

# Applicability of Tropical Rainfall Measuring Mission to predict floods on the Bagmati River

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## ABSTRACT

In this paper rainfall fields of TRMM 3B42RT were assessed with available point observation data obtained from rain gauges and Automatic Weather Stations (AWS). Rainfall comparison was done on grid basis. It was found that when the number of rainfall stations increased, the discrepancy between the TRMM rainfall and grid average of the observed rainfall decreased, implying that TRMM rainfall was closely associated with the average rainfall falling under the grid domain. It was also inferred that TRMM slightly overestimated the rainfall in dry region (mountain shadow) and underestimated the rain in wettest region during the peak monsoon season. TRMM well captured the diurnal variability as compared to AWS data with two maxima. The TRMM data were then used to predict the daily average discharge of Bagmati River. Regression technique was adopted to predict the daily average discharge at *Pandhera Dovan* gauging site. The model predicted the daily peak discharge very well whereas the erratic fluctuations were obtained during the periods of low flows.

*Keywords:* TRMM 3B42RT, regression, rainfall-runoff modeling, flood forecasting, Bagmati River

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