

Weather

HOT WEATHER SEASON (MARCH-MAY 1973)

CHIEF FEATURES

Western disturbances

Twentyfour western disturbances moved across northwest India during the season; 9 in March, 6 in April and 9 in May. They were active in March and May and accounted for excess of rainfall in the Punjab and nearly normal rainfall in the western Himalayas for the season.

Cyclonic storms/Depressions

A deep depression developed in southwest and adjoining west central Arabian Sea and moved away towards Gulf of Aden in the last week of May, without affecting the weather over India. The track of the depression is shown in Fig. 1.

Arrival of the monsoon

The southwest monsoon advanced into south Kerala as a feeble current by 23 May and retreated from there by the 27th.

Rainfall

The rainfall for the season was generally normal to excess in northeast India, Punjab, Western Himalayas and the Bay Islands and deficient or scanty over the rest of the country. The total rainfall for the period from 1 March to 31 May 1973, in terms of percentage departures from the normal, is shown in Figs. 2(a) and 2(b). Fig. 2(a) shows the mean percentage departure of rainfall from the normal for every meteorological sub-division while Fig. 2(b) shows

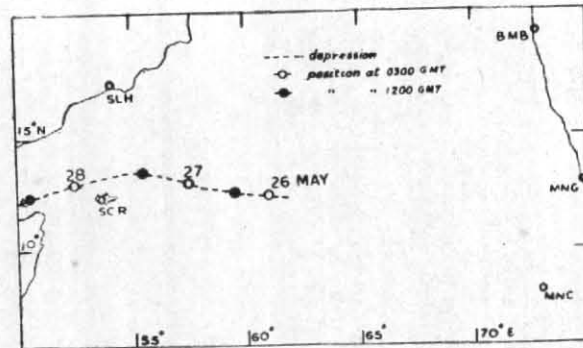


Fig. 1

Track of depression during May 1973

isopleths of percentage departure based on departure calculated for each observatory.

Temperature

Appreciably above normal day temperatures prevailed in northeast India in the first fortnight of April and in interior north Peninsula and Madhya Pradesh in the second fortnight of April and on many days in May, with moderate heat wave conditions in Bihar, Gangetic West Bengal, Orissa and coastal Andhra Pradesh on a few days. Moderate cold wave conditions prevailed in many parts of north India on some days between 12 and 18 March.

The main weather features for each month are described below.

MARCH

Nine western disturbances affected northwest India during the month, four in the first fortnight and five in the second fortnight. Four induced lows also moved across the plains of north India in the first fortnight, two of them moving as far east as Assam and adjacent States. These systems caused fairly widespread rain and snow in the Western Himalayas on many

days and scattered or isolated rain or thunder-showers in the adjoining plains on a few days in the first fortnight. The western disturbances that moved across the Western Himalayas in the second fortnight caused only scanty rainfall in that area. The rainfall for the month was nearly normal in Jammu & Kashmir and the hills of west Uttar Pradesh and deficient to

