भारत सरकार

Government of India

पृथ्वी विज्ञान मंत्रालय (एम. ओ. ई. एस.)

Ministry of Earth Sciences (MoES)

भारत मौसम विज्ञान विभाग

INDIA METEOROLOGICAL DEPARTMENT

Climate Research and Services (CRS)

Monthly Climate Summary for February 2025

1. Monthly Rainfall Scenario (01 to 28 February, 2025)

Rainfall over the country as a whole for the month of February 2025 was 15.9 mm which is 30% less than its Long Period Average (LPA) of 22.7 mm.

Daily variation of the rainfall over the country as a whole during the month of February 2025 with normal based on data of 1971-2020 is presented in Fig. 1(a). The all India rainfall percentage departure from normal for February during 1901-2025 is presented in Fig. 1(b). Rainfall over All India (15.9 mm) was 34th lowest since 1901 and 11th lowest since 2001 presented in Fig. 1(c).

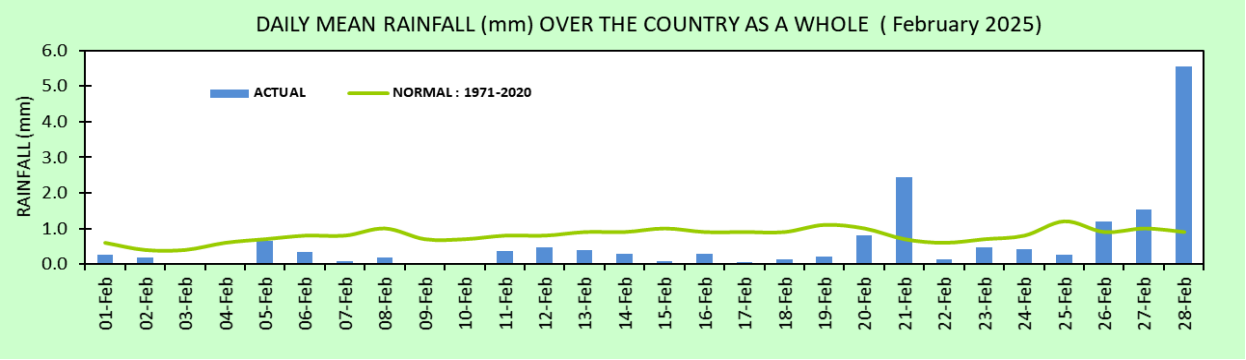


Fig. 1(a): Daily variation of rainfall over the country as a whole during February 2025

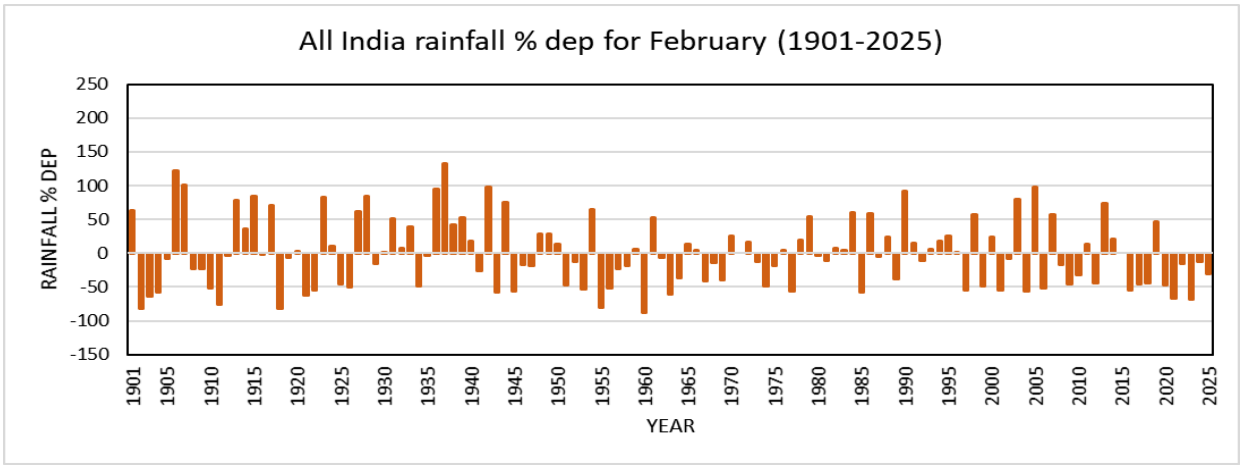


Fig. 1(b): All India monthly rainfall percentage departure from normal (1971-2020) for February from 1901-2025

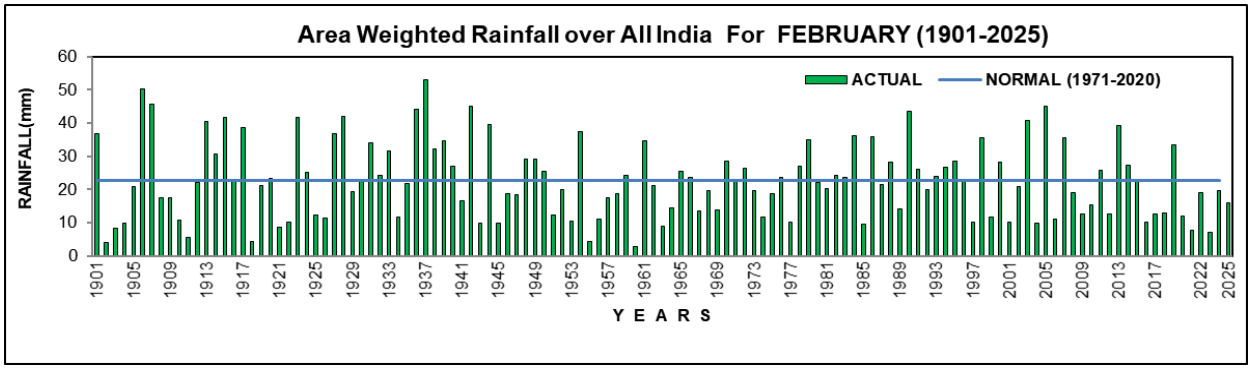


Fig. 1(c): Time series of area weighted rainfall over All India for February (1901 – 2025)

The monthly rainfall for February **2025** is given in the table below:

Regions	Actual Rainfall (mm)	Normal Rainfall (mm)	% Departure from LPA
Country as a whole	**15.9**	**22.7**	**-30.1**
Northwest India	**37.1**	**44.9**	**-17.5**
Central India	**1.3**	**7.5**	**-82.8**
South Peninsula	**1.4**	**7.9**	**-82.0**
East & northeast India	**23.6**	**30**	**-21.4**

During this month, one sub division (Andaman & Nicobar Islands) received large excess rainfall, 2 sub divisions received excess rainfall, 4 sub-divisions received normal rainfall, 5 sub-divisions received deficient rainfall, 15 sub-divisions received large deficient rainfall and 9 sub divisions did not receive any rain (Fig. 2).

