

# Severe Convective Storms: State of the Risk

[Severe convective storms](#) are among the most common, most damaging natural catastrophes in the United States. The result of warm, moist air rising from the earth, they manifest in various ways, depending on atmospheric conditions – from drenching thunderstorms with lightning, to tornadoes, hail, or destructive straight-line winds. Recent years have seen an increase in organized lines of thunderstorms with widespread damaging winds, known as derechos.

As of late September 2023, U.S. insured losses due to severe convective storms had exceeded \$50 billion for the first time on record for a single year, according to Gallagher Re.

“A \$50 billion loss for a single peril is a big deal,” said Steve Bowen, Gallagher Re’s chief science officer. “In fact, the U.S. has had six years since 2010 where all annual natural catastrophe losses combined did not reach this threshold.”

By comparison, Bowen says, “We’ve only had three years on record where U.S. mainland hurricane activity resulted in \$50-plus billion in insured losses”

## What’s driving 2023 losses?

[According to Gallagher Re](#), 2023 has been an above-average year from a frequency perspective. The year started with lingering La Niña conditions in the Pacific that tend to drive an earlier start to severe convective storm activity. Record warmth in the Gulf of Mexico has helped fuel these conditions.

Most of the 2023 events have affected populated areas.

[Illinois](#) has the highest number of recorded tornadoes in the country this year, beating out states like Texas and Oklahoma that traditionally top the nation. Illinois began experiencing severe storms early, with tornadoes being recorded in January, February and March. Hail and wind-related hazards drove most second-quarter losses, according to Gallagher Re, including “hundreds of instances of very large hail” that inflicted significant losses in densely populated areas around the Dallas-Fort Worth metroplex in Texas and Hot Springs in Arkansas, among other locations.

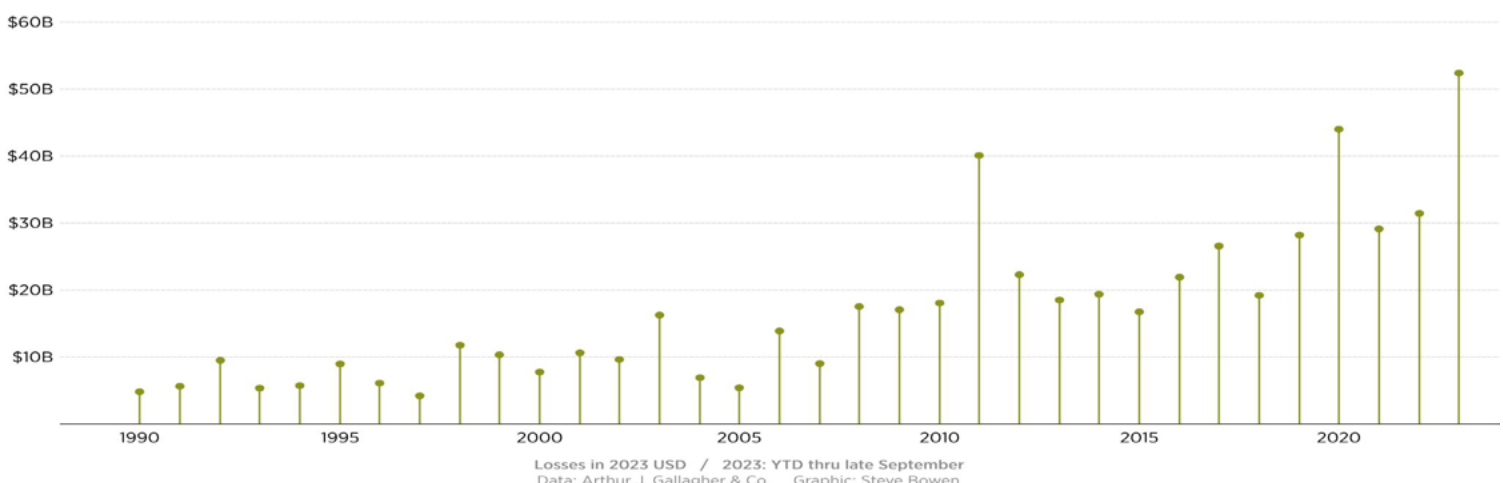
In June alone, there were at least 349 reports of hail reaching and exceeding 2.0 inches across the United States and 89 reports of hail exceeding 3.0 inches. During the month, hail that approached or exceeded 4.0 inches pelted localities in at least 10 states.

## More expensive material in harm’s way

Rather than the physical destructive force of natural catastrophes themselves, a recent study by [Swiss Re](#) finds the main driver of high losses in recent years to be “economic growth, accumulation of asset values in exposed areas, urbanization and rising populations -- often in regions susceptible to natural perils.”

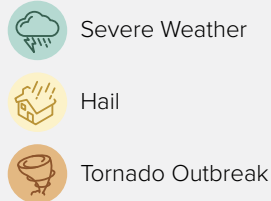
Citing the prevailing inflation of the past two years, Swiss Re said, “The effect of high prices has been to increase the nominal value of buildings, vehicles, and other insurable assets, in turn pushing up insurance claims for damage caused by Mother Nature.”

