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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 January 2025

1. Monthly Rainfall Scenario for January 2025

Rainfall over the country as a whole for the month of January 2025 was 5.0 mm which is 71% less than its Long Period Average (LPA) of 17.1 mm. Daily variation of the rainfall over the country as a whole during the month of January 2025 with normal based on data of 1971-2020 is presented in Fig. 1(a). The all India rainfall percentage departure from normal for January during 1901-2025 is presented in Fig. 1(b). Rainfall over All India (5.0 mm) was 5th lowest since 1901 and 3rd lowest since 2001 presented in Fig. 1(c). Rainfall over homogeneous region of Northwest India Rainfall (6.3 mm) was 7th lowest since 1901 and 4th lowest since 2001 presented in Fig. 1(d). Rainfall over homogeneous region of Central India (0.3 mm) was 4th lowest since 1901 and 2nd lowest since 2001 presented in Fig. 1(e).

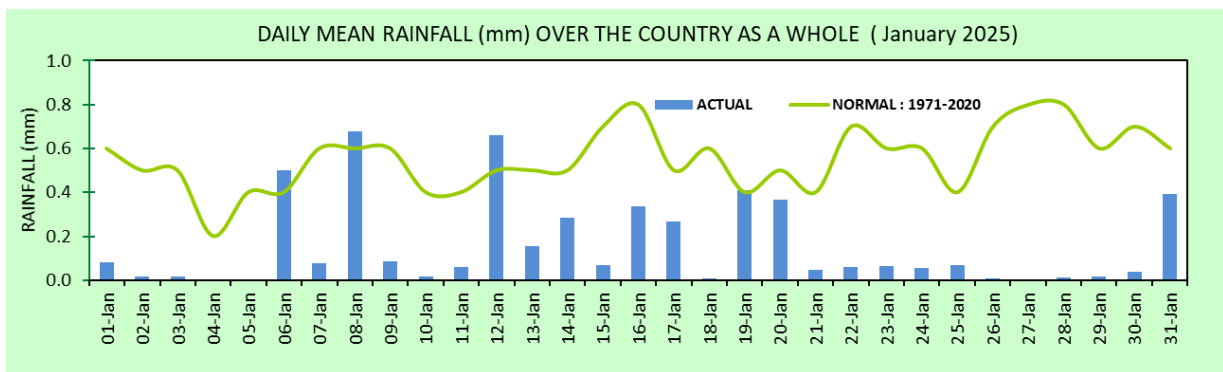


Fig.1 (a): Daily variation of rainfall over the country as a whole during January 2025

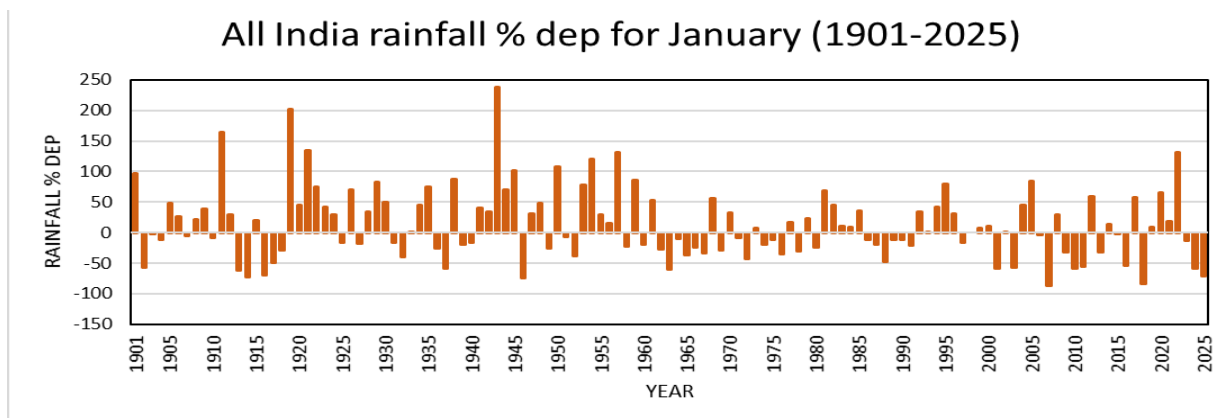


Fig. 1(b): All India monthly rainfall percentage departure from normal (1971-2020) for January from 1901-2025

