PRESS RELEASE

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पृथ्वी विज्ञान मंत्रालय (एम. ओ. ई. एस.)
Ministry of Earth Sciences (MoES)

भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

Statement on the Climate of India during 2025

HIGHLIGHTS

In 2025, all India annual mean land surface air temperature was 0.28°C higher than the 1991–2020 long-term average. This made 2025 the eighth warmest year since nationwide temperature records began in 1901. The warmest year on record was 2024, when temperatures across India were 0.65°C above the long-term average.

The all-India seasonal mean temperature were above the long-term average during the winter (January–February) and pre-monsoon (March–May) seasons, with anomalies of +1.17°C and +0.29°C, respectively. During the southwest monsoon (June–September) and post-monsoon (October–December) seasons, seasonal mean temperatures were near to the long-term average, with anomalies of +0.09°C and −0.10°C, respectively.

The 2025 annual rainfall over the country as a whole was(1274 mm) 110% of the Long Period Average (LPA) for the period of 1971–2020. Seasonally, winter rainfall was below normal (52% of its LPA), while rainfall during all the other three seasons were above normal with the pre-monsoon, southwest monsoon and post monsoon seasons recorded rainfall of 142% 108% and 111% of LPA respectively.

Cyclonic activity over the North Indian Ocean during 2025 was normal, with four cyclonic storms (2 each cyclonic and severe cyclonic storms) formed during the year. Incidentally, all these systems developed during the post-monsoon season: SHAKTI (1–7 October), MONTHA (25–30 October), SENYAR (25–27 November), and DITWAH (26 November–1 December). Of the four systems, three (MONTHA, SENYAR, and DITWAH) developed over the Bay of Bengal, while one (SHAKTI) originated over the Arabian Sea. However, during 2025, a total of 11 depressions (including three deep depressions) formed over the North Indian Ocean, which is higher than the climatological annual average of about six systems.

In addition to cyclonic systems, several extreme weather events, including cloud bursts, heavy rainfall, floods, landslides, lightning, thunderstorms, droughts, and related hazards were reported across different parts of the country.

Temperatures

The country's annual mean land surface air temperature in 2025 was +0.28°C above the 1991–2020 long-term average, ranking the year as the eighth warmest since records began in 1901 (Fig. 1). The five warmest years on record, in descending order, are 2024 (+0.65°C), 2016 (+0.54°C), 2009 (+0.40°C), 2010 (+0.39°C), and 2017 (+0.38°C). Notably, 10 of the 15 warmest years have occurred during the recent 15-year period (2011–2025). The decade 2016–2025 emerged as the warmest on record, with a decadal mean annual temperature anomaly (Actual–LPA) of 0.32°C. Over the longer period from 1901 to 2025, the country-averaged annual mean temperature exhibits a statistically significant increasing trend of 0.68°C per 100 years (Fig. 1). During the same period, maximum and minimum temperatures also showed significant warming trends, increasing at rates of 0.89°C and 0.47°C per 100 years, respectively.

The all India averaged seasonal mean temperature was above normal during the winter season (January - February, experienced the highest anomaly on record since 1901 at +1.17°C, pre-monsoon season (March – May) was +0.29°C, southwest monsoon season (June – September) was +0.09°C and post-monsoon season (October- December), with slightly below-normal anomaly of -0.10°C.

In 2025, the country's monthly mean temperatures were above normal for six months, while May, June, July, October, November, and December experienced below-normal or near-normal temperatures, with anomalies of -0.81°C, -0.18°C, -0.01°C, +0.07°C, -0.39°C, and +0.01°C, respectively. February recorded the highest monthly mean temperature ever for the country, with an anomaly of +1.36°C, while January marked the second-highest on record, with an anomaly of +0.98°C, since 1901.

In 2025, February recorded the second-highest monthly maximum temperature (+1.52°C) and the highest monthly minimum temperature (+1.20°C) ever. January, September, and October recorded the fifth-highest monthly minimum temperature anomalies (+1.04°C, +0.63°C, and +0.82°C, respectively) since 1901.