## U.S. Severe Convective Storms: Annual Insured Loss

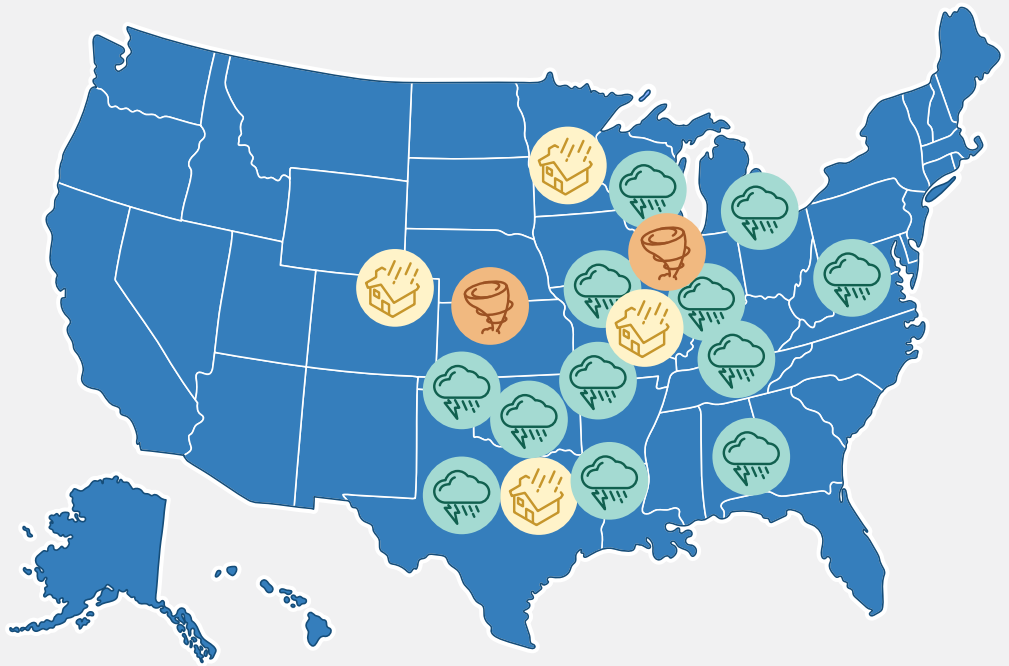


## 2023 U.S. Billion-Dollar Severe Convective Storms

Approximate location for each of the severe convective storms that caused \$1 billion or more in economic losses through August 2023.



Source: U.S. Department of Commerce, National Oceanic and Atmospheric Administration



The most immediately visible impact has been in the construction sector, where increases in material and labor costs have led to costlier repairs and higher claims.

“There is a need for greater discipline in the monitoring of the loss-driving secondary peril exposures and industry sharing of related findings,” Swiss Re says. “Lack of granular exposure data can also hinder understanding of all present-day risks.”

For example, Swiss Re points to the rising presence of solar farms and roof-mounted solar panels in areas susceptible to severe convective storms. Solar and wind energy projects are especially vulnerable because they often cover large surface areas and are concentrated in regions with significant severe convective storm activity. In 2019, for example, a hailstorm [caused \\$70 million](#) in damage to a solar energy project in Texas.

“The fast rate of change of such variables necessitates shorter update cycles of data sets and models, to mitigate risk accumulation and underestimation of loss trends,” Swiss Re says.

### Mitigation and resilience: What to do?

The National Institute of Building Sciences found that [every \\$1 spent on hazard mitigation](#) can save the nation up to \$13 in future disaster costs. How can individuals, communities, and businesses get ahead of risks that seem so capricious and whose costs can vary so wildly? How are risk managers and insurers integrating convective storm resilience into their strategies and operations?

**Secure the property, build in resilience.** When managing risks related to wind, water, and fire, it’s important to make sure property and buildings are well constructed and maintained and that any objects that might become projectiles in high wind are secured – especially in areas where tornadoes or destructive straight-line

winds tend to arise suddenly. Likewise, in hail-prone areas it is important to put vehicles and equipment that could be damaged under cover.

**Identify damage quickly.** Because wind and hail can expose structures to further damage due to water seepage or animal intrusion, it’s important to detect damage from these events as early as possible. Historically, it has been difficult, time-consuming and dangerous for insurance adjusters to get up onto every insured building in an area affected by convective storms in order to look for damage. Advances in aerial imagery are helping to address this deficit. Whether using drones, manned aircraft or satellite technology, it is getting easier, safer, and less expensive to assess rooftop damage due to convective storms.

**Evolving insurance approaches.** As a result of significant storm-related losses in recent years, some insurers are obligating policyholders to take on increased risk-sharing of storm losses through [deductibles](#). For each loss paid by the insurer, the policyholder contributes dollars through the application of a deductible.

Another emerging approach is [parametric insurance](#). A parametric policy pays a fixed amount if an event that meets agreed-upon criteria (a certain wind speed, for example) triggers the policy, regardless of whether the policyholder’s property is damaged. Parametric policies cover risks without the complications of sending adjusters to assess damage post-catastrophe. Speed of payment and reduced policy administration costs may ease the burden on both insurers and policyholders.