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Weather

WINTER SEASON (JANUARY-FEBRUARY 1973)

CHIEF FEATURES

Western disturbances

Nineteen western disturbances, nine in January and ten in February moved across northwest India causing good precipitation in the Western Himalayas during most part of January and in the last week of February.

Rainfall

The rainfall during this season was normal to excess in Nagaland, Manipur, Mizoram & Tripura, Bihar Plains, Western Himalayas, Punjab, east Madhya Pradesh, Saurashtra & Kutch and deficient or scanty over the rest of the country outside Rayalaseema, Mysore State and Kerala, where there was no rain. The total rainfall for the period from 1 January to 28 February 1973 in terms of percentage departure from normal is shown in Figs. 1(a) and 1(b).

Temperature

Moderate to severe cold wave conditions prevailed in Gujarat State, north Maharashtra State and many parts of north India on some days in the last week of January. Night temperatures were generally above normal in north Peninsula and many parts of north India in February.

Important features of each month were as follows.

JANUARY

Out of nine western disturbances which affected northwest India during this month, five caused fairly widespread rain and snow in the Western Himalayas while the rest caused scattered or isolated precipitation in this area.

The three western disturbances which moved across the Western Himalayas during the period 4th to 13th caused generally widespread rain and snow in the Western Himalayas on many days between the 5th to 14th. All of them induced lows or cyclonic circulations over Rajasthan and neighbourhood. Of these induced systems, one moved eastwards to west Uttar Pradesh by the 7th, another to Bihar by the 10th and the third to Assam and adjacent States by the 14th. These systems caused scattered or isolated rain or thundershowers in the plains of north India on a few days between 5th and 14th, rainfall being fairly widespread in east Uttar Pradesh on 8th and 12th, in Bihar Plains on 9th and 13th and in Assam and adjacent States on 14th.

Two western disturbances which moved across the Western Himalayas between the 17th and 22nd, also caused generally widespread rain and snow in the Western Himalayas during this period, with isolated heavy to very heavy falls in the Western Himalayas on 20th and 21st. Fairly widespread rain or thundershowers also occurred in Punjab, Haryana and the plains of west Uttar Pradesh on these days with isolated heavy falls in the Punjab.

An induced cyclonic circulation/trough in the lower troposphere, which moved from west Uttar Pradesh to Bihar between 26th and 30th, caused fairly widespread rain or thundershowers in Bihar plains from 28th to 30th.

Due to heavy snowfall in the Western Himalayas, air services to Srinagar and Jammu remained suspended for some days in the second and third weeks. Road traffic in many parts of Jammu & Kashmir, Himachal Pradesh and the hills of west Uttar Pradesh was also disrupted. Heavy snowfall is also reported to have caused damge