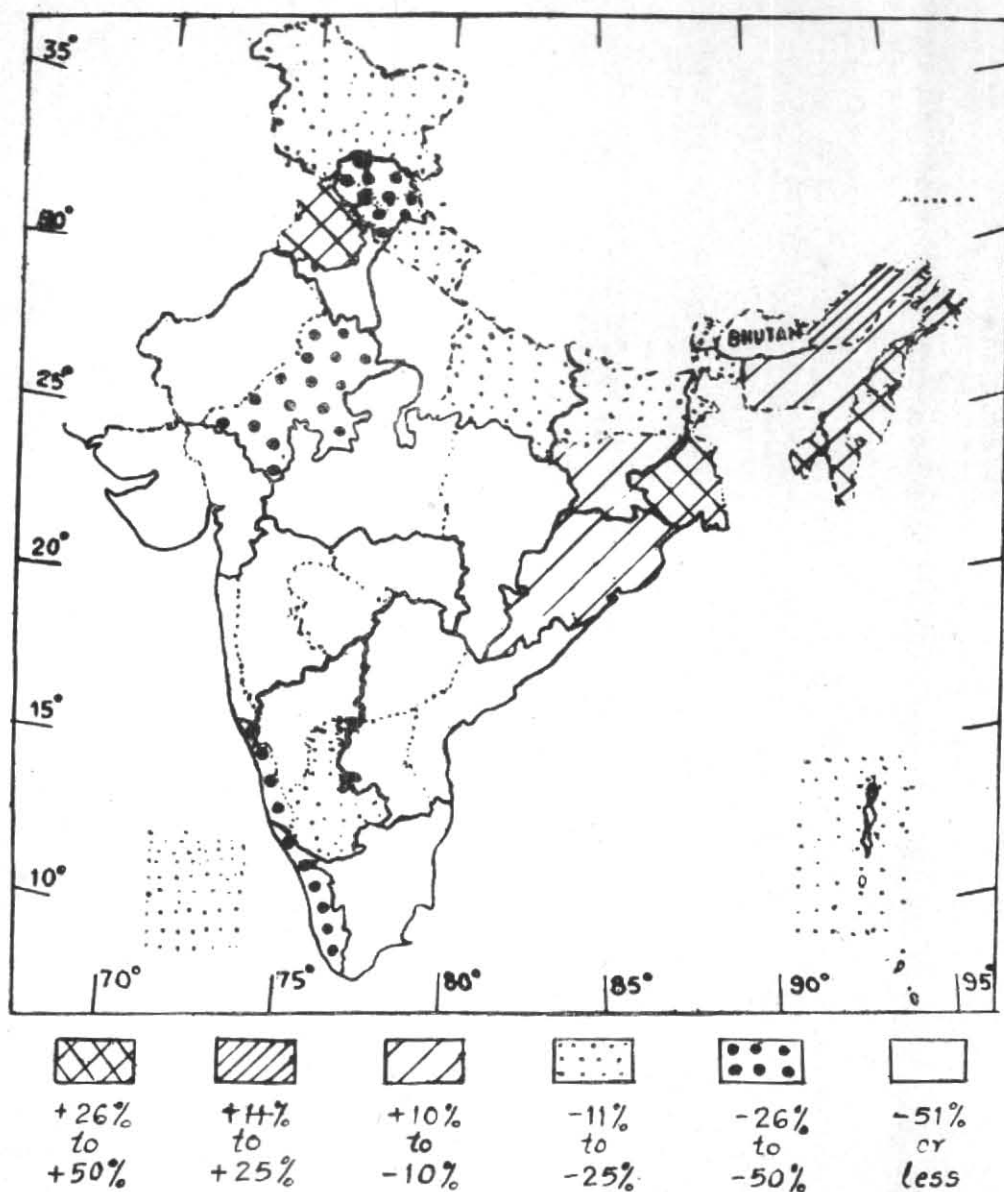


Fig. 2(a)

Rainfall for the period 1 March to 31 May 1973 (Percentage departure from normal)

scanty over the rest of northwest India. Mussoorie, Roorkee and Dehra Dun reported hail on 6th afternoon. Two persons belonging to a snow study team of the Govt. of India were reported to have been killed and some injured due to an avalanche on the Manali-Leh road. Isolated duststorms were reported in the plains of northwest India and west Uttar Pradesh on a few days in the second week. According to press reports, strong winds uprooted trees and telegraph posts in Himachal Pradesh and Kashmir valley and dislocated air and road transport and telegraph communications in those areas.

The principal amounts of rainfall (in cm) associated with the western disturbances were :

Ferozepore Jhirka (Haryana) 4 on 1st; Dharamsala 4 on 6th; Ajnala (Punjab) 5 on 8th; Kalpa (Himachal Pradesh) 6 on 9th; Quazigund 8 on 10th; Quazigund 11, Banihal 7, Dalhousie and Reasi 6 each and Kalpa and Manali 4 each on 11th; and Mukteshwar 4 on 12th.

