2022
Disasters in numbers

387
Reported disasters

30,704
Deaths

185 million
People affected

223.8 billion
US$ economic damage

Climate in action

Executive Summary

In 2022,[1] the Emergency Event Database EM-DAT recorded 387 natural hazards and disasters worldwide,[2] resulting in the loss of 30,704 lives[3] and affecting 185 million individuals. Economic losses totaled around US$223.8 billion. Heat waves caused over 16,000 excess deaths[4] in Europe, while droughts affected 88.9 million people in Africa. Hurricane Ian single-handedly caused damage costing US$100 billion in the Americas. The human and economic impact of disasters was relatively higher in Africa, e.g., with 16.4% of the share of deaths compared to 3.8% in the previous two decades. It was relatively lower in Asia despite Asia experiencing some of the most destructive disasters in 2022.

The total of 387 catastrophic events in 2022 is slightly higher than the average from 2002 to 2021 (370). The occurrence of each type of disaster was also close to the average levels in the last two decades.

In 2022, the total death toll of 30,704 was three times higher than in 2021 but below the 2002-2021 average of 60,955 deaths, the latter being influenced by a few mega-disasters, such as the 2010 Haiti earthquake (222,570 deaths). For a more useful comparison, the 2022 toll is almost twice the 2002-2021 median of 16,011 deaths.[5]

The impact of heat waves on the elderly is a statistic that is increasingly documented and reflected in EM-DAT's figures. Accordingly, heatwave-related excess mortality in Europe, with a provisional estimate of 16,305 deaths, accounted for over half of the total death toll in 2022. There were at least five record-breaking heat waves in Europe in 2022, with summer temperatures reaching 47°C.

The drought-induced famine in Uganda caused 2,465 deaths, making it the second deadliest disaster event in 2022 after the European heat waves. In addition, droughts impacted 88.9 million people in six African countries (the Democratic Republic of the Congo, Ethiopia, Nigeria, Sudan, Niger, and Burkina Faso) in 2022. Notable drought events[6] also occurred in China (where 6.1 M people were affected, costing damage worth US$7.6 B), in the USA (US$22 B), and in Brazil (US$4 B).

The Pakistan June-September floods affected 33 million people, causing 1,739 deaths and economic damage costing US$15 billion. Monsoon floods also struck India (2,035 deaths, US$4.2 B), Bangladesh (7.2 M people affected), and China (US$5 B). In Nigeria, floods caused 603 deaths and resulted in an economic cost of US$4.2 billion, while there were 544 flood-related lives lost in South Africa. The February flood in Brazil killed 272 people, and the floods in Eastern Australia in February and March cost US$6.6 billion.

The past year (2022) was marked by three major storm events, including two in the Philippines: Tropical Storm Megi in April (346 fatalities) and Tropical Storm Nalgae in October (3.3 M people affected). Hurricane Ian struck the USA, causing damage worth US$100 billion, making it the costliest disaster event of 2022.

As for earthquakes, three events stood out in 2022, with two of these ranking among the top ten deadliest disaster events: the southeastern Afghanistan earthquake in June (1,036 fatalities) and the Indonesia earthquake in November (334 fatalities). Finally, the Fukushima earthquake of 2022 resulted in damage costing US$8.8 billion, making it the event with the fourth-highest economic impact.

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1 Preliminary data as of 2023-02-08
2 In this report, disasters are related to natural hazards, excluding biological and extra-terrestrial hazards, reported at the country level in EM-DAT.
3 Death figures include missing persons
4 Information on European heat waves, which is based on provisional data, is subject to change.
5 The median is the middle value of a variable, such that 50% of the observations are above it and 50% are below it.
6 Drought figures include only events starting in 2022 and their provisional impacts, i.e., it does not include previous events that continued into 2022.

Mortality and Weather-related Disasters: Mega-disasters Lead the Trend

In 2022, a figure based on EM-DAT data caused a stir on social networks: mortality as a result of weather-related disasters [7] turns out to be 98% lower today compared to the data for the previous century. A more careful examination of mortality statistics indicates that this percentage may be misleading. Misinterpreting statistics could be harmful if it supports a discourse minimizing the importance of climate action.

Figure A presents the disaster death toll per decade for more than 12,000 weather-related disasters.[7] Figure A indicates a 96% decrease in mortality between the 1920s, with 4.84 million deaths, and the decade 2010-2020 when mortality was limited to 0.17 million deaths. However, this trend does not extend back before the 1920s and, if one were to take the 1910s as the comparison baseline (0.25 M deaths), the decrease would only be 30%. Such variability is explained by the occurrence or non-occurrence of mega-disasters, in which the death toll can rise from tens of thousands to several million per event. In particular, in the period from the 1920s through the 1960s, there were five drought-induced famines, killing more than one million each. These alone are responsible for the main trend observed in Figure A.