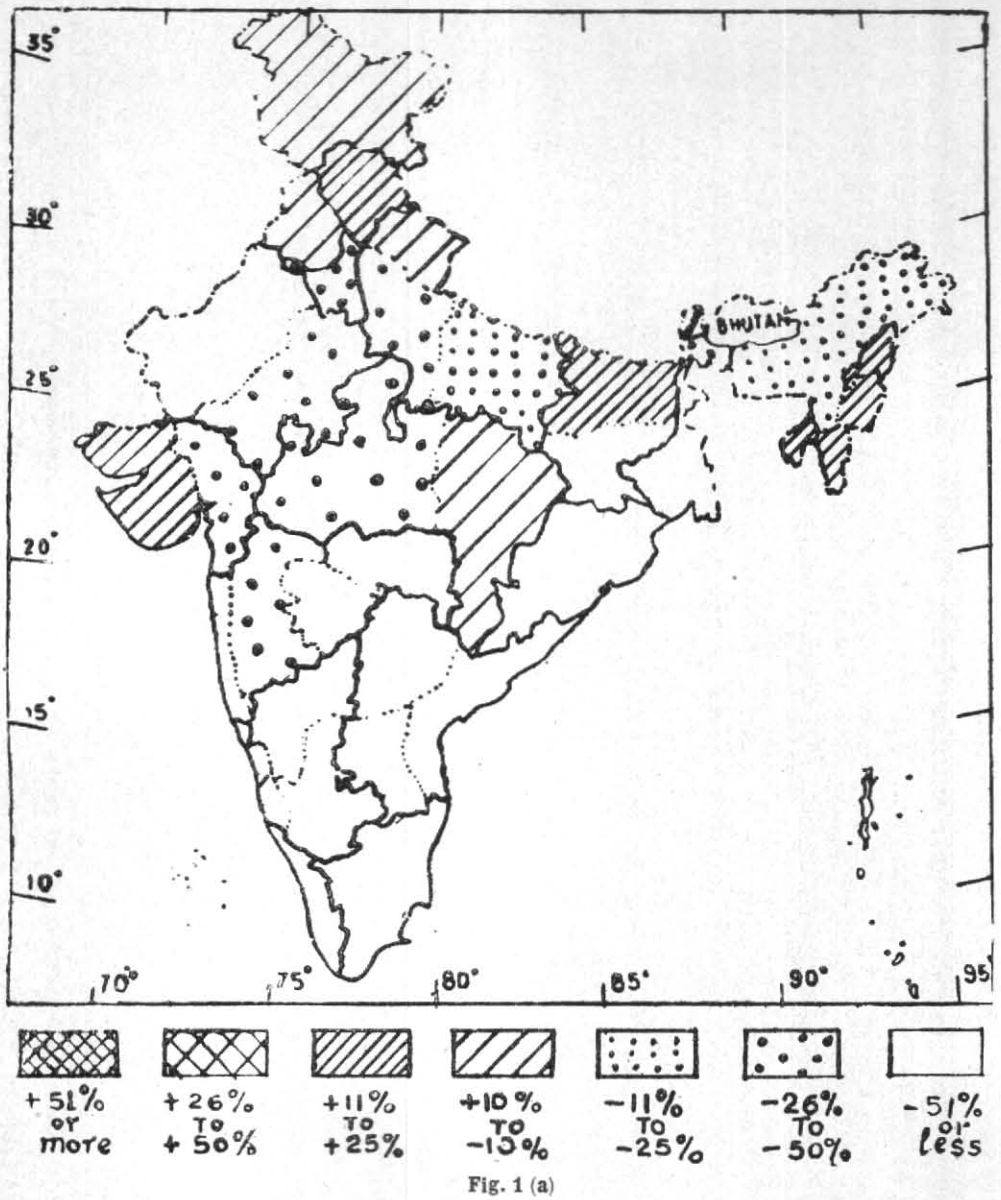

Fig. 1 (a)

Rainfall for the period 1 January and 28 February 1973
(Percentage departure from normal)

to plants and trees and house collapses in different parts of Srinagar.

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

Gulmarg 4 cm on 7th; Deoria 5 and Kalpa 4 on 12th; Ziro 6 on 14th; Ajnala 7 on 18th; Reasi 15, Banihal 12, Ajnala 8, Gulmarg & Quazigund 6 each, Dasuya & Kaya 5 each and Janmu 4 on 20th; Navashahar 12, Bilaspur 11, Kalpa 9, Rupar 8, Garbyang 6, Bhuntar, Dharmsala & Dharampur 5 each, Chandigarh, Delhi, Dehra Dun & Tehri 4 each on 21st; Kalpa 6 on 28th and Ziro 7 on 29th.

In association with a few low level trough in the easterlies which developed over Andaman Sea, Bay Islands had scattered or isolated rain fall on some days in the latter half of the month. Weather was mainly dry in the Peninsula.

Moderate to severe cold wave conditions prevailed in Gujarat, north Maharashtra and many parts of north India from 21st to 23rd and 27th to 30th. The cold wave is reported to have caused a few deaths in Bihar and Uttar Pradesh and affected standing *rabi* and vegetable crops in some parts of Madhya Pradesh.

