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THE CORRELATION BETWEEN SOUTHWEST AND NORTHEAST MONSOON RAINFALL OVER TAMILNADU

Tamilnadu gets a third of its annual rainfall during the southwest monsoon period (June to September) and nearly half during the northeast monsoon period (October to December) and as such, both the seasonal rainfall are important for the economy of the State. Failure of either monsoon will lead to non-availability of drinking water at many places. The situation becomes very serious if both the monsoons fail.

2. With a view to examine whether any correlation exists between the seasonal rainfall para-

meters for different parts of Tamilnadu, the present study has been taken up.

Data of 12 stations, viz., (1) Madras (Meenambakkam), (2) Vellore, (3) Cuddalore, (4) Salem, (5) Coimbatore, (6) Ootacamund, (7) Nagapattinam, (8) Trichy, (9) Madurai, (10) Pamban, (11) Tuticorin and (12) Nagercoil have been utilised in this study. The data pertains to the period 1901-1975.

3. The departure from normal of the rainfall in the southwest monsoon (June to September) and in northeast monsoon (October to December) for the above stations were calculated for each year "[Normals for these stations are based on Memoirs of the India Meteorological Department, Vol. XXXI Part III Monthly and Annual Normals of Rainfall and of Rainy Days]".

TABLE 1

Correlation coefficient between southwest monsoon and northeast monsoon rainfall for the period 1901 to 1975 in respect of observatory stations representing districts

S. No.	District	No. of years	Correlation coefficient
1	Madras (Meenambakkam)	75	-.09525
2	Vellore	68	-.06375
3	Cuddalore	74	-.08515
4	Salem	75	+.1344
5	Coimbatore	74	-.003407
6	Ootacamund	55	-.02320
7	Nagapattinam	75	+.04299
8	Trichy	74	-.1077
9	Madurai	75	+.1033
10.	Pamban	71	-.1776
11	Tuticorin	66	-.06677
12	Nagercoil	64	-.02308
North Tamilnadu			
Madras, Vellore, Cuddalore, Salem, Coimbatore & Ootacamund			-.1500
South Tamilnadu			
Nagapattinam, Trichy, Madurai, Pamban, Tuticorin & Nagercoil			-.1156

Calculated according to $\gamma = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$ method.

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These data were used to calculate the correlation coefficient according to Karl Pearson's method

$$\gamma = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

in respect of each of the above. These figures are presented in Table 1, which showed no significant correlation.

4. To examine whether random variation in individual stations of rainfall could have vitiated the results and to see whether grouping of stations would show up any inherent correlation, the above 12 stations were divided into two groups—one for north Tamilnadu and the other for south Tamilnadu. The departures from normal of the rainfall of the groups of stations were worked out for each year and the correlation coefficient determined for each group as was done in the case of individual station data. This analysis also gave poor correlation for both the groups having only -.15 and -.116 for north and south Tamilnadu respectively.

5. The present analysis clearly indicated that there is no significant correlation between southwest monsoon and northeast monsoon rainfall over Tamilnadu.

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