

Studies on temporal variations of hydrological indexes over India

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Study of climate variability over a country is the most important activity to predict the needs and to manage the risks of contamination in the climate. A detailed analysis of precipitation-effectiveness index, temperature efficiency index, humidity index, moisture index and aridity index in the climate spectrum builds an extreme significance in understanding the geo-hydrological scenario of the country. Natural disasters such as droughts and floods can be understood with the detailed analysis of these indexes. Because of increasing human population, diminution of water resources and the future projected climate change scenario, an effective understanding of hydrological indexes has enthralled a major area of research.

An effort has been done in this paper about the interannual variability of hydrological indexes such as precipitation - effectiveness index, humidity index, moisture index and aridity index. In obtaining the precipitation-effectiveness index, the established Thoronhwaite (1931) formulation is used and for the rest, the revised monthly Thorinthwaite and Mather (1955) water balance model is consulted. The study has been performed for all India data from 1901 to 1990. The temporal variations of these indexes for the study period both on seasonal basis and annual basis have been analysed. The paper also focuses on the anomalies of these hydrological indexes. Then the paper proceeds in the study of ENSO and LNSO impacts on these hydrological indexes in the study period.