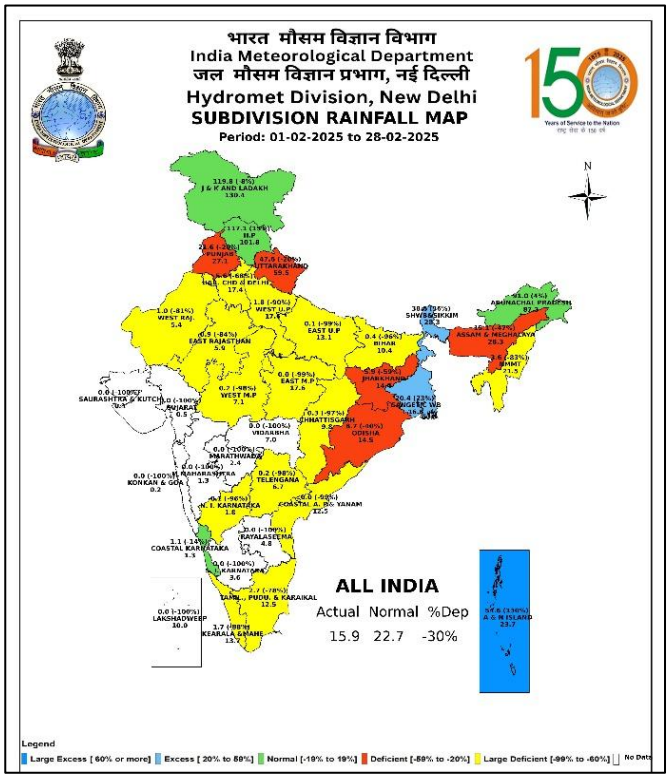


Fig. 2: Subdivision-wise rainfall distribution for February 2025

The observed spatial distributions of rainfall during February 2025, normal rainfall based on data of 1971 to 2020 and rainfall departures from normal during February 2025 are shown in Fig. 3.

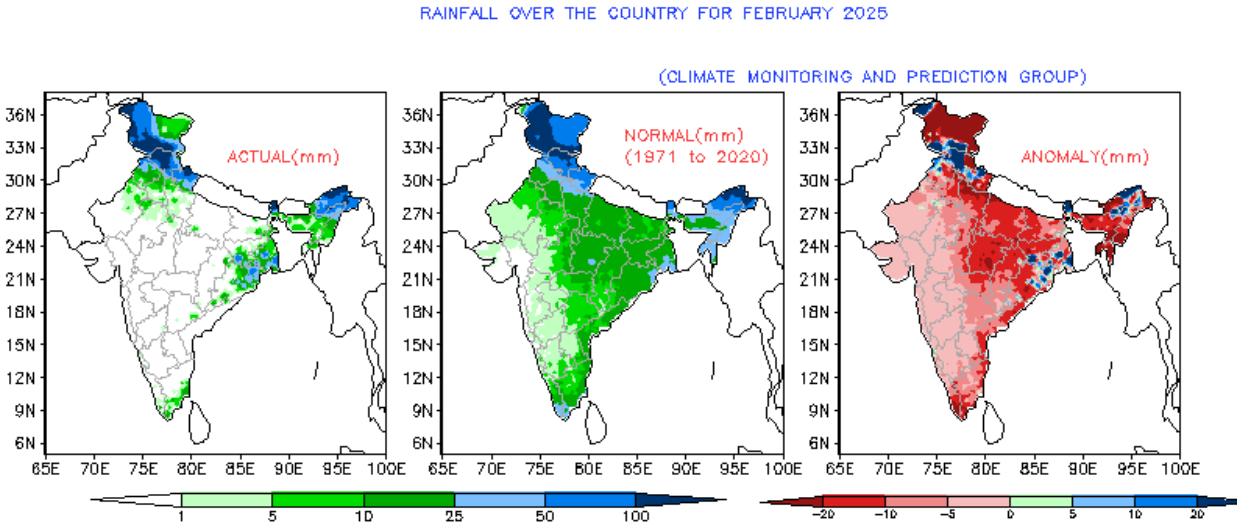
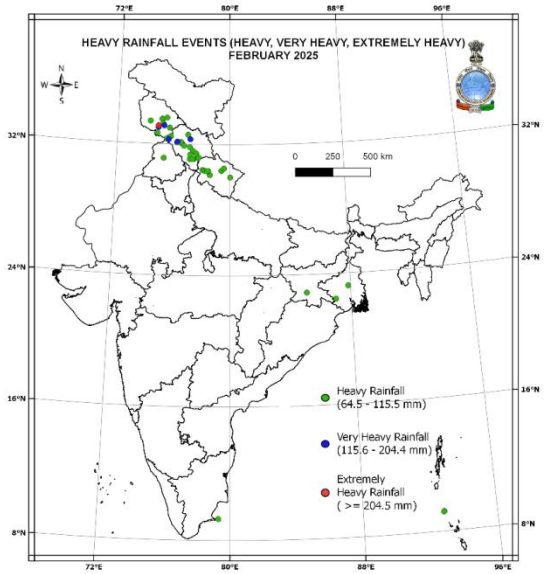


Fig. 3: Observed spatial Rainfall pattern for the month February 2025 over India and their departure from normal (1971 to 2020 period). Departure from normal is anomaly = actual rainfall - normal rainfall

2. Frequency of Heavy Rainfall events

February 2025 witnessed extremely heavy (>= 204.4mm), very heavy (115.6 – 204.4 mm) and heavy rainfall events (64.5 – 115.5 mm) mainly over Uttarakhand, Himachal Pradesh and Punjab. During last day of the month majority number of stations (38 stations) received heavy rainfall.

