Down To Earth

CLIMATE

INDIA 2025

AN ASSESSMENT OF EXTREME WEATHER EVENTS

JANUARY - SEPTEMBER

All 36 Indian states and Union Territories experienced extreme weather events

India experienced extreme weather events on 99% of the days in the first nine months of the year

Extreme weather events killed 4,064 people and affected 9.47 million hectares of cropped area

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Research direction: Richard Mahapatra

Authors: Kiran Pandey, Rajit Sengupta

Design: Ajit Bajaj, Tarun Sehgal

Research and editorial support: Dakshiani Palicha, Madhumita Paul, Susan Chacko

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41, Tughlakabad Institutional Area, New Delhi 110 062
Phone: 91-11-4061 6000
Fax: 91-11-26085879
Email: cse@cseindia.org, Website: www.cseindia.org; www.downtoearth.org.in

CSE, founded in 1980, is a public interest research and advocacy organisation based in New Delhi. CSE researches into, lobbies for and communicates the urgency of development that is both sustainable and equitable.
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Down To Earth is a fortnightly on the politics of environment and development. In its 33th year of publication, it continues to adhere to its founder Anil Agarwal's objective of bringing out news, perspectives and knowledge to prepare citizens to change the world.

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Scan to access India's Atlas on Weather Disasters

EXECUTIVE SUMMARY

The UN Intergovernmental Panel on Climate Change (IPCC) defines extreme weather events as occurrences that are "rare at a particular place and time of year". While India does not have an official definition, the India Meteorological Department (IMD), in its annual "Statement of Climate of India" reports, classifies lightning and thunderstorms, heavy to very heavy, and extremely heavy rainfall, landslides and floods, coldwaves, heatwaves, cyclones, snowfall, dust and sandstorms, squalls, hailstorms and gales as extreme weather events. The agency defines each of these weather events on its website "Climate Hazards and Vulnerability Atlas of India", launched in January 2022, and in other documents (see 'How IMD defines extreme weather events').

The "Climate India 2025: An assessment of extreme weather events", prepared by the Centre for Science and Environment and *Down To Earth* (CSE/DTE), attempts to build an evidence base on the frequency and expanding geography of extreme weather events in India. It has sourced data on extreme events from two key government sources: IMD and the Disaster Management Division (DMD) of the Union Ministry of Home Affairs. In addition, it has scanned media reports to track the events— particularly the pre-monsoon period when official data is inadequate. The media reports have also provided further information on the extent of loss and damage.

The assessment focuses on two key aspects: The number of days India recorded extreme weather events, and the resulting loss and damage, measured in terms of human fatalities, crop area affected, houses damaged, and livestock lost. The report analyses data from January to September 2025 and compares it with trends from the preceding three years—2022, 2023, and 2024.

While the occurrence of extreme weather events is tracked daily, information on loss and damage is available only at the seasonal level. This marks a change from previous years, when such data was compiled monthly. The methodology was revised in 2025 because government data on losses is now largely released at the end of each season, making monthly disaggregation unfeasible.

How IMD defines extreme weather events

LIGHTNING AND STORMS

Lightning is an electrical discharge caused by imbalances between storm clouds and the ground or within the clouds themselves. Storms include duststorms (caused by thunderstorms or strong pressure gradients associated with cyclones which increase wind speed over a wide area), hailstorms (an outgrowth of a severe thunderstorm in which balls or irregularly shaped lumps of ice fall with the rain), thunderstorms and gales (a very strong wind).

HEAVY RAINS, FLOODS AND LANDSLIDES

Heavy rainfall happens when a region receives 64.5-115.5 mm rain in 24 hours. In the case of very heavy rainfall, the threshold increases to 115.6-204.4 mm and in extremely heavy rainfall it is 204.5 mm or more. The report has considered all very heavy and extremely heavy rainfall events, and heavy rainfall events only when they have caused damage.

HEATWAVES

Heatwave conditions signify a certain amount of rise in temperature at a given place with respect to normal climatological value. The report has considered heatwaves (4.5°C to 6.4°C departure of the maximum temperature from normal), and severe heatwaves (departure of more than 6.4°C).

COLD DAY/COLDWAVE

Cold day conditions occur when the maximum temperature drops by 4.5°C to 6.4°C than average. If the deviation is more than 6.4°C, then it is considered a severe cold day. Coldwave conditions occur when the minimum temperature drops by 4.5°C to 6.4°C than normal. Similarly, severe coldwave occurs when the minimum temperature drops by more than 6.4°C than normal. The report has considered all the four categories.

SNOWFALL

Snowfall is a hydrological hazard where a large amount of snow can affect transport, crops and people. IMD's "Annual Disaster Weather Report" reports the snowfall cases over India that caused human deaths. The report has also considered only those snowfall events that caused deaths.

CLOUDBURSTS

A cloudburst is very heavy rainfall (100 mm per hour) over a localised area. It is accompanied with strong winds and lightning.

CYCLONES

Cyclones are intense vortex or whirls in the atmosphere with very strong winds circulating around them in anti-clockwise direction in the Northern Hemisphere and in clockwise direction in the Southern Hemisphere.

SOURCE USED: INDIA METEOROLOGICAL DEPARTMENT

Information on extreme weather events in a 24-hour period and forecasts and warnings are published in IMD's All India Weather Summary and Forecast bulletins and daily press releases. CSE/DTE tracks each day's report from the IMD website and maps out the events by state and Union Territory (UT) and event type.

On loss and damage due to extreme weather events, IMD uses media reports and publishes the number of human deaths and livestock losses in its "Climate Summary for the Month".

SOURCE USED: HOME MINISTRY'S DISASTER MANAGEMENT DIVISION (DMD)

The department under the Union Ministry of Home Affairs issues a "Situation report regarding flood/heavy rainfall in the country" as and when the event happens. It includes the forecast from IMD and the Central Water Commission (on floods). It also has a section on damages reported by the states/Union Territories in the previous 24-hour period.

From June 10, 2022, the situation reports have provided the "Cumulative loss and damage data for the monsoon season". This datasheet provides information on human deaths during the monsoon period because of drowning, lightning, landslides and other reasons. It also provides information about the damage to houses, crops and livestock in the affected states. But starting 2024, the cumulative data is not published online. As a result, CSE/DTE database this year had to source its loss and damage numbers from the "Damage reported by States/UTs during the last 24 hrs" table published under the "Situation report regarding Flood/ Heavy rainfall in the Country". An analysis of the previous years shows that the cumulative numbers are usually higher than the total of the daily numbers. DMD must resume releasing the cumulative numbers since they are more comprehensive.

The situation reports are primarily for floods and heavy rainfall, and cyclones; India needs similar daily assessment for all weather-related disasters and the loss and damage they cause, given the frequency of these events.

One of the key indicators to establish the extent of damage is "people affected". It is also a target under the Sendai Framework for Disaster Risk Reduction (target B-1), by the UN Office for Disaster Risk Reduction. While DMD's daily situation report provides information on this globally accepted parameter of population affected, it is not included in the cumulative loss and damage datasheet. DMD must require states to provide this data at the end of each weather disaster so that it can be included in the cumulative data that is issued for the monsoon period.

In addition, each state has a disaster management authority (SDMA), which report on the events on their websites. However, the data is at best sketchy and not released regularly. There are signs of

change. Assam's SDMA releases daily situation reports with details on the extent of loss and damage. But, in this CSE/DTE report, SDMA data has not been considered as it is not uniformly available for the country.

In the case of any discrepancy in the three sources—IMD, DMD and media reports— the source with the highest reported number has been considered. For crop area affected, we have relied on the daily situation reports by DMD along with media reports (which is also used by IMD for compiling its loss and damage data).

GAPS IN DATA

While a realistic estimate can be made about the number of days the country recorded extreme weather events from IMD releases, major gaps remain when it comes to loss and damage assessment. DMD provides data as received from the states, which are mainly for the monsoon season. It does not include all extreme events as defined by IMD. Moreover, the data is not comprehensive. For instance, media reports suggest widespread crop loss in Rajasthan and Himachal Pradesh during the monsoon season (June-September), but the Centre's loss and damage report for the season does not quantify the same. The absence of a robust public database on extreme weather events in the country poses difficulties in the evaluation of disaster situations and their impacts.

It is also clear that now, given the intensity and frequency of these events, the country no longer needs to count just the disasters; it needs credible numbers on the loss and damage.

WHY THIS REPORT?

India recorded extreme weather events on 270 of the 273 days from January 1 to September 30, 2025. This means that for almost 99 per cent of the first nine months of this year, India had an extreme weather event breaking in one or more parts of the country. It also experienced record-breaking temperatures for several months even as regions across the country were deluged because of very and extremely heavy rainfall. This led to floods and the loss of life and livestock. This speaks of the increased frequency and intensity of the extreme events that we are seeing in our rapidly warming world.

What the country has witnessed so far in 2025 is the new normal in a warming world. A 2020 report by the UN Office for Disaster Risk Reduction says globally, there has been "a sharp increase [in disasters] over the previous twenty years".

The CSE/DTE report is an attempt to build an evidence base on the frequency and expanding geography of extreme weather events in

India. This is extremely important as currently fragmented data on extreme weather events are publicly available and they fail to provide the overall picture. The report provides season-wise, month-wise and region-wise analysis of extreme weather events and their associated loss and damage. This report is based on DTE's "India's Atlas on Weather Disasters", an open-access online public interactive database on extreme weather events that is updated every season.

HIGHLIGHTS AND KEY FINDINGS

India faced extreme weather events on 99 per cent of days in the first nine months of this year, marked by heat and coldwaves, lightning and storms, heavy rain, floods and landslides. These events claimed 4,064 lives, affected 9.47 million hectares of crops, destroyed 99,533 houses, and killed approximately 58,982 animals. This reported damage is likely an underestimate due to incomplete data collection on event-specific losses, particularly public property and crop damage.

Himachal Pradesh experienced extreme weather on almost 80 per cent of the 273 days in the first nine months of 2025, the most in the country. However, Madhya Pradesh recorded the highest fatalities at 532, followed by Andhra Pradesh (484 deaths) and Jharkhand (478 deaths). Maharashtra was the worst hit in terms of cropped area affected, with an area of 8.4 million hectares, followed by Punjab (0.26 million ha) and Uttar Pradesh (0.21 million ha).

Regionally, the northwest experienced the highest frequency of extreme weather events in 2025, with 257 event days, followed by the east and northeast at 229 days. The northwest—which includes Punjab and the Himalayan states of Himachal Pradesh and Uttarakhand, among others that made headlines for their devastating monsoon events—also saw the highest number of deaths: 1,342, followed by 1,093 in central India.

The year 2025 also broke several climate records. January was India's fifth driest since 1901, while February became the warmest in 124 years. The country's mean maximum temperature in March was 1.02°C above normal, despite the India Meteorological Department (IMD) revising its baseline for temperature anomalies from the 1981–2010 average to the warmer 1991–2020 period in 2024. The shift means today's "normal" temperatures are already higher to begin with. This September, India recorded its seventh-highest mean temperature for the month, with the minimum temperature ranking as the fifth highest on record.

These record-breaking statistics are a stark reminder of climate change's intensifying grip. Events that once occurred once in a century are now happening every few years. The frequency is overwhelming India's most vulnerable populations, who lack the resources to recover from the unending cycle of loss and damage.

In terms of event types, the first nine months of 2025 brought nearly every form of extreme weather—from lightning and thunderstorms, which claimed 1,456 lives, to relentless monsoon rains and cloudbursts that triggered widespread flooding and landslides. Across the country, 2,440 people lost their lives to heavy rain, floods and landslides alone.

The extreme weather "report card" is sobering. It highlights not only how frequent such events have become but also the scale of the devastation they inflict. It underscores the urgent need for systems that record the full extent of these losses—both economic and human—to give a clearer picture of climate change's true impact.

The findings also signal a crucial shift needed in India's approach: from disaster response to risk reduction and resilience-building. Flood management, for instance, requires more than contingency plans—it demands robust drainage and water-recharge infrastructure, along with the restoration of green spaces and forests that can act as natural water buffers in future storms.

The report further stresses the moral and financial imperative of climate reparations from high-emission countries responsible for much of the global warming that drives these disasters. Climate models are unequivocal: extreme weather events will only become more frequent and severe. This is no longer a projection—it is today's reality.

In the first nine months of 2025, India recorded extreme weather on 270 of 273 days—more than in the same period of 2024 (255 days), 2023 (235 days), and 2022 (241 days). The rising frequency has come with tragic consequences: 4,064 deaths in 2025 compared to 2,755 in 2022—a 48 per cent increase in just four years. Agricultural impacts have also surged, with at least 9.47 million hectares of cropped land affected this year, up four-fold from 1.84 million hectares in 2022.

This report does not bring good news—but it brings a necessary warning. It demands recognition of nature's mounting backlash and the urgent need for meaningful climate actions. Without decisive mitigation efforts, the disasters of today will become the new normal of tomorrow.

DISASTER A DAY

India experienced extreme weather events on 270 of the 273 days, or 99 per cent of the days from January 1 to September 30. They claimed at least 4,064 lives, affected 9.47 million hectares (ha) of crop area, killed over 58,982 animals and damaged 99,533 houses

Region-wise extreme weather events (January 1- September 30, 2025)

Number of days | Deaths | Crop area affected (ha) | Total animal deaths (big and small) | Houses damaged (fully and partially)

Central region

It recorded extreme weather events on **200** of the **273** days, which claimed **1,093** lives, damaged **8.42 million** ha crop area

Chhattisgarh	74	96	0	344	2,095
DNH&DD*	1	0	0	0	0
Goa	42	4	0	0	35
Gujarat	110	128	0	3,235	9,841
Madhya Pradesh	144	532	12,000	1,799	4,089
Maharashtra	140	283	8,400,429	550	3,370
Odisha	103	50	4,592	5	3,446

*Dadra & Nagar Haveli and Daman & Diu

South Peninsula region

It recorded extreme weather events on **205** of the **273** days, which claimed **745** lives, damaged **67,321** ha of crop area

A&N Islands	9	1	0	0	3
Andhra Pradesh	74	484	0	0	289
Karnataka	120	117	62,586	944	3,849
Kerala	147	114	0	0	5,352
Lakshadweep	6	0	0	0	0
Puducherry	24	0	0	0	16
Tamil Nadu	49	6	162	0	93
Telangana	51	23	4,573	0	0

Northwest region

It recorded extreme weather events on **257** of the **273** days, which claimed **1,342** lives, damaged **928,079** ha of crop area

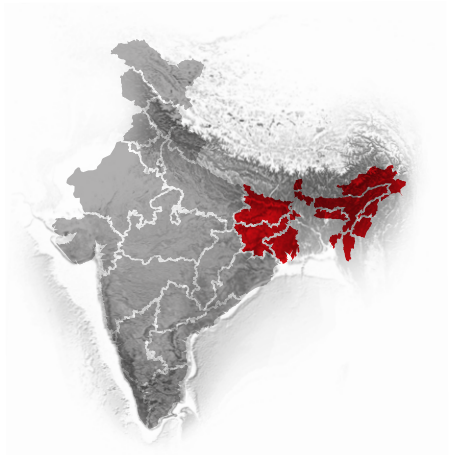
Chandigarh	7	1	0	0	0
Delhi	11	15	0	0	0
Haryana	50	34	125,910	22	686
Himachal Pradesh	217	380	167,000	24,590	6,105
Jammu and Kashmir	102	244	141,329	11,318	4,335
Ladakh	4	0	0	0	0
Punjab	102	71	262,831	1,253	7,260
Rajasthan	107	107	20,436	47	25
Uttar Pradesh	106	321	210,528	0	0
Uttarakhand	110	169	45	122	480

Number of days | Deaths | Crop area affected (ha) | Total animal deaths (big and small) | Houses damaged (fully and partially)

East and Northeast region

It recorded extreme weather events on **229** of the **273** days, which claimed **878** lives, damaged **56,046** ha of crop area

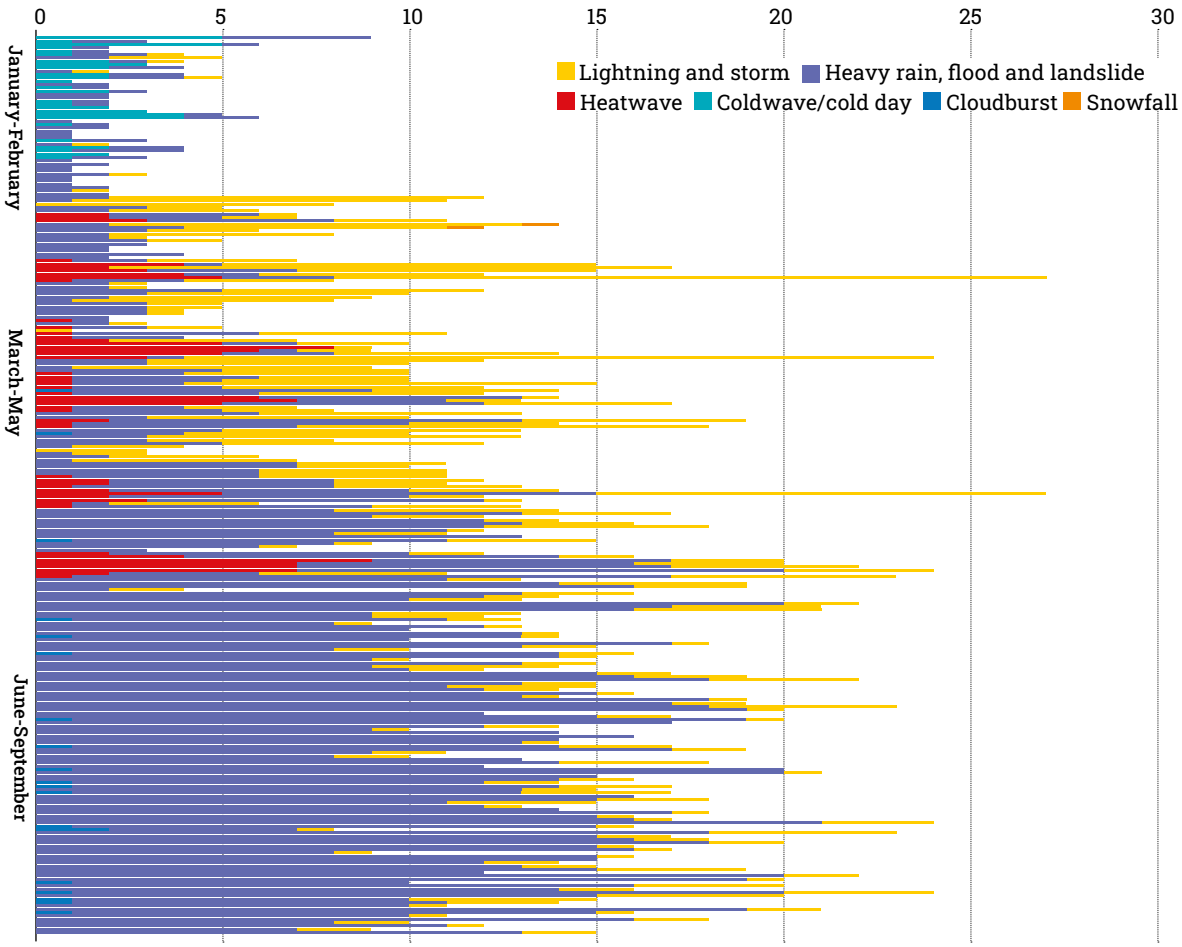
Arunachal Pradesh	63	43	1,722	369	602
Assam	113	47	42,627	14,269	25,870
Bihar	63	146	379	0	363
Jharkhand	56	478	2,390	0	8,654
Manipur	35	7	1,895	0	4,190
Meghalaya	109	26	6,439	31	695
Mizoram	46	34	0	0	99
Nagaland	53	8	586	76	1,774
Sikkim	125	24	8	1	1,430
Tripura	65	31	0	7	4,487
West Bengal	73	34	0	0	0



Day-wise extreme weather events in India

(January 1 - September 30, 2025)

Number of affected states and Union Territories



Sources: India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs, and media reports

SEASON-WISE

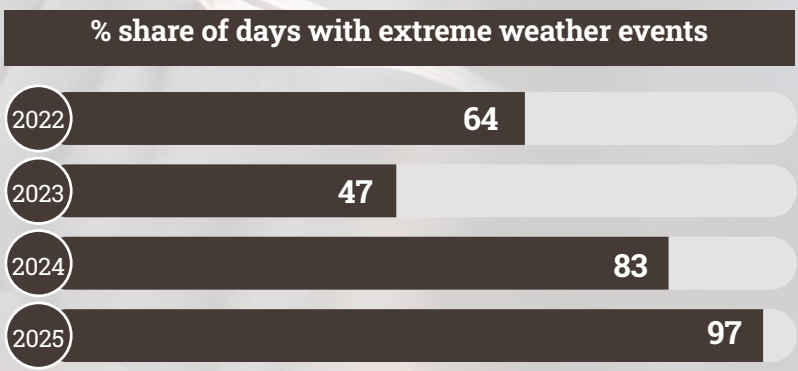
WINTER

January - February 2025
(59 days)

India witnessed extreme weather on 57 of 59 winter days in 2025, spanning 31 states and UTs.

Heavy rain, floods, and landslides occurred on 51 days, coldwaves on 26, lightning and storms on 17, heatwaves on 3, and snowfall on 1.

Himachal Pradesh was worst hit, with 52 days of events, followed by Punjab and Sikkim with 12 days each.



