that the droplets in the region of radius between 10^{-7} \text{ cm} \text{ and } 10^{-6} \text{ cm} \text{ would require lower saturation ratio than expected by the above equation. Natural aerosols have also a high concentration in this range of size (Mason). Thus it is quite possible that condensation nuclei of much smaller radii are actually activated in the atmosphere that hitherto believed due to lowering of the saturation ratio as result of the recent findings on the dependence of surface tension on the curvature of the droplet.

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References

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551.515.1 : 551.577.3

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 southwest 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 \textit{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 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-
RADIATION FLUXES AT PUNE DURING THE SOLAR ECLIPSE ON 16 FEBRUARY 1980

The magnitudes of the global, diffuse and reflected solar radiation and the net radiation fluxes for the duration of the solar eclipse at Pune on 16 February 1980 were computed, and these were compared with the radiation parameters on the following day 17 February 1980 during the same period to bring out clearly the changes during the eclipse period.

At Pune, the start of the eclipse was at 1420 IST and the end was at 1652 IST. The maximum phase was at 1541 IST which was 90 per cent of totality.

The records of the following instruments installed at the Central Meteorological Observatory, in the Agricultural College Campus at Pune were utilised:

(a) Pyranometers for measurement of global, diffuse and reflected radiation and

(b) Funk type pyradiometer for measurement of net radiation.

The rate of respective radiation fluxes (calories per square centimetre per minute) were plotted against the time interval and their graphs are given in Fig. 1(a-d). The graphs for 16th and 17th for each parameters are superimposed in the same diagram.

Table 1 gives a comparative study of the fluxes during the period of the eclipse on 16 February 1980 and during the same period on 17th. There was clear sky condition at Pune both on 16th and 17th. Hence, the reduction in fluxes can be taken to be solely due to the eclipse.

2. There were considerable changes in radiation parameters during the eclipse which was partial at Pune.

Fig. 1. Changes in radiation fluxes at Pune during the solar eclipse on 16 Feb 1980. Start of eclipse: 1420 IST (1331 LAT). Maximum (90%) 1541 IST (1452 LAT). End of eclipse: 1652 IST (1603 LAT)