Q3 Global Catastrophe Recap

October 2023

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Executive Summary

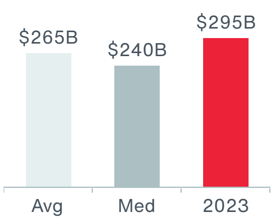
The third quarter of 2023 saw multiple significant disaster events, which drove total year-to-date economic losses above $295 billion, approaching the 21st-century annual average of $310 billion. The costliest event of the quarter was the widespread flooding in Beijing and several Chinese provinces in early August.

Insured losses from severe convective storms in the United States continued to increase due to relentless activity and surpassed the $50 billion mark for the first time on record, accounting for roughly 60% of all global insured losses. Another significant event for the industry was the wildfire that destroyed the town of Lahaina in Hawaii.

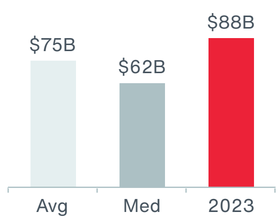
Total aggregated insured losses from natural disasters in the first three quarters were estimated to exceed $88 billion, and the number of billion-dollar events is already expected to set a record in 2023. These numbers are preliminary and expected to evolve in the next months.

Aggregated death toll from 2023 events is already running above 75,000, making this year the deadliest since 2010. Several significant events occurred in Q3, including the flooding associated with the Mediterranean storm Daniel, and the earthquake in Morocco. Disaster costs continued to be affected by macroeconomic factors and continuing inflationary pressure.

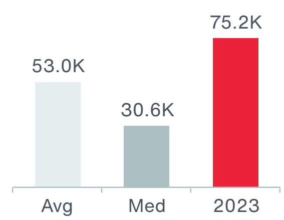
Q1-Q3 Global Economic Losses



Q1-Q3 Global Insured Losses

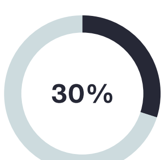


Q1-Q3 Global Fatalities



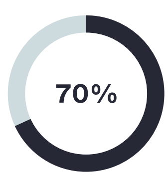
Protection Gap

Only 30% of total losses covered by insurance



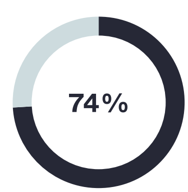
Severe Convective Storm

Costliest peril for insurers with 70% of global losses



United States

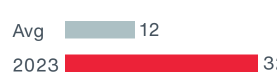
3/4 of global insured losses occurred in the United States



Total Events

Billion-Dollar Events (Economic)

Billion-Dollar Events (Insured)



Averages and medians since 2000. All losses are in 2023 USD (adjusted for price inflation). Data: Aon Catastrophe Insight

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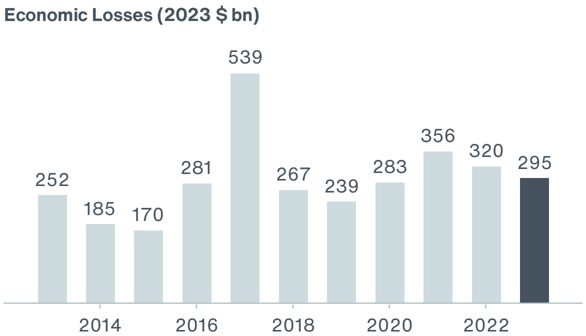
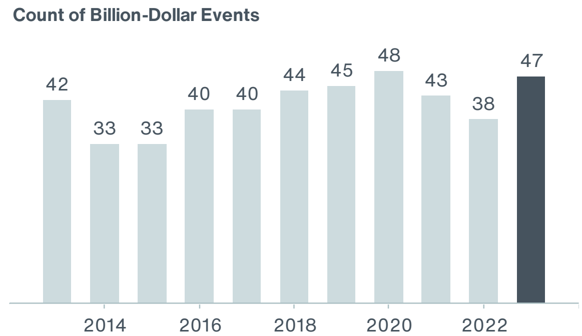
Economic Losses Closing in on Annual Average

Global economic losses from natural disasters in the first three quarters of 2023 were preliminarily estimated at **$295 billion**, above the 21st-century Q1-Q3 average of $265 billion. It is likely that the annual losses will approach or even surpass the long-term ($310 billion) and decadal ($339 billion) averages due to additional anticipated activity in Q4 and loss development for recent disaster events. It is currently estimated that by the end of September, the world saw at least 47 individual billion-dollar disasters, which was the fifth-highest number on a price-inflated basis.

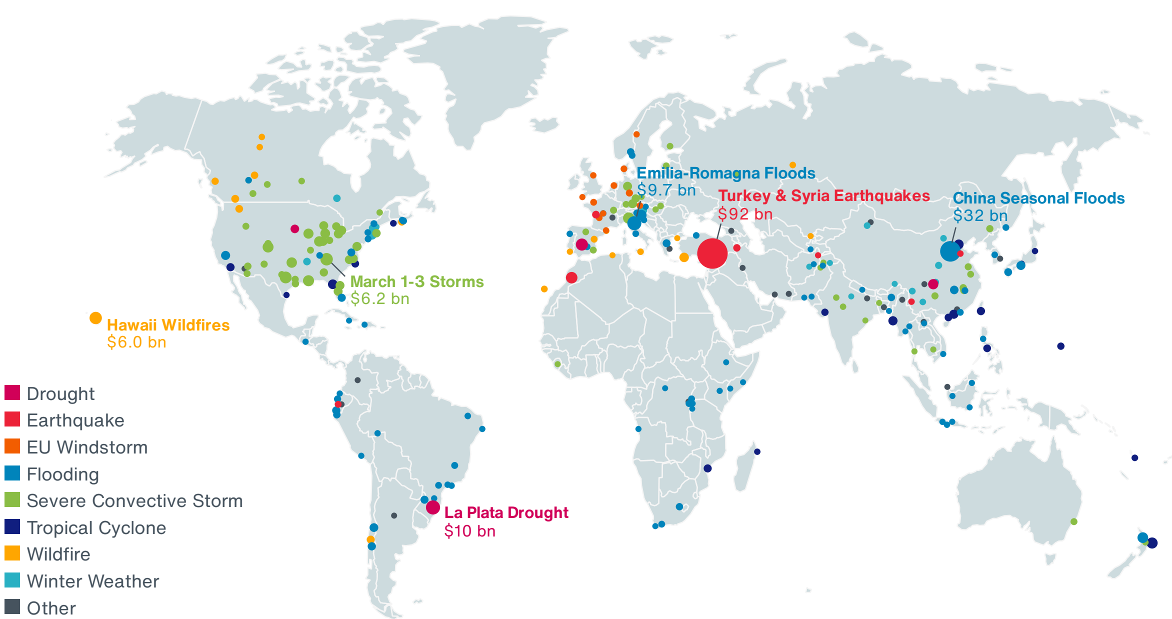
EXHIBIT 1: Q1-Q3 Global Natural Disaster Losses