Loss and damage

Human deaths

2022	2023	2024	2025
22	8	15	64

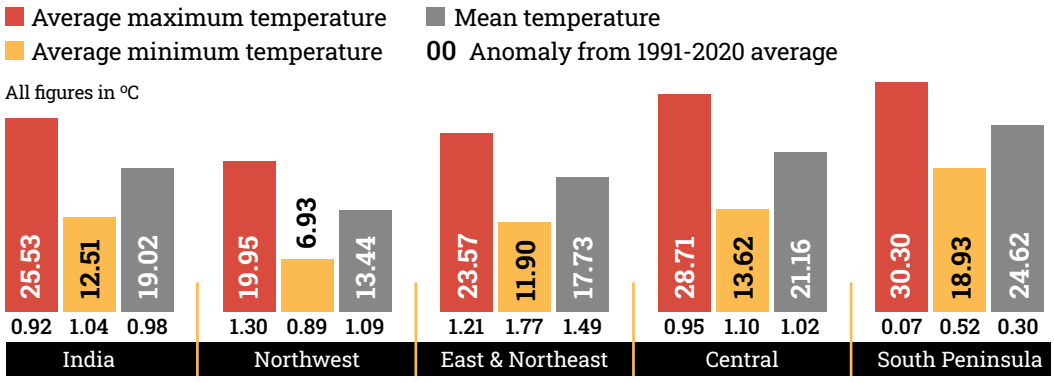
Crop area affected (million hectares)

2022	2023	2024	2025
0.03	0.39	0.04	0.02

TEMPERATURE

January recorded the 5th highest minimum temperature since 1901, with the average minimum temperature standing 1.04°C above the long-term average (1991-2020). East and Northeast India had a 1.77°C minimum temperature anomaly for the month, followed by Central India with a 1.1°C anomaly.

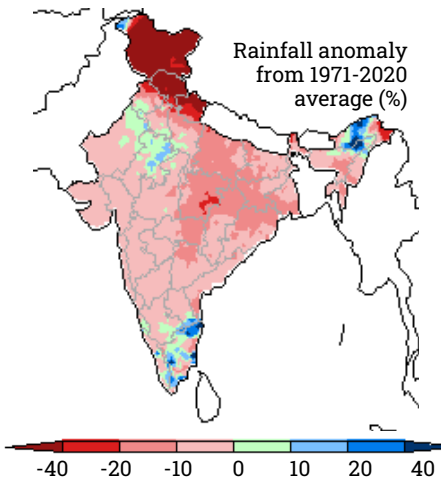
East and Northeast India saw its second highest minimum temperature this January



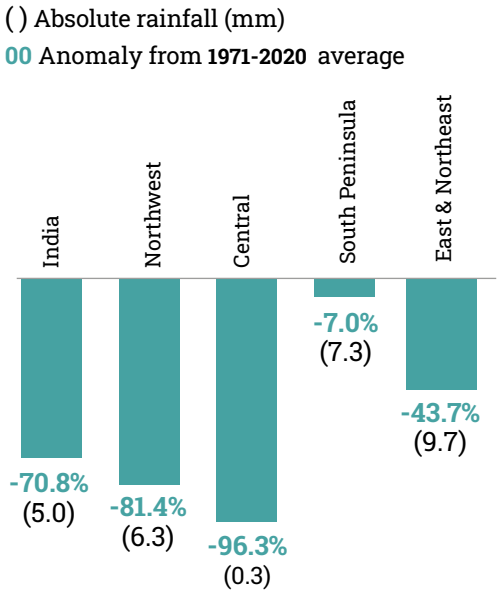
RAINFALL

India experienced its 5th driest January (5 mm) this year, with rainfall levels 71 per cent lower than the long period average (1971-2020). Rainfall over Central India (0.3 mm) was the 4th lowest in 124 years. Northwest region, with a deficit of 81.4 per cent, recorded its 7th driest January since 1901.

Of India's 36 sub-divisions, 10 recorded no rainfall, 18 saw deficient to large deficient rains and only three received normal rainfall



Source: India Meteorological Department, Pune

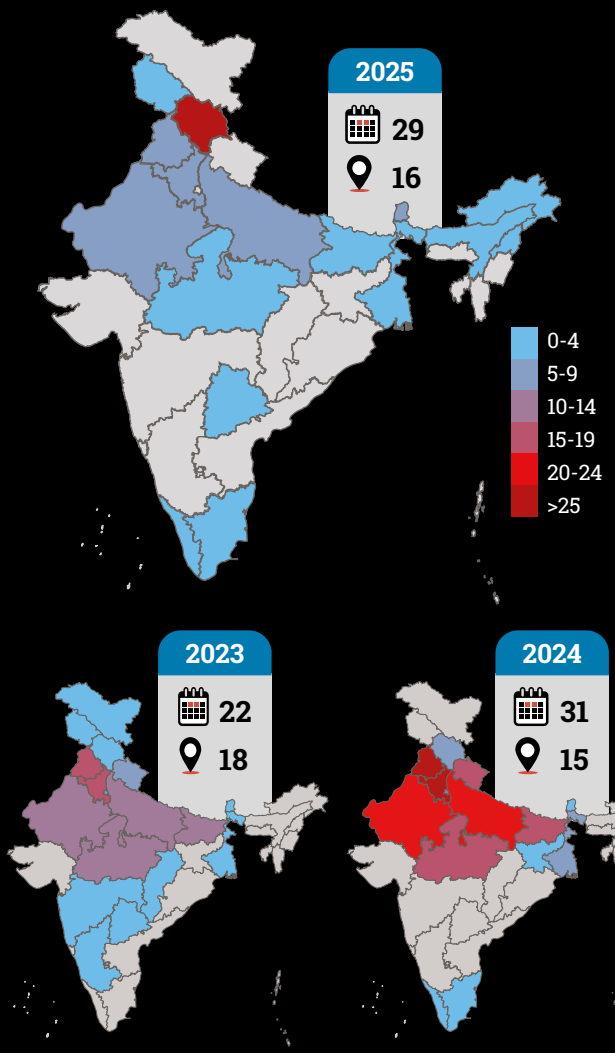


INDIA 2025
JANUARY

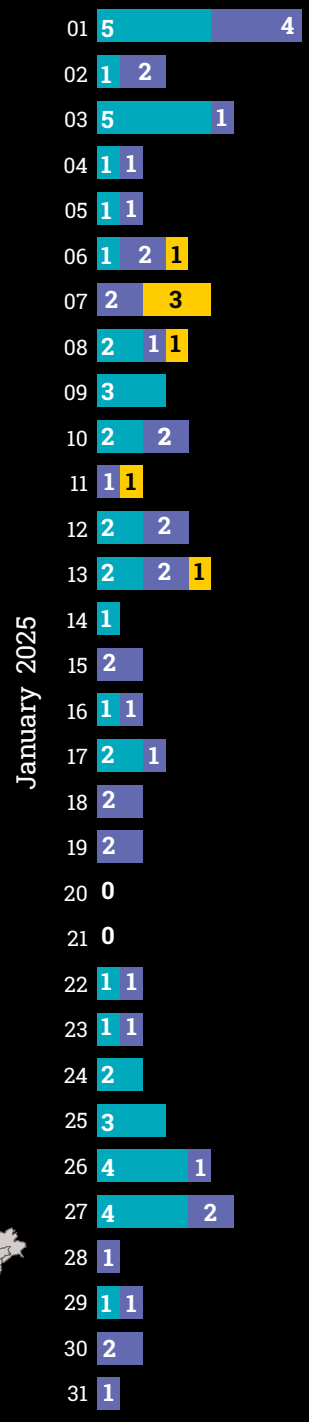
EXTREME WEATHER EVENTS

India experienced extreme weather events on 29 out of 31 days in January. This was spread across 16 states/UTs. Himachal Pradesh was the worst hit with such events on 27 days, followed by Haryana, Punjab and Rajasthan (8 days each).

EXTREME WEATHER EVENTS — Number of Days — Affected states



Bars indicate the number of states/UTs that experienced extreme weather events each day



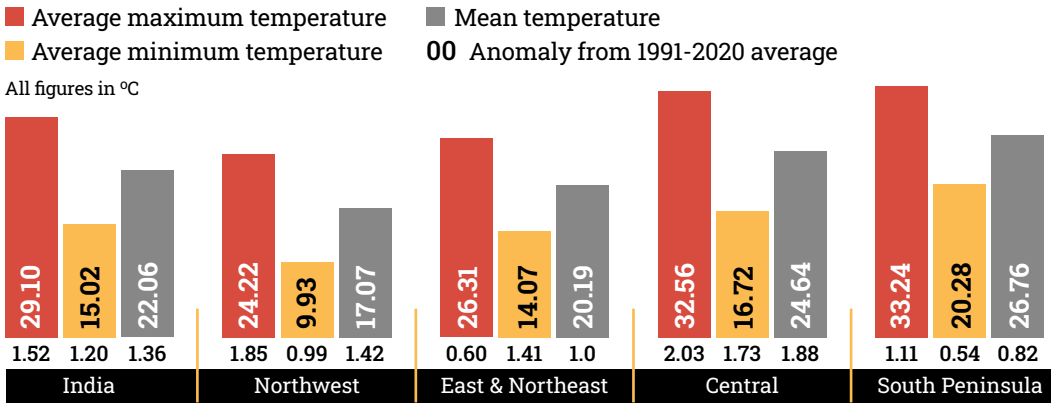
Coldwave/ cold day **(21 days)** | Heavy rain, flood and landslide **(25 days)** | Lightning and storm **(5 days)**

Sources: India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs and media reports

TEMPERATURE

In 2025, India recorded its warmest February in 124 years, with the average temperature 1.36°C above normal. The minimum temperature was the highest since 1901, with an anomaly of 1.2°C, while the maximum temperature ranked second highest on record, at 1.52°C. above the long-term average.

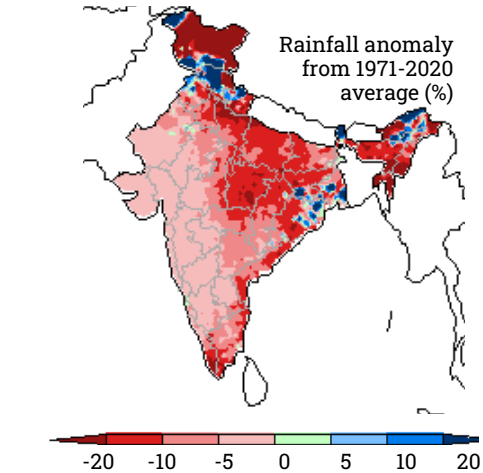
Central India recorded its warmest February in 124 years, with the mean temperature 1.88°C above normal



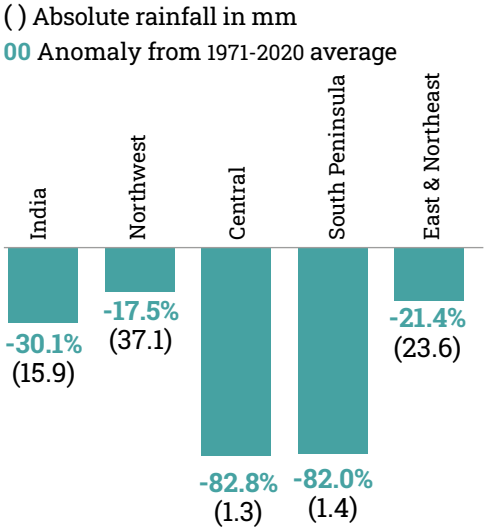
RAINFALL

Overall rainfall in February was 30 per cent below the long period average (LPA) of 22.7 mm. All four regions recorded deficits, with Central India and the South Peninsula receiving just 1.3 mm and 1.4 mm of rain respectively, deviations of over 82 per cent from the LPA.

Of India's 36 sub-divisions, 9 recorded no rainfall, 20 saw deficient to large deficient rains and only four received normal rainfall



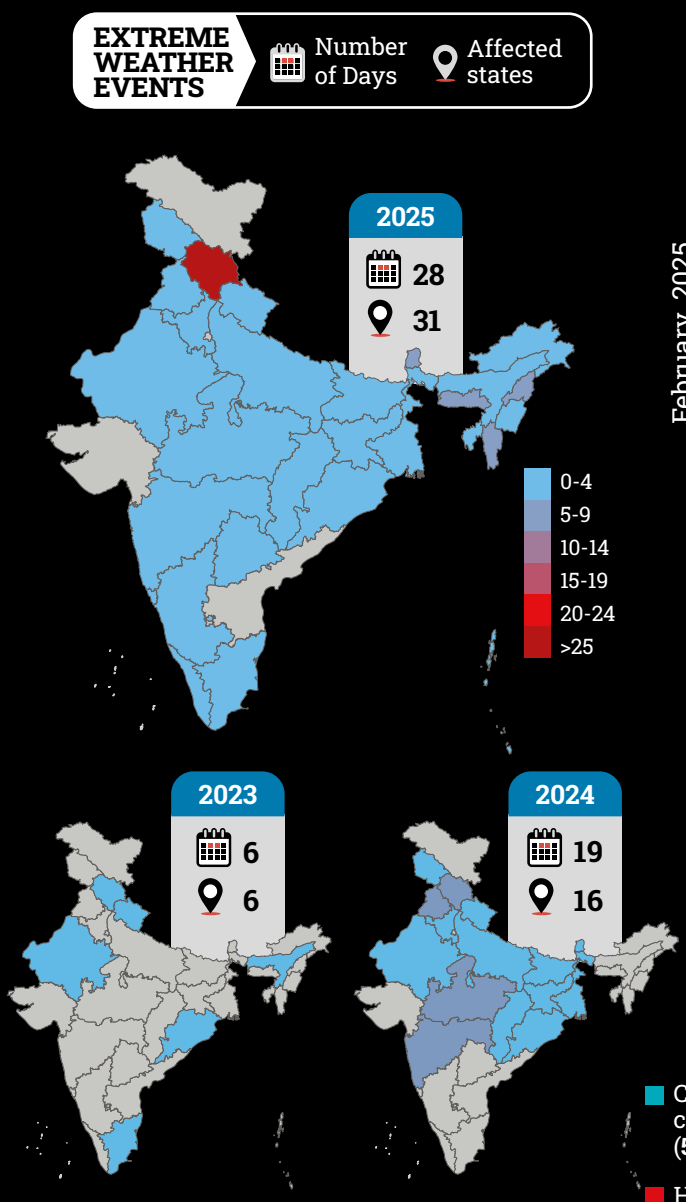
Source: India Meteorological Department, Pune



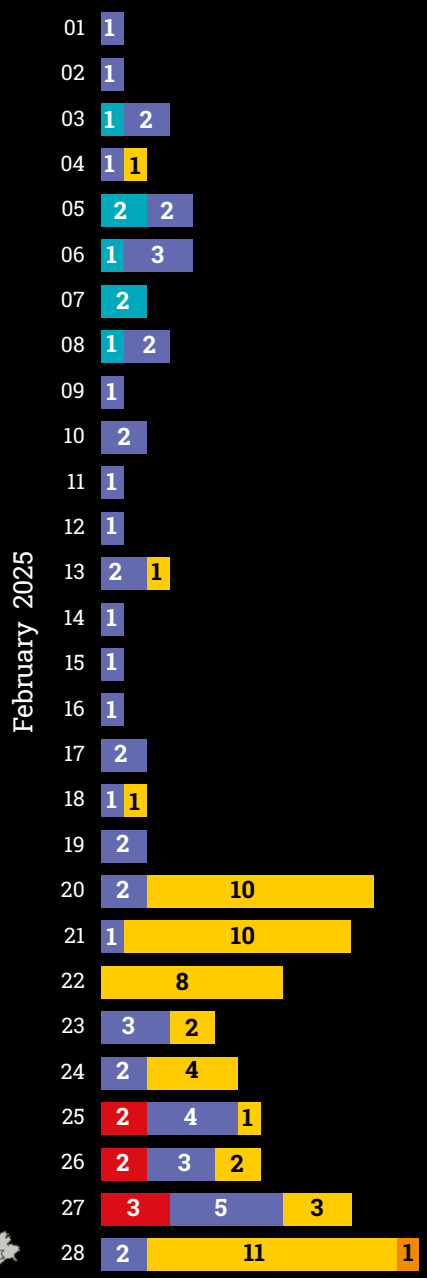
INDIA 2025
FEBRUARY

EXTREME WEATHER EVENTS

India experienced extreme weather events on 19 out of the 29 days in February. This was spread across 16 states/UTs. Himachal Pradesh and Madhya Pradesh were the worst hit with extreme weather events on 8 and 7 days in the month, respectively.



Bars indicate the number of states/UTs that experienced extreme weather events each day



- Coldwave/ cold day **(5 days)**
- Heavy rain, flood and landslide **(26 days)**
- Lightning and storm **(12 days)**
- Heatwave **(3 days)**
- Snowfall **(1 day)**

Sources: India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs and media reports

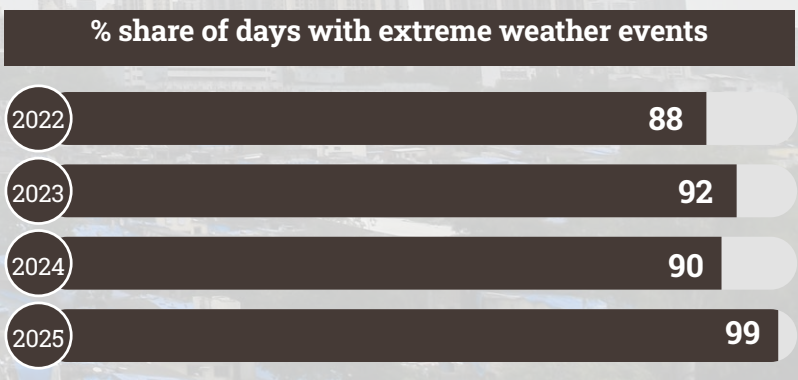
PRE MONSOON

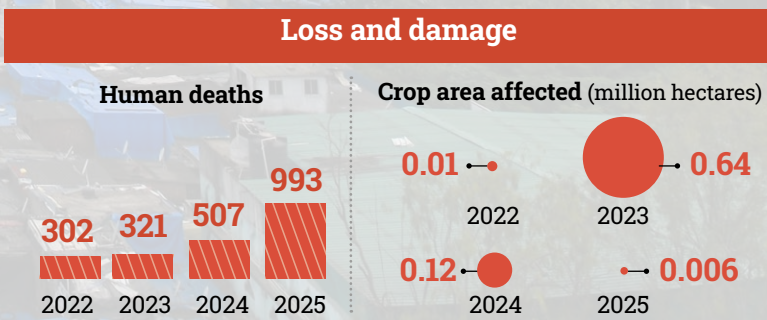
March-May 2025
(92 days)

India witnessed extreme weather on 91 of 92 pre-monsoon days in 2025, spanning 35 states and UTs.

Heavy rain, floods, and landslides occurred on 86 days, lightning and storms on 83, heatwaves on 41, cloudbursts on 2, and snowfall on 1. The events claimed 993 lives and damaged 6,028 hectares of crops.

Himachal Pradesh was worst hit (62 days), followed by Kerala (60), Madhya Pradesh (45).

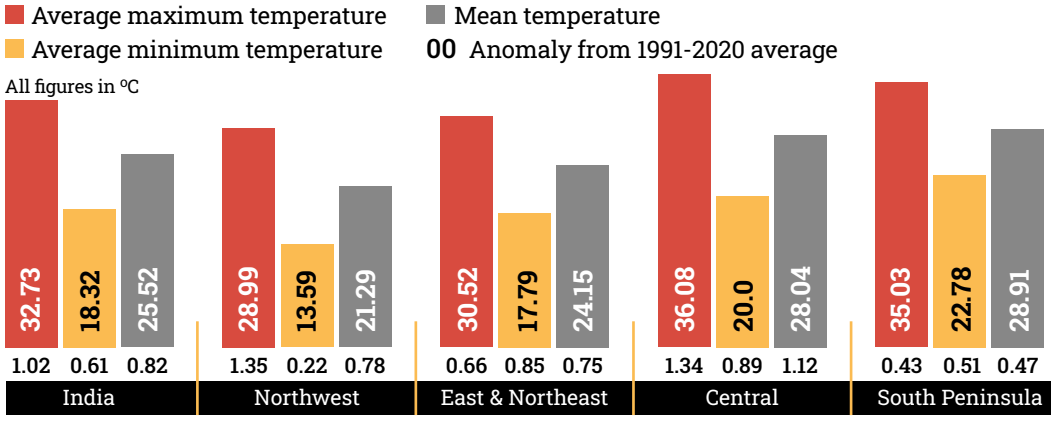




TEMPERATURE

India's overall temperatures in March remained above normal, with the South Peninsula experiencing unusual heat, recording its third-highest mean temperature at 28.91°C, while Central India logged its eighth-highest mean temperature at 28.04°C.

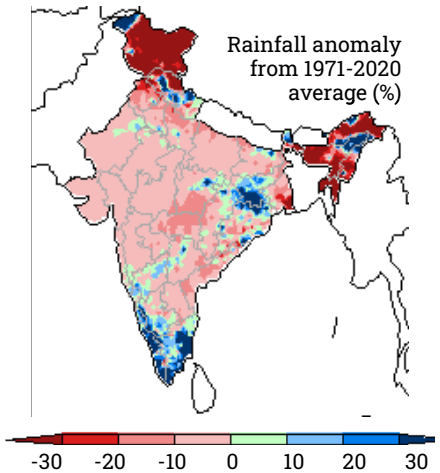
This March, India's maximum temperature was 1.02°C above normal



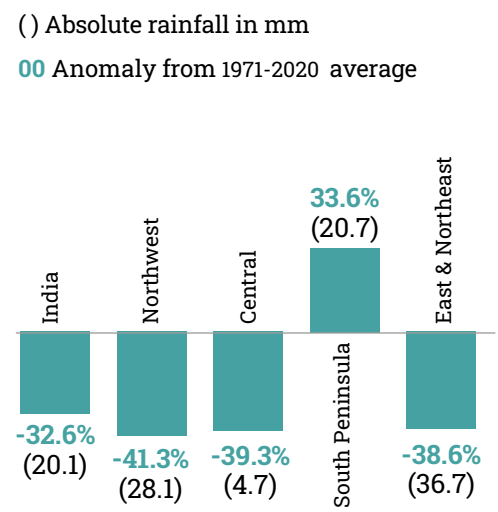
RAINFALL

India's overall rainfall was 32.6 per cent below the long-period average, with three regions recording deficits. Northwest India was the worst affected, with a shortfall of 41.3 per cent. South Peninsula was the only region to record above-normal rainfall, with an excess of 33.6 per cent.

