



## **The water cycle in context: Another time series view on climate variability and change**

P. Carl

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

A time series study is presented that pinpoints the potential of a constitutive role in the climate system's dynamics of major elements of the global hydrologic cycle (analysis period 1870-1997). Major source regions and mechanisms of the latter include tropic/subtropical systems, notably the monsoons and El Nino-Southern Oscillation. Onset, retreat, and seasonal precipitation data over India of the South Asian seasonal monsoon systems are posed into perspective with the evolution of the climate system, as exemplified by insolation, surface air and sea surface temperatures, as well as dynamic indices of the North Atlantic and the Tropical Pacific. Synchronized motions galore are found when looking at these data through the glasses of a matching pursuit approach that admits of deep frequency modulation. The results are suggestive of a dynamically excited atmospheric branch of the hydrologic cycle, at the very core of global climate dynamics.