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Weather in India

WINTER SEASON (January-February 2025)†

1. Introduction

In the winter season 2025, January experienced cold wave conditions mainly over a smaller area, only for a few days, and were mainly confined to Himachal Pradesh (4, 10, 13, 15, 24-29 January), Punjab (9, 25- 28 January) and north Rajasthan & adjoining Haryana (10, 26-28 January). In February, Cold wave/foggy conditions were mostly absent across northern parts and Indo Gangetic plains.

The Northeast monsoon rain ceased over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, adjoining areas of coastal Andhra Pradesh, Yanam, Rayalaseema and south interior Karnataka with effect from 27th January 2025.

The maximum temperature was above normal over most parts of the country except some parts of central India, northeast India and south peninsular India. The maximum temperature anomaly was more than 3 ºC over parts of Uttarakhand, Odisha, Jharkhand and Chhattisgarh. The maximum temperature anomaly was more than 2 ºC over parts of Jammu, Kashmir & Ladakh, Himachal Pradesh, Uttarakhand, west Rajasthan, Gujarat state, Odisha, Jharkhand, Chhattisgarh, Madhya Maharashtra, Marathawada and Vidarbha.

The minimum temperature was above normal over most parts of the country except some parts of northwest India, central India and south peninsular India. The minimum temperature anomaly was more than 2 ºC over parts of Punjab, west Rajasthan, Gujarat region, Bihar, Nagaland, Manipur, Mizoram, Tripura, west Madhya Pradesh, Madhya Maharashtra, Marathawada and north Interior Karnataka.

The mean temperature for the winter season 2025 was 20.54 ºC with an anomaly of 1.17 ºC and the highest since 1901. Among the four homogeneous regions, the mean temperature over central India was the highest (22.90 ºC with an anomaly of 1.45 ºC), east & northeast India, it was also the highest (18.96 ºC with an anomaly of 1.25 ºC) and northwest India, it was the 2nd highest

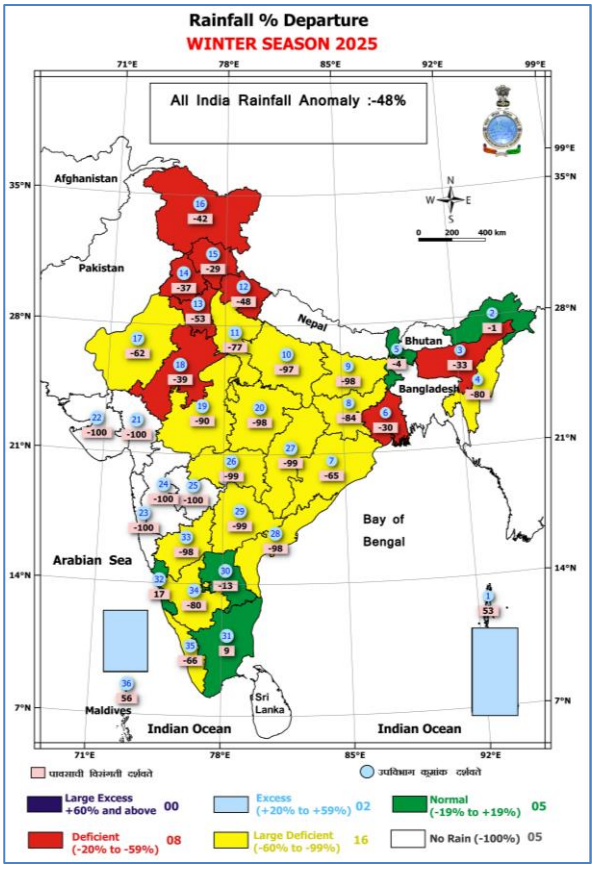

Fig.1.

(15.26 ºC with an anomaly of 1.26 ºC) after the year 2006 (15.42 ºC). South Peninsular India, it was the 5th highest (25.69 ºC with an anomaly of 0.56 ºC) after the years 2024 (26.23 ºC), 2016 (25.83 ºC), 1998 (25.79 ºC) and 2020 (25.78 ºC) since 1901.

The maximum and minimum temperatures were above normal over all homogeneous regions and the country as a whole. Among the four homogeneous regions, over Central India, the maximum temperature was the highest (30.63 ºC with an anomaly of 1.49 ºC) and the minimum temperature was the 2nd highest (15.17 ºC with an anomaly of 1.42 ºC) after the year 2024 (15.41 ºC)

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TABLE 1

Sub–division wise rainfall (mm) for each month and season as a whole (January-February 2025)

S. No.	Meteorological Sub-divisions	January			February			Season		
		Actual (mm)	Normal (mm)	Dep. (%)	Actual (mm)	Normal (mm)	Dep. (%)	Actual (mm)	Normal (mm)	Dep. (%)
1.	Andaman & Nicobar Islands	68.0	56.4	21%	54.6	23.7	130%	122.7	80.1	53%
2.	Arunachal Pradesh	40.1	45.8	-12%	91.2	87.3	4%	131.4	133.1	-1%
3.	Assam &Meghalaya	14.4	13.8	4%	14.2	28.3	-50%	28.4	42.1	-33%
4.	Nagaland, Manipur, Mizoram & Tripura	1.6	10.4	-85%	4.8	21.5	-78%	6.2	31.9	-80%
5.	S.H.W.B.& Sikkim	3.3	15.3	-79%	38.6	28.3	36%	41.8	43.6	-4%
6.	Gangetic West Bengal.	0.0	12.7	-100%	20.4	16.6	23%	20.4	29.3	-30%
7.	Odisha	0.0	10.6	-100%	8.7	14.5	-40%	8.7	25.1	-65%
8.	Jharkhand	0.0	11.0	-99%	4.0	14.4	-72%	4.0	25.4	-84%
9.	Bihar	0.0	9.4	-99%	0.4	10.4	-96%	0.5	19.8	-98%
10.	East Uttar Pradesh	0.5	12.1	-96%	0.1	13.1	-99%	0.6	25.2	-97%
11.	West Uttar Pradesh	5.2	12.9	-60%	1.7	17.6	-90%	6.9	30.5	-77%
12.	Uttarakhand	5.4	42.2	-87%	47.6	59.5	-20%	52.9	101.7	-48%
13.	Haryana, Chandigarh & Delhi	9.4	14.6	-36%	5.6	17.4	-68%	15.0	32.0	-53%
14.	Punjab	8.3	20.3	-59%	21.6	27.1	-20%	30.0	47.4	-37%
15.	Himachal Pradesh	13.3	85.3	-84%	119.2	101.8	17%	132.5	187.1	-29%
16.	Jammu - Kashmir & Ladakh	11.7	95.1	-88%	119.8	130.4	-8%	131.5	225.5	-42%
17.	West Rajasthan	2.2	3.1	-30%	1.1	5.4	-80%	3.3	8.5	-62%
18.	East Rajasthan	5.7	5.0	15%	0.9	5.9	-84%	6.7	10.9	-39%
19.	West Madhya Pradesh	1.2	6.9	-83%	0.2	7.1	-98%	1.4	14.0	-90%
20.	East Madhya Pradesh.	0.7	15.8	-95%	0.0	17.6	-99%	0.7	33.4	-98%
21.	Gujarat Region	0.0	1.0	-100%	0.0	0.5	-100%	0.0	1.5	-100%
22.	Saurashtra - Kutch & Diu	0.0	0.4	-100%	0.0	0.4	-100%	0.0	0.8	-100%
23.	Konkan & Goa	0.0	0.4	-100%	0.0	0.2	-100%	0.0	0.6	-100%
24.	Madhya Maharashtra	0.0	1.5	-100%	0.0	1.3	-100%	0.0	2.8	-100%
25.	Marathwada	0.0	4.0	-100%	0.0	2.4	-100%	0.0	6.4	-100%
26.	Vidarbha	0.0	9.9	-99%	0.0	7.0	-100%	0.0	16.9	-99%
27.	Chhattisgarh	0.0	12.1	-100%	0.3	9.8	-97%	0.3	21.9	-99%
28.	Coastal A.P. & Yanam	0.5	9.7	-94%	0.0	12.5	-99%	0.5	22.2	-98%
29.	Telangana	0.0	9.3	-100%	0.2	6.7	-98%	0.2	16.0	-99%
30.	Rayalaseema	7.6	4.0	91%	0.0	4.8	-100%	7.6	8.8	-13%
31.	Tamil Nadu, Pudcherry & Karaikal	24.3	12.3	97%	2.7	12.5	-78%	27.0	24.8	9%
32.	Coastal Karnataka	2.4	1.7	40%	1.1	1.3	-14%	3.5	3.0	17%
33.	North Interior Karnataka	0.0	2.6	-100%	0.1	1.8	-96%	0.1	4.4	-98%
34.	South Interior Karnataka	1.1	2.1	-47%	0.0	3.6	-100%	1.1	5.7	-80%
35.	Kerala & Mahe	5.5	7.4	-26%	1.7	13.7	-88%	7.2	21.1	-66%
36.	Lakshadweep	40.3	15.8	155%	0.0	10.0	-100%	40.3	25.8	56%