Of India's 36 sub-divisions, 2 recorded no rainfall, 25 saw deficient to large deficient rains and only two received normal rainfall



Source: India Meteorological Department, Pune

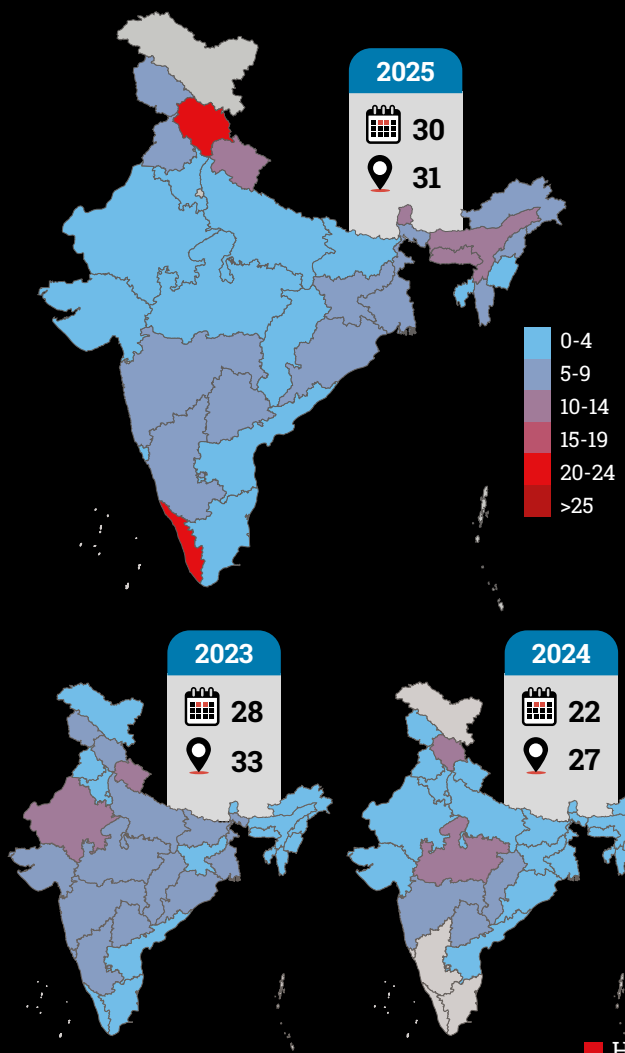


INDIA 2025
MARCH

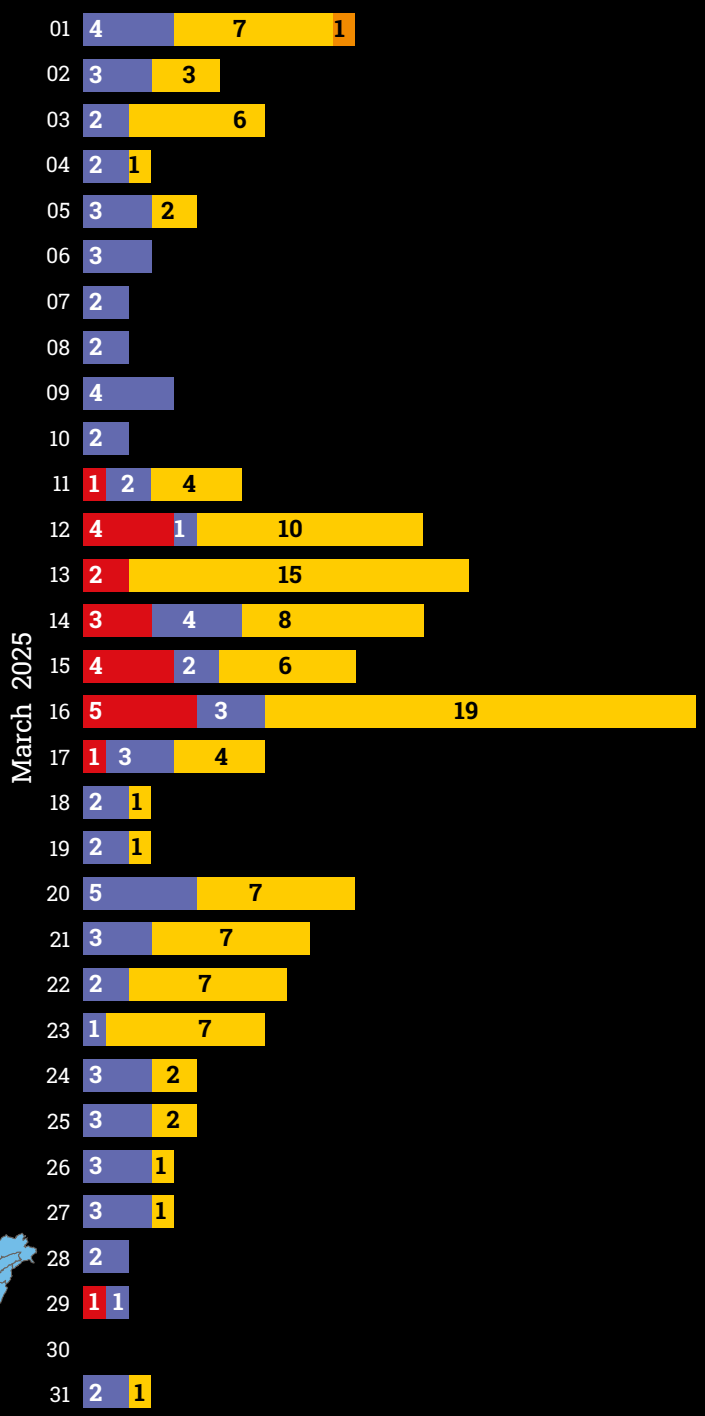
EXTREME WEATHER EVENTS

India experienced extreme weather events on 22 out of the 31 days in March. This was spread across 27 states/UTs. Himachal Pradesh and Uttar Pradesh were the worst hit with extreme weather events on 11 days in the month. Lightning and storms were recorded on 18 days in the month, followed by heavy rains, floods and landslides on 9 days.

EXTREME WEATHER EVENTS — Number of Days — Affected states



Bars indicate the number of states/UTs that experienced extreme weather events each day



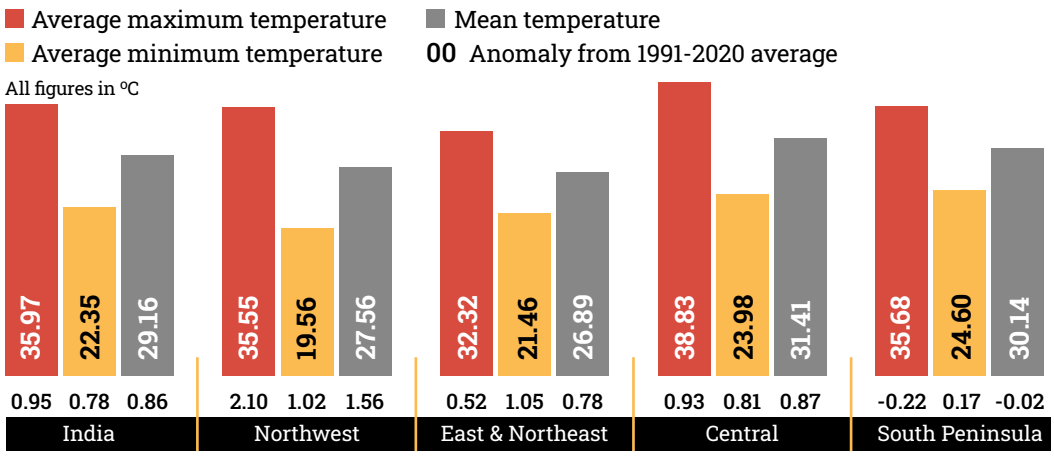
Heatwave (8 days) | Heavy rain, flood and landslide (29 days) | Lightning and storm (23 days) | Snowfall (1 day)

Sources: India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs and media reports

TEMPERATURE

This April, Northwest India recorded its third-highest maximum and mean temperatures since 1901, while Central India experienced its sixth-warmest mean temperature on record.

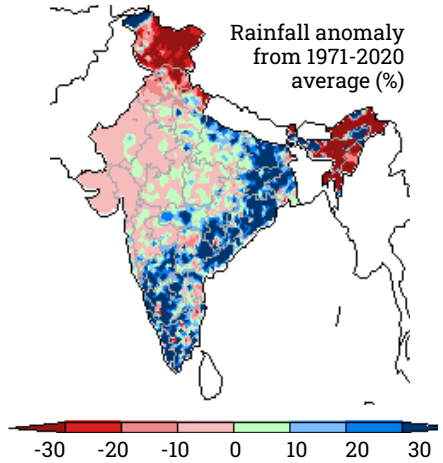
Maximum temperature of Northwest India was 2.10°C above the normal

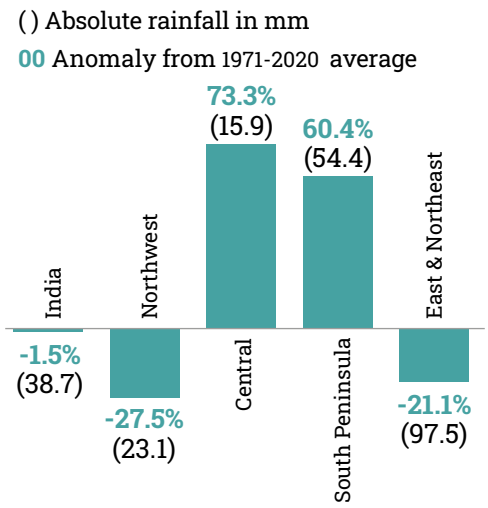


RAINFALL

Rainfall during the month was near normal, just 1.5 per cent below the Long Period Average of 39.3 mm. Central India and the South Peninsula saw surpluses of 73.3 and 60.4 per cent, while Northwest India and East and Northeast India recorded deficits of 27.5 and 21.1 per cent, respectively.

Of India's 36 sub-divisions, 17 saw excess to large excess rains and 11 received deficient to large deficient rains. 8 received normal rainfall





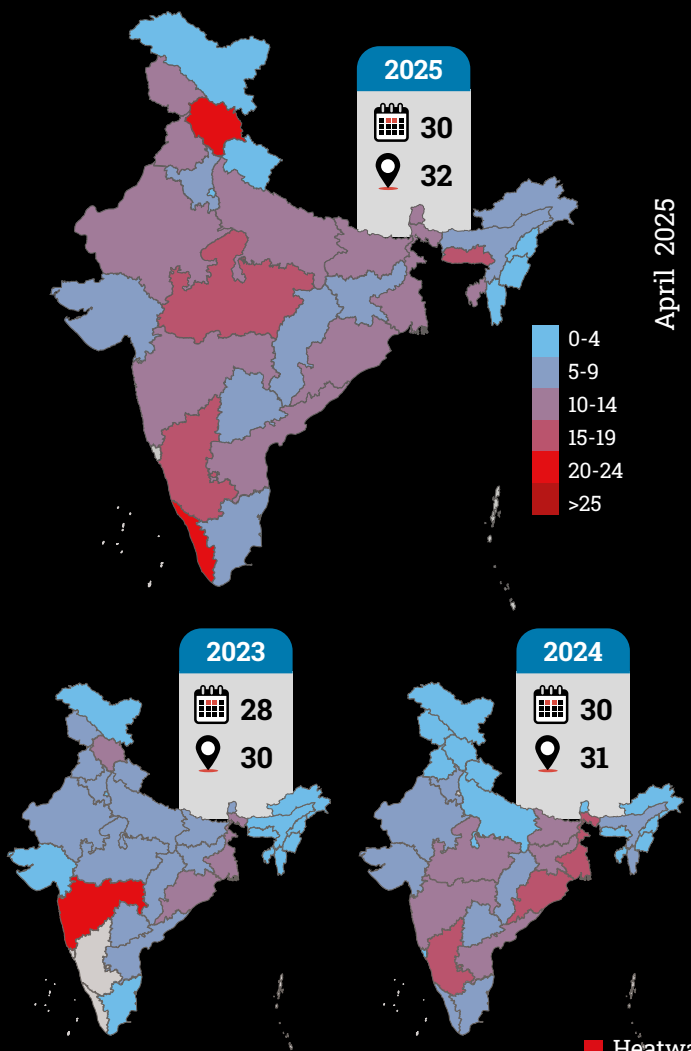
Source: India Meteorological Department, Pune

INDIA 2025
APRIL

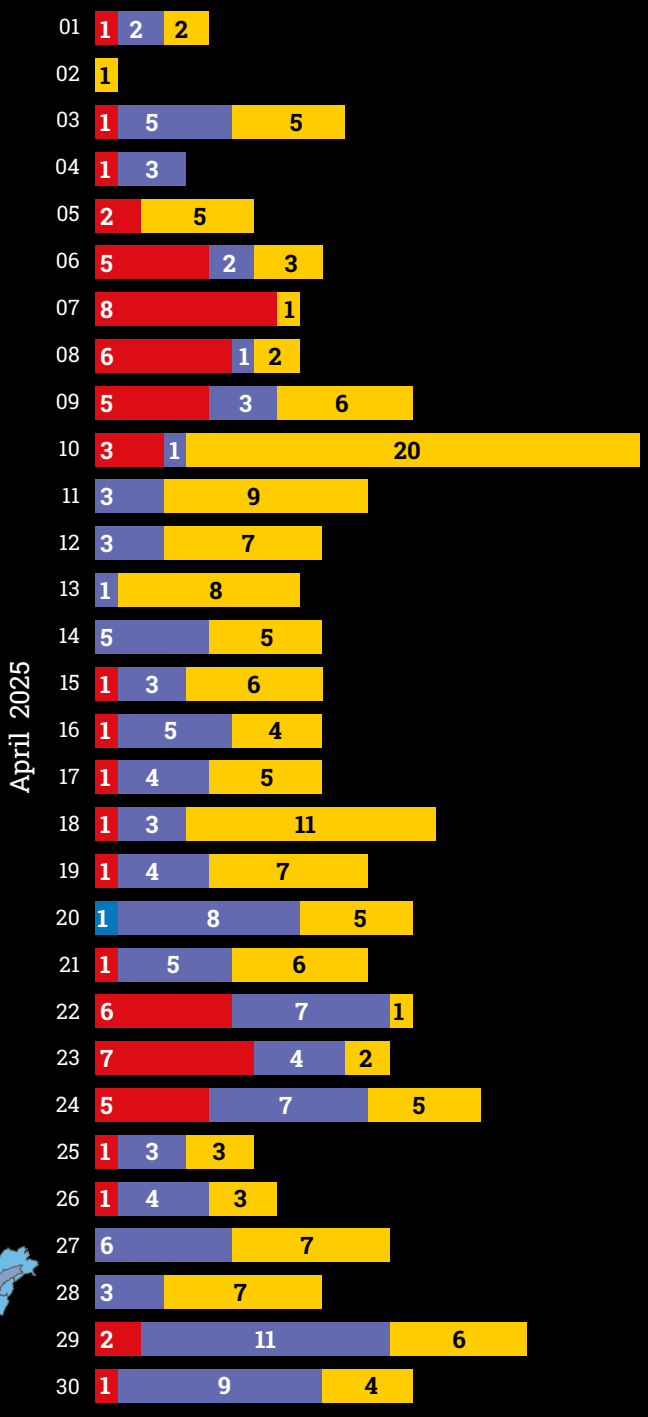
EXTREME WEATHER EVENTS

India experienced extreme weather events on all the 30 days in April. This was spread across 31 states/ UTs. Odisha was the worst hit with extreme weather events on 19 days, followed by West Bengal (18 days), and Karnataka (17 days).

EXTREME WEATHER EVENTS | Number of Days | Affected states



Bars indicate the number of states/UTs that experienced extreme weather events each day



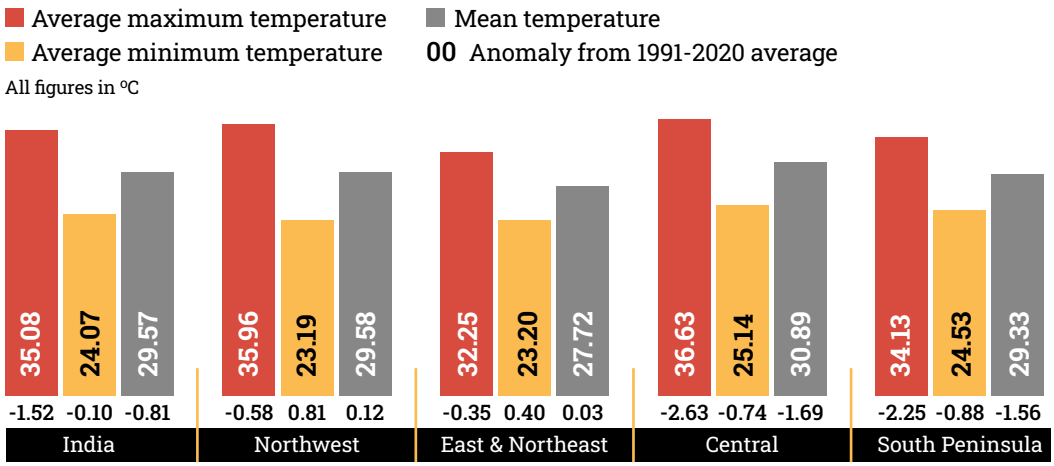
Heatwave **(22 days)** | Heavy rain, flood and landslide **(27 days)** | Lightning and storm **(29 days)** | Cloudburst **(1 day)**

Sources: India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs and media reports

TEMPERATURE

In May 2025, India's average maximum, minimum, and mean temperatures were 35.08°C, 24.07°C, and 29.57°C, respectively, below the normal by 1.52°C, 0.1°C, and 0.81°C. Central India recorded its second lowest maximum temperature in 124 years with an anomaly of -2.63°C.

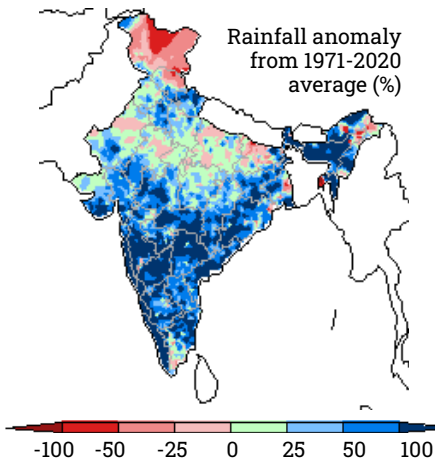
India recorded its fifth lowest maximum temperature for May in 2025

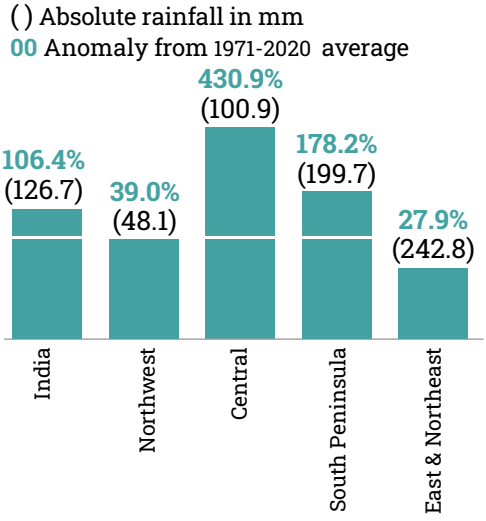


RAINFALL

With all regions receiving above-normal rainfall, India recorded a 106 per cent surplus for the month. Central India was particularly deluged, receiving 100.9 mm of rain against the normal 19 mm—a surplus of 430.9 per cent.

Of India's 36 sub-divisions, 30 recorded excess to large excess rainfall, while the remaining six received normal rainfall





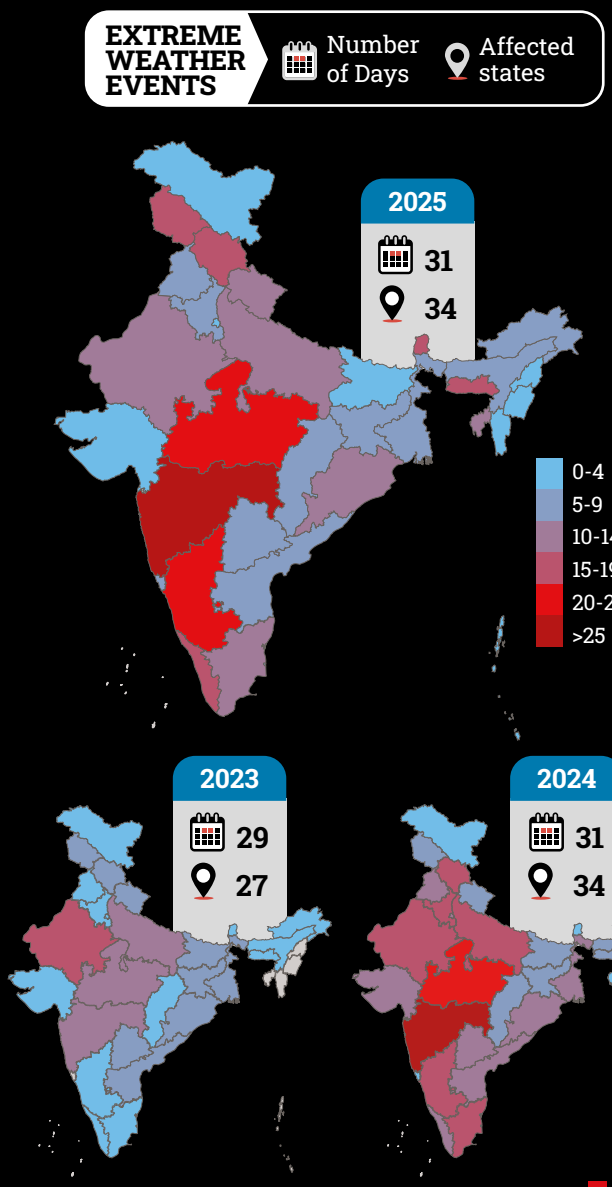
Source: India Meteorological Department, Pune

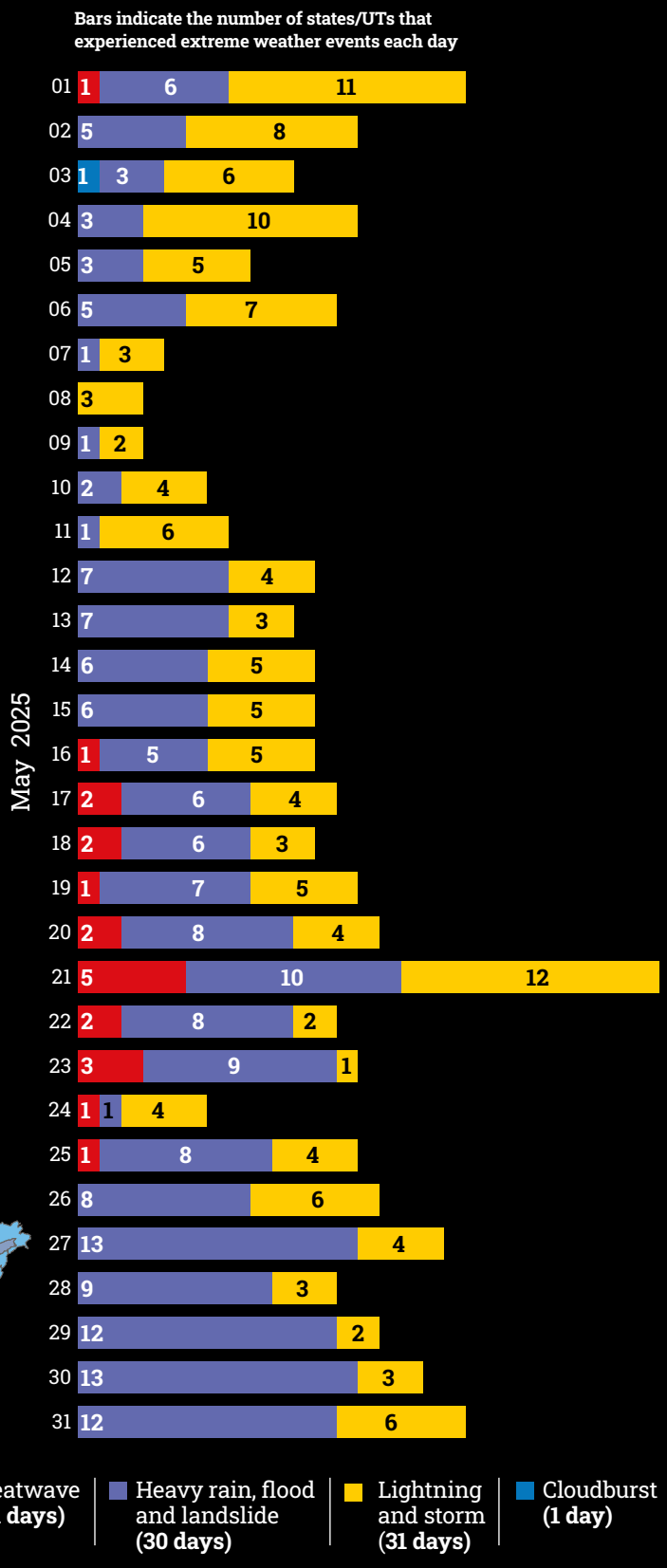
INDIA 2025

MAY

EXTREME WEATHER EVENTS

India experienced extreme weather events on all the 31 days in May. This was spread across 34 states/UTs. Maharashtra was the worst hit with extreme weather events on 25 days, followed by Madhya Pradesh (24 days), and Rajasthan and Tamil Nadu (19 days each).