The influence of mega-disasters on the mortality numbers is further demonstrated in Figure B, which excludes the top 50 deadliest disasters while keeping the other 12,173 records. Figure B presents a different perspective, i.e., a positive mortality trend. However, even if this trend may be supported by other drivers, e.g., population growth in exposed areas and climate change, it does not necessarily mean that we now have firm evidence that disaster-related mortality is increasing. Affirming this could be another fallacy, given that collecting data on a past disaster event is more challenging than collecting data on a recent event, especially data recorded before the era of the internet. This temporal bias contributes, to some unknown extent, to the observed rising trend. What's more, global advances in humanitarian aid and disaster risk management can act as a countertrend to population growth and the intensification of hazards.

In summary, it is impossible to draw conclusions about the underlying causes of the century-long trend in disaster mortality based on EM-DAT numbers alone. This is unfortunate because these trends could shed light on the effectiveness of risk management policies and the trajectory humanity is taking toward an uncertain future.

For this reason, improving mortality data is a high priority, as was articulated in the 2015-2030 UN Sendai Framework for Disaster Risk Reduction. There is a clear need to measure the effectiveness of risk management policies and the expected future trajectory of disasters.

Figure A. Total deaths per decade (1900-2020)

Deaths (million)
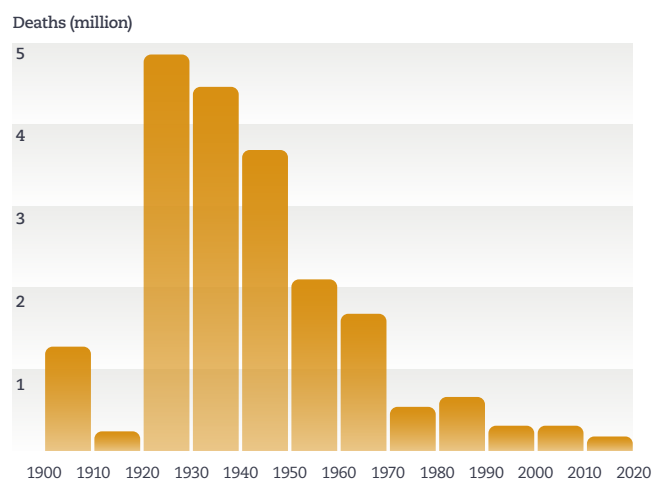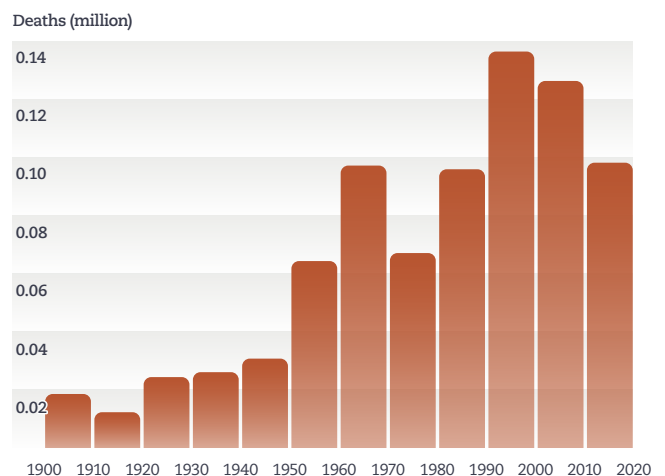
Figure B. Total deaths per decade (1900-2020) – excluding top-50

Deaths (million)

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7   Weather-related disasters regroup droughts, storms, floods, wildfires, and extreme temperature types of disaster (12,223 entries, 47% of EM-DAT).

