



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 June 2022**

**1. Monthly Rainfall Scenario (01 to 30 June, 2022)**

Rainfall over the country as a whole for June 2022 shows that it has recorded 152.3 mm, which is 8% less than its Long Period Average (LPA) 165.3 mm.

Rainfall over Assam & Meghalaya (858.1 mm) was highest since 1901 and it has broken the earlier record of rainfall 789.5 mm in the year 1966.

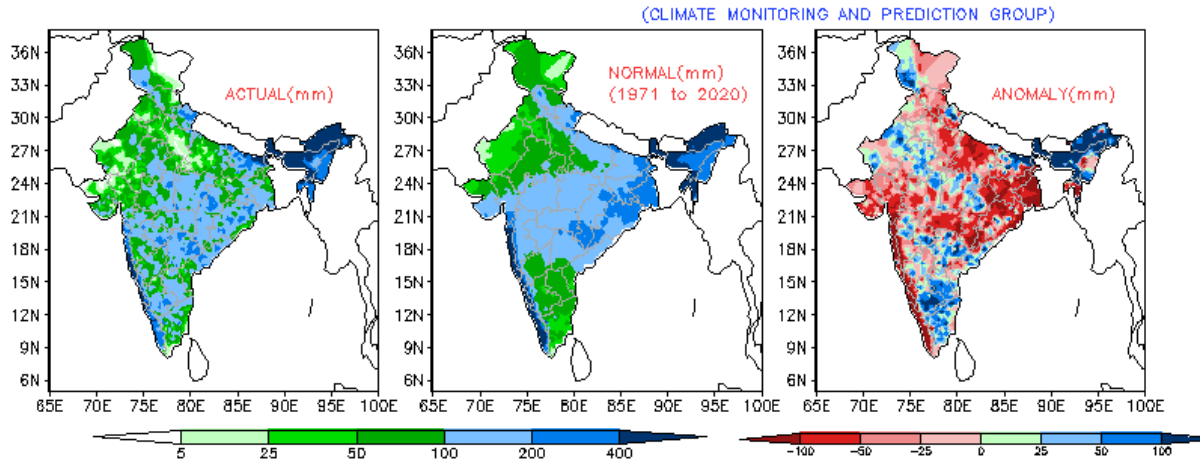
Rainfall over Kerala & Mahe was fourth lowest (308.7 mm) since 1901. The other three lowest rainfall years were in 1976 (196.4 mm), 1962(244.9 mm), 1974 (266.9mm)

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

Regions	Actual Rainfall (mm)	Normal Rainfall (mm)	% Departure from LPA
Country as a whole	152.3	165.3	-8
Northwest India	68.6	78.1	-12
Central India	118.9	170.3	-30
South Peninsula	139.0	161.0	-14
East & northeast India	400.9	328.4	22

During this month, 2 sub-divisions received large excess, 4 excess, 10 normal and 20 deficient rainfall.

The observed spatial rainfall, normal rainfall for the period 1971 to 2020 and its departures from normal for the month of June 2022 is given in Figure 1.



**Fig 1: Observed spatial Rainfall pattern for the month of June 2022 over India and their departure from normal (1971 to 2020 period).**

## **2. Advance of southwest monsoon over the country**

The southwest monsoon advanced into Andaman Sea and southern parts of Bay of Bengal on 16<sup>th</sup> May against the normal date of 22 May. The cyclonic storm ASANI formed during 7-12 May 2022 help to increase cross equatorial flow. Thereafter, the southwest Monsoon advanced gradually over the Bay of Bengal and Arabian Sea in association with the formation of depression over the Bay of Bengal on 20<sup>th</sup> May 2022. The southwest monsoon set in over south Kerala and south Tamil Nadu on 29<sup>th</sup> May 2022 against the normal date of 1<sup>st</sup> June. The southwest Monsoon gradually advanced thereafter and advanced into most parts of country by 30<sup>th</sup> June, 2022 as shown in Fig.2.