Note : Amounts less than 0.1 mm are rounded off to zero

TABLE 2

Details of the weather systems during January 2025

Sr. No	System	Duration	Place of initial location	Direction of Movement	Place of final location	Remarks
(I) Western disturbances /Eastward moving systems						
(a) As a Upper air cyclonic circulation						
1	Between 3.1 & 5.8 km above m.s.l.	1-8	Iraq & neighbourhood	east-northeastwards	roughly along Long.93 °E to the north of Lat.26 °N	It persisted with a trough aloft in upper tropospheric westerlies on 2. & became less marked on 3. It lay as a cyclonic circulation over north Pakistan at 3.1 km above m.s.l. with a trough aloft on 6th & as a trough in middle & upper tropospheric westerlies on 7th and moved away east-northeastwards. on 9.
2	Between 3.1 and 5.8 km above m.s.l.	9-12	southwest Iran & neighbourhood	eastwards	Punjab & neighbourhood	Moved away eastwards on 13th.
3	Between 3.1 & 7.6 km above m.s.l.	14-17	Iran & neighbourhood	east-northeast	northwest Uttar Pradesh & neighbourhood	Trough aloft became less marked on 17th while cyclonic circulation became less marked on 18th.
4	Between 3.1 km & 9.4 km above m.s.l.	28 -31 Jan	west Iran & neighbourhood	northeast	North Pakistan and adjoining Jammu	Trough aloft moved away northeastwards on 31st January and western disturbance became less marked 1st February
(b) As a trough						
1	At 3.1 km above m.s.l.	17-22	roughly along Long.54° E to the north of Lat.30° N	east-northeast wards	along Long. 71° E to the north of Lat.30° N	It lay as a cyclonic circulation over north Pakistan on 20th with a trough aloft which moved away east-northeastwards on 22nd and cy-cir became less marked on 23rd.
2	At 5.8 km above m.s.l.	19-20	along Long.52° E to the north of Lat.28° N	Stationary	along Long.58° E to the north of Lat.28° N	Moved away northeastwards on 21st.
3	At 5.8 km above m.s.l.	21-23	roughly along Long.52° E to the north of Lat.30° N	northeast	along Long.71° E to the north of Lat.30° N	It lay as a cyclonic circulation over north Pakistan & neighbourhood on 23rd and moved away east-northeastwards on 24th.
4	At 5.8 km above m.s.l.	31st Jan - 2 Feb.	ran roughly along Long.63° E to the north of Lat.28° N on	east-northeast	Jammu & adjoining north Pakistan on 3rd morning	Moved away east-northeastwards on 3rd Feb.
(c) As an induced cyclonic circulation						
1	upto 1.5 km above m.s.l.	4-7	southwest Rajasthan & adjoining Pakistan	east	northwest Uttar Pradesh & neighbourhood	Became less marked on 8th.
2	at 1.5 km above m.s.l.	10-12	southwest Rajasthan & neighbourhood	Oscillatory	central parts of north Rajasthan & neighbourhood	Became less marked on 13th.
3	At 1.5 km above m.s.l.	15-16	Punjab & adjoining Pakistan	southeast	south Haryana and neighbourhood	Became less marked on 17th.
4	At 1.5 km above m.s.l.	19-22	southwest Rajasthan & adjoining Pakistan	oscillatory	Haryana & neighbourhood	Became less marked on 23rd.
5	Upto 1.5 km above m.s.l.	30-31 Jan	west Rajasthan	northeast	Haryana and neighbourhood	Became less marked 1st February.

Sr. No	System	Duration	Place of initial location	Direction of Movement	Place of final location	Remarks
(II) Other upper air cyclonic circulations						
1	At 3.1 km above m.s.l.	6 - 8	northeast Assam & neighbourhood	Stationary	northeast Assam & neighbourhood	Became less marked on 9th.
2	At 1.5 km above m.s.l.	6 - 14	Equatorial Indian Ocean and adjoining southeast Bay of Bengal	westwards	central parts of south Arabian Sea and adjoining Equatorial Indian Ocean	Became less marked on 15th.
3	At 0.9 km above m.s.l.	6	Madhya Maharashtra & neighbourhood	Stationary	Insitu	Became less marked on 7th.
4	At 0.9 km above m.s.l.	7	southeast Arabian Sea off Kerala coast a	Stationary	Insitu	Became less marked on 8th.
5	At 3.1 km above m.s.l.	8	north Tamil Nadu & neighbourhood	Stationary	Insitu	Became less marked on 9th.
6	At 1.5 km above m.s.l.	9	east Bangladesh & neighbourhood	Stationary	Insitu	Became less marked on 10th.
7	At 3.1 km above m.s.l.	9	southeast Arabian Sea off Kerala coast	Stationary	Insitu	Became less marked on 10th.
8	At 3.1 km above m.s.l.	11	northeast Assam	Stationary	Insitu	Became less marked on 12th.
9	At 1.5 km above m.s.l.	15	southwest Rajasthan & neighbourhood	Stationary	Insitu	Became less marked on 16th.
10	Upto 1.5 km above m.s.l.	13	north Bangladesh & neighbourhood	Stationary	Insitu	Became less marked on 14th.
11	At 1.5 km above m.s.l.	16	southeast Arabian Sea off south Kerala coast	Stationary	Insitu	Became less marked on 17th.
12	At 3.1 km above m.s.l.	17-21	northeast Assam & neighbourhood	Stationary	Insitu	Became less marked on 22nd.
13	At 5.8 km above m.s.l.	20th morning	Gulf of Mannar & adjoining Sri Lanka	Stationary	Insitu	Became less marked on 21st.
14	At 0.9 km above m.s.l.	21-23	southeast Rajasthan and neighbourhood	southeast	Southwest Madhya Pradesh	Became less marked on 24th.
15	Upto 1.5 km above m.s.l.	23	east Bangladesh and neighbourhood	Stationary	Insitu	Became less marked on 24th.
16	At 0.9 km above m.s.l.	23	southeast Arabian Sea off south Kerala coast	Stationary	Insitu	Became less marked on 24th.
17	Upto 3.1 km above m.s.l.	24	east Equatorial Indian Ocean & adjoining south Andaman Sea	Stationary	Insitu	Became less marked on 25th.
18	At 3.1 km above m.s.l.	24-25	northeast Assam & neighbourhood	Stationary	Insitu	Became less marked on 26th.
19	At 1.5 km above m.s.l.	27 Jan - 2 Feb	east Bangladesh & neighbourhood	northeast	northeast Assam & neighbourhood	Became less marked on 3rd Feb
20	At 1.5 km above m.s.l.	29	south Haryana & neighbourhoo	Stationary	Insitu	Became less marked on 30th.
21	At 1.5 km above m.s.l.	29	east Haryana and neighbourhoo	Stationary	Insitu	Became less marked on 30th.
22	At 0.9 km above m.s.l.	31 Jan	South Kerala	Stationary	Insitu	Became less marked on 1st February.

