Aon Benfield offers our clients innovative new methods to evaluate and manage severe convective storm risk.

**Tornado Viewing Guide**
This guide shows realistic exposure accumulations tracked against large tornado events, and provides the ability to monitor peak exposure accumulations and transfer risk where necessary. An example of a deterministic scenario is moving the Joplin, Tuscaloosa and Oklahoma City, OK (1999) storm tracks to understand exposure accumulations and estimate loss potential. This allows us to understand loss ranges if an EF4-5 tornado strikes in an area of high concentration. Scenario losses can be compared to reinsurance limits and used for capacity management and underwriting.

**ImpactOnDemand**
ImpactOnDemand® is an industry leading tool that allows Aon Benfield’s clients to upload a fresh exposure dataset at any time for managing accumulations as well as live event management, including claims management. The platform allows clients to visualize and quantify their exposures to risk, in addition to performing sophisticated, detailed analysis to drive insightful business decisions through a web interface. It assists clients through global individual risk mapping, pre-binding underwriting analysis for new business submissions, risk driver analysis for existing portfolios, claim response during catastrophe events, claims analysis post-catastrophe, identifying exposure accumulations around terrorist targets, and a host of other functions.

**Impact Forecasting—Custom Modeling**
Aon Benfield is the only broker with an in-house catastrophe model development company. This wholly-owned subsidiary has the capability to provide an unbiased view of potential losses from any major cat peril. Impact Forecasting provides new research and a suite of fully transparent models, including severe weather, hurricane, earthquake, and, uniquely, brush fire and flood. We have significant experience in developing private label models that capture the particular characteristics of an individual client’s portfolio. To build a private label model we work in partnership with a client, using their specific historical claims experience, to develop a customized modeling solution. This proprietary model can be marketed to reinsurers in order to gain credibility prior to reinsurance renewal negotiations. Impact Forecasting is also available for clients to license and employ internally.

**Seasonal Aggregate Model**
Another severe weather tool is the Seasonal Aggregate Model that generates losses based on daily company loss experience including an algorithm to automatically aggregate losses into an occurrence. This allows for a quick evaluation of historical claims trends and aggregation studies.

**Cat Actuarial**
Insurers are often quick to non-renew policies when the risk of concentrations is exposed, but are non-renewals always the best solution? Optimized ratemaking can be an efficient and powerful tool in the management of catastrophe exposure, particularly severe storm risk. Our team is composed of credentialed actuaries with expertise in both ratemaking and catastrophe models who continually monitor state regulation with respect to the pricing of catastrophe risk and ratemaking methodologies. We provide our clients with a state of the art methodology for allocating the cost of reinsurance margin utilizing Aon Benfield’s unmatched breadth of reinsurance market pricing data.

**Cat Score**
Aon Benfield’s Cat Score provides insurers with an opportunity to gain competitive advantage by fine-tuning pricing for catastrophe risk exposure in small commercial and personal lines portfolios. Based upon catastrophe model analysis, this tool more accurately measures the cost of catastrophe risk at the customer level prior to binding their policies. Cat Score allows insurers to implement pricing and underwriting strategies that take advantage of leading findings inherent in the latest catastrophe models plus their own unique knowledge of claim experience.

**Portfolio Optimization**
Our portfolio optimization team can determine portfolio pricing or re-alignment strategies with better risk/return distribution driving more efficient use of capital. We can establish the optimal risk reward trade-off for each client’s portfolio, providing dynamic rather than static evaluation of marginal impact. Our clients receive actionable recommendations for common portfolio realignment strategies including PML key risk driver analysis and PML impact estimates of portfolio growth or reduction.
Severe Convective Storms are Sporadic in Nature

Severe convective storm* activity in 2011 was extreme, well in excess of four times the long term average nationally. With outbreaks spread throughout the South, Midwest and other areas prone to severe storms, many states had a devastating year. The illustration above shows the sporadic nature of this peril and compares historical EF-4 and EF-5 events of the past 10 years to the EF-4 and EF-5 events of the proceeding 50 years.