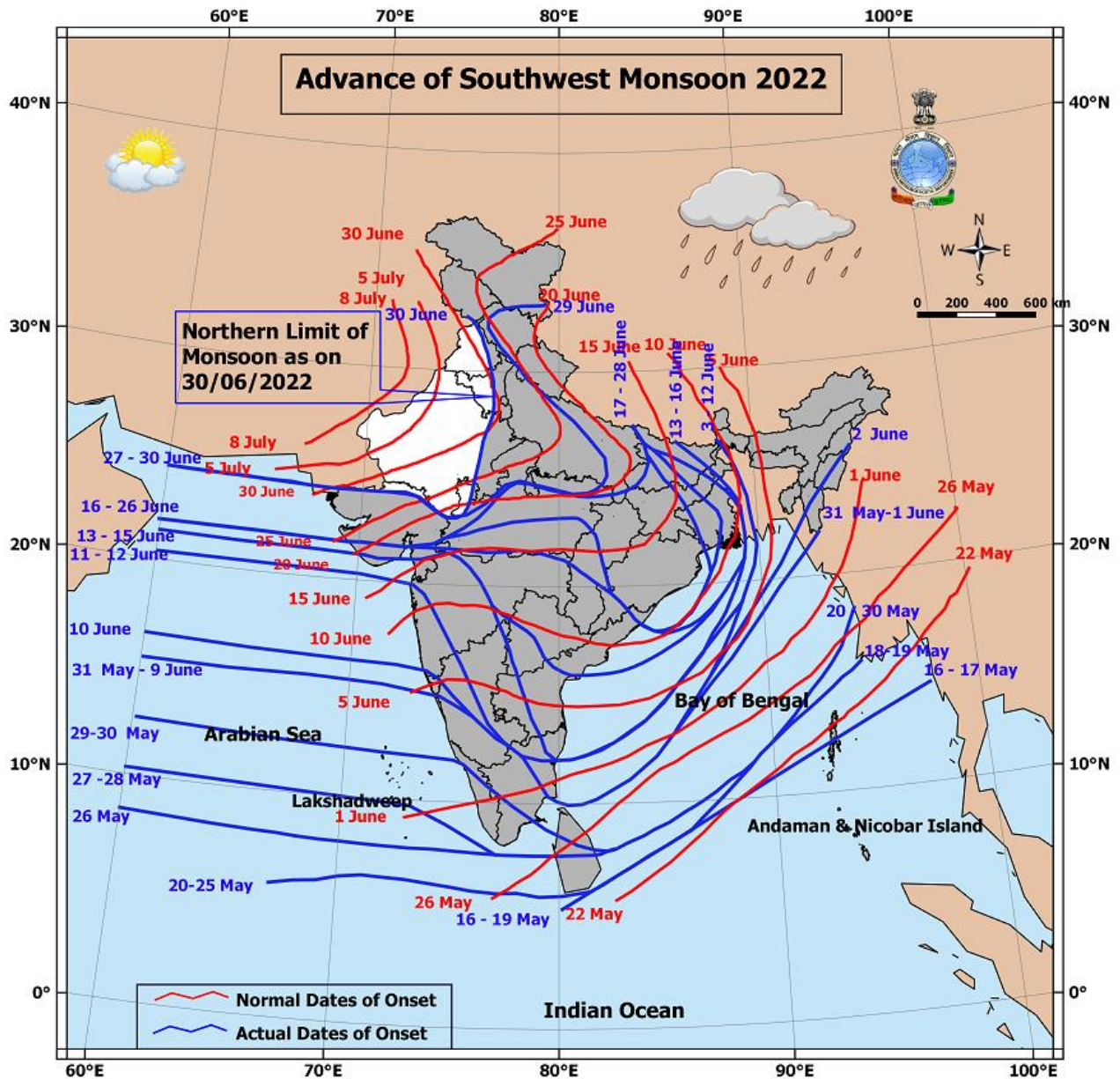
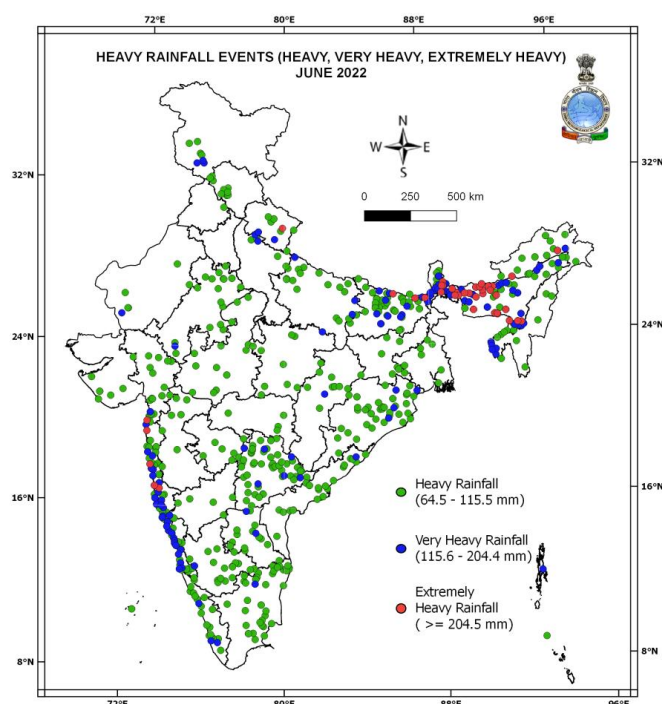