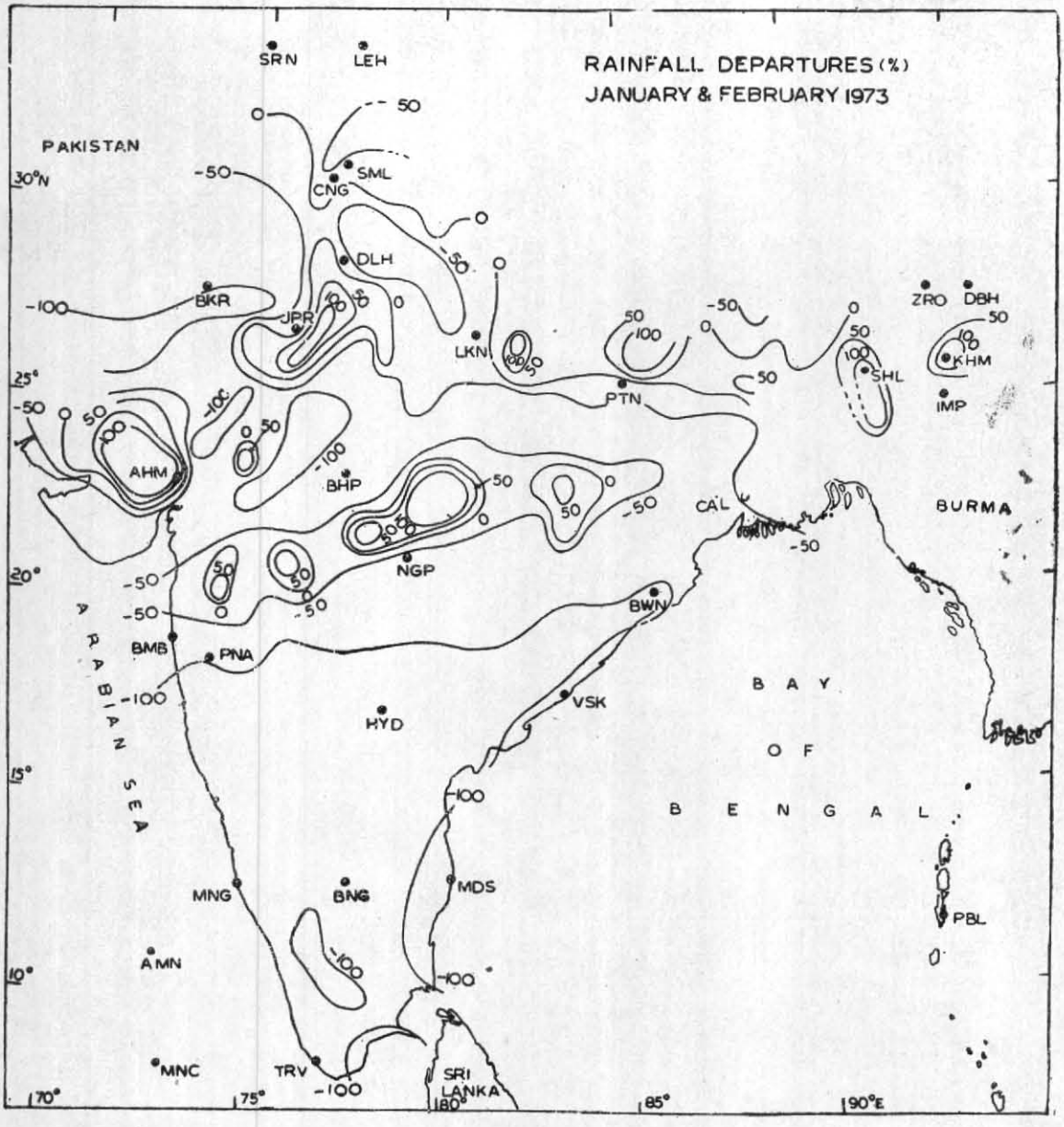

Fig. 1(b)

FEBRUARY

Out of the ten western disturbances during this month, seven moved across the Western Himalayas during the first three weeks, causing scattered or isolated rain and snow in the Western Himalayas and isolated rain or thundershowers in the adjoining plains.