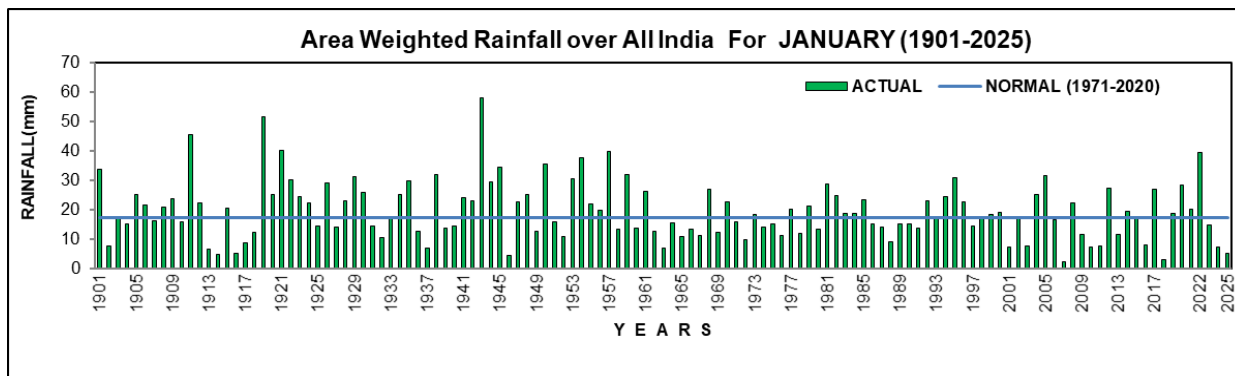


Fig. 1(c): Time series of area weighted rainfall over All India for January (1901 – 2025)

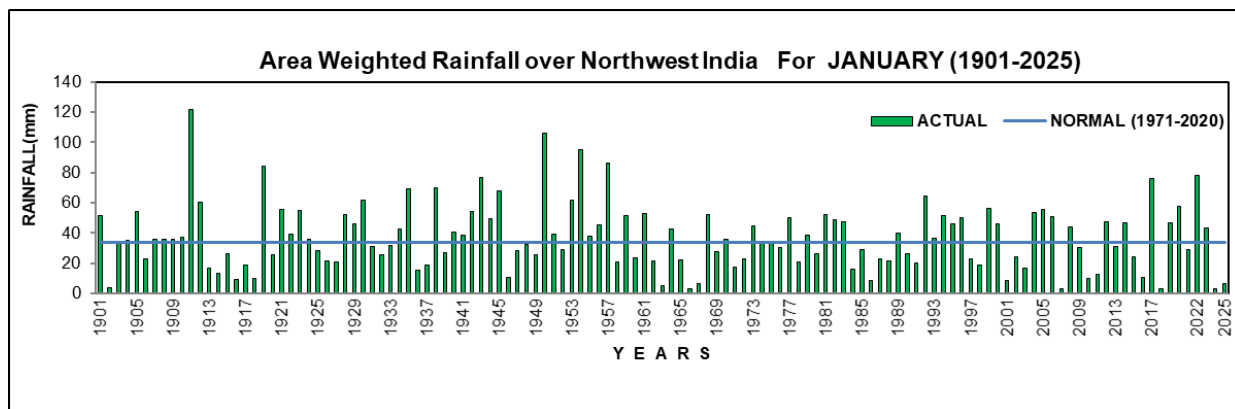


Fig. 1(d): Time series of area weighted rainfall over Northwest India for January (1901 – 2025)