Fig.2 Northern Limit of Southwest Monsoon as on 30<sup>th</sup> June 2022

### 3. Frequency of Heavy Rainfall events

The June 2022 witnessed extremely heavy rainfall events mainly over some stations of northeast India. The location of occurrences of heavy, very heavy and extremely heavy rainfall events is shown in the Figure 3. Out of total 548 stations, 40 stations reported extremely heavy rainfall ( >204.5 mm), 97 station reported very heavy rainfall (115.6 to 204.4 mm) and 411 stations reported heavy rainfall ( 64.5 to 115.5 mm of rainfall ) during this month.



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

Fig 3: The location of occurrences of extremely heavy rainfall events in the month June 2022.

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

STATION	24 HOUR RECORD RAINFALL IN June 2022(mm)#	DATE	PREVIOUS RAINFALL RECORD(mm)	DATE
MAWSYNRAM	1003.6	17	945.4	07-06-1966
FORBESGANJ	352.6	29	219	26-06-1964
SRINAGAR AERO	62.4	22	47.2	21-06-1996
BATOTE	121.4	22	121	25-06-2015
UDGIR	48	17	40.6	07-06-2017
MAHABALIPURAM	25.4	30	14.2	22-06-1979
K.PARAMATHI	65	18	57.6	01-06-2000
TONDI	68.0	7	63.7	11-06-1996
BENGALURU KIAL OBSY	66.0	19	55.5	29-06-2014
CHAMARAJANAGAR	51.4	17	44.8	02-06-2011
MYSURU	76	15	73	04-06-1972
SILCHAR	288.7	19	229.8	20-06-1972
NAJIBABAD	121	30	93.5	12-06-1984

# based on real time available data

#### 4. Chief synoptic features during June 2022

The low-pressure systems formed during the monsoon season contribute heavy and very heavy rainfall over many parts of the country. During June, one low-pressure system was formed over Arabian Sea on 27-28 June 2022.