Sources: India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs and media reports

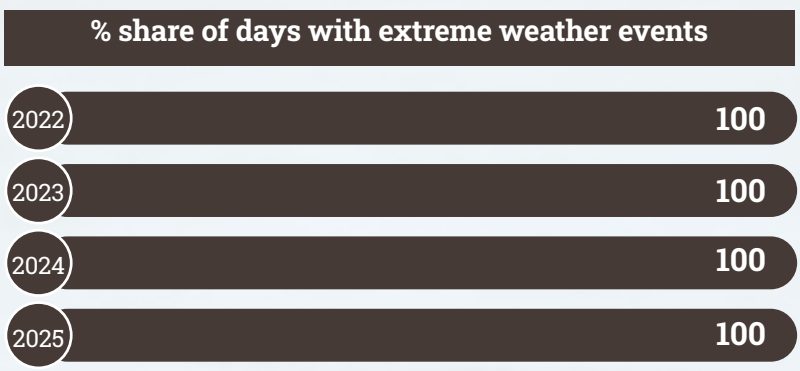
MONSOON

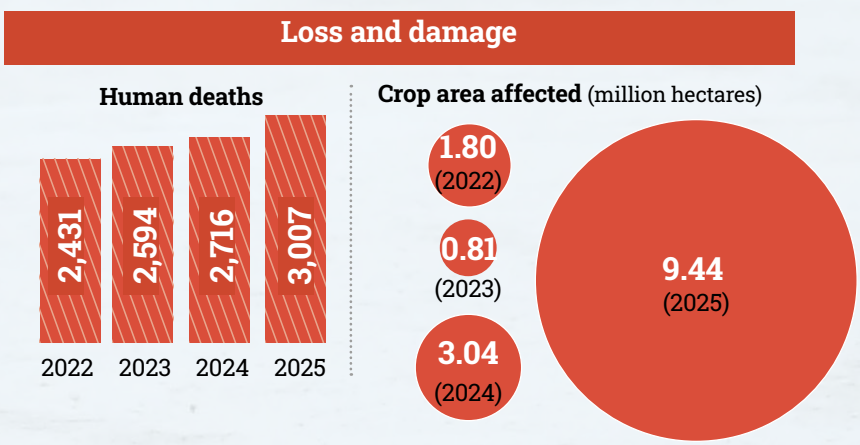
June-September 2025
(122 days)

India witnessed extreme weather on all 122 monsoon days in 2025, spanning 35 states and UTs.

Heavy rain, floods, and landslides occurred daily, followed by lightning and storms on 104 days, cloudbursts on 17, and heatwaves on 8. The events claimed 3,007 lives and damaged 9.44 million hectares of crops.

Himachal Pradesh was worst hit (103 days), followed by Gujarat and Madhya Pradesh (94 each).

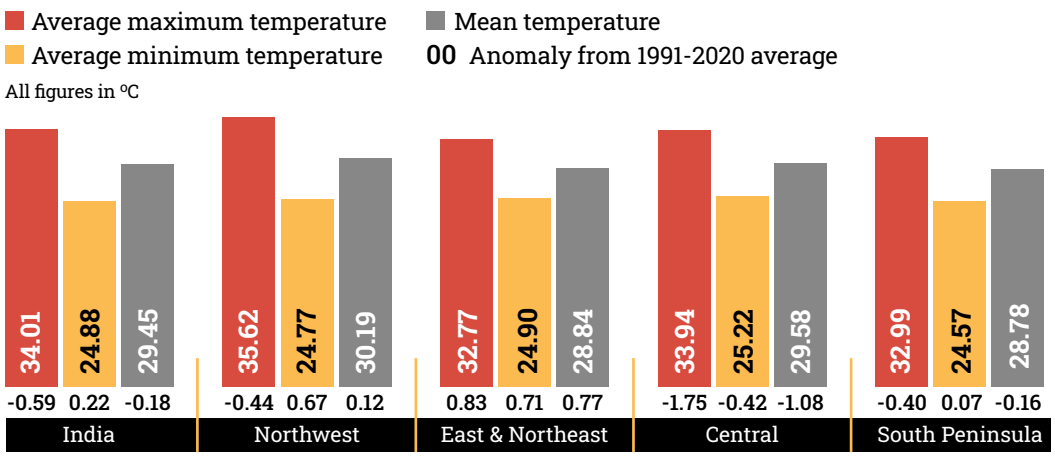




TEMPERATURE

This June, East and Northeast recorded its 7th highest minimum temperature and 9th highest mean temperature, while Central India and South Peninsular India remained cooler than normal for the month.

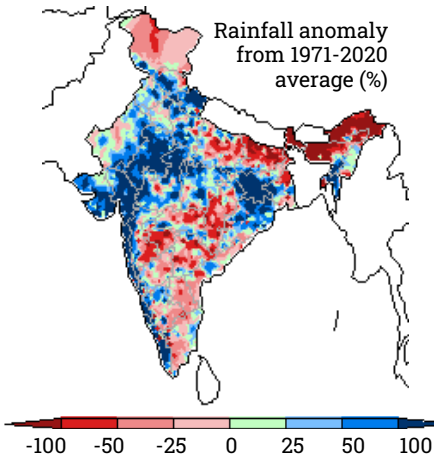
The maximum temperature for Centra India was 1.75ºC cooler than normal

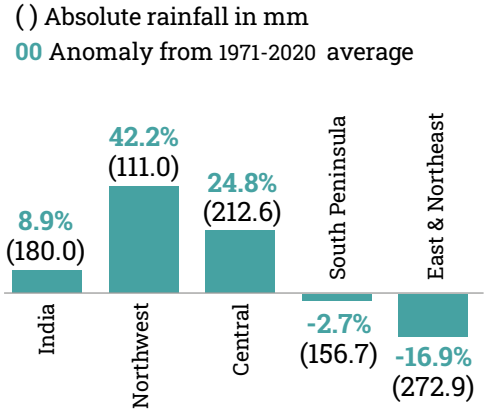


RAINFALL

While two regions, Northwest and Central India were wetter than normal, two others, South Peninsula and East and Northeast India received less rainfall than normal.

Of India's 36 sub-divisions, 30 recorded excess to large excess rainfall, while the remaining six received normal rainfall





Source: India Meteorological Department, Pune

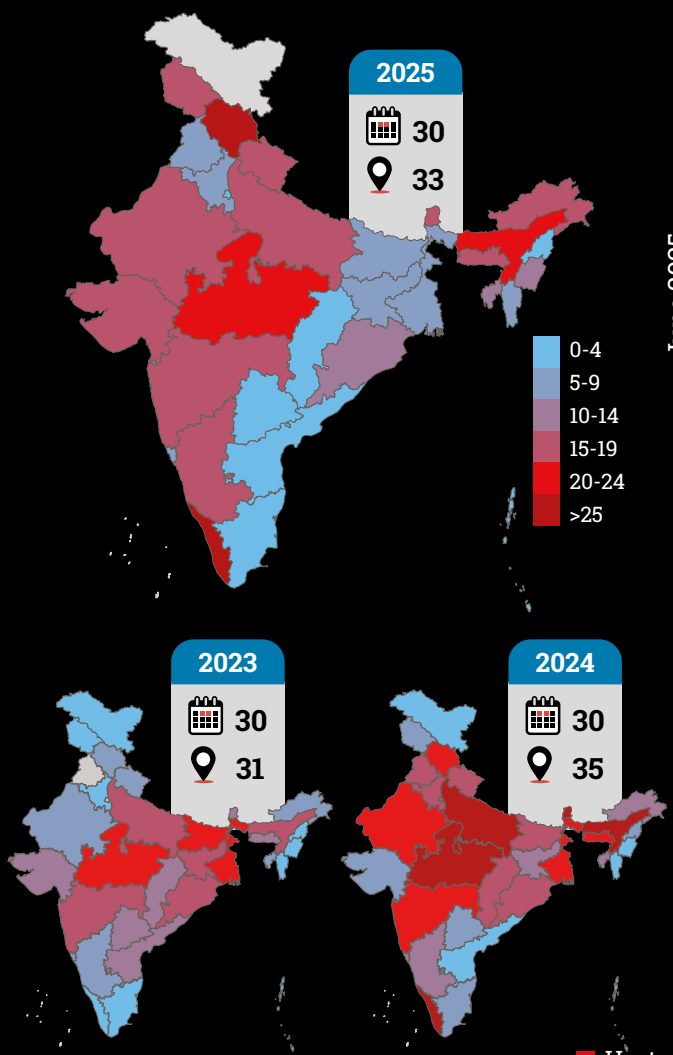
INDIA 2025

JUNE

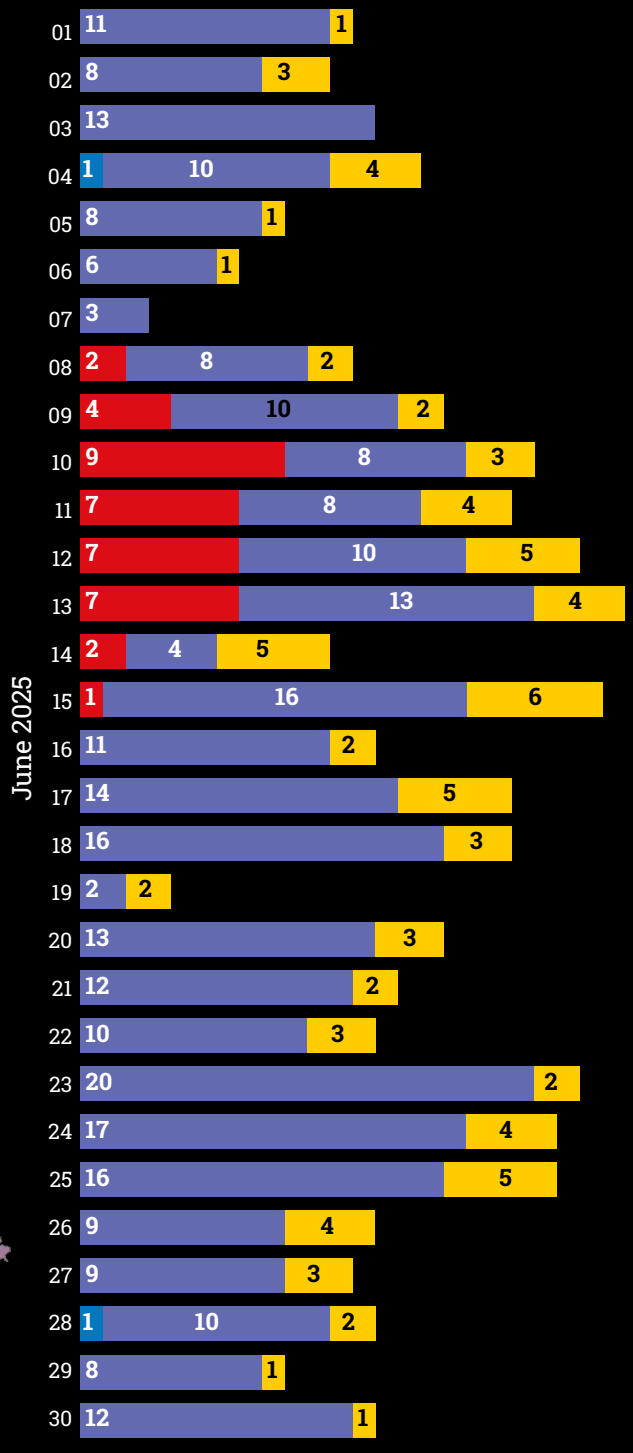
EXTREME WEATHER EVENTS

India experienced extreme weather events on all the 30 days in June. This was spread across 35 states/ UTs. Kerala and Uttar Pradesh were the worst hit with extreme weather events on 27 days each, followed by Assam (26 days), and Madhya Pradesh and Sikkim (25 days each).

EXTREME WEATHER EVENTS — Number of Days — Affected states



Bars indicate the number of states/UTs that experienced extreme weather events each day



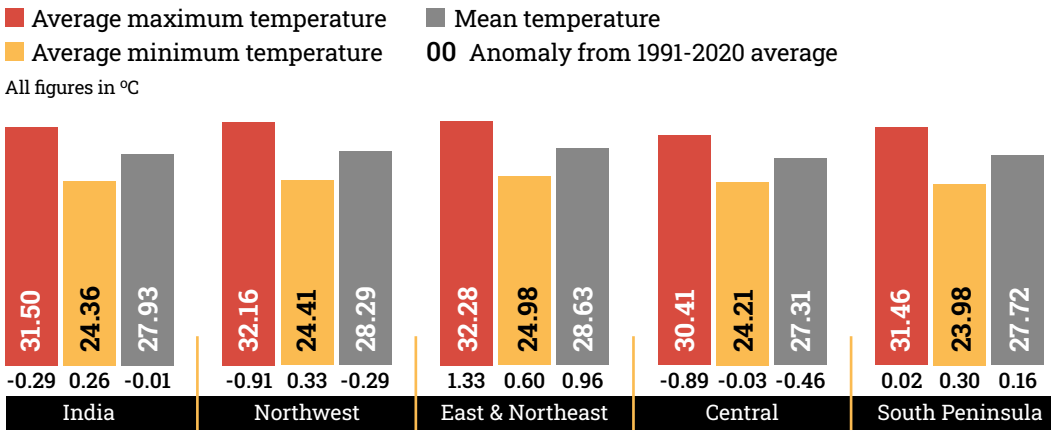
Heatwave **(8 days)** | Heavy rain, flood and landslide **(30 days)** | Lightning and storm **(28 days)** | Cloudburst **(2 days)**

Sources: India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs and media reports

TEMPERATURE

In July 2025, East and Northeast India experienced its fourth warmest July in 124 years, with maximum temperatures 1.33°C above and minimum temperatures 0.6°C above the long-period average.

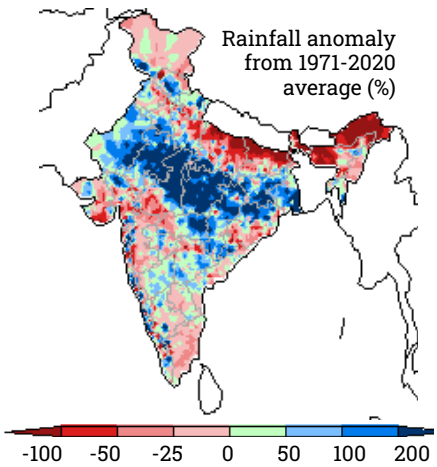
South Peninsular recorded its seventh highest minimum temperature in 124 years

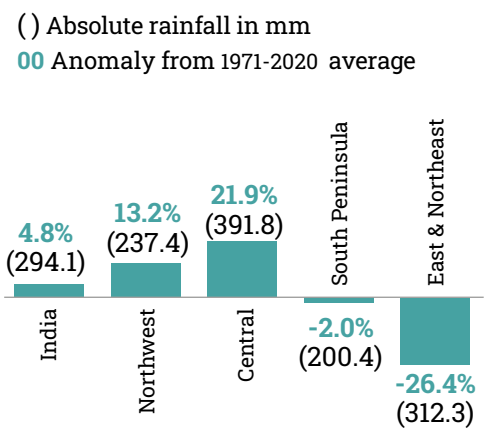


RAINFALL

In July 2025, India recorded total rainfall of 294.1 mm, exceeding the long period average by 4.8 per cent. Central and Northwest India experienced excess rainfall of 21.9 per cent and 13.2 per cent, respectively. In contrast, East and Northeast faced a deficit of 26.4 per cent.

Of India's 36 sub-divisions, 10 recorded excess to large excess rainfall, while 18 received normal and 8 received deficient rainfall





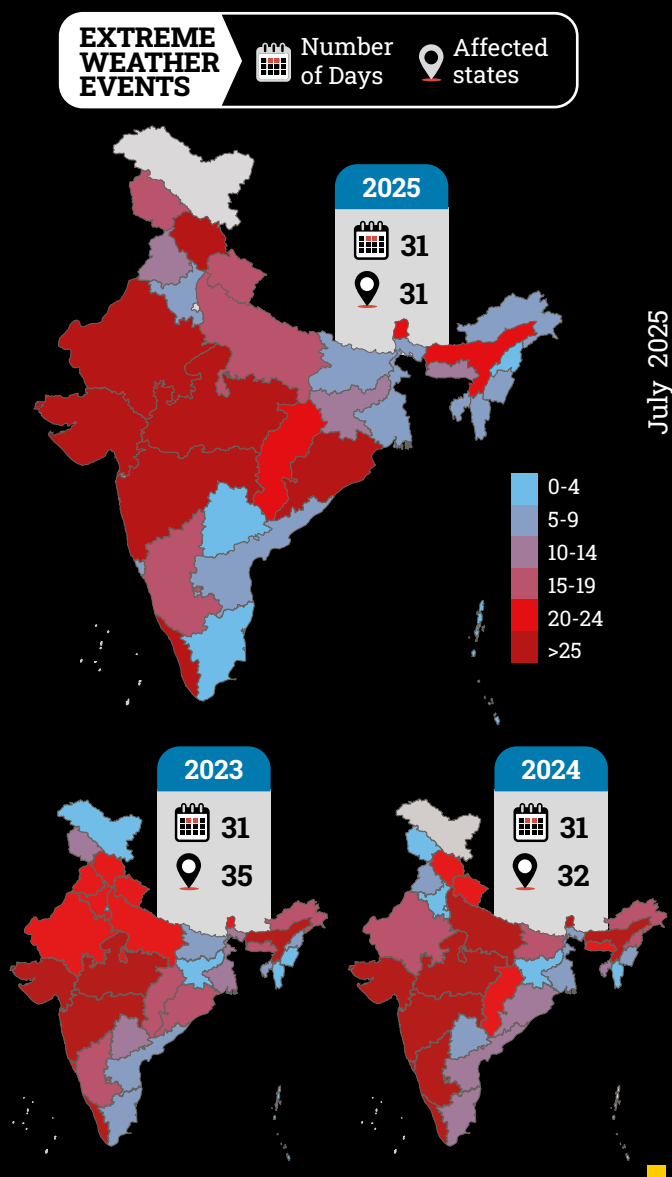
Source: India Meteorological Department, Pune

INDIA 2025

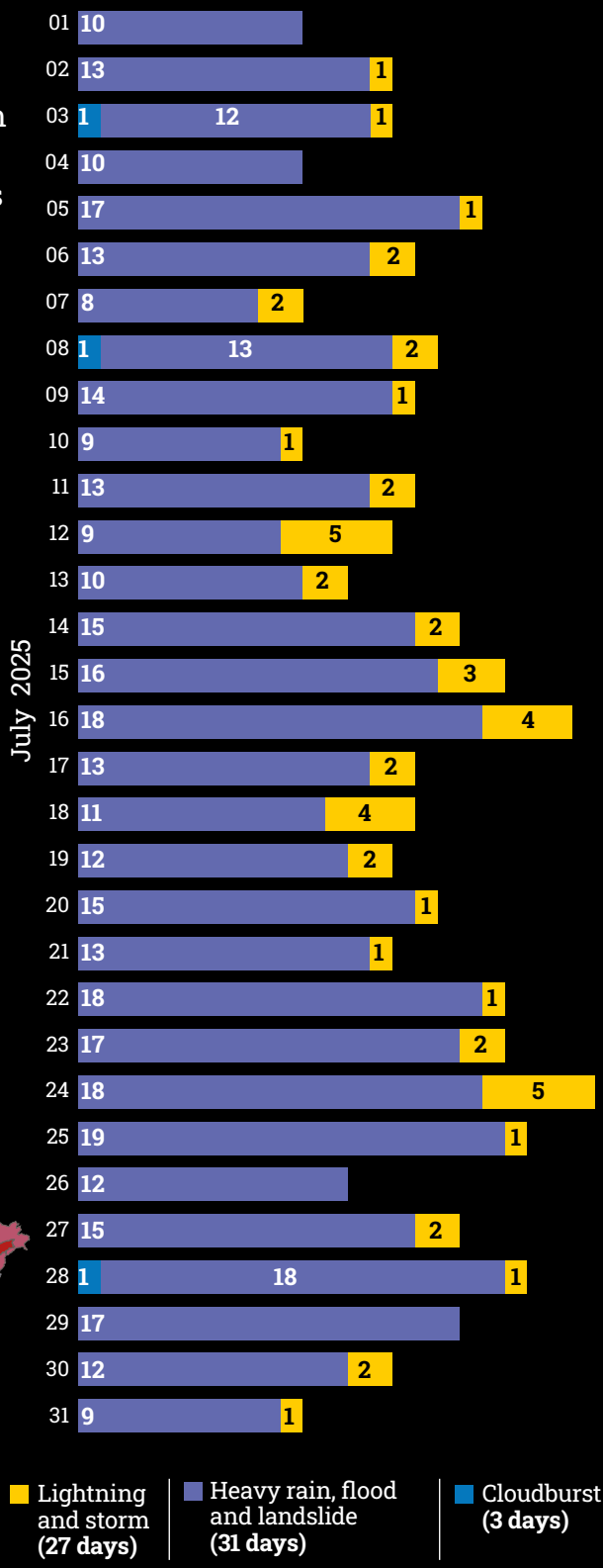
JULY

EXTREME WEATHER EVENTS

India experienced extreme weather events on all the 31 days in July. This was spread across 32 states/UTs. Assam and Uttar Pradesh were the worst hit with extreme weather events on 31 days each, followed by Gujarat (30 days), and Karnataka and Kerala (29 days each).