Sr. No	System	Duration	Place of initial location	Direction of Movement	Place of final location	Remarks
(III) Other troughs						
1	At 1.5 km above m.s.l.	5-6 morning	ran from north Punjab to westcentral Arabian sea across the induced cyclonic circulation over southwest Rajasthan & adjoining southeast Rajasthan	oscillatory	ran from west Uttar Pradesh to northeast Arabian Sea	Became less marked on the same day 6th.
2	At 1.5 km above m.s.l.	6	ran from the cyclonic circulation over Equatorial Indian Ocean and adjoining southeast Bay of Bengal to Tamil Nadu	oscillatory	from the cyclonic circulation over Equatorial Indian Ocean to south Kerala across south Bay of Bengal & south Tamil Nadu	Became less marked on 8th.
3	At 1.5 km above m.s.l.	11	from the induced cyclonic circulation over west Rajasthan & neighbourhood to northeast Arabian Sea	Stationary	Insitu	Became less marked on 12th.
4	At 0.9 km above m.s.l.	19	ran from northwest Uttar Pradesh to southwest Rajasthan	Stationary	Insitu	Became less marked on 20th.
Trough in easterlies						
1	At 0.9 km above m.s.l.	18	Gujarat to north Rajasthan	Stationary	Insitu	Became less marked on 19th.
2	At 0.9 km above m.s.l.	18	southwest Bay of Bengal off Tamil Nadu coast	Stationary	Insitu	Became less marked on 19th.
3	At 1.5 km above m.s.l.	25	ran from northeast Arabian Sea to south Rajasthan across Gujarat	Stationary	Insitu	Became less marked at 26th morning.
4	Upto 0.9 km above m.s.l.	30-31 Jan	southwest Bay of Bengal	Stationary	Insitu	Became less marked 1st February.

since 1901. Over Northwest India, the minimum temperature was the 3rd highest (8.43 ºC with an anomaly of 0.94 ºC) after the years 1912 (8.63 ºC) & 2006 (8.61 ºC), East and Northeast India, it was the highest (12.99 ºC with an anomaly of 1.59 ºC) since 1901. Over South Peninsular India, the maximum temperature was the 3rd highest (31.77 ºC with an anomaly of 0.59 ºC) after the years 2016 (31.84 ºC) and 2024 (31.79 ºC) since 1901. Over the country as a whole, maximum temperature was the 2nd highest (27.31 ºC with an anomaly of 1.22 ºC) after the year 2016 (27.36 ºC) and minimum temperature was the highest (13.76 ºC with an anomaly of 1.12 ºC) since 1901.

2. Seasonal Rainfall (January-February)

Rainfall realized during the season was 52% of its LPA. It was 29% of its LPA during January and 70% of its LPA during February. Except both the islands, Arunachal Pradesh, Sub Himalayan West Bengal & Sikkim, Tamil Nadu, Puducherry & Karaikal, Rayalaseema and coastal Karnataka, all sub divisions received deficient/large deficient or no rainfall. During the season, out of 36 meteorological sub-divisions, 2 received excess, 5 normal, 8 deficient, 16 large deficient and 5 sub-divisions did not receive any rain.

The monthly and seasonal sub-divisional rainfall (actual, normal and percentage departure) are presented in Table 1 and representative amount of rainfall on a day-to-day basis are presented in Table 4.

3. Monthly features

3.1. *January*

3.1.1. *Storms and Depressions*

No intense low-pressure system formed during the month.

3.1.2. *Weather and associated synoptic features*

As given in Table 2, 13 western disturbances (including 4 upper air cyclonic circulation, 4 troughs and 5 induced cyclonic circulation), 23 upper air cyclonic circulations and 7 troughs affected the weather over the country during the month of January.

TABLE 3

Details of the weather systems during February 2025

Sr. No	System	Duration	Place of initial location	Direction of Movement	Place of final location	Remarks
(I) Western disturbances /Eastward moving Systems						
(a) As a Upper air cyclonic circulation						
1	Between 3.1 & 7.6 km above m.s.l.	2-6	south Iran & neighbourhood		ran roughly along Long.72° E to the north of Lat. 30° N	It lay as a trough on 4th and moved away east-northeastwards. on 7th.
2	Between 3.1 & 9.6 km above m.s.l.	23 Feb – 1 Mar	north Iran & neighbourhood	east	roughly along Long.62° E to the north of Lat.30° N	It lay as a trough 24th Feb to 1st March. It moved away eastwards on 2nd Mar.
(b) As a trough in westerlies						
1	At 3.1 km above m.s.l.	7-12	roughly along Long.55° E to the north of Lat.30° N	northeast	Jammu-Kashmir & neighbourhood	It lay as a cyclonic circulation 8th & as a trough on 8th night and again lay as a cyclonic circulation on 9th. It moved away east-northeastwards. on 13th.
2	At 5.8 km above m.s.l.	15-16	roughly along Long.67° E to the north of Lat.34° N	east-northeast	roughly along Long.70° E to the north of Lat.35° N.	It moved away wards on 17th.
3	At 5.8 km above m.s.l.	17-19	roughly along Long.67° E to the north of Lat.33° N	east	Jammu & neighbourhood	It lay as a cyclonic circulation on 18th & 19th and moved away on 20th February.
4	At 5.8 km above m.s.l.	18-20	roughly along Long.55° E to the north of Lat.32° N	east-northeast	north Pakistan & neighbourhood trough aloft roughly along Long.70° E to the north of Lat.30° N	It lay as a cyclonic circulation on 20th. It moved away east-northeastwards on 21st.
(c) As an induced cyclonic circulation/						
1	Upto 1.5 km above m.s.l	1-3rd Feb Morning	central parts of Rajasthan		southeast Rajasthan	Became less marked 3rd.
2	At 1.5 km above m.s.l.	4	northwest Rajasthan & adjoining central Pakistan	*Stationary*	*Insitu*	Became less marked on 5th.
3	At 1.5 km above m.s.l.	8-10	southwest Rajasthan & neighbourhood	*Stationary*	*Insitu*	Became less marked on 11th.
4	At 1.5 km above m.s.l.	17-18	west Rajasthan & neighbourhood	*Insitu*	southwest Rajasthan & neighbourhood	Became less marked on 19th.
5	Upto 1.5 km above m.s.l.	15-16	northwest Rajasthan & adjoining area of south Punjab and Pakistan	east	Haryana and neighbourhood	Became less marked on 17th.
6	At 1.5 km above m.s.l.	19-21	south Pakistan and adjoining southwest Rajasthan	east	Haryana & neighbourhood	Became less marked on 22nd.
(II) Other upper air cyclonic circulations						
1	At 0.9 km above m.s.l.	3-4	north Gujarat & neighbourhood	*Stationary*	*Insitu*	Became less marked on 5th.
2	Upto 1.5 km above m.s.l.	3-4	east Bangladesh	*Stationary*	*Insitu*	Became less marked on 5th.
3	At 3.1 km above m.s.l.	5	northeast Assam & neighbourhood	*Stationary*	*Insitu*	Became less marked on 6th.
4	At 1.5 km above m.s.l.	5-7	north Bangladesh & neighbourhood	northeast	northeast Assam & neighbourhood	Became less marked on 8th.
5	upto 1.5 km above m.s.l.	9-10	northeast Bangladesh & neighbourhood	*Stationary*	*Insitu*	Became less marked on 11th.
6	Between 1.5 & 3.1 km above m.s.l.	10-13	northeast Assam & neighbourhood	*Stationary*	*Insitu*	Became less marked on 14th.

