

Climate Summary for the month of March 2022

1. Monthly Rainfall Scenario (01 to 31 March, 2022)

Rainfall over the country as a whole for the month of March 2022 shows that it has recorded 8.9 mm, which is 71% less than its Long Period Average (LPA) of 30.4 mm. Rainfall over All India (8.9 mm) was 3rd lowest since 1901 after the years 1909 (7.2 mm) and 1908 (8.7 mm).

The monthly rainfall for March 2022 is given in the table below:

Regions	Actual Rainfall (mm)	Normal Rainfall (mm)	% Departure from LPA
Country as a whole	8.9	30.4	-71
Northwest India	5.2	47.5	-89
Central India	1.1	8.4	-87
South Peninsula	12.4	14.4	-14
East & northeast India	28.2	63.5	-56

During this month, 3 sub-divisions received large excess, 2 excess, 4 normal, 6 deficient rainfall, 19 large deficient and 2 sub-divisions not received rainfall.

The observed spatial rainfall, normal rainfall (Averaged over 1961 to 2010) and its departures from normal for the month of March 2022 is given in Figure 1.

RAINFALL OVER THE COUNTRY FOR MARCH 2022

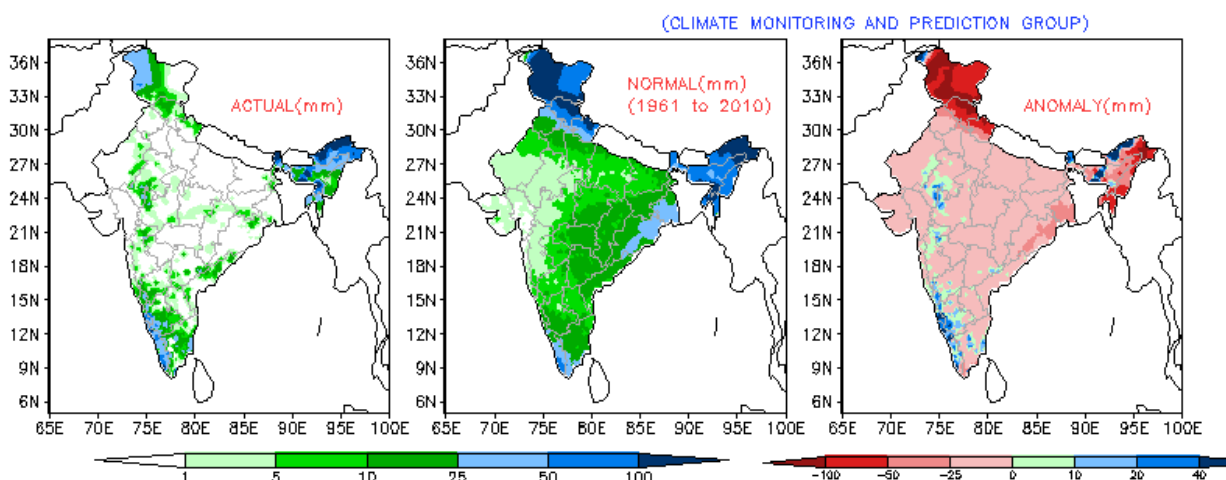


Fig 1: Observed spatial Rainfall pattern for the month of March 2022 over India and their departure from normal (1961 to 2010 period)

2. Frequency of Heavy Rainfall events

The March 2022 witnessed extremely heavy rainfall, very heavy rainfall and heavy rainfall events mainly over East and Northeast India.

The location of occurrences of extremely heavy rainfall, very heavy rainfall and heavy rainfall events is shown in the Figure 2. Out of total 17 stations, 2 stations reported extremely heavy rainfall (≥ 204.5 mm), 1 station reported very heavy rainfall (115.6 to 204.4 mm) and 14 stations reported heavy rainfall (64.5 to 115.5 mm of rainfall) during this month.