Bars indicate the number of states/UTs that experienced extreme weather events each day

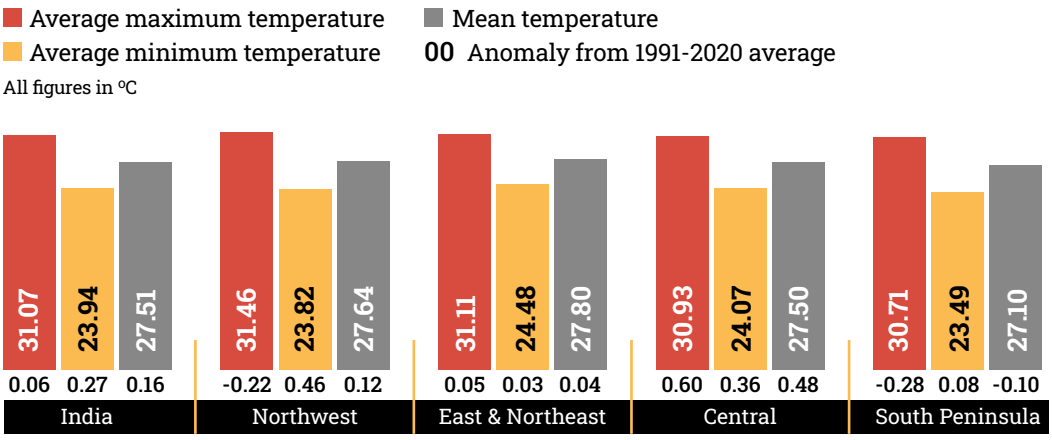


Sources: The India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs and media reports

TEMPERATURE

In August 2025, India's average maximum, minimum and mean temperatures were 31.07°C, 23.94°C and 27.51°C, respectively, below the normal by 0.06°C, 0.27°C, and 0.16°C. Central India recorded its fifth highest minimum temperature in 124 years.

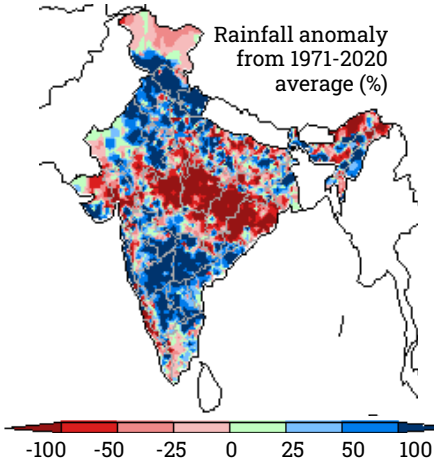
India recorded its 7th highest minimum temperature for August in 2025

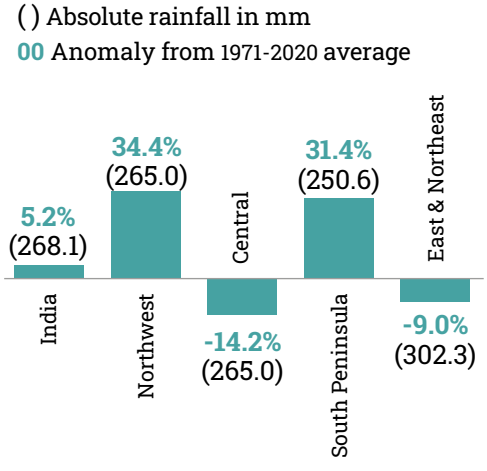


RAINFALL

India recorded slightly above-normal rainfall in August, with two regions receiving surplus rains and the others facing a deficit. The Northwest region registered the highest surplus at 34.4 per cent, while Central India experienced a shortfall of 14.2 per cent.

Of India's 36 sub-divisions, 14 recorded excess to large excess rainfall, while 17 received normal and 5 received deficient rainfall





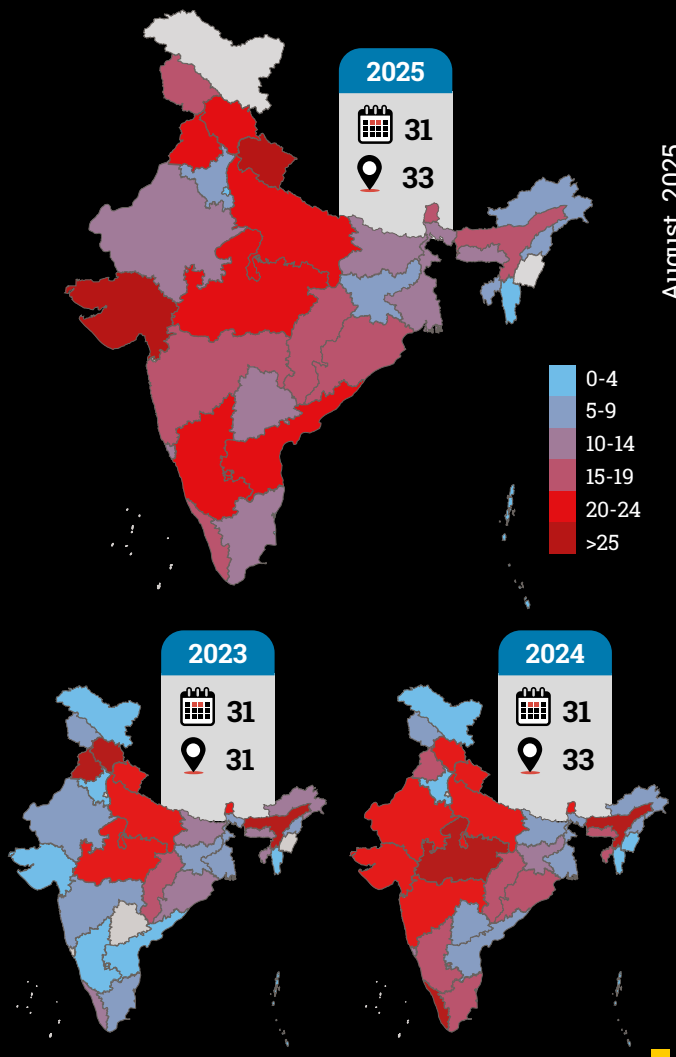
Source: India Meteorological Department, Pune

INDIA 2025
AUGUST

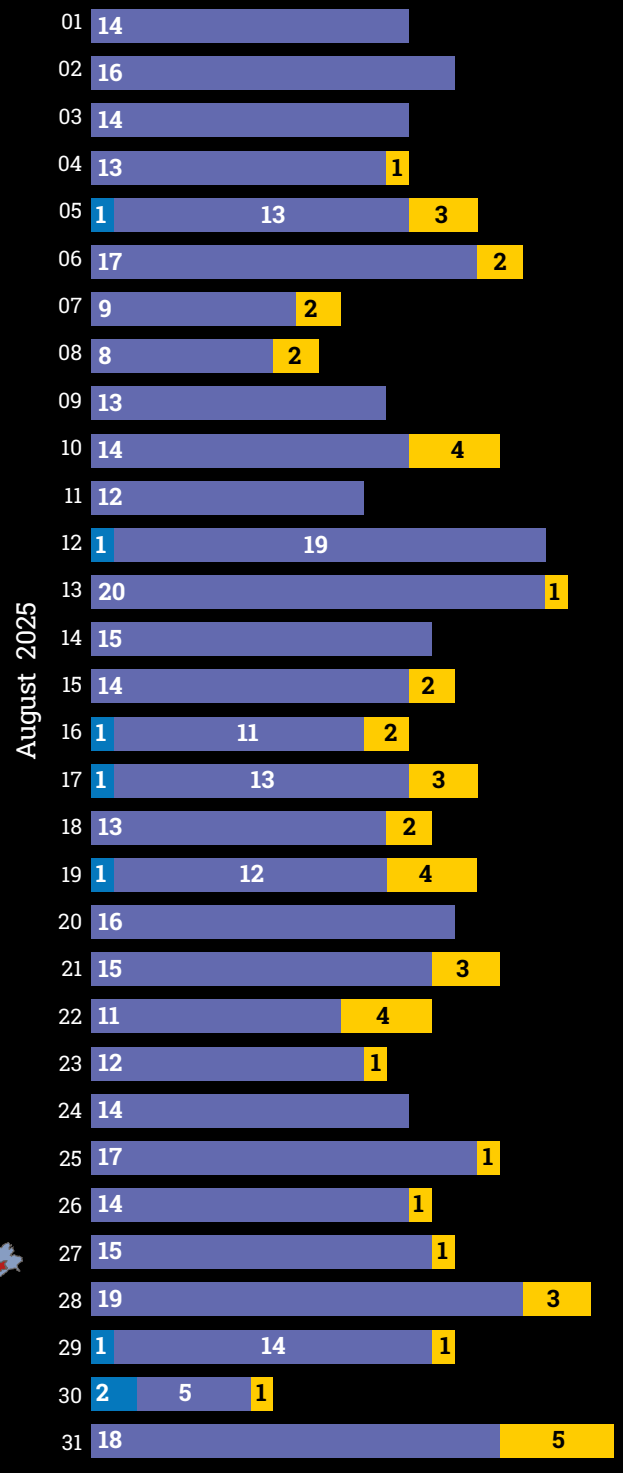
EXTREME WEATHER EVENTS

India experienced extreme weather events on all the 31 days in August. This was spread across 33 states/UTs. Assam was the worst hit with extreme weather events on 29 days, followed by Madhya Pradesh and Kerala (27 days each).

EXTREME WEATHER EVENTS — Number of Days | Affected states



Bars indicate the number of states/UTs that experienced extreme weather events each day

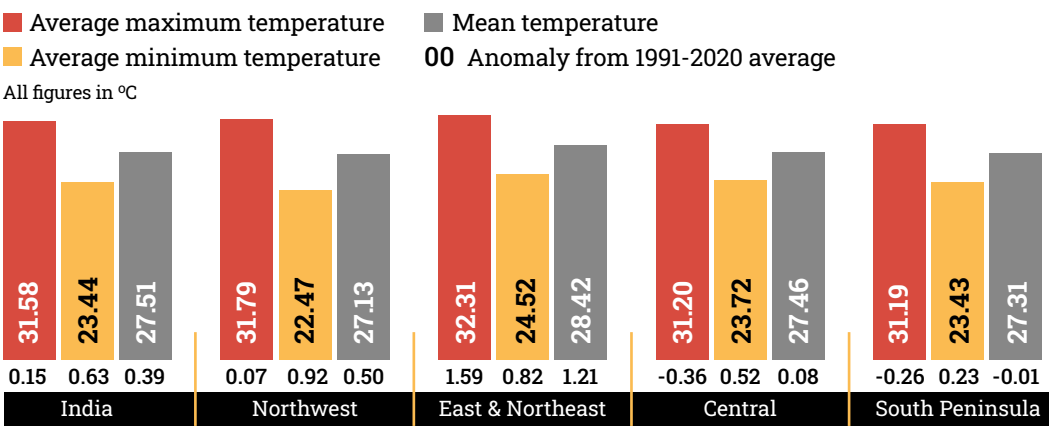


Sources: India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs and media reports

TEMPERATURE

This September, India recorded its seventh highest mean temperature for the month. The minimum temperature was also the 5th highest on record.

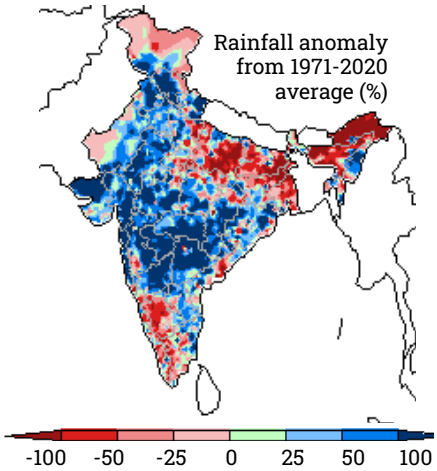
East & Northeast India recorded its 3rd hottest-ever September

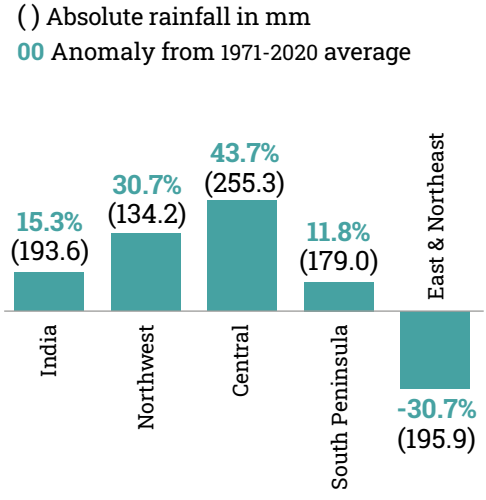


RAINFALL

With three regions recording a surplus, India experienced a near-normal rain this September (193.6 mm). Central and Northwest India experienced 43.7 and 30.7 per cent surplus rainfall respectively. In contrast, East & Northeast India recorded a 30.7 per cent deficit rainfall.

Of India's 36 sub-divisions, 19 recorded excess to large excess rainfall, while 10 received normal and 7 received deficient rainfall



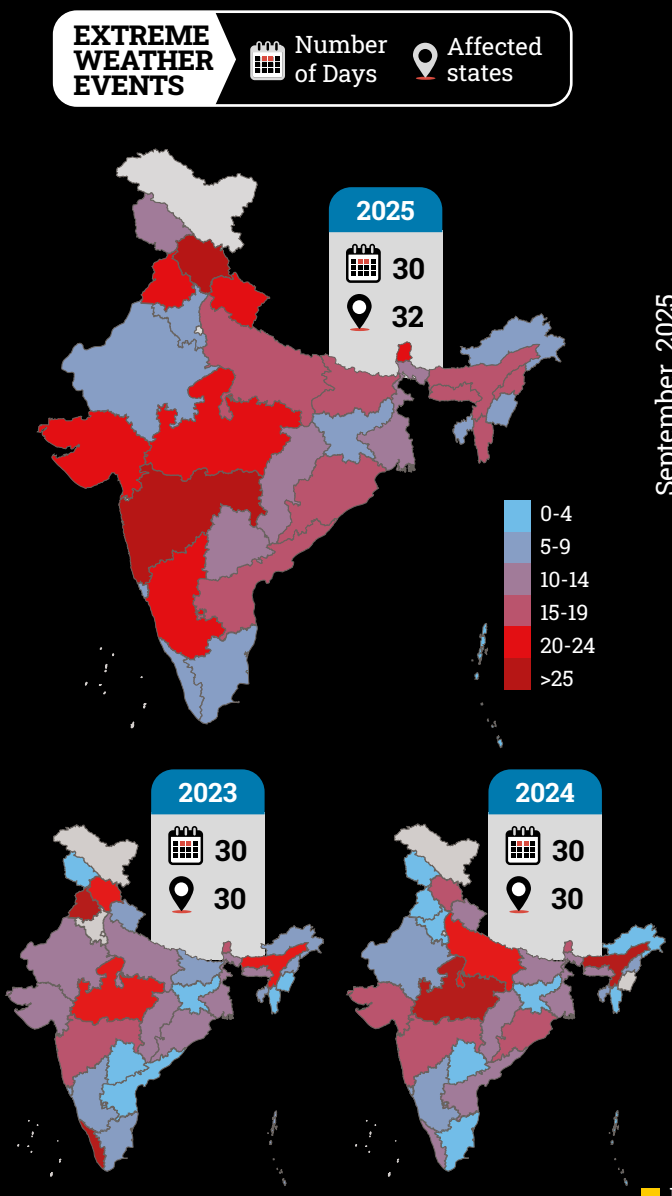


Source: India Meteorological Department, Pune

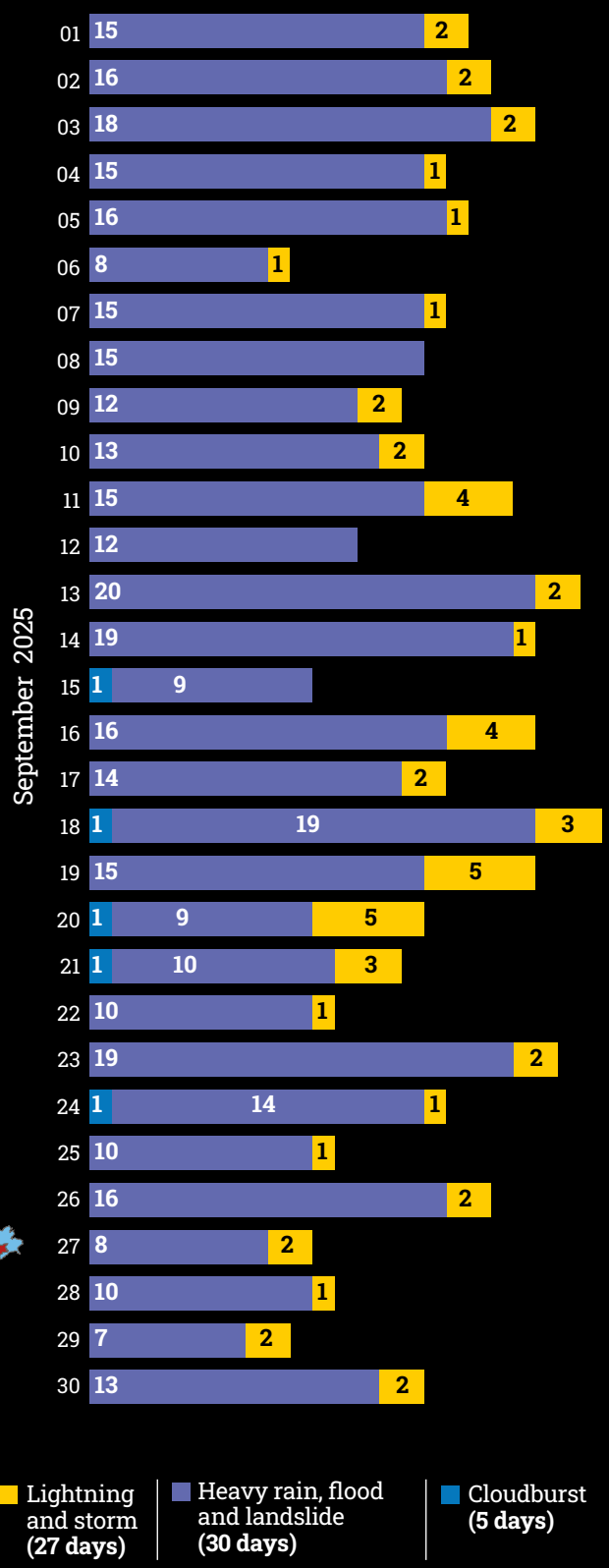
INDIA 2025
SEPTEMBER

EXTREME WEATHER EVENTS

India experienced extreme weather events on all 30 days in September. This was spread across 30 states/ UTs. Madhya Pradesh was the worst hit with extreme weather events on 26 days, followed by Assam (25 days) and Uttar Pradesh (24 days).



Bars indicate the number of states/UTs that experienced extreme weather events each day



Sources: India Meteorological Department, Pune, Disaster Management Division under the Union Ministry of Home Affairs and media reports

EXTREME WEATHER EVENTS

TYPES OF DISASTERS

Of the seven types of extreme weather events analysed, India experienced six between January and September 2025—all except cyclones.

Despite being drier than usual, the winter season (January–February) recorded 51 days of heavy rain, floods and landslides, pointing to localised, short but intense rainfall episodes. It also saw three heatwave days — the earliest such occurrence since 2022.