The location of occurrences of heavy and very heavy rainfall events is shown in the Fig. 4. Out of total 44 occasions, One was extremely heavy rainfall (>204.4 mm), 5 were very heavy rainfall (115.6 to 204.4 mm) and 38 were heavy rainfall (64.5 to 115.5 mm) categories during this month.



(Only highest category of rainfall event considered for a station)

Fig. 4: The location of occurrences of heavy, very heavy rainfall events in the month of February 2025

3. Characteristics of Temperatures for the month of February 2025

The average maximum, average minimum and mean temperature for the country as a whole during February 2025 were 29.10ºC, 15.02ºC and 22.06ºC respectively, against the normal of 27.58ºC, 13.82ºC and 20.70ºC based on data of 1991-2020. Thus, the average maximum, average minimum and mean temperature were above normal with departure from normal of 1.52ºC, 1.20ºC and 1.36ºC respectively for the country as a whole. The daily variation of maximum and minimum temperature departure from normal over the country as a whole for February 2025 is shown in the figure 5(a) and (b) respectively.

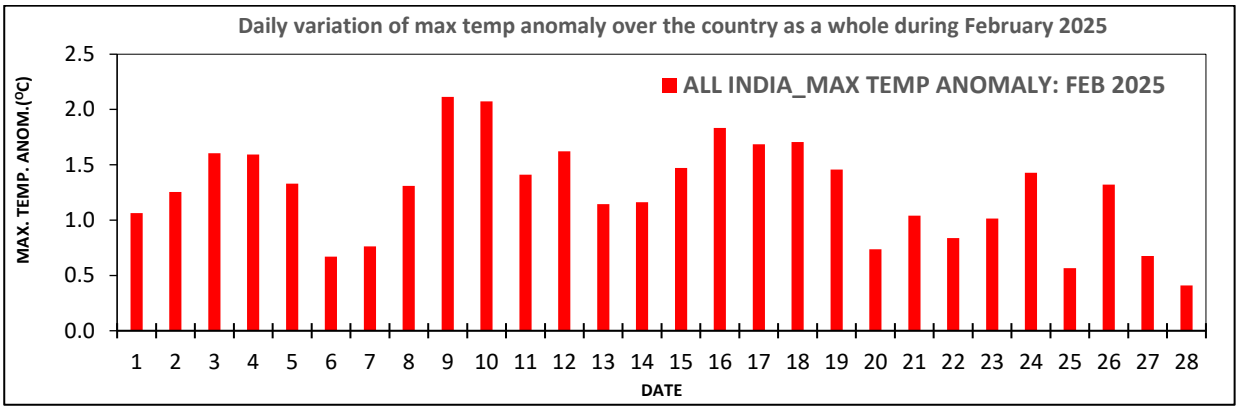


Fig 5(a): Daily variation of maximum temperature anomaly (departure from normal) over the country as a whole for February 2025

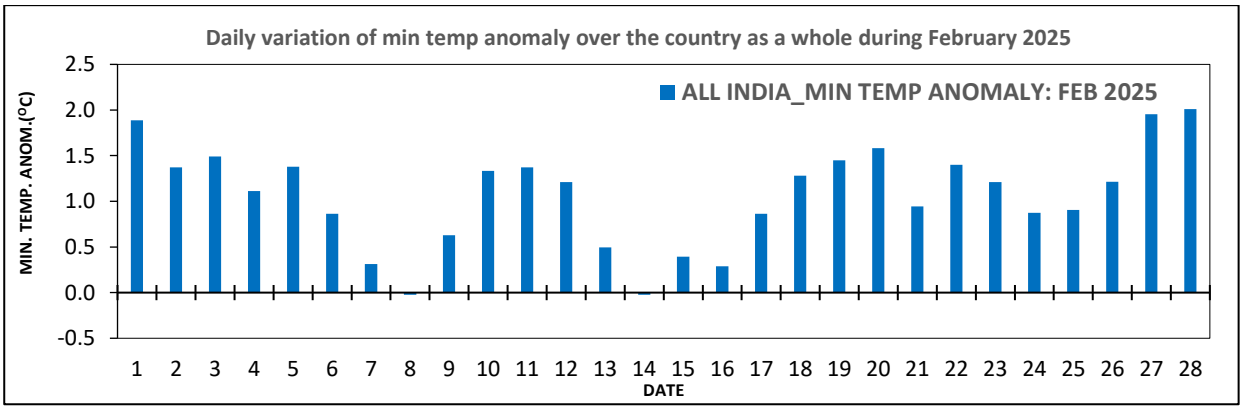


Fig 5(b): Daily variation of minimum temperature anomaly (departure from normal) over the country as a whole for February 2025

Figure 6 shows the time series of monthly average maximum, average minimum and mean temperature over the country as a whole for the month of February 1901-2025. Over the country during February, the average maximum temperature was the 2nd highest (29.10ºC with departure from normal of 1.52ºC) after the year 2023 (29.44 ºC) since 1901. The average minimum temperature was the highest at 15.02ºC since 1901 against the earlier record of 14.91ºC in 2016. The mean temperature was the highest at 22.06ºC since 1901 against the earlier record of 21.99ºC in 2016.