Data: Aon Catastrophe Insight

EXHIBIT 2: Q1-Q3 2023 Economic Loss Events



Data: Aon Catastrophe Insight

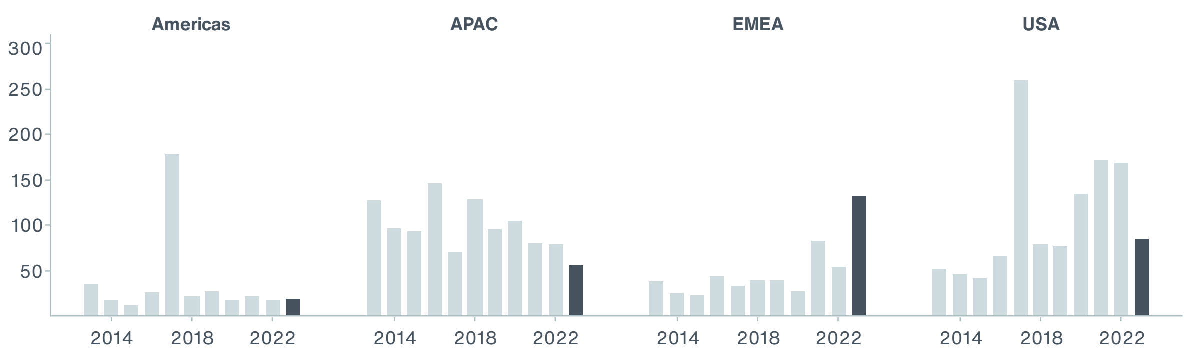
Several significant events in Q3 changed the ranking of the top 10 loss events of the year to date. In particular, seasonal flooding in China, which includes the catastrophic episode in Beijing in August and floods in major river basins, resulted in aggregated economic losses exceeding $30 billion. The wildfire, which destroyed Lahaina in Hawaii, impacted an incomparably smaller area, yet also resulted in multi-billion-dollar losses.

EXHIBIT 3: Top 10 Costliest Economic Loss Events in Q1-Q3 2023

Date	Event	Location	Deaths	Economic Loss (USD bn)
02/06	**Turkey & Syria Earthquakes**	Turkey & Syria	59,259	91.7
May-Sep	**China Seasonal Floods**	China	370	31.9
01/01-06/30	**La Plata Basin Drought**	Brazil, Argentina, Uruguay	N/A	10.1
05/13-05/17	**Emilia-Romagna Floods**	Italy	15	9.7
03/01-03/03	**Severe Convective Storm**	United States	13	6.2
08/08-08/17	**Hawaii Wildfires**	United States	97	6.0
01/01-06/30	**Drought**	Spain	N/A	5.6
03/31-04/01	**Severe Convective Storm**	United States	37	5.5
06/21-06/26	**Severe Convective Storm**	United States	7	5.0
07/18-07/25	**Severe Convective Storm**	Italy, Europe	14	4.3

From a regional perspective, the **EMEA** region accounted for the largest portion of global economic losses with the current estimate of $134 billion. This was primarily driven by significant earthquakes, with the Morocco event in September being a notable addition. Economic losses in APAC were running lower than average, while total damage from the events in the Americas was close to the median (with an outlier in 2017). United States recorded losses were slightly below the 21st-century Q1-Q3 average, yet already 25% higher than the median.

EXHIBIT 4: Q1-Q3 Economic Losses by Region (2023 USD bn)

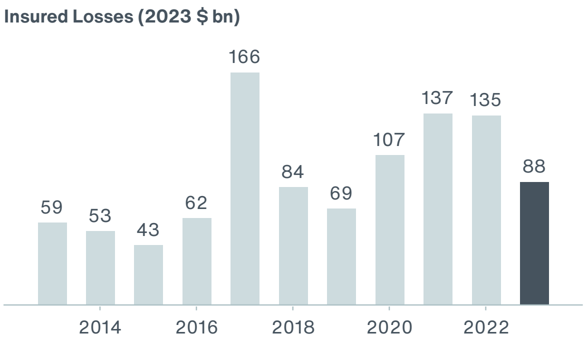


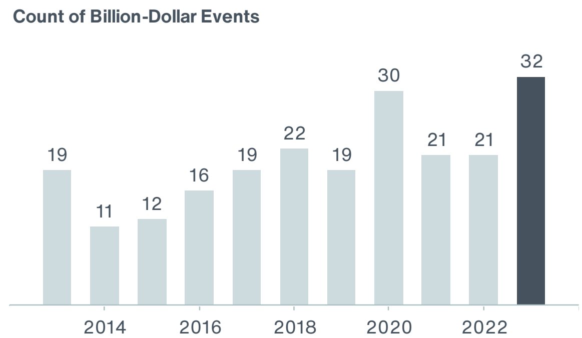
Data: Aon Catastrophe Insight

High Frequency of Costly Insured Loss Events

Global insured losses from natural disaster events in the first three quarters of 2023 were estimated to reach at least **$88 billion**, which was higher than the average ($75 billion) and median ($62 billion) for the period. From an annual perspective, it is now likely that the eventual 2023 losses will also surpass the yearly average of $89 billion. Remarkably, 32 individual billion-dollar disasters likely occurred, which is already the highest annual total on record. This was largely due to relentless severe convective storm activity in the United States, which contributed with 21 individual events.