The number of Low Pressure System days (low-pressure areas and Depressions combined) had been 2 in June 2022 against the normal of 10.24. The less number of low pressure system is mainly responsible for rainfall deficiency over the

central Indian Region. The low-pressure system, which developed in June month for the year 2017 to 2022 given in the table below;

Year	No. of Low Pressure Systems	Low-Pressure System days
2017	5	15
2018	1	3
2019	1	3
2020	1	4
2021	2	10
2022	1	2
<b>Climatology (1901-2018)</b>	2.80	10.24

## 5. Characteristics of Temperatures for the month of June 2022

The observed average maximum, average minimum and mean temperature for the country as a whole during June 2022 are 34.12°C, 25.06°C and 29.59°C respectively, against the normal of 33.73°C, 24.76°C and 29.25°C based on period 1981-2010. Thus, the average maximum, average minimum temperature and mean temperature are above normal by 0.40°C, 0.29°C, 0.35°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 June during 1901-2022. The temperatures during June 2022 for all India and homogeneous regions with its ranks since 1901 is given in table 1.

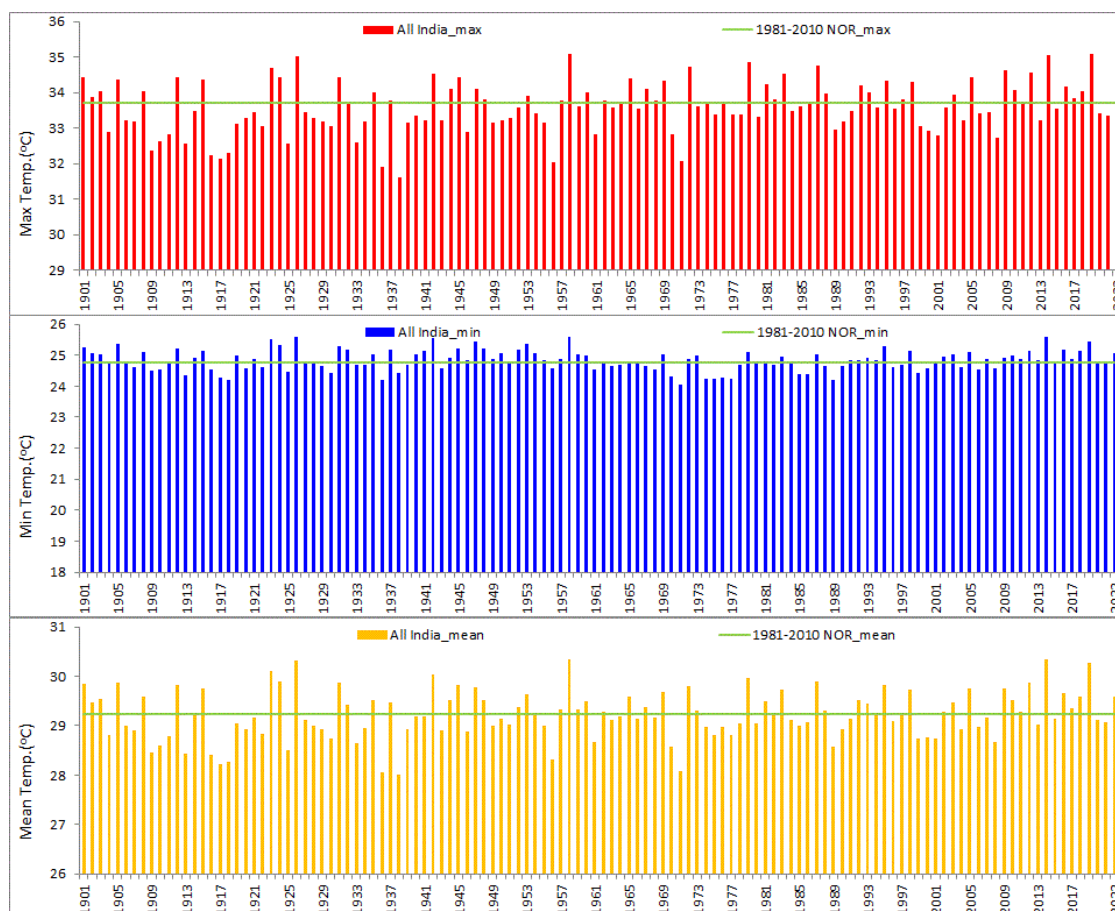




Fig 4: Time series of monthly average maximum, average minimum and mean temperature over all India for the month of June during 1901-2022.