Sr. No	System	Duration	Place of initial location	Direction of Movement	Place of final location	Remarks
7	At 1.5 km above m.s.l.	15th morning-15	Meghalaya & neighbourhood	east	Meghalaya & neighbourhood	Became less marked on 16th.
8	At 1.5 km above m.s.l.	16 - 19	northeast Assam & neighbourhood	*Stationary*	*Insitu*	Became less marked on 20th.
9	At 0.9 km above m.s.l.	17th	southwest Madhya Pradesh & neighbourhood	*Stationary*	*Insitu*	Became less marked on 18th.
10	At 1.5 km above m.s.l.	20	central Assam & neighbourhood	east	Nagaland & neighbourhood	Became less marked on 22nd.
11	At 1.5 km above m.s.l.	22-23	northeast Pakistan & adjoining Jammu Region	west	north Pakistan & neighbourhood	Became less marked on 24th.
12	Upto 1.5 km above m.s.l.	22-25	northeast Assam and neighbourhood	*Stationary*	*Insitu*	Became less marked on 26th.
13	At 3.1 km above m.s.l.	25	south Kerala & neighbourhood	*Stationary*	*Insitu*	Became less marked on 26th.
14	-	27th February	Meghalaya & neighbourhood	*Stationary*	*Insitu*	Became less marked on the same day 27th.
15	At 3.1 km above m.s.l.	28 Feb	northeast Assam & adjoining Arunachal Pradesh	*Stationary*	*Insitu*	Became less marked on 1st March.
(III) Other Troughs/ Wind Discontinuity						
1.	At 1.5 km above m.s.l.	4	ran from the cyclonic circulation over northwest Rajasthan & adjoining central Pakistan to northeast Arabian Sea across Gujarat	*Stationary*	*Insitu*	Became less marked on 5th February.
2	N-STR in lower & middle tropospheric westerlies	14	roughly along Long.93° E to the north of Lat.24° N	*Stationary*	*Insitu*	Became less marked on 15th.
3	At 0.9 km above m.s.l.	19-20	ran from Jharkhand to south Odisha	*oscillatory*	ran from north Bangladesh to Telangana across Gangetic West Bengal, interior Odisha and south Chhattisgarh	Became less marked on 21st.
4	A trough in easterlies at 0.9 km above m.s.l.	21-22	ran from Rayalaseema to south Chhattisgarh	west	ran from north Kerala to central Madhya Maharashtra	Became less marked on 23rd.
5	A trough in westerlies at 0.9 km above m.s.l.	22-23	south Gangetic West Bengal to north coastal Andhra Pradesh	west	Gangetic West Bengal to south Chhattisgarh across Odisha	Became less marked on 24th.
6	At 1.5 km above m.s.l.	27-28 Feb	ran from the cyclonic circulation over northwest Rajasthan & neighbourhood to northeast Arabian Sea	*oscillatory*	ran from the induced low pressure area over west Rajasthan & adjoining parts of Pakistan to northern parts of Madhya Maharashtra across Gujarat	Became less marked on 1st March.

In association with the Western Disturbance over northeast India, heavy to very heavy rainfall was recorded at isolated places over Arunachal Pradesh and heavy rainfall was recorded at isolated places over Assam on 8th January. Hailstorm was also recorded at isolated places over Sub-Himalayan West Bengal & Sikkim and Assam during the end of first week of the month. Wet spell over northwest & adjoining central India during second week of the month was mainly due to a) movement of an active Western Disturbance as a cyclonic circulation in the lower & upper tropospheric levels which moved from central Pakistan to Punjab & neighbourhood during the period, b) induced cyclonic circulation over West Rajasthan & neighbourhood with a trough extending from it to northeast Arabian Sea in lower tropospheric levels, c) Interaction of westerly in association with Western Disturbance and easterly winds at lower tropospheric levels and d) Favourable location of lower level anti-

TABLE 4

Representative amounts of Rainfall (3 cm and above) for January – February 2025

1 Jan	18 - Oothu; 16 - Nalumukku; 15 - Kakkachi; 13 - Manjolai; 4 - Port Blair; 3 - Suralacode, Papanasam and Maniyachi.
2 Jan	Nil.
3 Jan	Nil.
4 Jan	Nil.
5 Jan	3 - Nancowry.
6 Jan	Nil.
7 Jan	4 - Nancowry.
8 Jan	8 - Dhemaji, Khowang and Majuli; 6 - Car Nicobar IAF; 5 - Moranhat and Car Nicobar; 4 - Tuting and Dholla Bazar; 3 - Miao, Anini AWS, Khowang ARG, Badatighat, Margherita and Tezu.
9 Jan	14 - Car Nicobar; 8 - Car Nicobar IAF.
10 Jan	Nil.
11 Jan	7 - Nalumukku and Oothu; 5 - Kakkachi; 3 - Manjolai and Kanjirappally.
12 Jan	10 - Mercara; 5 - Adayamadai, Kunnathanam AWS and Ranni AWS; 4 - Sirsa, Kalanwali, Airport Chakka ARG, Thiruvananthapuram and Trivandrum AP; 3 - Dubwali, Bhatinda AMFU, Muktsar, Rajpura ARG, Nancowry and Nainital.
13 Jan	5 - Oothu; 4 - Nalumukku; 3 - Cd Hospital Tondaipet, Kakkachi and Sirhind.
14 Jan	4 - Alakarai Estate and Oothu; 3 - Coonoor PTO, Nalumukku, Ennore AWS, Red Hills, Mahe, Daporizo AWS, Daparijo and Coonoor.
15 Jan	7 - Oothu; 6 - Nalumukku; 5 - Kakkachi; 4 - Manjolai; 3 - Rameswaram and Thangachimadam.
16 Jan	13 - Oothu; 12 - Nalumukku; 11 - Kakkachi; 9 - Manjolai.
17 Jan	7 - Nalumukku and Oothu; 5 - Kakkachi; 4 - Manjolai.
18 Jan	Nil.
19 Jan	15 - Oothu; 14 - Nalumukku; 12 - Tarangambadi and Kakkachi; 11 - Mayiladuthurai, Sembanarkoil PWD and Manjolai; 8 - Tirupoondi; 7 - Thalaignayer and Ponneri; 6 - Karaikal and Velankanni; 5 - Alandur, Chennai AP, Taramani ARG, Odanchatram, Kancheepuram, Sirkali, Thirukuvalai, Manjalaru, Poonamalle ARG, Red Hills, Puzhal ARG and Tada; 4 - Chennai (n) , Karuppanadhi Dam, Kumbakonam, Thiruvidaimaruthur, Gummidipoondi, Tiruttani PTO, Thiruthuraipoondi, Thottambedu and Tiruthani; 3 - Thirumanur, Suthamalli Dam, Ayanavaram Taluk Office, Sholinganallur, Mgr Nagar, Kodaikanal, Palani, Sriperumbudur, Kundrathur, Kodiayakarai, Ayikudi, Budalur, Lower Anaicut, Tirukattupalli, Tiruvaiyaru, Cholavaram, Chembarabakkam, Chembarambakkam ARG, Ennore AWS, Poonamallee, Nannilam, Valangaiman, Pullambadi, Satyavedu, Sullurpeta, Srikalahasti and Vedaranniyam.
20 Jan	23 - Oothu; 22 - Nalumukku; 21 - Kakkachi; 16 - Manjolai; 11 - Thangachimadam; 10 - Rameswaram; 9 - Mandapam; 8 - Pamban; 6 - Valinokam and Poondi; 4 - Thamaraipakkam, R.k.pet, Arani and Surangudi; 3 - Dindigul, Modakkurichi, Rasipuram, Veppanthattai, Kadaladi, Kaveripakkam, Sholingur, Papanasam, Ambur, Servalar Dam, Pallipattu, Tiruvallur, Kalugumalai, Pilavakkal and Mangaluru AP.
21 Jan	Nil.
22 Jan	Nil.
23 Jan	6 - Nalumukku and Oothu; 5 - Kakkachi; 4 - Manjolai.
24 Jan	6 - Minicoy.
25 Jan	Nil.
26 Jan	Nil.
27 Jan	Nil.
28 Jan	Nil.
29 Jan	Nil.
30 Jan	6 - Car Nicobar IAF; 4 - Dhemaji; 3 - N.lakhimpur/Lilabari and Chauldhowaghat.
31 Jan	7 - Dhemaji and Ranganadi Nt Xing; 4 - Naharlagun AWS; 3 - Basar AWS and N.lak/Lilabari.
1 Feb	Nil.
2 Feb	Nil.
3 Feb	Nil.
4 Feb	Nil.
5 Feb	4 - Chhatrari, Saloni and Chamba AWS; 3 - Kheri, Kothi and HMO Kasol.