Occurence of Disasters

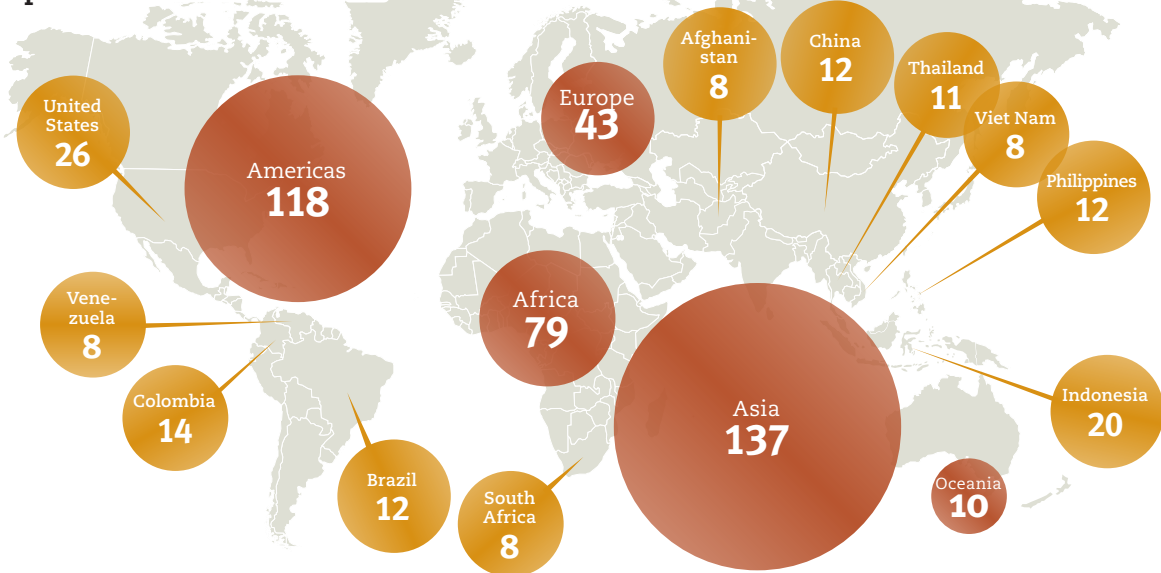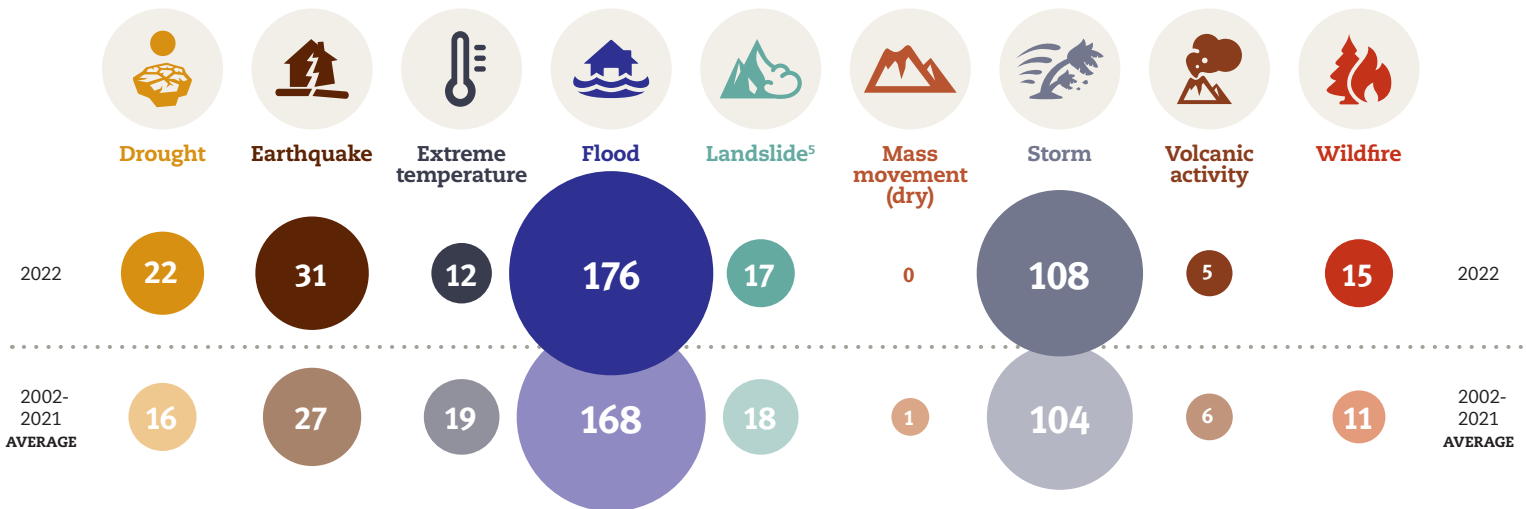## Number of disasters by continent and top 10 countries[8] in 2022

