

# Weather

POST-MONSOON SEASON (OCTOBER—DECEMBER 1961)

*Chief features*—The post-monsoon season of 1961 was marked both at its commencement and towards its end by very severe weather over Bihar State, Uttar Pradesh and the neighbouring areas. Heavy rains associated with the movement of two deep depressions led to disastrous floods in Bihar State in the first week and in Uttar Pradesh in the second week of October. In the wake of an active western disturbance that moved across the country during the third week of December, the same areas experienced moderate to severe cold wave conditions with night temperatures of 6 to 8°C and day temperatures 8 to 12°C below normal between 21 and 28 December.

A deep depression from the northwest Bay of Bengal moved into the extreme northeast Madhya Pradesh and adjoining Bihar State on 30 September, recurved eastnortheastwards and lay as a depression over Bihar Plateau on 2 October. It weakened into a low pressure area over Bihar Plains on 3rd. Moving westnorthwestwards thereafter, it filled up over the central parts of Uttar Pradesh by 6th. The very heavy rains caused by this depression resulted in disastrous floods in Bihar that took a toll of nearly nine hundred human lives, besides dislocating railway traffic in Bihar and West Bengal. Ambikapur reported 21 cm on 1st, Sabour 19 cm and Kalimpong 13 cm on 2nd and Darbhanga 14 cm on 4th.

A low pressure area from the Bay of Bengal moved across the Circars coast into Vidarbha and Telangana in the second week of October. It concentrated into a

depression on 9th with centre near Adilabad and became deep on 11th when it was centred about 70 km northwest of Amravati. Later, it recurved northeastwards and was centred near Kanpur on 13th morning. It weakened very rapidly and filled up the next day. This depression caused the monsoon to strengthen over most parts of the country outside northwest India. Very heavy rains occurred in the north Peninsula, the central parts of the country and in Uttar Pradesh, the chief amounts being Khandala 13 cm on 9th and 35 cm on 10th; Parbhani 13 cm and Aurangabad 12 cm on 10th; Buldhana 16 cm on 11th; Orai 22 cm and Lucknow 14 cm on 13th and Ballia 14 cm and Kheri Lakhimpur 12 cm on 14th. The heavy rains led to severe flooding of rivers in Uttar Pradesh. More than fifty people lost their lives due to floods and house collapses and parts of Lucknow city were inundated by the flood waters of the Gomati river.

The monsoon withdrew from practically the whole of northwest India between 1 and 3 October. Its further withdrawal was temporarily arrested on account of the low pressure system mentioned in the previous paragraph. After the low had filled up, the monsoon again began to retreat and by the end of the third week of October, it was confined to the south Peninsula. The withdrawal of the monsoon was generally a fortnight later than usual over the different parts of the country.

A low pressure area from the east entered the Andaman Sea on 14 October, moved northwestwards and lay over the west

central Bay of Bengal off the Circars coast on 18th. Thereafter, it weakened and moved away westwards. In association with it, a few falls of heavy rain occurred in the Bay Islands between 12th and 15th and in coastal Andhra Pradesh and neighbourhood between 16th and 19th.

A well marked low pressure area developed over the east central Bay of Bengal off the Arakan coast on 22 October. It moved northnorthwestwards and concentrated into a depression centred about 100 km north-west of Akyab on 24th morning. Continuing to move in the same direction, it crossed coast close to Noakhali on the 25th night and weakened into a low pressure area over the southern divisions of East Pakistan on 26th morning. It recurved northeastwards and after moving across lower Assam, became unimportant by 28th. But for scattered showers in Assam between 24th and 28th, this depression did not cause any weather over India.

Under the influence of an easterly wave that moved across the Comorin Maldiva area on 24 October, a low pressure area formed in the southeast Arabian Sea on 26th. Moving in a northeasterly direction, the low entered the Peninsula across north coastal Mysore and the south Konkan, lay over Bihar Plateau on 31st and filled up thereafter. Under its influence, maritime air from the south progressively penetrated into the area extending from Kerala and coastal Mysore to Gangetic West Bengal and gave a good spell of wet weather over the area. A few noteworthy amounts of rainfall reported were : Tondi 10 cm on 24th, Mangalore 12 cm on 25th, Hanamkonda 10 cm on 28th, Mangalore 11 cm on 29th, Contai 12 cm on 30th and Sandheads 10 cm on 31st.

