

Weather

WINTER SEASON (JANUARY—FEBRUARY 1970)

INTRODUCTION

Twelve western disturbances moved across northwest India during this winter (six each in January and February) causing normal or excess rainfall in Uttar Pradesh and northwest India except in Jammu & Kashmir where the rainfall was deficient. Madhya Pradesh and most parts of northeast India also had good rainfall during this season. Bay Islands had three spells of moderate to rather heavy rainfall, the first two in the second and third weeks of January and the third spell in the second week of February, resulting in an excess of rainfall for this season. Except for two spells of good rainfall in Kerala

resulting in excess of rainfall in that area, the rainfall in the Peninsula and Gujarat State was generally deficient or scanty. The percentage departure of the total rainfall for the period 1 January to 28 February from the normal is shown in Figs. 1 (a) and 1(b).

The daily minimum temperatures were appreciably to markedly below normal in northwest Madhya Pradesh in the first week of February.

The important features of the weather are given below month by month.

JANUARY

Out of six western disturbances, the first three moved across the Western Himalayas in quick succession between 10th and 16th causing fairly widespread light to moderate precipitation in the Western Himalayas and isolated light rainfall in the plains of northwest India. A cyclonic circulation extending to about 2 km a. s. l. which was induced over Rajasthan on 14th moved to Bihar Plateau by 16th and became less marked on that evening causing scattered light rainfall in Bihar State, Uttar Pradesh and Madhya Pradesh between 15th and 17th. The fourth western disturbance moved across northwest India between 18th and 21st inducing a low pressure area over south Rajasthan on 19th morning which moved eastnortheastwards to Uttar Pradesh by 21st and weakened into a trough of low pressure over Bihar State and neighbourhood that evening. Associated with these systems there was fairly widespread precipitation with isolated rather heavy falls in many parts of northwest and central India and in some parts of north Peninsula from 18th to 21st and in northwest India on 21st and 22nd. According to press reports, hailstorms hit many places in Akola and Nagpur districts towards the end of

the third week causing damage to standing crops. The fifth western disturbance moved across the Western Himalayas between 24th and 27th and induced a low pressure area over the southern divisions of West Pakistan on 24th which moved away eastwards across Rajasthan, Uttar Pradesh and northeast India by 28th evening. These systems caused fairly widespread precipitation in the Western Himalayas and the adjoining plains and isolated light rainfall in Rajasthan and Madhya Pradesh between 25th and 27th with isolated rather heavy falls in Himachal Pradesh and Jammu & Kashmir on 26th and scattered or isolated rainfall in northeast India between 26th and 29th. The sixth western disturbance moved across the Western Himalayas between 29th and 31st. It induced a low pressure area over the southern divisions of West Pakistan and adjoining north Arabian Sea on 29th which moved to northwest Madhya Pradesh and adjoining south Uttar Pradesh by 30th evening and became unimportant the next morning. These two systems caused scattered light to moderate precipitation in the Western Himalayas and the adjoining plains and isolated light rainfall in Madhya Pradesh on 30th and 31st.