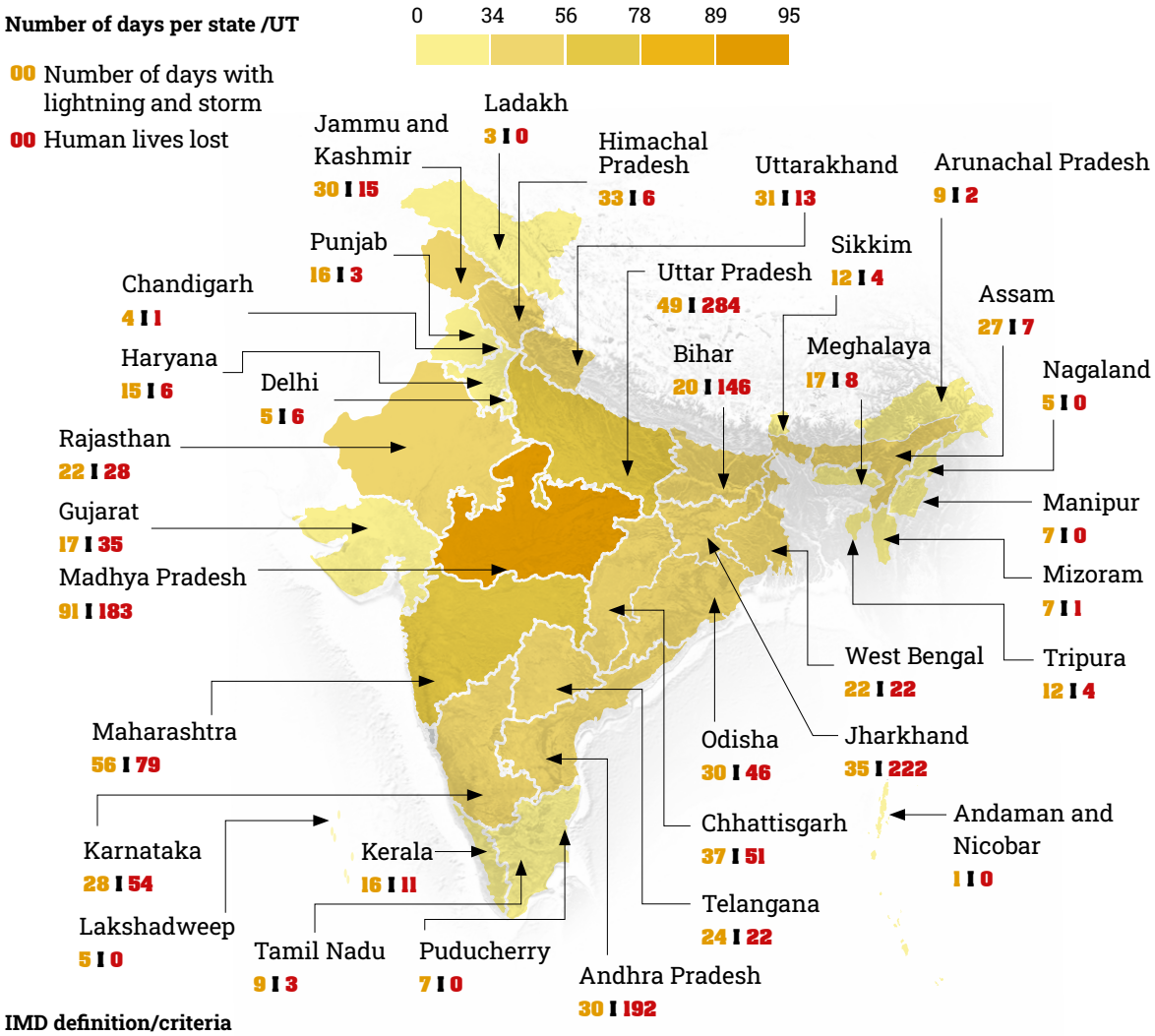
In the pre-monsoon season (March–May), heavy rain, floods and landslides were again the most frequent events — a shift from previous years when hailstorms, classified under lightning and storms, dominated. Heatwaves were reported in 19 states and UTs, including the Himalayan regions of Himachal Pradesh, Jammu and Kashmir, and Ladakh.

The monsoon season (June–September) proved relentless, with heavy rain, floods and landslides reported on all 122 days, along with 17 days of cloudbursts — the highest since 2022.

INDIA 2025

LIGHTNING AND STORM

On 204 of 273 days, India experienced lightning and storms. They claimed 1,456 lives



IMD definition/criteria

Lightning is an electrical discharge caused by imbalances between storm clouds and the ground or within the clouds themselves. Storm includes duststorms (caused by thunderstorms or strong pressure gradients associated with cyclones which increase wind speed over a wide area), hailstorms (an outgrowth of a severe thunderstorm in which balls or irregularly shaped lumps of ice fall with the rain), thunderstorms and gales (a very strong wind).

FREQUENCY TRACKER

Number of days lightning and storm were recorded in India

HEAVY RAIN, FLOOD AND LANDSLIDE

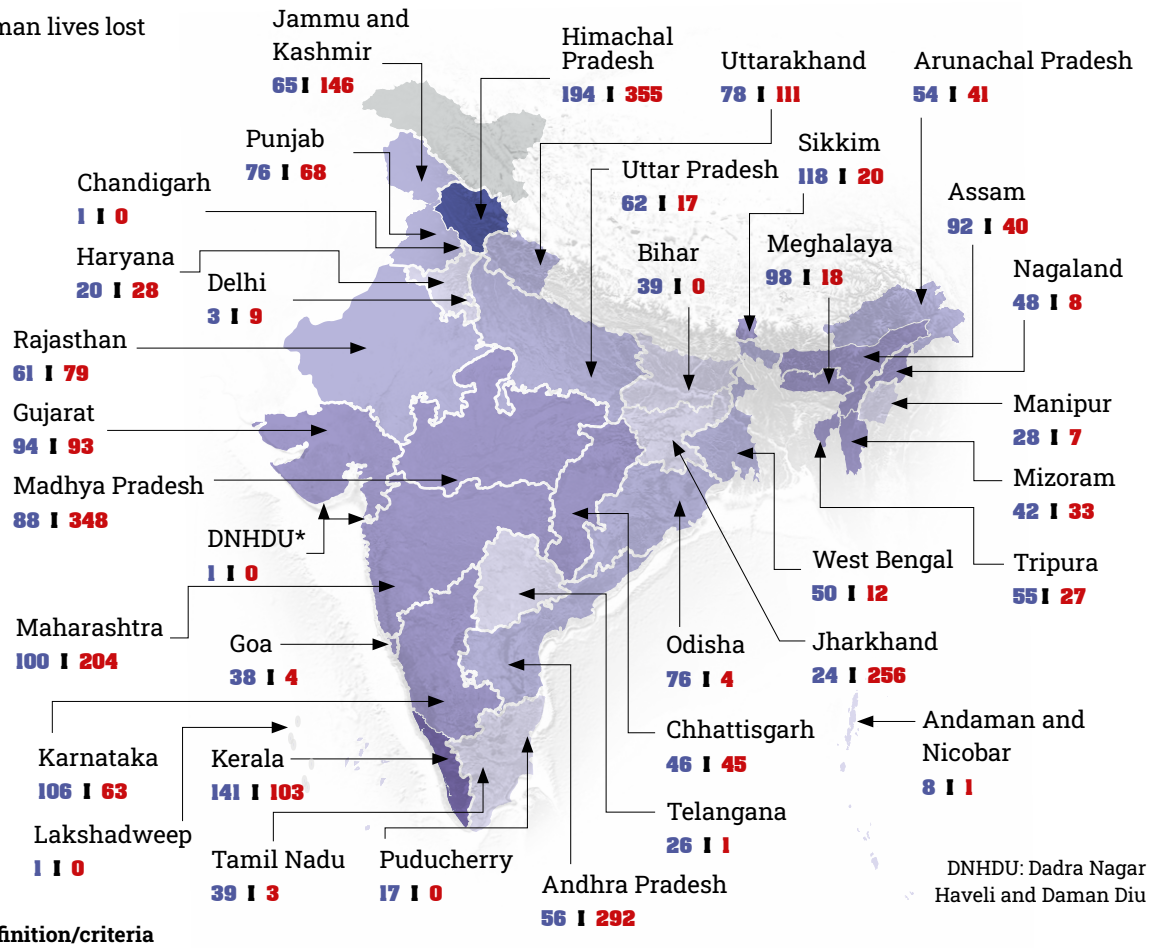
On 259 of 273 days, India experienced the extreme weather event. They claimed 2,440 lives

Number of days per state /UT

0 40 80 120 160 200

00 Number of days with heavy rain, flood and landslide

00 Human lives lost



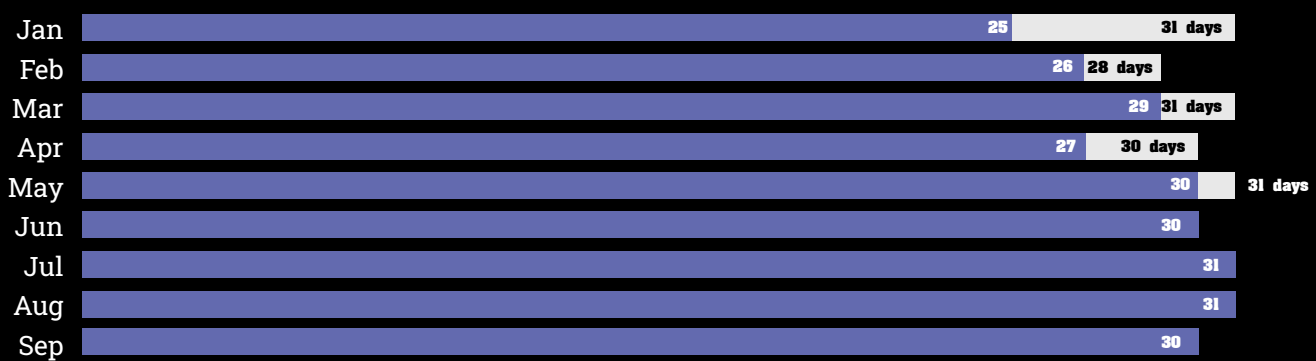
DNHDU: Dadra Nagar Haveli and Daman Diu

IMD definition/criteria

Heavy rainfall happens when a region receives 64.5-115.5 mm rain in 24 hours. In the case of very heavy rainfall, the threshold increases to 115.6-204.4 mm and in extremely heavy rainfall it is 204.5 mm or more. The report has considered all very heavy and extremely heavy rainfall events, and heavy rainfall events only when they have caused damages.

FREQUENCY TRACKER

Number of days heavy rain, flood and landslide were recorded in India



INDIA 2025

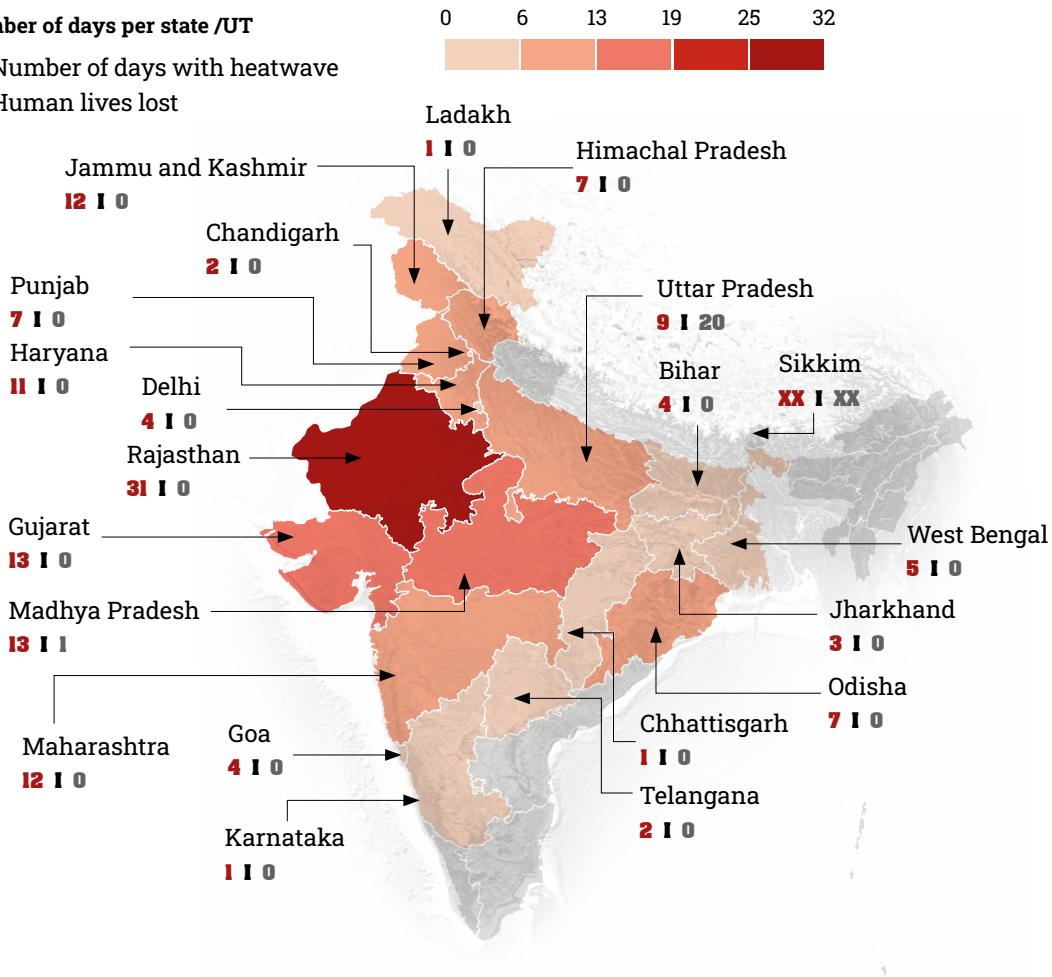
HEATWAVE

On 52 of 273 days, India experienced heatwaves. They claimed 21 lives

Number of days per state /UT

00 Number of days with heatwave

00 Human lives lost

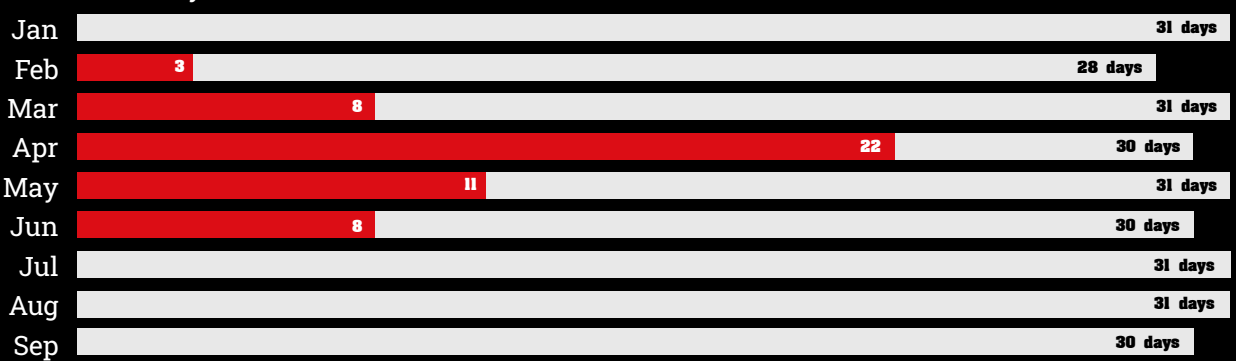


IMD definition/criteria

Heatwave conditions signify a certain amount of rise in temperature at a given place with respect to normal climatological value. The report has considered heatwaves (4.5°C to 6.4°C departure of the maximum temperature from normal), and severe heatwaves (departure of more than 6.4°C).

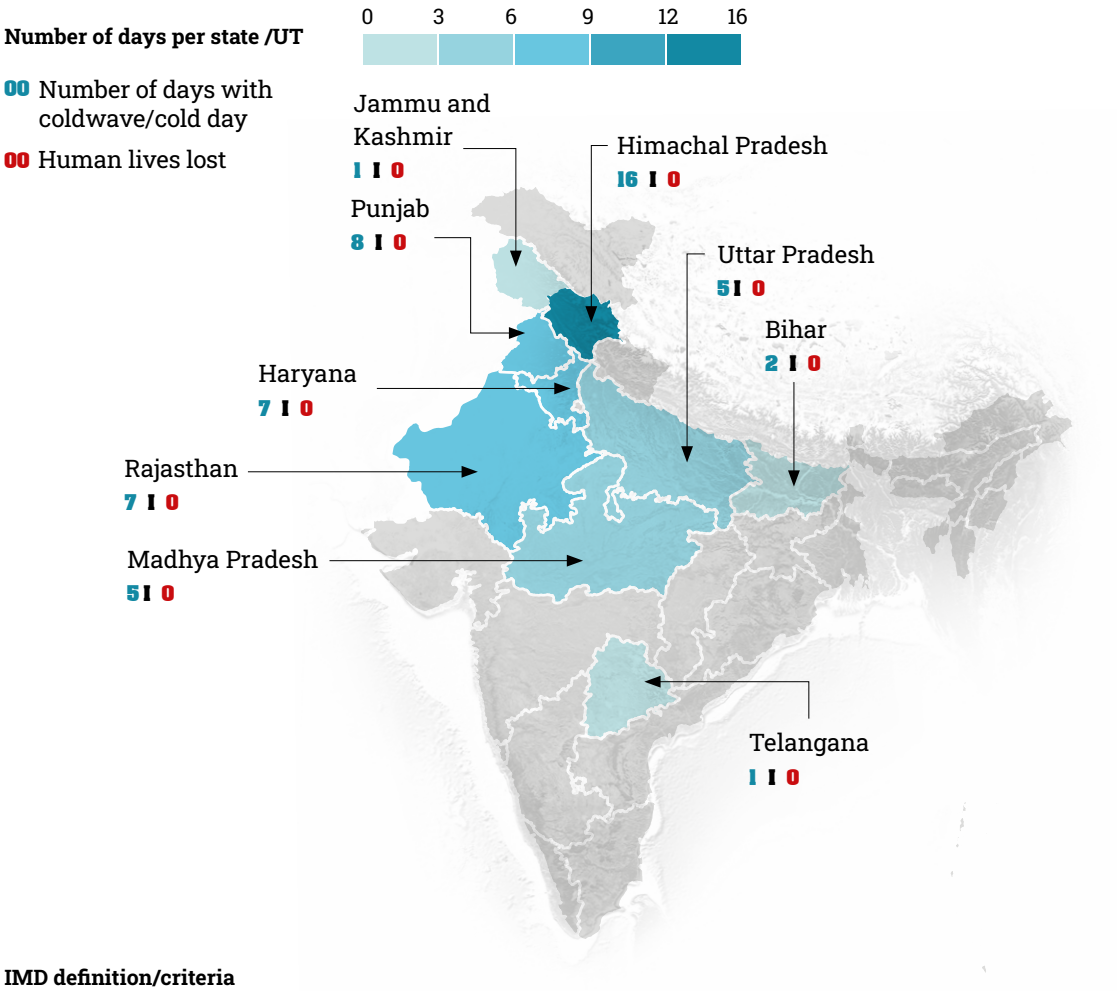
FREQUENCY TRACKER

Number of days heatwave were recorded in India



COLDWAVE/COLD DAY

On 26 of 273 days, India experienced coldwave/cold days



IMD definition/criteria

Cold day conditions occur when the maximum temperature drops by 4.5°C to 6.4°C than average. If the deviation is more than 6.4°C, then it is considered severe cold day. Coldwave conditions occur when the minimum temperature drops by 4.5°C to 6.4°C than normal. Similarly, severe coldwave occurs when the minimum temperature drops by more than 6.4°C than normal. The report has considered all the four categories.

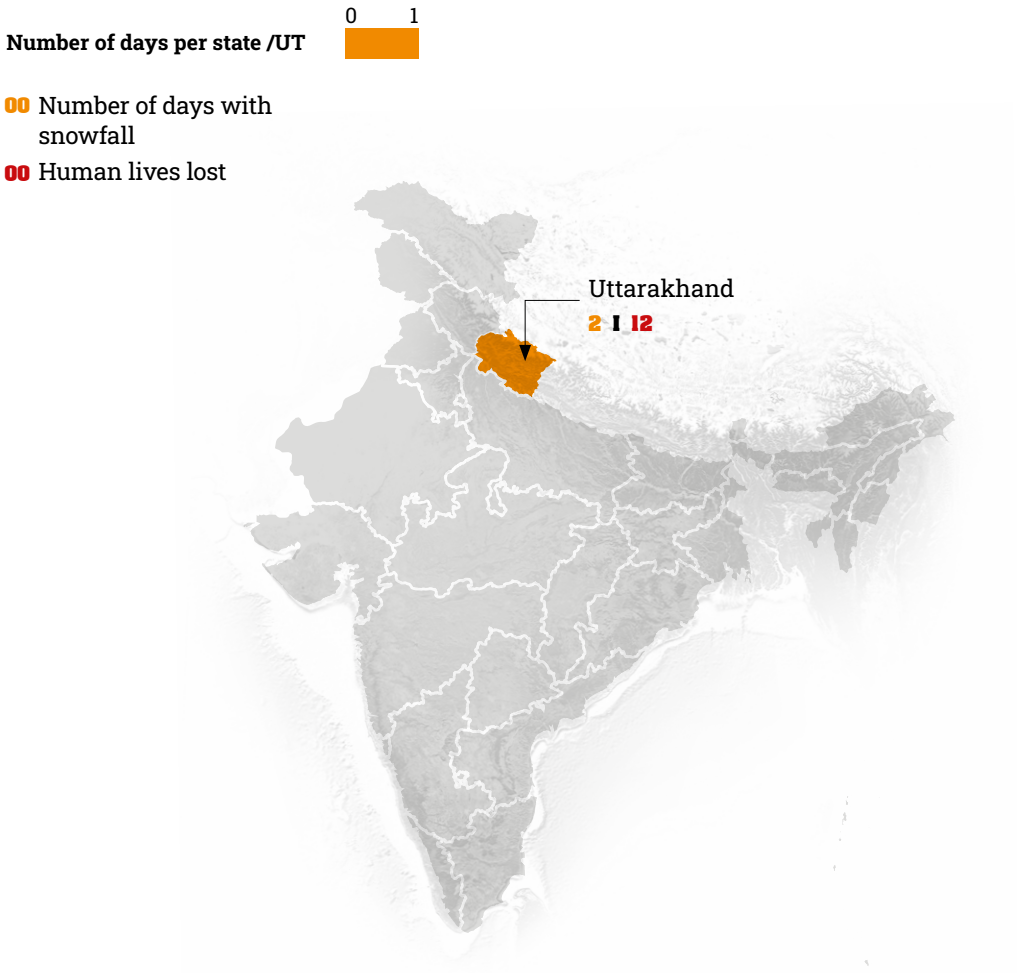
FREQUENCY TRACKER

Number of days with coldwave/cold day

INDIA 2025

SNOWFALL

On 2 of 273 days, India experienced snowfall. It caused 12 human death

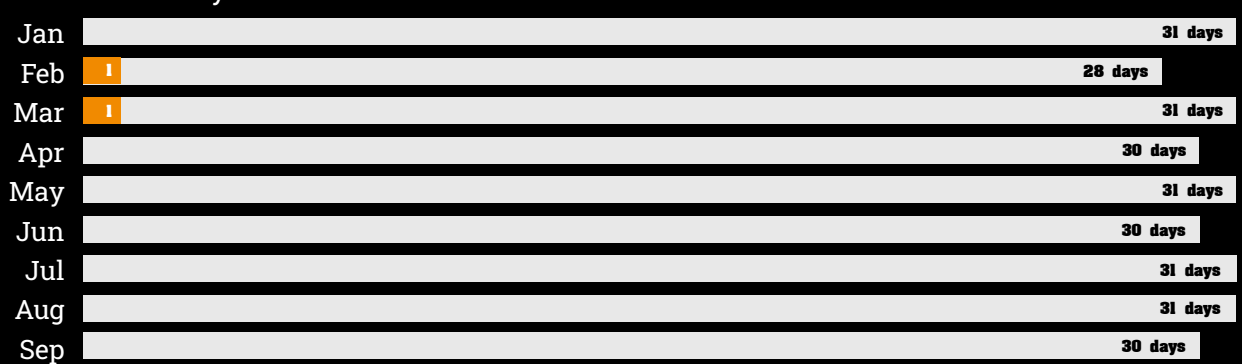


IMD definition/criteria

Snowfall is a hydrological hazard where a large amount of snow can affect transport, crops and people. Annual Disaster Weather Report by IMD reports the snowfall cases over India that caused human deaths. The report has also considered only those snowfall events that caused human deaths.