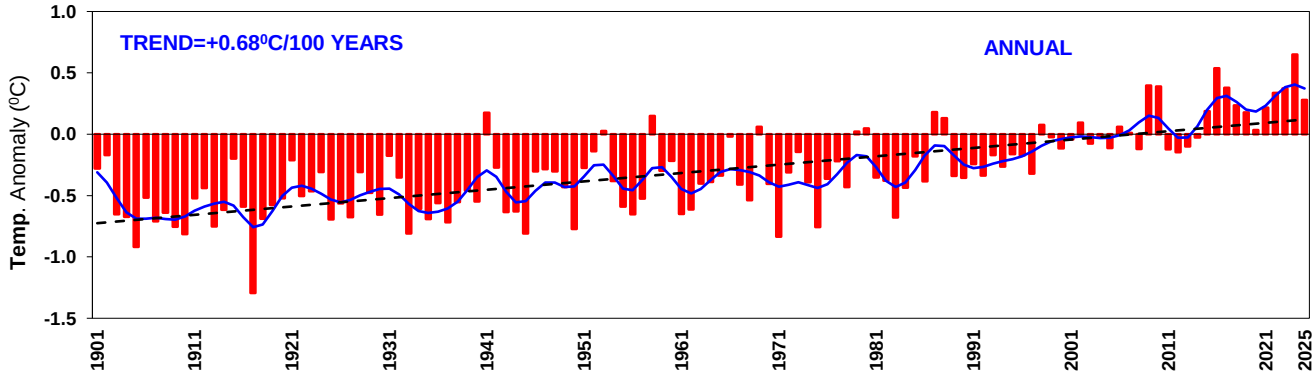

Fig.1: Annual mean land surface air temperature anomalies averaged over India for the period 1901-2025. The anomalies were computed with respect to base period of 1991-2020. The dotted line indicates the linear trend in the time series. The solid blue curve represents the sub-decadal time scale variation smoothed with a binomial filter.

Rainfall

In 2025, the Southwest monsoon advanced early, reaching the south Andaman Sea and Nicobar Islands on13th May about six days before the normal date. It arrived in over Kerala on 24th May, eight days earlier than it's normal date of 1 June and covered the entire country on 29th June 2025 9 days ahead of its normal date 8th July.

The country's annual rainfall was 110 % of its long-period average (LPA). All-India rainfall in May (126.7 mm) was the highest on record since 1901, while the total rainfall during the pre-monsoon season (185.8 mm) ranked as the third-highest since 1901. During the southwest monsoon season (June-September), which is the principal rainy season of the country, was above normal (108 % of LPA). Regionally, Northwest India received seasonal rainfall of 127% of its LPA, Central India, South Peninsular India received seasonal rainfall of 115%, 110% of its LPA respectively while East & Northeast India received seasonal rainfall of 80% of its LPA. The time series of percentage departure of annual rainfall over the country as a whole since 1901 is shown in Fig. 2.

The 2025 Northeast/ post monsoon season (October-December) rainfall over the country as a whole was above normal (111% of LPA). The seasonal rainfall during the northeast monsoon season over the core region of the south peninsula (comprising of 5 subdivisions viz. Coastal Andhra Pradesh & Yanam, Rayalaseema, Tamil Nadu Puducherry & Karaikal, South Interior Karnataka, and Kerala & Mahe), was normal (102% of LPA).

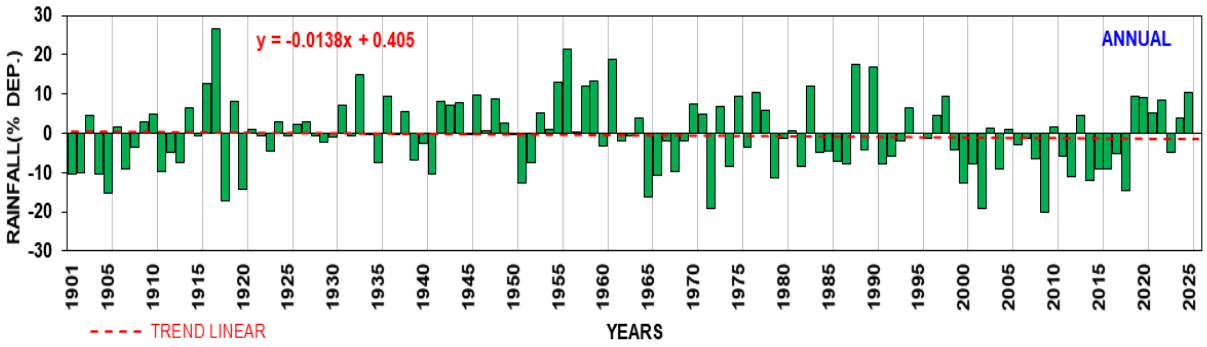

Fig. 2: Time Series of All India Annual Rainfall Percentage Departure (1901-2025) from normal based on data of 1971-2020.