In addition to the two induced lows which moved eastwards across northeast India in the first fortnight, east-west oriented troughs or wind discontinuities extending to about 900 m

a.s.l. also passed through northeast India on many days, particularly in the last week. A trough in the middle and upper tropospheric westerlies also moved eastwards across Uttar Pradesh, Madhya Pradesh and northeast India between 3rd and 5th. In association with these systems, rain or thundershowers were scattered to fairly widespread in Gangetic West Bengal, Orissa and Bihar Plateau on many days in the first fortnight and isolated on one or two days in the second fortnight. Scattered or isolated thundershowers occurred over the rest of northeast India on many days in the first fortnight and again on the last three days, and in Uttar Pradesh and Madhya Pradesh on a few days. A severe thundersquall is reported to have swept through some parts of Cachar district, uprooting trees, damaging many houses and killing a few persons in the first week. Pendra reported hail on the 2nd.

The following stations in northeast India recorded rather heavy rain (in cm) :

Haflong 5 and Agartala 4 on 1st; Sagar Island and Bankura 8 each, Contai 6, Balasore and Baripada 5 each and Bagati 4 on 2nd; Bhubaneswar 7 on 3rd; Chaibasa and Sambalpur 4 each on 4th; Mokokechung 4 on 5th, Sandheads 4 on 8th; Tezu 4 on 13th; Tezu 7 and Ziro 4 on 31st.

Some parts of the Peninsula experienced

isolated rain or thundershowers on a few days in the first and last weeks, mainly in association with a north-south oriented wind discontinuity or trough passing across the interior parts of the Peninsula. Perintalamanna (Kerala) recorded 4 cm of rain on 30th and Palayankottai 5 cm on 31st. Weather was dry in Gujarat State, Vidarbha, Marathwada, Mysore State and Rayalaseema.

Day temperatures were appreciably above normal in Gujarat and Assam and adjacent States on many days and in northwest India, Uttar Pradesh, Madhya Pradesh, Bihar and West Bengal on a few days in the last week, being markedly so in coastal Saurashtra on many days in the last week and in Uttar Pradesh on 29th and 30th.

Night temperatures were appreciably below normal in many parts of north India on many days from 12th to 28th. Moderate to severe cold wave conditions prevailed in many parts of northwest India, north Gujarat and some parts of Madhya Pradesh and Uttar Pradesh from 12th to 14th. The cold wave was moderate in these areas from 15th to 17th and extended into Bihar and West Bengal on 17th and 18th. Night temperatures were appreciably above normal in interior Maharashtra on many days in the last week.

APRIL

Six western disturbances moved across northwest India, four in the first fortnight and two in the second fortnight. One induced low also moved from southeast Rajasthan to northwest Madhya Pradesh and adjoining southwest Uttar Pradesh between 5th and 7th. These systems caused scattered to fairly widespread rain or snow in Jammu & Kashmir on some days in the first fortnight and scattered or isolated rain or thundershowers in the rest of northwest India on a few days in the first half of the month. Isolated duststorms were reported from the plains of northwest India from 5th to 7th and from 14th to 16th. Banihal reported hail on 15th evening. The rainfall for the month in association with the western disturbances was deficient in Jammu & Kashmir and scanty over the rest of northwest India. West Rajasthan had no rain during the month. Quazigund recorded 6 cm of rain on the 15th. Otherwise the rainfall in northwest India was light to moderate.

A wind discontinuity extending to 900 m a.s.l. passed from Bihar Plains to Assam and adjacent States in most days during the month. Two cyclonic circulations extending to 900/1500 m a.s.l.,

moved eastwards across northeast India during the first ten days. A cyclonic circulation extending to 900/1500 m a.s.l. lay over east Madhya Pradesh and adjoining parts of Bihar and Orissa on many days from 19th to 30th. Under the influence of these systems, there was good thundershower activity in Assam and adjacent States on many days in the month, leading to an excess of rainfall for the month in that area. Scattered or isolated thundershowers occurred over the rest of northeast India on a few days; Pasighat reported hail on 10th. According to press reports, a hailstorm lashed some parts of Jalpaiguri district on the 14th, killing about a dozen persons. Nor'westers which swept through Nowgong and Sibsagar districts in the second and third weeks caused heavy damage to houses and crops in these districts. A severe nor'wester also hit Tripura State on 23rd night disrupting communications. The heavy rainfall amounts (in cm) in northeast India during the month were :

