

STUDY OF SOUTH-WEST MONSOON RAINFALL SCENARIO IN MEERUT DISTRICT

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Abstract: Rainfall is one of the most important climatic variables and renewable natural source of water on the earth. Meerut District is the part of Upper Ganga-Yamuna doaba which lies between 28^o.98' & 29^o.15' north latitude and between 77^o.45' & 77^o.07' east longitude. The objective is to compute properties of a long period of time series is broken into separate components and analyzed individually to understand the pattern of rainfall. The annual and monthly rainfall data used for observed trend during long period. Analysis of rainfall data of a century (1916-2015) over Meerut plays a significant role in the agricultural and urbanization contribution and in the overall growth of the District. The data of annual rainfall and S-W rainfall is 689.6mm and 587.2mm respectively. The monthly south-west monsoon rainfall variability in years is observed maximum after 21st century. It is most important period of rainfall seasonal cycle. The analysis data of S-W monsoon observed highest rainfall 85.2% and lowest rainfall in post monsoon season 4.4%. The anomalous departures from the mean were observed the highest positive and negative departure from the mean of approximately -459.1 & 457.5 in year 2009 and 1933 respectively. The analysis included variability of rainfall, trends in rainfall pattern and changes in spatial and temporal patterns of Precipitation Ratio (PR) and Monsoon Precipitation Index (MPI). The maximum abnormality 2.46 and -2.04 in annual rainfall was recorded during 1933 & 2009. It is seen that the average MPI varied from 0.63 to 0.77. The trend in the annual rainfall showed that the rainfall decreasing in the area whereas south-west rainfall declined pattern of 3% changes was also observed in the century. The standardized anomalies results obtained show a fluctuating rainfall pattern across the years over Meerut District which makes it hard to freely forecast rainfall trend for a future season. The rainfall data analysis of Meerut District for a period of 100 years (1916 to 2015) reveals variation in the rainfall amount and points out a negative trend of rainfall in future. The information is useful for agriculturists and policy makers on critical issues is it affects seasonal agricultural practices such application of agricultural inputs, water resources maintenance and management practices. The global climate and the local environmental changes are the chief factors for the variation in rainfall over the recent times. The knowledge of current situation of weather and climate change related pattern and adaptation of technology is maintain trend. Uncertainty on the dates of monsoon onset and its withdrawal also puts a great problem before the farmers.

Keywords: Anomalies, Climate change, MPI, PR & South-west monsoon

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