



Extreme weather events

What the report tells us

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Down To Earth

What we will cover

- How we got the numbers
- What they tell us: disaster and region wise

Extreme weather events as occurrences that are “rare at a particular place and time of year”

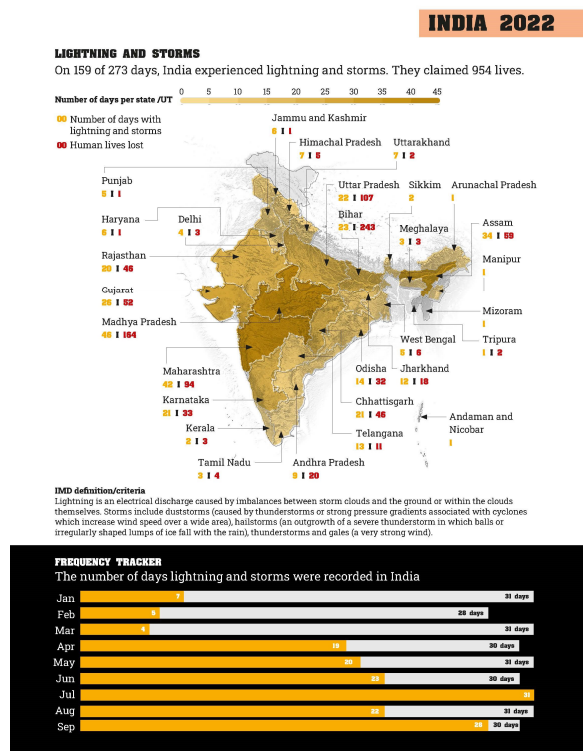
UN Intergovernmental Panel on Climate Change

Our report looks at the number of days with extreme weather events

Report sources

- India Meteorological Department
 - Daily press releases and All India Weather Summary and Forecast bulletins
 - Climate Summary for the Month (loss and damage, temperature, rainfall)
- Disaster Management Division, Union Ministry of Home Affairs
 - Situation report regarding flood/Heavy rainfall in the country (loss and damage)
- Media reports

Disaster-type: Lightning and storms



IMD definition

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).

What we found

On 159 of 273 days, India experienced lightning and storms. They claimed 954 lives.

Madhya Pradesh was the worst hit: 46 days; 164 deaths

Maharashtra: : 42 days; 94 deaths

July saw the event on all the 31 days

Disaster-type: Heavy rains, floods and landslides

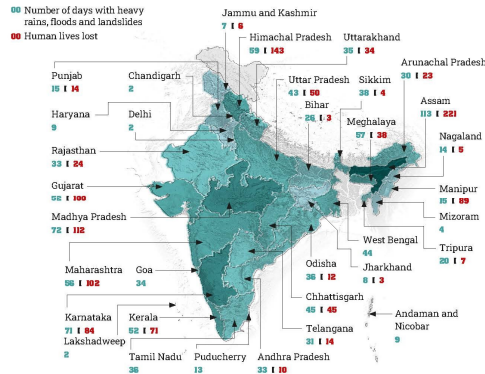
INDIA 2022

HEAVY RAINS, FLOODS AND LANDSLIDES

On 157 of 273 days, India experienced the extreme weather event. They claimed 1,214 lives.

Number of days per state/UT

● Number of days with heavy rains, floods and landslides
● Human lives lost



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

The number of days heavy rains, floods and landslides were recorded in India



IMD definition

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What we found

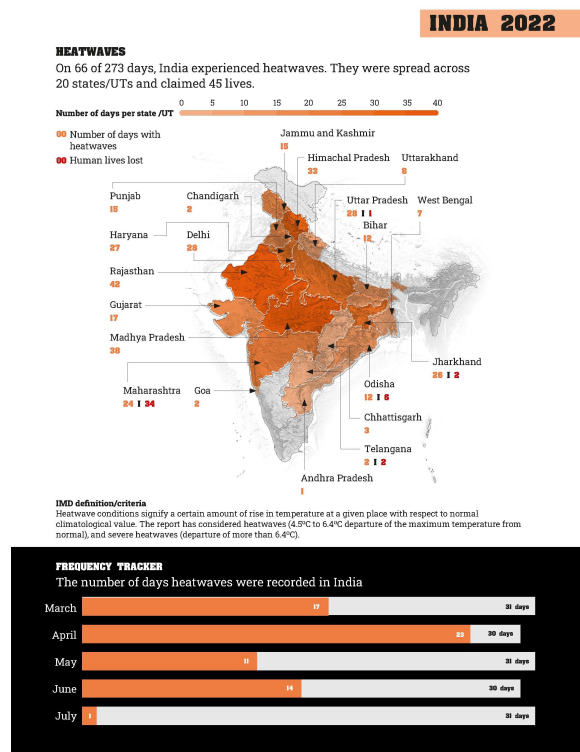
On 157 of 273 days, India experienced the extreme weather event. They claimed 1,214 lives.

Assam was the worst hit: 113 days; 221 deaths

Madhya Pradesh: 72 days; 112 deaths

June, July, August, September saw the event on all the days

Disaster-type: Heatwaves



IMD definition

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).

