

How insurers and reinsurers track live hurricanes in real-time

CYBER RISK MANAGEMENT NOW A TOP PRIORITY AS BUSINESSES PREPARE FOR CHANGES TO EU PRIVACY LAW, MARSH STUDY SAYS



BY KAREN CLARK

AS SOON as a hurricane threatens to make landfall, reinsurers want to know what their losses are going to be. Insurers need to start planning their claims adjusting activities, and reinsurers want to know how much they will likely pay out to their clients in reinsurance recoveries.

One would think the catastrophe models are the logical places to go for this information. But the traditional models have not provided much guidance to companies as events are unfolding. Even after an event, the traditional model vendors provide wide ranges of loss estimates that are not very useful to decision makers.

Newer, open loss modeling platforms provide more timely and accurate information on hurricanes in real time. This information is valu-

able not only for real-time decisions but also as important indicators of overall model accuracy.

PRIMARY INSURERS

Primary insurers would like estimates of the numbers of claims, the average claim severity by wind speed band and location, and total losses. These numbers inform claims-handling decisions, such as how many adjusters will be needed and where.

Open loss-modeling platforms like RiskInsight provide this valuable information, which can be updated each time there is a new projected track for the storm. Typically, the National Hurricane Center (NHC) projects a hurricane's path and intensity five days into the future. This data is updated every six hours and is used by RiskInsight to generate a high-

resolution wind intensity footprint for the storm. This footprint is overlaid on an insurer's property portfolio to assign a wind speed to each property location.

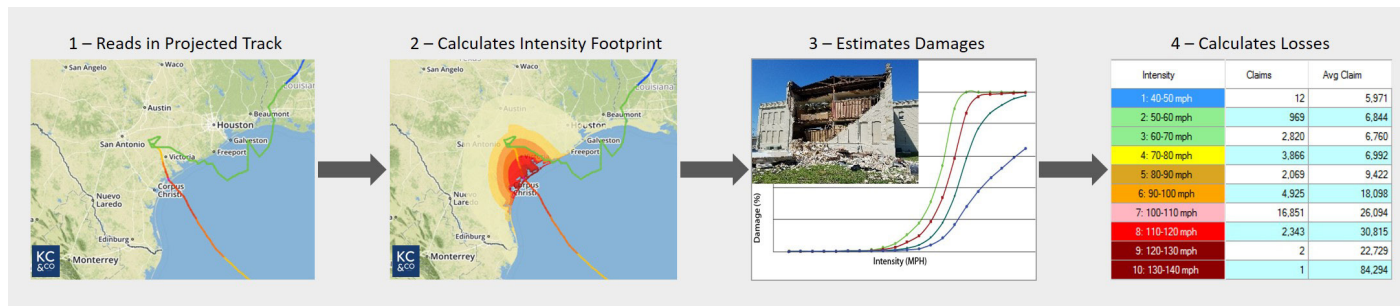
Losses are estimated based on the wind speed, value of the property — including building, contents and time element coverages — and the model damage functions. This same process is repeated for storm surge and inland flooding, if applicable. The image below shows a schematic of the process.

HOW RISK INSIGHT WORKS MODEL

The detailed claims and loss information becomes available several days before landfall and is updated with each new advisory from the NHC. After landfall, when the track and storm parameters are known, the final claims and loss estimates are derived. As the claims come in for Hurricane Harvey and Hurricane Irma, insurers are finding the open loss modeling platform estimates generated in real time are matching their actual losses quite well.

REINSURERS

For reinsurers, dozens of their ceding company clients may be impacted by a live hurricane event, and it may not be practical to run all of those insurer portfolios multiple times a day. Instead, reinsurers can rely on updated total industry loss estimates for hurricanes in real time. The industry loss estimates are generated using the same process as



described previously, but the model input is a high-resolution database of total insured property values versus an individual insurer’s portfolio.

Reinsurers using open loss modeling platforms will have pre-generated information on their losses and market shares by landfall point. For example, they will know that for hurricanes striking the Galveston-Houston area, they might have 1% of the industry loss, and for hurricanes striking Miami, they’ll have a loss that’s about 2% of the industry number.

So, as a hurricane is unfolding in real time, reinsurers can use the projected landfall point and the industry loss to develop a credible estimate of what their losses will be with each new NHC advisory. Reinsurers can also run the portfolios of the insurers most likely to have the largest losses based on geographical exposure concentrations, which will also be known to them in advance. After landfall, reinsurers can run the final storm track through their entire portfolio to get a more detailed and accurate breakdown of their likely losses by ceding company.

Sophisticated users of open loss modeling platforms can also create alternative tracks using other meteorological sources and advanced tools built into the modeling platform. These features can be used to provide a range of loss estimates to decision-makers versus one number.

WHY REAL-TIME LOSS ESTIMATES MATTER

Real-time loss estimates provide important information to decision-makers as the data is received. But perhaps even more important, actual events provide the only true tests of the accuracy of a catastrophe model.

The catastrophe models simulate thousands of potential future events and provide loss estimates for those hypothetical events. How can reinsurers have confidence in the loss estimates for those hypothetical events if a model can’t produce accurate loss estimates for real events?

In the past, catastrophe models have been evaluated based on the underlying science. But all of the major models are based on the same science. The data on historical US hurricanes, for example, is updated and maintained by the NHC and is in the public domain. The research and literature used for most of the model formulations and assumptions are essentially the same across modelers, as can be verified by reviewing the Florida Commission on Hurricane Loss Projection Methodology submissions.

The differences between the models stem not from different science, but from how well the science is implemented and to the extent the implementation process leads to consistent and accurate loss estimates. Catastrophe models are not scientific tools — they’re business

tools with science inside. The purpose of a catastrophe model is to provide reliable and accurate information for important business decisions — not just in real time, but well before events occur.

New open catastrophe models are demonstrating more skill in producing reliable and accurate numbers so reinsurers can have higher confidence in all of the model output — for simulated and real events.

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