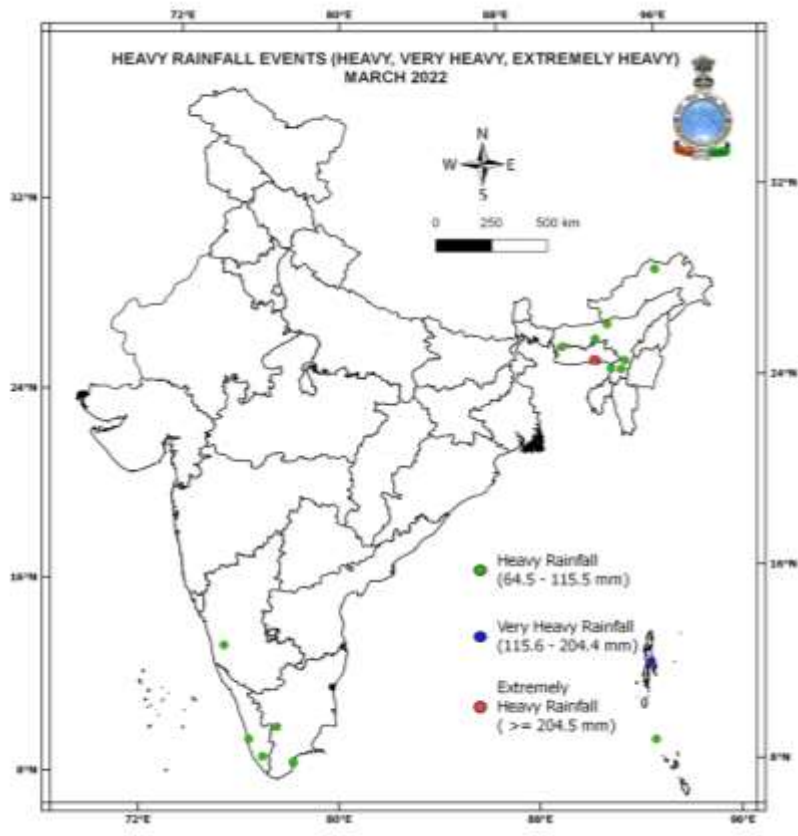


Fig 2: The location of occurrences of heavy rainfall events in the month of March 2022.

Some stations received record rainfall (24 hour) during March 2022. The table below shows stations received 24-hour record rainfall and its previous record.

STATION	24 HOUR RECORD RAINFALL IN MARCH 2022(mm)*	DATE	PREVIOUS RAINFALL RECORD(mm)	DD-MM-YYYY
MAJBAT	77.5	26	57.2	08-03-1976
MAWSYNRAM	397.8	26	270.8	06-03-1973

*Based on real time available data

Chief synoptic features during March 2022

During this month, two deep depressions formed, one over Bay of Bengal (3- 6 March) and another system also formed in Bay of Bengal over Andaman Sea (20-22 March). Track of these systems is shown in figure 3.

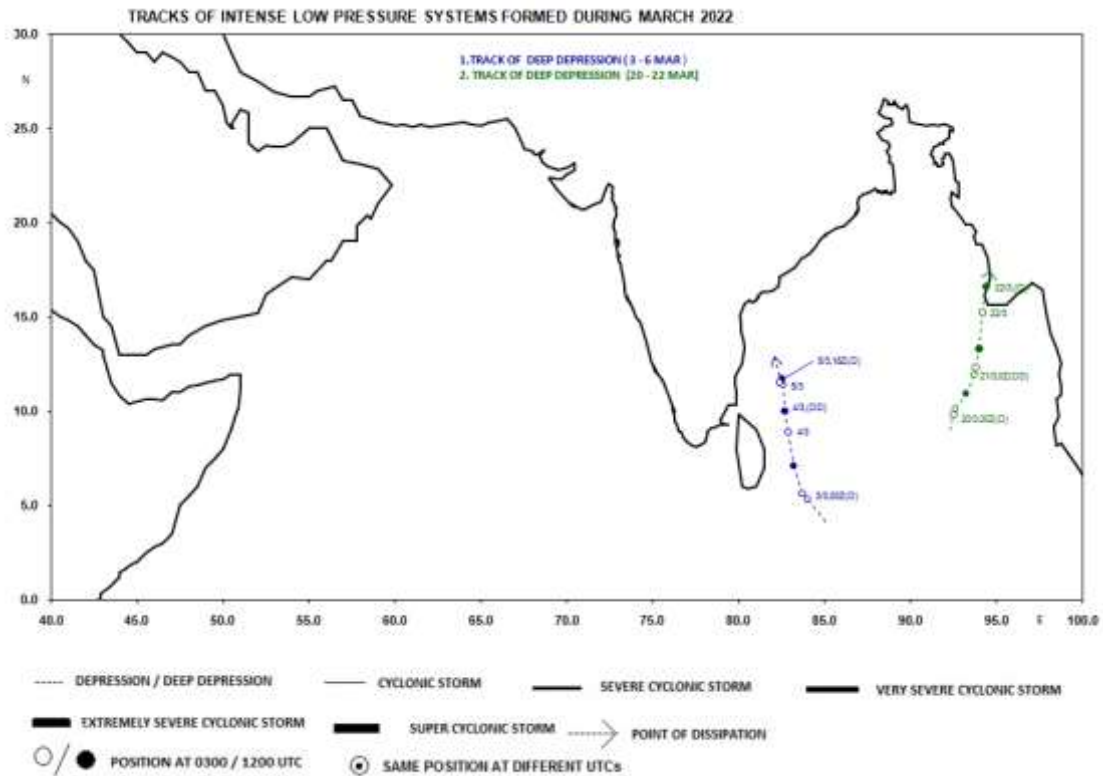


Figure 3. Tracks of Low-Pressure Systems formed during March 2022.

3. Characteristics of Temperatures for the month of March 2022

The observed average maximum, minimum and mean temperature for the country as a whole during March 2022 are 33.10°C, 20.24°C and 26.67°C respectively, against the normal of 31.24°C, 18.87°C and 25.06°C based on period 1981-2010. Thus, the average maximum, average minimum temperature and mean temperature are above normal by 1.86°C, 1.37°C, 1.61°C respectively for the country as a whole. The climatological data based on the period of 1981 to 2010 are used to calculate the normal and hence the anomaly (Actual average temperature in 2022 - normal temperature based on data of 1981-2010). Figure 4 shows time series of monthly average maximum, average minimum and mean temperature over all India for the month of March during 1901-2022. Over the country as a whole during March 2022, the average maximum temperature was record highest with anomaly 1.86°C, average minimum temperature was third highest with anomaly 1.37°C and mean temperature was second highest with anomaly 1.61°C since 1901.

