

## Weather

### WINTER SEASON (JANUARY AND FEBRUARY 1983)\*

#### 1. Chief features

1. Moderate cold wave conditions in most parts of north India and north Peninsula during this season.

2. 8 deg.-12 deg. C below normal day temperatures in a few meteorological sub-divisions of north India.

3. Extensive fog in the plains of north India in early January.

4. Hailstorms in Cooch Behar and neighbourhood on 3 January.

5. The season's rainfall (Fig. 1) was in excess in Arunachal Pradesh, Gangetic West Bengal, Orissa, Haryana and Punjab, Himachal Pradesh, Assam and neighbouring States. It was deficient in Sub-Himalayan West Bengal and Sikkim, hills of west Uttar Pradesh and Jammu & Kashmir, Bihar, plains of Uttar Pradesh, east Rajasthan, east Madhya Pradesh, Vidarbha and in Andaman & Nicobar Islands, west Rajasthan, west Madhya Pradesh, Gujarat State, Madhya Maharashtra, Andhra Pradesh, Tamil Nadu, Kerala and Lakshadweep. There was no rain in Konkan & Goa, Marathwada and Karnataka during the season.

#### 2. January

##### 2.1. Western disturbances and induced systems

Eight western disturbances and five induced systems affected the weather of northwest India, Gujarat State, Uttar Pradesh and Bihar during this month. The western disturbances which moved in succession across Western Himalayas between 6th and 8th and between 8th and 12th caused scattered to isolated rain and snow in Jammu & Kashmir on 6th, 8th and 9th and in Himachal Pradesh on 10th. The other western disturbance which affected Western Himalayas between 14th and 17th also caused scattered snowfall

in Jammu & Kashmir on 15th and 16th and in Himachal Pradesh on 16th. The last western disturbance of the month (25 January - 2 February) with its induced system was active, causing generally widespread rain or snow over Jammu & Kashmir and Himachal Pradesh from 27th to 30th. It also caused widespread to scattered rain or thunder-showers in Punjab, Haryana, plains of Uttar Pradesh and Bihar during the period of 27th to 31st. Scattered to isolated rain/thunder-showers also occurred in Rajasthan, Gujarat and Madhya Pradesh during this period.

Consequent to the passage of the western disturbances there was extensive fog over the plains of north India on many days between 1st and 24th.

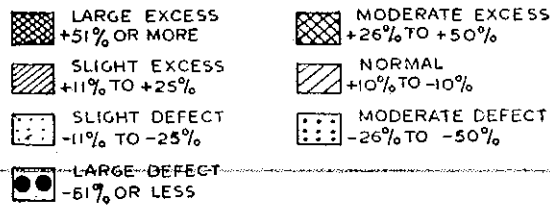
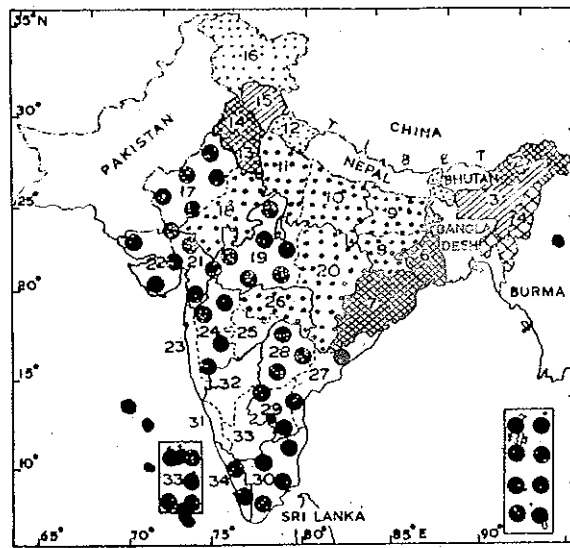
2.2. The weather over Peninsula was mainly dry except in coastal Andhra Pradesh, Tamil Nadu and Kerala, Andaman & Nicobar Islands and Lakshadweep received deficient and scanty rainfall respectively. Parts of northeast India received excess rainfall during the month. The following systems affected these areas.

(i) A trough of low lay over Andaman Sea between 3rd and 5th causing fairly wide spread rain/thunder-showers with isolated heavy falls in Andaman and Nicobar Islands on 4th. They were scattered or isolated on 3rd, 5th and 6th.

(ii) A trough in lower troposphere moved from Bihar plains to Assam across West Bengal between 31 December and 3 January which became less marked by next day. It caused scattered or isolated rain/thundershowers on one or two day in Assam & Meghalaya and West Bengal & Sikkim between 1st and 4th. According to press reports hailstorms lashed Cooch Behar and area adjacent to Jalpaiguri district on 3rd.