- United States **26**
- Americas **118**
- Venezuela **8**
- Colombia **14**
- Brazil **12**
- Europe **43**
- Afghanistan **8**
- China **12**
- Thailand **11**
- Viet Nam **8**
- Philippines **12**
- Africa **79**
- South Africa **8**
- Asia **137**
- Indonesia **20**
- Oceania **10**

Occurrence by disaster type: 2022 compared to the 2002-2021 annual average

370 2002 to 2021 **< 387** in 2022

	Drought	Earthquake	Extreme temperature	Flood	Landslide[5]	Mass movement (dry)	Storm	Volcanic activity	Wildfire	
2022	22	31	12	176	17	0	108	5	15	2022
2002-2021 AVERAGE	16	27	19	168	18	1	104	6	11	2002-2021 AVERAGE

8   In the 8th spot in the list, four countries each had eight events, so 11 countries are listed.

Human Impact: Total Deaths [9]
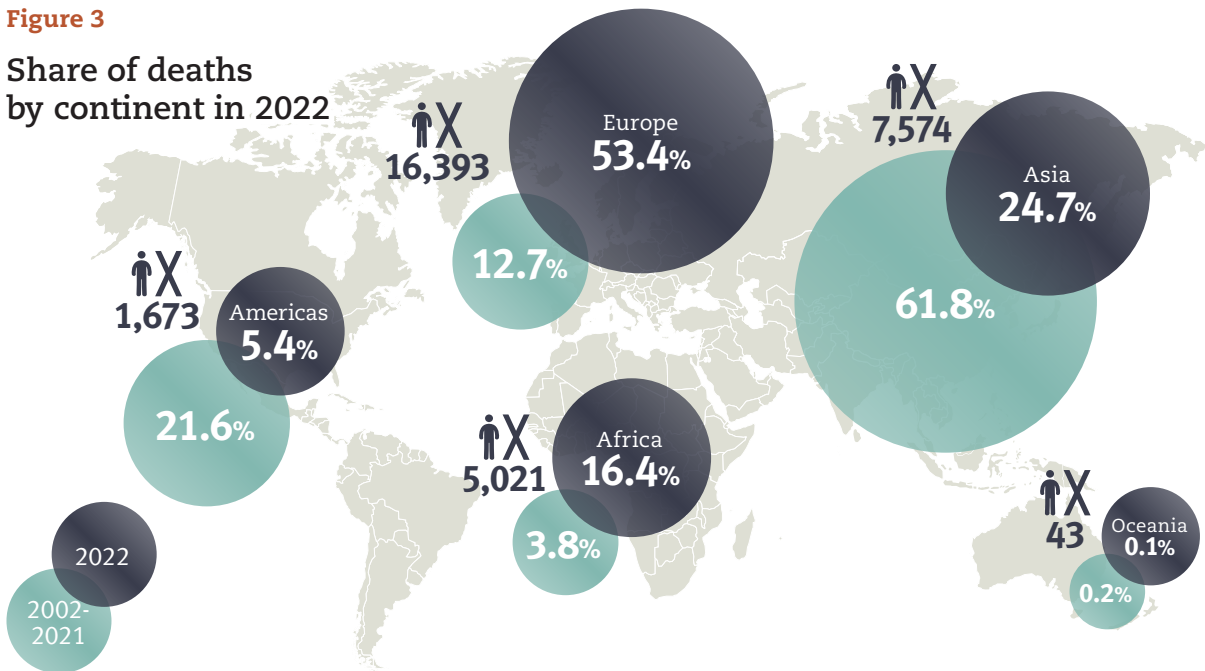
Figure 3

Share of deaths by continent in 2022

Europe 53.4%
16,393
12.7%

Asia 24.7%
7,574
61.8%

Americas 5.4%
1,673
21.6%

Africa 16.4%
5,021
3.8%

Oceania 0.1%