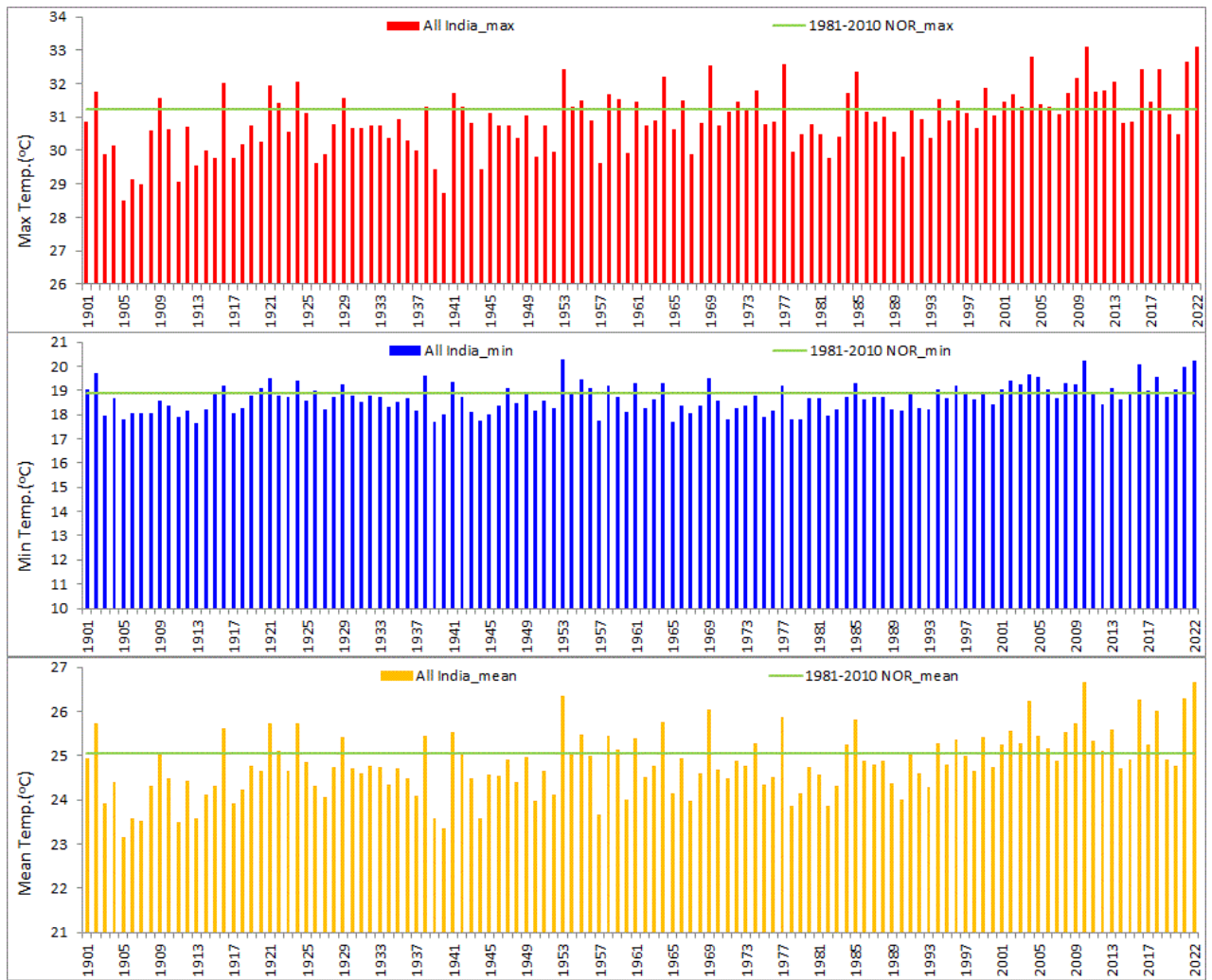


Fig 4: Time series of monthly average maximum, average minimum and mean temperature over all India for the month of March during 1901-2022.

Figure 5 shows time series of monthly average maximum, average minimum and mean temperature over Northwest India for the month of March during 1901-2022. Over Northwest India during March the average maximum temperature is highest with anomaly 3.91°C, average minimum temperature is second highest with anomaly 2.53°C and mean temperature is second highest with anomaly 3.22°C since 1901.

