

## Some features of mean clouding over Bay of Bengal during July and August 1968 and 1969

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**ABSTRACT.** ESSA-8 APT pictures over the Bay of Bengal during forenoon hours of July and August of 1968 and 1969 have been examined for making a quantitative measurement of clouding over Bay of Bengal. For this purpose, the Bay of Bengal between longitudes 80°E and 95°E north of the equator was divided into  $2\frac{1}{2}^\circ$  squares and total clouding over each square every day was estimated from the satellite pictures. Graphs showing mean clouding over each  $2\frac{1}{2}^\circ$  latitudinal belt have been drawn separately for each month. It is seen that the mean clouding gradually decreases while going from equator to about 10°N and then rapidly increases to the north upto latitude 20°N. The least value is found to lie somewhere between latitudes 6° to 9°N for all the four months. The least value for August occurs over a slightly northern latitude than that for July. The mean clouding is found to be less in August than in July over latitudes lying to the north of the latitudinal belt of least clouding. This position is reversed equatorwards. The mean clouding has also been studied in relation to the depressions and the position of the monsoon trough.

1. ESSA pictures of the Indian region photographed during the forenoon hours of July and August of 1968 and 1969 have been studied to have an idea of the average conditions of cloudiness over the data sparse area of the Bay of Bengal during mid southwest monsoon period. Cloud features associated with weak monsoon periods are also brought out.

2. For this purpose, the Bay of Bengal area between the longitudes 80° and 95°E was divided into  $2\frac{1}{2}^\circ$  squares upto the equator and total clouds cover comprising of all types of clouds over each square was estimated from the pictures in terms of octas (eighth part of the square) every day. The monthly mean value for each square was calculated and plotted on a map in the respective square. Maps thus prepared were analysed by drawing iso-cloudiness lines for different magnitudes. Maps for July and August 1968 and 1969 are given in Figs. 1 to 4. Areas of maximum and minimum clouding are indicated in these maps.

3. In order to bring out preferred areas of greater clouding, percentage frequency of days on which more than half the square was clouded was obtained for each square from the same data for July and August and plotted. These maps are given in Figs. 5 and 6.

4. During the period 13 to 16 July 1968 and 15 to 20 August 1969 the monsoon was weak over the country. In order to delineate the areas of maximum and minimum clouding during these

periods, maps showing average cloudiness during these short periods were prepared and their analysis is shown in Figs. 7 and 8.

5. The above analysis brings out the following features —

- (i) July charts for both 1968 and 1969 showing mean clouding indicate that the minimum clouding occurs to south of Lat. 10°N and west of Long. 90°E, lowest value being towards southeast of Ceylon. Maximum clouding occurs generally to the north of Lat. 10°N and particularly along Orissa-Bengal and Burma coasts. Clouding in July 1968 was little more than that in July 1969.
- (ii) Both August charts show a northward shift in the area of minimum clouding by about 3 to 5°. Other features are similar to those in July. Cloudiness in August 1968 also was slightly more than in August 1969.
- (iii) The maximum clouding extends along Burma coast upto Lat. 15°N.
- (iv) The analysis of the percentage frequencies of days on which more than half the square is clouded shows similar variations in the cloudiness in July and August.
- (v) During the weak monsoon period of 13-16 July 1968 the area of maximum clouding is seen to lie in the Central Bay.

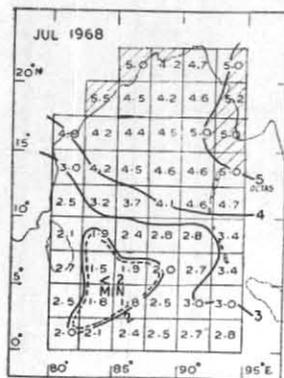


Fig. 1

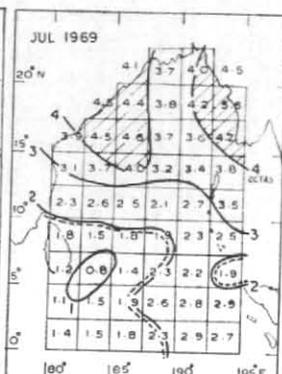


Fig. 2

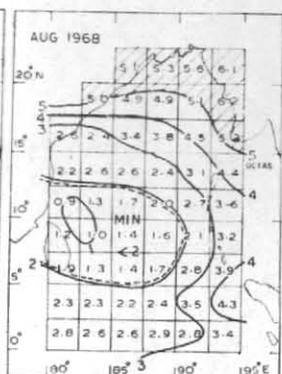


Fig. 3



Fig. 4

## Mean clouding in July and August

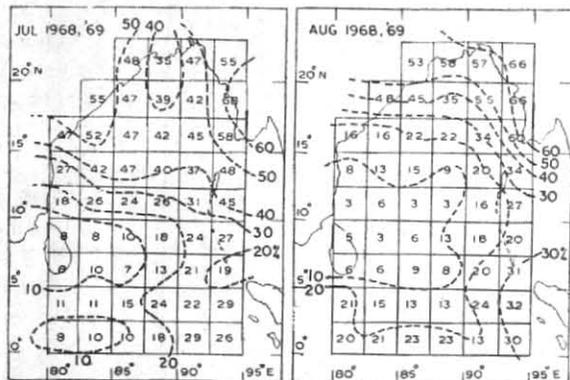


Fig. 5

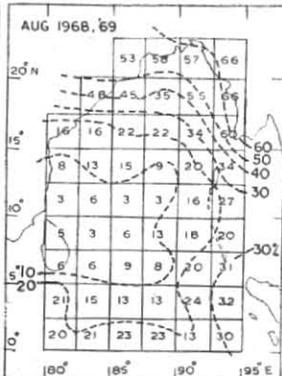


Fig. 6



Fig. 7

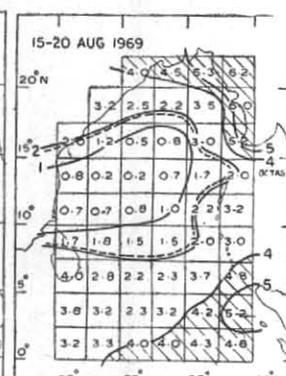


Fig. 8

Percentage frequency of days when more than half the area is covered with clouds

Mean clouding during weak monsoon

(vi) During the period 15 to 20 August 1969 area of minimum clouding is seen to the north of the mean position and maximum

clouding is along Burma coast. A secondary maximum lies over eastern side of the belt south of Lat. 5° N.

## DISCUSSION

DR. A. S. RAMANATHAN remarked that in the first half of July 1968 the monsoon trough was south of its normal position.