Dry and Wet Conditions Over the Country

The Standardized Precipitation Index (SPI) is a precipitation-based indicator used to assess dry and wet conditions. Negative SPI values indicate dry conditions, while positive values indicate wet conditions, with increasing magnitude reflecting greater severity. Figure 3 presents the district-wise SPI values for the period January to December 2025.

Cumulative SPI values of the twelve months indicate extremely wet/severely wet conditions over parts of Gangetic West Bengal, Odisha, Jharkhand, West Uttar Pradesh, Uttarakhand, Haryana, Chandigarh & Delhi, Punjab, Himachal Pradesh, Jammu & Kashmir and Ladakh, Rajasthan state, West Madhya Pradesh, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathawada, Chhattisgarh, Coastal Andhra Pradesh, Telangana, Tamil Nadu, Karnataka state and Kerala while, extremely dry/severely dry conditions were observed over parts of Arunachal Pradesh, Assam & Meghalaya, Bihar, East Uttar Pradesh, Chhattisgarh and South Interior Karnataka.

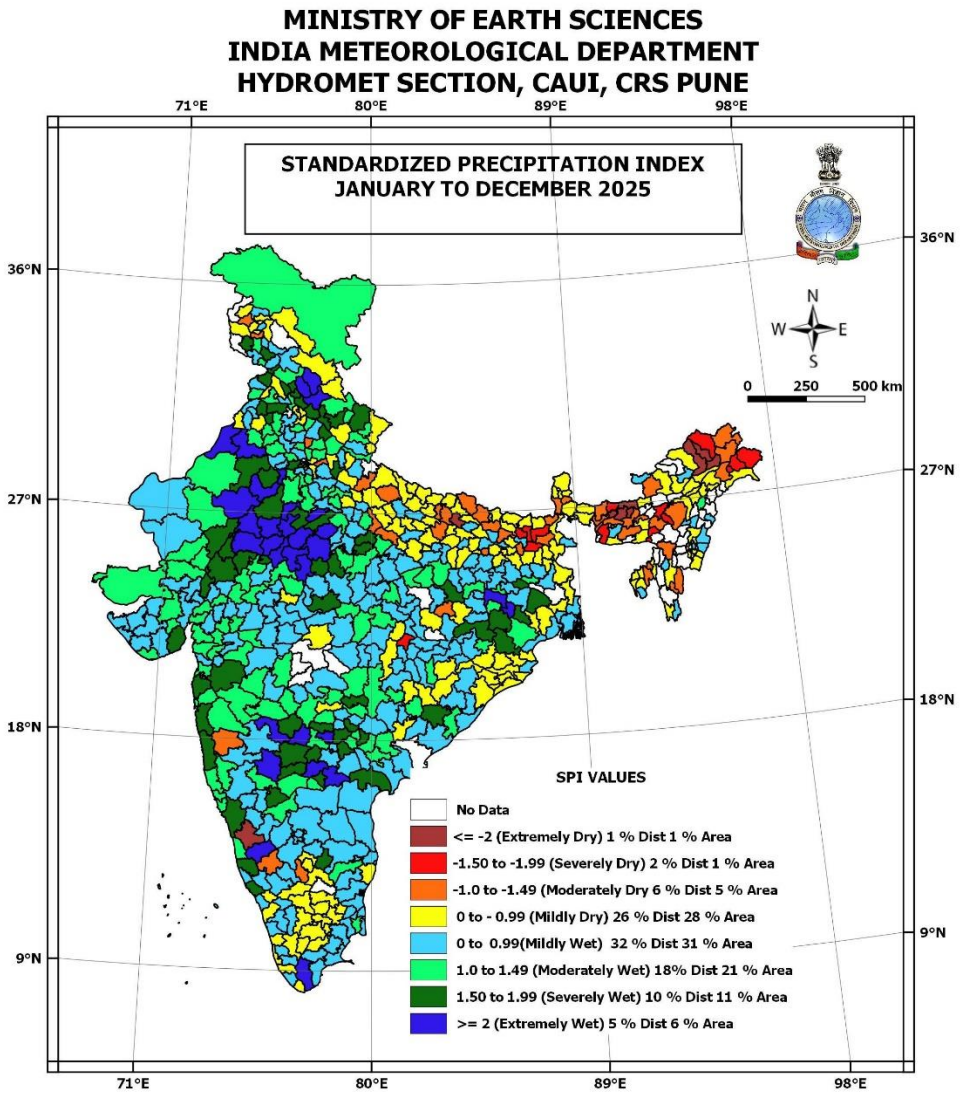

Fig.3: Standardized Precipitation Index (SPI) for January to December 2025.

Extreme Weather Events 2025

Tropical Cyclones in the Indian Seas:

In 2025, there were four cyclonic storms formed over the North Indian Ocean. Out of these two severe cyclonic storms (SHAKTI and MONTHA) and two cyclonic storms (SENYAR and DITWAH). Most of the systems formed over Bay of Bengal (MONTHA, SENYAR, and