Verisk™

Verisk Severe Thunderstorm Model

for the United States

Severe thunderstorms, which can often include significant hail damage and may spawn straight-line winds and tornadoes, are among the most frequent and costly natural catastrophes in the United States, accounting for more than half of annual reported insured property losses since 1985.

Insured losses from large outbreaks are generally of high concern, but smaller events can also affect an insurer's book in aggregate—or even on an occurrence basis for more rural portfolios.

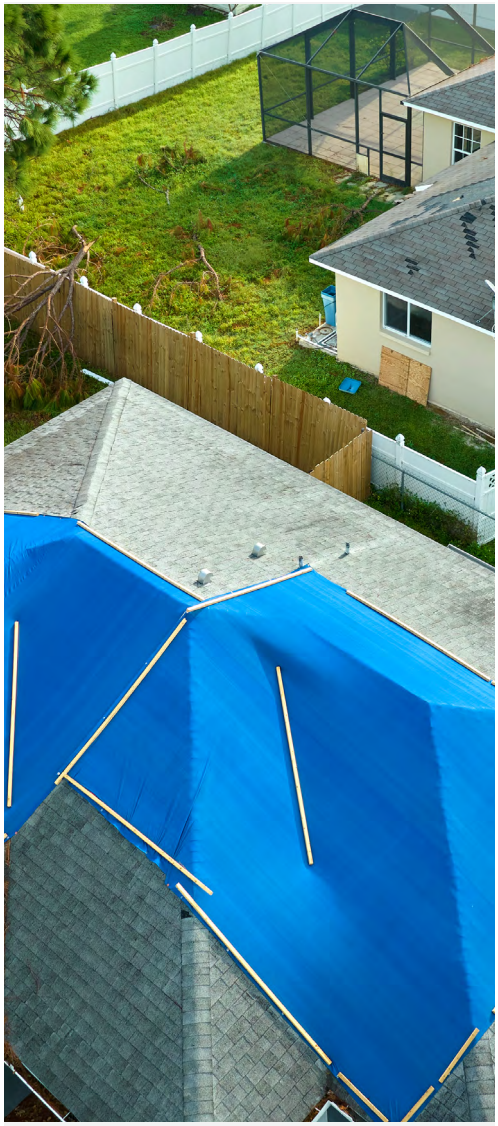
Nearly 10% more properties were affected by at least one damaging hailstorm in 2021 than in 2020, according to Verisk LOCATION® data. More than 6.8 million U.S. properties had at least one damaging hail event in 2021. The timing of hail events, typically in spring and summer, is also shifting.

Understanding hail trends is one element of mastering the peril; another key is knowing the exposure at risk. It's critical to recognize how factors such as climate change, the shifting footprint of severe thunderstorm activity, and structure vulnerability from aging infrastructure (roof) have influenced extreme hail loss experience in recent years.

Why are we updating our model, and what does it mean for your portfolio?

Updated for 2025, our Severe Thunderstorm Model for the United States views these trends and factors holistically. By incorporating the latest research, data, and innovation, our model provides a more comprehensive risk assessment that can lead to a more consistently profitable portfolio. This results in outputs aligned with real-world outcomes to support:

- Underwriting and pricing
- Capital optimization
- Supporting regulatory, rating agency, and internal capital adequacy assessments
- Structuring reinsurance programs and evaluating insurance-linked securities



More than

6.8M

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What makes Verisk the cat modeling leader that's trusted worldwide?

More than 400 organizations, including top-tier and regional insurers and reinsurers, trust Verisk's cost-efficient, scalable models for granular, by-peril data and insights. We provide responsive, personalized support to ensure that our clients gain the maximum benefit from our solutions.

Our next-generation financial module supports a more sophisticated and accurate view of portfolio risk across all our catastrophe peril models for a consistent framework regardless of region or peril.

Over $130B in claims and

$370B

in losses power our continuously validated and calibrated model

What sets Verisk's U.S. Severe Thunderstorm Model apart?

We continuously validate and calibrate our model with proprietary, verified historical data from more than $130 billion in detailed claims and $370 billion of aggregate loss data.

Hail is the primary loss-causing sub-peril for severe thunderstorms. Using our advanced, component-based approach to developing hail damage functions, the model assembles a nuanced, holistic view of how different building features interact to affect hail damageability of the structure as a whole.

The model reflects the latest research and engineering knowledge surrounding roof performance when subjected to hail and how this changes as structures age. This understanding is critical when quantifying the hail risk to structures.

Are you ready for the next generation of severe thunderstorm modeling?

Schedule a call

What's in the model to help drive your business forward?

High-resolution, purpose-built event catalogs

Our model can align with your business needs. It delivers highly detailed event footprints to effectively represent tail risk and provides separate catalogs tailored to different use cases—from policy pricing to portfolio management to reinsurance and ILS placement.

Near-present view of climate risk

Radar and observation data, with a novel detrending approach to remove bias in historical hazard data, is especially tailored to accurately model frequency in population centers where exposure values are highest—so you get a clearer view of the risk's shifting footprint.

Comprehensive modeling parameters

Differentiated treatment of all severe thunderstorm sub-perils (hail, tornado, and straight-line wind) support accurate accounting of peril-specific policy conditions and post-analysis loss reporting by sub-peril.

Extensive data

A high volume of new, detailed observational data through 2023 and refined historical data interpretations are integrated with our model, so you can accurately represent the elevated loss activity in recent years.

Component-based vulnerability framework

Detailed roof attributes, including roof age and roof covering, alongside many other secondary risk characteristics and sophisticated treatment of year built via comprehensive building code and enforcement data, provide you with vulnerability insights.

Solar vulnerability analysis

Potential losses are modeled across three types of solar utility installations with different components—panels and racking, balance of plant, substation, and battery storage, to help you understand potential costs associated with damaged solar equipment

Support for specialty risks

Refined assessments include industrial facilities, infrastructure, greenhouses, wind turbines, marine lines, and newly added solar assets.

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