



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)

Climate Summary for the month of April 2023

1. Monthly Rainfall Scenario (01 to 30 April, 2023)

The country as a whole for the month of April 2023 recorded 41.4 mm of rainfall, which is 5% more than its Long Period Average (LPA) of 39.3 mm for the period 1971-2020. Rainfall over homogeneous region of central India (30.0 mm) was 4th highest since 1901 after the years 1909 (52.8 mm), 1937 (44.7 mm) and 1907(40.6mm). Among the four homogeneous region, east & northeast India received 63.8 mm of rainfall which is 5th lowest since 1901. Prior lowest rainfall years were 1960 (36.9 mm), 2014 (41.1 mm), 1940 (47.3 mm) and 1903 (53.0 mm).

Daily variation of the rainfall over the country as a whole during the month of April 2023 with normal (1971-2020) and All India rainfall percentage departure from normal for April during 1901-2023 is shown in the figure 1(a) and 1(b) respectively.

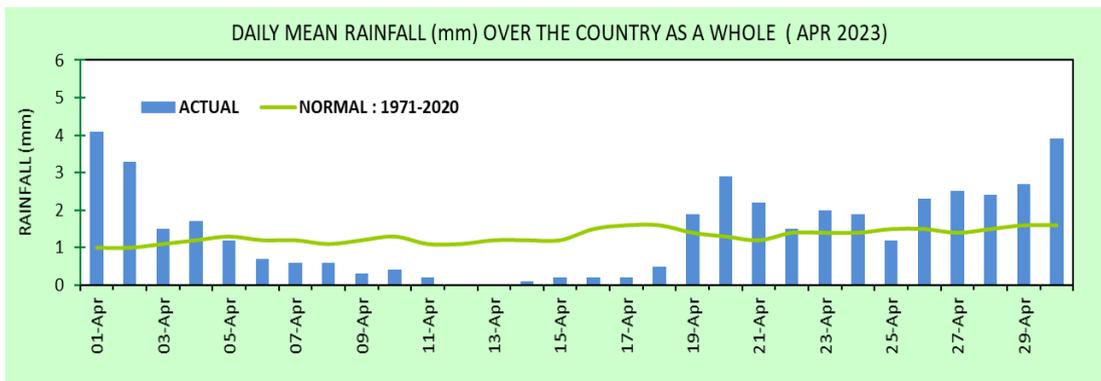


Fig.1 (a): Daily variation of rainfall over the country as a whole during April 2023.

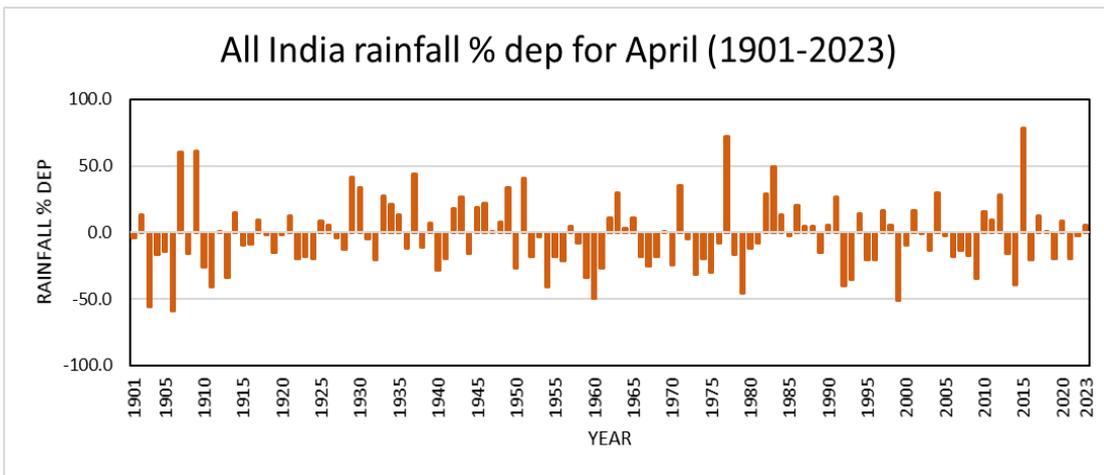


Fig 1(b). All India monthly rainfall percentage departure from normal (1971-2020) for April from 1901-2023.