Ziro 9 and Khonsa 8 on 1st; Tezu 9 on 2nd; Cherrapunji 11 on 9th, 11 on 12th and 9 on 13th; Cherrapunji 16, Kailashahar 8 and Silchar 7 on

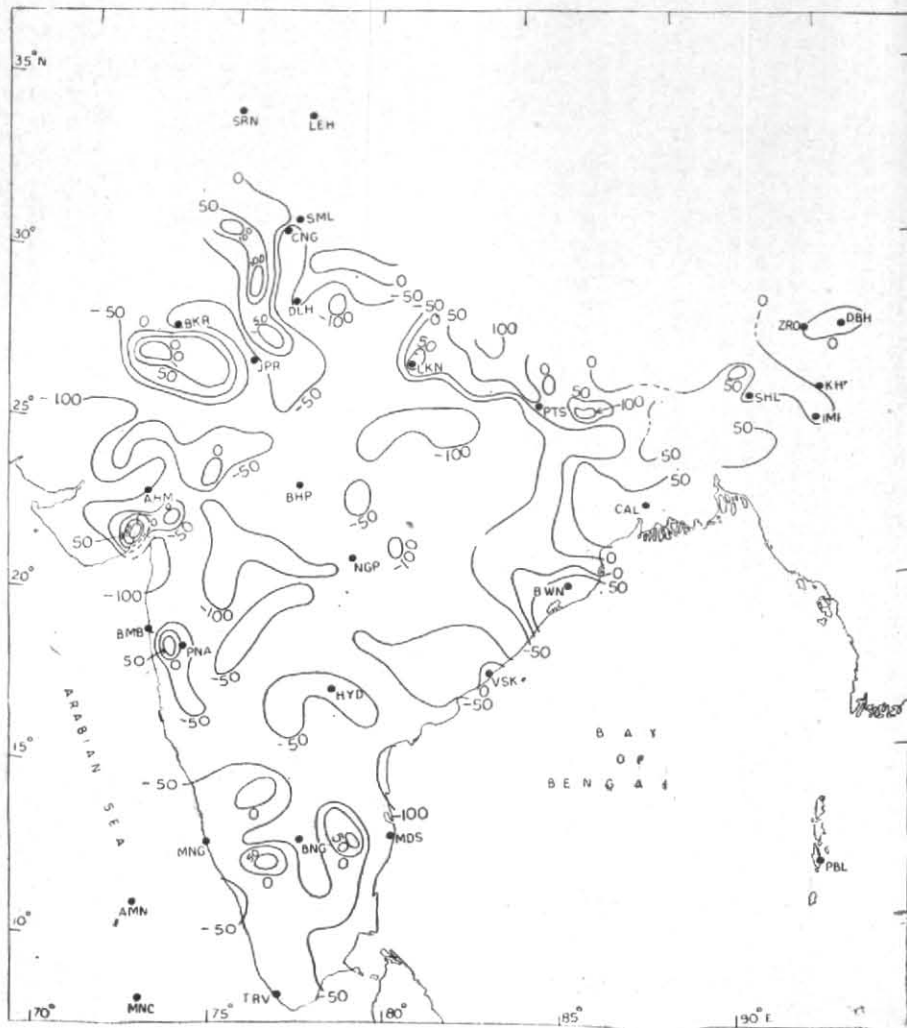


Fig. 2(b)

Percentage departure from normal of rainfall during 1 March to 31 May 1973

14th; Cherrapunji 22 and Tezu 9 on 15th; Cherrapunji 11 and Pasighat 9 on 16th; Cherrapunji 14 on 17th; North Lakhimpur 17 and Dibrugarh Airport 12 on 18th; Gauhati, Chaparmukh and Agartala 7 each on 24th; Cherrapunji 8 and Silchar 7 on 25th; Dibrugarh 10 on 28th; Cherrapunji 8 on 29th and Chaparmukh 7 on 30th.

