

551-557 (54)

WINDS AT 40,000 FEET AND ABOVE
OVER CALCUTTA DURING THE
SOUTHWEST MONSOON PERIOD

On account of persistent low clouds associated with the monsoon, the number of available actual observations of winds at 40,000 ft and at higher levels over Calcutta during the southwest monsoon period is almost nil¹. Consequently, any observations available for such high levels over Calcutta during the monsoon period are of special interest.

2. In connection with the first test flight of the Comet Jet Airliner from London to Calcutta in the first week of September 1951, special efforts were made by the India Meteorological Department to take pilot balloon observations upto very high levels at Calcutta (and also at other stations all over India) on 1, 2 and 3 September. It was possible on this occasion to obtain data on three successive days over Calcutta upto 55,000 ft and in one of these ascents (total number of successful ascents was 4), data were available even upto 70,000 ft. The observations were consistent with one another and as they were recorded by different observers, they may be considered as reliable. In view of the fact that they relate to the first few days of September, they may also be considered as representative of the typical monsoon month of August.

3. The observations suggest that easterlies extend over Calcutta during the mid-monsoon period upto 70,000 ft and that they generally increase in speed with height at least upto 65,000 ft, the speed at the last mentioned level being of the order of 40-45 knots. This conclusion which is based on actual observations is supported by Petterssen's² average meridional cross-section of the northern hemisphere in summer above 40,000 ft based on radiosonde and other aerological data and by the planetary circulation in vertical planes suggested by Goldie³. The Calcutta wind observations also fit in

well with the general picture of stream-line motion at different levels in the monsoon period presented by Venkiteshwaran¹.

4. The radiosonde ascents for Calcutta for the period 1 to 3 September 1951 did not extend beyond 45,000 ft. They suggest that the tropopause over Calcutta during this period lay well above 45,000 ft.

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REFERENCES

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2. Peiterssen, S., *Centenary Proc., R. met. Soc.*, p. 124 (1950).
3. Goldie, A. H. R., *Centenary Proc. R. met. Soc.*, p. 176 (1950).