

CLOUD BURST OVER CALCUTTA AIRPORT

1. Cloud burst is a sudden heavy precipitation and occurs sometimes over mountainous places. It is explained that when the thermals supporting the *Cb* cloud are cut off, which may happen when the cloud drifts from one side of the mountain to the other, a cloud burst occurs. The fierce cloud burst over Pahalgam, Srinagar (J & K), in the evening of 20 July 1963 resulted in a sudden flood. According to press reports 40 people were feared to have been killed and a few buildings and vehicles were swept away. One such cloud burst accompa-

nied by a thunderstorm occurred over Calcutta airport on 29 July 1971. The duration of the cloud burst was about 45 minutes and it occurred in the afternoon between 1415 and 1500 IST. Calcutta airport recorded 95 mm rainfall during the cloud burst and for the day ending 0830 IST next day it was 105 mm. Calcutta (Alipore) which is about 10 miles southwest of Calcutta Airport recorded only 1 mm of rainfall.

2. At about 1230 IST the weather radar at Calcutta (Japanese make NMD-451A) detected scattered cells towards WNW at distances of 50-60 n. miles, maximum top being 5 km and towards NE and E at 25-55 n. miles, maximum top



Fig. 1. Radar photograph of PPI scope at Calcutta Airport on 29 July 1971
Figures in the L & R bottom corners indicate time (IST) and range rings (km)

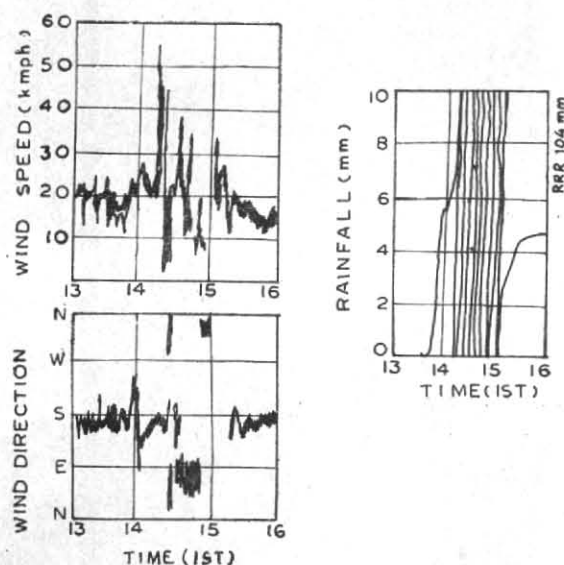


Fig. 2

being 6 km. Before 1230 IST there was no cell towards NW. By about 1330 IST the cells towards WNW formed a small line extending from 290°N to 320°N (tops 7 km) and those towards NE and E also increased in height from 6 to 7 km. Before the next radar observation at 1430 IST, a fresh cell developed very rapidly to the NW and very close to Calcutta Airport. The 1430 IST radar observation indicated a Cb cell at $310^{\circ}\text{N}/5$ n.m., the top being 8 km. The light rain which commenced at 1345 IST turned into a cloud burst at 1415 IST in association with the drifting of the above cell over the station. The cloud burst ceased by about 1500 IST. The cells towards WNW moved from 50 to 40 n.m. and those of NE from 25 to 20 n.m. without much appreciable change in height. The radar observation at 1530 IST showed a prominent

Meteorological Office,
Calcutta Airport
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TABLE 1

Period	Tem- perature	R.H.	Pressure
	($^{\circ}\text{C}$)	(%)	(mb)
Before commencement of rain	31.5	69	1001.2
During occurrence of rain	28.0	84	1001.5
During occurrence of cloud burst	27.0	87	1001.7
After cessation of cloud burst	25.0	90	1001.4

cell to the east of the station at $085^{\circ}\text{N}/8$ n.m., the top being 11 km. From the location and subsequent behaviour of the cell, it has been observed that this cell was not associated with appreciable rainfall. The radar photographs for 1345, 1417 and 1507 IST are shown in Fig. 1.

3. Before commencement of the cloud burst the surface wind on 29 July 1971 was from SSE/12 kt and at the time of cloud burst it was NW/32 kt and during the cloud burst ENE-E/24 kt and changed to SSE/18kt after the cessation of the cloud burst. The variation of other elements are given in Table 1. The records of the autographic instruments relating to rainfall and wind are shown in Fig. 2. 0830 IST surface chart of 29 July 1971 indicates that a depression was centered near Guna (NW Madhya Pradesh) with associated cyclonic circulation extending upto 6 km a.s.l. The axis of the seasonal trough was running from Jodhpur to Mohanbari through Guna, Allahabad and Gauhati. The chief amounts of rainfall (mm) recorded over Gangetic West Bengal for the day were: Calcutta Airport 105, Midnapore 27, Berhampore 25, Sriniketan 4 and Calcutta (Alipore) 1. Asansol Purulia, Krishnagar, Sandheads and Sagar Island did not record any rainfall.

K. B. PUNIAH
A. C. DE