

Fig. 1. Vertical time-section of winds over Port Blair, 8-10 Jan 1967

551·578·1 (548·1)

EXCEPTIONALLY HEAVY RAIN AT CUDDALORE ON 12 JANUARY 1967

An exceptionally heavy rain of 19.70 cm was recorded at Cuddalore at 0830 IST on 12 January 1967, the bulk of the amount, namely 12.90 cm falling as heavy continuous precipitation between 2330 and 0530 IST.

The normal rainfall for January at Cuddalore is only 6.63 cm while the heaviest fall on record for that month for 50-year period ending 1940 was

13.03 cm on 3 January 1920. But during the succeeding 26 years ending 1966, the heaviest fall was 13.14 cm recorded on 11 January 1961.

Hence 19.70 cm was the highest rainfall for 24 hours recorded so far at Cuddalore during the month of January. It was also a very localised fall since Nagapattinam about 100 km to the south did not record any rainfall on that day while Madras about 170 km to the north recorded only 0.2 cm. However, Kallakuruchi, Salem, Coimbatore and Ootacamund situated almost along the same latitude to the west recorded on that day rainfalls ranging from 1.6 to 3.2 cm which indicated the east-west orientation of the rainfall belt.

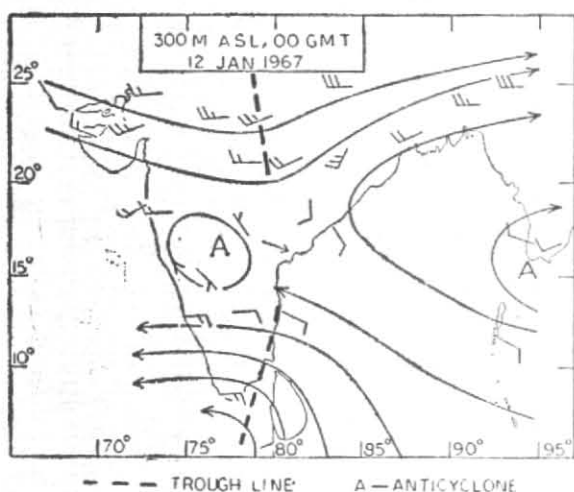


Fig. 2. Winds and streamlines

The record rainfall occurred in association with a low pressure area which, moving across south Bay of Bengal on 10th and 11th, lay as a trough of low pressure over southwest Bay of Bengal and adjoining parts of the coast of Madras State on the morning of 12th. The associated upper level trough was seen over Port Blair on the morning of 9th (Fig. 1) which moving westwards at about 13 knots (the rate of propagation of waves in the easterlies found by Riehl) lay well marked in the mid-troposphere (Fig. 2) to the south of Madras on the morning of 12th with Cuddalore in its northeastern part.

Riehl has stated that "easterly waves of weak or moderate strength attain their maximum intensity in the middle troposphere from 700 to 500 mb and the zone of most intense convergence associated with them is indicated by excessive amounts of rainfall, as much as 12 inches (30.5 cm) in 24 hours, especially in the northeastern part of that zone but proof cannot be offered."

It was, therefore, concluded that the zone of maximum convergence associated with the mid-tropospheric trough shown in Fig. 2 lay to the southwest of Cuddalore on 12 January 1967 and resulted in the record rainfall. Though heavy rainfall in January was normal along the coastal strip from Cuddalore to Pamban, three times the normal for the whole month occurring in 24 hours was a rather rare climatological feature.

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REFERENCE

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