The time series of area-weighted rainfall since 1901 for central India and east & northeast India are given in Fig. 2(a) and (b) respectively.

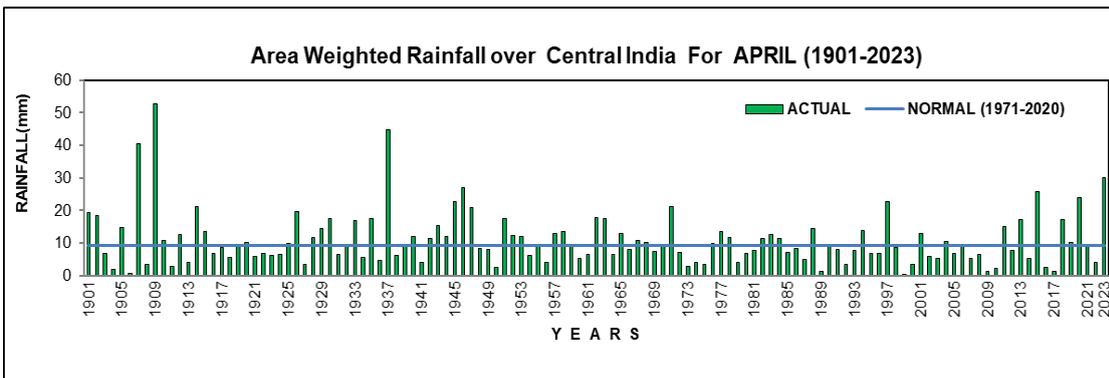


Fig.2 (a): Time series of area weighted rainfall over Central India for April (1901 - 2023)

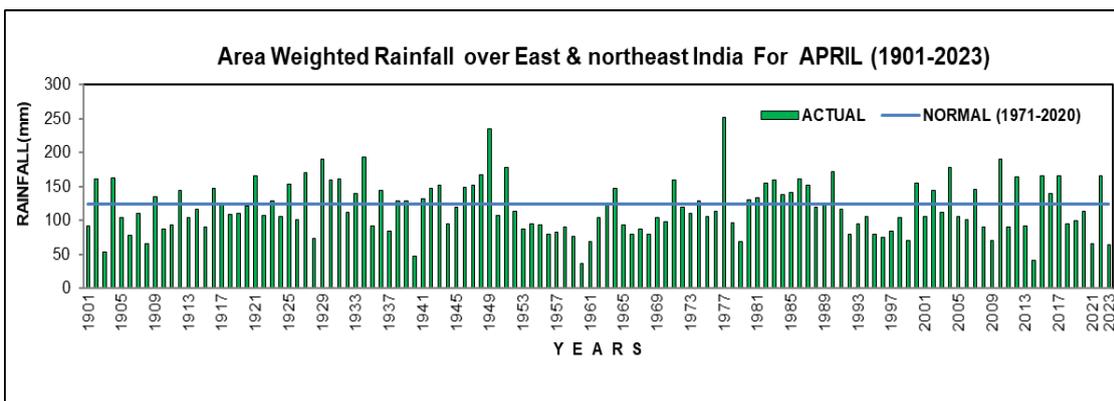


Fig.2 (b): Time series of area weighted rainfall over East & Northeast India for April (1901 - 2023)

The monthly rainfall statistics for April 2023 is given in the table below:

Regions	Actual Rainfall (mm)	Normal Rainfall (mm)	% Departure from LPA
Country as a whole	41.4	39.3	5.0
Northwest India	43.7	31.9	37.0
Central India	30.0	9.2	226.0
South Peninsula	39.4	33.9	16.0
East & northeast India	63.8	123.5	-48.0

During this month, 18 sub division received large excess, 4 excess, 4 normal, 7 deficient and 3 received large deficient rainfall. The rainfall distribution expressed in percentage departure is given in Fig.3.