DITWAH), while one (SHAKTI) originated over the Arabian Sea. In additions to these intense system, during 2025, a total of 11 depressions (including three deep depressions) formed over the North Indian Ocean, which is higher than the climatological annual average of about six systems.

All these systems developed during the post-monsoon season: SHAKTI (1–7 October), MONTHA (25–30 October), SENYAR (25–27 November), and DITWAH (26 November–1 December).

The tracks of these cyclonic storms and Depression formed during the year are shown in figures 4(a) and (b) respectively.

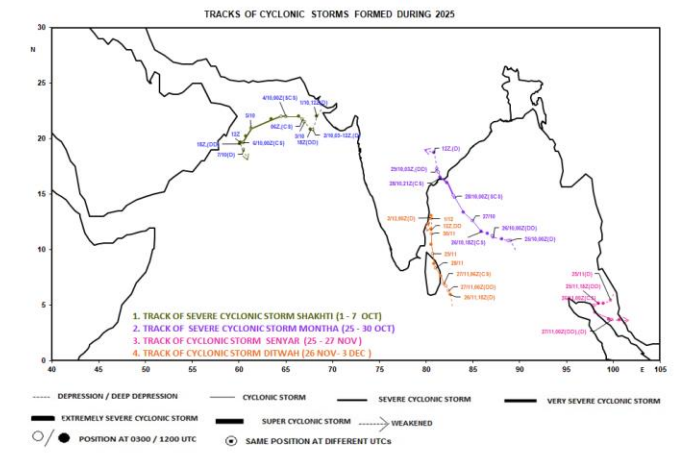

Fig. 4a: Tracks of the cyclones formed during 2025

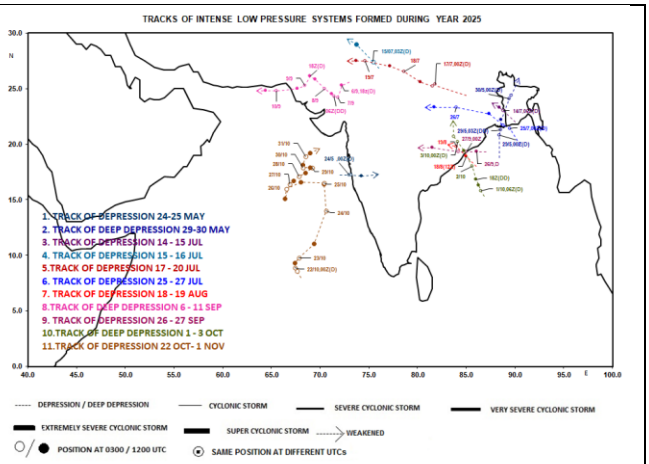

Fig. 4b: Tracks of the Depressions formed during 2025

Extreme Weather events:

In 2025, there were four cyclonic storms formed over the North Indian Ocean. Out of these two severe cyclonic storms (SHAKTI and MONTHA) and two cyclonic storms (SENYAR and DITWAH). Most of the systems formed over Bay of Bengal (MONTHA, SENYAR, and DITWAH), while one (SHAKTI) originated over the Arabian Sea. In additions to these intense systems, during 2025, a total of 11 depressions (including three deep depressions) formed over the North Indian Ocean, which is higher than the climatological annual average of about six systems. The tracks of these cyclonic storms and Depression formed during the year are shown in figures 4(a) and (b) respectively.

