



Are Your **Pest Control** Clients Properly Covered For Bed Bugs?



View this article online: <http://www.insurancejournal.com/news/international/2011/09/20/216567.htm>

EQECAT President on the Continuing Evolution of Catastrophe Models

"Models are never done – they're evolutionary," said EQECAT's president Bill Keogh in an interview at the Reinsurance Rendezvous in Monte Carlo. EQECAT's [latest updates were released on July 15](#). They covered its North Atlantic hurricane model, its Canada earthquake model and its Asia typhoon model.

"There's always new science and new events," he explained. EQECAT has updated its U.S. hurricane model 7 times in the last eight years. It also produces models for 97 other countries, which keeps its scientists quite busy.

Keogh said the rationale behind the continuing upgrades is driven by necessity. "They [cat models] are always going to be uncertain; therefore the risks they cover are uncertain." Whenever new data or an improved modeling technique is available, the models can be improved, which in turn makes them more reliable.

Keogh cautioned, however, that "models are 'probabilistic,' not 'predictive.'" In other words you can't produce models for the "unknown-unknowns; there will always be 'surprise' events." As an example he pointed out that none of the existing models covered the Japanese undersea earthquake, the resulting catastrophic tsunami it triggered, and the damage to the Fukushima nuclear plant that caused a massive radiation leak.

Nor are there likely to be any such models in the foreseeable future as it would be not only "too costly," but also "too complex" to try and quantify all of the probabilities under the oceans.

Cat risk models are in essence an attempt to "explain quantitative uncertainty." They take what is known – wind speeds, storm tracks, the relative force released by earthquakes, areas potentially at risk, construction norms, etc. – and try to gauge the probable consequences of different sequences of catastrophic events. They do not, Keogh reiterated, make predictions; they "create a risk profile based on what is known about the perils in any given region."

He described EQECAT's underlying goal as "managing the risk of ruin" – i.e. an event that could "threaten the capital base of an insurer or reinsurer – something that could bring the house down." In order to understand what the threats may be, it's also necessary to "balance the extent of the risk." You need risk management models, exposure management models and stress testing – all three," said Keogh; especially stress testing. You need to "step away and try to see the worst that can happen."

Along with others in the industry, as well as the brokers and primary carriers, trying to assess the probabilities of any given sequence of events is extremely complex, and as Keogh indicated, the models continually evolve. They have become an absolute necessity for the insurance industry – to the extent that in most cases a number of different models are used in calculating the risks – a development which Keogh strongly supports.

As an example of how complex creating a probabilistic model can be Keogh discussed the Atlantic multidecadal oscillation (AMO), a phenomenon which affects the surface temperatures in the North Atlantic, and is therefore a factor in the formation and strength of tropical storms. "We've had a warm AMO since 1995;" these conditions can last anywhere from 15 to 40 years, and when they shift the changes are irregular. "Over a period of 3 to 5 years the temperature switches back and forth; then it shifts into a new pattern.

Warmer or cooler sea temperatures in the North Atlantic affect rates of evaporation, ocean currents, wind speeds and ultimately tropical cyclone formation. The situation is so complex that it contains a number of Keogh's "unknown – unknowns," which makes modeling the formation and possible tracks of tropical cyclones a very complex task.

Asked if climate change/global warming, which could increase air and sea surface temperatures, is a factor taken into account in the models, Keogh said it might be to the extent that it affects the "risk profile," but otherwise it is the data that can be collected and

analyzed that forms the basis of catastrophe models. Ultimately models are based on “what we know.” As that knowledge constantly evolves, so do the models.

More from Insurance Journal

[Today's Insurance Headlines](#) | [Most Popular](#) | [International News](#)