

M-IV-A 06: Use of Tropical Rainfall Measuring Mission Data in Bangladesh

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Tropical Rainfall Measuring Mission (TRMM), cosponsored by National Aeronautics and Space Administration of USA and the Japan Aerospace Exploration Agency, has collected data since 1997. Recently new version TRMM 3B42 V7 data has released which are much updated data than earlier versions. To study the possibility of use of TRMM data in Bangladesh, three hourly rainfall data of TRMM 3B42 V7 and 33 stations of Bangladesh Meteorological Department (BMD) rain gauge data are used. The daily, monthly, seasonal and yearly variations of rainfall are studied during 2000-2010. It is found that TRMM 3B42 V7 are highly correlated with BMD rain gauge data. The correlation coefficients are found 0.96, 1 and 0.97 for daily, monthly and yearly variation of rainfall in Bangladesh. The seasonal correlation coefficients are found 0.96, 0.97, 0.97 and 0.96 for winter, pre-monsoon, monsoon and post-monsoon season, respectively. The TRMM observed annual rainfall was found 2394.76 mm and about 1.27, 18.11, 70.17 and 10.46% of annual rainfall was occurred during the winter, pre-monsoon, monsoon and post-monsoon seasons in Bangladesh, respectively. The TRMM and BMD observed maximum rainfall are found 497.42 and 493.28 mm in the month of July. The TRMM rainfall was overestimated 1.75, 10.24, 2.17, 5.93, 3.79, 2.08, 0.89 and 3.15% during January to August, respectively, on the other hand underestimated 1.90, 0.51, 23.44 and 52.02% during September to December, respectively than that of BMD. TRMM rainfall was underestimated 15.37 and 3.80% during winter and post-monsoon whereas overestimated 4.12 and 1.14% during pre-monsoon and monsoon season that that of BMD. The annual overestimation of TRMM rainfall was found only 0.87%. Since TRMM 3B42 V7 rainfall data are very much closer to that of BMD observation, so new version of TRMM 3B42 V7 data might be used for any place of Bangladesh even over the hilly region and Bay of Bengal.