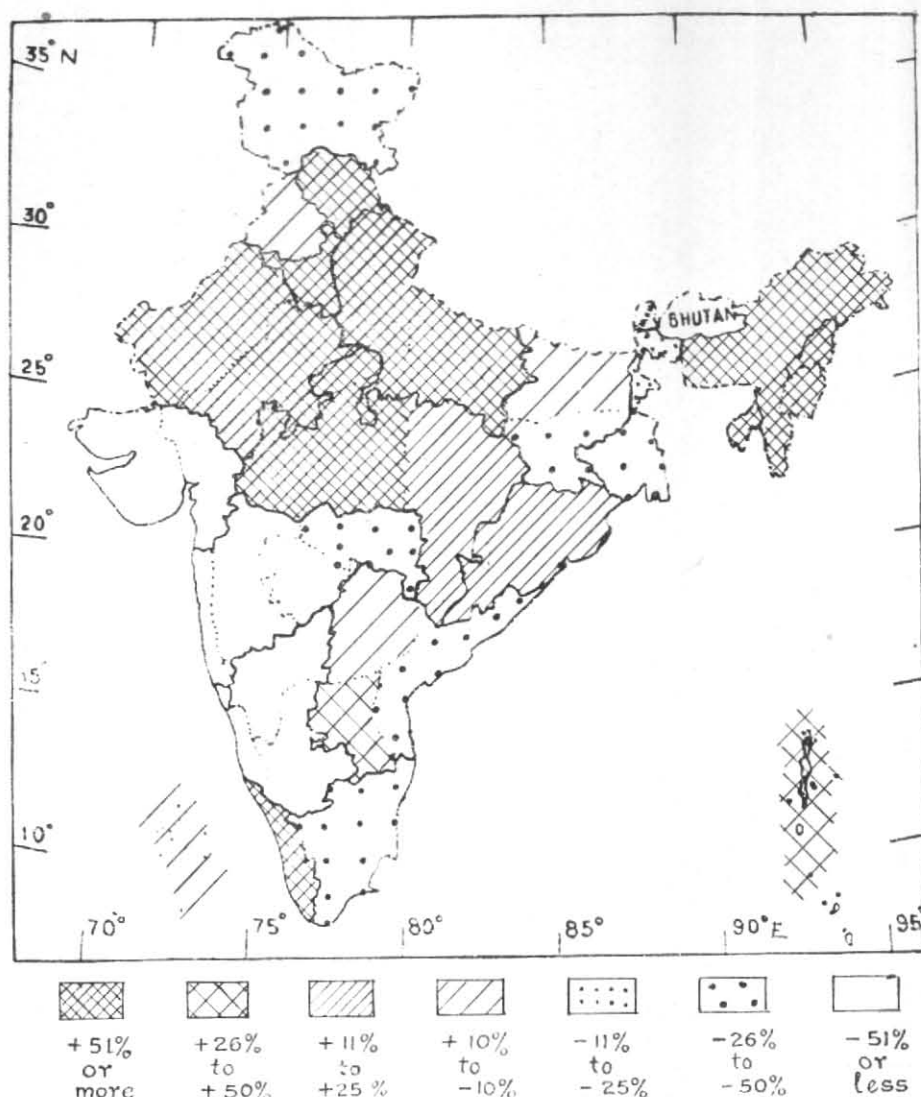


Fig. 1(a). Rainfall for the period 1 January to 28 February 1970
Percentage departure from normal

A low pressure area moved from Comorin and neighbourhood to southeast Arabian Sea during the first 3 days causing scattered light to moderate rainfall in extreme south Peninsula. There was also scattered or isolated rainfall in south Peninsula and the Arabian Sea Islands on some days between 20th and 31st. Fort Cochin recorded 11 cm of rain on 24th.

Bay Islands had two spells of good rainfall, from 6th to 12th and 16th to 19th. The heavy rainfall on 8th and 9th was in association with a low pressure area which was lying over extreme southeast Bay and adjoining south Andaman Sea on 7th and 8th and gradually moved away westwards. Kondul recorded 9 cm of rain on 8th.

The daily minimum temperatures were below

normal (1) in many parts of northeast India during the first 10 days; (2) in Haryana and Punjab from 5th to 10th; (3) in many parts of Madhya Pradesh and interior parts of Maharashtra State in the first week and on a few days in the last week; and (4) in north Andhra Pradesh in the first week being appreciably below normal in Orissa and some parts of Madhya Pradesh and Telengana on the first 4 days. They were above normal (1) in many parts of Gujarat State and Rajasthan on most of the days; (2) in many parts of Madhya Pradesh and interior parts of Maharashtra State in the second and third week and again on the last three days; (3) in Bihar Plateau and Gangetic West Bengal in the third week; and (4) in Andhra Pradesh and north Tamil Nadu from 19th to 28th, being appreciably so in some parts of Madhya Pradesh on some days.

