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UNUSUAL COLD WAVE OVER NORTH-WEST INDIA FROM 13 TO 23 APRIL 1955

For the month of April, the cold wave which affected northwest India during the period 13 to 23 April 1955 has been rather unusual not experienced for the last 20 years. The normal rise of temperatures associated with the progress of summer which had set in received a check, when a western disturbance appeared over the North Western Frontier Province during the second week of April. The synoptic situation as it existed over the country on the morning of 11 April is shown in Fig. 1. The maximum and minimum temperature distribution on 11 April as given in Figs. 2 and 3 shows that the temperatures were not far from normal. A downward trend in day and night temperatures followed thereafter, maintained by the development of an active secondary western disturbance over the north Punjab (I) by the morning of 12th. As these disturbances moved away eastwards, 3 lows appeared the next day, one over the Punjab (I) the second over central Uttar Pradesh and the third over Vindhya Pradesh and

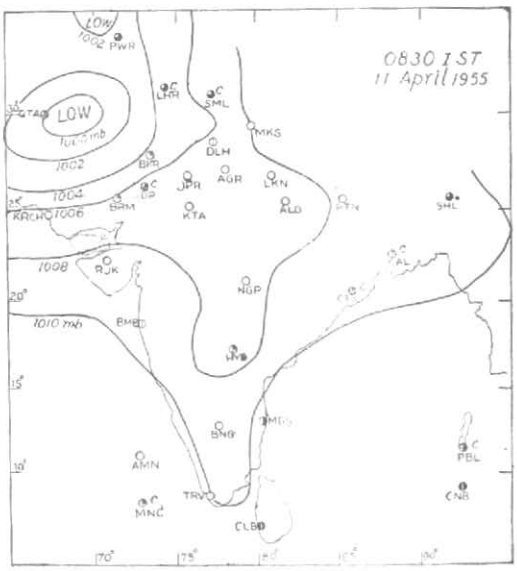

Fig. 1

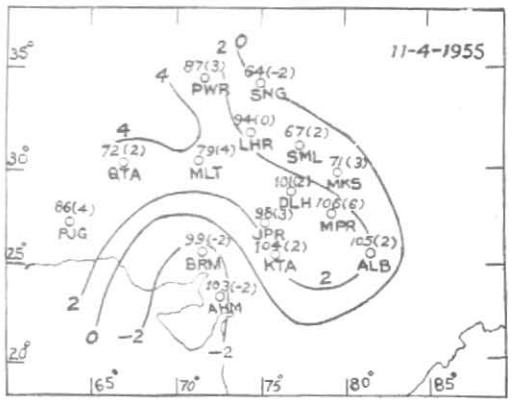

Fig. 2. Maximum temperatures and departures from normal

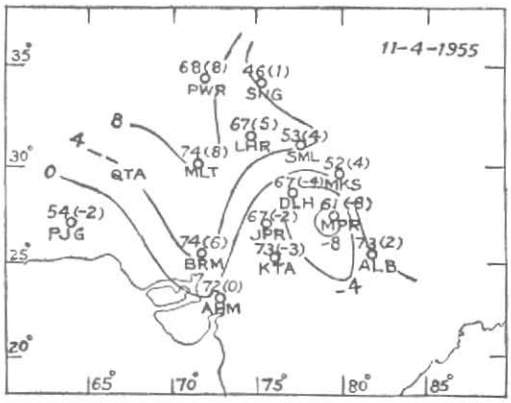

Fig. 3. Minimum temperatures and departures from normal

neighbourhood. The synoptic situation on the morning of 13 April is shown in Fig. 4. By the 14th, these lows had moved away eastwards. Under the combined influence of the succession of these disturbances and lows mentioned above fairly widespread dust-storms and thunderstorms activity prevailed over most parts of the northwest India. There were a number of cases of hailstorms and Kashmir and the Punjab-Kumaon hills reported considerable amount of snowfall, which happened to be rather late in the season. The weather was responsible for a marked fall in day and night temperatures with the result that on the 14th, the maximum temperatures were found to be 9 to 14°F below normal in Rajasthan and the Punjab (I)