43
0.2%

2022
2002-2021

Figure 4

Number of deaths by disaster type: 2022 compared to the 2002-2021 annual average
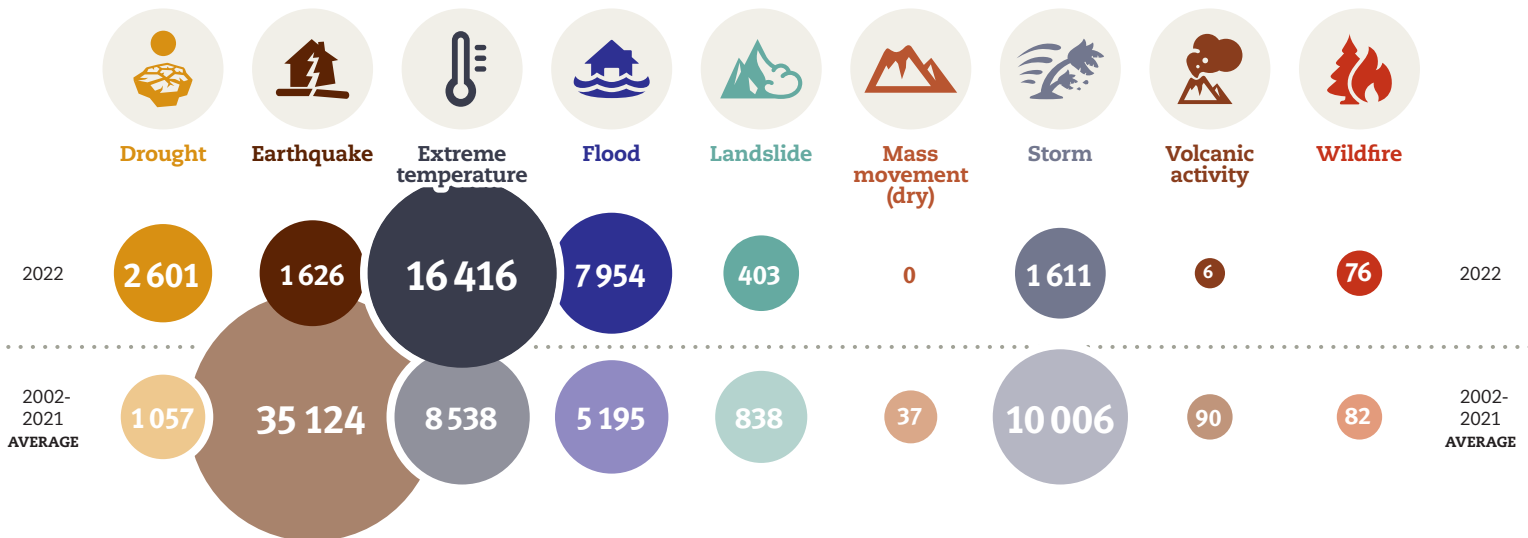
60,955 2002 to 2021 > **30,704** in 2022

	Drought	Earthquake	Extreme temperature	Flood	Landslide	Mass movement (dry)	Storm	Volcanic activity	Wildfire	
2022	2 601	1 626	16 416	7 954	403	0	1 611	6	76	2022
2002-2021 AVERAGE	1 057	35 124	8 538	5 195	838	37	10 006	90	82	2002-2021 AVERAGE

Table 1

Top 10 mortality – 2022

Europe[10]	Heat Wave	16,305		Nigeria	Flood	603
Uganda	Drought	2,465		South Africa	Flood	544
India	Flood	2,035		Philippines	Tropical Storm 'Megi'	346
Pakistan	Flood	1,739		Indonesia	Earthquake	334
Afghanistan	Earthquake	1,036		Brazil	Flood	272

9   Persons confirmed as dead and persons missing and presumed dead.
10   For this report, European heat waves in Spain, Germany, the UK, France, and Portugal were grouped into one event.

Human Impact: Total Affected [11]