Under the influence of an easterly wave that moved across the south Peninsula on 29 October, fairly widespread rain occurred in the extreme south Peninsula between 30 October and 2 November. The rainfall gradually extended northeastwards to north

coastal Andhra Pradesh, Telangana and Orissa by 4th and West Bengal and Assam by 6th.

The northeast monsoon strengthened over the south Peninsula on 16 November. Kanyakumari and Tuticorin reported each 10 cm of rain on 15th and 16th respectively. A long spell of dry weather followed thereafter which was broken only by an easterly wave that moved across the Comorin area on 30th. Rain or thundershowers were fairly widespread in the Madras State on 30 November and 1 December and occurred locally in Kerala on 1 December. Another trough in the easterlies that moved across the south Peninsula on 3rd caused fairly wide spread rain in the south Madras State on 4th and in the Madras State and Kerala on 5th. Nagapattinam reported 10 cm and Vedaranyam 8 cm of rain on 4th and Kodaikanal 11 cm and Tuticorin and Coonoor 9 cm each on 5th. Weather remained mainly dry over the south Peninsula during the second half of December.

Six western disturbances moved across the country during the season. The first one caused local showers in Himachal Pradesh and Jammu and Kashmir on 15 October. The second one which was more active lay over the northern divisions of West Pakistan on 28th and over the Punjabs on 29th. It moved away eastwards across the Western Himalayas on 2 November, after leaving a residual upper air cyclonic circulation over Uttar Pradesh and neighbourhood which persisted there till 7th and then moved away eastwards across Assam by 10th. In association with it, local to fairly widespread rain or snow occurred in Jammu and Kashmir, Himachal Pradesh and the hills of the Punjab (I) and of west Uttar Pradesh on 30 and 31 October. Bilaspur reported 6 cm of rain and Dharamsala, Dharampore and Roorkee 5 cm each on 30th. A few hailstorms were also reported from Madhya Pradesh on three days during the first week of November. According to press reports, they caused considerable damage to standing crops and

death of a few persons and several heads of cattle.

The next western disturbance lay over the Punjab and north Rajasthan on 15 November and moved away across the Western Himalayas on 17th. It caused local showers in east Rajasthan on 15th and local rain or snow in Jammu and Kashmir on 16th and in Himachal Pradesh on 17th. The fourth disturbance moved across the Punjab (I) and Himachal Pradesh on 27th and 28th. Under its influence, a good spell of rain or snow occurred in Jammu and Kashmir, the Punjab (I) and Himachal Pradesh on 27th and 28th.

The most active western disturbance of the season moved into the Punjab (I) on 17 December and moved away across Assam by 20th. An induced low developed over east Rajasthan on 17th and later moved away across Assam by 20th. These disturbances caused fairly widespread rain or snow in the Punjab (I) and Himachal Pradesh on 17th and 18th and in Uttar Pradesh on 18th and in Jammu and Kashmir on 17th and 18th. Local or scattered showers also occurred in Madhya Pradesh between 17th and 19th and in Bihar State on 18th and 19th. The chief amounts of precipitation reported were: Joshimath 7 cm on 17th and Dehra Dun 5 cm and Najibabad, Roorkee, Munsyari, Simla and Dharchula 4 cm each on 18th. According to press reports, Mussoorie and some other hill stations were temporarily cut off from the plains due to blocking of roads by heavy snowfall. The last western disturbance of the season was a feeble one and it moved away across Jammu and Kashmir on 31 December after causing there a few showers of rain or snow.

In the wake of the western disturbance that moved across the Western Himalayas on 17 November, night temperatures fell below normal in northwest India and west Uttar Pradesh on 18th and appreciably so in Rajasthan. The area over which minimum temperatures were below normal shifted