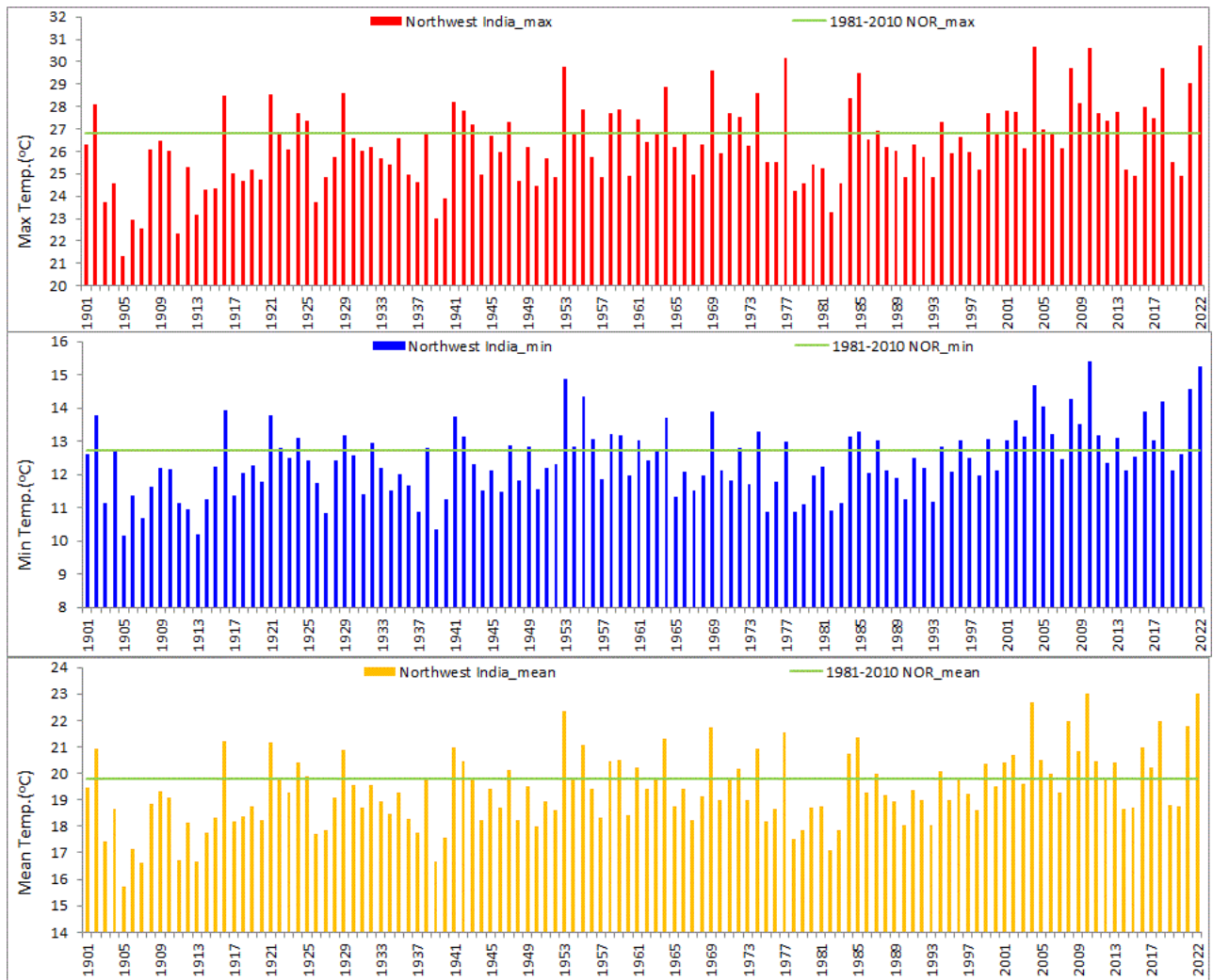


Fig 5: Time series of monthly average maximum, average minimum and mean temperature over Northwest India for the month of March during 1901-2022.

Figure 6 shows time series of monthly average maximum, average minimum and mean temperature over East & Northeast India for the month of March during 1901-2022. Over East & Northeast India during March the average maximum temperature is third highest with anomaly 2.25°C, average minimum temperature is second highest with anomaly 1.36°C and mean temperature is highest with anomaly 1.80°C since 1901.

