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AN UNUSUAL HAILSTORM IN DHARWAR DISTRICT ON 30 JANUARY 1966

A severe hailstorm affected about 8 villages in Mundargi Taluk and two villages in Gadag Taluk of Dharwar District on the afternoon of 30 January 1966. The villages seriously affected were Lukkundy, Alur, Ramanhalli and Churchihal. These villages are located southeast of Gadag at distances ranging from 10 to 16 km.

Alur was the worst affected area. According to press reports, the storm occurred there between 1530 and 1630 hours. The hailstones ranged in size from "an arecanut to a coconut" and caused death of nine persons. The roads and fields were covered with hail "one to three feet deep". The villagers working in the field were caught with the hailstones and were severely injured. A press correspondent who visited Alur found "hundreds of dead bodies of birds scattered all over hit by the hailstones". The crops in a twelve square mile area were severely damaged.

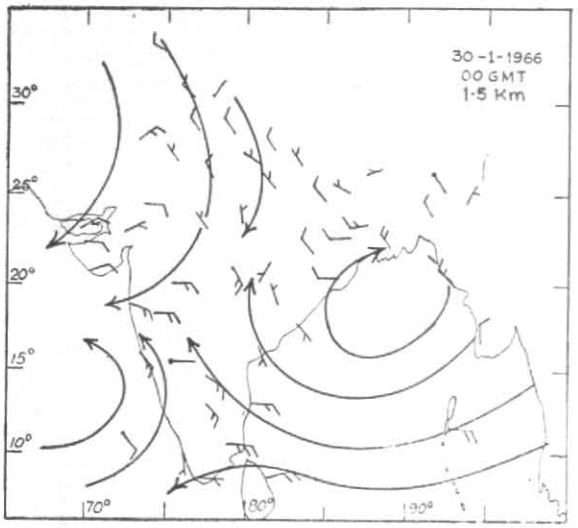

Fig. 1

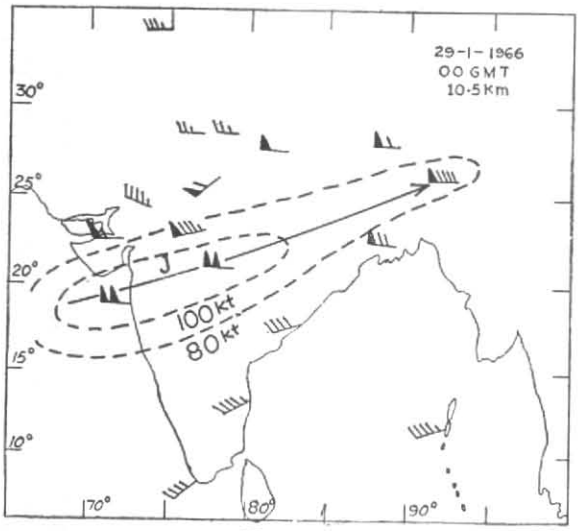

Fig. 2

An extract from an official report received from the Deputy Commissioner, Dharwar is given below.

"The area affected is a strip, a few furlongs wide and 4 to 5 miles in length. The hailstones fell for about 25 minutes and were reported to be of the size of a lime fruit. 11 people lost their lives. The cause of death was due to injury from the falling hailstones and freezing in the case of those who sat in the fields in the hope of avoiding direct hits. There has been considerable loss of animal life, to the extent of about 400 heads of cattle, sheep, foul etc. Many of these were reported to have been buried, in heaps of hailstones. The crops have been completely damaged over an area of about 6000 acres. The hailstorm was reported to be unprecedented in the living memory firstly because hailstones were not known to have ever fallen during winter and secondly never with such intensity at any part of the year."

The size of hailstones of coconut mentioned in press reports appears to be exaggerated and may refer to size of accumulated hailstones as seen on the ground.

The Pilot Balloon Observatory at Gadag is the nearest observatory to the area affected. Although the weather at this station was not so severe, an extract of the weather diary of the place during the period 1400 to 1800 hours of 30 January 1966 is reproduced below—

"Cloudy Sky with 3/8 *Sc*, 3/8 *Cu* and 2/8 *Cb*; Thunderstorm 1450/1620, Thunderstorm with rain 1530/1620, Hailstones of size of small pebbles fell for about 15 minutes from 1450 hours".

From the *Climatoloical Tables* (India met. Dep. 1953) it may be seen that there was no instance of hailstorm either at Bellary or Gadag in the months of January and February. Thus the occurrence of the hailstorm was a very unusual phenomenon. One such hailstorm was described by Hariharan (1950).

From the study of the weather charts for 30th it may be seen that a shallow trough of low pressure lay over Konkan coast and adjoining parts of coastal Mysore. Under its influence, incursion of moisture was taking place over Interior Mysore and neighbourhood. Dew point temperatures over Interior Mysore and Madhya Maharashtra rose markedly (some place including Gadag indicating a rise of 7° to 10°C) over the values on the previous morning. From Fig. 1, which contains streamline analysis at 1500 m a.s.l. of 30th morning, it may be seen that confluence of three currents, namely, moist currents from the Bay of Bengal and the Arbaian Sea and dry current from northwest India was taking place over north Interior Mysore and adjoining areas.

In Figs. 2—4 is shown the isotach analysis for the level 10·5 km for the period 29th to 31st (0000 GMT only). It may be seen that a westerly jet stream passed through Bombay on 29th and, shifting southwards, it passed through Gadag—Gannavaram on 30th. On 31st the wind maximum moved eastwards and was located near Visakhapatnam.

The presence of the favourable low level featues namely, convergence and high moisture content,

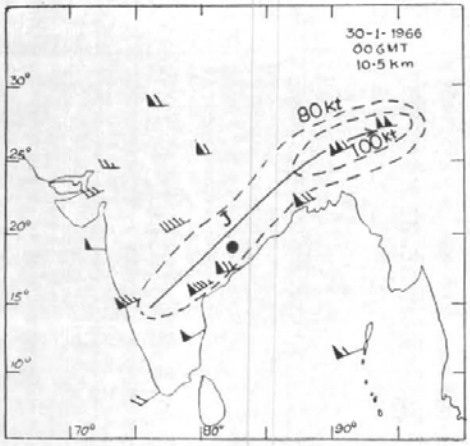

Fig. 3

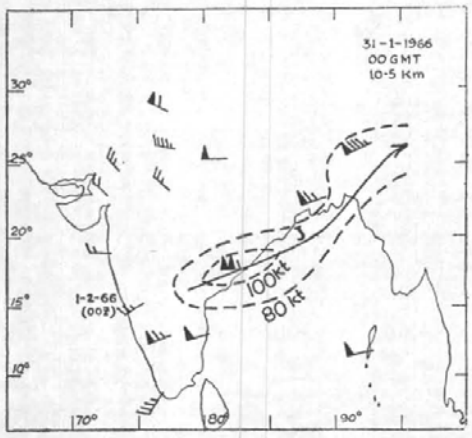

Fig. 4

and the high level divergence associated with the jet stream resulted in the production of violent convective activity over the area concerned. It may be mentioned that more or less similar low level conditions prevailed on 29th also. But severe weather occurred only on 30th when the jet was directly over the area. On 31st the conditions in the lower levels became less favourable and the jet maximum also moved away eastwards, resulting in improvement of weather.

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India met. Dep. 1953 *Climatological Tables of Observatories in India.*

Hariharan, P. S. 1950 *Indian J. Met. Geophys.*, **1**, p. 73.