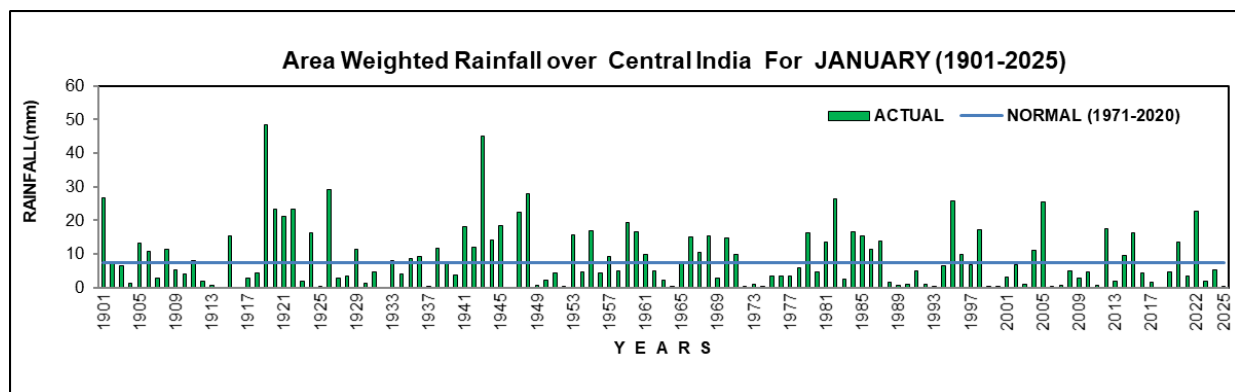


Fig. 1(e): Time series of area weighted rainfall over Central India for January (1901 – 2025)

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

Regions	Actual Rainfall (mm)	Normal Rainfall (mm)	% Departure from LPA
Country as a whole	5.0	17.1	-70.8
Northwest India	6.3	33.8	-81.4
Central India	0.3	7.4	-96.3
South Peninsula	7.3	7.8	-7.0
East & northeast India	9.7	17.2	-43.7

During this month, 3 sub-divisions received large excess rainfall, 2 received excess rainfall, 3 sub-divisions received normal rainfall, 5 received deficient rainfall, 13 sub-divisions received large deficient rainfall, and 10 sub-divisions did not receive any rain (Fig. 2).

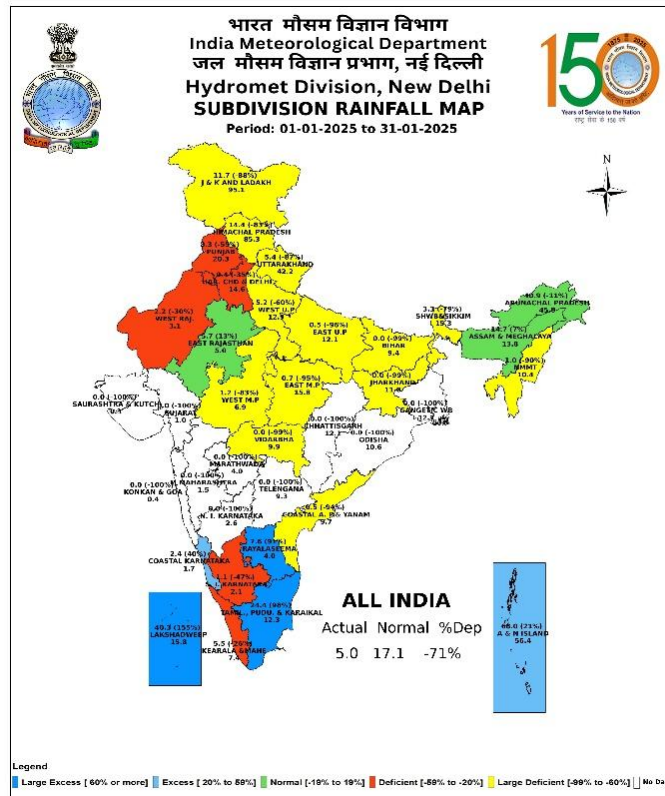


Fig 2: Subdivision-wise rainfall distribution for January 2025.

The observed spatial distribution of rainfall during January 2025, normal rainfall based on data of 1971 to 2020 and rainfall departures from normal during January 2025 are shown in Fig. 4.

RAINFALL OVER THE COUNTRY FOR JANUARY 2025

(CLIMATE MONITORING AND PREDICTION GROUP)