In association with the seasonal north-south trough/wind discontinuity upto 1.5 km a.s.l. passing from the central parts of the country to extreme south Peninsula on most days of the month, and two low level troughs in the easterlies moving westwards across Comorin and adjoining south Peninsula, one in the first week and the other between 19th and 24th, scattered thundershowers occurred in the south Peninsula on most days during the month and in north Peninsula and

Madhya Pradesh on a few days. Weather was dry in Gujarat State during the month. The thunder-shower activity was fairly widespread with isolated heavy falls in Kerala on a few days in the first and last weeks. About 2 dozen persons were reported killed by lightning near Kottayam (Kerala) on 3rd night. Hail was reported from some parts of Satara district on the 5th and 6th. The principal amount of rainfall (in cm) in the Peninsula were :

Nedumangad (Kerala) 7, Srivalliputtur (Tamil Nadu) 6 and Quilon 5 on 1st; Mavelikkara and Gopichettipalayam 6 each and Punalur 5 on 3rd; Alleppey and Mysore 10 each, Srivalliputtur 9, Thodupuzha (Kerala) 8 and Muvattapuzha (Kerala) 5 on 4th; Mavelikkara, Perintalamanna and Kunnankulam 5 each on 8th, Trivandrum

5 on 9th; Minicoy 5 on 20th; Alleppey and Kottayam 9 each and Manjeri (Kerala) 6 on 23rd; Manarghat (Kerala) 8 and Ponnani (Kerala) 5 on 24th.

A low moving westwards across the Bay Islands, caused scattered thundershowers in that area in the last week. Nancowry recorded 5 cm of rain on 27th and Kondul 10 cm on 29th.

Day temperatures were appreciably above normal in many parts of northeast India on many days in the first fortnight, in northwest India during the last 10 days, in some parts of Madhya Pradesh and Interior Maharashtra in the second fortnight and in Uttar Pradesh, Gujarat State and Andhra Pradesh on some days. Moderate heat wave conditions prevailed in Bihar State and West Bengal between 15th and 17th.

MAY

Nine western disturbances moved eastwards across the Western Himalayas during the month; four in the first fortnight and five in the second fortnight. Three induced lows also moved eastwards across the plains of north India—two from Rajasthan to Bihar in the first fortnight and one from Rajasthan to west Uttar Pradesh during the last 3 days of the month. These systems caused normal rainfall in the Western Himalayas and excess of rainfall in the plains of northwest India and west Uttar Pradesh for the month. The following stations reported rather heavy rain (in cm) in association with the above systems.

Bhiwani and Gohana 5 each on 15th; Jammu City 6 and Ferozepore 5 on 17th; Bilaspur 4 on 29th; Lucknow 5 and Gorakhpur 4 on 30th.

The seasonal trough extending to 1.5 km a.s.l. passed from Madhya Pradesh to extreme south Peninsula on most days during the month, causing scattered thundershowers in south Peninsula on many days in the month and in north Peninsula and Madhya Pradesh on a few days.

A cyclonic circulation extending between 1.5 and 5.8 km a.s.l., developed over Sri Lanka and adjoining Comorin on the 19th. It persisted there upto 21st and moved westnorthwestwards to Laccadive area by 23rd. A trough of low also lay off Kerala-Mysore coasts from 21st to 23rd. Under the influence of these systems, the southwest monsoon advanced into Comorin-Maldives area on 22nd and into south Kerala and south Arabian Sea upto 10°N, as a feeble current. There was fairly widespread rain in Kerala and Mysore State between 20th and 23rd. The trough off Kerala-Mysore coasts developed into a well marked low on the 24th evening. Moving westwards, the low concentrated into a depression on the 26th over southwest and adjoining west central Arabian Sea. It became deep on the 27th and subsequently moved away towards Gulf of Aden by the 29th. This depression did not cause any rain over India. As the low off Kerala

coast moved away westwards between 25th and 27th the monsoon retreated from Kerala by the 27th and was confined to Comorin-Maldives area during the rest of the month. The rainfall in the Peninsula for the month of May was generally deficient. Over the Bay of Bengal the monsoon advanced into south Andaman Sea and adjoining southeast Bay on 7th, into north Andaman Sea by 14th and into extreme southwest Bay by 22nd. The monsoon did not advance further over the Bay during the rest of the month. Heavy to very heavy falls occurred in Bay Islands between 14th and 16th. The northern limit of the monsoon passed through Minicoy, Puttalam and Sandoway on 31 May. The heavy rainfall amounts (in cm) recorded in the Peninsula, Bay Islands and Arabian Sea Islands during the month were :