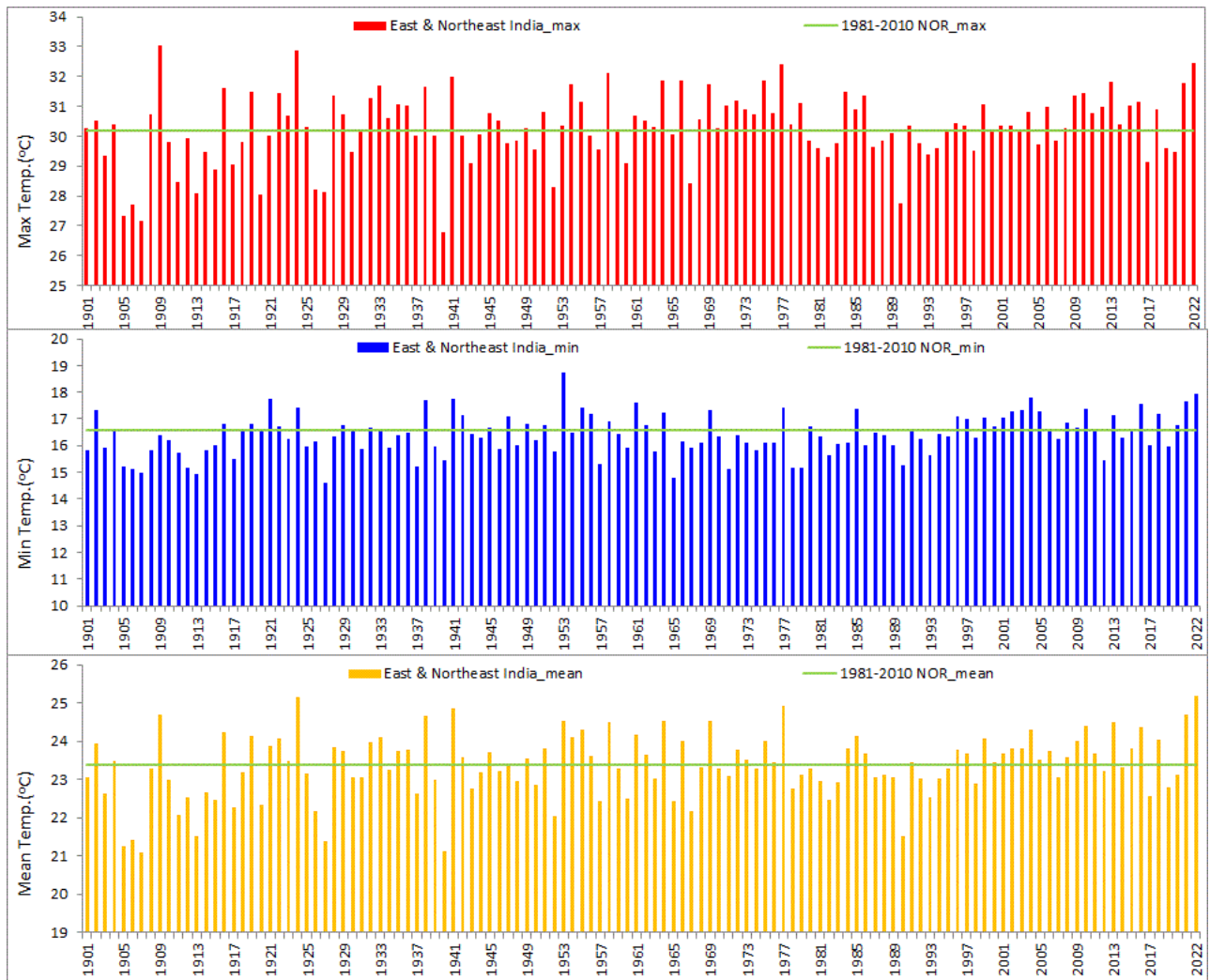


Fig 6: Time series of monthly average maximum, average minimum and mean temperature over East & Northeast India for the month of March during 1901-2022.

Figure 7 shows time series of monthly average maximum, average minimum and mean temperature over Central India for the month of March during 1901-2022. Over Central India during March the average maximum temperature is second highest with anomaly 1.62°C, average minimum temperature is fourth highest with anomaly 1.22°C and mean temperature is third highest with anomaly 1.42°C since 1901.