A low level westerly trough (upto 1·5 km a.s.l.) moved eastwards from east Rajasthan and adjoining west Madhya Pradesh to Bihar State between 31 January and 2 February. Another trough extending to 1·5 km a.s.l. moved from east Rajasthan and adjoining northwest Madhya Pradesh to Assam and adjacent States between 3rd and 7th. These systems caused scattered rain or thundershowers in Madhya Pradesh, Vidarbha, east Uttar Pradesh on many days and in northeast India on some days during the first week, the rainfall being fairly widespread in east Madhya Pradesh on 1st and 4th and in Bihar Plateau on

6th. In association with a well marked induced low which moved from Rajasthan to central Uttar Pradesh from 7th to 8th, scattered duststorms were reported from the plains of northwest India and Gujarat on 7th and 8th. Another induced low moved from Rajasthan to Gangetic West Bengal between the 14th and 18th. It caused scattered rain or thundershowers in northeast India on 17th and 18th. Calcutta reported the first nor'wester of the season on the 16th evening, as result of which train and air services to Calcutta were dislocated and many huts were damaged. The maximum wind speed recorded at Alipore Observatory was 84 kmph.

The three western disturbances which moved across the Western Himalayas in the last week caused generally widespread rain and snow in that area on many days in the last week, with scattered rather heavy falls on the 25th and 26th. All of them induced low pressure areas over Rajasthan. Out of these, one was well marked and it moved eastwards from Rajasthan to Bihar and adjoining West Bengal between 24th and 28th. This system caused fairly widespread rain or thundershowers in the Punjab, Haryana and the plains of west Uttar Pradesh on 26th and in Assam and adjacent States on 27th and 28th. Scattered thundershowers also occurred in east Uttar Pradesh, Bihar and West Bengal on 27th and 28th. Heavy precipitation in Western Himalayas and Punjab is reported to have dislocated road and air traffic in these areas. Low lying areas in Amritsar were inundated. Landslides were reported between Ramban and Banihal. Isolated duststorms were reported from Rajasthan on 24th and 25th. Nor'wester thunderstorms accompanied with hailstorms were reported to have lashed Saran, Champaran, Muzaffarpur and Purnea districts of north Bihar on 27th, killing about a dozen persons and many heads of cattle and causing heavy damage to standing crops. Saran district was the worst affected. Malda district in north Bengal was also hit by hailstorms on 27th, resulting in heavy damage to mango crop.

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

Seoni 6 cm, Joshimath 4 on 1st; Narsingpur 7, Mandla 6, Jabalpur 5 on 4th; Jhashpurnagar 4 on 6th; Bomdila 5, Rangiya 4 on 17th; Bhuntar, Banihal and Kalpa 4 each on 25 th; Ziro 9, Bilaspur 7, Bhuntar and Dharmsala 6 each, Patiala, Raya, Kathua, Udhampur and Quazigund 5 each, Joshimath, Kapurthala, Adampur, Manali, Dasuya, Gurdaspur, Hoshiarpur, Jullundur and Reasi 4 each on 26th; Zero 8, Chaparmukh 6, Silchar, Haflong and Balurghat 5 each, Pasighat, Agartala and Kailashahar 4 each on 28th.

A trough in the low level easterlies which moved from Sri Lanka to Laccadive area between 1st and 3rd, caused isolated rainfall in the Arabian Sea Islands on 3rd. Minicoy recorded 2 cm of rain on that day. In association with troughs of low, lying over Andaman Sea on 8th and 9th and again on 27th and 28th, fairly widespread rain occurred in the Bay Islands on 9th and scattered or isolated rain on 10th, 11th, 27th and 28th. Port Blair recorded 2 cm of rain on 9th and Nancowry 3 cm on 27th.

A wind discontinuity extending to 1·5 km a.s.l. passed from Gujarat to Kerala on 19th and from Madhya Pradesh to Maharashtra State on 21st. This system caused scattered light rain or thundershowers in Madhya Pradesh and Maharashtra State on 20th and 21st. A trough of low which developed off the west coast on 21st became well marked on 22nd and extended from Gujarat to Laccadive area. It dissipated the next day. This trough caused scattered or isolated rain or thundershowers in Gujarat and Maharashtra States on 22nd and 23rd. Surendranagar recorded 2 cm of rain on 23rd and Jalgaon 1 cm on 22nd as well as on the 23rd.

Night temperatures were appreciably above normal in many parts of Uttar Pradesh, Madhya Pradesh and north Peninsula on many days during the month, in northeast India on some days in the latter half of the month and in northwest India and Gujarat State in the last week. They were markedly above normal in Madhya Maharashtra and neighbourhood on 19th and 20th and in Rajasthan and the Punjab on the 24th and 25th.