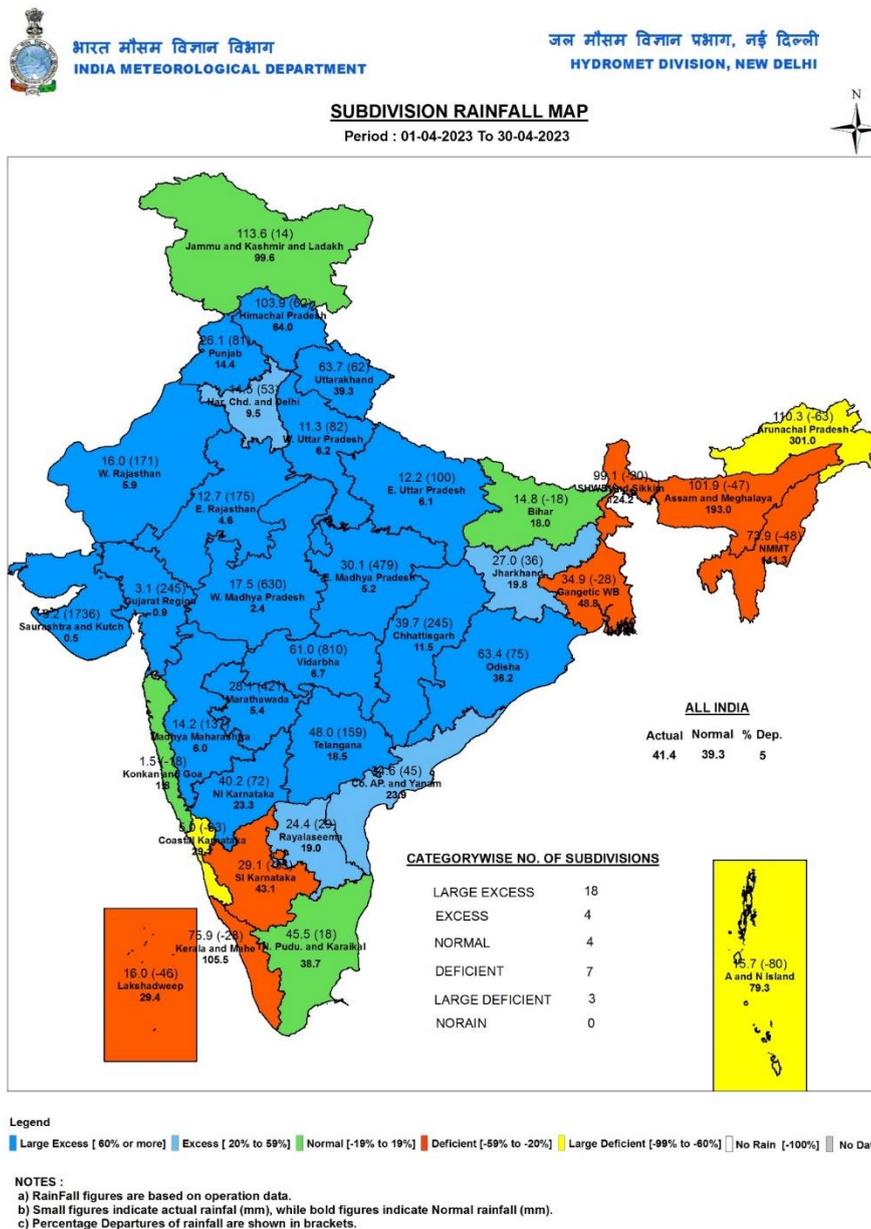


Fig 3: Subdivision wise rainfall distribution for April 2023.

The observed spatial pattern of rainfall, normal rainfall for the period 1971 to 2020 and its departures from normal for the month of April 2023 is given in Fig.4.