Long Island 8 on 2nd; Balehonnur 8 and Quilon 7 on 7th; Minicoy 7 on 11th; Port Blair 9 on 14th; Car Nicobar 16 on 15th; Kondul 8 and Nancowry 7 on 16th; Ponnani (Kerala) 9 on 17th; Palghat 8 on 18th; Visakhapatnam 9 on 19th; Irinjalakuda (Kerala) 10 and Nedumangad (Kerala) 8 on 21st; Beltangadi and Car Nicobar 7 each on 22nd; Chamarajnagar 12 & Nedumangad 10 on 23rd; Manapparai (Tamil Nadu) 10 and Udumalpet (Tamil Nadu) 9 on 26th; Minicoy 7 on 30th; Quilon 10 and Shimoga 9 on 31st.

An east-west trough or wind discontinuity extending to 900/1500 m a.s.l., passed through northeast India and adjoining east Uttar Pradesh on most days during the month. In association with this, scattered to fairly widespread rain or thundershowers occurred in Assam and adjacent States and Sub-Himalayan West Bengal on most days of the month, in Gangetic West Bengal and Orissa on many days and in Bihar State and east Uttar Pradesh on a few days. The thundershower activity was most marked in northeast India in the second week. Serious floods were reported from Tripura State causing considerable damage to crops and houses in the beginning of the second week. Agartala

town itself was flooded and cut off from the rest of the State. Severe nor'westers were also reported to have caused damage to standing crops in some parts of Saran district in north Bihar on the 4th. A thundersquall accompanied with hail lashed Hazaribagh and suburbs on 11th, disrupting power supply and communications. A severe hailstorm caused damage to paddy, mangoes and vegetables in Nawada in Gaya district on the 13th. The amounts of heavy rainfall (in cm) in northeast India were :

Cherrapunji 17, Silchar, Tura and Shillong 8 each on 6th; Kailashahar 11 on 7th; Silchar 15, Agartala 9 and Haflong 8 on 8th; Agartala 12, Ziro 9, Gauhati Airport 8 and Goalpara 7 on 9th; Khonsa and Cherrapunji 10 each on 10th; Cherrapunji 16, Pasighat, Digboi and Cooch Behar 7 each on 11th; Calcutta 9, Pasighat, Kailashahar, Cherrapunji and Uluberia 8 each on 12th; Tura 7 on 13th; Dibrugarh 9 on 19th; Baripada 7 on 22nd;

Agartala 13 and Digboi 7 on 24th; Cherrapunji 8 on 27th; Calcutta 10 and Uluberia 9 on 28th; Cherrapunji 9 and Gauhati Airport 7 on 29th; Jalpaiguri 7 on 30th and Silchar 9 on 31st.

Day temperatures were appreciably above normal in Interior Maharashtra and Andhra Pradesh on many days during the month, in Madhya Pradesh from 6th to 10th and again in the last week, in northwest India in the first week, in Gujarat and Rajasthan on a few days in the last week, in Tamil Nadu between 7th and 17th and in north Interior Mysore and interior Orissa on some days. Moderate heat wave conditions prevailed in coastal Andhra Pradesh in the second week and again on 28th and 29th, in north coastal Tamil Nadu on 7th, 8th, 14th and 15th and in Orissa from 7th to 9th. The heat wave was severe in coastal Andhra Pradesh on 8th. More than 100 persons died due to sunstroke in various parts of Vidarbha, Andhra Pradesh, Uttar Pradesh and Bihar.