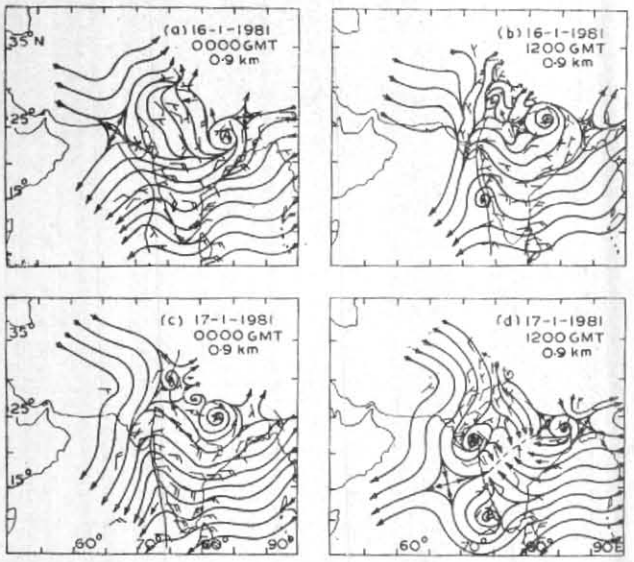
551.577.37 (547) '1981'

WIDESPREAD RAIN OVER INTERIOR MAHARASHTRA DURING JANUARY 1981

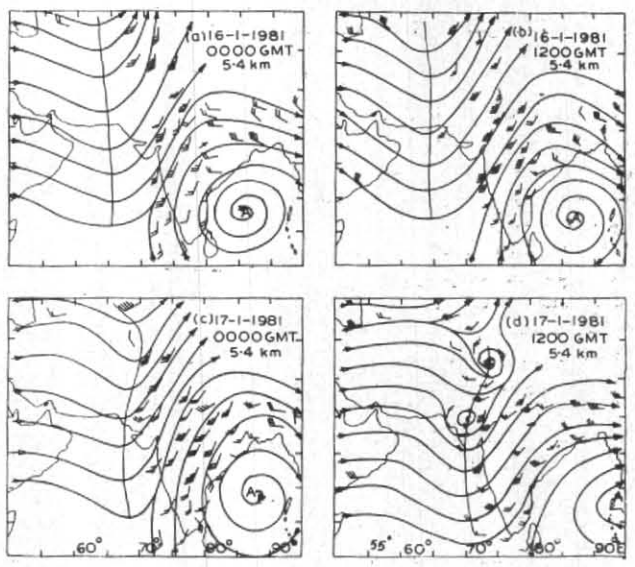
The Indian latitude belt between 10°N and 22°N is devoid of winter rainfall as the rainfall due to western disturbances and westward moving feeble lows in easterly flow, is mostly confined to north of 22°N and south of 10°N respectively. Sometimes, widespread rainfall occurs during winter months between these latitudes also. These rainfall are associated with varied synoptic situations. The present note deals with one of such situations which caused widespread rainfall over Maharashtra on 18 January 1981.

Figs. 1 (a-d) depict stream line analysis at 0.9 km a.s.l. on the 16 and 17 January 1981. Over Arabian Sea area, the surface winds reported by ships are plotted to help in locating the trough position more precisely. On the 16 morning, a trough of low in easterly flow was seen off the west coast of India (Fig. 1 a). By evening, the trough was close to coast with an embedded vortex near Goa (Fig. 1 b). The trough deepened further by next morning as seen from Fig. 1 (c). By the evening of 17 January the flow pattern along Konkan coast and over central India changed significantly. A wind discontinuity formed over a large area running from north Konkan to Vidarbha (Fig. 1 d).

Fig. 2 depicts the wind flow at 5.4 km a.s.l. on 16 and 17 January. From the figures, it is seen that



Figs. 1 (a-d). Stream lines analyses at 0.9 km are : (a) 16 January 0000 GMT, (b) 16 January 1200 GMT, (c)17 January 0000 GMT & (d) 17 January 1200 GMT



Figs. 2 (a-d). Wind flow at : (a) 16 Jan 0000 GMT, (b) 16 Jan, 1200 GMT, (c) 17 Jan 0000 GMT & (d) 17 Jan 1200 GMT

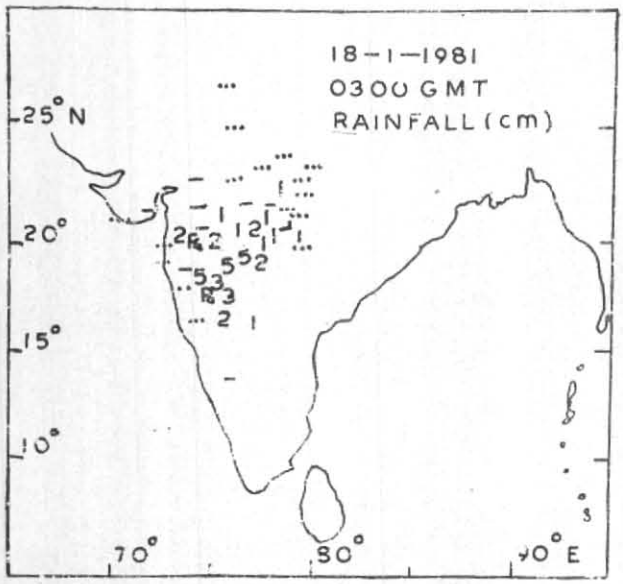


Fig. 3. Rainfall recorded at 0300 GMT on 18 January 1981

a deep westerly trough which was seen on the 16th at 5.4 km a.s.l. moved eastward and superposed on low level pre-existing trough in easterly during the later part of the day on the 17th. Under the influence of the superposition of the westerly trough over the easterly trough an induced low developed and intensified over Gujarat State and the associated circulation extended beyond 5.4 km a.s.l. At this time, a western disturbance was located over northern part of the country.

Under the influence of a deep westerly trough the low level flow over Konkan coast and central India changed significantly and a wind discontinuity formed in the NE-SW direction extending from north Konkan to Vidarbha. This situation resulted in widespread rainfall, moderate to rather heavy thundershowers over interior Maharashtra. Fig. 3 shows the rainfall distributions at 03 GMT on 18 January 1981.

R. V. SHARMA
D. V. SUBRAMANIAN

Regional Meteorological Centre, Bombay
22 *February* 1983