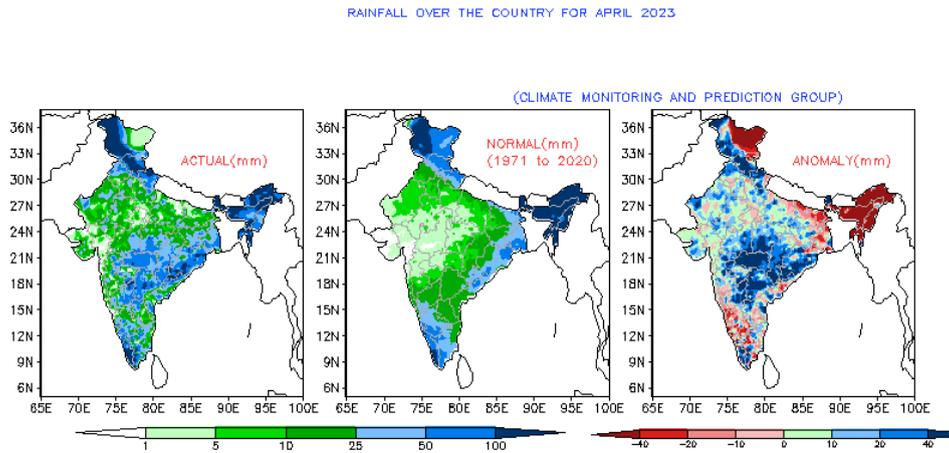


Fig 4: Observed spatial pattern of Rainfall for the month of April 2023 over India and their departure from normal (1971 to 2020 period).

2. Frequency of Heavy Rainfall events

The April 2023 witnessed heavy rainfall events (64.5 to 115.5 mm of rainfall) mainly from Telangana, Tamilnadu, Puducherry & Karaikal, Kerala & Mahe, Odisha, Assam & Meghalaya, and very heavy rainfall (115.6 to 204.4 mm of rainfall) mainly from Tamilnadu, Puducherry & Karaikal. The location of occurrences of heavy and very heavy rainfall events is shown in the Figure 5. There were 2 stations which reported very heavy rainfall (115.6 to 204.4 mm) and 115 stations reported heavy rainfall (64.5 to 115.5 mm of rainfall) during this month. Some stations received record rainfall (24 hour).

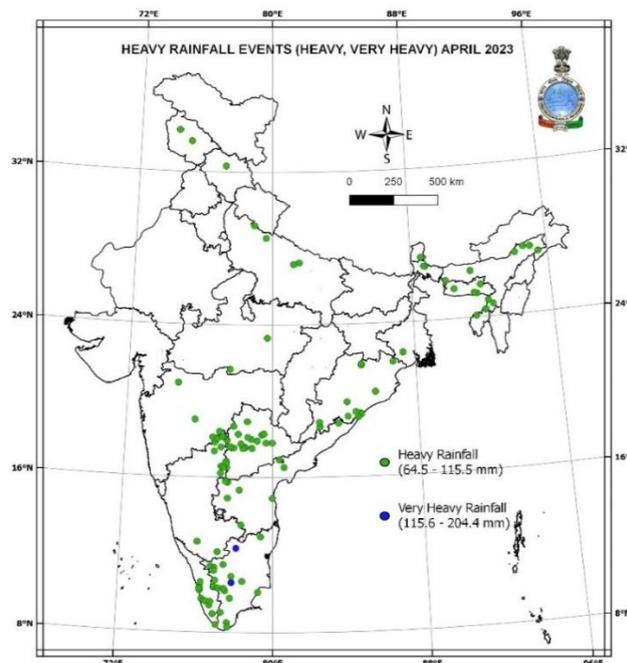


Fig 5: The location of occurrences of heavy rainfall events in the month April 2023.

3. Characteristics of Temperatures for the month of April 2023

The average maximum, average minimum and mean temperature for the country as a whole during April 2023 are 34.19 °C, 22.08 °C and 28.14 °C respectively, against the normal of 33.94 °C, 22.15 °C and 28.04 °C based on the period 1981-2010. Thus, the average maximum temperature is above normal by 0.26 °C while the average minimum temperature and mean temperature are normal by -0.07 °C and 0.10 °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).

The daily variation of maximum and minimum temperature anomaly over the country as a whole for April 2023 is shown in the figure 6(a) and (b).