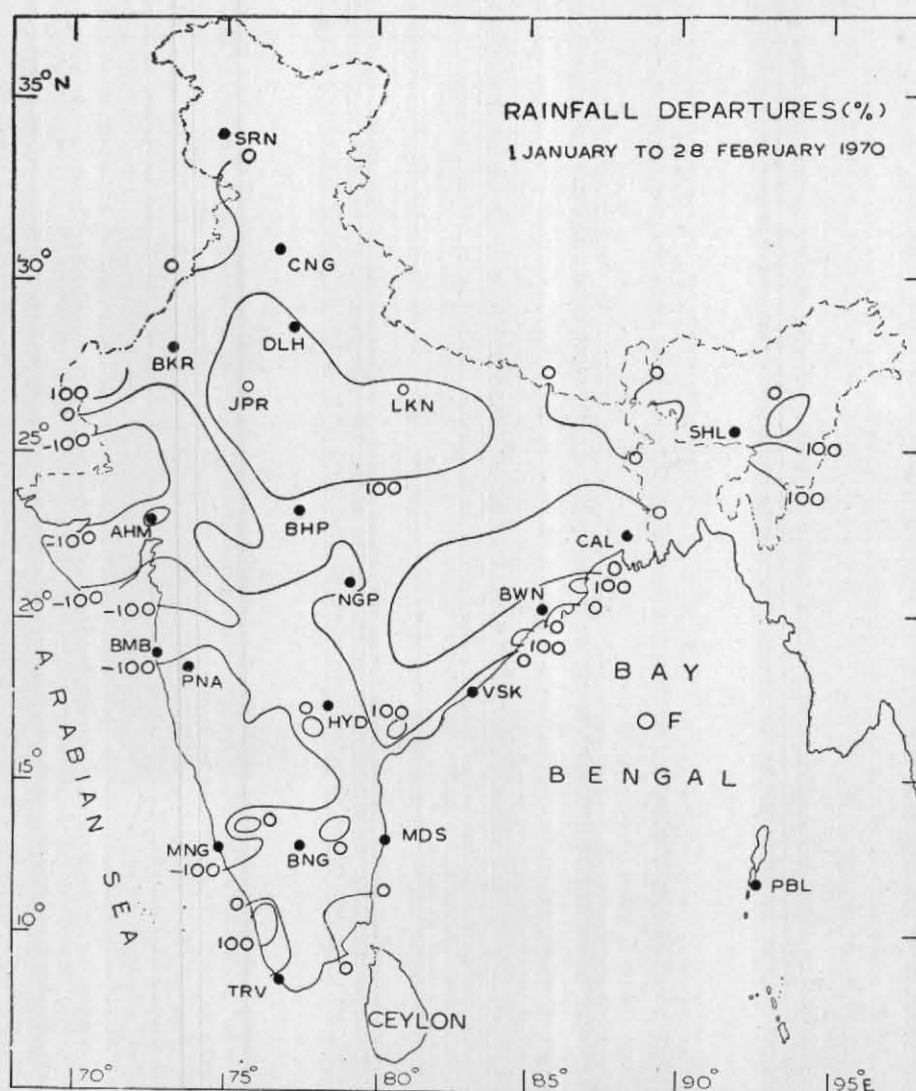


Fig. 1(b). Percentage departure from normal of rainfall occurred during the period 1 January to 28 February 1970

FEBRUARY

The first three, out of six western disturbances, moved across the Western Himalayas between 1st and 9th and caused isolated very light precipitation in that area. The next three western disturbances moved across northwest India in the last week—the fourth between 20th and 23rd, the fifth between 23rd and 26th and the sixth between 26th and 28th. The fifth western disturbance induced a low pressure area over the southern divisions of West Pakistan and adjoining Rajasthan on 23rd which moved to north Rajasthan on 25th and became less marked. The sixth western disturbance induced two low pressure areas, one over west Rajasthan and adjoining West Pakistan on 26th which moved to east Rajasthan the next day and became less marked, and the other over

the southern divisions of West Pakistan and adjoining north Arabian Sea on 27th morning which moved to northeast Rajasthan on 28th as a feeble cyclonic circulation extending to about 1 km a.s.l. and became less marked the same evening. Associated with these three western disturbances and the induced low pressure areas, there was good rainfall activity in northwest India and Uttar Pradesh on many days and isolated light rain in Madhya Pradesh on some days and in Gujarat State on one or two days in the last week.

