

Investigation of Trends in Multiday Extreme Rainfall

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Abstract

Detecting trends in both hydrological and hydrometeorological data series is important in the context of climate change. Even though multiday rainfall has caused disastrous consequences for Sri Lanka in the past, little attention has been given to analyse multiday extreme rainfall data for trends. This paper analyses past extreme rainfall data in the Kelani River basin of a period of 57 years from 1960 to 2016 using both parametric and non-parametric tests to detect trends in a multiday scale. The daily rainfall data was assessed for homogeneity using the RhtestsV4 and extreme rainfall data extraction was done using the Block Maxima method. Modified Mann-Kendall test, Mann-Kendall test, Sen's slope estimator, Linear regression method and the Innovative Trend Analysis method were used in detecting trends in the extreme rainfall data. The study will also help in assessing the suitability of using the Innovative Trend Analysis method for detecting rainfall trends in Sri Lanka. By determining the trends in extreme rainfall data of the Kelani River basin, predictions regarding the future direction of rainfall can be arrived upon and this can aid in preparing for future hazards and risks.

Keywords: *Extreme rainfall, Multiday rainfall analysis, Trend detection*