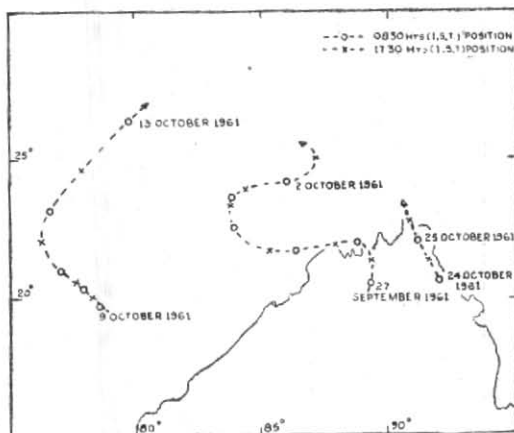


Fig. 1. Storms and depressions of October-December 1961

by 20th to northeast India. Night temperatures started rising as the next western disturbance approached and were appreciably to markedly above normal in the Punjab (I) and north Rajasthan on 26th and 27th and in northwest Madhya Pradesh on 27th and 28th. As this disturbance passed, temperatures started falling and were generally below normal in north India during the first half of December. With the approach of the active western disturbance that moved into the country on 16 December temperatures began rising and night temperatures were appreciably above normal in Uttar Pradesh on 18th. However, in the wake of this disturbance, cold continental air spread over the north India and moderate to severe cold wave conditions prevailed over Uttar Pradesh, Bihar State and north Madhya Pradesh between 21st and 28th. Due to the prevalence of prolonged fog that blanketed large areas in Uttar Pradesh and the consequent cut off of insolation the days were also very cold, maximum temperatures being 10 to 12°C below normal. Temperatures fell below the freezing point at a number of places during this period, resulting in the bursting of water mains. According to press

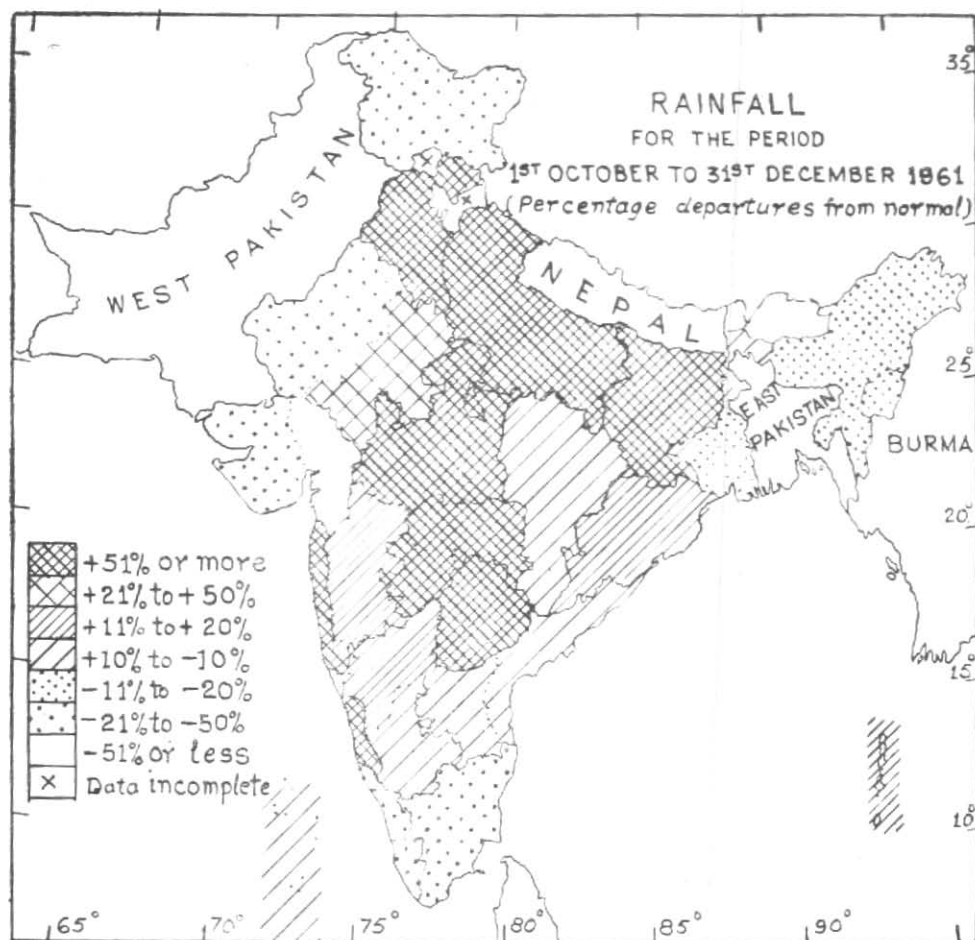


Fig. 2

reports, more than 700 people died in Uttar Pradesh and Bihar State as a result of this cold wave and there was considerable damage to crops. Air Services to and from Delhi were seriously dislocated during this period.

The tracks of the depressions that formed during the season are given in Fig. 1. The season's rainfall in terms of its departures from normal in various sub-divisions of the country is shown in Fig. 2.