**Table1: The Temperature and its anomaly during June 2022 for all India and homogeneous regions with its ranks since 1901.**

JUN 2022		Max Temp (°C)	Min Temp (°C)	Mean Temp (°C)
ALL INDIA	ACTUAL	34.12	25.06	29.59
	NORMAL	33.73	24.76	29.25
	ANOMALY	0.40	0.29	0.35
	TOP RANK	28	31	28
	BOT RANK	95	92	95
NORTHWEST INDIA	ACTUAL	36.39	24.00	30.20
	NORMAL	35.78	23.45	29.61
	ANOMALY	0.61	0.55	0.58
	TOP RANK	33	25	31
	BOT RANK	90	98	92
EAST & NORTHEAST INDIA	ACTUAL	31.93	24.46	28.20
	NORMAL	32.14	24.11	28.13
	ANOMALY	-0.21	0.35	0.07
	TOP RANK	69	34	58
	BOT RANK	54	89	65
CENTRAL INDIA	ACTUAL	35.52	26.09	30.81
	NORMAL	34.81	25.93	30.37
	ANOMALY	0.71	0.16	0.44
	TOP RANK	28	49	32
	BOT RANK	95	74	91
SOUTH PENNINSULAR INDIA	ACTUAL	32.77	25.34	29.05
	NORMAL	32.47	25.18	28.82
	ANOMALY	0.30	0.16	0.23
	TOP RANK	26	50	31
	BOT RANK	97	73	92

(Note: values are rounded off to nearest two decimal)

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 June 2022 is given in Figure 5.

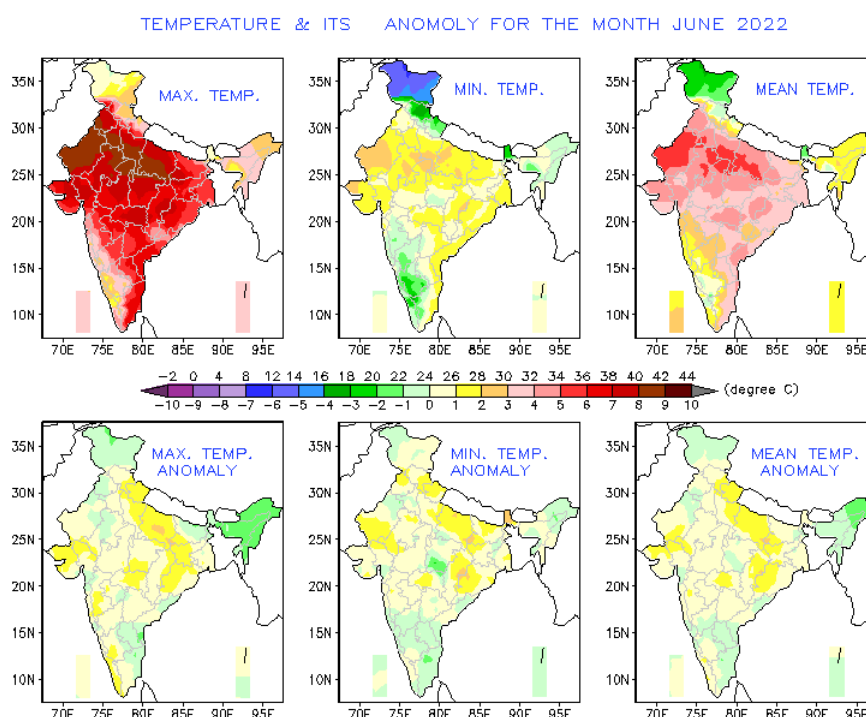


Fig 5: Observed spatial temperature pattern of monthly average maximum, average minimum, and mean temperature over India (top three from left to right) and their departure from normal (1981 to 2010 period) for June 2022 (lower three from left to right).

