



Empirical dynamic downscaling from global climate to the hydrology of river basin scale

P. Carl

Leibniz Institute of Freshwater Ecology and Inland Fisheries, Limnology of Shallow Lakes and Lowland Rivers, Berlin, Germany (pcarl@wias-berlin.de)

A combination is presented of two novel approaches currently used in the search for climate signals in river runoff. Conceptually, this relies on the notion of a regime character of climate and weather variability and change to justify the working hypothesis of existing stable "vertical" (global/regional/basin scale) dynamic links. A great variety of synchronous motions may be identified indeed at the global and regional (Central European) scales when applying a specific matching pursuit (MP) approach to annual climate and weather data of the instrumental period. At the river basin scale, a recently introduced technique (functional streamflow disaggregation; FSD) is applied to time series of daily runoff. All (total and component) flows are aggregated into annual series then to enter the same type MP analysis. Robustness and sensitivity of both the signals and the methodology are discussed. The surprisingly high structure found in Baur's precipitation series for Germany may provide a key to understand signal transmission across the spatial scales.