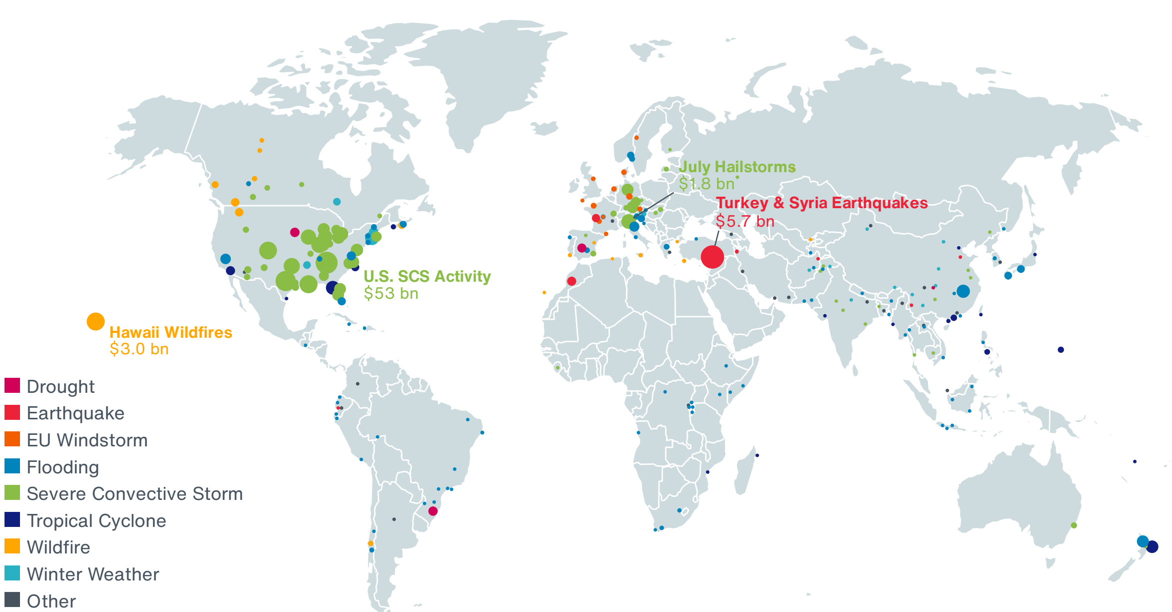
EXHIBIT 5: Q1-Q3 Global Insured Losses





Data: Aon Catastrophe Insight

EXHIBIT 6: Q1-Q3 2023 Insured Loss Events



Data: Aon Catastrophe Insight

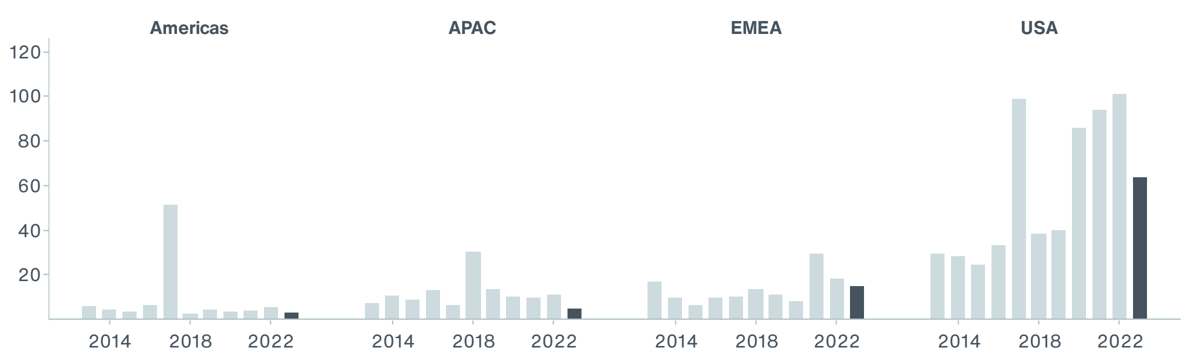
Severe convective storm events in the United States dominated the table of top 10 costliest events in terms of insured loss, even though none of them were expected to surpass the February earthquake sequence in Turkey and Syria. The Hawaii wildfires, including the catastrophic event that destroyed the town of Lahaina, were expected to rank among the eight costliest wildfires ever recorded.

EXHIBIT 7: Top 10 Costliest Insured Loss Events in Q1-Q3 2023

Date	Event	Location	Deaths	Insured Loss (USD bn)
02/06	**Turkey & Syria Earthquakes**	Turkey & Syria	59,259	5.7
03/01-03/03	**Severe Convective Storm**	United States	13	5.0
03/31-04/01	**Severe Convective Storm**	United States	37	4.4
06/21-06/26	**Severe Convective Storm**	United States	7	4.0
06/10-06/15	**Severe Convective Storm**	United States	3	3.1
06/15-06/20	**Severe Convective Storm**	United States	5	3.0
08/08-08/17	**Hawaii Wildfires**	United States	97	3.0
05/09-05/14	**Severe Convective Storm**	United States	1	2.9
04/18-04/22	**Severe Convective Storm**	United States	3	2.3
04/03-04/07	**Severe Convective Storm**	United States	5	2.3

Disaster events in the United States accounted for roughly three-quarters of global insured losses in Q1-Q3 of 2023, reaching approximately $65 billion. This is already higher than the long-term annual average and median. While EMEA recorded the highest economic losses, the portion of that total that was covered by insurance was significantly lower than in the United States, owing to a large protection gap for major events, including earthquakes, floods, and droughts. Insured losses in both APAC and the Americas remained below their means.

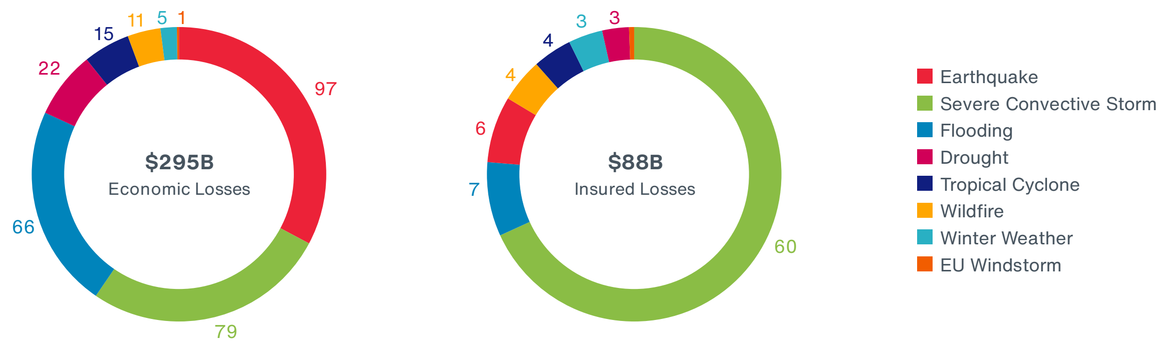
EXHIBIT 8: Q1-Q3 Insured Losses by Region (2023 USD bn)



Data: Aon Catastrophe Insight

Earthquake, SCS and Flooding Account for Most Losses

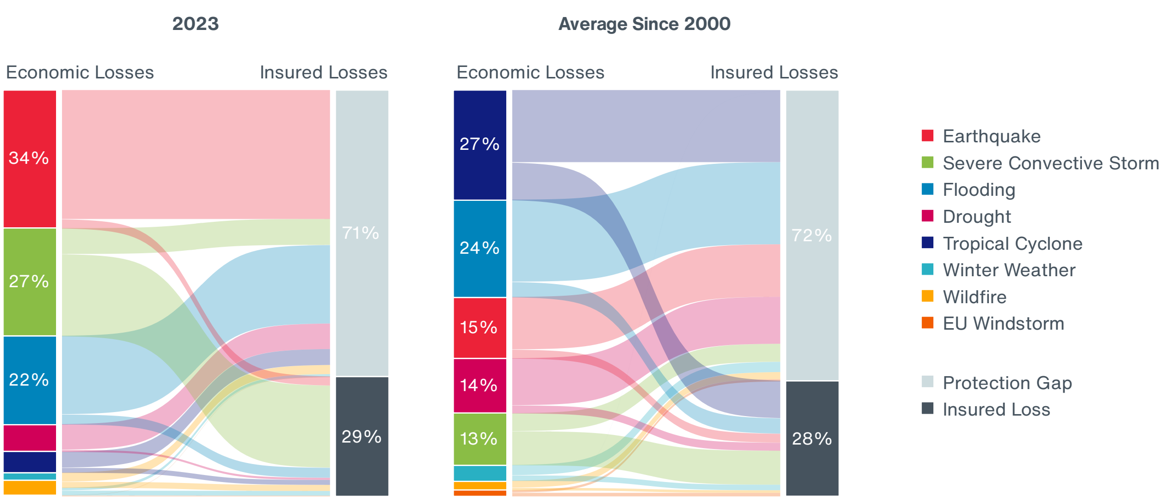
EXHIBIT 9: Q1-Q3 2023 Economic & Insured Losses by Peril (2023 USD bn)



Data: Aon Catastrophe Insight

While the overall proportion of economic losses covered by insurance was close to the long-term average, the structure of the individual contributions from regional and peril perspectives was completely different. Tropical Cyclone and flooding events typically account for the largest part of total economic losses through Q3 (see Exhibit 10). However, earthquakes and severe convective storms were responsible for more than 60% of total economic losses in 2023. Severe Convective Storms caused approximately 70% of global insured losses in 2023, compared to an average of 34%.

