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WET AND DRY SPELL ANALYSIS OF RAINFALL IN BADULLA, SRI LANKA

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Abstract

Analysis of long-term wet and dry patterns provides an abundance of information on effective crop planning and water resource management, and a better understanding of climate variability over time. This study aims to identify the changes of the wet and dry patterns of weather based on daily rainfall in the Badulla region, Sri Lanka. The study mainly looked at four aspects; trend of precipitation and number of wet and dry days, monthly seasonal annual and consecutive time period's variations of transition probabilities and the wet and dry spell durations. Mann–Kendall (M–K) test and Sen's slope estimator are used to investigate the trends of series and the observed transition probabilities and dry wet spell durations were used to identify the significant differences over the given time periods. The results indicate that there has been a significant increase in daily rainfall, number of wet days and the seasonal transition probabilities over the 30-year period from 1992 to 2021. In order to identify the recent changes of wet dry sequence of the region, series was divided into three consecutive periods of 10-year durations (1992–2001, 2002–2011, and 2012–2021). Results depict that the transition probabilities for all four seasons increase significantly over three consecutive the period. The most important thing reflected in the analysis of wet dry spells over the different time periods is that recent decade region experienced longer dry and wet spells compared to the past two decades and the mean dry and wet spell durations were also showing an increasing trend over the three decades. By resulting of this there could be an increased risk of floods in the region in the future.

Keywords: *rainfall, state transition probability, wet and dry spells*