550.34 : 551.515(267)

ON THE MICROSEISMS ASSOCIATED WITH THE BAY CYCLONE — 30 SEPTEMBER 1959

Recently Iyer and Kartha (1960) have reported a general rise in the microseismic activity at Cochin from 25 to 29 September 1959. However, the records of the seismographs at Colaba (Bombay) do not show any increase in the microseismic activity on that day or even upto 29 September 1959. Storm-type microseisms commenced at Colaba (Bombay) from about 18 GMT on 29 September 1959 and continued till about 18 GMT of 1 October 1959; the maximum amplitudes were recorded between 12 and 18 GMT on 30 September. The average periods of these microseisms were 4-5 seconds. The amplitudes, periods and type of the microseisms recorded at Colaba (Bombay) by a Sprengnether microseismograph (E-W component, with a free period of 7 seconds, set to a peak magnification of 5000 and critical damping and paper speed of 30 mm per minute) for 00, 06, 12 and 18 GMT from 24 September to 2 October 1959, are given in Table 1. The curves given in the paper by Iyer and Kartha exhibit a decrease in the microseismic activity at 1400 IST on

TABLE 1

Microseismic tabulation (September-October 1959) Colaba Observatory, Bombay

	Hours (GMT)	A (mm)	T (sec)	K
24-9-59	0	0·9	4·0	(2)
	6	1·0	4·4	(2)
	12	1·1	4·1	(2)
	18	1·1	4·3	(2)
25-9-59	0	1·2	4·0	(2)
	6	1·3	4·5	(2)
	12	1·3	4·4	(2)
	18	1·1	4·4	(2)
26-9-59	0	1·1	4·3	(2)
	6	1·0	4·1	(2)
	12	1·3	4·2	(2)
	18	0·9	4·2	(2)
27-9-59	0	1·1	4·3	(2)
	6	1·1	3·8	(2)
	12	—	—	—
	18	1·0	3·7	(2)
28-9-59	0	1·3	3·4	(2)
	6	1·3	3·1	(2)
	12	1·1	3·1	(2)
	18	1·1	3·2	(2)
29-9-59	0	1·3	3·3	(2)
	6	1·3	3·0	(2)
	12	1·3	3·4	(2)
	18	—	—	(1)
30-9-59	0	1·5	3·8	(1)
	6	2·0	4·1	(1)
	12	2·4	4·2	(1)
	18	2·6	4·3	(1)
1-10-59	0	1·8	4·1	(1)
	6	1·5	3·0	(1)
	12	1·3	3·3	(1)
	18	1·3	3·1	(1)
2-10-59	0	1·1	3·1	(2)
	6	1·0	2·3	(2)
	12	0·8	2·6	(2)
	18	0·7	2·3	(2)

A = Single trace amplitude of microseisms (in mm) measured from the Sprengnether microseismograph records, being the average of five readings during the half hour interval centred round the GMT hour

T = Average period of microseisms (in sec) measured in the same way as the amplitudes

K = Type of microseisms : (1) group microseisms (2) normal microseisms, (3) mixed microseisms, with 2 or more periods