EXHIBIT 10: Q1-Q3 Economic & Insured Losses by Peril and the Protection Gap (2023 USD bn)



Data: Aon Catastrophe Insight

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Deadliest Year Since 2010 Driven by Earthquakes

The combined year-to-date death toll of more than 75,000 already makes 2023 the deadliest year in terms of natural disasters since 2010. In the third quarter, several significant and deadly events occurred – most notably the catastrophic flash flooding in northeastern Libya, which was a result of rainfall released by Storm Daniel and following infrastructural failures. The September earthquake in Morocco currently ranks as the third deadliest event of the year with nearly 3,000 fatalities.

EXHIBIT 11: Top 10 Deadliest Events in Q1-Q3 2023

Date	Event	Location	Deaths
02/06	**Turkey & Syria Earthquakes**	Turkey & Syria	59,259
09/04-09/12	**Storm Daniel**	Libya, Greece, Bulgaria, Turkey	4,361
09/08	**Morocco Earthquake**	Morocco	2,946
Apr-Sep	**India Seasonal Floods**	India	2,432
02/20-03/15	**Cyclone Freddy**	Southern Africa	1,434
05/02-05/05	**Eastern DRC Floods**	Democratic Republic of the Congo	470
05/13-05/15	**Cyclone Mocha**	Myanmar, Bangladesh, India	466
06/15-07/31	**June & July Heatwaves**	United States, Mexico	396
May-Sep	**China Seasonal Floods**	China	370
Jun-Sep	**Pakistan Seasonal Floods**	Pakistan	226

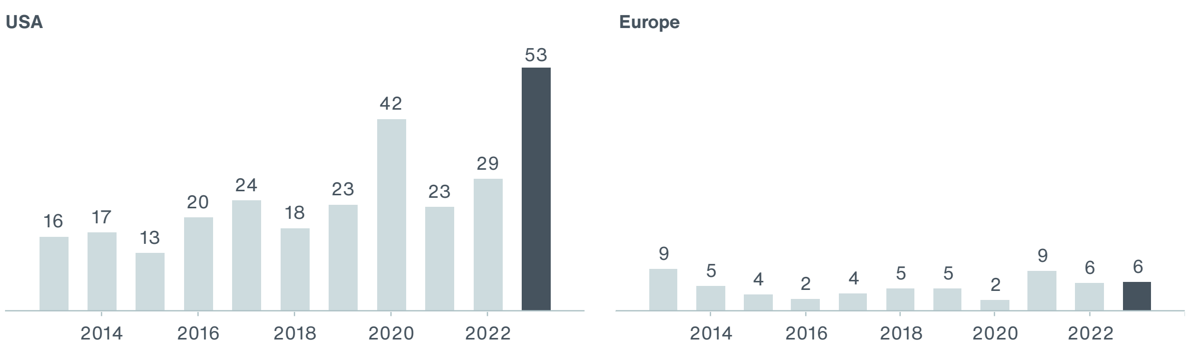
What Resonated in Q3 2023

Additional storm activity continued to drive record-breaking SCS losses

For the first time in history, total insured losses related to severe convective storms in the United States are expected to exceed $50 billion. In Q3 alone, at least 4, potentially 7 additional billion-dollar disasters (in terms of insured loss) occurred. The month of July had the most local storm reports of any month in 2023, with over 1,200 more reports than the next month. Severe wind was the largest storm report category, with reports concentrated over the Great Plains and eastern U.S.

The severe convective storm peril also resonated in Europe. In particular, relentless hailstorm activity in northern Italy throughout the month of July resulted in record-breaking insurance payouts for the country, potentially reaching €2 billion. On July 24, a hailstone of 19 cm (7.5 inches) in diameter was documented in Azzano Decimo, setting a new European record.

EXHIBIT 12: Q1-Q3 Insured Losses from Severe Convective Storms (2023 $ bn)



Data: Aon Catastrophe Insight

Destructive Maui fires show that the peril is not limited to California

Amidst a relatively mild wildfire season across the United States, especially compared to recent years, the devastating Maui wildfires in Q3 proved to be among the deadliest and costliest in U.S. history. Perhaps even more noteworthy is that this event occurred outside of California, a state known for several, recent billion-dollar wildfire events. In spite of Maui's proximity to the ocean, the event occurred due to several coinciding factors. This included preceding drought conditions, local topography, and an ideal atmospheric setup with Hurricane Dora playing a crucial role, despite not having affected Hawaii directly. The event highlights the danger wildfires present to unexpected areas. Given that climate change can potentially further exacerbate drought and wildfire conditions worldwide, preparations for similar events in the future will be vital.

EXHIBIT 13: Top 5 Costliest U.S. Wildfires outside of California

Date	Event	State	Insured Loss (2023 $ billion)
Aug 2023	**Maui/Hawaii Wildfires**	Hawaii	3.0
Dec 2021	**Marshall Fire**	Colorado	2.7
Aug-Oct 2020	**Beachie Creek Fire**	Oregon	1.6
Nov-Dec 2016	**Chimney Tops 2 Fire**	Tennessee	1.2
Sep 2020	**Almeda Drive Fire**	Oregon	0.9

EMEA region impacted by another deadly earthquake

On September 8, a magnitude-6.8 earthquake occurred in the Moroccan High Atlas Mountain range near Oukaïmedene. The event claimed nearly 3,000 lives, injured more than 5,600 people, and caused significant material damage across the affected area. It was also significant for the local insurance industry. Comparison with the historic 1960 Agadir earthquake, which killed 13,000 people, is noteworthy. While the 2023 event was larger in magnitude, the main impact occurred in mostly rural areas of the Atlas Mountains. Furthermore, the population of Agadir in 1960 was around 40,000 (13,000+ were killed). Today's population of the city is 12x larger (~490,000).

Relatively low hurricane losses

Hurricane losses in the U.S. were lower than average in Q3, which is considered the peak of the Pacific and Atlantic hurricane seasons. Two notable tropical systems, Hilary and Idalia, still caused significant losses that, collectively, reached into the billions USD. Notably, Idalia struck Florida as a high-end category 3 hurricane, becoming the 4th major hurricane to make landfall in Florida in the last 6 years. However, the remoteness of Florida's Big Bend region, near where the storm made landfall, potentially mitigated much higher losses from materializing. Meanwhile, the western Pacific saw 7 tropical systems primarily impacting the Philippines, Taiwan, China, and Japan in Q3.