## **6. Significant Weather Events for the month of June 2022 :**

During this month, total 313 persons reportedly claimed dead, 72 persons injured, 50 persons missing & more than 72,000 livestock perished. The details of casualties given below, which are based on real time media reports and other state government agencies.

Fig.6 shows significant weather events during the month. (Based on real time media reports.)

**Floods, Heavy Rains & Landslide :** Total 191 persons reportedly claimed dead, 8 persons injured, 50 persons missing & 72672 livestock perished, during 1<sup>st</sup> to 30<sup>th</sup> June, due to Floods, Heavy Rains & Landslide. The details of the area effected by the events are summarized and given in the table below;

DATE	DEATH	INJURED	MISSING	LIVESTOCK	DISTRICT (STATE) AFFECTED
14 to 29 Jun.	124	3	30	72672	Bajali, Baksa, Barpeta, Biswanath, Cachar, Chirang, Darrang, Dhemaji, Dhubri, Dibrugarh, Dima Hasao / N.C Hills, Goalpara, Golaghat, Hailakandi, Hojai, Kamrup Rural, Kamrup Metro, Karimganj, Kokrajhar, Lakhimpur, Morigaon, Nagaon, Nalbari, Sonitpur, Tamulpur, Udalguri (Assam)
18, 19, 28, 29 Jun.	5	5			Papum Pare, West Kameng, West Siang (Arunachal Pradesh)
19 Jun.	1				Poonch (Union Territory- Jammu & Kashmir)
9 & 16 Jun.	9				East Garo Hills, South Garo Hills, South West Garo Hills, South West Khasi Hills (Meghalaya)
30 Jun.	43		20		Noney (Manipur)
12 Jun.	3				Morbi (Gujarat)
24 Jun.	3				Aurangabad (Maharashtra)
19 Jun.	3				Parts of Punjab

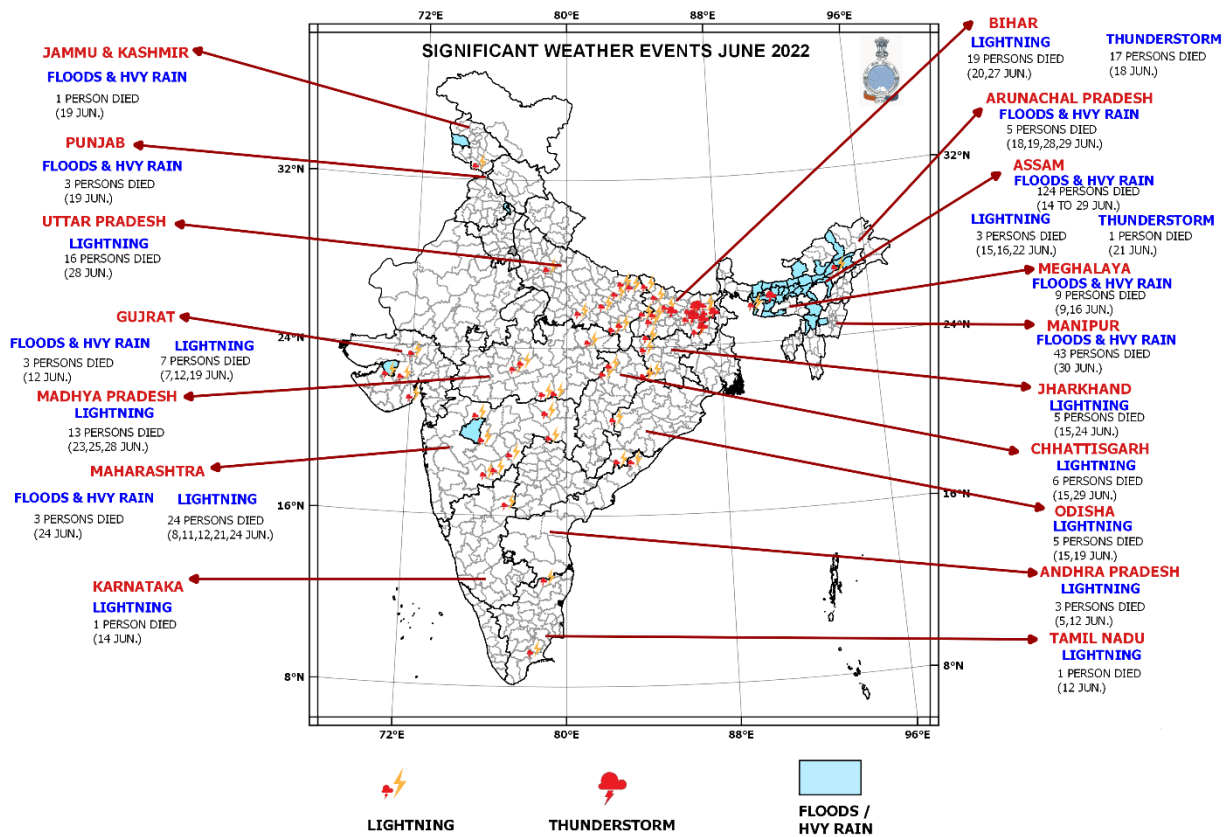
**Lightning :** Total 104 persons reportedly claimed dead, 64 persons injured & 61 livestock perished, during this month , because of Lightning. The details of the area effected by the events are summarized and given in the table below;

