

GROWING IMPACT OF NATURAL CATASTROPHES

How do you see the trend with natural catastrophes in the world? Is global warming impacting this trend strongly?

‘Yes, climate change is of course a major topic for all insurers and reinsurers, and for society as a whole. We have seen a clear overall increase in frequency and severity. That’s to be expected, because a temperature increase of just 1°C causes a 7 percent increase in water vapor. But climate change doesn’t just impact one peril; it has effects through a combination of several perils. Atmospheric changes are closely correlated with changes in sea temperature and sea composition in different regions. There is an impact on the probability of occurrence of hurricanes, extratropical cyclones and typhoons, as well as the trends and trajectories of hurricanes. The same goes for many other perils, incorrectly called ‘secondary’ perils, such as severe convective storms, drought and wildfires. And this is all evolving very fast, so past statistics alone cannot replicate what is already happening or what is going to happen in the future.’

What are the challenges for modelling? E.g. for floods in France vs Germany? What is the role of actuaries in these models?

‘Well, climate change is increasingly taken into consideration by Nat Cat model vendors. Global warming of approximately 1.1°C since the pre-industrial era has already triggered radical changes in the behaviour of climate hazards. To anticipate other future changes, we draw on scientific research and various models from all over the world, including the main vendor models that can help us adapt the probability of occurrence in the events catalogue. That first step is now a must, with pressure also coming from regulators and rating agencies.

Modelling natural catastrophes is challenging due to several key factors. Firstly, we are faced with limited data, especially in France and Germany. For example, flood data may be inconsistent if it is not sufficiently granular at the address level. In addition, historical records often lack precision in terms of location, intensity, or loss quantification. >

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Second, there are physical differences in complexities: France frequently experiences flash floods due to steep topography and Mediterranean storms, while Germany’s 2021 Ahr Valley floods (Bernd) illustrated how riverine flood systems can overwhelm large basins over prolonged periods.

We have observed that it is very important to have several models rather than relying on just one. So at Arundo Re, we take a multi-model approach and leverage an open model platform. We recently signed up to Oasis, for example, and also use larger vendor models such as those from Moody’s and Verisk. But it’s very important for us to have our own internal knowledge rather than relying on only two vendor models with no capability or expertise in-house. So we have also hired people with PhDs in different types of risk, including meteorology and climatology, and that’s very important.

The way I see the future of modelling is probably that, instead of having one region with one peril-modelled approach, we’ll have a more comprehensive atmospheric model impacting several correlated perils in different large regions.’

I believe you also have a presence in Asia: what are the challenges there and how does it differ from Europe?

‘Yes, Asia accounts for more than 60 percent of disaster-related fatalities worldwide. A key challenge in Asia, compared to Europe, is the widespread under-insurance of exposures including Nat Cat, and we still have work to do to limit this insurance gap. There are also vulnerabilities in infrastructure with a lack of adequate resilience measures to withstand

natural hazards, particularly in urban and industrial centers.

In terms of weather, there are differences with Europe of course – typhoons, for example. And here again, we are observing changes in patterns as well as increased severity and frequency, with new paths. In Asia, there is a large number of earthquakes, which is a different peril, but it’s important to mention because it is a reality.

In Asia we are also seeing potentially very rapid changes in insured values from one year to the next. Some markets have experienced an economic boom, which puts much more insured value into the portfolio than is reported. And so that’s a very important risk component when it comes to Nat Cat modelling in Asia.’

Do you act in the domain of risk prevention? And if yes, how do you incentivise insurance companies?

‘That’s a tricky question. Incentivising risk prevention in global reinsurance markets is very difficult. This is something that tends to be done through public/private partnerships, because you have to measure and take into account how the State is organised in the event of a catastrophe. So reinsurers can consider what prevention measures can be taken at State-level in order to get an overall framework of how prevention is handled within a country, and how the country is organised if a crisis occurs. And so we leverage these factors, and we allocate pluses and minuses according to how well countries are organised, relatively speaking. The 2011 floods in Thailand, for example, showed how situations can be made worse by poor coordination.’ >

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Do you believe Solvency II is adapted to reinsurance, and more precisely to Nat Cat coverages? How do you see the future and trends of the global reinsurance market?

‘Solvency II is now well understood. Insurance companies have been provided with very clear standard scenarios to help them cope with Solvency II, with an impact on the type of reinsurance and insurance that they buy. We believe in taking a realistic disaster scenario approach.

At Arundo Re, we currently use a standard formula for reinsurance, but we may implement an internal model in the future to take a number of different factors into account, including Nat Cat exposure, which should deliver a more appropriate capital requirement.

In terms of future trends in the global reinsurance market, we are seeing more and more countries adopt local regulations similar to Solvency II. So it is having an effect globally. It has an impact on the way these countries buy our insurance. And it often creates demand for additional layers. This risk approach regulated framework is appropriate. There is also the additional impact of IFRS 17, and at the moment we do not fully recognise how this may impact the markets or indeed the insurance market in terms of the buying process. There will probably be a further need to buy more reinsurance to decrease results volatility.

After more than a decade of losses for reinsurers, in 2023 the reinsurance market saw a reset with regard to pricing and terms. Market dynamics are currently softening. The risk universe is

expanding, with needs in cyber or political risks, such as SRCC. However, it is currently very difficult to make projections, given the ongoing trade wars, conflict and geopolitical uncertainty.’

What are your recommendations for actuaries?

‘I think actuaries will play a key role and enjoy a great deal of new opportunities in the future. AI is already having a significant impact. In essence, machine learning is gaining traction, along with programs that use large volumes of data, new data from social media and IoT, and highly complex studies modelled in a very simple way. I think AI is a must for actuaries now – actuaries of all generations. I, myself, have been studying Python lessons for one year in order to have a better understanding of the possibilities of such technology, and I’m really impressed.

At Arundo Re, we also use large language models (LLM) to speed up our operations and improve our use of knowledge management. When you ask simple questions with LLM you’re also leveraging retrieval-augmented generation (RAG) and fine tuning information with your own data internally. So it’s very useful, and I think it’s really important for actuaries to have that perspective.

In terms of climate change, actuaries have a role to play, especially when they add in their abilities, the physical part of knowledge that is necessary to understand climate change. They must not only act as statistical and financial experts, but also as physical experts. And I think it’s worth encouraging teams to work together, without set boundaries between risk modelers and actuaries.’ >

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A last question: could you tell us more about Arundo Re? Why the change of name, what are the lines of business you cover?

‘Arundo Re is the name of our new brand. Our previous name was CCR Re. CCR Re was created in 2016 as a spin-off of the international open-market reinsurance business at CCR, the French state-owned reinsurance company. CCR mainly dealt with natural catastrophes and terrorism in France, both with the State guarantee. The rebranding to Arundo Re was a natural next step after we were privatised in 2023.

The name Arundo means reed in Latin. In French culture, the reed symbolises resilience, humility and agility. In short, when faced with heavy storms and winds, the reed is flexible and bends with the wind without breaking, demonstrating its solidity and resilience. This felt like the perfect image to represent our brand and our values: humanity, solidity, clarity and vitality.

In order to remain a key player, we need to be agile, open to innovation and drivers of change. We are a tier 2 reinsurer and underwrite policies in life, P&C and specialty lines in more than 100 countries.’ <



LAURENT MONTADOR,
Deputy CEO of
Arundo Re, spoke to
The European Actuary
about the growing impact
of natural catastrophes
(Nat Cat).