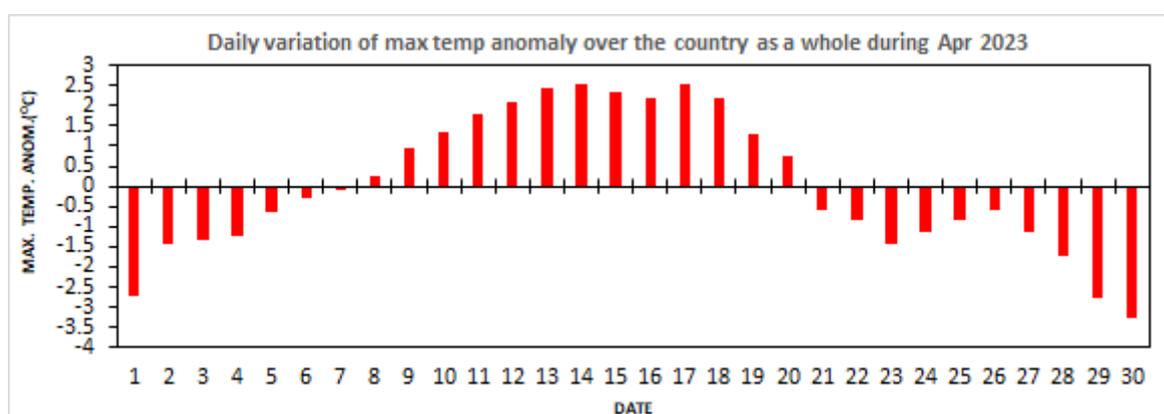


Fig 6 a): Daily variation of maximum temperature anomaly over the country as a whole for April 2023.

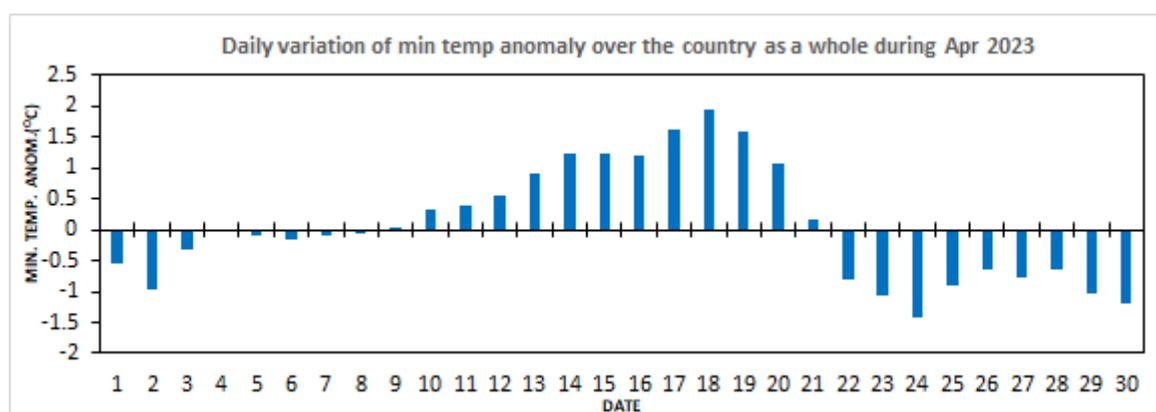


Fig 6(b): Daily variation of minimum temperature anomaly over the country as a whole for April 2023.

Figure 7 shows time series of monthly average maximum temperature over South Peninsular India from 1901 to 2023. Over South Peninsular India during April, the average maximum temperature is the seventh highest (35.03 °C with an anomaly of 0.77 °C) after the years 2016(35.86 °C), 2010(35.27 °C), 2019(35.25 °C), 2014(35.21 °C), 2017(35.13 °C) and 2013 (35.11 °C) since 1901.