Table 4 continued

6 Feb	Nil.
7 Feb	Nil.
8 Feb	5 - Anini AWS.
9 Feb	Nil.
10 Feb	Nil.
11 Feb	6 - Majuli; 5 - Naharlagun; 4 - Itanagar and Dhemaji; 3 - Sonari ARG and Kabu Basti.
12 Feb	5 - Singhik; 4 - Mangan and Sankalan.
13 Feb	5 - Sankalan; 4 - Kabu Basti; 3 - Dhemaji, Mangan, Singhik and Tuting AWS.
14 Feb	4 - Kolasib AWS; 3 - Kibithu and Kolasib ARG.
15 Feb	4 - Tawang Chamgbu Kvk AWS; 3 - Mukto ARG and Tawang AWS.
16 Feb	5 - Anini AWS.
17 Feb	Nil.
18 Feb	Nil.
19 Feb	5 - Sankalan; 4 - Mangan; 3 - Nh5 Gobindpur, Lala ARG, Singhik, Kabu Basti and Chungthang.
20 Feb	5 - Derabis, Marsaghai and Basirhat (pt); 4 - Akhuapada, Narsinghpur, Bari and Begunia; 3 - Athmalik, Kendrapara, Kendrapada PTO, Mohakalapada and Icar Namkum.
21 Feb	8 - Torpa and Burdwan; 6 - Nagrota Surian; 5 - Athgarh, Alipore, Sankalan and Batote; 4 - Bhandaripokhari, Ghasipura, Banihal, Chaibasa, Saloni, Tissa, Ghamroor, PTO Gondla, Kansabel, Mangan, Singhik, Chamba AWS, Chamba, Keylong and Badarwah; 3 - Dhamnagar, Danagadi, Anandpur, Jhumpura, Balimundali, Joshipur, Samakhunta, Udala, Bakore ARG, Rs Pura ARG, Jammu AWS, Awantipur IAF, Govindpura AWS, Goilkera, Hatgamharia, Manjhari, Amritsar, Balachaur, Chhatrari, Baijnath, Kangra AP, Palampur, Kothi, Seo Bagh, Jogindarnagar, Durgachack, Gurudaspur, Chungthang, Angul, Joshimath, Manali, Udhampur, Kukernagh, Katra, Jammu and Kathua.
22 Feb	3 - R Guda and Tezu.
23 Feb	9 - Jhargram PTO; 8 - GB Nagar; 5 - Khaira; 4 - Betanati, Sarasakana, Sankalan and Lachen; 3 - Jaipur, Nh5 Gobindpur, Kaptipada, Samakhunta, Udala, Nancowry, Mangan and Tuting.
24 Feb	5 - Kaptipada; 4 - Anini AWS and Bankura; 3 - Tuting AWS.
25 Feb	6 - Car Nicobar IAF; 4 - Car Nicobar and Tuting; 3 - Chauldhowaghat, Tuting AWS and Yingkiong.
26 Feb	11 - Car Nicobar IAF; 10 - Car Nicobar; 7 - Rameswaram; 4 - Kukumsheri AWS, Hut Bay, Nowgam and Banihal; 3 - Bandipora ARG, Baramulla AWS, Gulmarg R.s., Thangachimadam, Manali, Nancowry, Poonch and Batote.
27 Feb	8 - Banihal; 5 - Nowgam; 4 - Bandipora ARG, Tengmarg, PTO Koksar and Kukernagh; 3 - Verinag, Asham ARG, Bandipora AWS, Baramulla AWS, Kupwara Kvk AWS, Cheranmahadevi, Saloni, Kothi and Sarahan.
28 Feb	21 - Udhampur; 16 - Batote; 13 - Kothi; 12 - Seo Bagh, Pathankot IAF and Katra; 11 - Saloni, Banjar, Bhuntar AP, Jogindarnagar and Khadrala; 10 - Banihal, Palampur, Rampur Bushar and Chamba AWS; 9 - Burmal ARG, Govindpura AWS, Reasi ARG, Deoprayag and Tehri (CWC) ; 8 - Jammu, Jammu AWS, Poonch, Reasi Kvk AWS, Ranjit Sagar Dam Site, HMO Shillaro, Mussoorie and Joshimath; 7 - Bakore ARG, Kathua ARG, Rajouri, Rajouri ARG, Madhopur, Phangota, Chamoli, Sama, Dhanaulti, Baijnath, Kangra AP, Rohru, Theog, Karsog, Tehri, Keylong, Kukernagh, Badarwah and Kathua; 6 - Gulmarg R.s., Kathua Kvk, Kishtwar, Samba AWS, Malikpur, Karnaprayag, Purola, Mandi, Chaupal, Kotkhai, Kufri AWS and Solan; 5 - Verinag, Qazi Gund, Kawa AWS, Srinagar, Almora, Dwarhat, Ranikhet (g) , Kapkot, Loharkhet, Chakrata, Tiuni, Pauri, Ghansali, Keertinagar, Rudraprayag, Jakholi, Barkot, Dunda, Mori, Karaikal, Bharari, Mehre (barsar) , Ghamroor, Guler, Nagrota Surian, Kalpa, Sundarnagar, Sarahan, Simla, Sunibhajji, Pachhad, Renuka/Dadhau, Sarkaghat, Uttar Kashi (bar) , Munsiyari, Nainital, Pahalgam and Srinagar IAF; 4 - Chatha Agro AWS, Shahpur Kandi, Garud, Bageshwar (thmo) , Gairsain, Lohaghat, Betalghat, Ganganagar, Pithoragarh, Ukhimath, Uttar Kashi (CWC) , Sujanpur Tira, Nadaun, Dehra Gopipur, Dharmsala, Kukumsheri AWS, Gohar, Shimla AP, Aghar, Bijahi, Jatton Barrage, Dharchula, Jammu AP and Gund; 3 - Larnoo ARG, Asham ARG, Bandipora ARG, Tengmarg, Rs Pura ARG, Buhama, Lolab, Awantipur IAF, Konibal, Dhariwal Irr, Aliwal, Tibri, Nangal, Someshwar, Champawat, Mukteshwar, Berinag, Didihat, Madukkur, Pandavaiyar Head, Chhatrari, Sangla, Baldwara, Pandoh, Kasauli, Nowgam, Gurudaspur, Dasuya and Kupwara.

cyclone over eastern parts of India which provided additional moisture incursion into the region. Light to moderate rainfall occurred over the region during the period accompanied with isolated thunderstorm & hailstorm on 12th, 13th January. Four WD's (16-17, 17-21, 19-21 & 21-22 Jan) moved to extreme northern parts of India during the third week in quick succession. However, due to lack of sufficient moisture incursion, only one WD of 21-22 Jan, caused light Rainfall/Snowfall at isolated places over Jammu & Kashmir on 21st& 22nd Jan.

Tamil Nadu received abundant rainfall during 3rd week of the month. Cessation of Northeast Monsoon rains over South Peninsular India on 27th January, 2025 due to (a) No significant rainfall activity over southeast peninsula, (b) Dry winds from northern India were prevailing in the lower levels over the region.

Two Western Disturbances (23-24 and 28-29 January) moved across northern parts of India during the week. It caused light rainfall/snowfall at isolated places over Jammu & Kashmir and Ladakh on 23rd January and isolated light rainfall over east Rajasthan & west Uttar Pradesh on 23rd & 24th January.

Large-scale Dense fog/ low cloud cover across Indo Gangetic Plains continued to persist in most days during the first week and extended to Bihar. It was mainly observed over western and central parts in most dates during the period and also continued to persist till10th January and gradually reduced over western parts during second week of the month. It again covered most parts of the northern plains upto Delhi and Haryana due to the influence of active Western Disturbances and induced cyclonic circulations. Large-scale Dense fog/ low cloud cover across Indo Gangetic Plains reduced significantly during third week due to frequent WD activities over north India and it was mainly remained across Himalayan foothills during the week and over Bihar and east Uttar Pradesh, parts of northeast and eastern India. It continued to proceed in the last week.

Cold day to severe cold day conditions observed in isolated pockets of Uttar Pradesh Haryana, Rajasthan, West Madhya Pradesh Bihar on 5th January. In January 2025, cold wave conditions were observed over a smaller area only for a few days and were mainly confined to Himachal Pradesh (4, 10, 13, 15, 24-29 January), Punjab (9, 25 - 28 January) and North Rajasthan and adjoining Haryana (10, 26-28 January).