Figure 5

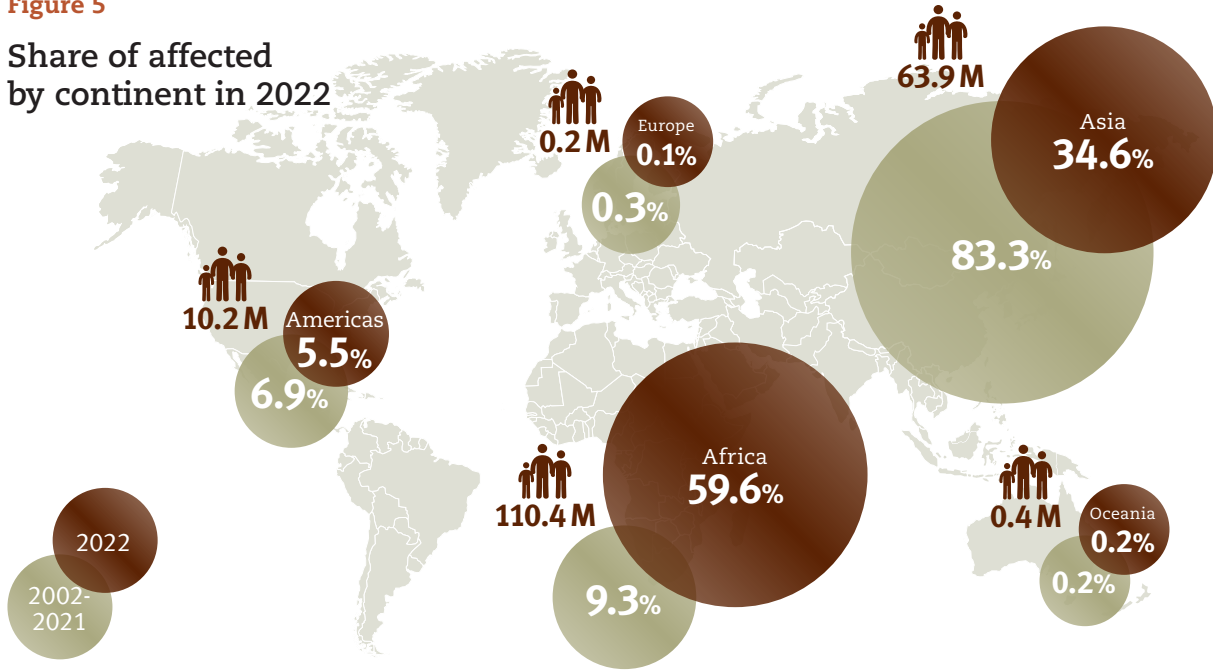**Share of affected
by continent in 2022**

0.2 M — Europe 0.1% / 0.3%

63.9 M — Asia 34.6% / 83.3%

10.2 M — Americas 5.5% / 6.9%

110.4 M — Africa 59.6% / 9.3%

0.4 M — Oceania 0.2% / 0.2%

2022
2002-2021

Figure 6

**Number of affected (million) by disaster type:
2022 compared to the 2002-2021 annual average**
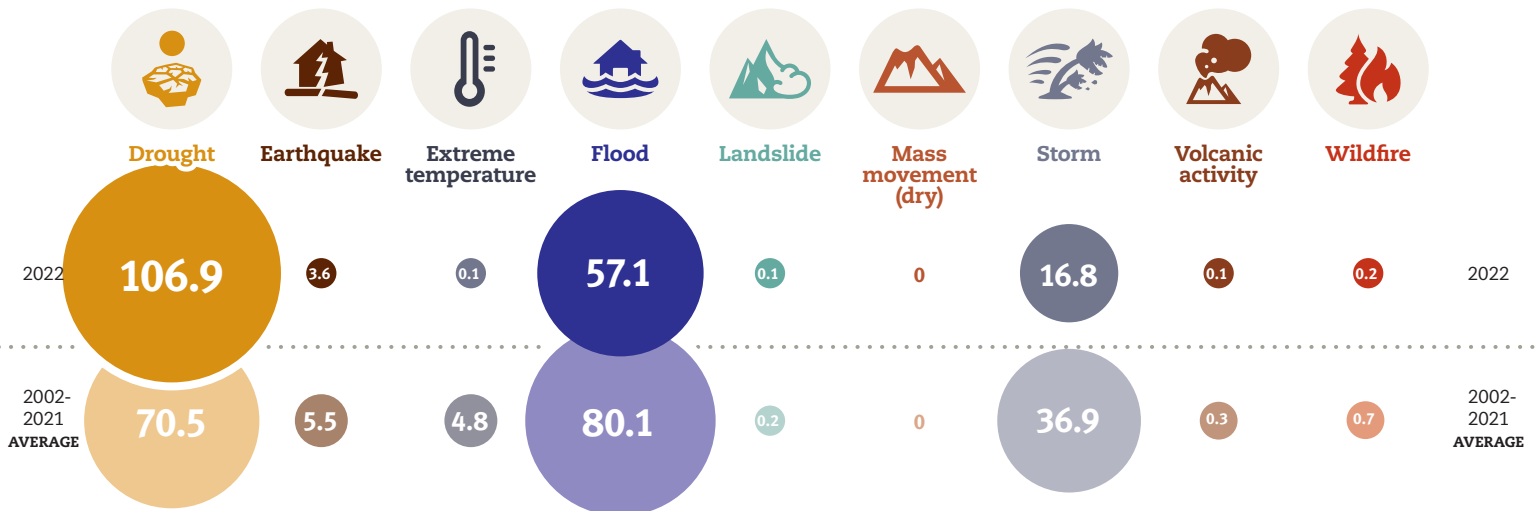
198.9 2002 to 2021 > **185** in 2022