All these systems developed during the post-monsoon season: SHAKTI (1–7 October), MONTHA (25–30 October), SENYAR (25–27 November), and DITWAH (26 November–1 December).

Out of these, MONTHA and DITWAH caused some damage. The Severe Cyclonic Storm MONTHA, formed over the southwest and adjoining southeast Bay of Bengal in the post-monsoon season during 25th October to 30th October, which claimed 9 human lives from Andhra Pradesh and Telangana. Also, 42 livestock perished in Andhra Pradesh. While, some districts of Odisha viz. Balasore/Baleshwar, Cuttack, Gajapati, Ganjam, Jagatsinghapur, Kendrapara, Khordha, Malkangiri, Mayurbhanj, Rayagada were affected. The Cyclonic Storm DITWAH (26th November to 3rd December) formed in the post-monsoon season over Bay of Bengal, claimed 2 lives and also, 582 livestock perished in Tamil Nadu. However, the cyclones SHAKTI and SENYAR did not claim any human lives and do not have major impacts in India. However, Sri Lanka was severely impacted by torrential rainfall, widespread flooding, and landslides triggered by Cyclonic Storm DITWAH, which made landfall along the island's eastern coast in the early hours of 28 November 2025. The cyclone caused a devastating nationwide emergency, affecting more than 1.4 million people from over 407,594 families across all 25 districts. A total of 410 deaths have been confirmed, while 336 individuals remain missing. In parallel, Cyclone SENYAR, an exceptionally rare tropical cyclone that formed in the Strait of Malacca on 26 November 2025, generated extreme rainfall in addition to strong winds. The system led to catastrophic flooding and landslides across Indonesia, Malaysia, and Thailand, resulting in severe human casualties and extensive damage to infrastructure.

Impact of Extreme Weather Events:

Other than Tropical Cyclones, various parts of the country experienced Extreme Weather Events like extremely heavy rainfall, floods, cloudbursts, landslide, lightning, thunderstorm, heat wave, cold wave, etc. A few of them are mentioned below. The causalities caused by these extreme events mentioned here are based on the media and the government reports from disaster Management Authorities.

Figure 5(a) shows a map depicting the locations of extreme weather events in 2025 that caused loss of life and property damage. Figure 5(b) shows the distribution of deaths and their percentages by

different extreme weather events, Figure 5(c) illustrates the state-wise distribution of deaths, and Figure 5(d) depicts the number of districts affected by extreme weather events during 2025.

During 2025, approximately 2,760 fatalities were recorded across the country as a result of various extreme weather events. Uttar Pradesh emerged as the most severely affected state, reporting over 410 deaths attributed to lightning, thunderstorms, heavy rainfall, floods, heat waves, and cold waves. Madhya Pradesh was also significantly impacted, with more than 350 fatalities linked to lightning, thunderstorms, heavy rainfall, floods, gales, and heat waves. Maharashtra reported over 270 deaths, primarily due to heavy rainfall, flooding, lightning, thunderstorms, heat waves, and hailstorms. Jharkhand recorded more than 200 fatalities, largely caused by lightning associated with thunderstorms, as well as heavy rainfall and flooding. In addition, Bihar reported 174 deaths, Jammu and Kashmir 168, Himachal Pradesh 166, West Bengal 146, Uttarakhand 117, Odisha 110, and Rajasthan 107, with the remaining fatalities reported from other parts of the country.

