

end of the paper, *viz.*, (i) widespread rain over Gangetic West Bengal associated with a trough on 23 July 1957 and, (ii) the weak spell from 29 July to 4 August 1955 associated with an absence of troughs, do show very well the effect produced in *individual cases*, the general conclusion drawn, *viz.*, that the monsoon rainfall over Gangetic West Bengal etc is primarily controlled by the passage of these troughs, and that the pulsating nature of the monsoon rains is explained by the periodicity of their passage, seems to be too sweeping and insufficiently substantiated by the evidence presented. The figures given in Table 1 of the paper by Srinivasan are not as conclusive as they at first sight seem to be, and the argument is not free from fallacy.

In Table 1 for 1955 for instance, out of 50 rainy days there was a trough to the east of Calcutta on 19 days, over Calcutta on 16 days and to the west of Calcutta on 1 day only; there was no trough on 9 days. These figures, it is assumed by the author, demonstrate conclusively the role played by troughs in producing rainy days. But the real test to confirm this is, whether on the remaining 40 days which were non-rainy days, the distribution of troughs was the converse of the above distribution, (*i.e.*, more troughs to the west and fewer troughs to the east or over Calcutta), or at least that the distribution was markedly different from that on rainy days. Since normally many troughs would weaken and become unimportant on moving westwards (as the author himself points out elsewhere in the paper), there will even normally, be more troughs to the east than to the west of Calcutta. If the author were to give a table for non-rainy days similar to the table he has given for rainy days, one could compare and get a better picture of the extent to which the troughs were actually responsible for producing rainy weather.

A pertinent question to ask in connection with Table 1 is: Were there occasions when there was a trough simultaneously

REMARKS ON 'SOUTHWEST MONSOON
RAINFALL IN GANGETIC WEST
BENGAL AND ITS ASSOCIATIONS
WITH UPPER AIR FLOW PATTERNS'
BY V. SRINIVASAN

Srinivasan (1960) has studied the connection between monsoon rainfall over Gangetic West Bengal etc and the passage of westerly-moving upper air troughs over Calcutta. Although the actual instances given at the

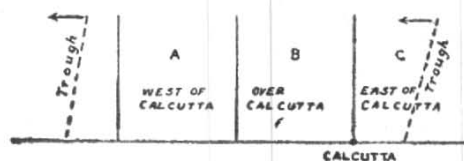


Fig. 1. Normal spacing of troughs

present both to the west and east of Calcutta? The frequency of troughs is given by the author as 1 in 3 days. One would therefore expect one trough normally to be present at any given moment in the sectors A, B and C put together (Fig. 1). But since there were occasions of rather prolonged spells without troughs, there would also be, to make up for these, a number of cases when there would be more than 1 trough present, e.g., a trough simultaneously in each of the sectors A and C. Since the figures in columns 2 to 6 in Table 1 add up, in all years, to exactly the figure in column 7, it would appear that such cases were not considered, or rather, it would appear that on occasions when a trough was located to the east of or over Calcutta, any trough simultaneously existing to the west of Calcutta was considered unimportant and left out of account in Table 1. This would amount to prejudging the issue, since the importance or otherwise of troughs in particular positions with respect to Calcutta is just what we are seeking to establish. This point needs to be clarified by the author. If such occasions of troughs existing to the west of Calcutta simultaneously with trough over or to the east of Calcutta are taken into account in column 4, these, added to the occasions without troughs (column 5), would considerably modify the picture presented in Table 1, so that one may not then be able to say on the strength of these figures that the monsoon activity is primarily controlled by troughs, to the extent that the existing Table 1 would show.

As regards (ii) i.e., downstream weather, the sequence of weather shown in Table 2 would also result from surface lows moving

westwards. Whether Table 2 has been compiled after eliminating those cases which could more simply be explained by surface trough movements, seems to require clarification from the author.

J. M. KORKHAO

*Regional Meteorological Centre,
Colaba, Bombay
May 18, 1960.*

REFERENCE

Srinivasan, V. 1960 *Indian J. Met. Geophys.*,
11, 1, p. 5.