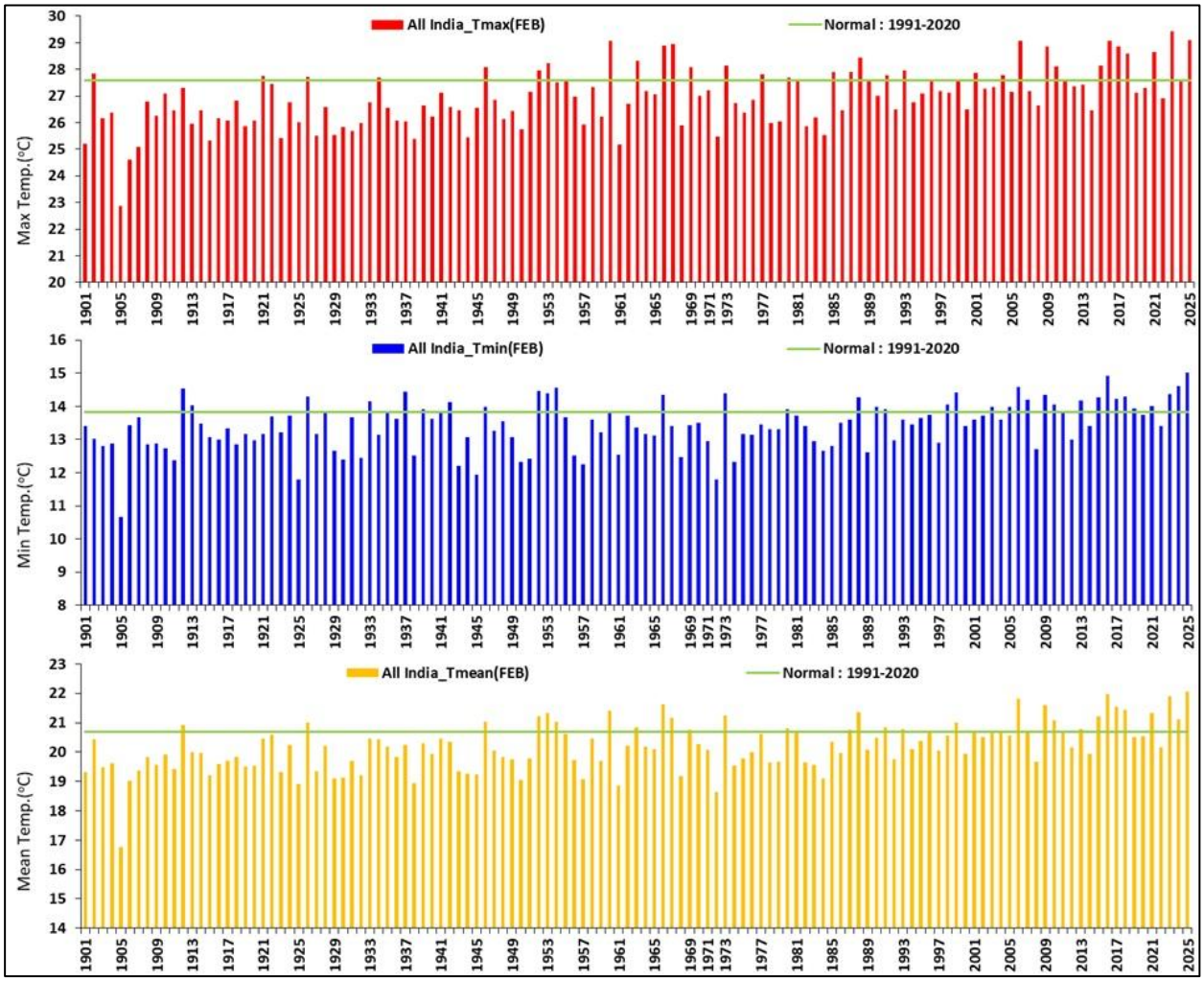


Fig 6: Time series of monthly average maximum, average minimum and mean temperatures over the country as a whole for the month of February 1901-2025

Figure 7 shows the time series of average maximum, average minimum and mean temperature over the Central India for the month of February 1901-2025. Over Central India during February, the average maximum temperature was the 2nd highest (32.56ºC with departure from normal of 2.03ºC) after the year 2023 (32.59ºC). The average minimum temperature was the highest at 16.72ºC since 1901 against the earlier record of 16.623ºC in 2024. The mean temperature was the highest at 24.64ºC since 1901 against the earlier record of 24.30ºC in 2016.