*Severe convective storm includes tornadoes, hail and damaging wind.

Fifteen States have Incurred their Worst Season Since 2002

Over the past 10 years, the average loss per dollar of insured value caused by severe convective storms has increased significantly. The “Tornado Alley” states are not only the ones experiencing the significant losses, but also the states east of the Mississippi River are seeing increases in loss. Fifteen states have incurred their worst severe convective storm season in the last decade. Of the 15 states, 11 are east of the Mississippi River. Additionally, 2011 was the record setting year for six states.
Last Decade Shows Shift in Severe Convective Storm Activity

1952–2011

The 60 year average loss per dollar of insured value caused by severe convective storms shows the “Tornado Alley” states and other Midwest states as the states with the highest level of loss. Comparing the map of the 60 year average to the map of the 10 year average, large losses are occurring east of the states traditionally thought of as tornado states.

Average Annual PCS Losses per $1,000 TIV

- >0.5
- 0.35 to 0.5
- 0.25 to 0.35
- 0.2 to 0.25
- 0.1 to 0.2
- 0.1 to 0.01
- 0 to 0.01

Tornado Alley is Expanding East of the Mississippi River

2002–2011

Ten states that have experienced their worst severe convective storm year in the last two years. The events of the last two years and claims data from these events have yet to become a part of the catastrophe models on which many insurers and reinsurers rely.
The average annual loss per $1000 of exposure is represented in the adjacent map using a blended model average. As previously mentioned, the events of the last several years and the claims data collected has yet to make it into the catastrophe models. Further, the areas of highest average annual loss seem to correlate more closely with the 60 year average than the 10 year average.

As the vast majority of insured value is on the east or west coast of the United States, the potential losses developed by the catastrophe models seem to show a lot of the country has limited exposure to severe convective storms. The June 1, 2011 Springfield, Massachusetts tornado demonstrated that any state has the potential for a loss.

* Transformed on County IED TV. Based on a one story, single family, wood frame risk built in 1985—one risk per postal code.

Aon Benfield Offers New Solutions to Manage Severe Convective Storm Risk

Aon Benfield Analytics’ review of historical tornado activity and loss estimates reveals that the industry needs new techniques and innovative modeling solutions to manage severe storm risk effectively. This guide demonstrates that the current models are calibrated to historical record, missing recent severe weather frequency.

Severe convective storm presents a unique challenge for most insurers as they struggle to control aggregations. The models are useful but leave many companies wanting more. How do you know when you have an aggregation problem? Are the models correctly determining AAL based on loss history? Is there a better way to manage exposure outside of a model?

About Aon Benfield Analytics

Aon Benfield Analytics offers clients industry-leading catastrophe management, actuarial, rating agency advisory and risk and capital strategy expertise. Whether working side-by-side with brokers on risk transfer products or engaging on broader analytic and modeling engagements, our 400+ specialists around the world consistently deliver innovation and thought leadership to clients. In placements, we quantify the effectiveness of reinsurance and help structure optimal risk transfer programs. Beyond the placement, we provide solutions for risk and concentration analysis, portfolio optimization, catastrophe modeling, pricing and cost recovery, and economic capital modeling. Aon Benfield Analytics, together with our leading broking teams, helps clients fully consider the capital, income, regulatory and rating agency implications of all risk transfer transactions.
About Aon Benfield

Aon Benfield, a division of Aon plc (NYSE: AON), is the world’s leading reinsurance intermediary and full-service capital advisor. We empower our clients to better understand, manage and transfer risk through innovative solutions and personalized access to all forms of global reinsurance capital across treaty, facultative and capital markets. As a trusted advocate, we deliver local reach to the world’s markets, an unparalleled investment in innovative analytics, including catastrophe management, actuarial and rating agency advisory. Through our professionals’ expertise and experience, we advise clients in making optimal capital choices that will empower results and improve operational effectiveness for their business. With more than 80 offices in 50 countries, our worldwide client base has access to the broadest portfolio of integrated capital solutions and services. To learn how Aon Benfield helps empower results, please visit aonbenfield.com.

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