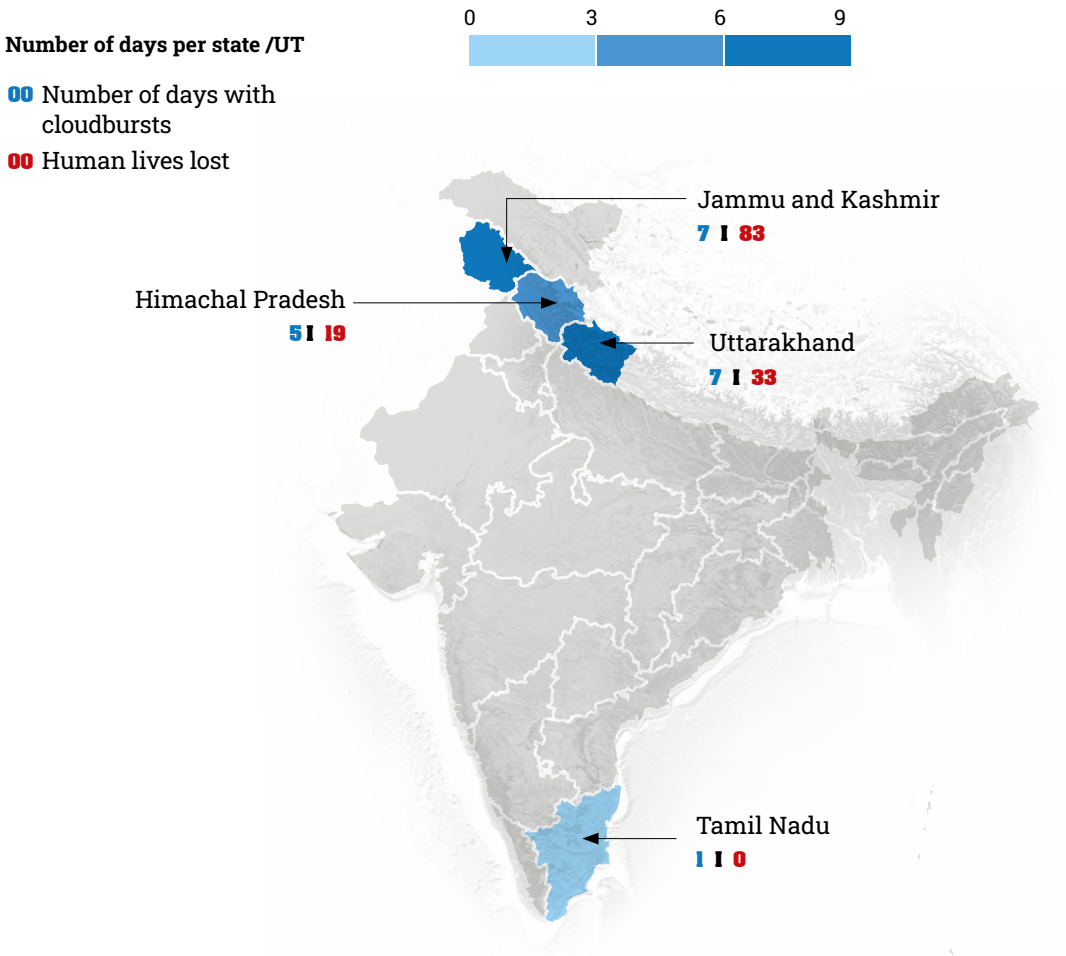
FREQUENCY TRACKER

Number of days with snowfall



CLOUDBURST

On 19 of 273 days, India experienced cloudbursts. They claimed 135 lives

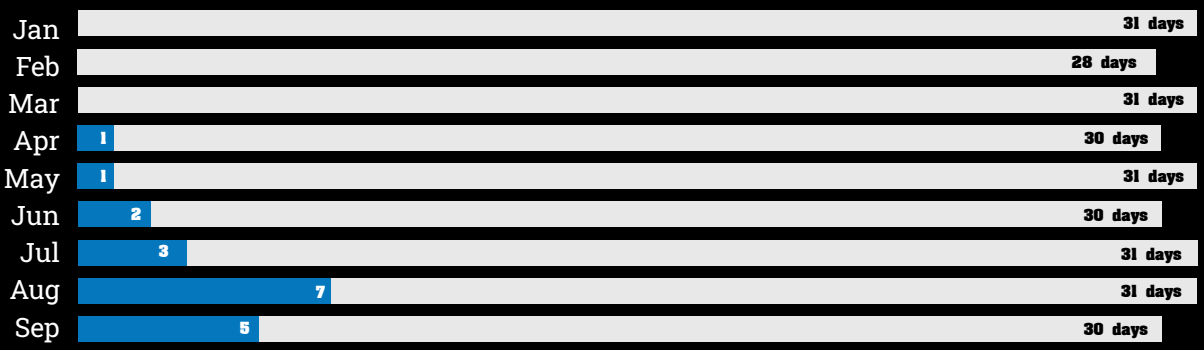


IMD definition/criteria

Cloudburst is very heavy rainfall (100 mm per hour) over a localised area.
It is accompanied with strong winds and lightning.

FREQUENCY TRACKER

Number of days with cloudburst



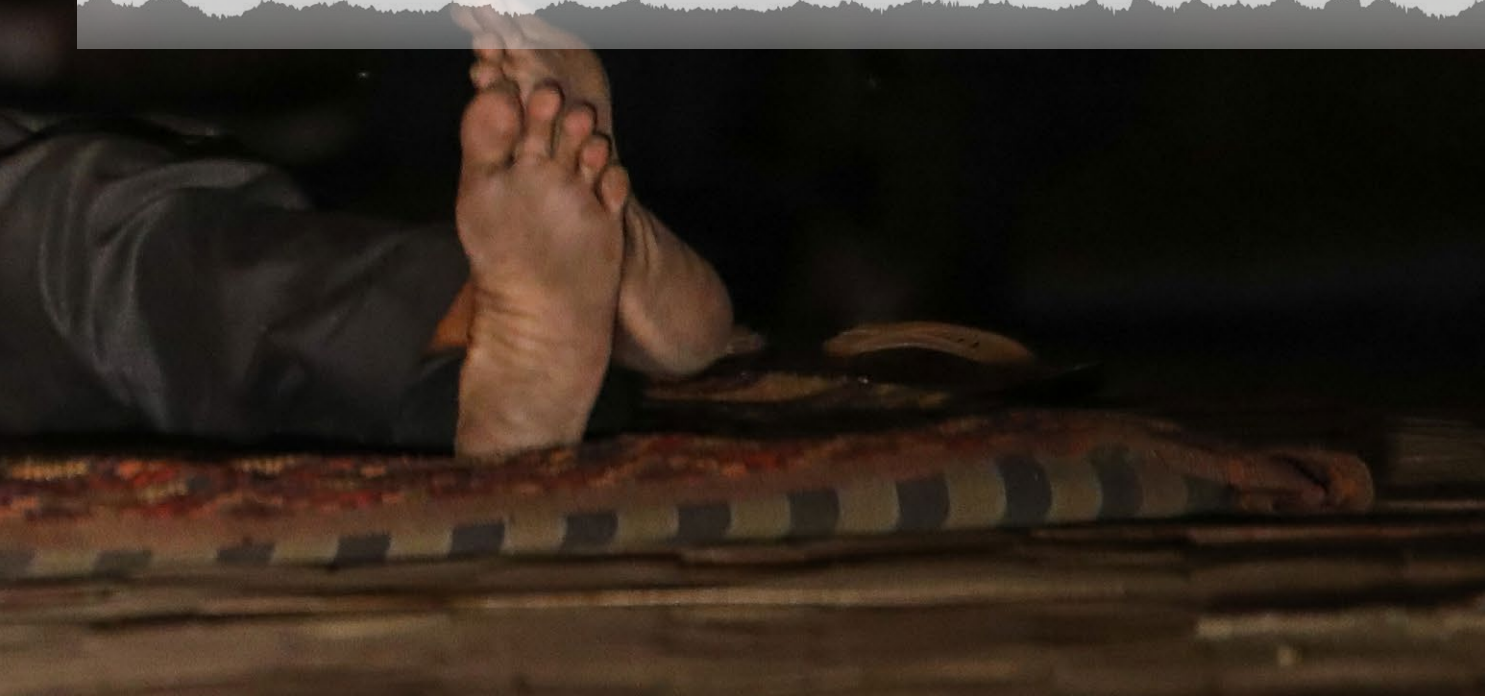
EXTREME WEATHER EVENTS

Over the years (2022-25)

In 2025, India experienced extreme weather events on 99 per cent of days from January to September—up from 93 per cent of days in 2024, 86 per cent in 2022 and 88 per cent in 2023. This increase in frequency has led to devastating human losses, with 4,064 lives lost in 2025 compared to 2,755 in 2022—a rise of 48 per cent in just four years.

According to data from CSE/DTE's atlas, the impact on agriculture has been severe, with extreme weather affecting at least 9.47 million hectares of cropped land in 2025, a four-fold increase from the 1.84 million hectares damaged in 2022. However, this number likely underestimates the true damage, as data from major states such as West Bengal and Andhra Pradesh was unavailable.

The intensification of extreme weather events aligns with the projections from the UN Intergovernmental Panel on Climate Change and other scientific studies warning of the increased frequency and severity of these events due to climate change.

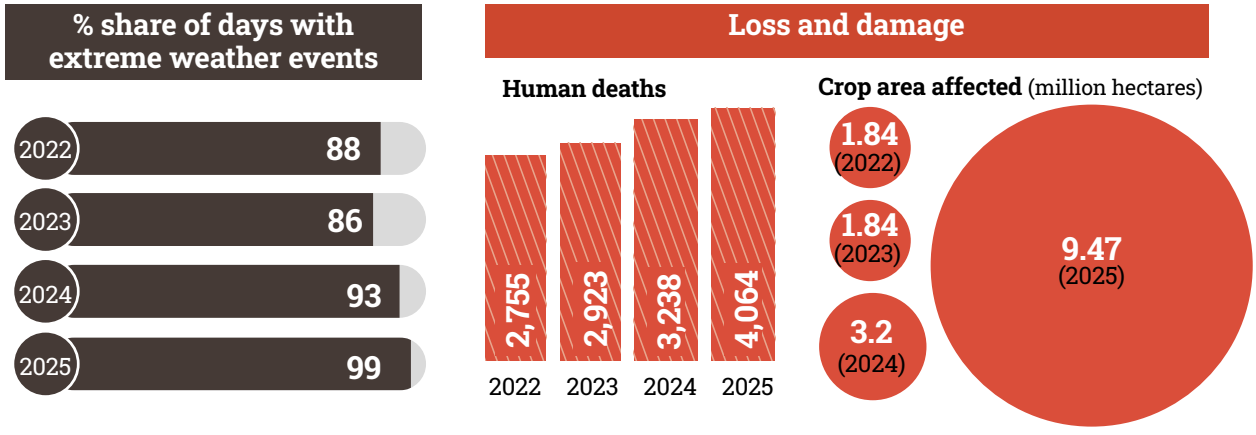


VISIBLE CHANGE

The first nine months of 2025 saw a sharp surge in the frequency and intensity of extreme weather events across India compared to the same period in the past three years. Extreme weather struck on 270 of 273 days, claiming over 4,000 lives and damaging 9.47 million hectares (ha) of crops. In contrast, during the same period in 2024—the previous worst year—such events occurred on 255 days, resulting in 3,238 deaths and losses across 3.2 million ha

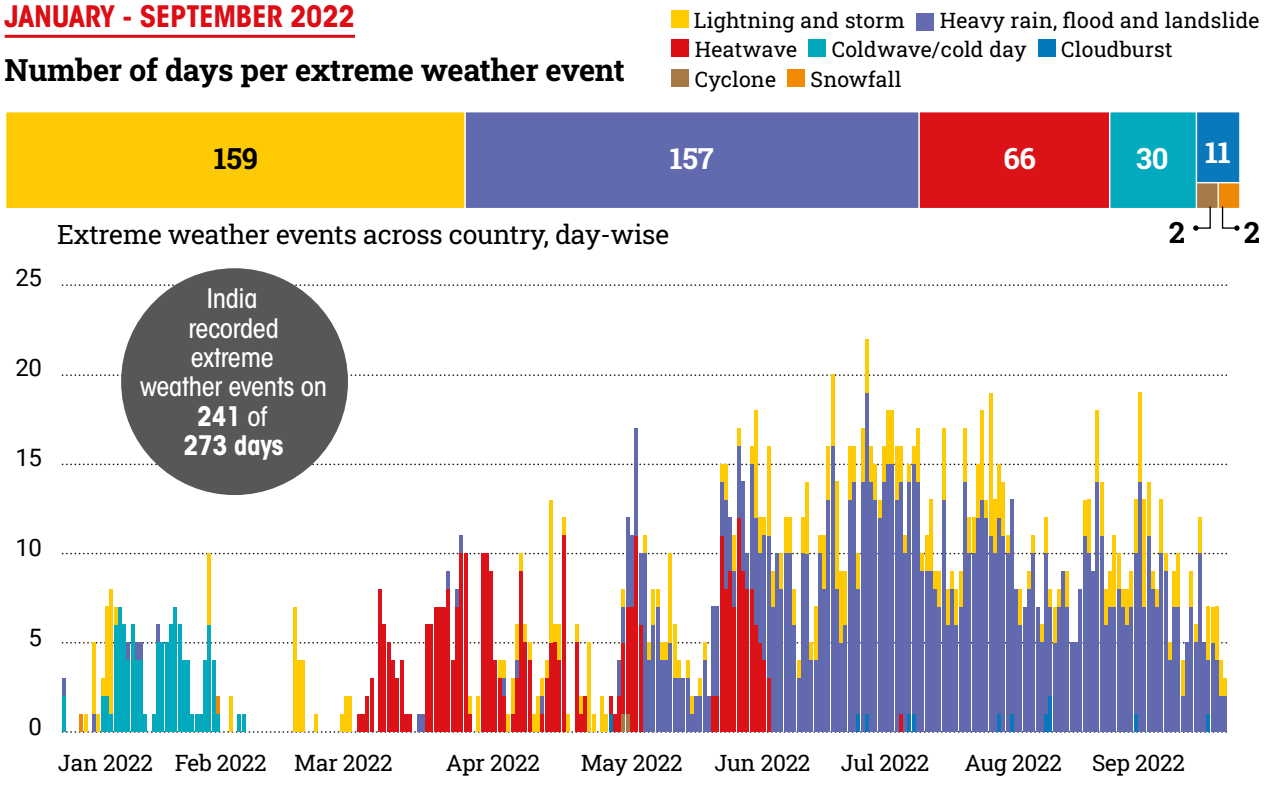
RECORD LOSSES IN FOUR YEARS

In 2025, 99 per cent of days in India saw an extreme weather event, the highest in four years. The year also recorded the greatest loss and damage, with over 4,000 deaths and crops affected across 9.47 million hectares



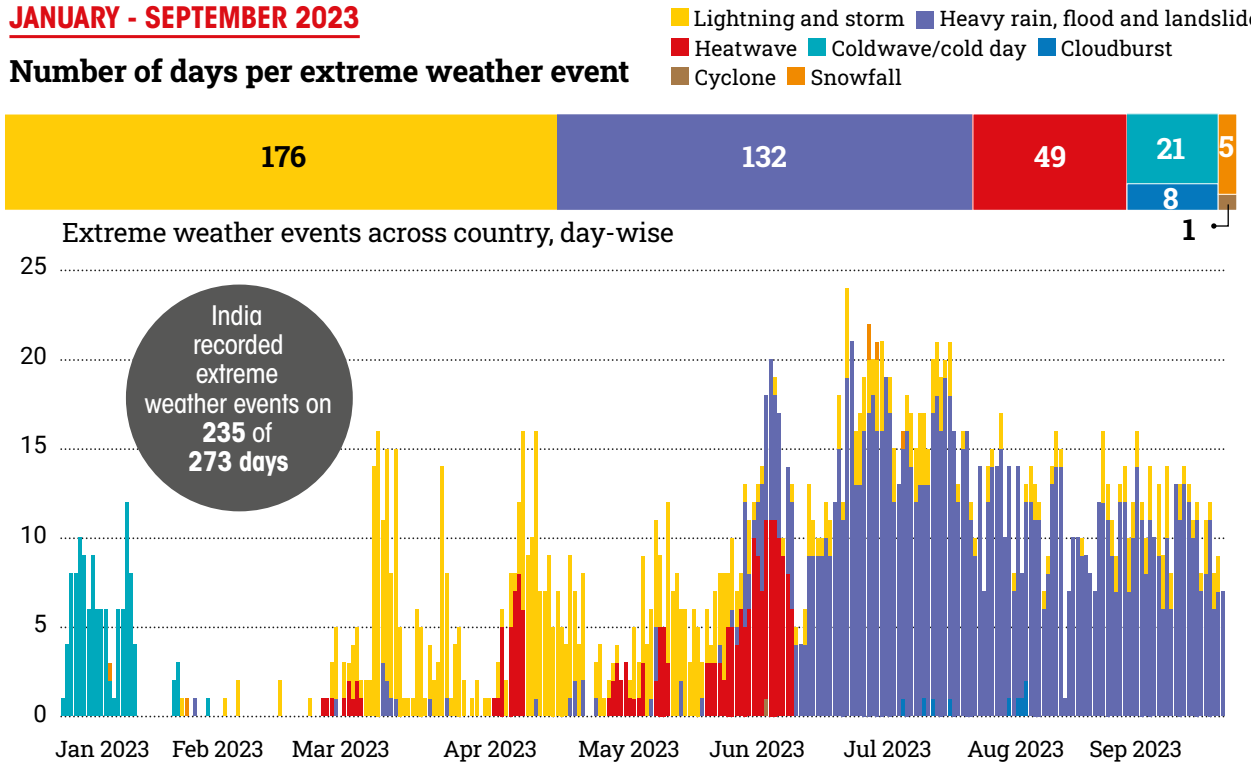
JANUARY - SEPTEMBER 2022

Number of days per extreme weather event



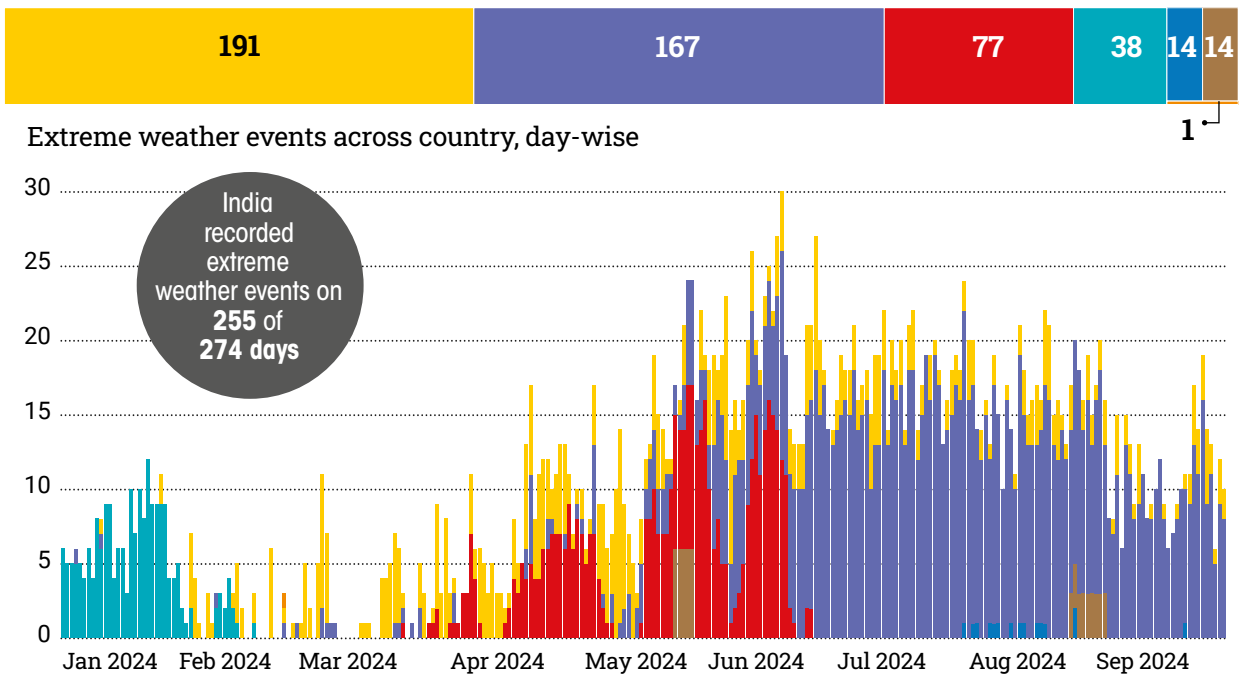
JANUARY - SEPTEMBER 2023

Number of days per extreme weather event



JANUARY - SEPTEMBER 2024

Number of days per extreme weather event

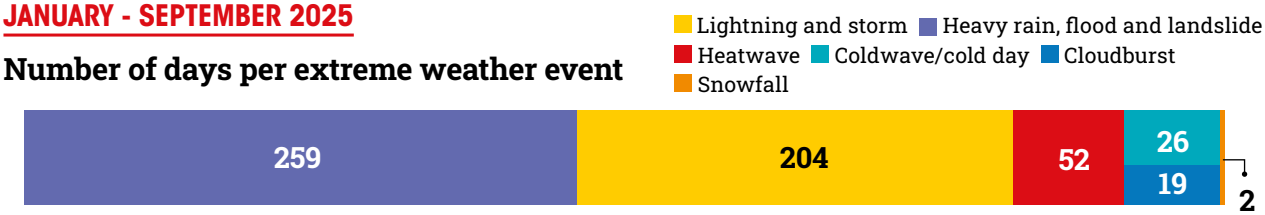


Source: Based on India's database of weather disasters dashboard by CSE-DTE Data Centre. Data sourced from the Disaster Management Division Union Ministry of Home Affairs, India Meteorological Department and media reports