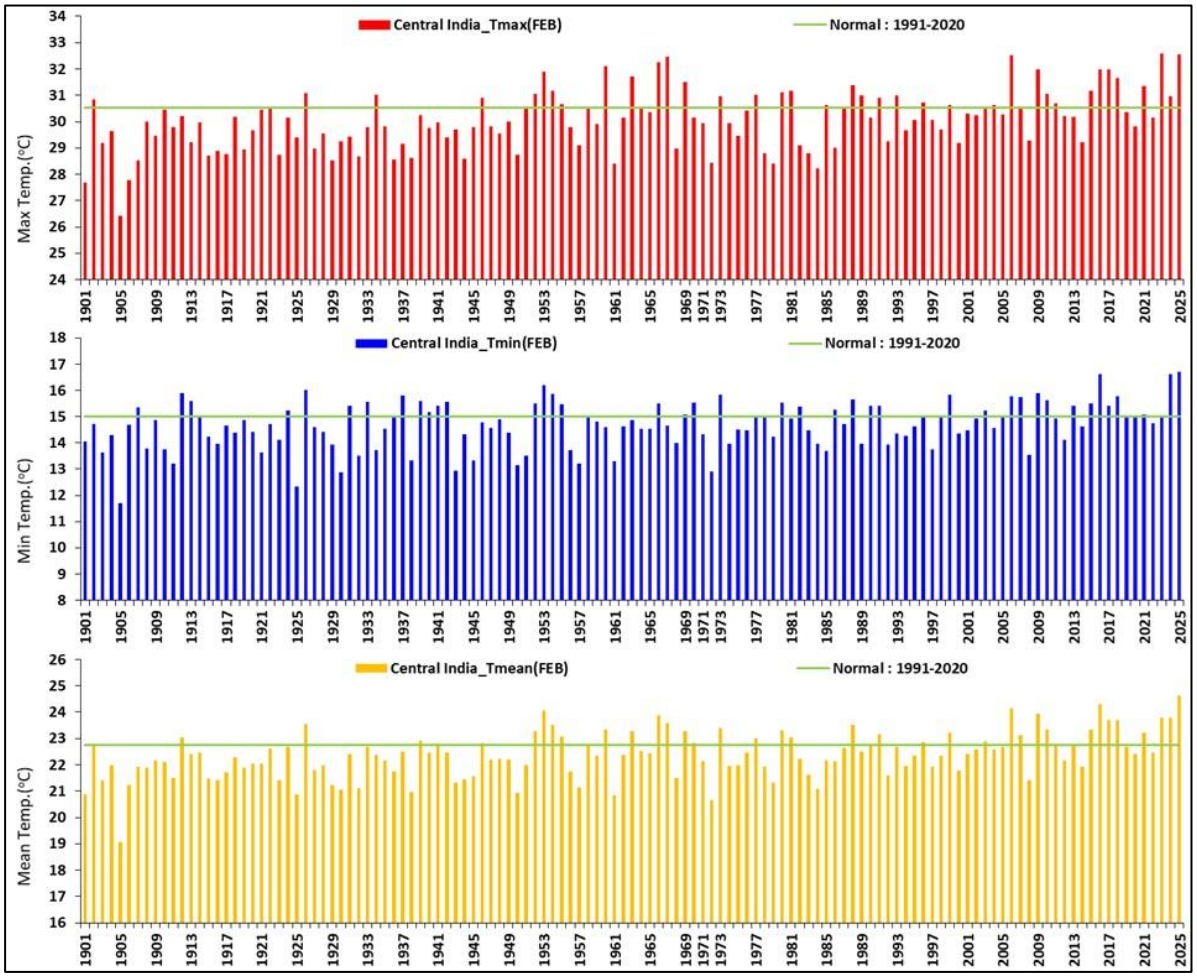


Fig. 7: Time series of monthly average maximum, average minimum and mean temperatures over Central India for the month of February 1901-2025

Figure 8 shows the time series of average maximum and mean temperature over the South Peninsular India for the month of February 1901-2025. Over South Peninsular India during February, the average maximum temperature was the highest at 33.24ºC since 1901 against the earlier record of 33.09ºC in 2024. The mean temperature was the 3rd highest (26.76ºC with departure from normal of 0.82ºC) after the years 2024 (27.13ºC), and 2016 (26.76ºC) since 1901.

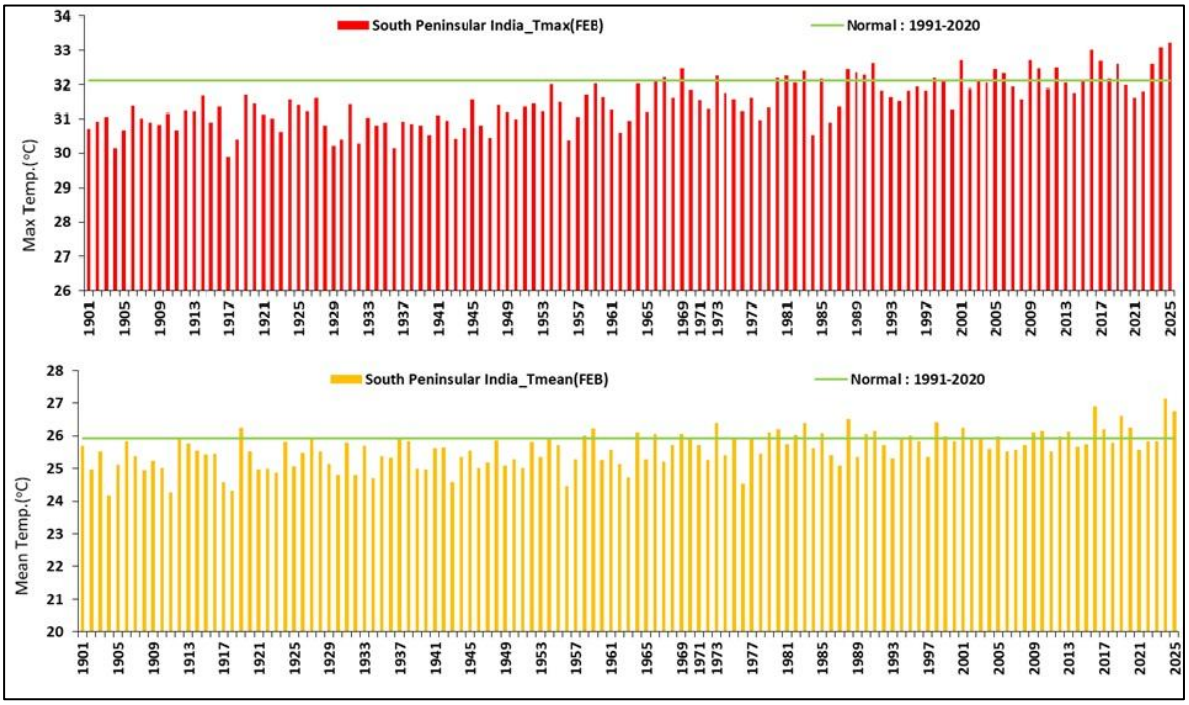


Fig. 8: Time series of monthly average maximum and mean temperatures over South Peninsular India for the month of February 1901-2025

Figure 9 shows the time series of average minimum and mean temperature over the Northwest India for the month of February 1901-2025. Over Northwest India during February, the average minimum temperature was the highest 4th highest (9.93ºC with departure from normal of 0.99ºC) after the years 2006 (10.84ºC), 2023 (10.33ºC), and 2015 (10.05ºC) since 1901. The mean temperature was the 5th highest (17.07ºC with departure from normal of 1.42ºC) after the years 2023 (17.90ºC), 2006 (17.74ºC), 1960 (17.25ºC), and 2021(17.21ºC) since 1901.

