

Letters To The Editor

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SOME INFERENCES FROM THE AVERAGE RAINFALL PER RAINY DAY IN INDIA

An examination of the average rainfall per rainy day may sometimes give us an indication of the mechanism in the atmosphere which leads to the rainfall. The average rainfall for a station is dependent on whether it has been caused by the activities of western disturbances, northeast monsoon or southwest monsoon and also on the orography of the place and the location of the station with respect to the field of activity of the disturbances. The aspect of the average rainfall on a rainy day for some selected stations in India has been considered in this note.

Doraiswamy Iyer and Sobti (1938) have published the average intensity of rainfall per rainy day in India based on district average of rainfall and number of rainy days. In this note the average rainfall per rainy day for different months for 10 stations in India are shown and certain tentative inferences drawn from them are discussed. The basic data of rainfall and number of rainy days published in the *Climatological Tables of Observatories in India* (1953) have been used. The number of rainy days represents the number of days on which the station had rainfall of 10 cents or more in 24 hours ending 0830 IST. It has been assumed that the contribution of days with rain less than 10 cents to the total rainfall of the station is negligible. Therefore, it is not very incorrect to take the number of rainy days published in the *Climatological Tables of Observatories* for the calculation of the average intensity of rainfall per rainy day.

Table 1 gives the average rainfall per rainy day in respect of 10 stations month by month.

The data in the above table shows the following features—

Dibrugarh—On the average about half an inch of rain occurs on a rainy day during the period from November to March. The amount increases to about an inch in the southwest monsoon period.

Pamban—Approximately half an inch of rain occurs on a rainy day during most time of the year, excepting the northeast monsoon period when the amount increases to about an inch per rainy day.

The average rainfall on a rainy day in the case of Pamban in the northeast monsoon period is practically the same as that in the case of Dibrugarh during the southwest monsoon period. Thus from the point of view of the average rain on a rainy day at a station the northeast monsoon appears to be more or less equivalent to the southwest monsoon.

Srinagar—The average amount of precipitation per day is uniformly the same throughout the year. Here again, the amount is about half an inch per day.

The average rainfall on a rainy day for a plain station in the field of activity of the southwest or northeast monsoon is one inch or more and about half an inch at Srinagar under the influence of the activity of the western disturbances. This fact may be taken to indicate that the rain producing capacity of the western disturbances over a place such as Srinagar is half or less than half of that of the southwest or northeast monsoon over a plain station.

As the average rainfall on a rainy day at Srinagar is practically the same throughout the year, Srinagar appears to be outside or on the fringe of the field of the southwest monsoon, and the southwest monsoon current loses much of its rain producing capacity by the time it reaches Srinagar.

TABLE 1

Month	Dibru- garh	Pam- ban	Sri- nagar	Manga- lore	Bombay	Nagpur	Luck- now	Calinga- patam	Madras	Cherra- punji
January	0.40	0.64	0.47	0.55	0.70	0.46	0.51	0.37	0.83	0.50
February	0.39	0.61	0.46	0.70	0.80	0.46	0.45	0.47	0.59	0.60
March	0.48	0.51	0.49	0.70	0.50	0.40	0.38	0.73	0.73	1.02
April	0.70	0.57	0.47	0.67	—	0.46	0.42	0.51	0.68	1.64
May	0.77	0.57	0.44	0.92	0.81	0.38	0.59	0.80	0.94	2.29
June	1.01	0.50	0.41	1.51	1.30	0.87	0.81	0.74	0.50	4.24
July	0.99	0.57	0.47	1.41	1.10	0.89	0.89	0.64	0.53	3.50
August	0.95	0.59	0.46	0.90	0.71	0.86	0.84	0.72	0.58	2.67
September	0.90	0.60	0.44	0.68	0.82	0.75	0.93	0.76	0.67	2.26
October	0.70	0.91	0.42	0.78	0.82	0.70	0.75	1.08	1.13	2.09
November	0.53	0.90	0.40	0.65	0.66	0.70	0.55	1.25	1.26	1.50
December	0.45	0.81	0.39	0.73	0.40	0.59	0.46	1.35	1.01	0.70

Mangalore and Bombay—They get on the average one to one and a half inch of rain per rainy day in the monsoon months of June and July, and half an inch to three quarters in the other months.

Nagpur and Lucknow—The average approaches an inch during the southwest monsoon period. It is half an inch to three quarters in other months.

The average rainfall on a rainy day during the southwest monsoon for Mangalore is higher than that of Nagpur and Lucknow and may be ascribed to the greater effect of orography in the case of Mangalore.

Calingapatam and Madras—The average rainfall on a rainy day is one, or one and quarter inch in the northeast monsoon period, half an inch to three quarters in the other months.

Northeast monsoon seems to have greater effect on Calingapatam rain than the southwest monsoon. The high average rainfall on a rainy day in the northeast monsoon period may also be partly due to the effect of the post monsoon storms or depressions in the Bay of Bengal.

Cherrapunji—Although half an inch to three quarters of rain occurs here on the

average on a rainy day in the months from December to February, the rainfall amount shoots up to three to four inches in the active monsoon months. This shows that the orography can increase the rain producing capacity of the southwest monsoon on a rainy day on the average by three to four times in the extreme case.

To summarise, it is inferred that the average rainfall per rainy day is 1" or more in the case of plain stations lying in the field of activity of the southwest and northeast monsoon. During the rest of the year at most places including those lying in the field of activity of western disturbances rainfall on an average rainy day is approximately half an inch. The average rainfall per rainy day at hill stations is noticeably greater than that for the plain stations.

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REFERENCE

- Doraiswamy Iyer, V. 1938 *India met. Dep. Sci. and Solti, K. Notes, 7, 76.*