Letters to the Editor

PIBALS IN FORECASTING

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An idea of the expected stability and instability of the atmosphere over a given station can be obtained by examining the variation of upper wind with height when an upper air sounding either by a Radio Sonde or an Aeroplane ascent is not available for the station. Pibal data of a few stations have been examined for a limited period to find out how far their directional variation with height can be of help in forecasting improvement or deterioration in weather, as regards occurrence of rain, at a place. The results are not encouraging.

Only occasions preceding rain have been examined; the examination was limited to the change with height of the wind data before occurrence of rain for two years at Karachi and for six months each at Calcutta, Lahore and Madras. For this purpose, data of the last routine flight, previous to the time of commencement of rain, if it reached upto at least 5,000 ft. were used; and if it was a failure or reached height less than 5,000 ft., the routine flight previous to this, if this reached upto at least 5,000 ft., was used. If neither of the two routine flights previous to the occurrence of rain reached upto at least 5,000 ft., that occasion has not been taken into account. Wind data higher than 10,000 ft. were not used, as on most days, data of levels higher than 10,000 ft. were not available from the flights taken into account. The number of occasions when rainfall occurred after wind 'backing – B', 'veering – V', 'backing and veering – BV', 'veering and backing – VB', 'veering, backing and veering – VBV', or 'backing, veering and backing – BVB' and 'no change' are given for Karachi, Calcutta, Lahore, and Madras in tables I and II. The table I is based on wind data from the last routine flight preceding the rain and the table II is based on the data from the last but one routine flight before the rain.

TABLE I.

Number of occasions of rain with variation of wind obtained from the immediately preceding routine flight.

Stations	V	BV	B	VB	BVB VBV	No change.
	1	2	3	4	5	6
Karachi (1944-1945) ..	5	..	1	4	4	1
Calcutta (July-December, 1945)	10	2	..	7	3	2
Lahore (July-December, 1945)	8	4	..	4	3	..
Madras (July-December, 1945)	16	6	6	10	8	4
All four stations	39	12	7	25	18	7

TABLE II.

Number of occasions of rain with variation of wind obtained from the last but one routine flight.

Stations.	V	BV	B	VB	BVB	No change
Karachi (1944-1945)	8	1	3	1	3	1
Calcutta (July-December, 1945)	7	..	7	6	5	1
Lahore (July-December, 1945)	7	..		4	8	..
Madras (July-December, 1945)	17	7	4	15	4	2
All four stations	39	8	18	2	20	4

In columns 2 and 3 are given the number of occasions when wind was veering with height, or backing in the levels and veering aloft, indicating that the atmosphere was becoming more stable, and an improvement or no deterioration in weather was expected, but was actually followed by rain. In columns 4 and 5, are given the number of occasions when wind was backing with height or veering in the lower levels and backing aloft indicating that the atmosphere was becoming less stable, and, as expected, was followed by rain. It may be noted that the distribution of the number of occasions in the different columns are more or less similar at all the four stations. It is seen that the number of occasions of rain in columns 2 and 3 when wind indicated that the atmosphere was becoming more stable was *more* than the number of occasions of rain in columns 4 and 5 when the atmosphere was becoming less stable as indicated by wind. The largest number of occasions of rain for all the stations occurred with wind veering with height. It would thus appear that an examination of variation of upper wind direction with height upto 10,000 ft. over any of these stations, and perhaps also over any other station, is not helpful in forecasting improvement or deterioration in local weather as regards occurrence of rain.

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