

RAINFALL TRENDS IN GANGA-BRAHMAPUTRA - MEGHNA RIVER BASINS OF INDIA (1951-2004)

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ABSTRACT

India is blessed with many rivers. Twelve of them are classified as major rivers whose total catchment area is 2.528 million sq km. Of the major rivers, the Ganga- Brahmaputra-Meghna system is the biggest with catchment area of about 1.1 million sq km which is more than 43 percent of the catchment area of all the major rivers in the country and about 34% of the drainage area of the country. This study aims to determine trends in the annual and seasonal total rainfall over the Ganga, Brahmaputra and Meghna river basins of India. The data used consists of daily gridded rainfall data at $1^{\circ} \times 1^{\circ}$ resolution for the period 1951-2004. The basin wise data series was created as the averaged data over all the grid points falling in the particular basin. Sen's non-parametric estimator of slope was used to estimate the magnitude of trend. The statistical significance of a trend was assessed by the Mann-Kendall test.

For the study period, Brahmaputra river basin showed a decreasing trend, Meghna river basin showed increasing trend and Ganga river basin showed no change in annual rainfall. Monsoon rainfall was found to have increased over Brahmaputra and Meghna and decreased over Ganga basin. Rainfall increased over Ganga and Meghna basins in pre-monsoon season and over Meghna in post-monsoon season. The winter rainfall was found to have increased over all the three river basins. None of the increasing or decreasing trend is found significant at 95% confidence level.