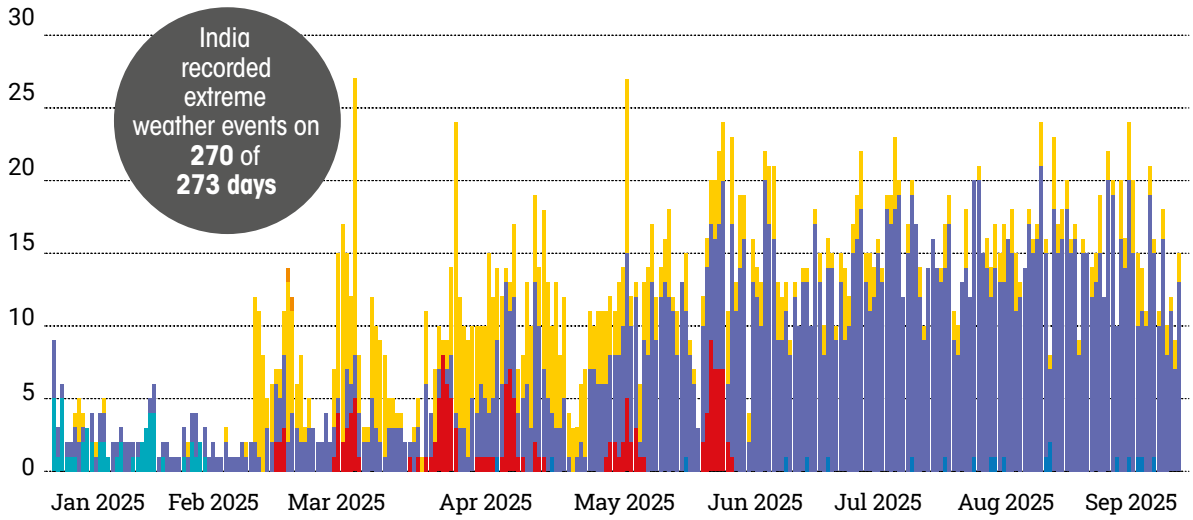
INDIA 2025

JANUARY - SEPTEMBER 2025

Number of days per extreme weather event



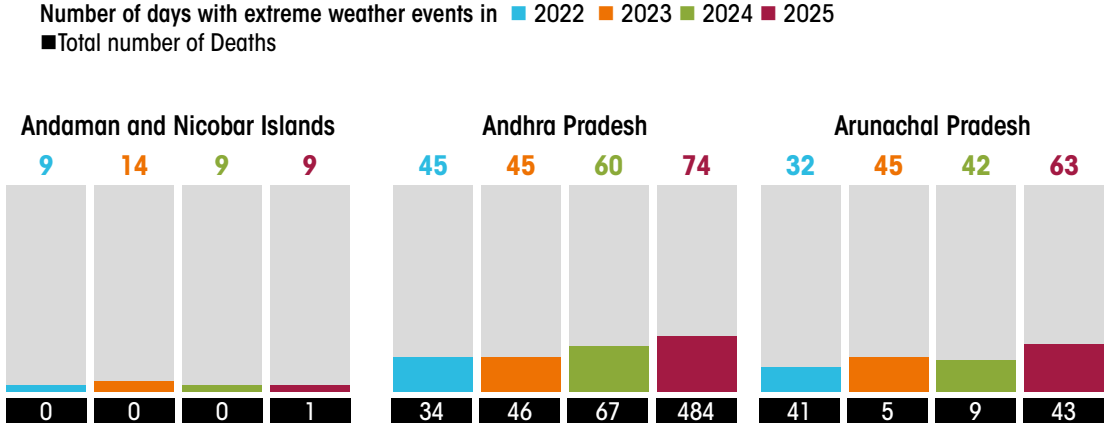
Extreme weather events across country, day-wise



Source: Based on India's database of weather disasters dashboard by CSE-DTE Data Centre. Data sourced from the Disaster Management Division Union Ministry of Home Affairs, India Meteorological Department and media reports

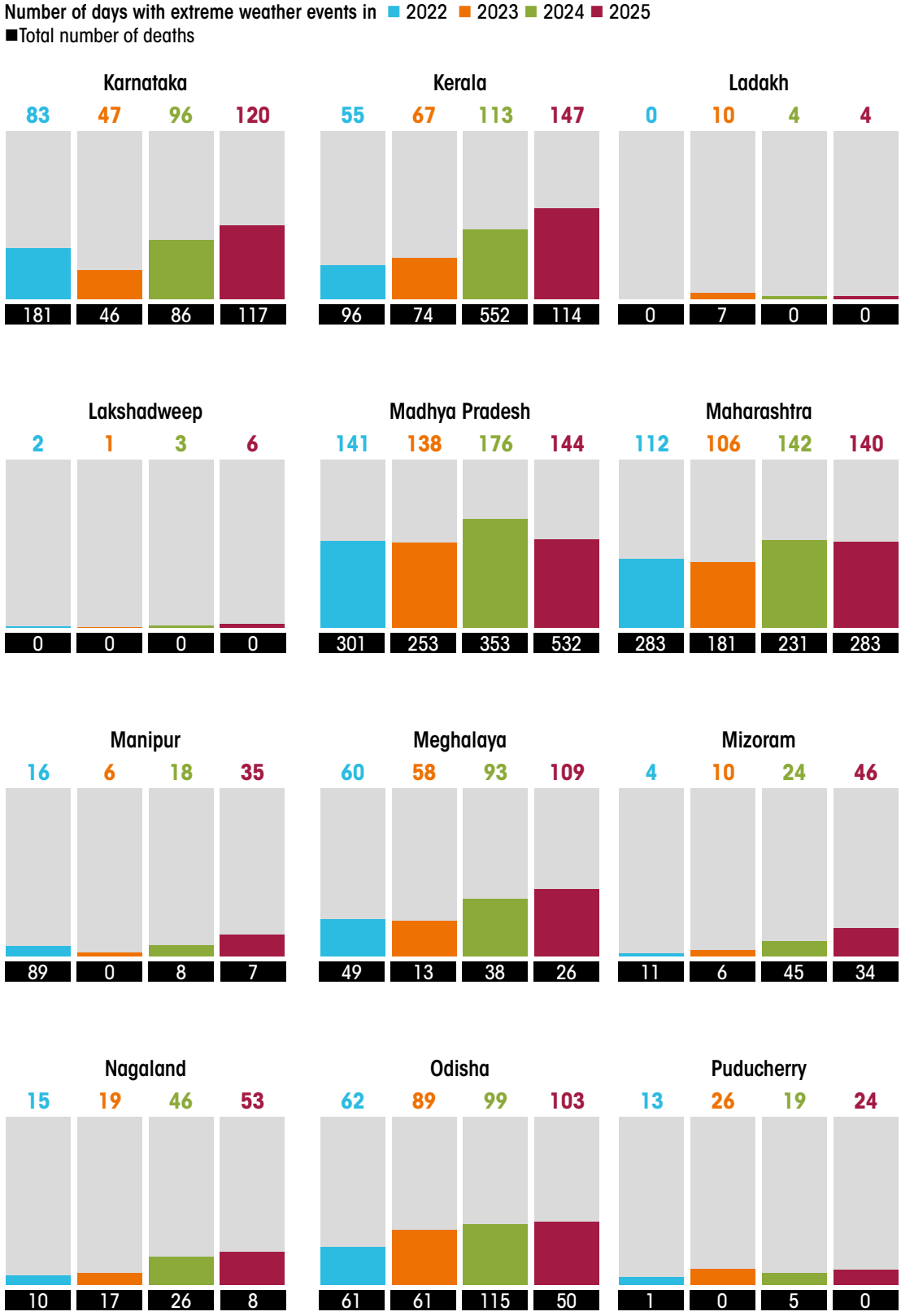
STATE WISE

In 2025, at least 17 states and Union Territories recorded their highest number of extreme weather days since 2022. Notably, 15 of them experienced 100 or more days of extreme weather in just the first nine months of the year



Number of days with extreme weather events in 2022 2023 2024 2025
Total number of Deaths

INDIA 2025


Number of days with extreme weather events in 2022 2023 2024 2025
Total number of deaths
Karnataka
83 47 96 120
181 46 86 117
Kerala
55 67 113 147
96 74 552 114
Ladakh
0 10 4 4
0 7 0 0
Lakshadweep
2 1 3 6
0 0 0 0
Madhya Pradesh
141 138 176 144
301 253 353 532
Maharashtra
112 106 142 140
283 181 231 283
Manipur
16 6 18 35
89 0 8 7
Meghalaya
60 58 93 109
49 13 38 26
Mizoram
4 10 24 46
11 6 45 34
Nagaland
15 19 46 53
10 17 26 8
Odisha
62 89 99 103
61 61 115 50
Puducherry
13 26 19 24
1 0 5 0

Number of days with extreme weather events in 2022 2023 2024 2025
Total number of deaths


JAIYA

TEMPERATURE ACROSS

CAPITAL CITIES

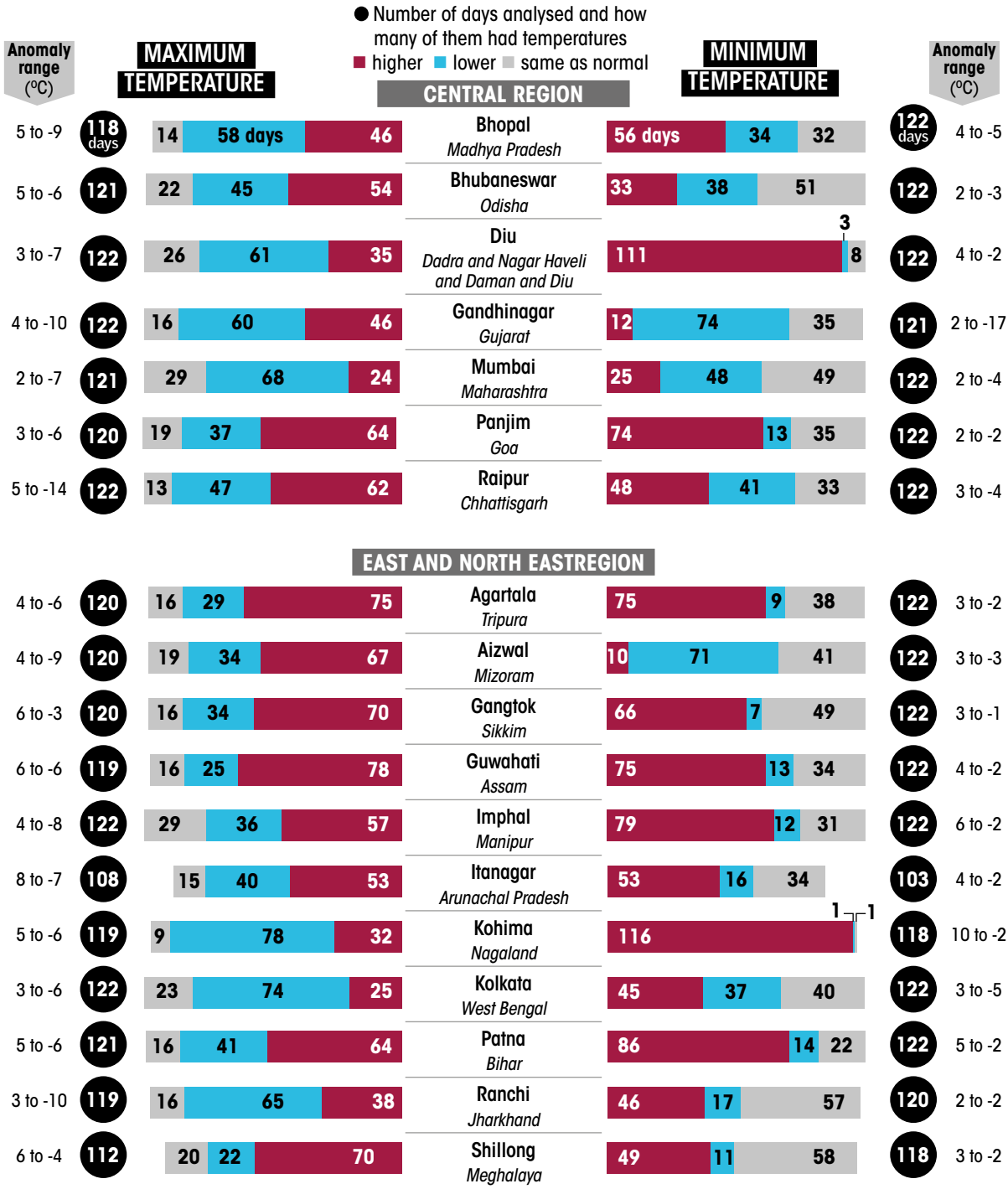
In 13 of the 34 capital cities analysed, maximum temperatures were above normal on more than half of the days during the monsoon months of June to September. Seven of these were capitals of Himalayan states and four belonged to coastal states and Union Territories.

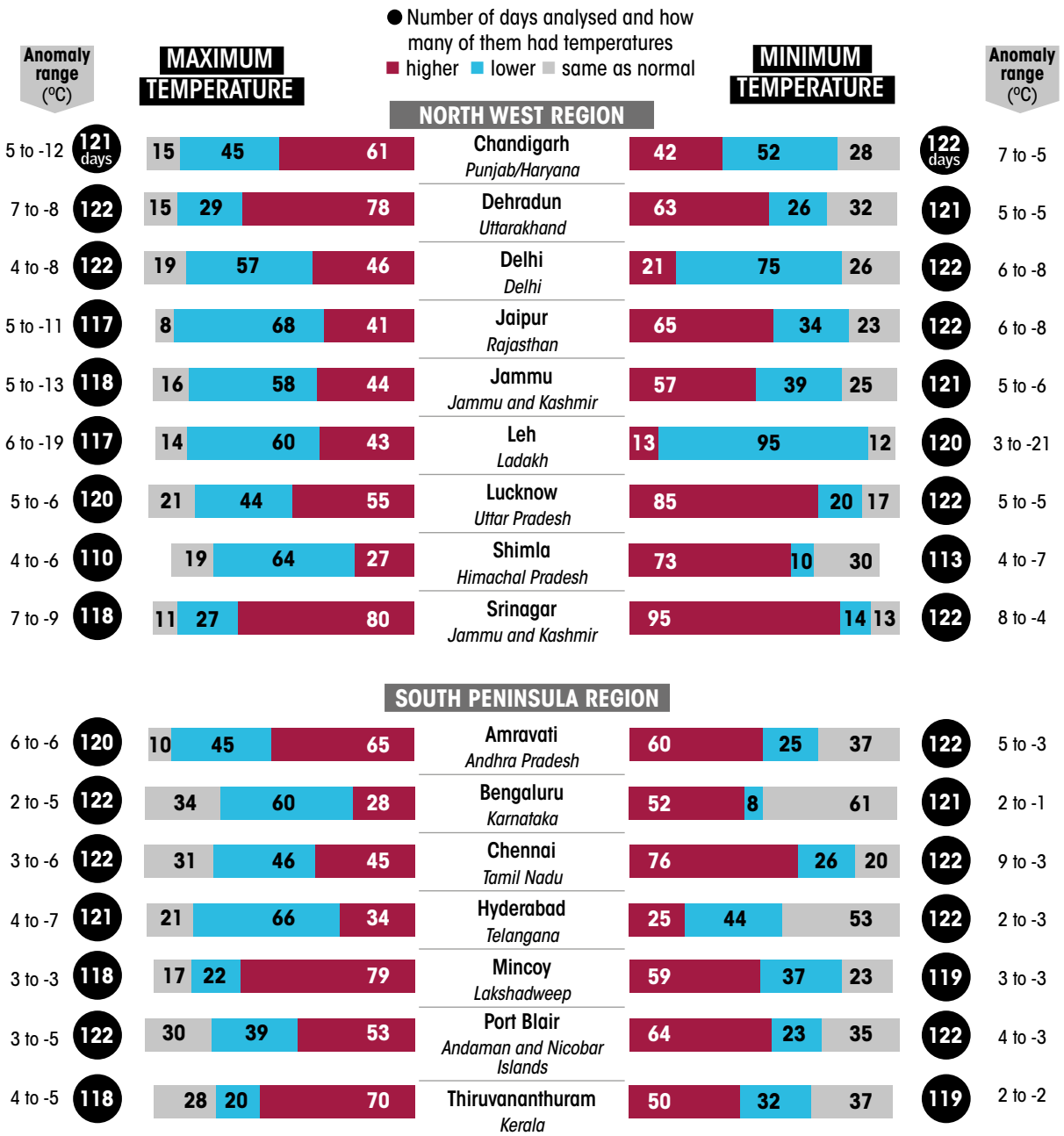
Similarly, in 16 of the 34 capitals, minimum temperatures remained above normal on over 50 per cent of the days. Kohima, the capital of Nagaland, and Diu stood out, with more than 90 per cent of days warmer than usual this monsoon season.

The rise in temperature during the monsoon is particularly concerning, as it disrupts the core dynamics of the monsoon system. This can trigger erratic and extreme weather events — from floods to droughts — while threatening agriculture, food security and public health.

CAPITAL WOES

Kohima, the capital of Nagaland, recorded higher-than-normal minimum temperatures on 98 per cent of monsoon days—the highest among all capitals analysed. It was followed by Diu in Dadra and Nagar Haveli and Daman and Diu (91 per cent), Srinagar in Jammu and Kashmir (78 per cent), Patna in Bihar and Lucknow in Uttar Pradesh (70 per cent each), and Imphal in Manipur and Shimla in Himachal Pradesh (65 per cent each)




Number of days analysed and how many of them had temperatures
higher
lower
same as normal
Anomaly range (°C)
MAXIMUM TEMPERATURE
MINIMUM TEMPERATURE
Anomaly range (°C)
NORTH WEST REGION
5 to -12 | 121 days | 15 | 45 | 61 | Chandigarh Punjab/Haryana | 42 | 52 | 28 | 122 days | 7 to -5
7 to -8 | 122 | 15 | 29 | 78 | Dehradun Uttarakhand | 63 | 26 | 32 | 121 | 5 to -5
4 to -8 | 122 | 19 | 57 | 46 | Delhi Delhi | 21 | 75 | 26 | 122 | 6 to -8
5 to -11 | 117 | 8 | 68 | 41 | Jaipur Rajasthan | 65 | 34 | 23 | 122 | 6 to -8
5 to -13 | 118 | 16 | 58 | 44 | Jammu Jammu and Kashmir | 57 | 39 | 25 | 121 | 5 to -6
6 to -19 | 117 | 14 | 60 | 43 | Leh Ladakh | 13 | 95 | 12 | 120 | 3 to -21
5 to -6 | 120 | 21 | 44 | 55 | Lucknow Uttar Pradesh | 85 | 20 | 17 | 122 | 5 to -5
4 to -6 | 110 | 19 | 64 | 27 | Shimla Himachal Pradesh | 73 | 10 | 30 | 113 | 4 to -7
7 to -9 | 118 | 11 | 27 | 80 | Srinagar Jammu and Kashmir | 95 | 14 | 13 | 122 | 8 to -4
SOUTH PENINSULA REGION
6 to -6 | 120 | 10 | 45 | 65 | Amravati Andhra Pradesh | 60 | 25 | 37 | 122 | 5 to -3
2 to -5 | 122 | 34 | 60 | 28 | Bengaluru Karnataka | 52 | 8 | 61 | 121 | 2 to -1
3 to -6 | 122 | 31 | 46 | 45 | Chennai Tamil Nadu | 76 | 26 | 20 | 122 | 9 to -3
4 to -7 | 121 | 21 | 66 | 34 | Hyderabad Telangana | 25 | 44 | 53 | 122 | 2 to -3
3 to -3 | 118 | 17 | 22 | 79 | Mincoy Lakshadweep | 59 | 37 | 23 | 119 | 3 to -3
3 to -5 | 122 | 30 | 39 | 53 | Port Blair Andaman and Nicobar Islands | 64 | 23 | 35 | 122 | 4 to -3
4 to -5 | 118 | 28 | 20 | 70 | Thiruvananthuram Kerala | 50 | 32 | 37 | 119 | 2 to -2

ABOUT THE REPORT

All Indian states are significantly climate vulnerable, yet robust data on extreme weather events, which are increasing in frequency and intensity due to climate change, is not available publicly. This happens because government agencies use different definitions and data collection sources, which obscures the bigger picture.

This report, released annually since 2022, is an attempt to build an evidence base on the frequency and expanding geography of extreme weather events in India. It provides season-by-season, month-by-month, and region-by-region analyses of extreme weather events and the loss and damage they caused in the first nine months of 2025.

Scan to access India's Atlas on Weather Disasters

DownToEarth

41, Tughlakabad Institutional Area, New Delhi 110 062
Phone: 91-11-4061 6000, Fax: 91-11-26085879
Email: cse@cseindia.org, Website: www.cseindia.org