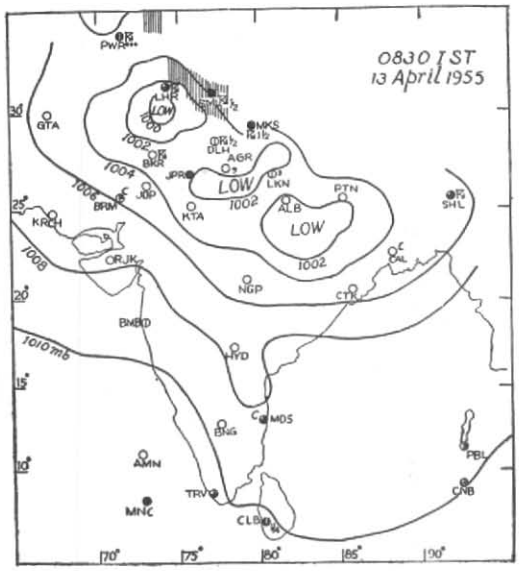

Fig. 4

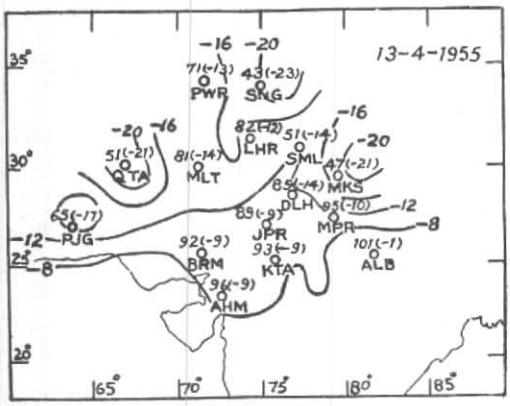

Fig. 5. Maximum temperatures and departures from normal

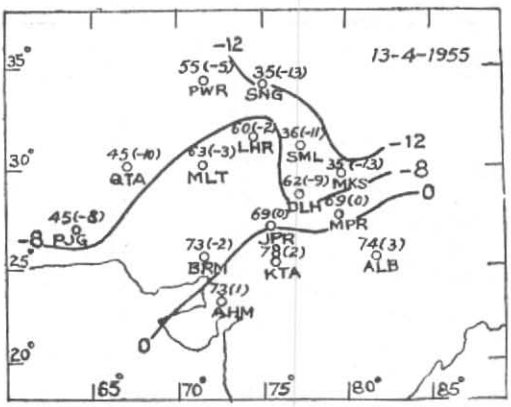

Fig. 6. Minimum temperatures and departures from normal

and 2 to 5°F below normal in west Uttar Pradesh. The distribution of maximum and minimum temperatures with their departures from normal over few stations in northwest India on 13 April are shown in Figs. 5 and 6.

The passage of the disturbances left cold and fair weather in their wake by the 14th evening when a high pressure area formed over northwest India. The anticyclonic circulation around this high, consisted mostly of the cold continental air mass coming from the regions to the north and northwest which had a history of persistent rain and snowfall. As a consequence the day as well as the night temperatures fell further,

