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UTILITY OF PRECIPITATION INDEX FOR LOCAL FORECASTING AT BOMBAY DURING THE MONSOON MONTHS

The radiosonde data of Juhu (Bombay) —Lat. 19° 07'N Long. 72°.50'E, Ht. 9 ft above mean sea level, situated on the coast-line, available only for the monsoon months of July, August and September 1950, were examined with a view to see whether precipitation index calculated on the basis of Schell's [1] method could be of any guide in local forecasting at Bombay. A 12-hour period following the ascents was taken into consideration for determining the probability of rain. The frequency distribution and the percentage of occurrence of rainfall corresponding to different ranges of precipitation index are tabulated in Table 1 below—

2. It is seen from the table that in cases where the index is greater than 7, precipitation occurred on all occasions. This high index is evidently due to the fact that during the monsoon months in Bombay, the atmosphere is highly humid in the lower layers thus accounting for the large values of the ratio w/L, also the lift necessary for condensation being small. It is also clear from the same table that there is no significant relationship between the intensity of the precipitation and the magnitude of the precipitation index.

3. A similar examination was made in case of Poona taking into account data for July, August and September 1950 only, and the critical value of the index worked out to be 8. Rao, Sarma and Lal[2] in their studies found the critical values of 3 for Madras, 6 for New Delhi and 5 for Nagpur respectively. The differences in the critical values of the precipitation index are due not only to the varying moisture content at the different places but also to varying mechanisms of rainfall.

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REFERENCES

1. Schell, *Bull. Amer. Met. Soc.* (1946).
2. Rao, D.V. *et al.*, *Ind. J. Met. Geophys*, **1**, 2, pp. 105-115 (1950).

TABLE 1

Index Range	Total No. of occasions	Number of occasions of				Percentage No. of occasions of rain
		No rain	$<\frac{1}{2}''$	$\frac{1}{2}$ to $1\frac{1}{2}''$	$>1\frac{1}{2}''$	
<1	0	0	0	0	0	—
1—2	13	8	4	1	0	38
2—3	15	4	8	2	1	73
3—4	9	0	7	1	1	100
4—5	13	5	4	4	0	61
5—6	7	1	3	1	2	86
6—7	8	3	3	0	2	63
7—8	10	0	8	1	1	100
8—9	3	0	2	1	0	100
9—10	1	0	0	0	1	100
10—11	1	0	0	0	1	100
11—12	2	0	1	1	0	100
12—13	2	0	0	0	2	100