In 2025, heavy rainfall, floods, cloudbursts, and landslides claimed over 1,370 lives across various parts of the country. Maharashtra reported the highest casualties, with more than 210 deaths, followed by Himachal Pradesh with over 160 fatalities. Jammu and Kashmir recorded more than 155 deaths, including 63 people who lost their lives on 14th August due to a massive cloudburst, heavy rains, and flash floods in Kishtwar district, and 32 fatalities on 27th August caused by a landslide in Reasi district. Madhya Pradesh reported over 150 deaths, while Uttarakhand recorded 105, including 67 deaths and several missing on 5th August due to a severe cloudburst in the Kheer Ganga river catchment area. Other states affected include Uttar Pradesh (79 deaths), Rajasthan (74), West Bengal (66), Punjab (59), Kerala (50), with the remaining casualties spread across other regions of the country.

In 2025, thunderstorms and lightning claimed over 1,310 lives across different parts of the country. The highest casualties were reported from Uttar Pradesh (over 310 deaths), Madhya Pradesh (over 190), Jharkhand and Bihar (over 170 each), Odisha (over 100), West Bengal (more than 70), Maharashtra (around 60), with the remaining fatalities spread across other states.

Significant single-day events included:

- On 9th–10th April, 45 people lost their lives due to thunderstorms in Bihar, with 22 fatalities reported from Nalanda district alone.
- On 21st May, 42 deaths occurred across Uttar Pradesh (40), Chhattisgarh (1), and Haryana (1).
- On 22nd May, thunderstorms claimed 29 lives across Uttar Pradesh (22), Madhya Pradesh (4), and Rajasthan (3).

Lightning associated with thunderstorms caused a total of 152 fatalities between 13th and 17th June, affecting Madhya Pradesh (63), Uttar Pradesh (44), Bihar (12), Jharkhand (10), Maharashtra (8), and Gujarat (5). Additionally, on 10th April, 58 people reportedly died across Bihar (25), Uttar Pradesh (20) and Jharkhand (5).

Heat waves in 2025 claimed approximately 35 lives across various parts of the country. Uttar Pradesh was the most affected, reporting around 20 deaths on a single day, 13th June, followed by Telangana with 7 fatalities. The remaining deaths occurred in West Bengal, Odisha, Kerala, Madhya Pradesh, and Maharashtra.

Other extreme weather events, including gales, snowfall, cold waves, hailstorms, and dust storms are also impacted different regions, causing loss of life, injuries, damage to crops, livestock, and both public and private property.

