



RAINFALL FORECAST FOR IDENTIFYING FUTURE FLOOD OCCURRENCES IN BENTOTA RIVER BASIN

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ABSTRACT

The climate and meteorological conditions in the world have been changed considerably by their intensity, term and duration. With the changing weather patterns, intensity of natural hazards like floods and droughts etc have been increased causing human settlements vulnerable for them. The effectiveness of flood mitigation depends on the level of preparedness and correct response. Hence flood forecasting and early warning is an obligation for successful mitigation of flood damage. For this study, climatic data such as total monthly rainfall, maximum daily rainfall value for each month and total annual rainfall for the last 30 years from 1986 to 2015 of three weather stations located in Bentota River basin was collected from Meteorological Department, Sri Lanka. Collected data were analyzed applying time series analysis method and correlation analysis to forecast the future flood occurrences and their intensity, term and duration. The results of the study shows that maximum daily rainfall value for each month have a general increasing trend whereas, total monthly rainfall and total annual rainfall show a general decreasing trend in Bentota River basin. Analysis of the 30 years rainfall data of three weather stations indicated that relatively high rainfall situations can be expected during May and October while low rainfall situations during January and February in future. There will be an extreme variability of rainfall once per five years during any month from April to July making minor flood situation in the area. Development planners and agricultural scientists should make their decisions considering this prediction on future flood occurrences in Bentota River basin due to climate change.

Keywords: flood durations, time series analysis, weather forecasting