A low pressure area formed over south Rajasthan and adjoining Gujarat State and West Pakistan on 17th evening and became well marked on 18th morning with associated

upper air cyclonic circulation extending to about 2 km a. s. l. It moved eastwards and weakened into a trough over northwest Madhya Pradesh and adjoining parts of Rajasthan and Uttar Pradesh on 20th. On 19th a wind discontinuity at 900 m a.s.l. extended from this system to Assam. A trough in the westerlies in the middle and upper troposphere which was lying along Long. 60°E north of Lat. 20°N on 17th, moved eastwards across northwest India by 20th. Associated with these systems there was good rainfall in northwest India, Uttar Pradesh and Madhya Pradesh in the second half of the third week and in many parts of northeast India on 20th. According to press reports, hailstorms hit some 15 districts in west Madhya Pradesh causing some damage to the winter crops. A few places in south Rajasthan and north Gujarat Region reported duststorms on 19th.

A wind discontinuity at 900 m a.s.l. was passing from Madhya Pradesh to Gangetic West Bengal across Bihar Plateau and adjoining Orissa on most of the days in the first fortnight and caused isolated thundershowers in Madhya Pradesh, Bihar Plateau, Orissa and Gangetic West Bengal on a number of days. It was passing from Andhra Pradesh to Assam through southeast Madhya Pradesh and Orissa between 20th and 24th and from Interior Mysore to northeast India through east Madhya Pradesh from 25th to 28th and caused scattered or isolated thundershowers in Andhra Pradesh between 20th and 24th, in Vidarbha on 28th and in east Madhya Pradesh and northeast India in the last week. Gopalpur recorded 13 cm of rain on 23rd.

A low pressure area moved from extreme south Bay to extreme southeast Arabian Sea

across Comorin-Maldives area between 3rd and 7th causing isolated light rainfall in Tamil Nadu on 5th and the Arabian Sea Islands on 7th. A trough in the low level easterlies moved westwards across south Peninsula and Laccadives between 19th and 21st and caused scattered or isolated moderate rainfall in Tamil Nadu and Kerala and light rain in south Interior Mysore and the Arabian Sea Islands during the period 19th to 22nd. Nagapattinam recorded 11 cm of rain on 19th.

There was scattered or isolated rainfall in the Bay Islands from 7th to 15th. Kondul recorded 20 cm of rain on 12th.

The daily minimum temperatures were above normal (1) in many parts of Orissa, southeast Madhya Pradesh, Telengana and interior parts of Maharashtra State from 1st to 18th; (2) in many parts of Madhya Pradesh from 12th to 19th and again from 24th to 28th, being $4-5^{\circ}\text{C}$ above normal in some parts of Madhya Pradesh on some days between 12th and 19th; (3) in Rajasthan, Gujarat State and Uttar Pradesh in the last week, being $4-5^{\circ}\text{C}$ above normal in some parts of Gujarat State between 24th and 28th, and (4) in Andhra Pradesh and Tamil Nadu from 19th to 26th. They were below normal (1) in many parts of northwest India, Uttar Pradesh, Bihar State, West Bengal and Gujarat State on many days in the first fortnight, being $4-5^{\circ}\text{C}$ below normal in east Rajasthan and parts of Gujarat State on some days in the first week; (2) in northwest Madhya Pradesh upto 8th being $4-6^{\circ}\text{C}$ below normal on many days; (3) in interior parts of Maharashtra State from 19th to 25th; and (4) in Interior Mysore from 15th to 25th.