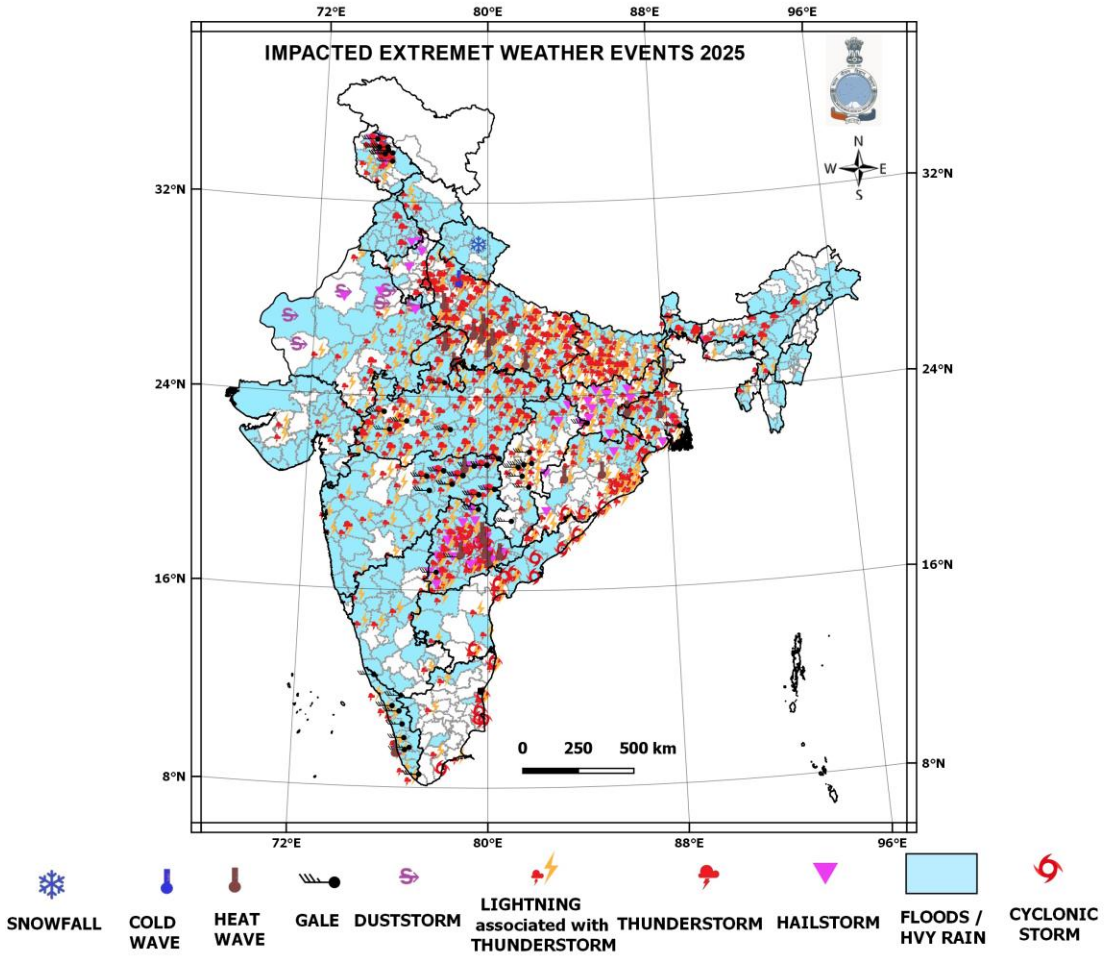

Fig. 5(a) : Major extreme weather events that occurred in 2025, resulting in loss of life and damage to property.

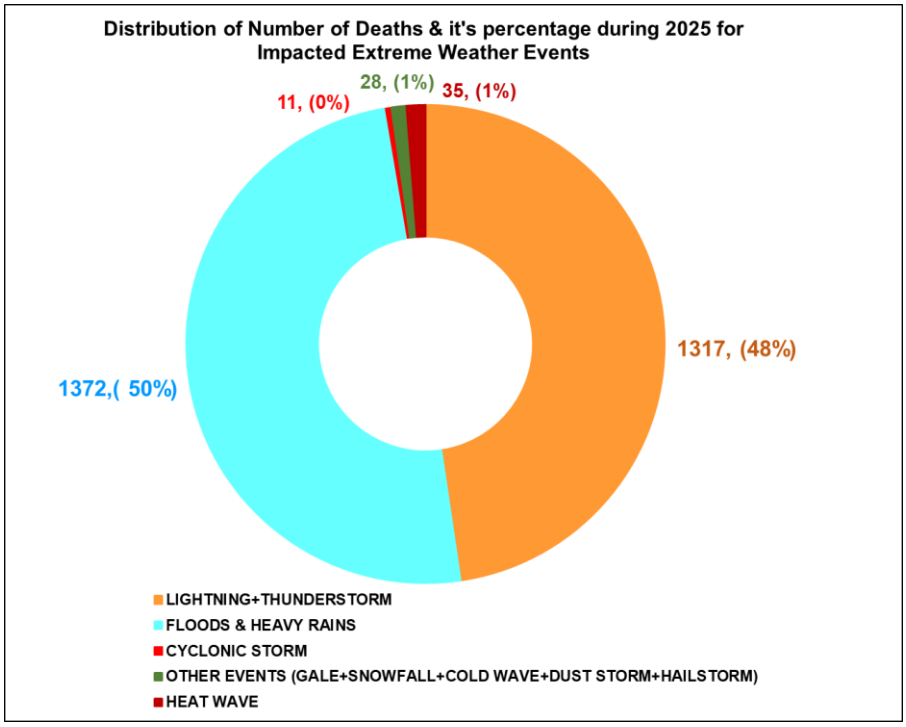

Fig.5(b): Distribution of the Number of Deaths & its percentage during 2025 due to different Extreme Weather Events.

