

STREAMERS GIVING HEAVY RAINFALL IN THE REAR OF CYCLONES

In a recent paper Mukherjee and Padmanabham (1980) have drawn attention to the fact that cyclonic storms striking the Saurashtra coast invariably give rise to significant amount of rainfall over Bombay which is about 300 km south-southeast of the Saurashtra coast. In one of the cases studied by them, they have presented a radar picture of 23 October 1975 which clearly shows that the rainfall was concentrated over a narrow line oriented roughly northeast to southwest. It is also significant that on this occasion Dahanu on the north Maharashtra coast recorded only 1.4 mm of rain while Bombay had 18.9 mm. Thus it would seem that a narrow belt of rainfall occurs some 300 km from the storm centre in the right rear sector at about the time of landfall of the storm, and that relatively little rainfall occurs at intermediate points.

In recent studies of Bay of Bengal storms Raghavan *et al.* (1980 a, 1980 b) have drawn attention to the occurrence of "streamers" or narrow trailing bands of rainfall in the right rear sectors of storms crossing the Andhra Pradesh coast. Observed with a radar at Madras these streamers were in the form of one or two broken lines of intense convective cells which formed only on the day of landfall of the storm, persisted without appreciable motion for several hours and then dissipated. The radarscope pictures suggest that these may form part of the spiral band system of the storm but there is an appreciable separation between the main echo mass of the storm and the streamers with little or no rainfall in between. A typical radar echo distribution in one of these storms is given in Fig. 1. As the streamers dissipated at sea in all these cases, no surface rainfall data exist to compare with the

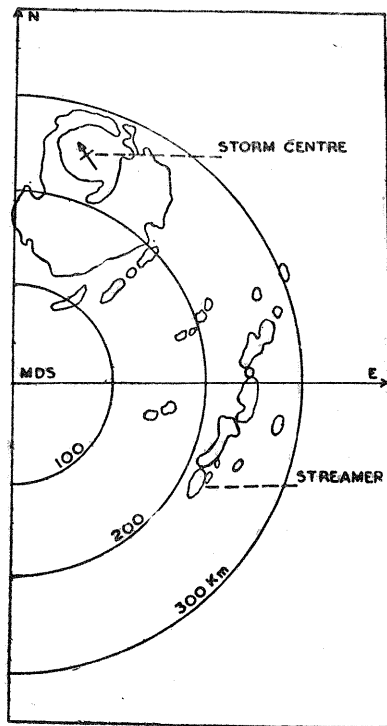


Fig. 1

radar picture. In the case of storms crossing the Tamil Nadu coast similar streamers could not be observed from Madras presumably because the right rear sector does not usually come within radar range.

If we can assume a formation of streamers similar to the pattern of Fig. 1, for Arabian Sea storms the observations of Mukherjee and Padmanabham fit in perfectly. This pattern leads us to expect appreciable rainfall in a narrow belt in the right rear sector at a distance of the order of 300 km from the storm centre. In the case of storms crossing the Saurashtra coast, this posi-

tion would evidently be near Bombay; the occurrence of rainfall over Bombay with relatively less rainfall over other parts of the Maharashtra coast will be the result. In the case of storms crossing any other part of the west coast of India, we could similarly expect appreciable rainfall in narrow belts well to the south of the landfall point. This will be a useful forecasting tool.

Cyclone Warning Radar, Madras

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References

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