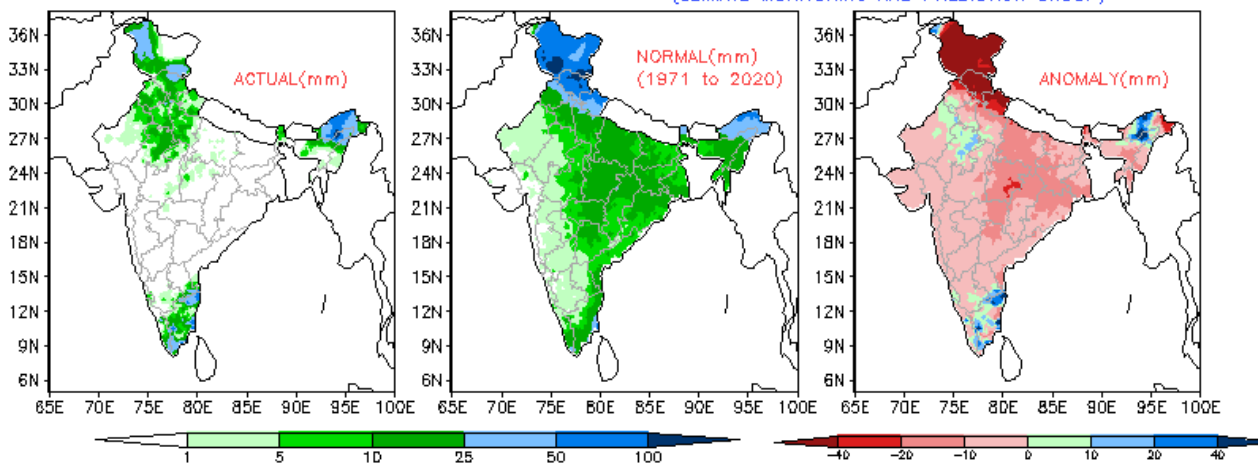
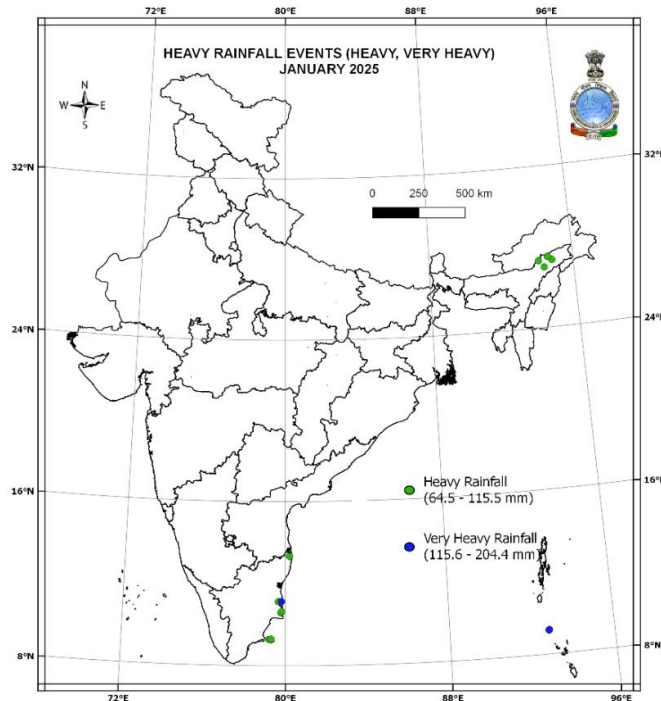


Fig. 3: Observed spatial Rainfall pattern for the month January 2025 over India and their departure from normal period (1971 to 2020). Departure from normal is anomaly = actual rainfall - normal rainfall.

2. Frequency of Heavy Rainfall events

January 2025 witnessed very heavy rainfall events (115.6 – 204.4 mm) and heavy rainfall events (64.5 – 115.5 mm) over Assam & Meghalaya, Tamil Nadu, Puducherry & Karaikal and Andaman & Nicobar Islands.

The location of occurrences of heavy and very heavy rainfall events is shown in the Fig. 4. Out of total 14 occasions, 2 were very heavy rainfall (115.6 to 204.4 mm) and 12 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 January 2025

3. Chief Synoptic weather features observed during January 2025.

There were seven Western Disturbances (WD) (4-7, 9-13, 16-17, 17-21, 19-23, 21-24, 28-31 January) moved across extreme northern parts of India against the normal of 5-6 WDs. Out of that four WDs moved in quick succession during 1 week of 16-23 Jan. Most of these WDs were not having sufficient moisture incursion and hence did not cause any significant rain/snow. The WD formed during 9-13 January was only active one which moved from Iran to Punjab across central Pakistan & neighborhood at middle and Upper tropospheric level and caused Wet spell over Northwest & adjoining Central India including over Delhi during 10-13 Jan.

Cold day to severe cold days conditions were observed over north and central India with 2-5 days in different pockets in this region. Cold wave conditions were observed for over a smaller area and for only for few days 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).

The cessation of Northeast Monsoon rains over South Peninsular India on 27th January 2025

4. Characteristics of Temperatures for the month of January 2025

The average maximum, average minimum and mean temperature for the country as a whole during January 2025 were 25.53°C, 12.51°C and 19.02°C respectively, against the normal of 24.61°C, 11.46°C and 18.04°C based on data of 1991-2020. Thus, the average maximum, average minimum and mean temperature were above normal with departure from normal of 0.92°C, 1.04°C and 0.98°C 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 January 2025 is shown in the figure 5(a) and (b) respectively.