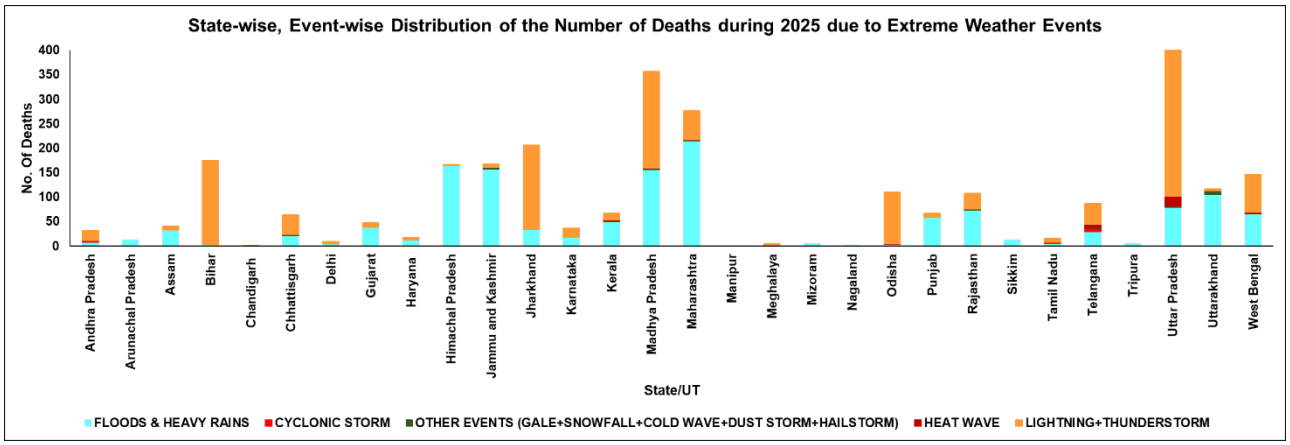

Fig.5 (c): State-wise Distribution of the Number of Deaths during 2025 due to Extreme Weather Events.

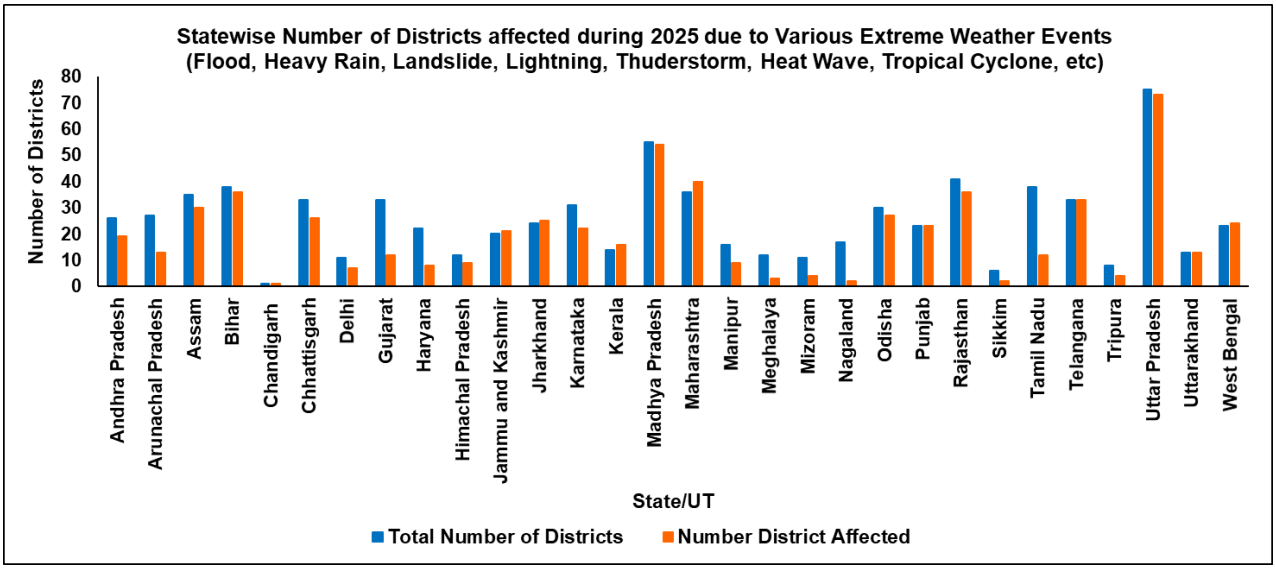

Fig.5 (d): State-wise number of districts affected during 2025 due to various Extreme Weather Events.