What we found

On 66 of 273 days, India experienced heatwaves. They were spread across 20 states/UTs and claimed 45 lives.

Rajasthan was the worst hit: **42 days**

Maharashtra: 24 days; 34 deaths

Early onset in **March (17 days)** continued through **April (23 days)**, **May (11 days)**, **June (14 days)** and **July (1 day)**

Disaster-type: Cold waves/ cold days

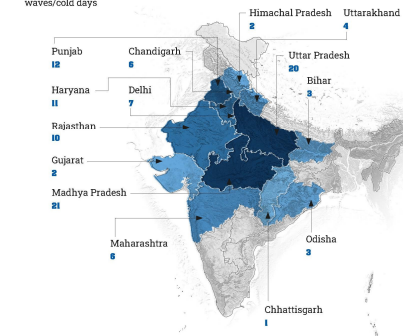
INDIA 2022

COLD WAVES/COLD DAYS

On 30 of 273 days, India experienced cold wave/cold day. They were spread across 14 states/UTs

Number of days per state/UT

Number of days with cold waves/cold days

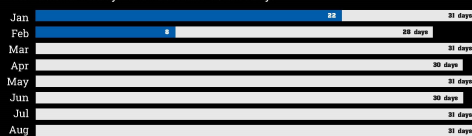


IMD definition/criteria

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. Cold wave 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

The number of days with cold waves/cold days



IMD definition

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. Cold wave 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.

What we found

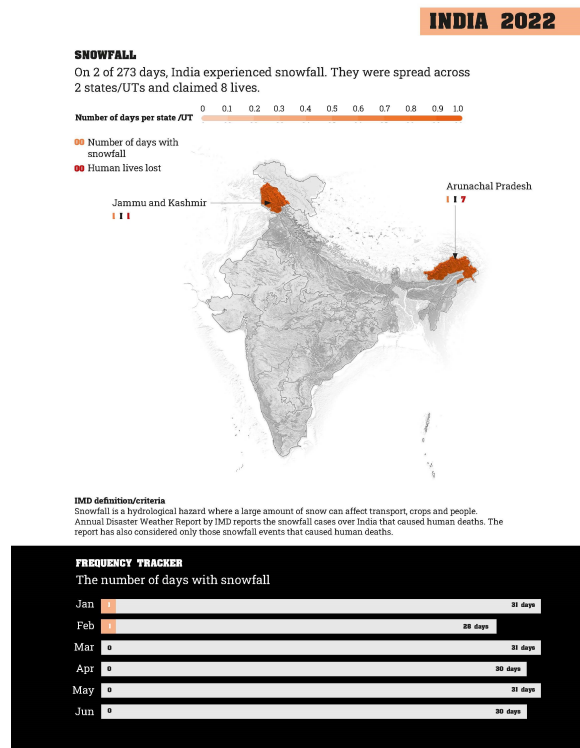
On 30 of 273 days, India experienced cold wave/cold day. They were spread across 14 states/UTs

Madhya Pradesh was the worst hit: **21 days**

Uttar Pradesh: **20 days**

Continued in **January** (22 days) and **February** (8 days)

Disaster-type: Snowfall



IMD definition

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.

What we found

On 2 of 273 days, India experienced snowfall. They were spread across 2 states/UTs and claimed 8 lives.

Jammu and Kashmir: 1 day, 1 death

Arunachal Pradesh: 1 day, 7 deaths

Disaster-type: Cloudburst

INDIA 2022

CLOUDBURSTS

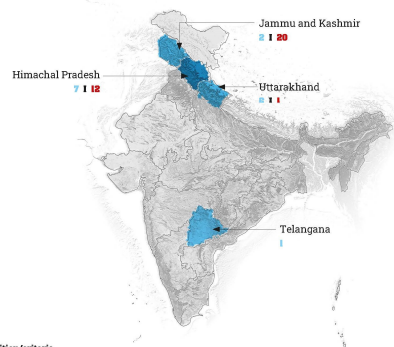
On 11 of 273 days, India experienced cloudbursts. They claimed 33 lives across four states/UTs

Number of days per state /UT

0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

Number of days with cloudbursts

Human lives lost

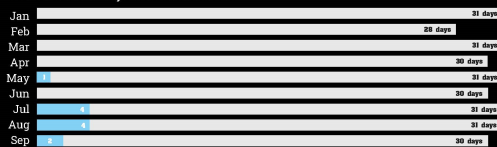


IMD definition/criteria

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

FREQUENCY TRACKER

The number of days with cloudbursts



IMD definition

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

What we found

On 11 of 273 days, India experienced cloudbursts. They claimed 33 lives across four states/UTs.

