

Climate change is showing its claws: The world is getting hotter, resulting in severe hurricanes, thunderstorms and floods

- Natural disasters 2024 – a loss-heavy year for the insurance market: US\$ 140bn in insured losses – since 1980, only two years have been more expensive
- Weather catastrophes dominant – powerful hurricanes, severe thunderstorms and floods driving the losses
- North America with an even higher proportion of losses than usual – extreme flooding in Europe
- 2024 will replace 2023 as the hottest year to date – temperatures around 1.5°C higher than in the pre-industrial era



“One record-breaking high after another – the consequences are devastating. The destructive forces of climate change are becoming increasingly evident, as backed up by science. Societies need to prepare for more severe weather catastrophes. Accordingly, Munich Re is expanding and adapting its risk models to address these developments. This allows us to maintain, and even expand, our substantial risk capacity, helping to close the protection gap. At its core, insurance puts a price tag on the risks, which further encourages prevention.”

Thomas Blunck, Member of the Board of Management

The 2024 natural disasters in figures

Worldwide, natural disasters caused losses of US\$ 320bn in 2024 (2023, adjusted for inflation: US\$ 268bn), of which around US\$ 140bn (US\$ 106bn) were insured. The overall losses and, even more so, the insured losses were considerably higher than the inflation-adjusted averages of the past ten and 30 years (total losses: US\$ 236/181bn;

insured losses: US\$ 94/61bn). In terms of insured losses, it was the third most expensive year; in terms of total losses, 2024 ranks fifth on the cost scale since 1980.

Weather catastrophes were responsible for 93% of overall losses and 97% of insured losses. Around 11,000 people lost their lives as a result of natural disasters in 2024 – significantly fewer than the average.

Losses from non-peak perils such as floods, wildfires, and severe thunderstorms were yet again substantial, producing total losses of US\$ 136bn, of which around US\$ 67bn were insured. Although this was slightly below the figures from the previous year (US\$ 143bn, of which insured losses totalled a record US\$ 82bn), it was well above the average figures of the past ten years (inflation-adjusted US\$ 110bn/48bn). It is striking that, from a long-term perspective, non-peak perils are increasingly fuelling the trend of rising losses, while peak risks like tropical cyclones and earthquakes continue to be a source of loss volatility.

In 2024, tropical cyclones alone contributed US\$ 135bn to the total losses and US\$ 52bn to the insured losses. The majority of these losses were caused by major hurricanes in the USA (US\$ 105bn, of which US\$ 47bn were insured).

The most devastating natural disasters of the year

Hurricanes Helene and Milton, which struck the USA in rapid succession in September and October respectively, were the most destructive disasters of 2024. Helene resulted in the largest overall losses from natural disasters in 2024 at US\$ 56bn, US\$ 16bn of which were borne by insurers. The category 4 hurricane made landfall in Florida's Big Bend region. However, Helene's destructive wind speeds of up to 225 km/h were not the main cause of the high claims burden. In the storm's wake, severe flooding from heavy rain spread northward into the Appalachian regions from Georgia to North Carolina. More than 200 people lost their lives.

Hurricane Milton was slightly weaker than Helene when it made landfall in Florida only two weeks later, with wind speeds of up to 200 km/h. Nevertheless, it produced the highest insured losses of the year, totalling US\$ 25bn – even though it narrowly missed the Tampa metropolitan area. It drove a storm surge into southwest Florida and cut a swathe of wind damage right across the state. This led to a total loss of US\$ 38bn.

The third costliest natural disaster of the year in terms of overall losses was an earthquake in Japan on New Year's Day, which shook the country's west coast near the sparsely populated Noto Peninsula with a magnitude of 7.5. Numerous buildings collapsed and thousands of people were left without electricity and water for weeks. More than 200 people lost their lives. Overall losses were estimated at US\$ 15bn, with insured losses totalling around US\$ 2.5bn.

The natural disaster with the highest death toll was Typhoon Yagi: around 850 people were killed when it swept across the Philippines, the Chinese island of Hainan, the southern tip of the Chinese province of Guangdong, Vietnam and Myanmar in

September. When it made landfall in China, Yagi had winds of the second-highest typhoon category 4. For Vietnam, it was the most powerful cyclone since systematic local record-keeping began. With total losses of US\$ 14bn, Yagi was also one of the most expensive disasters of the year, but only a small fraction was insured – around US\$ 1.6bn.

Geographical overview:

The Americas

North America (including Central America and the Caribbean) once again reported the highest share of global natural catastrophe losses, and a higher proportion than usual (about 60% of total losses, 10-year average 54%). In total, losses amounted to around US\$ 190bn, of which around US\$ 108bn were insured.

