



Persistence in precipitation time series from AR4 general circulation models for historical and future time slices.

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Persistence is an important means to characterize the need for management of water resources, especially with respect to the optimal dimensioning of water reservoirs. The present analysis gives an overview of persistence in precipitation modeled by general circulation models (GCM).

Rescaled range analysis was used to determine the Hurst exponent, which is a standard measure of persistence. We used precipitation time series from five GCM's of the IPCC's fourth Assessment (AR4). The Hurst exponent of historical GCM time slices was first compared with the Hurst exponent of measured time series (CRU). Secondly changes in Hurst exponent for the future scenario's B1 and A2 were evaluated.

The Hurst exponent in precipitation time series produced by the evaluated GCM's is generally underestimated when compared to the measured time series. The different GCM's show different changes in Hurst exponent for future time slices. No consistent trend was found in the ensemble for changing climate conditions.