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WEATHER



<i>Met. sub-div.</i>	<i>% Dep.</i>	<i>Met. sub-div.</i>	<i>% Dep.</i>
(1) A & N Islands	-72	(19) West Madhya Pradesh	-65
(2) Arunachal Pradesh	57	(20) East Madhya Pradesh	-39
(3) Assam & Meghalaya	18	(21) Gujarat Region	-73
(4) N. M. M. & T.	29	(22) Saurashtra & Kutch	-63
(5) S. H. W. B. Sikkim	-18	(23) Konkan & Goa	-100
(6) G. West Bengal	76	(24) Madhya Maharashtra	-93
(7) Orissa	103	(25) Marathwada	-100
(8) Bihar Plateau	-29	(26) Vidarbha	-29
(9) Bihar Plains	-50	(27) Coastal A.P.	-59
(10) East Uttar Pradesh	-42	(28) Telangana	-77
(11) Plains West U.P.	-29	(29) Rayalaseema	-85
(12) Hills West U.P.	-23	(30) Tamil Nadu	-99
(13) Haryana	63	(31) Coastal Karnataka	-100
(14) Punjab	114	(32) N. I. Karnataka	-100
(15) Himachal Pradesh	19	(33) S. I. Karnataka	-100
(16) Jammu & Kashmir	-25	(34) Kerala	-98
(17) West Rajasthan	-53	(35) Lakshadweep	-98
(18) East Rajasthan	-50		

Fig. 1

(iii) Lakshadweep experienced isolated rain/thundershowers due to a cyclonic circulation upto 0.9 km a.s.l. over Kerala and neighbourhood on 6th.

(iv) A trough in low level westerlies extending upto 1.5 km a.s.l. moved from Sub-Himalayan West Bengal and neighbourhood to Assam and adjacent States between 8th and 10th. It caused fairly widespread rain/thundershowers in Nagaland, Manipur, Mizoram and Tripura on 10th and scattered or isolated in Arunachal Pradesh & Assam and Meghalaya on 10th and in Nagaland, Manipur, Mizoram and Tripura on 11th.

(v) A low level cyclonic circulation persisted over Kerala and adjoining Lakshadweep between 13th and 16th causing isolated rain/thundershowers in Tamil Nadu on 15th.

(vi) A wind discontinuity at 0.9 km a.s.l. extending from southwest Madhya Pradesh to coastal West Bengal across Orissa persisted on many days between 20th and 26th. The low level anticyclone over west central Bay caused influx of moisture during this period in coastal Andhra Pradesh, southeast Madhya Pradesh, Orissa, coastal West Bengal and Vidarbha. It caused isolated thundershowers on one or two days in these areas during this period.

(vii) A trough at 0.9 km a.s.l. extended from Sub-Himalayan West Bengal to Telangana on 30th and from Sub-Himalayan West Bengal and Sikkim to coastal Andhra Pradesh on 31st causing generally widespread to scattered rain/thundershowers on one to two days in Assam and adjacent States, Sub-Himalayan West Bengal and Sikkim and Bihar plains and isolated on one to two days in Gangetic West Bengal, Orissa and Bihar Plateau.

### 2.3. Rainfall

Rainfall for the month was excess or normal in Assam & adjacent States, Gangetic West Bengal, Bihar plains, Uttar Pradesh, Haryana, Punjab, Himachal Pradesh and Jammu & Kashmir and deficient or scanty in Andaman & Nicobar Islands, Sub-Himalayan West Bengal and Sikkim, Orissa, Bihar Plateau, Rajasthan, Madhya Pradesh, Gujarat State, Madhya Maharashtra, Vidarbha, coastal Andhra Pradesh, Tamil Nadu, Kerala and Lakshadweep. It was dry over the rest of the country.

The significant amounts of rainfall snow (cm) during month were :

4th	..	Nancowry 12
20th	..	Sandheads 7
28th	..	Jogindernagar 15, Kalpa 14, Ambala IAF, Nahan 9 each, Ambala, Bhuntar AP 8 each, Sangrur, Patiala, Kataula, Sundernagar 7 each.
29th	..	Kandaghat 8

### 2.4. Temperature

Moderate cold wave conditions prevailed in north Madhya Maharashtra on 3rd, Bihar Plateau on 4th and 6th, Bihar plains on 4th and 7th, Telangana on 5th, Sub-Himalayan West Bengal & Sikkim and east Madhya Pradesh on 7th, southwest Rajasthan and southwest Madhya Pradesh on 11th, east Rajasthan and north Gujarat region on 15th. Night temperatures were appreciably below normal on 8 days in Sub-Himalayan West Bengal and Sikkim, west Madhya Pradesh and Madhya Maharashtra and 3 to 5 days in Bihar plains, Rajasthan, east Madhya Pradesh, Vidarbha and Telangana between 1st and 20th. Sub-zero temperatures were recorded at a few places in Kashmir valley and Himachal Pradesh on several days.

