



Inter-linkage of Climate and Streamflow Dynamics in Kashmir Himalayas

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Abstract: The markers of the changing climate over the availability and distribution of water resources are explicit evidently in the densely populated parts of the Himalayas. Decreasing precipitation, warming air temperatures and depleting ice reserves are sinking the region into a serious hydrological stress vis-à-vis burgeoning population growth. Changes in the hydrological regimes are projected to accentuate further, resulting in a range of serious implications on the socio-environmental and bio-physical fronts affecting directly or obliquely the local and downstream populace. Based on the historical records of temperature, precipitation and streamflow for a period of 36 years (1980-2015), this study focuses on the multi-site intra-region micro analysis investigating the influence of the variability in the climatic parameters (temperature and precipitation) on the hydrological regimes in terms of annual and seasonal streamflow. The study reveals that, coupled with decreasing precipitation there has been an overall warming trend in the average temperatures (minimum and maximum) in the Upper Jhelum Catchment of the Kashmir Himalayas. The streamflow records are in conformity with the climate variation and exhibit decreasing trends. The streamflow response was found to be more correlated with precipitation than temperature apart from being correlated positively with precipitation and negatively so with the temperatures.

Keywords: Climate variability, Streamflow, Mann-Kendall's trend test, Sen's slope estimator
