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Letter to the Editor

551.515.1 : 551.577 (548.1)

ROLE OF DEEP WESTERLY TROUGH IN RELATION TO THE RAINFALL OVER TAMILNADU ON 27 MARCH 1995

1. The semi-permanent wind discontinuity over south peninsula in the month of March is the main cause of thundershowers, though systems moving across south peninsula from the east have their own role to play. Normally, the semi-permanent wind discontinuity at 0.9 km asl runs through in interior portion of the peninsula though it oscillates east and west depending on the systems moving across central India in association with western disturbances moving further north. While studying the occurrence of exceptionally heavy rain over Madras city and neighbourhood on 16-17 February 1984, Bhaskara Rao *et al.* (1986) emphasised the role of mid-tropospheric trough in the westerlies in producing weather over Tamil Nadu, though attributed as the exceptionally heavy rainfall due to a meso-scale system.

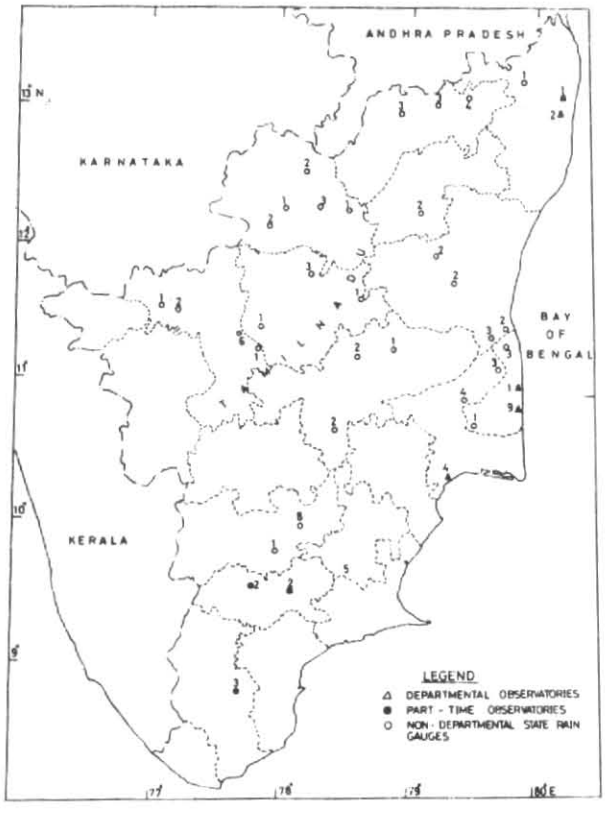

Fig. 1. Rainfall recorded in Tamilnadu on 27 March 1995

1.1. Tamil Nadu experienced generally widespread thundershowers on 27 March 1995 and the reasons leading to this are presented in this note.

1.2. Kerala experienced isolated thundershower on 26 March 1995 with Thiruvananthapuram airport reporting 3 cm of rain and Tamil Nadu reported dry. On 27, Kerala reported dry weather and Tamil Nadu experienced fairly widespread thundershowers with Nagapattinam and Madurai Airport reporting a heavy rainfall of 9 & 8 cm respectively.

1.3. A cyclonic circulation lay over South Interior Karnataka and adjoining Rayalseema with a trough extending southeastward to Sri Lanka. A mid-tropospheric trough in the westerlies at 300 hPa ran from north Pakistan and adjoining Jammu & Kashmir to Kerala across Rajasthan and Madhya Maharashtra.

2. Tamil Nadu experienced generally widespread thundershowers on 27th with one or two heavy rainfall reports. The rainfall recorded over Tamil Nadu on 27th is given in Fig. 1.

2.1. Normally, Tamil Nadu does not get generally widespread thundershowers except with systems moving in from the east in the month of March. The movement of the mid-tropospheric trough at 300 hPa from 25 to 26 March is shown in Fig. 2. Extension of the deep westerly trough upto Lakshadweep is rather unusual.

2.2. On an examination of satellite pictures, it is noticed that there was no cloud till the afternoon of 26th over Tamil Nadu and all the weather that occurred is mainly on the night of 26th.

3. Deep westerly trough extending to extreme south peninsula will normally usher in mainly fair weather in the extreme south peninsula. But in this particular

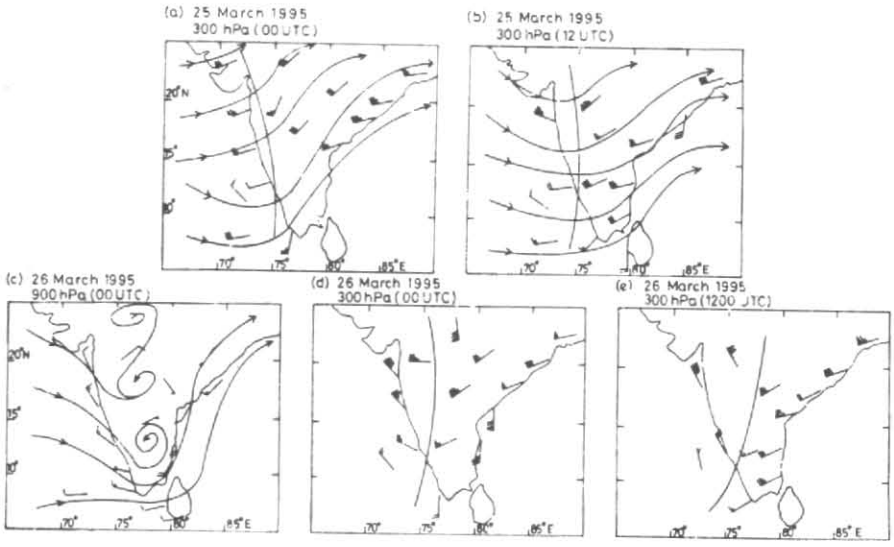

Fig. 2. Low level circulation at 0.9 km a.s.l. on 26 March 1995 and position of westerly trough at 300 hPa on 25 and 26 March 1995

case the cyclonic circulation in the lower troposphere over Interior Karnataka and the favourable position of the trough in the mid-tropospheric westerlies (300 hPa level) appear to be the synoptic systems favouring occurrence of generally widespread thundershowers over Tamil Nadu on 27 March 1995.

Reference

Bhaskara Rao, N.S., Thulasidass, A. and Ganesan, R., 1986, *Mausam*, pp. 133-136.

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