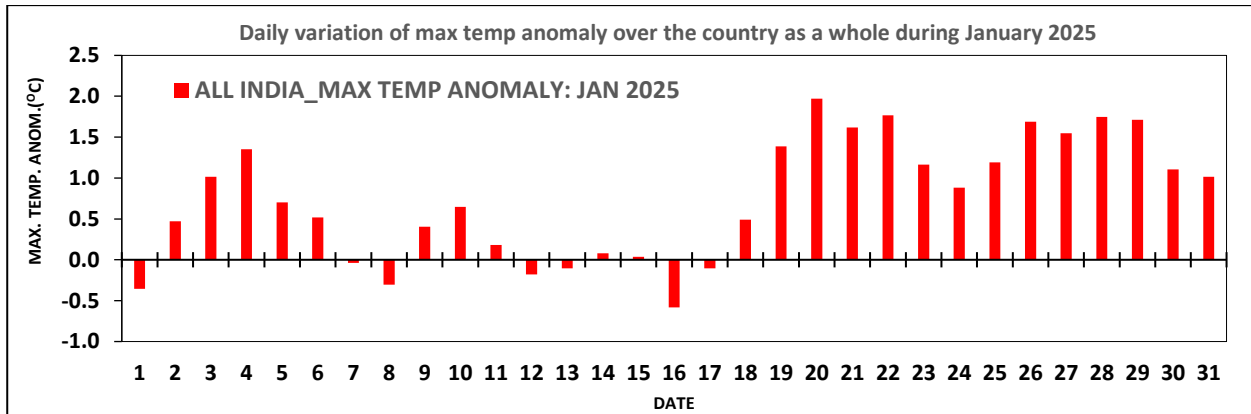


Fig. 5(a): Daily variation of maximum temperature anomaly (departure from normal) over the country as a whole for January 2025

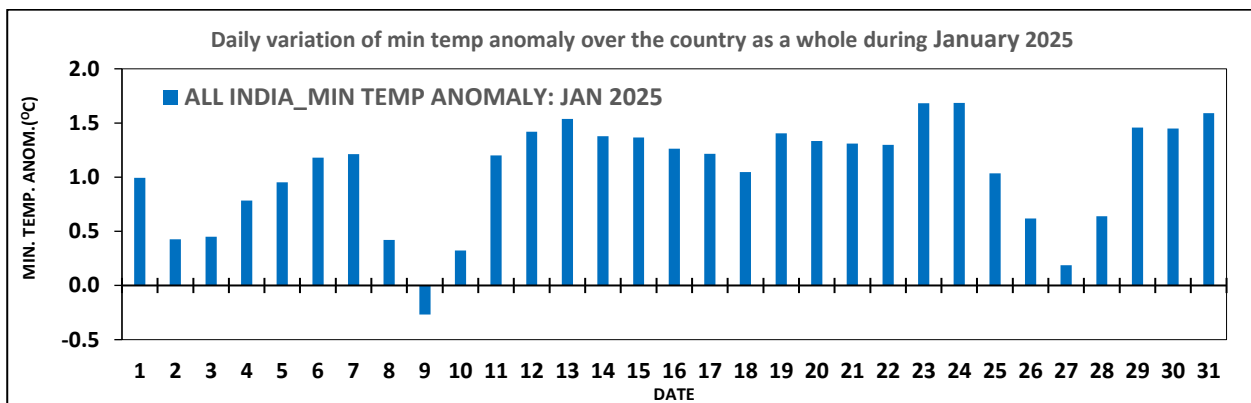


Fig. 5(b): Daily variation of minimum temperature anomaly (departure from normal) over the country as a whole for January 2025

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 January 1901-2025. Over the country during January, the average maximum temperature was 10th highest since 1901). The average minimum temperature was 5th highest (12.51°C with departure from normal of 1.04°C) after the years 1911(12.68°C), 1919 & 1958(12.65°C), 2021(12.58°C) and 1943(12.56°C) since 1901. The mean temperature was 2nd highest (19.02°C with departure from normal of 0.98°C) after the year 1958(19.21°C) since 1901.