Day temperatures were as much as 8 deg. to 12 deg.C below normal on 9 days in Bihar plains and 6 days in east Uttar Pradesh and 1 to 2 days in Sub-Himalayan West Bengal & Sikkim and plains of west Uttar Pradesh during the 1st fortnight of the month when the maximum temperatures ranged between 10 deg. and 16 deg. C.

According to press reports the chilly winds swept for a number of days across Punjab, Haryana, Uttar Pradesh and Bihar. It took a toll of 400 lives of which Bihar accounted for 200 deaths and Uttar Pradesh 167 deaths.

### 3. February

3.1. During this month eight western disturbances affected Western Himalayas and neighbourhood, out of which the active ones were those two which moved across Western Himalayas between 10th and 18th and between 22nd and 26th.

A trough in mid-tropospheric westerlies was extended from northeast Afghanistan to northeast Arabian Sea on 14th. It moved slightly eastwards and was seen along the Long. 70 deg. E on the 16th and became unimportant by next day.

A few feeble low pressure systems and low level circulations were seen to move across Pakistan and adjoining northwest India during this month.

All these systems caused generally widespread rain or snow over Western Himalayas, Punjab and Haryana on 2 to 3 days between 14th and 16th and on 1 to 2 days between 24th and 25th. Plains of west Uttar Pradesh experienced fairly widespread rain/thundershowers on 24th. Scattered or isolated rain/thundershowers occurred on a few days in northwest India, Uttar Pradesh and Gujarat State.

According to press reports 10 people were killed in avalanches at Nastachum pass in Kashmir valley on 15th. 5 people were reported missing.

3.2. A few low pressure systems affected the upper parts of northeast India during the first fortnight of the month. Wind discontinuity also developed at 0.9 km a.s.l. over northeast India. It ran through Gangetic West Bengal and Orissa on most days upto 10th and from Assam to Vidarbha through north Orissa on most days between 17th & 23rd. An anti-cyclone over southwest and adjoining west central Bay between 24th and 26th caused moisture incursion over most parts of northeast India. These systems caused generally widespread rain/thundershowers on 5 days in Arunachal Pradesh and Orissa, on 3 days in Assam & Meghalaya and Gangetic West Bengal, on 2 days in Bihar Plateau and on 1 day in Nagaland, Manipur, Mizoram and Tripura during this month. Scattered or isolated rain/thundershowers also occurred on a few days over northeast India.

3.3. The eastern parts of Peninsular India outside Tamil Nadu and Madhya Pradesh experienced scatter-

ed or isolated rain/thundershowers on a number of days due to (i) the Peninsular wind discontinuity at 0.9 km a. s. l. on many days & (ii) a low pressure area over Telangana and neighbourhood on 7th and 8th with associated cyclonic circulation upto 1.5 km a. s. l. which moved over southeast Madhya Pradesh on 9th and became unimportant subsequently.

#### 3.4. Rainfall

Rainfall was excess in Orissa, normal in Arunachal Pradesh, Gangetic West Bengal, deficient in Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Sub-Himalayan West Bengal & Sikkim, Bihar Plateau, Punjab, Himachal Pradesh, east Madhya Pradesh and Vidarbha and scanty over rest of the country outside Andaman & Nicobar Islands, Gujarat region, rest of Maharashtra, Karnataka, Kerala and Lakshadweep where there was no rainfall. Midnapore recorded 7 cm of rainfall on 26th.

#### 3.5. Temperature

Moderate cold wave conditions prevailed in west Rajasthan on 1st and 5th, east Rajasthan on 3rd, 5th and 6th, west Vidarbha and Telangana on 3rd, west Madhya Pradesh and Gujarat region on 5th and 6th, east Madhya Pradesh on 6th, Sub-Himalayan West Bengal and Sikkim on 7th, Bihar plains on 6th and 7th, hills of west Uttar Pradesh on 6th and 8th and in Himachal Pradesh and Jammu & Kashmir on 8th. Night temperatures were generally below or appreciably below normal over the country outside Kerala, Tamil Nadu, Andhra Pradesh and Orissa upto 10th of this month. They were above or appreciably above normal on most days during the month in interior Maharashtra, Andhra Pradesh, Tamil Nadu and Kerala. Day temperatures were as much as 8 deg. to 12 deg. C below normal in Gangetic West Bengal and Bihar Plateau on 9th, Punjab on 1st and 14th and in Jammu & Kashmir on 14th. Maximum temperature in Jammu & Kashmir ranged between 0 deg. to 4 deg. C and in other places 8 deg. to 18 deg. C on those days.