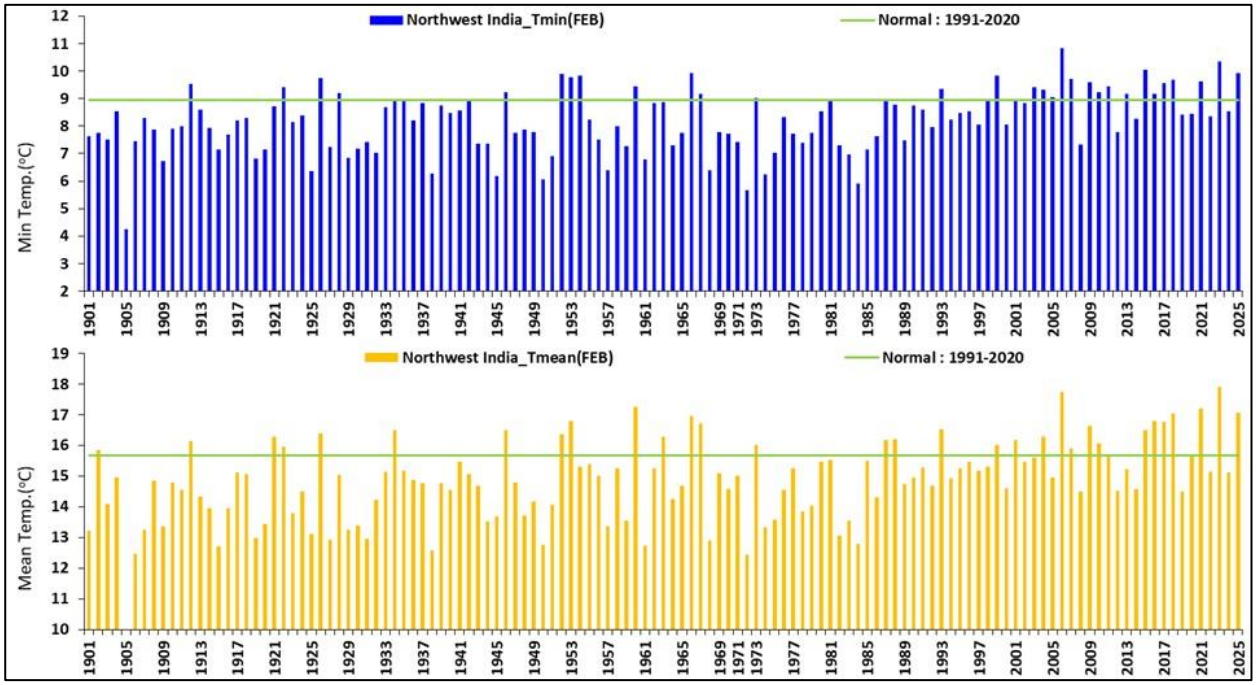


Fig. 9: Time series of monthly average minimum and mean temperatures over Northwest India for the month of February 1901-2025

Figure 10 shows the time series of monthly average minimum temperature over the East & Northeast India for the month of February 1901-2025. Over East & Northeast India during February, the average minimum temperature was the 2nd highest (14.07ºC with departure from normal of 1.41ºC) after the year 2016 (14.34ºC) since 1901.

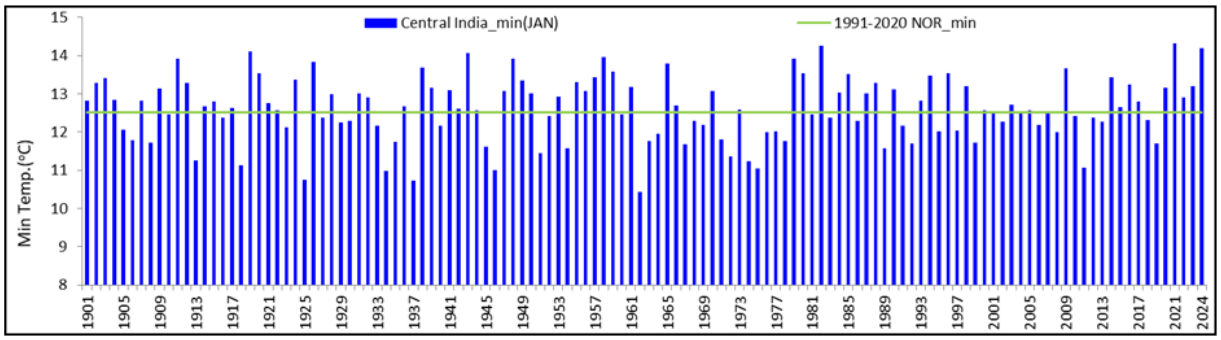


Fig 10: Time series of monthly average minimum temperature over East & Northeast India for the month of February 1901-2025.

The temperatures during February 2025 for all India and homogeneous regions with its top ranks since 1901 are given below:

FEB 2025		Max Temp (°C)	Min Temp (°C)	Mean Temp (°C)
ALL INDIA	**ACTUAL**	**29.10**	**15.02**	**22.06**
	NORMAL	27.58	13.82	20.70
	ANOMALY	1.52	1.20	1.36
	Rank since 1901	**2**	**1**	**1**
NORTHWEST INDIA	**ACTUAL**	**24.22**	**9.93**	**17.07**
	NORMAL	22.37	8.94	15.66
	ANOMALY	1.85	0.99	1.42
	Rank since 1901	**8**	**4**	**5**
EAST & NORTHEAST INDIA	**ACTUAL**	**26.31**	**14.07**	**20.19**
	NORMAL	25.71	12.66	19.19
	ANOMALY	0.60	1.41	1.00
	Rank since 1901	**23**	**2**	**9**
CENTRAL INDIA	**ACTUAL**	**32.56**	**16.72**	**24.64**
	NORMAL	30.53	14.99	22.76
	ANOMALY	2.03	1.73	1.88
	Rank since 1901	**2**	**1**	**1**
SOUTH PENNINSULAR INDIA	**ACTUAL**	**33.24**	**20.28**	**26.76**
	NORMAL	32.13	19.74	25.93
	ANOMALY	1.11	0.54	0.82
	Rank since 1901	**1**	**26**	**3**

Note: Values are rounded off to the nearest two decimals.

The five highest temperature records with corresponding top ranks since 1901 along with year of occurrence for all India, Central India (TMax, TMin, TMean), South Peninsular India (TMax, TMean), Northwest India (TMin, TMean) and East & Northeast India (TMin) are given in the tables below:

All India (February 2025)				
Year	**TMax**	Normal	Anomaly	Rank
2023	29.44	27.58	1.86	1
2025	29.10		1.52	2
2006	29.063		1.48	3
2016	29.061		1.48	4
1960	29.056		1.48	5

Central India (February 2025)				
Year	**TMax**	Normal	Anomaly	Rank
2023	32.59	30.53	2.06	1
2025	32.56		2.03	2
2006	32.52		1.99	3
1967	32.48		1.95	4
1966	32.26		1.74	5

All India (February 2025)				
Year	**TMin**	Normal	Anomaly	Rank
2025	15.02	13.82	1.20	1
2016	14.91		1.09	2
2024	14.61		0.79	3
2006	14.59		0.77	4
1954	14.57		0.75	5

Central India (February 2025)				
Year	**TMin**	Normal	Anomaly	Rank
2025	16.72	14.99	1.73	1
2024	16.623		1.63	2
2016	16.617		1.63	3
1953	16.21		1.22	4
1926	16.01		1.02	5

