Long term trends of seasonal and monthly rainfall in different intensity ranges over Indian subcontinent

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ABSTRACT. In general Indian summer monsoon rainfall did not show any significant trend in all Indian summer monsoon rainfall series, however, it was reported that the ISMR is subjected to spatial trends. This paper made an attempt to bring out long term trends of different intensity classes of summer monsoon rainfall in different regions of Indian subcontinent. The long term trend of seasonal and monthly rainfall were also made using the India Meteorological Department gridded daily rainfall data with a spatial resolution of 1° × 1° latitude-longitude grid for the period from 1st January, 1901 to 31st December, 2003. The summer monsoon rainfall shows an increasing trend in northeast and northwest regions, whereas decreasing trend in the central and west coastal regions. In monthly scale, July rainfall shows decreasing trend over west coastal and central Indian regions and significant increasing trend over northeast region at 0.1% significant level. During the month August, decreasing trend is observed in the west coastal stations at 10% significant level. In most of the stations, mean daily rainfall shows an increasing trend for low and very high intense rainfall. For the moderate rainfall, the trend is decreasing significantly. In the northeastern regions, above 10 mm/day rainfall shows significantly increasing trend with 0.1% significant level.

Key word – Summer monsoon rainfall, Trend analysis, Intensity classes, Monthly rainfall.