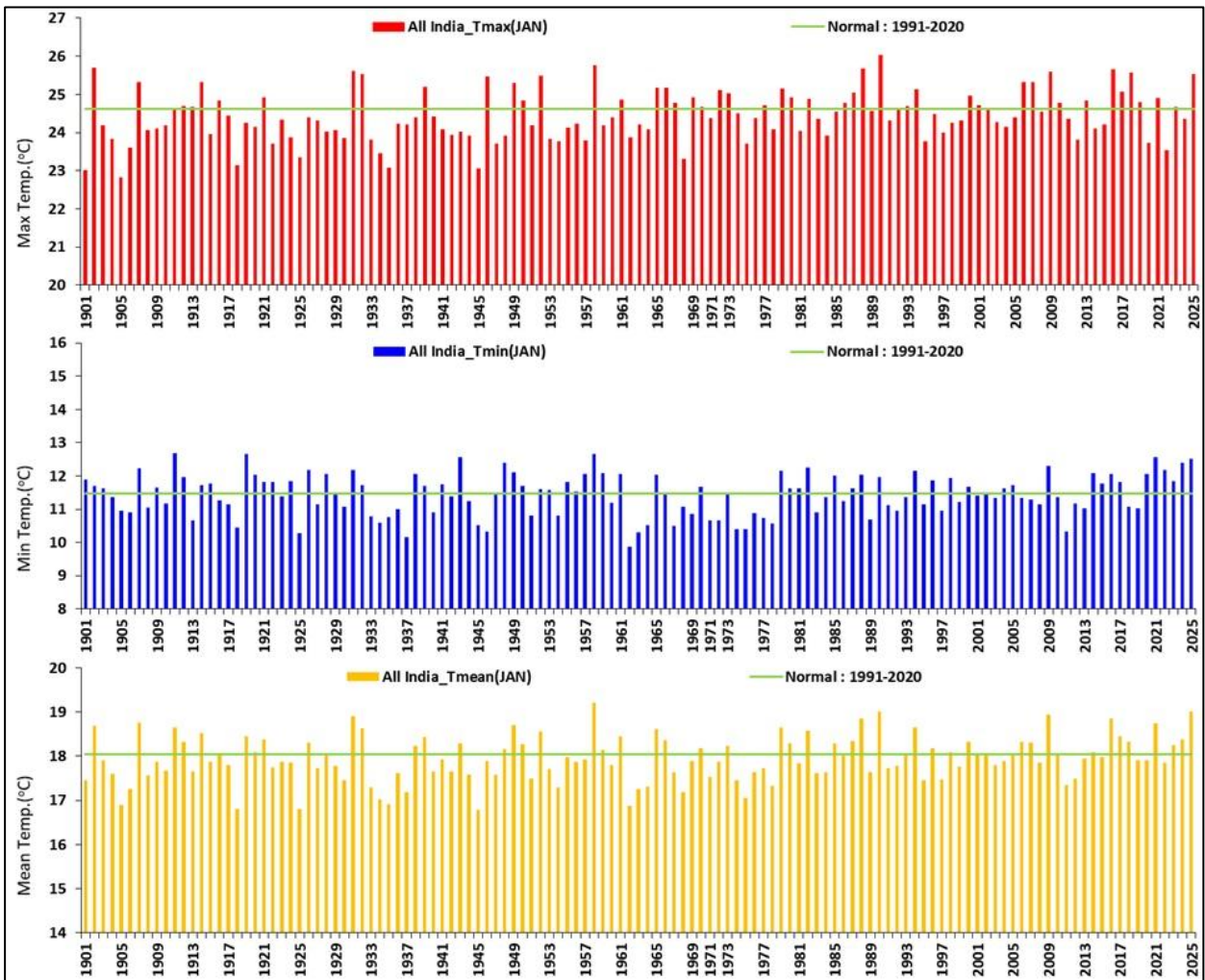


Fig. 6: Time series of monthly average maximum, average minimum and mean temperature over the country as a whole for the month of January 1901-2025

Figure 7 shows the time series of average minimum and mean temperature over the East & Northeast India for the month of January 1901-2025. Over East & Northeast India during January, the average minimum temperature was the 2nd highest (11.90°C with departure from normal of 1.77°C) after the year 1943(12.10°C) since 1901. The mean temperature was the 3rd highest (17.73°C with departure from normal of 1.49°C) after the years 1982(17.86°C), and 1958(17.77°C) since 1901.