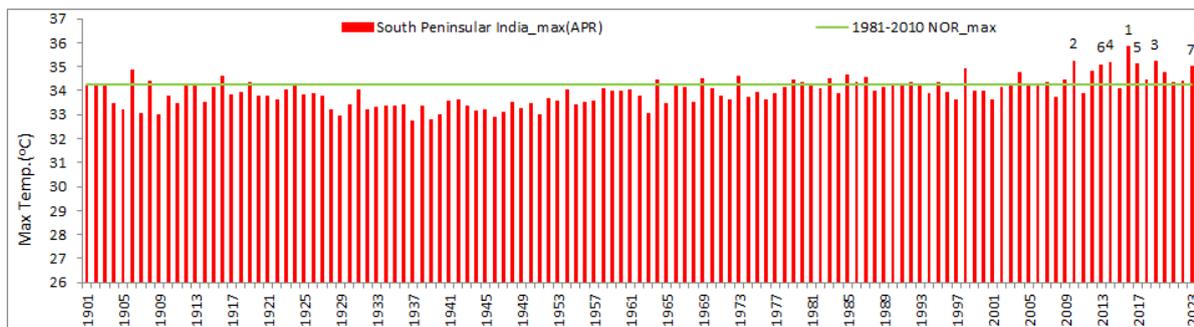


Fig 7: Time series of monthly average maximum temperature over South Peninsular India for the month of April 1901-2023.

Figure 8 shows time series of monthly average maximum, average minimum and mean temperature over the country as a whole for the month of April 1901-2023.

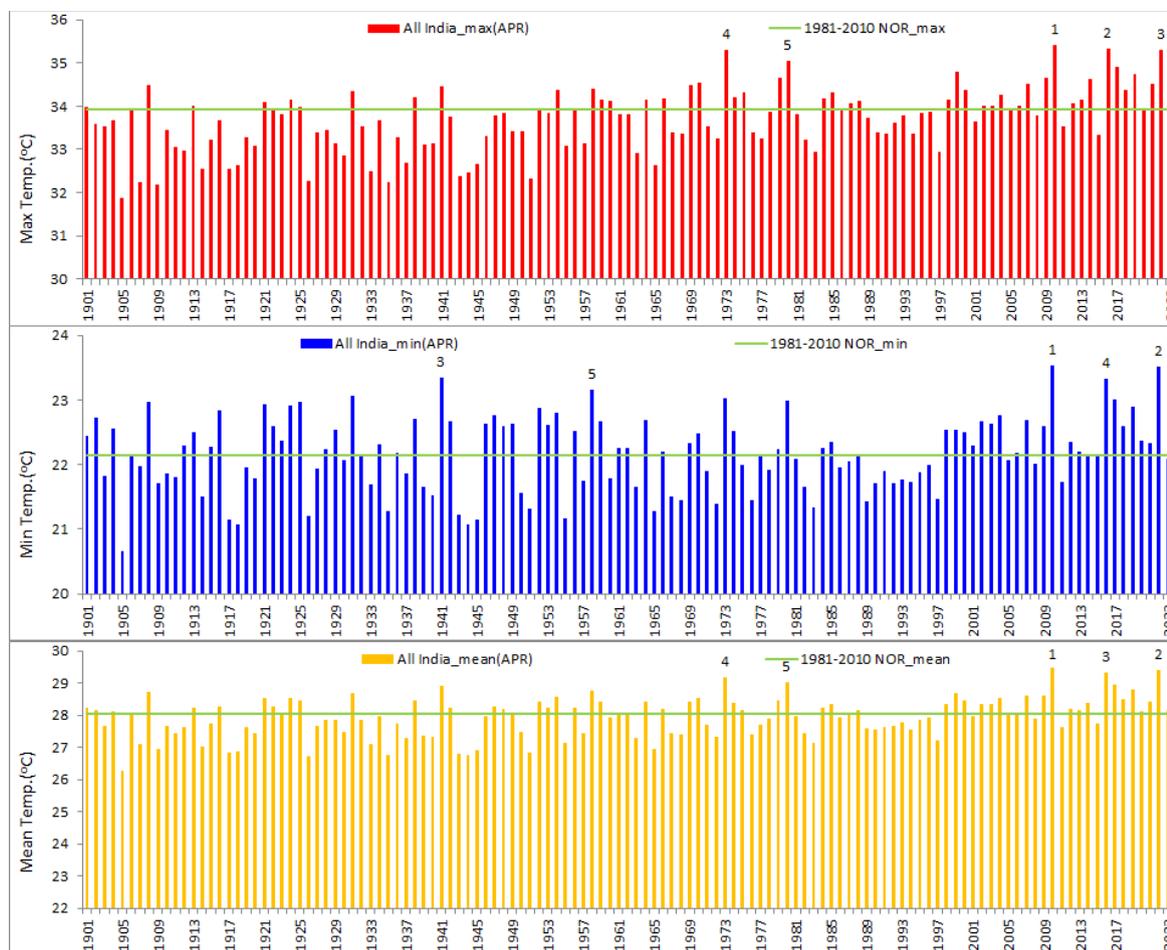


Fig 8: Time series of monthly average maximum, average minimum and mean temperature over the country as a whole for the month of April 1901-2023.