Libya flood disaster highlights infrastructure neglect in a failed state

The destructive flash flooding in northeastern Libya in early September damaged thousands of buildings in Derna city and ranked as the second deadliest event of the year with more than 4,300 fatalities. While the total event rainfall generated by Storm Daniel was unprecedented, the disastrous impact of the flooding was amplified by the destruction of two dams in the Derna Wadi that could potentially hold up to 24 million cubic meters of water together. Both damaged dams were constructed in the 1970s and suffered major damage after a strong storm that hit the region in 1986. Despite the money allocations for their repair in 2012 and 2013, no work was done in the area. Ten years later, the destruction of the dams likely exacerbated the total death toll and material damage.

Understanding Extreme Heat

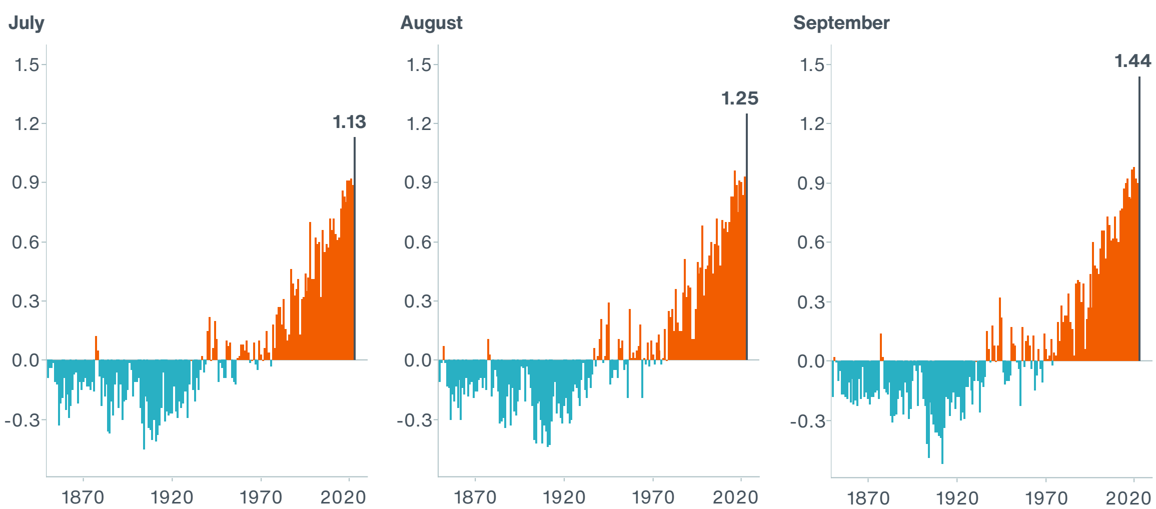
An Increasing Risk for people, Businesses and Society

Risks from chronic perils such as heat have traditionally been a blind spot in the insurance industry despite the increasing cumulative costs of these frequent events over time. In the wake of record breaking high global temperatures in 2023, the rising frequency of extreme heat due to climate change creates an urgency for the risk industry to analyze climate trends for better risk mitigation.

A Year of Record Heat

Extreme heat reached record-breaking highs this past June-September, according to the National Oceanic and Atmospheric Administration's (NOAA) 174-year climate record. In addition to deadly heatwaves that have swept across South America, Southeast Asia, and Canada in the first half of the year, many densely populated regions in Europe and the U.S. saw prolonged record-breaking heat. Sea surface temperatures in the North Atlantic this past summer set record highs, prompting NOAA to increase its Atlantic hurricane outlook to 'above normal' entering peak hurricane season.

EXHIBIT 14: Monthly Global Temperature Anomalies (1850-2023) Compared To 1901-2000 Baseline (˚C)



Data: NOAA NCEI

This rising frequency of extreme heat creates an urgency for the risk industry, as well as businesses within the broader economy, to understand the diverse impacts these events can have. Unlike acute perils, the full impacts from chronic perils like extreme heat are often cumulative and can be difficult to measure. This creates new opportunities for risk managers to leverage non-traditional risk transfer tools—like [parametric insurance]—to unlock flexible sources of capital.

EXHIBIT 15: National All-time Temperature Records Set or Tied in Q1-Q3 2023

Country	Location	Record Temperature (˚C)	Record Temperature (˚F)	Date
Albania	Kuçovë	44.0	111.2	07/25
Chad	Faya-Largeau	48.0	118.4	05/25
China	Sanbao	52.2	126.0	07/16
Hong Kong	Sheung Shui	41.5	106.7	05/31
Laos	Luang Prabang	43.5	110.3	05/06
Morocco	Agadir	50.4	122.7	08/11
Singapore	Ang Mo Kio	37.0	98.6	05/13
Thailand	Tak	45.4	113.7	04/15
Turkey	Sarıcakaya	49.5	121.1	08/15
Vietnam	Tu'o'ng Du'o'ng	44.2	111.6	05/07

The Business and Societal Impacts of Rising Temperatures

Heath Impact

The most devastating impact of extreme heat is on human health and life. In the United States and Australia, heat causes more deaths[1] than any other weather-related peril[2]. Europe, too, has experienced the dire consequences of extreme heat. Aon's 2023 Weather, Climate and Catastrophe Insight reported two separate major heatwaves hit Europe in June and July of 2022, affecting hundreds of millions of people and leading to nearly 20,000 heat-related fatalities, as derived from excess mortality rate data. Heat can cause death in a variety of ways, such as heat stroke, cardiovascular disease, and respiratory failure. It has important indirect health effects too—heat and poor air quality often go together, as the weather conditions conducive to heatwaves tend to also trap air pollution near the earth's surface. Urban environment tends to exacerbate heat impacts, as infrastructure retains and re-emits heat from the sun, making cities hotter than natural landscapes.

Business Impact

From a business perspective, extreme heat can have broad and sweeping impacts that negatively impact operations, productivity and employee well-being. In industries like construction and agriculture, high temperatures and humidity cause worker fatigue, reducing labor productivity. Research suggests labor productivity losses in the U.S. from heat are already around $100 billion annually[3] on average - a number that will surely increase in the future as the planet warms. Such economic losses are not just confined to outdoor industries either. Air conditioning is often too costly or impractical to implement widely in other sectors like manufacturing and warehousing. Heat poses direct risk to infrastructure as well, causing roadways and train tracks to buckle and fail in extreme cases, leading to transportation delays and supply chain disruption.

Read more on the role of climate change on heatwaves, liability implications and three ways to start addressing this risk in our full article.