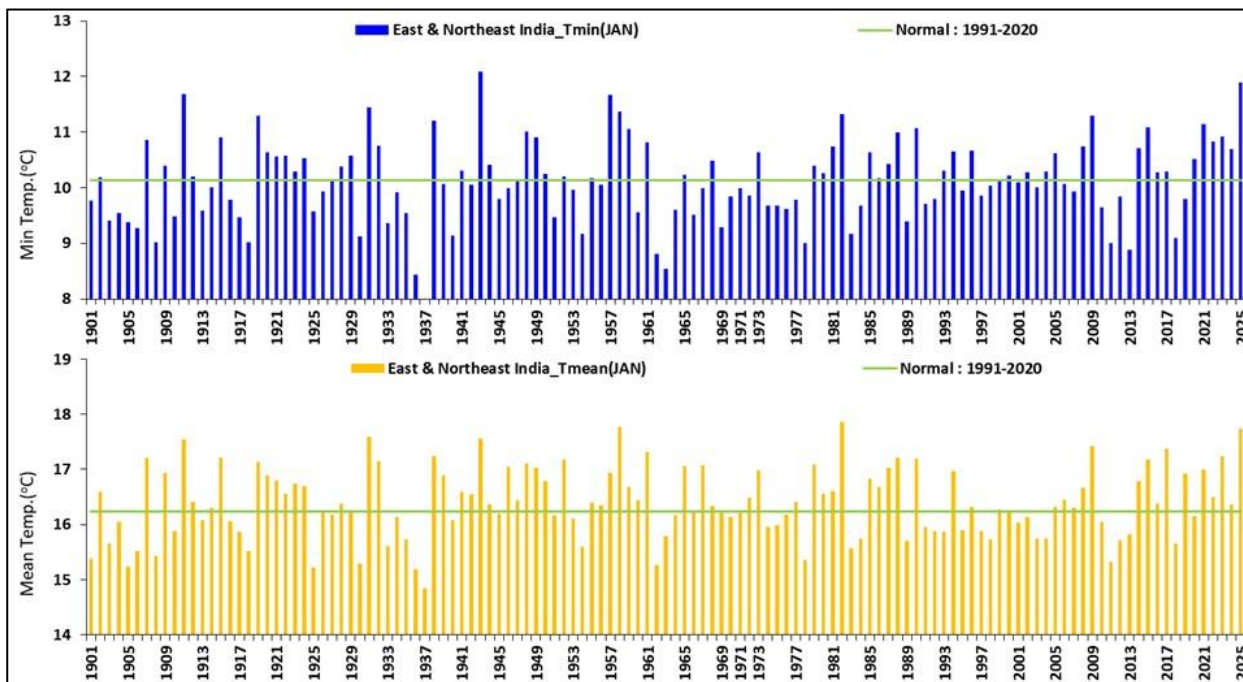


Fig. 7: Time series of monthly average minimum and mean temperature over East & Northeast India for the month of January 1901-2025

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

JAN 2025		Max Temp (°C)	Min Temp (°C)	Mean Temp (°C)
ALL INDIA	ACTUAL	25.53	12.51	19.02
	NORMAL	24.61	11.46	18.04
	ANOMALY	0.92	1.04	0.98
	Rank since 1901	10	5	2
NORTHWEST INDIA	ACTUAL	19.95	6.93	13.44
	NORMAL	18.65	6.04	12.35
	ANOMALY	1.30	0.89	1.09
	Rank since 1901	20	12	13
EAST & NORTHEAST INDIA	ACTUAL	23.57	11.90	17.73
	NORMAL	22.36	10.13	16.24
	ANOMALY	1.21	1.77	1.49
	Rank since 1901	15	2	3
CENTRAL INDIA	ACTUAL	28.71	13.62	21.16
	NORMAL	27.76	12.52	20.14
	ANOMALY	0.95	1.10	1.02
	Rank since 1901	12	14	6
SOUTH PENINSULAR INDIA	ACTUAL	30.30	18.93	24.62
	NORMAL	30.23	18.41	24.32
	ANOMALY	0.07	0.52	0.30
	Rank since 1901	20	26	14

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 and East & Northeast India (TMin, TMean), are given in the tables below:

All India (January 2025)					East & Northeast India (January 2025)				
Year	TMin	Normal	Anomaly	Rank	Year	TMin	Normal	Anomaly	Rank
1911	12.68	11.46	1.21	1	1943	12.10	10.13	1.97	1
1919	12.65		1.19	2	2025	11.90		1.77	2
1958	12.65		1.19	2	1911	11.69		1.56	3
2021	12.58		1.11	3	1957	11.67		1.54	4
1943	12.56		1.10	4	1931	11.44		1.31	5
2025	12.51		1.04	5					