3.1.3. *Monthly rainfall*

During the January 2025, rainfall realized over the country as a whole was 29% of its LPA. Most of the sub-divisions received deficient/large deficient or no rainfall, except a few such as Arunachal Pradesh, Assam & Meghalaya, east Rajasthan, Rayalaseema, Tamil Nadu, Puducherry & Karaikal, coastal Karnataka both the islands which received large excess/excess/normal rainfall.

During the month, out of 36 meteorological sub-divisions, 3 received large excess rainfall, 2 excess, 3 normal, 5 deficient,13 large deficient rainfall and 10 sub-divisions didn't receive any rain. Table 1 shows the sub-division wise rainfall statistics for January 2025.

Rainfall realized over homogeneous regions of south peninsular India was normal (93% of LPA), east & northeast India was deficient (56% of LPA), northwest India and central India were 18% and 4% of its LPA respectively, which were large deficient.

Rainfall realized over homogeneous regions of south peninsular India, east & northeast India, northwest India and central India was 93%, 56%, 18% and 4% of its LPA respectively. Rainfall over All India (5.0 mm) was the 5th lowest since 1901. Prior lowest rainfall years were 2007 (2.3 mm), 2018 (2.9 mm), 1946 (4.4 mm) and 1914 (4.7 mm) Rainfall over homogeneous region of northwest India rainfall (6.3 mm) was the 7th lowest since 1901 equalling 1967. Prior lowest rainfall years were 2007 (2.9 mm), 2024 (3.1 mm), 1966 (3.2 mm), 2018 (3.4 mm), 1902 (3.7 mm) and 1963 (5.2 mm). Rainfall over homogeneous region of Central India Rainfall (0.3 mm) was 4th lowest since 1901 equalling 1925 and 2006. Prior lowest rainfall years were 1914, 1916, 1932, 1946, 2018 (0 mm), 1972, 1974 (0.1 mm), 1937 & 1993 (0.2 mm).

3.1.4. *Temperature*

The maximum temperature was above normal over most parts of the country, except some parts of northwest India, east India, central India, south peninsular India and Andaman & Nicobar Islands. Maximum temperature anomaly was more than 3 ^{o}C over parts of Ladakh, Himachal Pradesh and Uttarakhand. Maximum temperature anomaly was more than 2 ^{o}C over parts of Jammu, Kashmir & Ladakh, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Assam & Meghalaya, Gangetic West Bengal, Chhattisgarh, Odisha and Vidarbha. Maximum temperature anomaly was less than -1 ^{o}C over parts of northern Madhya Maharashtra and Tamil Nadu, Puducherry & Karaikal. The minimum temperature was above normal over most parts of the country, except some parts of northwest India, central India, south peninsular India and Lakshadweep.

The minimum temperature anomaly was more than 2 ^{o}C over parts of Ladakh, Himachal Pradesh, Punjab,

TABLE 5

Highest maximum and lowest minimum preiouvs records of stations

Highest Maximum				
Station Name	**New Record (^{0}c)#**	**Date (January 2025)**	**Previous Record (^{0}c)**	**DD/MM/YYYY**
Ambikapur	31.2	31-01-2025	30.5	27-01-2009
Aurangabad (chikalthana)	34.2 @	28-01-2025	34.2	31-01-2016
Bengaluru (kia)	33	31-01-2025	31.4	22-01-2021
Coonoor	26.3	29-01-2025	25.6	02-01-1942
Dahanu	35.6	03-01-2025	35.4	17-01-1967
Gadag	35.2	31-01-2025	34.5	29-01-1960
Kannur	36.8 @	01-01-2025	36.8	23-01-2020
Koraput	33.4	27-01-2025	32.6	30-01-2009
Matheran	31.6	30-01-2025	31.3	30-01-1975
Pune	35.9	29-01-2025	35.3	27-01-2009
Shimla	23.1	04-01-2025	21.4	31-01-2006
Shimla (a)	25.4	04-01-2025	21.6	30-01-2018
Udgir	35	25-01-2025	33.5	15-01-2013
Washim	36.2 @	30-01-2025	36.2	15-01-2013
Lowest Minimum				
Station Name	**New Record (^{0}c) #**	**Date (January 2025)**	**Previous Record (^{0}c)**	**Dd/Mm/Yyyy**
Chickmagalur	9.8	09-01-2025	10.0	10-01-1975

@ Indicates equals previous record # Based on Real Time available data

Uttarakhand, Bihar, West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Gujarat region, Madhya Maharashtra and Marathwada. Minimum temperature anomaly was less than -1 ºC over parts of north interior Karnataka and Chhattisgarh.

In January 2025, over the country, the mean temperature was 19.02 ºC with an anomaly of 0.98 ºC and it was the 2nd highest after the year 1958 (19.21 ºC) since 1901. The minimum temperature was the 5th highest (12.51 ºC with an anomaly of 1.04 ºC) after the years 1911 (12.68 ºC), 1919 & 1958 (12.65 ºC), 2021 (12.58 ºC) and 1943 (12.56 ºC) since 1901. The minimum temperature was the 2nd highest (11.90 ºC with an anomaly of 1.77 ºC) over east & northeast India after the year 1943 (12.10 ºC) since 1901. The lowest minimum temperature of 0.5 ºC was recorded at Fatehpur Sikar (East Rajasthan) on 27th January 2025

A list of stations is given Table 5 with their previous record and date.

During first week of the month, neutral El Niño-Southern Oscillation (ENSO) conditions were observed over the equatorial Pacific and above-average sea surface temperatures (SSTs) were seen across most of the Indian Ocean. After that, weak La Niña conditions were present over the equatorial Pacific Ocean and near-average sea surface temperatures (SSTs) were seen across most of the Indian Ocean. Neutral Indian Ocean Dipole (IOD) conditions were observed over the Indian Ocean.

3.1.5. *Damages associated with Disastrous weather events*

Fig. 2 shows significant weather events during January (based on real-time media reports).

During January 2025, total 2 persons reportedly claimed dead because of cold wave on 14th Jan. at Moradabad (Uttar Pradesh).

3.2. *February*

3.2.1. *Storms and Depressions*

No intense low pressure system formed during the month.

3.2.2. *Weather and associated synoptic features*

As given in Table 3, 12 western disturbances (2 upper air cyclonic circulations, 4 troughs in westerlies & 6 induced cyclonic circulations), 15 other upper air cyclonic

