551·593·54 (544·6)

AN UNUSUAL TYPE OF DUST HAZE OVER JODHPUR AIRFIELD AND NEIGHBOURHOOD ON 13 MAY 1963

1. An unusual type of dust haze prevailed over Jodhpur airfield and neighbourhood on 13 May 1963 from 0630 to 1000 IST. Attempts have been made to study the conditions favourable for the occurrence of this haze.

2. The climatology of Jodhpur aerodrome indicates that May and June are the worst months for flying with strong dust raising winds and duststorms. Surface wind during these months is southwesterly. The winds are strong and gusty reaching 25—30 kt (on 10 days in June) and sometimes during a part of the night also. It is also seen that the wind speed occasionally exceeds gale force especially in the afternoon due to steep pressure gradient. These winds raise a lot of loose dust/sand in the arid zone, frequently reduce the visibility to 1·5 km. Dust haze, however, occurs in the rear of the western disturbance moving north. The incursion of south/southwesterly humid air in the lower levels, during this peroid, gives rise to cumulus clouds in the afternoon which often develops later into cumulonimbus. Dust storm invariably occurs accompanied with squalls reaching a speed of 40–50 kt. The frequency of duststorms/thunderstorms during this period is 3-4 per month.

3. The peculiarity of the occurrence of this dust haze on 13 May 1963 lies in the fact that there was neither a strong dust raising wind nor a duststorm over the station to reduce the visibility as low as 500 m. The wind speed never exceeded 6 kt but the visibility deteriorated and improved rapidly during a 4-hour period.

Report from an aircraft landing at Jodhpur from Delhi at 0945 IST on 13 May 1963 revealed that the dust haze extended to about 25 miles in the northeast and 4 miles west of the station. The height of the haze was about 3900 ft above ground level.

4. The relevant current weather observation at Jodhpur is given in Table 1 for 13 May 1963.

It is seen from the current weather observations between 0530-1030 IST (Table 1) that the visibility gradually reduced with the wind direction veering to NNW/N and improved when it backed to its normal direction, WSW.

5. An analysis of the synoptic and upper air charts of 12-13 May 1963 reveals that there was a zone of convergence to the N/NW of Jodhpur in the afternoon of 12 May which might have produced dust/thunderstorm. This is supported by the tephigram of 12 GMT on that date indicating instability and gradual rise of moisture contents upto 5·6 km. The dust/thunderstorm was, however, not experienced by any of the neighbouring stations except Bikaner and Jaipur where distant lightning was reported. The squall accompanying the dust-storm might have swept the dust towards Jodhpur from the northnortheasterly direction, which made the surface wind at Jodhpur to veer. With the backing of the surface wind to its normal position the dust haze also receeded and lifted swiftly. This may possibly be the cause of occurrence of dust haze over Jodhpur airfield without usual indication of pressure gradient or appearance of thunder clouds.

TABLE 1

Time (IST)	Surface wind (deg./kt)	Visibility	Weather	Cloud
0530	270/06	6 km	—	2/8 *Ac*
0600	280/05	8 km	—	3/8 *Ac*
0630	320/06	4 km	Haze	2/8 *Ac*
0640	310/04	1000 m	Dust haze	1/8 *Ac*
0700	350/01	500 m	Do.	Sky obscured
0730	360/01	500 m	Do.	Do.
0830	Clam	500 m	Do.	Do.
0900	220/02	500 m	Do.	Do.
0930	250/02	500 m	Do.	Do.
0940	250/03	1000 m	Do.	No cloud
1000	230/03	6 km	Haze	Do.
1030	250/08	8 km	—	Do.

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March 31, 1967

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