The Temperatures during April 2023 for all India and homogeneous regions with its ranks since 1901 are given below;

APR 2023		Max Temp (°C)	Min Temp (°C)	Mean Temp (°C)
ALL INDIA	ACTUAL	34.19	22.08	28.14
	NORMAL	33.94	22.15	28.04
	ANOMALY	0.26	-0.07	0.10
	Rank from TOP	28	71	51
NORTHWEST INDIA	ACTUAL	31.73	17.20	24.46
	NORMAL	32.54	17.69	25.11
	ANOMALY	-0.82	-0.49	-0.65
	Rank from TOP	69	76	72
EAST & NORTHEAST INDIA	ACTUAL	33.50	20.64	27.07
	NORMAL	31.99	20.13	26.06
	ANOMALY	1.50	0.50	1.00
	Rank from TOP	24	40	26
CENTRAL INDIA	ACTUAL	35.83	22.96	29.39
	NORMAL	36.29	23.32	29.81
	ANOMALY	-0.47	-0.36	-0.41
	Rank from TOP	79	82	83
SOUTH PENNINSULAR INDIA	ACTUAL	35.03	25.28	30.15
	NORMAL	34.26	25.18	29.72
	ANOMALY	0.77	0.094	0.43
	Rank from TOP	7	58	13

Note: Values are rounded off to nearest two decimal

Heatwave condition observed over many regions over Northeast India. The Maximum temperature was above normal by 4.4 °C mainly over most parts of North India and East & Northeast India and coastal parts of South Peninsular India. Figure 9 shows the stations with number of days, which were above normal (>4.4 °C) maximum temperatures.

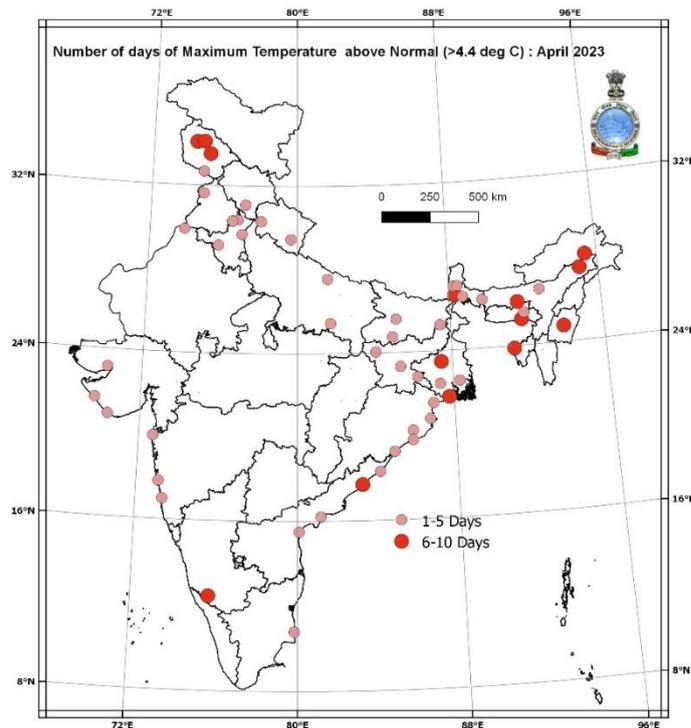


Fig 9: Number of days with maximum temperature above normal (>4.4°C) over the country for April 2023.

4. Chief Synoptic weather features observed during April 2023.

During April 2023 there were five western disturbance (WD) formed, 2-6 April, 9th April, 14- 22 April, 25-30 April, 28-29 April. These western disturbances help to get good rainfall activity over Northwest India and main reason for below normal Maximum temperature over the region.

