

Statistical analysis of rainfall in Sagar division

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ABSTRACT

Sagar division comprises of five districts namely Sagar, Damoh, Panna, Tikamgarh and Chhattarpur. The Sagar division has its economy mainly dependent on agriculture which in turn, relies on rainfall. Hence to understand the problem of rainfall particularly for identification of any trend or persistence in the rainfall series, a climatological study of rainfall in the Sagar division is carried out. Beside studying the statistical parameters and cross correlation, other techniques like linear regression and polynomial regression have been applied to identify the presence of any trend.

The study indicated that the serial correlation was very poor; indicating absence of any persistence in the rainfall series of the region. The distribution of rainfall in the region is nearly normal. All the raingauge stations show very good correlation with their neighbouring raingauge stations. Linear regression of monthly rainfall data shows falling trend at some places in Panna and Tikamgarh districts and shows rising trend at some places of Sagar, Damoh and Chhattarpur districts. Polynomial regression of rainfall data has indicated non-linear trend in the seasonal and annual rainfall series at Raheli, Jatara, Ajaygarh and Panna. The polynomial regression of non-monsoon rainfall series do not indicate any trend.

From the decadal mean of annual rainfall series, it was seen that rainfall during the 1961-70 was low and it was high during 1971-80 and 1981-90 except at some places in Panna and Tikamgarh districts.