All India (January 2025)					East & Northeast India (January 2025)				
Year	TMean	Normal	Anomaly	Rank	Year	TMean	Normal	Anomaly	Rank
1958	19.21	18.04	1.17	1	1982	17.86	16.24	1.61	1
2025	19.02		0.98	2	1958	17.77		1.52	2
1990	19.01		0.97	3	2025	17.73		1.49	3
2009	18.94		0.90	4	1931	17.59		1.35	4
1931	18.90		0.86	5	1943	17.56		1.32	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 January 2025 is given in Figure 8.

TEMPERATURE & ITS ANOMOLY FOR THE MONTH JANUARY 2025

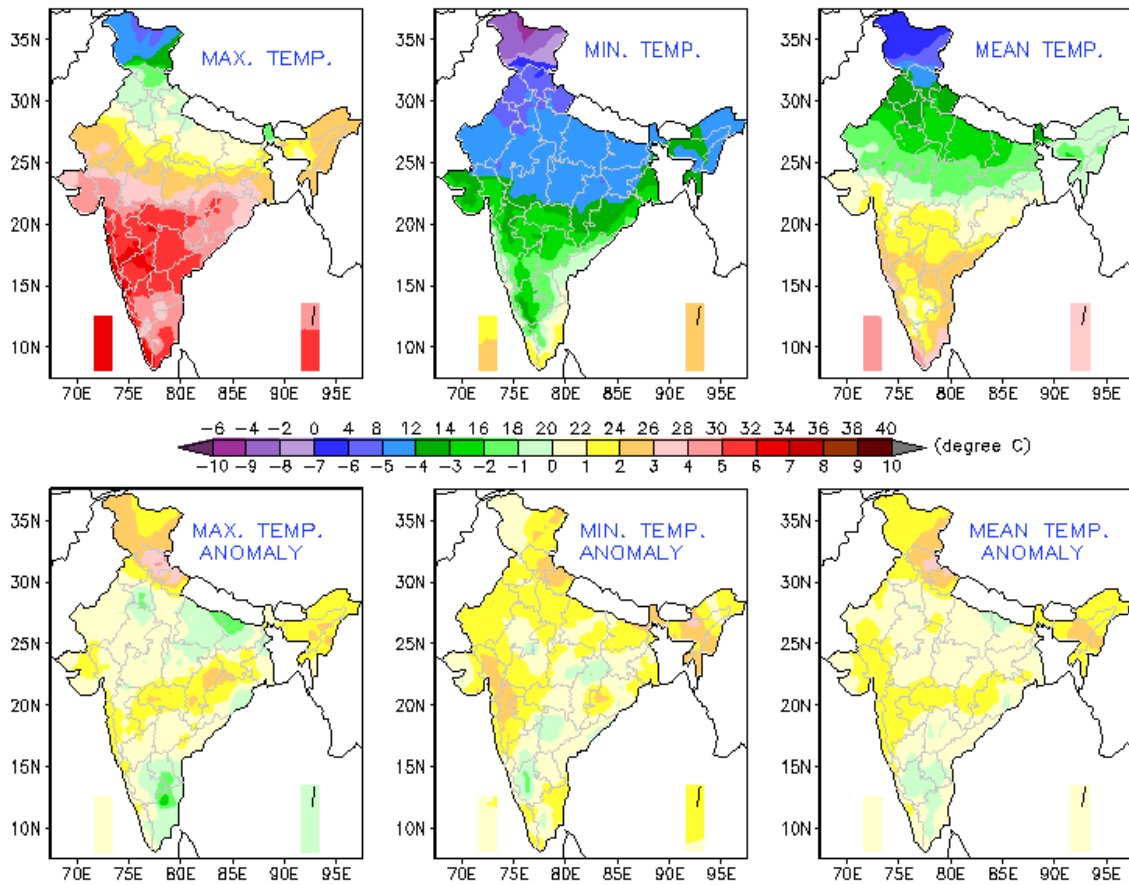


Fig. 8: Observed spatial temperature pattern of monthly average maximum, average minimum and mean temperature over India (top three from left to right) and their departure from normal (1991 to 2020 period) for January 2025 (lower three from left to right)