



Detection of long term persistence in time series of the Neuquén River (Argentina)

Rafael Seoane (1) and Antonio Paz González (2)

(1) Instituto Nacional del Agua, Buenos Aires, Argentina (rseoane@ina.gov.ar), (2) Soil Science, University of A Coruña, Spain (tucho@udc.es)

In the Patagonian region (Argentina), previous hydrometeorological studies that have been developed using general circulation models show variations in annual mean flows. Future climate scenarios obtained from high-resolution models indicate decreases in total annual precipitation, and these scenarios are more important in the Neuquén river basin (23000 km²). The aim of this study was the estimation of long term persistence in the Neuquén River basin (Argentina). The detection of variations in the long range dependence term and long memory of time series was evaluated with the Hurst exponent. We applied rescaled adjusted range analysis (R/S) to time series of River discharges measured from 1903 to 2011 and this time series was divided into two subperiods: the first was from 1903 to 1970 and the second from 1970 to 2011. Results show a small increase in persistence for the second period. Our results are consistent with those obtained by Koch and Markovic (2007), who observed and estimated an increase of the H exponent for the period 1960-2000 in the Elbe River (Germany).

References

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