All India (February 2025)				
Year	**TMean**	Normal	Anomaly	Rank
2025	22.06	20.70	1.36	1
2016	21.99		1.29	2
2023	21.90		1.20	3
2006	21.83		1.13	4
1966	21.62		0.92	5

Central India (February 2025)				
Year	**TMean**	Normal	Anomaly	Rank
2025	24.64	22.76	1.88	1
2016	24.30		1.55	2
2006	24.14		1.38	3
1953	24.05		1.30	4
2009	23.93		1.17	5

South Peninsular India (February 2025)				
Year	**TMax**	Normal	Anomaly	Rank
2025	33.24	32.13	1.11	1
2024	33.09		0.97	2
2016	33.03		0.91	3
2001	32.71		0.58	4
2009	32.70		0.57	5

South Peninsular India (February 2025)				
Year	**TMean**	Normal	Anomaly	Rank
2024	27.13	25.93	1.20	1
2016	26.89		0.96	2
2025	26.76		0.82	3
2019	26.61		0.67	4
1988	26.51		0.57	5

East & Northeast India (February 2025)				
Year	**TMin**	Normal	Anomaly	Rank
2016	14.34	12.66	1.68	1
2025	14.07		1.41	2
2023	14.05		1.38	3
1946	14.00		1.34	4
2006	13.81		1.15	5

Northwest India (February 2025)				
Year	**TMin**	Normal	Anomaly	Rank
2006	10.84	8.94	1.89	1
2023	10.33		1.39	2
2015	10.05		1.10	3
2025	9.93		0.99	4
1966	9.92		0.98	5

Northwest India (February 2025)				
Year	**TMean**	Normal	Anomaly	Rank
2023	17.90	15.66	2.25	1
2006	17.74		2.08	2
1960	17.25		1.59	3
2021	17.21		1.55	4
2025	17.07		1.42	5

The observed spatial temperature pattern of monthly average maximum, average minimum and mean temperature over India and their departures from normal (1991 to 2020 period) for the month of February 2025 is given in Figure 11.

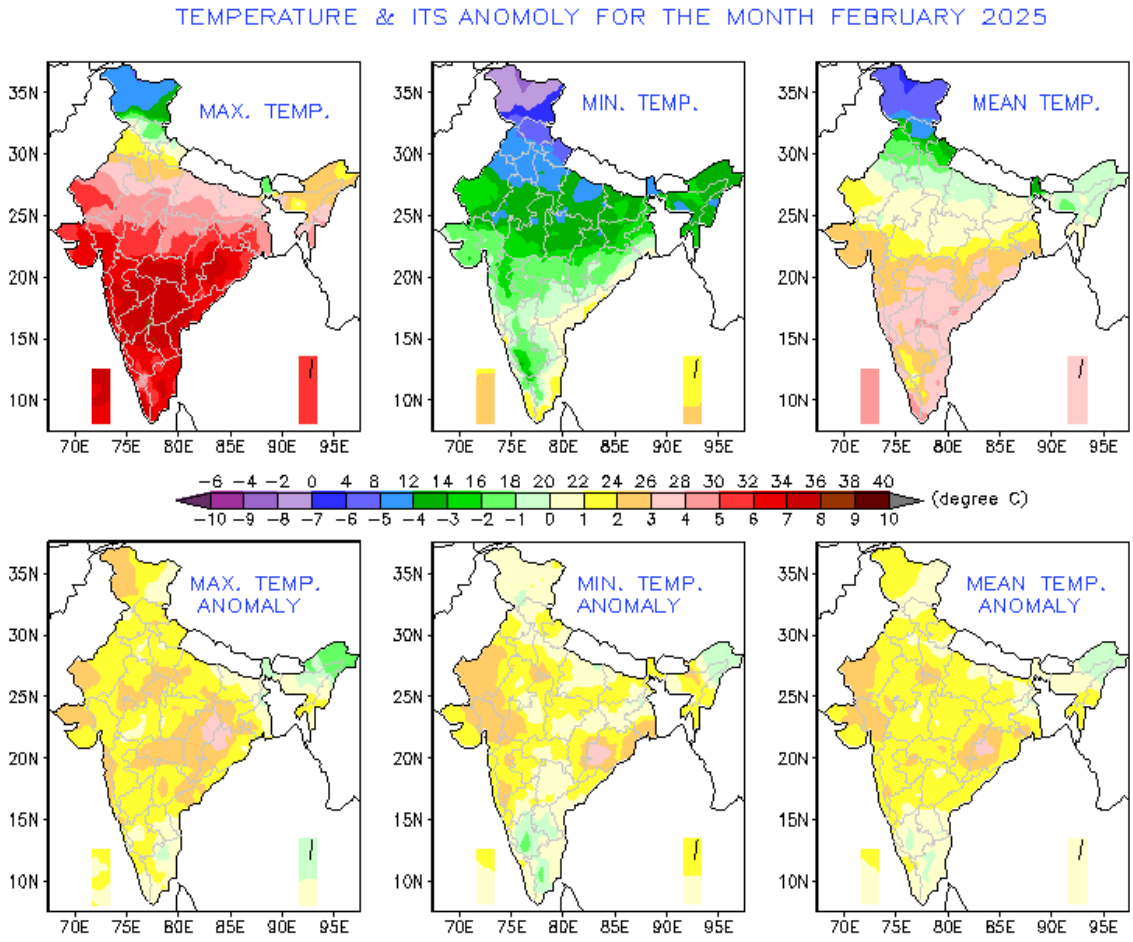


Fig. 11: Observed spatial temperature pattern of monthly average maximum, average minimum, and mean temperature over India (top three from left to right) and their departure from normal (1991 to 2020 period) for February 2025 (lower three from left to right)

5. Significant weather and associated weather systems during the months

✓ **Western Disturbances (WDs) and associated severe weather events:** A total of 7WDs (6-7, 7-12, 15-17, 17-19, 18-20 Feb, 20-21 Feb & 24-28 Feb) against the normal of 5-6 WDs. Most WDs moved in quick succession, not having sufficient moisture incursion and hence only caused with light rain/snowfall over Western Himalayan region except the current WD of 24-28 Feb 2025. The active WD of 24-28 Feb 2025 was this Winter Season's most active WD which severely impacted weather across north India with formation of Induced Low pressure on 28 Feb. The system with likely heavy rainfall/snowfall for were predicted on 20 Feb with issue special bulletin for the severe weather for northwest India from 22 Feb at the lead time 5-7 Days. As per observations reported during the period, it was Moderate to heavy Rainfall/Snowfall observed at a few places with isolated very heavy to extremely heavy falls over Jammu. Heavy to very heavy rainfall/snowfall at isolated places over Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand. Heavy to very heavy rainfall at isolated places over

north Punjab and Light to moderate rainfall observed at many places over Haryana and Chandigarh.