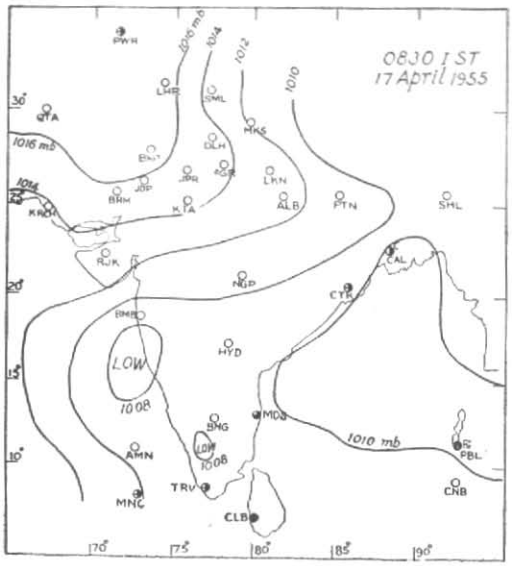

Fig. 7

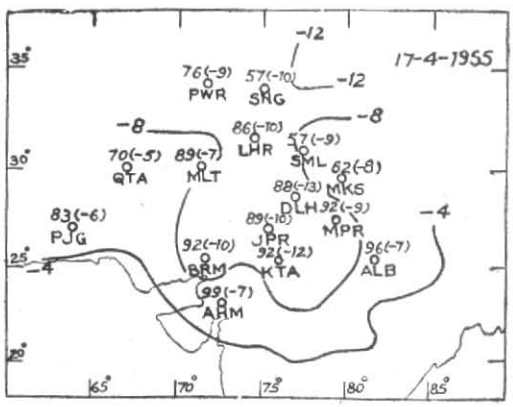

Fig. 8. Maximum temperatures and departures from normal

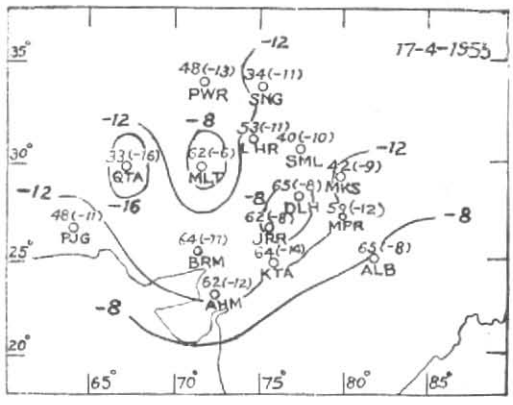

Fig. 9. Minimum temperatures and departures from normal

By the 16th, both the maximum and the minimum temperatures were 10 to 15°F below normal over most parts of the region. At this stage a low pressure wave from the east moving across the Peninsula took a hand in maintaining the inflow of the cold continental air mass over northwest India upto the 18th. The synoptic situation over the country during the period 14th evening to 18th evening is well represented by the chart shown in Fig. 7 which relates to 0830 IST of 17 April 1955. The distribution of temperatures for this day is also shown in Figs. 8 and 9.

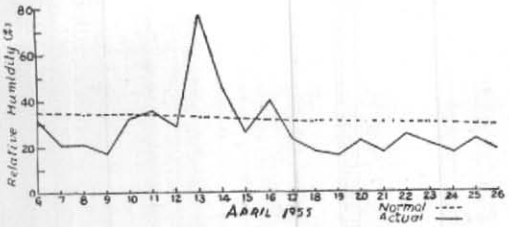

Fig. 10. New Delhi

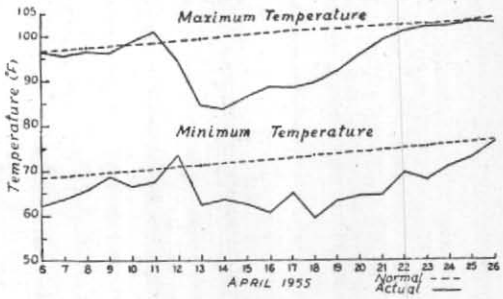

Fig. 11. New Delhi

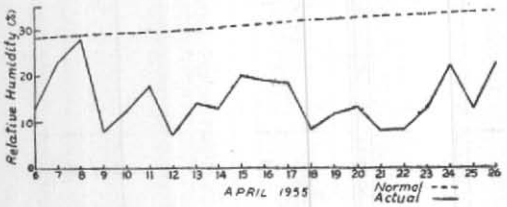

Fig. 12. Jodhpur

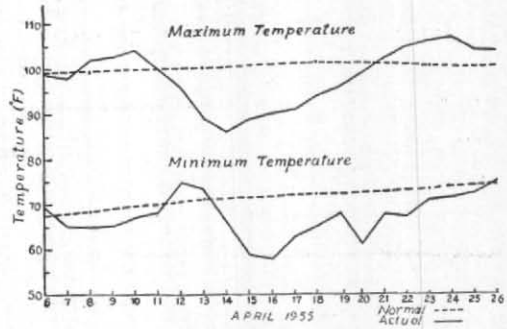

Fig. 13. Jodhpur

By the evening of the 19th, the air mass over the northwest India became stagnant and the cold spell started subsiding.

The humidity and both maximum and minimum temperature variations before, during and after the spell have also been shown graphically for two selected stations in northwest India, *viz.*, for Delhi and Jodhpur for the period 6 to 26 April 1955 in Figs. 10 to 13. The relative humidity curves show that except for a day or two the humidity was generally below normal.

Weather charts for the last 30 years were examined to see whether any similar cold wave affected northwest India during April for such a long time. It is seen that only in 1935 a cold wave comparable to this year's cold wave affected the then Punjab, west Uttar Pradesh and Rajputana from 7 to 18 April.

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