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A STUDY OF CONVECTIVE CLOUDS AROUND MADRAS DURING THE NORTHEAST MONSOON SEASON

Extensive radar observations of clouds were taken during the Monex-77 and Monex-79 periods of 1977 and 1979. Since Madras and neighbourhood get the major part of their precipitation in northeast monsoon season, viz., October-December, it was considered desirable to run a comprehensive observational programme with the S band radar at Madras during the NE monsoon seasons of 1977 and 1979. The precipitation during this season is associated with low pressure troughs and low pressure areas moving in from Bay of Bengal. A study of numerous RHI pictures show that a majority of the echoes are from convective cells. Data collected and archived on 35 mm \times 30 m positive films were analysed for cloud heights, spatial distribution, time distribution etc and the results are presented here.

Fig. 1 gives the histogram of the percentage of tall clouds (height greater than 10 km) fortnightly. It can be seen that with the progress of the season, there is a marked decrease in the percentage of occurrence of tall clouds. There were two severe cyclones within radar range of Madras during November 1977 and a cyclone during November 1979.

In order to see the presence of diurnal variation, if any, the day was divided into six four-hour periods as morning (4-8 IST), forenoon (8-12 IST), afternoon (12-16 IST), evening (16-20 IST), early night

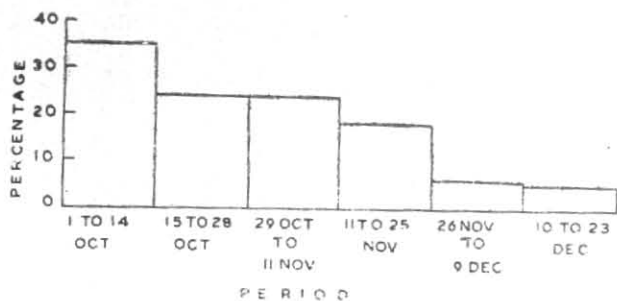


Fig. 1. Percentage distribution of tall clouds during NE monsoon

(20-24 IST) and late night (24-04 IST). Percentage distribution of the tall clouds during different periods of the day fortnightly is given in Fig. 2. It is seen that the occurrence of tall clouds is possible on any part of the day in the season except towards the end of the season. Unlike during SW monsoon season (Raghavan *et al.* 1981) there is no preference for any

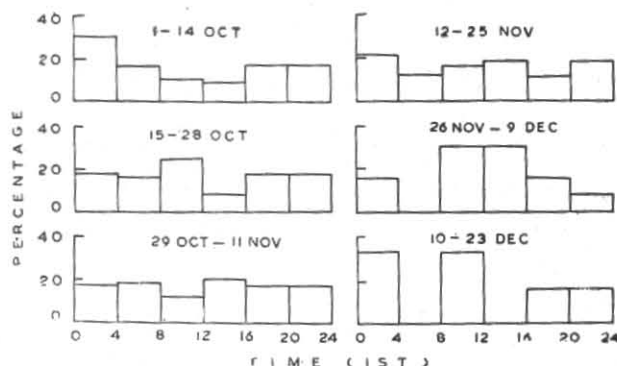


Fig. 2. Percentage distribution of tall clouds during different parts of the day

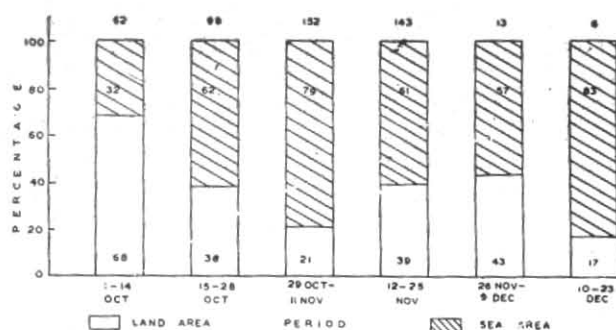


Fig. 3. Percentage distribution of tall clouds over land and sea area in NE monsoon (No. at the top gives the total population for the period)

specific part of the day for occurrence of tall clouds. Fig. 3 presents the land and sea distribution of tall clouds around Madras in per cent value. The convective activity over the sea substantially increases with the progress of the season.

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Reference

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