	Drought	Earthquake	Extreme temperature	Flood	Landslide	Mass movement (dry)	Storm	Volcanic activity	Wildfire	
2022	106.9	3.6	0.1	57.1	0.1	0	16.8	0.1	0.2	2022
2002-2021 AVERAGE	70.5	5.5	4.8	80.1	0.2	0	36.9	0.3	0.7	2002-2021 AVERAGE

Table 2

**Top 10
total affected
– 2022**

Pakistan	Flood	33.0 million		Bangladesh	Flood	7.2 million
Congo (Democratic Rep.)	Drought	26.0 million		China	Drought	6.1 million
Ethiopia	Drought	24.1 million		Niger	Drought	4.4 million
Nigeria	Drought	19.1 million		Burkina Faso	Drought	3.5 million
Sudan	Drought	11.8 million		Philippines	Storm 'Nalgae'	3.3 million

11   Sum of people injured, homeless, and otherwise affected

Economic Losses [12]
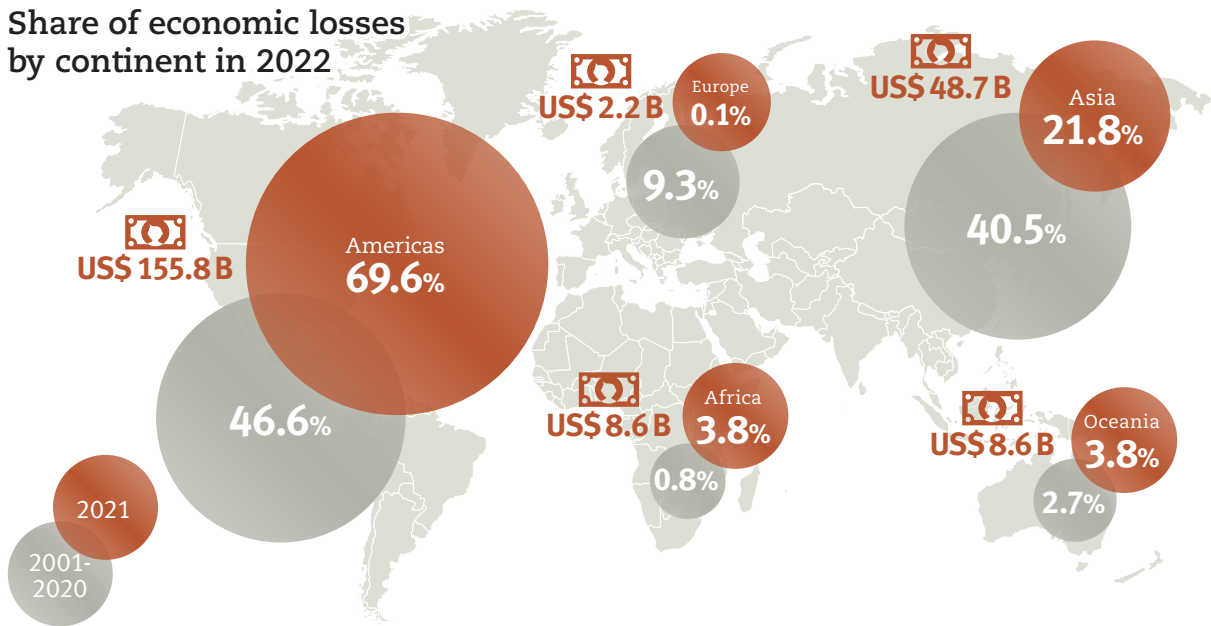
Figure 7

Share of economic losses by continent in 2022

US$ 2.2 B
Europe
0.1%
9.3%

US$ 48.7 B
Asia
21.8%
40.5%

US$ 155.8 B
Americas
69.6%
46.6%

2021
2001-2020

US$ 8.6 B
Africa
3.8%
0.8%

US$ 8.6 B
Oceania
3.8%
2.7%

Figure 8

Economic losses (billion US$) by disaster type: 2022 compared to the 2002-2021 annual average
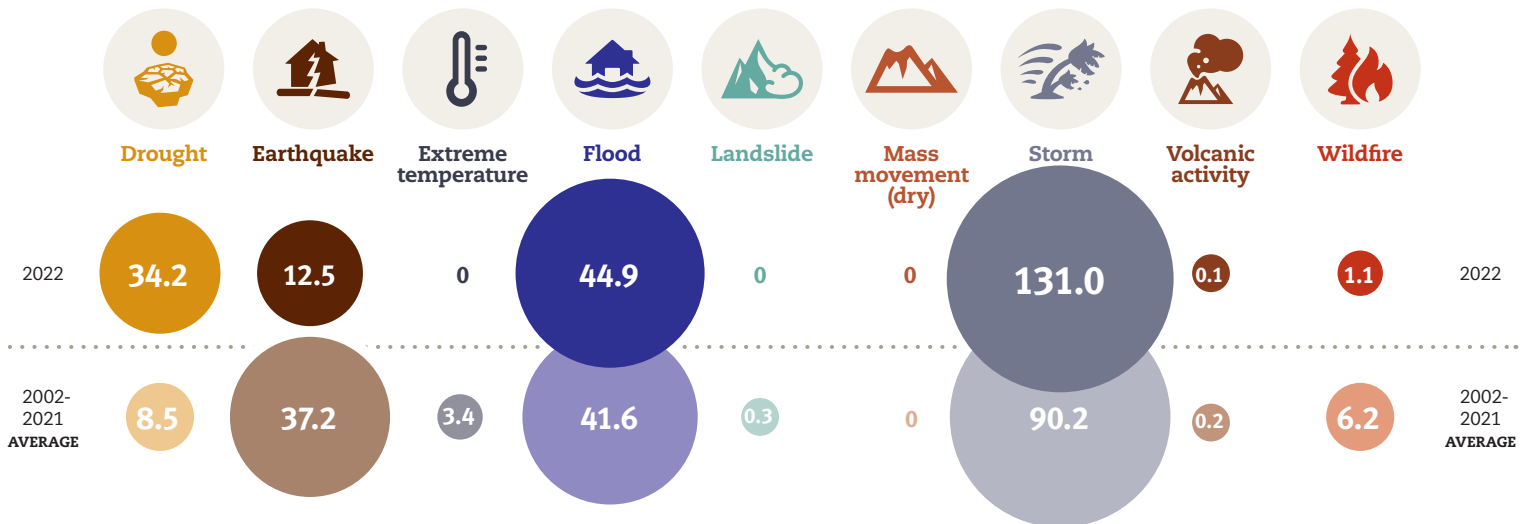
187.7 2002 to 2021 ‹ **223.8** in 2022

	Drought	Earthquake	Extreme temperature	Flood	Landslide	Mass movement (dry)	Storm	Volcanic activity	Wildfire	
2022	34.2	12.5	0	44.9	0	0	131.0	0.1	1.1	**2022**
2002-2021 AVERAGE	8.5	37.2	3.4	41.6	0.3	0	90.2	0.2	6.2	**2002-2021 AVERAGE**

Table 3

Top 10 economic losses - 2022

USA	Hurricane 'Ian'	100.0 billion		Australia	Flood	6.6 billion
USA	Drought	22.0 billion		China	Flood	5.0 billion
Pakistan	Flood	15.0 billion		Nigeria	Flood	4.2 billion
Japan	Earthquake	8.8 billion		India	Flood	4.2 billion
China	Drought	7.6 billion		Brazil	Drought	4.0 billion

12   Figures for economic losses were adjusted using the annual consumer price index (CPI) data from the OECD.

About EM-DAT