- ✓ **Subdued dense fog and cold spells over India:** It was mostly absence across northern plains and in most dates' night temperature was warmer than normal in most parts across north and central India. **Dense Fog** was also absent across most parts of Indo-Gangetic Plains (IGP) during Feb 2025 due to higher night temp in most dates and absence of moisture due to lack of any major WD affecting plains during 1-20 Feb, the period generally favourable for fogs over NW India and IGP plains. However, East & Northeast India including Odisha reported isolated dense fog in most days till 3rd Week of Feb due to favorable wind conditions and moisture incursion from east coast.
- ✓ **Season's 1st spell of intense Thunderstorm** due to north-south trough over east coast: Season's 1st spell of moderate to intense Thunderstorm accompanied with HS and Gusty winds reported over Gangetic West Bengal & Sikkim, Odisha, Jharkhand, Bihar, Chhattisgarh, &plains of northwest India, 22-24 Feb. Heavy rainfall: observed at isolated places over Jharkhand on 21st February, Gangetic West Bengal on 21st & 23rd February, Odisha on 23rd February, Tamilnadu Puducherry & Karaikal and Andaman & Nicobar Islands on 26th February.
- ✓ **Heat wave and hot and humid conditions along west coast of India:** Appreciably above normal (5-8ºC) temperatures with maximum temperatures in the range of 36-41ºC with hot and humid conditions prevailed over west coast of India covering Konkan & Goa (including Mumbai), Coastal Karnataka and north Kerala during 24th – 28th February. Season's 1st spell of Heat Wave conditions prevailed over Coastal Karnataka and Konkan on 27 and 28 Feb

6. Significant Weather Events:

During February 2025, as per the media report a total of about 12 people reportedly died, one injured and damage of property was reported because of the Snowfall and heavy rains (Fig. 12). The details of event-wises casualties are given below. However, the actual data on casualties and damages may be available with concerned state governments.

Event	Number of human deaths
Snowfall:	**8** (Chamoli district in Uttarakhand)
Heavy Rains:	**4** (Mainly Himachal Pradesh, UT- Jammu and Kashmir)

Also, extensive damage to wheat, mustard crops in more than 30 villages in Jind (Haryana) reported. While, Udhampur (UT-Jammu & Kashmir) district affected due to extremely heavy rains.

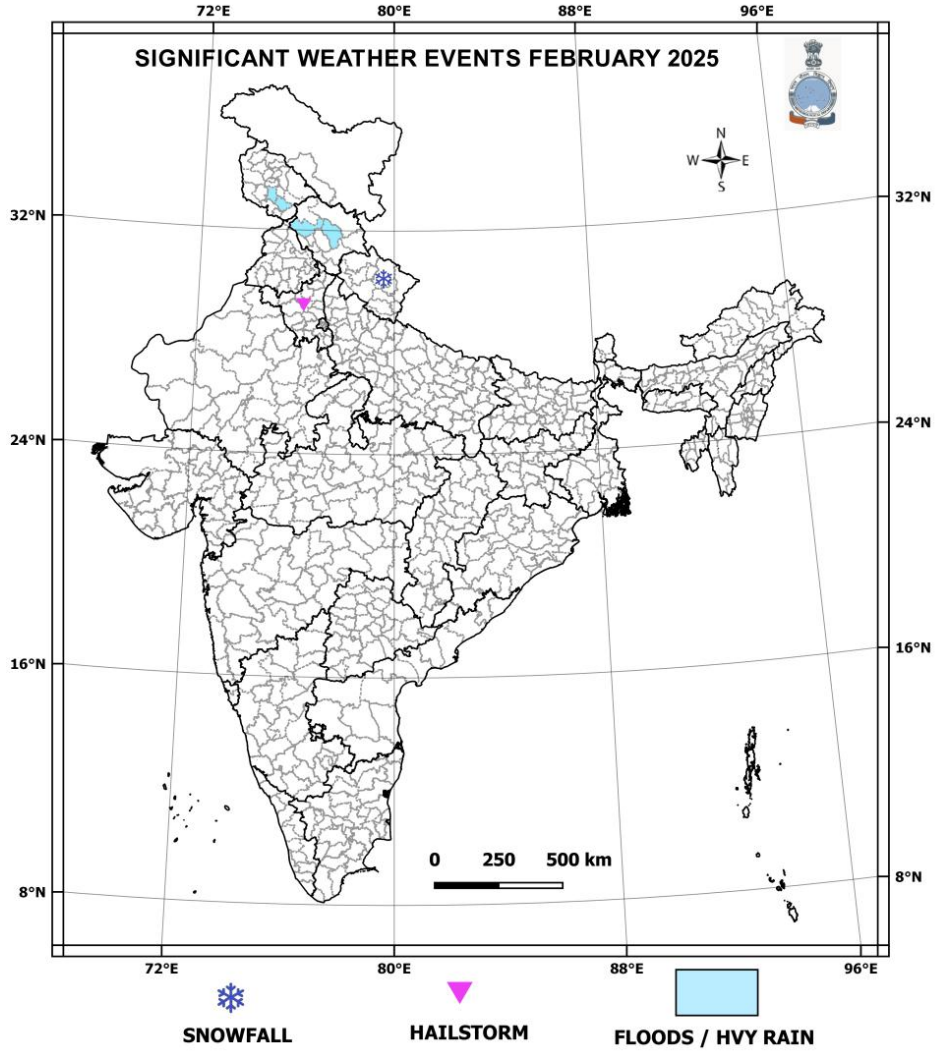


Fig. 12: Deaths and damages due to significant weather events during February 2025 (Based on real time media reports)