

Study of the extreme rainfall events in Bangladesh using TRMM

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Abstract

The extreme rainfall has significant impact on the socio-economic development of Bangladesh. In this study, TRMM 3B42 V6, V7 product and Bangladesh Meteorological Department (BMD) rain gauge three hourly data of 33 stations from 1998 to 2010 are used for the analysis of extreme rainfall events in Bangladesh. The very heavy (greater than 88 mm in 24 hour), heavy (44-88 mm in 24 hour), moderately heavy (23-43 mm in 24 hour) and moderate (11-22 mm in 24 hour) rainfall events detected by TRMM 3B42 V6 is less than that of V7 product. On the other hand, the light (2.5-10 mm in 24 hour) rainfall events detected by TRMM 3B42 V6 is more than that of V7 product. For very heavy rainfall events the correlation coefficient (CC) between BMD and TRMM V6 is 0.80 and CC between BMD and V7 is 0.84. In the case of heavy rainfall events CC between BMD and TRMM V6 is 0.76 again the CC is 0.91 in between BMD and V7. BMD data is highly correlated with TRMM V7 product than V6. It is found that the very heavy rainfall events are dominated in the coastal part of the country and the light rainfall events are dominated in the western and northern part of Bangladesh.

Key words: Rainfall, Extreme event, TRMM, Bangladesh