5. Significant Weather Events for the month April 2023:

During this month, total 100 persons reportedly claimed dead, more than 84 persons injured & 140 livestock perished due to various weather events. The details of casualties given below, which are based on real time media reports.

Fig. 10 shows significant weather events during April 2023. (Based on real time media reports.).

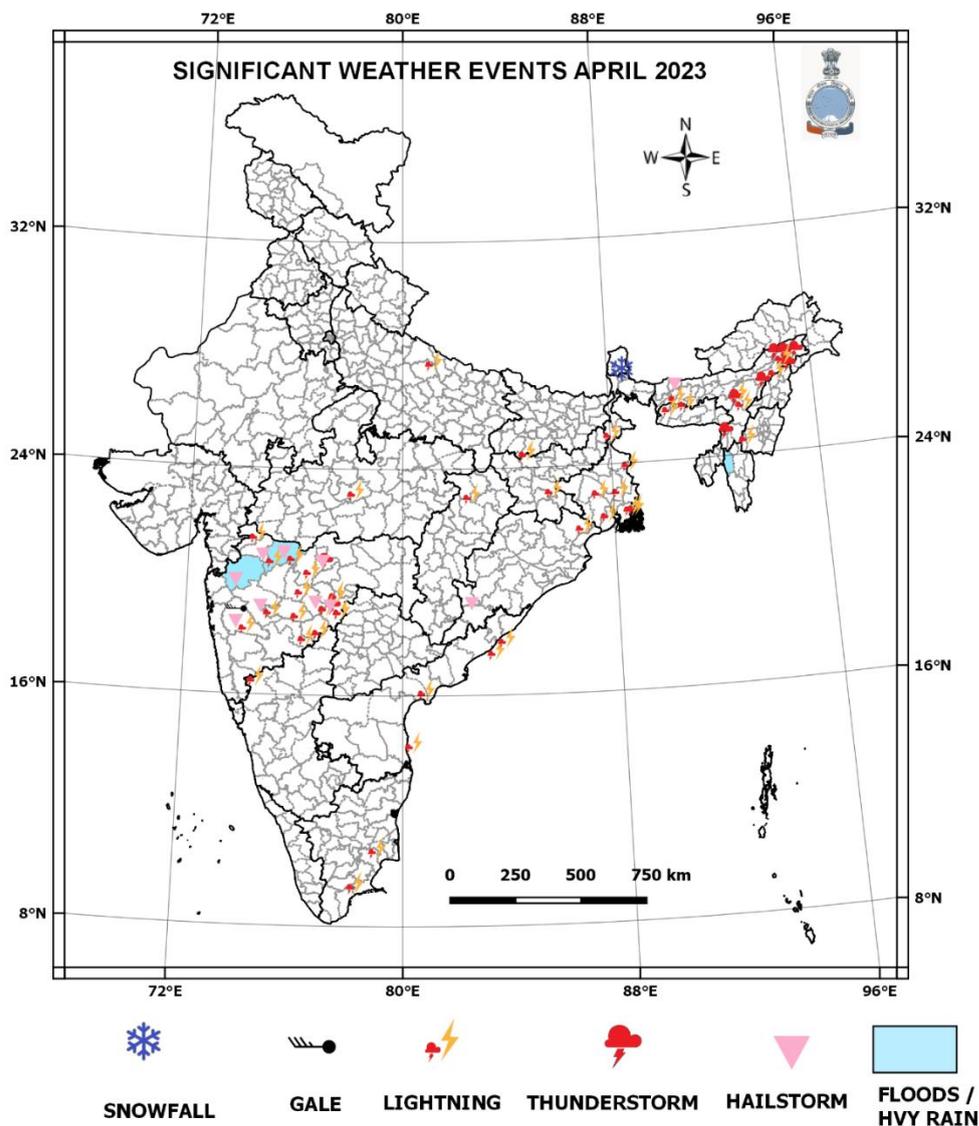


Fig. 10: Significant weather events during April 2023 (Based on real-time media report)