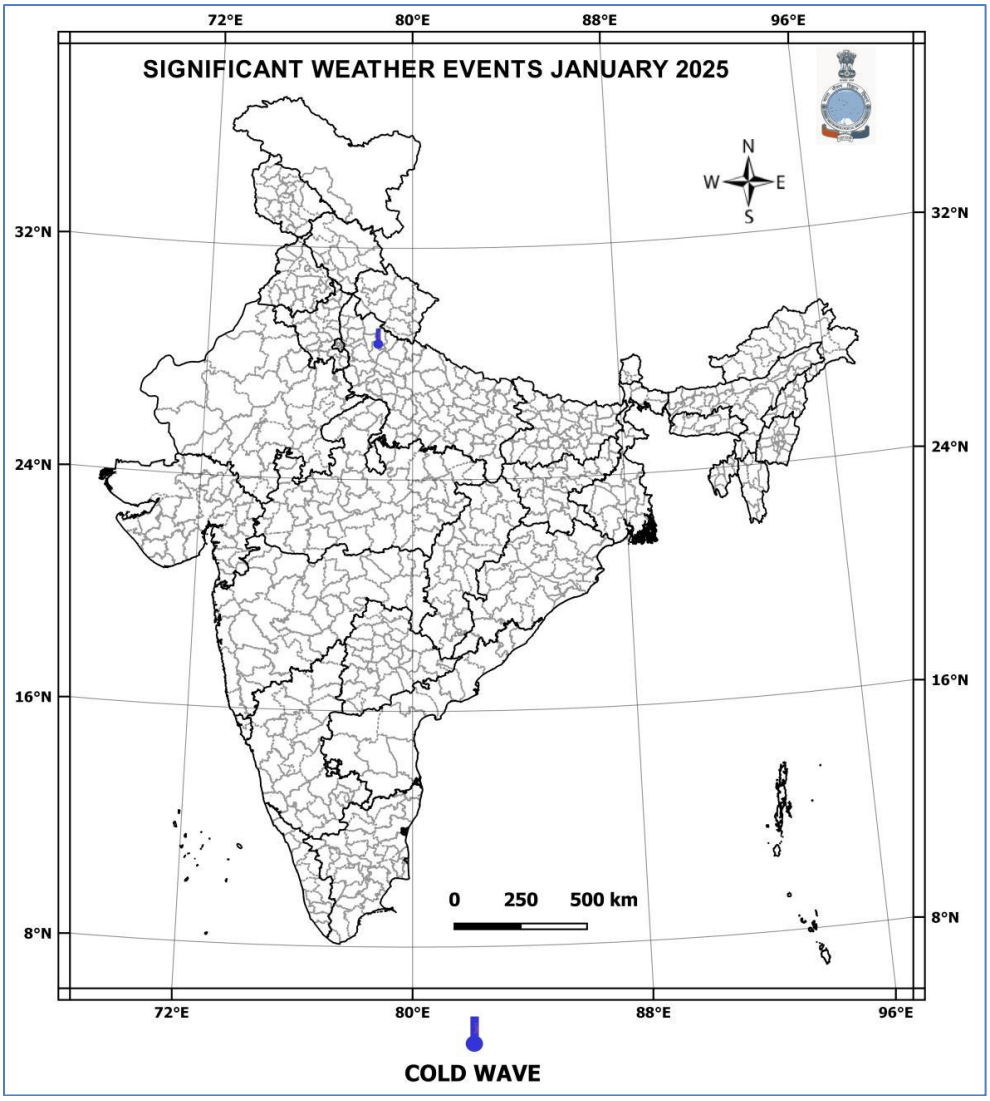

Fig. 2 Significant weather events in January 2025
(Source: IMD, Climate Summary for the month of January 2025)

circulations and 6 other troughs formed, which affected the weather over the country during the month of February.

Active Western Disturbances (WD) and the induced cyclonic circulation caused heavy to very heavy rainfall/snowfall at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, heavy rainfall at isolated places over Himachal Pradesh and light to moderate rainfall/ thunderstorms over adjoining plains of northwest India during the month. It also caused hailstorm at isolated places over Himachal Pradesh, Uttar Pradesh, Uttarakhand, Punjab, Haryana and north Rajasthan.

During 1st week of the month, two western disturbances (31 Jan-3 Feb and 3-5 Feb) moved across northern parts of India during the week. 1st WD caused light to moderate rainfall/snowfall over Jammu & Kashmir and adjoining areas during 1-3 Feb and 2nd WD caused light to moderate rainfall/snowfall across western Himalayan region and isolated very light to light rainfall over adjoining plains of northwest India during 4 to 5 February.

During 2nd week, two western disturbances (6-7 Feb & 7-12 Feb) moved across northern parts of India during the week. First WD caused light rainfall/snowfall over

Jammu & Kashmir and Himachal Pradesh on 6th February; Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura on 7th February. Second WD caused light rainfall/snowfall over Jammu & Kashmir and Himachal Pradesh on 12th February.

During 3rd week, three western disturbances (WDs; 15-17 Feb, 17-19 Feb & 18-19 Feb) moved across northern parts of India during the week. It caused light rainfall/snowfall over Himachal Pradesh on 16th February, Uttarakhand on 16th & 18th February and Jammu & Kashmir on 17th February. Isolated light to moderate rainfall was also observed over Rajasthan on 18th & 19th February, West Madhya Pradesh on 19th February.

During 4th week, two western disturbances (WDs; 20-21 Feb & 23-26 Feb) moved across northern parts of India. First WD caused light rainfall/snowfall over Jammu & Kashmir on 20th & 21st February, Himachal Pradesh and Uttarakhand on 20th February. Light to moderate rainfall was observed over Punjab, Haryana and Uttar Pradesh on 20th & 21st February. Second WD caused light rainfall/snowfall over Jammu & Kashmir, Himachal Pradesh on 25th & 26th February, Uttarakhand on 26th February. Light to moderate rainfall was observed over Punjab and Haryana on 26th February.

Last month's dense fog/low cloud continued to persist over the east & northeast India including Odisha through February 2025. It was also observed over north India from 3rd week onwards. Cold wave to severe cold wave conditions prevailed in isolated pockets of Himachal Pradesh on 6th & 14th February. Thunderstorm was recorded at isolated places over north, east and northeast India during last week of the month and hailstorms reported at isolated places over Gangetic West Bengal, Punjab, Himachal Pradesh, Odisha, Chhattisgarh, Uttarakhand and west Uttar Pradesh. Heavy rainfall observed at isolated places over Jharkhand, Gangetic West Bengal, Odisha, Tamil Nadu, Puducherry & Karaikal and Andaman & Nicobar Islands during last week of the month.

During February 2025, sea surface temperatures (SSTs) were positive in the eastern and far western Pacific Ocean. Negative SSTs were evident in the central Pacific Ocean. Positive SSTs were observed in the northern Arabian Sea and north Bay of Bengal. Sea surface temperature anomalies were within normal range over all the NINO regions in the Pacific Ocean. Over the equatorial Pacific Ocean, SSTs were above average in the eastern and far western Pacific Ocean. Below-average SSTs were evident in the central Pacific Ocean. The El Niño-Southern Oscillation (ENSO) was transitioned from weak La Niña conditions to an ENSO-neutral state.

During first week of the month, the Madden Julian Oscillation (MJO) index in Phase 6 with an amplitude > 1. It was in Phase 8 with an amplitude > 1 in 2nd week and with amplitude < 1 in 3rd week. It was in Phase 1 with an amplitude > 1 in last week and not favourable for convective activity over the north Indian oceans and peninsular India.

3.2.3. *Monthly rainfall*

During the February 2025, rainfall realized over the country as a whole was 70% of its LPA. Rainfall over homogeneous regions of northwest, northeast, central and south peninsular India were 83%, 78%, 17% and 18% of its LPA respectively. During the month, out of 36 meteorological subdivisions, 1 sub-division (Andaman & Nicobar Islands) received large excess rainfall, 2 excess, 4 normal, 4 deficient, 16 large deficient and 9 sub-divisions did not receive any rain. Table 1 shows the sub-division wise rainfall statistics for February 2025.

3.2.4. *Temperature*

In February 2025, over the country, the mean temperature was 22.06 ºC with an anomaly of 1.36 ºC and it was the highest since 1901. The maximum temperature during February 2025 was the 2nd highest (29.10 ºC with an anomaly of 1.52 ºC) after the year 2023 (29.44 ºC) and the minimum temperature was the highest (15.02 ºC with an anomaly of 1.20 ºC) since 1901.

Among the four homogeneous regions, the maximum temperature over Central India was the 2nd highest (32.56 ºC with an anomaly of 2.03 ºC) after the year 2023 (32.59 ºC) and the minimum temperature was the highest (16.72 ºC with an anomaly of 1.73 ºC) since 1901. Over South Peninsular India, the maximum temperature was the highest (33.24 ºC with an anomaly of 1.11 ºC) since 1901. Over East & Northeast India, the minimum temperature was the 2nd highest (14.07 ºC with an anomaly of 1.41 ºC) after the year 2016 (14.34 ºC) and over Northwest India, it was the 4th highest (9.93 ºC with an anomaly of 0.99 ºC) after the years 2006 (10.84 ºC), 2023 (10.33 ºC) and 2015 (10.05 ºC) since 1901.