Himachal Pradesh : 7 days, 12 deaths

Jammu and Kashmir : 2 days, 20 deaths

Uttarakhand: 2 days, 1 deaths

Telangana: 1 day

Disaster-type: Cyclone

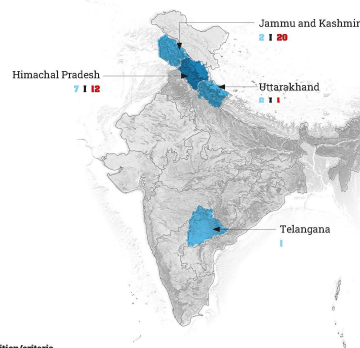
INDIA 2022

CLOUDBURSTS

On 11 of 273 days, India experienced cloudbursts. They claimed 33 lives across four states/UTs

Number of days per state /UT

00 Number of days with cloudbursts
00 Human lives lost

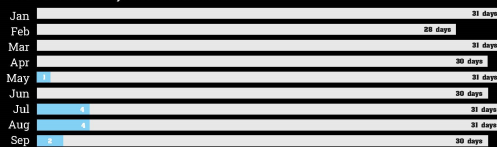


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FREQUENCY TRACKER

The number of days with cloudbursts



IMD definition

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

What we found

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.

Andhra Pradesh: 2 days, 3 deaths

INDIA 2022

DISASTER A DAY

India experienced extreme weather events on 241 of the 273 days, or a little over 88% of the days from January 1 to September 30, which claimed 2,755 lives, affected 1.8 million hectares (ha) crop area, 416,667 houses and killed over 69,007 animals

Region-wise extreme weather events (January 1- September 30, 2022)

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

Central region

It recorded extreme weather events on 198 of the 273 days, which claimed 887 lives, damaged 136,780 ha crop area, 28,032 houses and killed 7,519 animals

	Days	Deaths	Crop area affected (ha)	Houses damaged	Animal deaths
Madhya Pradesh	182	276	5,646	997	
Maharashtra	122	230	5,982	4,330	
Odisha	79	182	6,874	1,436	
Chhattisgarh	62	91	458	1,429	527
Uttarakhand	62	90	1,36,329	1,693	229
Goa	26			88	



South Peninsula region

It recorded extreme weather events on 125 of the 273 days, which claimed 350 lives, damaged 1.06 million ha crop area, 64,837 houses and killed 4,382 animals

	Days	Deaths	Crop area affected (ha)	Houses damaged	Animal deaths
Karnataka	82	227	6,96,340	47,703	1,664
Kerala	53	74	2,235	136	
Andhra Pradesh	45	33	25,232	45	9
Telangana	41	27	15,907	14,858	1,574
Tamil Nadu	39	4			
Punjab	13	9	15	999	
Lakshadweep	2				
Andaman & Nicobar	9				



Northwest region

It recorded extreme weather events on 195 of the 273 days, which claimed 735 lives, damaged 393,726 ha crop area, 5,122 houses and killed 1,707 animals

	Days	Deaths	Crop area affected (ha)	Houses damaged	Animal deaths
Uttar Pradesh	104	156	2,34,811	805	2
Himachal Pradesh	98	150	1,427	956	
Rajasthan	99	70	25	184	
Uttarakhand	55	37	977	952	
Haryana	53	1	15,387		
Punjab	47	15	28	1,888	203
Delhi	42	9			
Jammu and Kashmir	35	-			
Chandigarh	10	-			



INDIA 2022

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

East and Northeast region

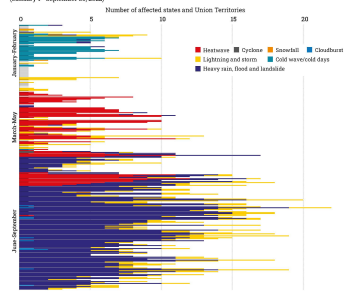
It recorded extreme weather events on 171 of the 273 days, which claimed 783 lives, damaged 256,517 ha crop area, 318,676 houses and killed 55,399 animals

	Days	Deaths	Crop area affected (ha)	Houses damaged	Animal deaths
Assam	128	280	243,929	305,362	54,948
Meghalaya	98	41	1,114	4,024	309
West Bengal	95	6			
Bihar	82	246	10,700	140	
Jharkhand	60	23			
Sikkim	40	4	193	3,871	12
Arunachal Pradesh	32	46	96	880	49
Tripura	20	1		1,879	1
Manipur	16	-			
Nagaland	14	10	484	700	30
Mizoram	4	-			



Day-wise extreme weather events in India

(January 1 - September 30, 2022)



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

Extreme weather events: Regional analysis

What we found

India experienced extreme weather events on 241 of the 273 days, or a little over 88% of the days from January 1 to September 30, which claimed 2,755 lives, affected 1.8 million hectares (ha) crop area, 416,667 houses and killed over 69,007 animals

Central region recorded extreme weather events on 198 of the 273 days, which claimed 887 lives, damaged 136,780 ha crop area, 28,032 houses and killed 7,519 animals

South Peninsula region recorded extreme weather events on 125 of the 273 days, which claimed 350 lives, damaged 1.06 million ha crop area, 64,837 houses and killed 4,382 animals

Northwest region recorded extreme weather events on 195 of the 273 days, which claimed 735 lives, damaged 393,726 ha crop area, 5,122 houses and killed 1,707 animals

East and Northeast region recorded extreme weather events on 171 of the 273 days, which claimed 783 lives, damaged 256,517 ha crop area, 318,676 houses and killed 55,399 animals

Thank You

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