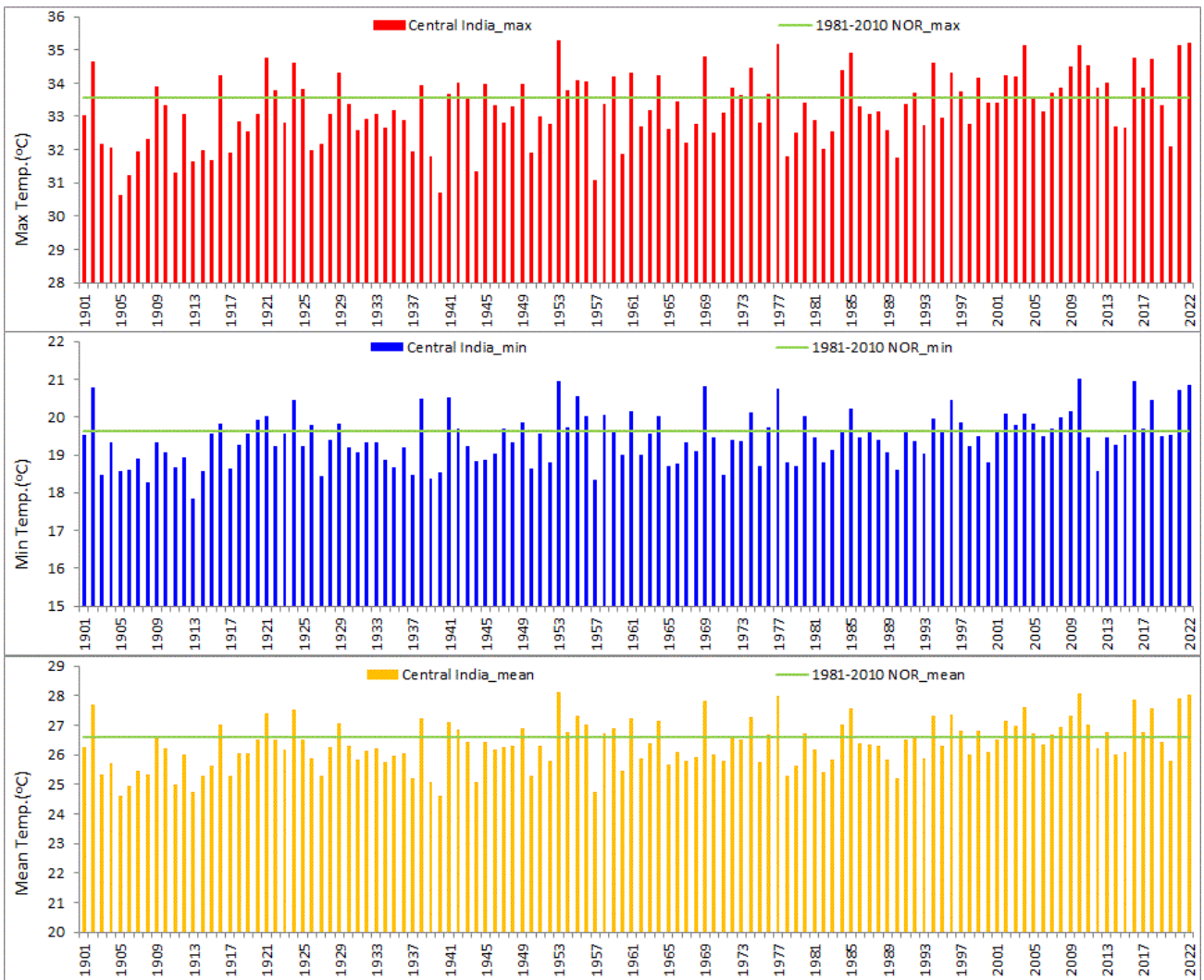


Fig 7: Time series of monthly average maximum, average minimum and mean temperature over Central India for the month of March during 1901-2022.

Figure 8 shows time series of monthly mean temperature over South Peninsular India for the month of March during 1901-2022. Over South Peninsular India during March mean temperature is fourth highest with anomaly 0.59°C since 1901.

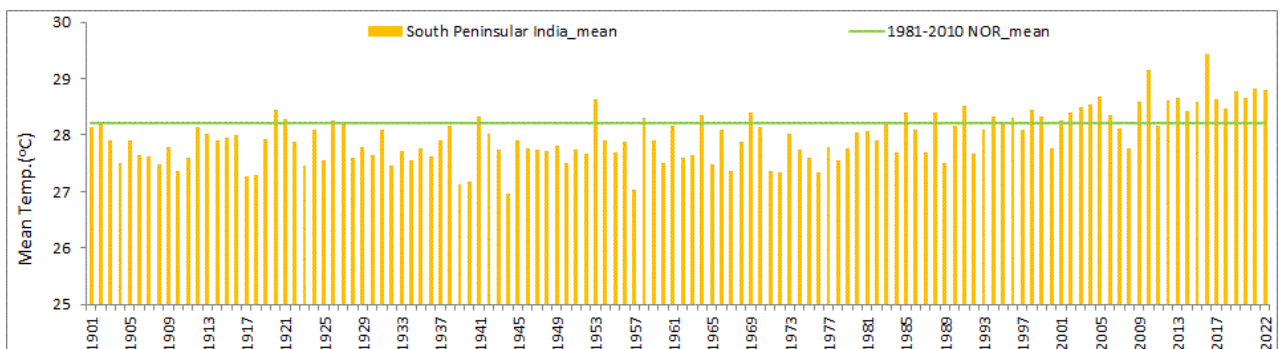


Fig 8: Time series of monthly mean temperature over South Peninsular India for the month of March during 1901-2022.

The Temperatures during March 2022 for all India and homogeneous regions with its ranks since 1901 are given below;

MAR 2022		Max Temp (°C)	Min Temp (°C)	Mean Temp (°C)
ALL INDIA	ACTUAL	33.10	20.24	26.67
	NORMAL	31.24	18.87	25.06
	ANOMALY	1.86	1.37	1.61
	TOP RANK	1	3	2
NORTHWEST INDIA	ACTUAL	30.73	15.26	22.99
	NORMAL	26.82	12.73	19.77
	ANOMALY	3.91	2.53	3.22
	TOP RANK	1	2	2
EAST & NORTHEAST INDIA	ACTUAL	32.45	17.94	25.20
	NORMAL	30.21	16.58	23.39
	ANOMALY	2.25	1.36	1.80
	TOP RANK	3	2	1
CENTRAL INDIA	ACTUAL	35.20	20.84	28.02
	NORMAL	33.58	19.62	26.60
	ANOMALY	1.62	1.22	1.42
	TOP RANK	2	4	3
SOUTH PENINSULAR INDIA	ACTUAL	33.56	24.03	28.80
	NORMAL	33.08	23.34	28.21
	ANOMALY	0.48	0.69	0.59
	TOP RANK	9	6	4

The five highest temperature records with corresponding ranks since 1901 for all India and three homogeneous regions (TMean, TMax, TMin) and for South Peninsular India (TMean) are given in the table below;

All India (March 2022)					Northwest India (March2022)					East & Northeast India (March 2022)				
Year	TMean	Normal	Anomaly	Rank	Year	TMean	Normal	Anomaly	Rank	Year	TMean	Normal	Anomaly	Rank
2010	26.672	25.06	1.612	1	2010	23.016	19.77	3.25	1	2022	25.20	23.39	1.81	1
2022	26.669	25.06	1.609	2	2022	22.994	19.77	3.22	2	1924	25.15	23.39	1.76	2
1953	26.344	25.06	1.284	3	2004	22.685	19.77	2.92	3	1977	24.92	23.39	1.53	3
2021	26.300	25.06	1.240	4	1953	22.331	19.77	2.56	4	1941	24.86	23.39	1.47	4
2016	26.256	25.06	1.196	5	2008	21.990	19.77	2.22	5	2021	24.71	23.39	1.32	5