DATE	DEATH	INJURED	MISSING	LIVESTOCK	DISTRICT (STATE) AFFECTED
5, 12 Jun.	3	6			Chittoor, Manyam (Andhra Pradesh)
15, 16, 22 Jun.	3	2		8	Dhemaji, Dhubri (Assam)
20, 27 Jun.	19				Araria, Banka, Bhojpur, East Champaran, Khagaria, Muzaffarpur, Purnia, Saharsa, Saran, West Champaran (Bihar)
23, 25, 28 Jun.	13	28			Bhopal, Chhindwara, Rewa, Seoni, Vidisha (Madhya Pradesh)
15, 29 Jun.	6	2		28	Gaurella-Pendra-Marwahi, Jashpur, Koriya (Chhattisgarh)
7, 12, 19 Jun.	7	3			Patan, Surendranagar, Bhavnagar (Gujarat)
22 Jun.	1	4			Udhampur (Union Territory-Jammu & Kashmir)
15, 24 Jun.	5	2			Gumla, Palamu (Jharkhand)
14 Jun.	1				Yadgir (Karnataka)
8, 11, 12, 21, 24 Jun.	24			25	Aurangabad, Chandrapur, Jalna, Jalgaon, Latur, Nagpur, Nanded, Osmanabad, Nanded (Maharashtra)
28 Jun.	16				Ballia, Basti, Badaun, Fatehpur, Maharajganj, Mirzapur, Siddharthnagar, Sultanpur, Varanasi (Uttar Pradesh)
15 & 19 Jun.	5	14			Koraput, Nuapada (Odisha)
12 Jun.	1	3			Sivaganga (Tamil nadu)

**Thunderstorm** : Total 18 persons reportedly claimed dead & 4 livestock perished during 1<sup>st</sup> to 30<sup>th</sup> June , because of Thunderstorm. The details of the area effected by the events are summarized and given in the table below;

DATE	DEATH	INJURED	MISSING	LIVESTOCK	DISTRICT (STATE) AFFECTED
18 Jun.	17				Banka, Bhagalpur, Katihar, Khagaria, Madhepura, Munger, Saharsa, Vaishali (Bihar)
21 Jun.	1			4	Goalpara (Assam)





**Fig 6: Significant weather events during June 2022 (Based on real-time media report)**