The Emergency Events Database (EM-DAT) has been maintained by the Centre for Research on the Epidemiology of Disasters (CRED) since 1988. The primary objective of EM-DAT is to provide information to support humanitarian action at the national and international level, enabling rational decision-making in disaster preparedness. The database offers objective, evidence-based information that can be used to assess the vulnerability of communities to disasters, thus assisting policymakers in setting priorities.

EM-DAT is a database containing information on the occurrence and impacts of over 25,000 natural and technological disasters from 1900 to the present day, compiled from various sources, including information from UN agencies, national governments, NGOs, research institutes, and the media. The sources are prioritized and used based on their reliability.

CRED defines a disaster as "a situation or event that overwhelms local capacity, necessitating a request at the national or international level for external assistance; it is an unforeseen and often sudden event that causes great damage, destruction and human suffering." This publication includes only disasters attributed to natural hazards, except biological and extra-terrestrial hazards, and excludes the technological hazards recorded in EM-DAT. To be included in the database, a disaster must meet at least one of the following criteria:

- 10 or more people reported killed
- 100 or more people reported affected
- declaration of a state of emergency
- a call for international assistance

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Contact

Centre for Research on the Epidemiology of Disasters (CRED)
Institute Health and Society – UCLouvain
B.1.30.15, Clos Chapelle aux Champs
1200 Brussels, Belgium
contact@emdat.be – www.emdat.be

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