[1] Weather Related Fatality and Injury Statistics – National Weather Service
[2] Exploring 167 years of vulnerability: An examination of extreme heat events in Australia 1844-2010 - ScienceDirect
[3] Extreme Heat – Atlantic Council

Appendix: 2023 Data

United States

Date(s)	Event	Location	Deaths	Economic Loss (2023 $ million)
01/01-09/30	Drought	United States	N/A	3,300
01/04-01/10	Flooding	California	0	1,450
01/07	Severe Convective Storm	Texas	0	80
01/11-01/16	Flooding	California	0	610
01/12	Severe Convective Storm	Alabama, Georgia	11	765
01/17-01/19	Flooding	California	0	225
01/23	Winter Weather	Northeast	0	25
01/24	Severe Convective Storm	South	0	255
01/31-02/02	Winter Weather	South	8	380
02/02-02/05	Winter Weather	Northeast	1	1,850
02/07-02/09	Severe Convective Storm	Indiana, Kentucky, Ohio, Texas	0	260
02/15-02/16	Severe Convective Storm	Oklahoma, Texas	0	250
02/21-02/22	Winter Weather	California, Arizona, New Mexico	0	400
02/21-02/23	Winter Weather	Midwest, Northeast	0	325
02/23-02/25	Winter Weather	California	0	325
02/26-02/28	Severe Convective Storm	Southwest	0	915
02/26-03/02	Winter Weather	California	0	175
03/01-03/03	Severe Convective Storm	Southeast, Midwest	13	6,150
03/09-03/12	Flooding	California, Nevada	2	250
03/13-03/15	Winter Weather	Northeast	0	215
03/13-03/15	Winter Weather	California	0	450
03/16-03/17	Severe Convective Storm	Oklahoma, Texas	0	825
03/21-03/23	Severe Convective Storm	California	5	500
03/23-03/28	Severe Convective Storm	Southeast	23	2,600
03/31-04/01	Severe Convective Storm	Midwest, Plains, Southeast	37	5,450
04/02-04/03	Severe Convective Storm	Texas	0	140
04/03-04/07	Severe Convective Storm	Southwest, Southeast, Midwest	5	2,800
04/12-04/14	Flooding	Florida	0	650
04/14-04/17	Severe Convective Storm	Southeast, Midwest	0	1,250
04/18-04/22	Severe Convective Storm	Southwest, Midwest	3	2,900
04/25-04/27	Severe Convective Storm	Oklahoma, Florida, Texas	0	1,250

04/28-04/30	Severe Convective Storm	Southeast, Northeast	0	1,150
05/02-05/09	Severe Convective Storm	Plains, Southeast, Midwest	0	2,000
05/09-05/14	Severe Convective Storm	Midwest, Plains	1	3,600
05/17-05/20	Severe Convective Storm	Texas	0	1,750
05/22-05/26	Severe Convective Storm	Texas, New Mexico, Colorado	2	750
05/23-05/30	Severe Convective Storm	West, Midwest	0	135
05/31-06/04	Severe Convective Storm	New Mexico, Oklahoma, Texas	0	200
06/05-06/08	Severe Convective Storm	Plains	0	560
06/10-06/15	Severe Convective Storm	South, Plains	3	3,900
06/15-06/16	Severe Convective Storm	Michigan, Ohio	0	750
06/15-06/20	Severe Convective Storm	Midwest, Southeast	5	3,750
06/20-08/31	Heatwave	South, Southeast	147	N/A
06/21-06/26	Severe Convective Storm	Plains, Southeast	7	5,000
06/26-07/02	Severe Convective Storm	Midwest, Plains, SE, NE	1	1,650
07/03-07/08	Severe Convective Storm	Plains	0	750
07/05-07/10	Severe Convective Storm	Midwest, Northeast	0	625
07/09-07/11	Flooding	Northeast	0	90
07/10-07/13	Flooding	Plains, Midwest	0	1,800
07/14-07/18	Flooding	Northeast	5	60
07/14-07/19	Severe Convective Storm	Plains, Midwest	0	1,250
07/16-07/20	Flooding	Midwest, Southeast	0	60
07/19-07/20	Severe Convective Storm	Colorado	0	225
07/19-07/21	Severe Convective Storm	Southeast	1	1,750
07/26	Severe Convective Storm	Arizona	0	140
07/26-07/30	Severe Convective Storm	Midwest, Northeast	0	1,250
08/03-08/09	Severe Convective Storm	Midwest, Northeast, Southeast	3	1,300
08/08-08/17	Wildfire	Hawaii	97	6,000
08/10-08/15	Severe Convective Storm	Nationwide	1	1,500
08/17-08/22	Hurricane Hilary	West, Southwest	0	675
08/18-08/26	Wildfire	Washington	1	450
08/23-08/25	Severe Convective Storm	Michigan, Ohio	0	750
08/24-08/28	Severe Convective Storm	Midwest, Northeast, Southeast	5	100
08/27-08/31	Hurricane Idalia	Southeast	2	2,000
08/31-09/03	Severe Convective Storm	Arizona, New Mexico	0	300
09/07-09/13	Flooding	Northeast	0	550
09/08-09/09	Severe Convective Storm	Texas	0	100
09/12-09/14	Severe Convective Storm	Arizona, Texas	0	200

09/14-09/17	Hurricane Lee	Northeast	2	50
09/21-09/25	Severe Convective Storm	Plains, Midwest	0	1,500
09/22-09/25	Tropical Storm Ophelia	Northeast	0	450
09/26-09/27	Severe Convective Storm	Kentucky, Missouri	2	500
09/28-09/29	Flooding	New York, New Jersey, Connecticut	0	100

Remainder of North America (Non-U.S.)

Date(s)	Event	Location	Deaths	Economic Loss (2023 $ million)
02/02-02/05	Winter Weather	Canada	2	190
03/31-04/01	Severe Convective Storm	Canada	0	30
04/05-04/06	Winter Weather	Canada	0	345
05/01-06/30	Alberta Wildfires	Canada	0	300
05/01-09/30	Flooding	Guatemala	47	10
05/28-06/04	Tantallon Wildfire	Canada	0	275
05/28-06/13	Wildfire	Canada	0	40
06/02-06/04	Flooding	Haiti	51	Millions
06/08-06/10	Flooding	Cuba	6	Millions
06/15-07/31	Heatwave	Mexico	249	N/A
06/18-06/20	Flooding	Canada	0	45
06/25-06/26	Severe Convective Storm	Canada	0	35
07/01	Severe Convective Storm	Canada	0	85
07/09-07/11	Flooding	Canada	0	35
07/10-07/13	SCS & Flooding	Canada	0	255
07/15	Severe Convective Storm	Canada	0	120
07/17-07/19	Severe Convective Storm	Canada	0	35
07/19-07/21	Severe Convective Storm	Canada	0	100
07/21-07/22	Flooding	Canada	3	200
07/24-07/26	Severe Convective Storm	Canada	0	50
07/26-07/30	Severe Convective Storm	Canada	0	60
08/03-08/09	Severe Convective Storm	Canada	0	125
08/10-08/15	Flooding	Canada	0	80
08/15-09/21	Kelowna Wildfire	Canada	0	530
08/18-09/30	Bush Creek Wildfire	Canada	0	255
08/23-08/25	Severe Convective Storm	Canada	1	130
08/24-08/28	Severe Convective Storm	Canada	0	170