The maximum temperature was above normal over most parts of the country, except some parts of east & northeast India. Maximum temperature anomaly was more than 3 ºC over parts of Jharkhand, Chhattisgarh and Odisha. Maximum temperature anomaly was more than 2 ºC over parts of Jammu, Kashmir & Ladakh, Uttarakhand, Rajasthan, Uttar Pradesh, Haryana, Chandigarh & Delhi, Gujarat, Jharkhand, Chhattisgarh, Odisha, Maharashtra, Goa and coastal Andhra Pradesh and Yanam. Maximum

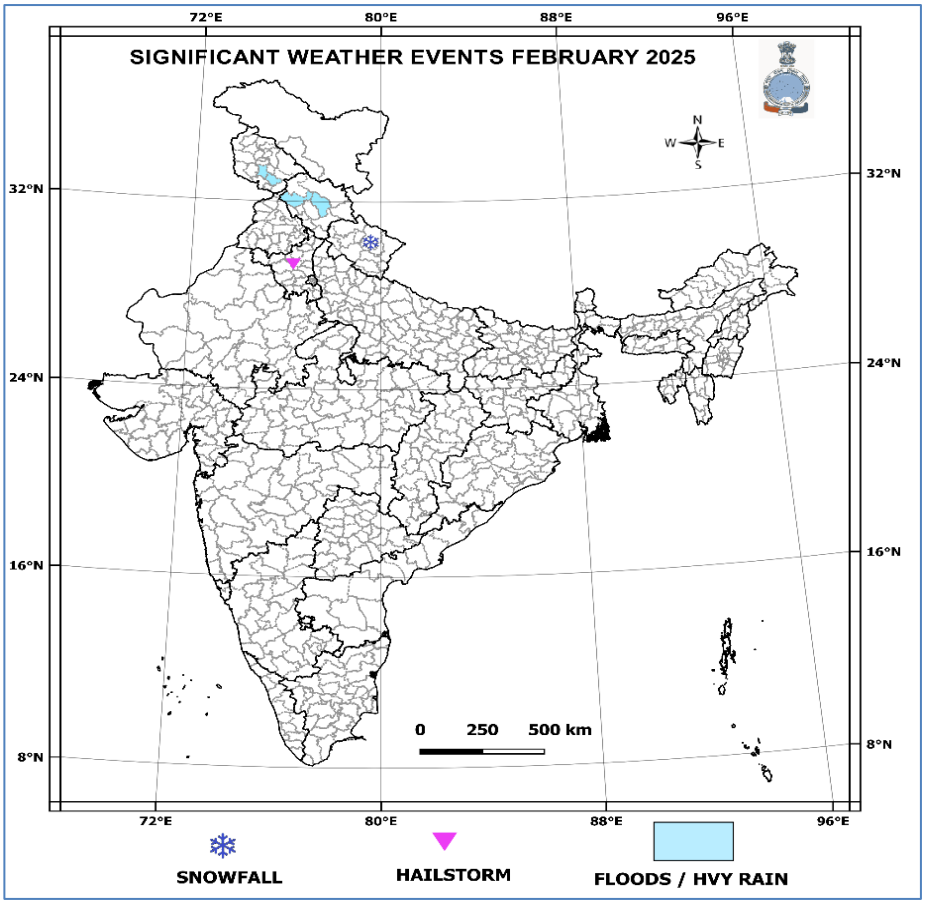

Fig. 3. Significant weather events in February 2025
(Source: IMD, Climate Summary for the month of February 2025)

TABLE 6

Highest maximum and lowest minimum preiouvs records of stations

Highest Maximum				
Station Name	**New Record (^{0}c) #**	**Date (February 2025)**	**Previous Record (^{0}c)**	**Date**
Bapatla	35.4 @	04-02-2025	35.4	28-02-2009
Kannur	39	24-02-2025	38.8	20-02-2016
Kochi (cial)	37.6	27-02-2025	37.4	25-02-2004
Kottayam	38.6	27-02-2025	38.5	28-02-2024
Minicoy	34.0 @	24-02-2025	34.0	21-02-2024
Vallabh vidyanagar	38.5	26-02-2025	37.9	28-02-1966
Lowest Minimum				
Station Name	**New Record (^{0}c)#**	**Date (February 2025)**	**Previous Record (^{0}c)**	**Date**
Chickmagalur	10.6	01-02-2025	11.1	24-02-1990

@ Indicates equals previous record *# Based on Real Time available data*

temperature anomaly was less than -1 °C over parts of Sikkim, Arunachal Pradesh and Assam.

The minimum temperature was above normal over most parts of the country, except some parts of east and northeast India, southern south peninsular India, Lakshadweep and Andaman & Nicobar Islands. The minimum temperature anomaly was more than 3 °C over parts of northern Gujarat region and Bihar The minimum temperature anomaly was more than 2 °C over parts of Punjab, Rajasthan, Gujarat, west Madhya Pradesh, Madhya Maharashtra, Marathwada, north interior Karnataka, Bihar, West Bengal and Odisha. Minimum temperature anomaly was less than -1 °C over parts of east Uttar Pradesh, Tamil Nadu, Puducherry & Karaikal and south interior Karnataka. Some stations recorded the highest maximum and lowest minimum temperature for the month.

A list of stations is given in Table 6 with their previous record and date.

In February 2025, Cold wave/foggy conditions were mostly absent across northern and Indo Gangetic plains during the month.

The lowest minimum temperature of 2.1 °C had been recorded at Fatehpur (West Rajasthan) on 07 February 2025.

3.2.5. *Damages associated with Disastrous weather events*

Fig. 3 shows significant weather events during February (based on real-time media reports).

During the month, a total number of 12 persons were reportedly claimed dead. The details of casualties given below, which are based on real time media reports and other state government agencies.

Snowfall: Total 8 persons reportedly claimed dead during February, because of Snow avalanche on 28th Feb.

*Heavy Rains & Floods***:** A total of 4 persons (3 at Reasi, Udhampur (Jammu & Kashmir) on 27th Feb. and 1 at Kangra (Himachal Pradesh) on 28th Feb.) were reportedly claimed dead during February 2025 because of Heavy Rains & Floods.

Hailstorm: Extensive damage to wheat, mustard crops in more than 30 villages in Jind (Haryana) district on 20 Feb reported.

Acknowledgments

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Appendix

Definitions of the terms given in '*Italics*'

(A) Rainfall	
(*i*) Percentage departure from normal	
Large excess	: + 60% or more
Excess	: +20% to +59%
Normal	: –19% to +19%
Deficient	: –20% to –59%
Large deficient	: –60% to –99%
No Rain	: –100%
(*ii*) Intensity (during the 24 hours period ending at 0300 UTC)	
Very light	0.1 to 2.4 mm
Light	2.5 to 15.5 mm
Heavy rainfall	: 6.5 cm to 11.5 cm
Very heavy rainfall	: 11.6 cm to 20.4 cm
Extremely heavy rainfall	: 20.5 cm and above
Heavy snowfall	: 64.5 cm to 115.5 cm
(B) Temperatures	
(a) Cold Wave is considered when minimum temperature of a station is 10 °C or less for plains and 0 °C or less for Hilly regions	
(i) *Based on Departure*	
Cold wave	: Negative Departure from normal is 4.5 °C to 6.4 °C
Severe Cold Wave	: Negative Departure from normal is more than 6.4 °C

(ii) *Based on Actual Minimum temperature (for plain stations only)*	
Cold wave	: When minimum temperature is ≤ 04 °C
Severe Cold Wave	: When minimum temperature is ≤ 02 °C
(b) *Cold Day*	
It should be considered when minimum temperature is 10 °C or less for plains and 0 °C or less for Hilly regions	
Cold day	: Maximum temperature Departure is –4.5 °C to –6.4 °C
Severe Cold day	: Maximum temperature Departure is < –6.4 °C
Markedly below normal	: departure of minimum temperature from normal is from –5 °C or less
Appreciably below normal	: departure of minimum temperature from normal is from –3.1 °C to –5 °C
Below normal	: departure from normal is –1.6 °C to –3.0 °C
Normal	: departure from normal is –1.5 °C to +1.5 °C
Above Normal	: departure of minimum temperature from normal is +1.6 °C to 3.0 °C
Appreciably above normal	: departure of the minimum temperature from normal is from +3.1 °C to +5.0 °C
Markedly above normal	: departure of the minimum temperature from normal is +5 °C or more
(C) *Fog*	
Dense Fog	: When the visibility is between 50-200 m
Very Dense Fog	: When the visibility is < 50 m