All India (March 2022)					Northwest India (March2022)					East & Northeast India (March 2022)				
Year	TMax	Normal	Anomaly	Rank	Year	TMax	Normal	Anomaly	Rank	Year	TMax	Normal	Anomaly	Rank
2022	33.101	31.24	1.86	1	2022	30.726	26.82	3.91	1	1909	33.03	30.21	2.82	1
2010	33.095	31.24	1.85	2	2004	30.678	26.82	3.86	2	1924	32.88	30.21	2.67	2
2004	32.817	31.24	1.58	3	2010	30.632	26.82	3.81	3	2022	32.45	30.21	2.24	3
2021	32.648	31.24	1.41	4	1977	30.136	26.82	3.32	4	1977	32.43	30.21	2.22	4
1977	32.565	31.24	1.33	5	1953	29.770	26.82	2.95	5	1958	32.13	30.21	1.92	5

All India (March 2022)					Northwest India (March2022)					East & Northeast India (March 2022)				
Year	TMin	Normal	Anomaly	Rank	Year	TMin	Normal	Anomaly	Rank	Year	TMin	Normal	Anomaly	Rank
1953	20.263	18.87	1.39	1	2010	15.40	12.73	2.67	1	1953	18.73	16.58	2.15	1
2010	20.248	18.87	1.38	2	2022	15.26	12.73	2.53	2	2022	17.94	16.58	1.36	2
2022	20.237	18.87	1.37	3	1953	14.89	12.73	2.16	3	2004	17.78	16.58	1.20	3
2016	20.073	18.87	1.20	4	2004	14.69	12.73	1.96	4	1941	17.73	16.58	1.15	4
2021	19.952	18.87	1.08	5	2021	14.58	12.73	1.85	5	1921	17.73	16.58	1.15	5

Central India (March 2022)				
Year	TMean	Normal	Anomaly	Rank
1953	28.12	26.60	1.52	1
2010	28.06	26.60	1.46	2
2022	28.02	26.60	1.42	3
1977	27.98	26.60	1.38	4
2021	27.92	26.60	1.32	5

Central India (March 2022)				
Year	TMax	Normal	Anomaly	Rank
1953	35.30	33.58	1.72	1
2022	35.20	33.58	1.62	2
1977	35.19	33.58	1.61	3
2004	35.14	33.58	1.56	4
2021	35.13	33.58	1.55	5

Central India (March 2022)				
Year	TMin	Normal	Anomaly	Rank
2010	21.00	19.62	1.38	1
2016	20.96	19.62	1.34	2
1953	20.94	19.62	1.32	3
2022	20.84	19.62	1.22	4
1969	20.81	19.62	1.19	5

South Peninsular India (March 2022)				
Year	Tmean	Normal	Anomaly	Rank
2016	29.45	28.21	1.24	1
2010	29.15	28.21	0.94	2
2021	28.83	28.21	0.62	3
2022	28.80	28.21	0.59	4
2019	28.78	28.21	0.57	5

The observed spatial temperature pattern of monthly average maximum, average minimum and mean temperature over India and their departures from normal (1981 to 2010 period) for the month of March 2022 is given in Figure 9.