South America

Date(s)	Event	Location	Deaths	Economic Loss (2023 $ million)
01/01-01/12	Flooding	Brazil	10	140
01/01-03/31	Drought	Brazil, Uruguay, Argentina	N/A	10,100
01/01-04/15	Flooding	Ecuador	30	200
01/17-01/18	Flooding	Brazil	5	10
02/01-02/08	Flooding	Brazil	0	25
02/01-03/06	Wildfire	Chile	26	610
02/01-03/15	Heatwave	Argentina	N/A	N/A
02/05-02/08	Flooding	Peru, Bolivia	38	Millions
02/15-02/22	Flooding	Brazil, Paraguay	65	30
03/08-03/11	Storm Yaku	Peru	6	700
03/08-03/12	Flooding	Brazil	0	95
03/16-03/21	Flooding	Brazil	10	50
03/18	Earthquake	Ecuador, Peru	18	100
03/23-03/25	Flooding	Brazil	0	20
03/26	Landslide	Ecuador	65	Millions
04/10-04/14	Flooding	Peru	25	300
06/01-06/04	Flooding	Ecuador	0	Millions
06/15-06/16	Flooding	Brazil	16	205
06/23-06/28	Flooding	Chile	2	760
07/10-07/14	Flooding	Brazil	0	10
07/18	Landslide	Colombia	15	Negligible
08/17-08/29	Flooding	Chile	3	1,100
09/01-09/05	Flooding	Brazil, Argentina	49	605

Europe

Date(s)	Event	Location	Deaths	Economic Loss (2023 $ million)
01/01	Flooding	Spain, Portugal	0	25
01/01-08/30	Drought	Spain	N/A	5,600
01/14-01/15	Windstorm Frederic	Western Europe	0	25
01/16	Windstorm Gerard (Gero)	Western Europe	0	105
01/16-01/17	Windstorm Fien (Harto)	Western Europe	1	65
02/01	Windstorm Oleg	Germany, Czech Republic, Poland	0	30
02/03-02/04	Windstorm Pit	Central Europe	0	55

02/04-02/05	Winter Weather	Austria, Italy, Switzerland	11	Negligible
02/17-02/18	Windstorm Otto	Western, Northern & Central Europe	3	75
03/08-03/13	Windstorm Larisa	Western & Central Europe	0	25
03/25-03/26	Windstorm Khusru	France, Central Europe	0	25
03/27-04/06	Winter Weather	Austria	0	55
03/29-04/15	Wildfire	Spain	0	160
03/31	Windstorm Mathis	Western Europe	2	170
04/12	Windstorm Noa	Western Europe	0	Millions
04/27	Landslide	Norway	0	85
04/29	Severe Convective Storm	Spain	0	65
05/01-06/15	Severe Convective Storm	Spain	0	120
05/01-08/10	Wildfire	Italy	0	50
05/01-08/10	Wildfire	Portugal	0	10
05/05-05/07	Severe Convective Storm	Central Europe	0	65
05/13-05/17	Flooding	Central & Eastern Europe	0	25
05/13-05/17	Flooding	Italy	15	9,700
05/22-05/23	Flooding	Western & Central Europe	0	60
06/08-06/12	Severe Convective Storm	Western, Central & Southern Europe	2	25
06/14-06/17	Flooding	Southern & Southeastern Europe	2	65
06/16	Earthquake	France	0	440
06/18-06/22	Severe Convective Storm	Western & Central Europe	1	1,340
06/23-06/26	Severe Convective Storm	Central & Southeastern Europe	3	50
07/01-07/31	Wildfire	Greece	0	1,780
07/05	Windstorm Poly	Western & Central Europe	2	70
07/06-07/13	Severe Convective Storm	Western & Central Europe	0	315
07/18-07/25	Severe Convective Storm	Italy, Europe	14	4,300
07/29-07/30	Severe Convective Storm	Central & Southern Europe	0	Millions
08/01-08/24	Heatwave	Southern Europe	N/A	N/A
08/03-08/08	Flooding	Slovenia, Austria	7	2,750
08/04-08/08	Severe Convective Storm	Central & Eastern Europe	0	65
08/06-08/08	Flooding	Norway, Sweden	0	350
08/12-08/17	Severe Convective Storm	Central Europe	0	760
08/14	Wildfire	France	0	Millions
08/15-08/18	Wildfire	Spain	0	85
08/18-08/31	Wildfire	Greece	20	Unknown
08/24-08/26	Severe Convective Storm	Central & Western Europe	0	1,425
08/26-08/27	Flooding	Norway	0	20

08/28-08/30	SCS & Flooding	Central & Northern Europe	0	160
09/01-09/04	Flooding	Spain	3	365
09/04-09/07	Flooding	Greece, Bulgaria	21	2,290
09/10-09/13	Severe Convective Storm	Western & Central Europe	0	Millions
09/15-09/20	Severe Convective Storm	Western & Northern Europe	0	65

Middle East

Date(s)	Event	Location	Deaths	Economic Loss (2023 $ million)
01/18	Earthquake	Iran	0	50
01/28	Earthquake	Iran	3	255
02/06-02/20	Earthquake	Turkey, Syria	59,272	91,700
03/15	Flooding	Turkey	17	25
03/24	Earthquake	Iran	0	Millions
06/29-06/30	Dust Storm	Iran	0	Negligible
07/09-07/10	Flooding	Turkey	3	45
07/30-08/05	Heatwave	Iran	N/A	N/A
09/20-09/22	Dust Storm	Iran	3	Negligible

Africa

Date(s)	Event	Location	Deaths	Economic Loss (2023 $ million)
01/01-04/30	Flooding	Burundi	14	Unknown
01/01-06/30	Flooding	Ethiopia	90	Unknown
01/17-01/28	Cyclone Cheneso	Madagascar	33	20
02/06-02/16	Flooding	Southern Africa	25	260
02/20-03/15	Cyclone Freddy	Southern Africa	1,434	660
03/22-03/25	Flooding	Somalia	22	Unknown
03/23-04/04	Flooding	Kenya	12	Millions
04/01-04/12	Flooding	Central Africa	21	Unknown
04/01-04/30	Flooding	Angola	54	Millions
04/02	Landslide	DRC	20	Unknown
04/24-05/19	Flooding	Rwanda, Uganda, Kenya	136	100
05/02-05/04	Flooding & Landslides	DRC	470	100
05/03-05/19	Flooding	Uganda	23	Unknown
05/06-05/10	Severe Convective Storm	Sierra Leone	15	Unknown
05/10	Landslide	DRC	10	Negligible

05/12-05/19	Flooding	Somalia	22	Millions
06/14-06/19	Flooding	South Africa	2	100
07/15-07/31	Wildfire	Algeria	34	Millions
09/04-09/07	Flooding	Libya	4,333	Billions
09/08	Earthquake	Morocco	2,946	Billions
09/17-09/19	Flooding	Nigeria, DRC	17	Unknown
09/23-09/26	Flooding	South Africa	11	Millions

