysis. The statistical significance of trends is tested for each station on an annual and seasonal basis and for different streamflow quantiles.

Identified trends in streamflow are then related to the observed changes in precipitation and air temperature, and correlated with the basin attributes (area, mean altitude, mean slope, basin shape index, river density, mean soil depth, mean SCS curve number, mean annual precipitation, forest coverage, rock coverage).

Finally, a bootstrap procedure is applied for testing the field significance of trends.