— = No measure

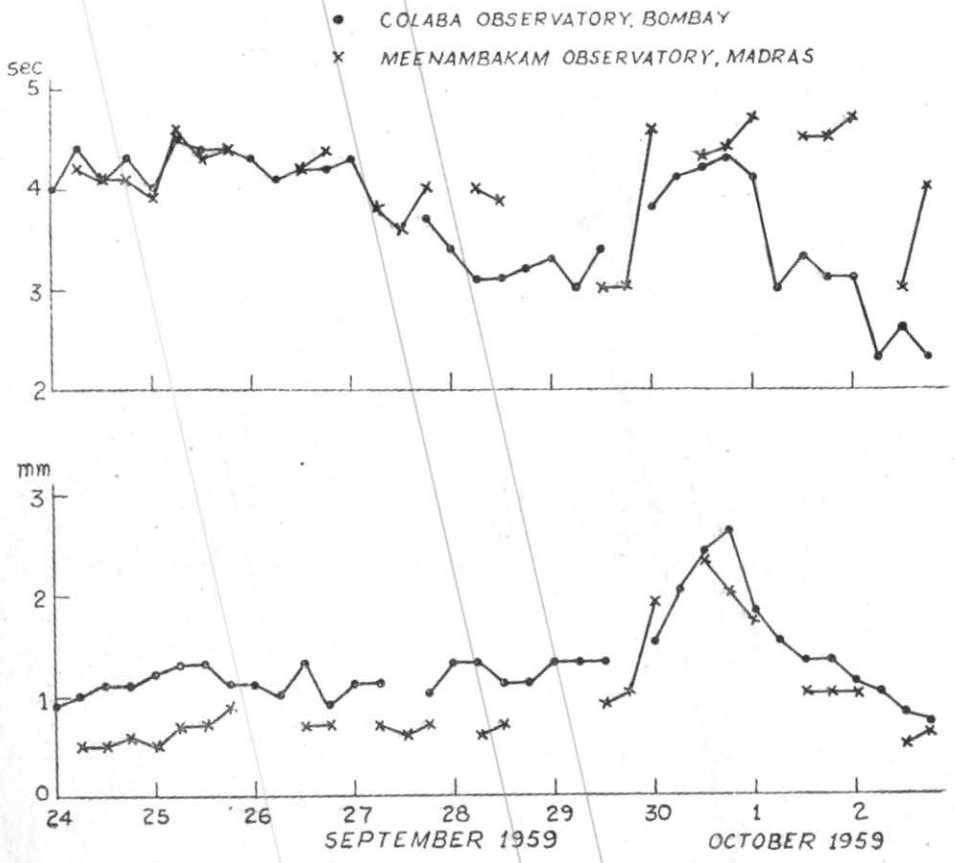

Fig. 1. Microseismic tabulation for September-October 1959

30 September, while the Bombay and Madras microseismographs recorded a maximum in their amplitudes. The synoptic charts indicate an intensification of the disturbance in the Bay into a cyclone only by the morning of 30 September. An examination of the microseismograph records of Madras for this period does reveal a temporary, slight rise in the microseismic activity on 25 September which disappears on 26 September. The storm-type microseisms began to appear on the Madras records from about 12 GMT on 29 September and lasted till about 18 hr of 1 October, as at Bombay. The amplitudes, periods and type of the microseisms recorded at Madras* by a Sprengnether microseismograph (E-W component, with constants same as that of Bombay) are given in Table 2.

It appears, therefore, that the rise in the microseismic activity and the increase in the amplitudes in the various frequency ranges, particularly in the ranges 2-3, 3-4 and

*We are grateful to the Regional Meteorological Centre, Madras, for the loan of these records

TABLE 2

Microseismic tabulation (September-October 1959) Meenambakkam Observatory, Madras

	Hours (GMT)	A (mm)	T (sec)	K
24-9-59	0	—	—	—
	6	0·5	4·2	(2)
	12	0·5	4·1	(2)
	18	0·6	4·1	(2)
25-9-59	0	0·5	3·9	(2)
	6	0·7	4·6	(2)
	12	0·7	4·3	(2)
	18	0·9	4·4	(2)
26-9-59	0	—	—	—
	6	—	—	—
	12	0·7	4·2	(2)
	18	0·7	4·4	(2)
27-9-59	0	—	—	—
	6	0·7	3·8	(2)
	12	0·6	3·6	(2)
	18	0·7	4·0	(2)
28-9-59	0	—	—	—
	6	0·6	4·0	(2)
	12	0·7	3·9	(2)
	18	—	—	—
29-9-59	0	—	—	—
	6	—	—	—
	12	0·9	3·0	(1)
	18	1·0	3·0	(1)
30-9-59	0	1·9	4·6	(1)
	6	—	—	—
	12	2·3	4·3	(1)
	18	2·0	4·4	(1)
1-10-59	0	1·7	4·7	(1)
	6	—	—	—
	12	1·0 0·9	4·5 3·7	(3)
	18	1·0	4·5	(1)
2-10-59	0	1·0 0·5	4·7 3·0	(3)
	6	—	—	—
	12	0·5	3·0	(2)
	18	0·5 0·6	3·0 4·0	(3)

A = Single trace amplitude of microseisms (in mm) measured from the Sprengnether microseismograph records, being the average of five readings during the half hour interval centred round the GMT hour

T = Average period of microseisms (in sec) measured in the same way as the amplitudes

K = Type of microseisms : (1) group microseisms, (2) normal microseisms, (3) mixed microseisms, with 2 or more periods

— = No measure

4-5 seconds, detected by the equipment available at the Indian Naval Physical Laboratory, Cochin, is attributable to a strengthening of the westerly monsoon current over the areas on either side of the south Peninsula, a necessary precursor to the formation of a Bay cyclone.

Apparently, the absence of the rise in the microseismic activity at Colaba (Bombay) between 25 September and 29 September is due to the absence of the monsoon current in the vicinity of Bombay.

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September 1, 1960

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