Asia

Date(s)	Event	Location	Deaths	Economic Loss (2023 $ million)
01/01-09/30	Drought	China	N/A	2,700
01/01-02/25	Flooding	Philippines	55	20
01/05-01/09	Winter Weather	India	25	Negligible
01/10-01/28	Winter Weather	Afghanistan	166	Negligible
01/13-01/16	Winter Weather	China	0	40
01/17	Winter Weather	China	28	Negligible
02/01-02/28	Winter Weather	China	0	80
02/08	Flooding	Indonesia	0	Millions
03/06	Landslide	Indonesia	46	Negligible
03/11-03/14	Winter Weather	China	0	50
03/17-03/20	Severe Convective Storm	India	16	25
03/17-03/21	Flooding	Pakistan	10	Negligible
03/20-03/25	Severe Convective Storm	China	0	320
03/21	Earthquake	Afghanistan, Pakistan	19	Millions
03/24-04/06	Flooding	Pakistan	14	Millions
03/29-04/03	Flooding	Indonesia	2	Millions
04/01-04/30	Severe Convective Storm	China	5	235
04/01-04/30	Flooding	China	0	1,000
04/01-05/15	Heatwave	Southeastern Asia	13	N/A
04/01-06/30	Heatwave	India	166	N/A
04/01-09/30	Flooding	India	2,432	300
04/10-04/20	Heatwave	Southeastern Asia	13	N/A
04/16	Severe Convective Storm	Cambodia	0	Millions
04/21-04/24	Severe Convective Storm	Southeastern Asia	19	Millions
04/21-04/24	Winter Weather	China	0	200
04/27	Flooding	Indonesia	0	15

04/29-05/02	Severe Convective Storm	Pakistan	12	Negligible
05/01-05/15	Heatwave	Southeastern Asia	N/A	N/A
05/02	Earthquake	China	0	30
05/02-05/10	Flooding	China	0	95
05/03-05/09	Flooding	Indonesia	2	20
05/05-05/20	Severe Convective Storm	China	4	190
05/06-05/08	Winter Weather	China	0	70
05/07-05/10	Wildfire	Russia	21	50
05/13-05/15	Cyclone Mocha	Myanmar, Bangladesh, India	466	1,550
05/15-05/16	Winter Weather	China	0	70
05/21	Flooding	Indonesia	0	Millions
05/22-09/30	Flooding	China	370	31,900
05/23-05/24	Severe Convective Storm	Bangladesh	18	Negligible
05/23-05/31	Typhoon Mawar	Philippines, Japan	2	Millions
05/25-06/02	Heatwave	China	N/A	N/A
05/26	Severe Convective Storm	India	12	Negligible
05/27	Winter Weather	Pakistan	11	Negligible
05/28-06/02	Flooding	Japan	5	1,300
05/31	Flooding	Indonesia	0	Millions
06/01-06/04	Landslides	China	22	Negligible
06/08-06/15	Wildfire	Kazakhstan	15	Negligible
06/10	Severe Convective Storm	Pakistan	33	Millions
06/15-06/16	Cyclone Biparjoy	India, Pakistan	12	255
06/19-06/24	Heatwave	Pakistan	22	N/A
06/25-09/30	Flooding	Pakistan	226	Unknown
07/01-07/14	Flooding	Japan	13	510
07-01/07/31	Flooding	Nepal	23	Unknown
07/01-08/10	Flooding	Vietnam	12	Millions
07/06-07/10	Severe Convective Storm	China	5	195
07/09-07/18	Flooding	South Korea	49	50
07/10-07/20	Heatwave	China	N/A	N/A
07/13-07/19	Typhoon Talim	Philippines, Taiwan, Vietnam	3	370
07/22-07/24	Flooding	Afghanistan	31	Unknown
07/25-08/05	Heatwave	South Korea	17	N/A
07/26-08/01	Typhoon Doksuri	Philippines, Taiwan, China, Vietnam	106	2,150
07/30	Severe Convective Storm	Russia	10	Millions
08/01-08/10	Flooding	Southeastern Asia	13	Millions

08/01-08/31	Severe Convective Storm	China	3	150
08/02-08/10	Typhoon Khanun	Eastern Asia	6	455
08/03	Landslide	Georgia	18	Negligible
08/06	Earthquake	China	0	35
08/11-08/17	Flooding	Russia	3	70
08/13	Landslide	Myanmar	32	Negligible
08/14-08/16	Typhoon Lan	Japan	0	10s of millions
08/26-09/03	Typhoon Saola	Eastern Asia	1	1,450
08/27	Flooding	Tajikistan	21	Unknown
09/02	Severe Convective Storm	India	12	Unknown
09/03-09/07	Typhoon Haikui	Philippines, Taiwan, China	3	750
09/08	Flooding	Hong Kong	0	100
09/08-09/09	Tropical Storm Yun-yeung	Japan	3	10s of millions
09/19	Severe Convective Storm	China	10	100

Oceania

Date(s)	Event	Location	Deaths	Economic Loss (2023 $ million)
01/27-02/02	Flooding	New Zealand	4	3,350
02/12-02/17	Cyclone Gabrielle	New Zealand	11	3,900
02/21-02/28	Severe Convective Storm	New Zealand	0	15
02/28-03/05	Cyclones Judy, Kevin	Vanuatu, Solomon Islands	0	50
05/09-05/12	Flooding	New Zealand	0	50
05/23-05/31	Typhoon Mawar	Guam	2	250
05/26	Severe Convective Storm	Australia	0	135

Additional Report Details

All financial loss totals are in US dollars ($) unless noted otherwise.

DR = Drought, EQ = Earthquake, WS = EU Windstorm, FL = Flooding, SCS = Severe Convective Storm, WF = Wildfire, WW = Winter Weather, VL = Volcano, HW = Heatwave, LS = Landslide

TC = Tropical Cyclone, TS = Tropical Storm, TD = Tropical Depression, HU = Hurricane, TY = Typhoon, STY = Super Typhoon, CY = Cyclone

Fatality estimates as reported by public news media sources and official government agencies.

Structures defined as any building – including barns, outbuildings, mobile homes, single or multiple family dwellings, and commercial facilities – that is damaged or destroyed by winds, earthquakes, hail, flood, tornadoes, hurricanes, or any other natural-occurring phenomenon. Claims defined as the number of claims (which could be a combination of homeowners, commercial, auto and others) reported by various public and private insurance entities through press releases or various public media outlets.

Damage estimates are obtained from various public media sources, including news websites, publications from insurance companies, financial institution press releases and official government agencies. Damage estimates are determined based on various public media sources, including news websites, publications from insurance companies, financial institution press releases, and official government agencies. Economic loss totals are separate from any available insured loss estimates. An insured loss is the portion of the economic loss covered by public or private insurance entities. In rare instances, specific events may include modeled loss estimates determined from utilizing Impact Forecasting's suite of catastrophe model products.

Appendix includes all events that meet at least one of the following criteria to be classified as a natural disaster in Aon's Catastrophe Insight Database:

- Economic Loss: $50 million
- Insured Loss: $25 million
- Fatalities: 10
- Injured: 50
- Structures Damaged or Filed Claims: 2,000

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