TEMPERATURE & ITS ANOMOLY FOR THE MONTH MARCH 2022

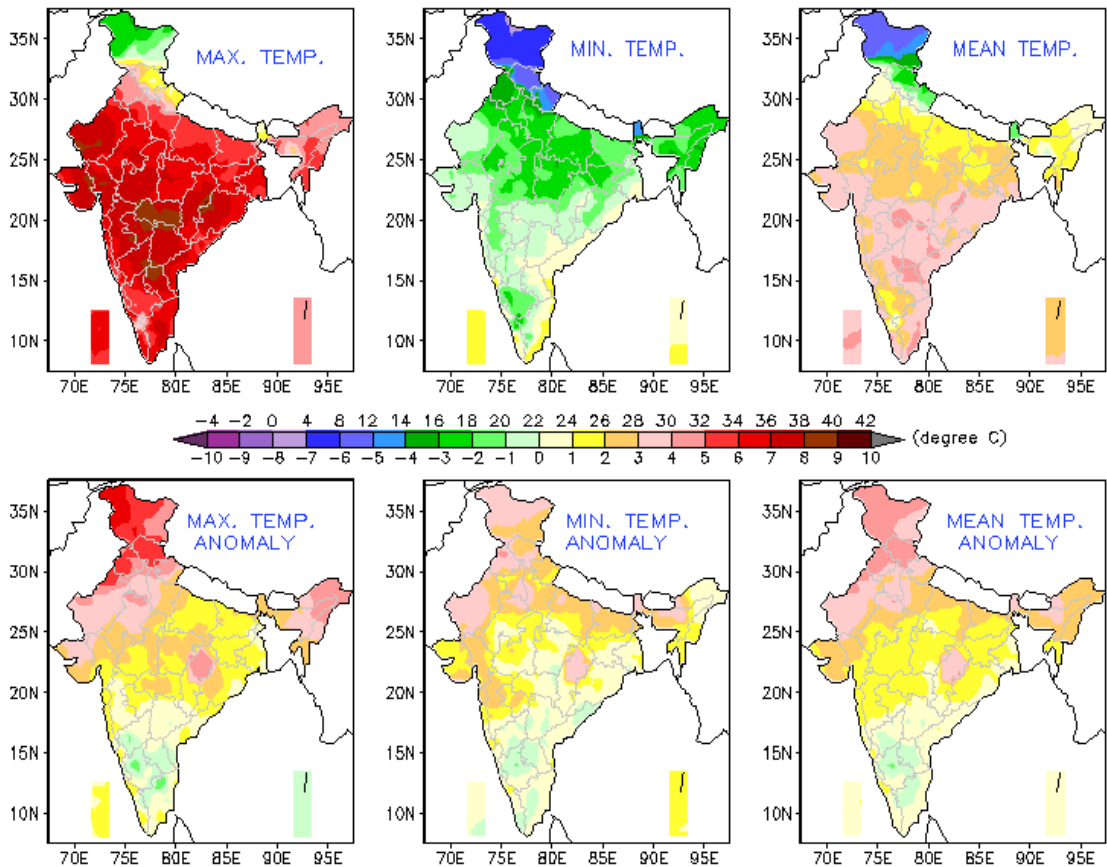


Fig 9: Observed spatial temperature pattern of monthly average maximum, average minimum, and mean temperature over India (top three from left to right) and their departure from normal (1981 to 2010 period) for March 2022 (lower three from left to right).

4. Significant Weather Events for the month of March 2022:

During March, total 3 persons reportedly claimed dead & 4 livestock perished. The details of casualties given below, which are based on real time media reports.

Lightning: Total 2 persons reportedly claimed dead & 4 livestock perished, during the month due to Lightning at Dhule, Nashik (Maharashtra) during 7-9 March 2022.

Heat Wave: One person reportedly claimed dead on 31 March 2022 due to Heat Wave at Jalgaon district of Maharashtra. In addition, damage to crops reported during 8th & 9th March from Dhule, Jalgaon, Nandurbar, Nashik districts of Maharashtra due to Hailstorm & Heavy Rains.

Figure No.10 shows deaths due to significant weather events during the month. (Based on real time media reports).

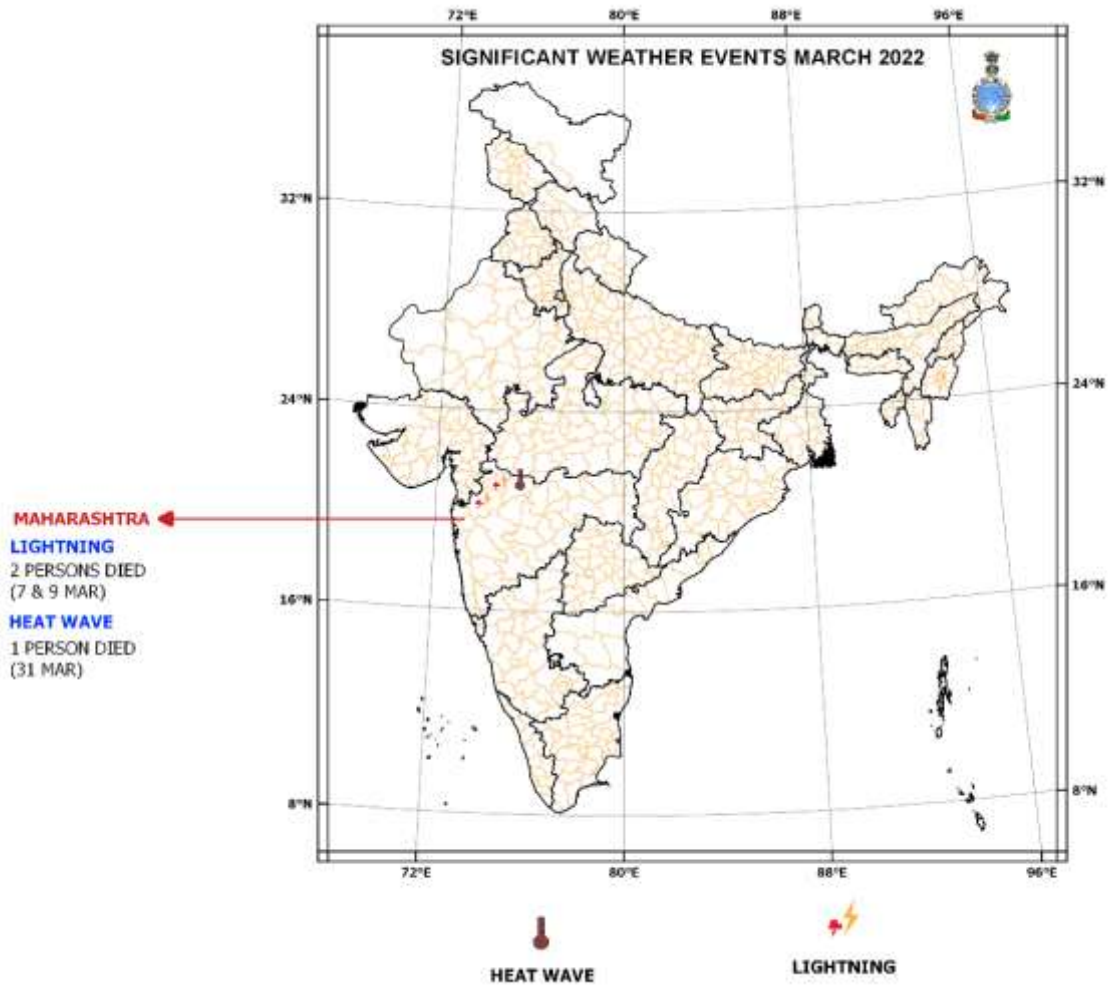


Fig 10: Significant weather events during March 2022 (Based on real-time media report)