Past and Future Extreme rainfall events over Eastern India

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It is well known that rainfall in India occurs mainly in the season of southwest summer monsoon during June to September months. The extreme rainfall events like heavy to very heavy rainfall during summer monsoon especially in north and eastern Indian states like western and eastern Utter Pradesh, Bihar and West Bengal is of great importance because this region is densely populated and therefore the spatial and temporal variability of extreme rainfall events in past and present time periods are very crucial and have been impacted in sectors like agriculture, water and health. In agriculture, Indian Summer Monsoon Rainfall (ISMR) is primary source of water supply for irrigation purposes for monsoon season crops like rice. Any change in frequency and intensity of these rainfall events may damage the standing crops and finally the affect the net production of crops In addition, change in variability of heavy to very heavy rainfall events creates impact on water resources. In the recent years, the projected change in extreme rainfall intensity and frequency due to global warming may also affect the sectors like agriculture, water and health. In this study, an attempt is done to understand the past, present and future variability in the frequency and intensity of heavy to very heavy rainfall events in the eastern states of India. For past and present variability of intensity and frequency of heavy to very heavy rainfall events, the observed daily rainfall grided data at the resolution of 1° x 1° lat. /long of India Meteorological Department (IMD) for the period of 1951-2004 is used. The projected change in heavy to very heavy rainfall events under A2 (high emission) and B2 (low emission) simulated $0.5^{\circ} \times 0.5^{\circ}$ lat. /long by PRECIS model (of UK MET office) is analyzed. It is noticed that the future projection of heavy rainfall is increasing in some of the regions of eastern India