In addition to hurricanes, severe thunderstorms also caused enormous damage: in the USA alone, they were responsible for US\$ 57bn in losses, US\$ 41bn of which were insured. The sums are only slightly below the previous year's record figures of US\$ 66bn and US\$ 51bn, making 2024 the second costliest year for this kind of storm. Two severe thunderstorm fronts that struck the Midwest in March and Texas in May, accompanied by numerous tornadoes, were among the costliest insured loss events of the year. Together they caused total losses of almost US\$ 13bn, with around US\$ 10bn of that insured. The figures confirm the trend: non-peak events such as severe thunderstorms are now causing cumulative damage equivalent to a severe hurricane year after year – with insurers bearing a significant share of the costs.

For Canada, the losses from natural disasters in 2024 were the highest ever since 1980, with overall losses of US\$ 10bn, of which US\$ 6bn were insured. The losses were driven in large part by a severe hailstorm that hit Calgary and the surrounding region in August, flooding caused by heavy precipitation from the remnants of Hurricane Debby, also in August, and a severe wildfire in Jasper National Park, which destroyed parts of the historical town of Jasper in July. With overall losses of US\$ 2.8bn, the Calgary hailstorm was the fifth-costliest natural disaster in Canada since 1980.

In Southern Brazil, extreme rainfall in late April and early May led to severe flooding. Almost the entire federal state of Rio Grande do Sul was affected. It was one of the worst floods in Brazil in recent decades. The damage is estimated at around US\$ 7bn, of which US\$ 2bn were insured.

Europe

In Europe, natural disasters destroyed assets worth US\$ 31bn last year, of which US\$ 14bn were insured. The most serious catastrophe was the extreme flooding in Spain near the provincial capital of Valencia. In autumn, it is common for a strong low-pressure system to form at high altitudes near the Mediterranean coast. This causes

cold air masses to collide with the warm, humid air in the lower air layers, creating the perfect conditions for heavy precipitation. This time, however, the rainfall was particularly severe.

In the Valencia region, it rained as much in one day as it usually does in a year (around 500 mm). At local level, it rained more than 600 mm in 24 hours, with some measuring stations recording up to 180 mm in just one hour. Torrential flash floods destroyed many houses and swept away countless cars. At least 200 people lost their lives, making it the deadliest natural disaster Spain has seen in the past 50 years. The total damage amounted to around US\$ 11bn, US\$ 4.2bn of which were insured.

Floods in Germany and neighbouring countries in June and in Central/Eastern Europe in September also caused damage totalling more than US\$ 9bn, of which a good US\$ 4bn were insured.

Asia-Pacific and Africa

In the Asia-Pacific region and Africa, the total losses of around US\$ 91bn were higher than in the previous year (US\$ 66bn) and also higher than the 10-year average (US\$ 66bn). At around US\$ 16bn, insured losses were significantly higher than in the previous year (US\$ 10bn). In addition to the earthquake in Japan and Typhoon Yagi, losses were driven by an extreme flood catastrophe in the United Arab Emirates, which hit the metropolis of Dubai hard. Neighbouring countries were also affected. Total losses amounted to US\$ 8.3bn, of which US\$ 2.8bn were insured.

Several heavy rainfall events hit China during the year, affecting tens of millions of people. The most severe flooding occurred predominantly in the southern and southeastern regions between mid-June and mid-July during the monsoon season, known locally as the “plum rain season”. This event alone caused overall losses of some US\$ 12bn, of which only a small percentage were insured.

In mid-December, Cyclone Chido hit the island of Mayotte, which belongs to France and is located northwest of Madagascar, with gusts of up to 250 km/h. The eye of the cyclone literally engulfed the island. The storm destroyed countless buildings and left many shanty towns completely devastated, and it paralysed the energy supply. The storm then hit the northeast coast of Mozambique. Many people lost their lives.

Climate change is taking the gloves off

Hardly any other year has made the consequences of global warming so clear: with annual average temperatures reaching around 1.5°C above pre-industrial levels for the first time, 2024 will surpass the previous record from 2023. This makes the past eleven years the warmest since the beginning of systematic record-keeping.

The impact of man-made climate change on weather disasters has been proven many times over by research: in many regions, severe thunderstorms and heavy rainfall are becoming more frequent and more extreme. Although tropical cyclones are not generally increasing in number, the proportion of extreme cyclones is growing. They, in turn, are rapidly intensifying and bringing extreme precipitation with them.

This was the case for [Helene](#) and [Milton](#), where World Weather Attribution studies have shown that both hurricanes were significantly more severe and brought much more extreme rainfall than in a hypothetical world without climate change. For the flash floods in the Valencia region, [another study found](#) that climate change made an event with this rainfall intensity twice as likely to occur.

And in the case of the flooding in Brazil, [a study](#) came to the conclusion that weather conditions such as those seen this year have become twice as likely due to climate change; as a result, they are becoming more frequent.

“The physics are clear: the higher the temperature, the more water vapour and therefore energy is released into the atmosphere. Our planet’s weather machine is shifting to a higher gear. Everyone pays the price for worsening weather extremes, but especially the people in countries with little insurance protection or publicly funded support to help with recovery. The global community must finally take action and find ways to strengthen the resilience of all countries, and especially those that are the most vulnerable,” says Chief Climate Scientist Tobias Grimm.

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