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Senior Catastrophe Risk Analyst

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Job title: Senior Catastrophe Risk Analyst
Organisation: Willis Re
Location: Sydney, Australia

How did you get to where you are now?

I studied for a Geography BSc at Lancaster University, graduating in 2015. I have always been interested in geography and especially enjoyed the overlap between the physical process and the human behaviours and responses. During a natural hazards lecture at university the role of insurance was discussed which prompted me to investigate it as a potential career path.

I focused my dissertation on the importance of resolution in flood modelling for insurance, which gave me insights into the industry and the types of modelling required. As part of this I did some work experience at a local insurance broker to gain insights from a commercial perspective. I also read papers from the Willis Research Network, which led me to apply for a position at Willis Re. Having grown up just outside London I always wanted to work in the city but never thought I would find a job there with such strong geographical themes. After an assessment centre and interview I was successful in getting my job as a Catastrophe Risk analyst.

Over the next 5 years I worked on various catastrophe modelling projects for clients in Turkey, South Africa, UK, Canada and Australia. In early 2020 I moved to Sydney and took a position in our Sydney team.

What are you responsible for?

The primary aim of my role is to estimate how much an insurance company is likely to lose if a large catastrophe was to occur. This information helps my

clients to define their view of risk and manage this through their reinsurance and other risk transfer mechanisms.

In order to estimate potential losses, I utilise catastrophe models, which are computer programs that simulate various catastrophe events. They require information such as location, building type, construction and usage to inform the hazard and vulnerability. There is a fair amount of data processing, as I have to translate information about insured properties into model ready files, which often involves making assumptions based on my knowledge of the portfolio and the local market.

As the output from the models is complex, I interpret the results and communicate to clients about my findings in reports and presentations. By looking at how the portfolio is changing over time, in terms of where the risks are and what type of risks are new, I can explain why the loss may be increasing or decreasing from one year to the next.

Climate change is increasingly becoming part of my day to day role, with clients asking more questions about what it means for re/insurance. As the models we use are heavily reliant on past climate trends we have developed adjustments to the models to reflect the likely impact of climate change on a client's portfolio, for example increasing the number of severe storms in Queensland. I use these to communicate the potential losses and feed into discussions on the future availability of insurance.

What skills and characteristics do you need for this role, apart from geographical knowledge?

A key part of being a successful catastrophe analyst is being able to communicate to audiences with a range of expertise and backgrounds. My work is used internally by actuaries, brokers and client managers, and externally by reinsurance managers, pricing teams, board members and C-suite which all have varying levels of knowledge on the specifics of catastrophes and modelling. Being able to understand what each stakeholder requires and tailoring responses, be it in presentation, report or email format is essential.

Another key skill that I have picked up from geography is working with a breadth of knowledge and focusing on the bigger picture. Catastrophe models bring together concepts from statistics, engineering, insurance and social sciences, which means there is always plenty more to learn. It is important for me to have confidence in my work, but without necessarily having to know every detail.

W: www.rgs.org/iamageographer

How does geography feature in your work?

Risk is inherently a function of location, be it earthquakes, cyclones or pandemic. Being able to understand the different factors which cause catastrophes is essential to understanding what the worst possible scenario could be and hence being able to plan and mitigate. Our clients can have portfolios covering policies worldwide so are susceptible to a range of perils, which makes exposure management a key priority to ensure they are not insuring too much in one place.

My team uses a lot of GIS to process hazard and exposure data and it is a key component of our data visualisation. When cyclone, hail, flood or earthquake events occur I support my clients by overlapping the footprint of events with the policy information so they can see where is likely to be affected and channel recovery efforts. In general clients always love to see interesting maps!

There is also the more obvious geography aspect of that location information is provided at a range of geographical scales and we have to work to aggregate and disaggregate data across different resolutions.

What do you enjoy most about your job?

One of the most enjoyable aspects of my work is how variable it can be – I recently travelled to do a client presentation on modelling concepts to their board which involved discussing their reinsurance programme, recent hail events and climate change impacts. Immediately after I went back to work on some detailed coding with a lot of problem solving, which involved a completely different skill set.

I also really enjoy working on areas where vendor models are not available. It is our philosophy to understand and evaluate available models and adapt and build them where we think they are not suitable or are not available. In my previous role I managed projects for the Sub-Saharan Africa team, which does not have much commercial model coverage. This meant that we had to go further to understand the risks, working with our partners in the Willis Research Network to build models that fit our clients. I worked on developing a South Africa hail model which we built in collaboration with NASA and the Karlsruhe Institute of Technology. Knowing that we are helping to make catastrophe insurance available and affordable for developing countries is very satisfying.

Do you get to travel for your role?

As we deal with clients globally there is scope for travel to attend meetings. I have been lucky to have visited clients in Istanbul, Paris and recently in Brisbane. I also attended a conference in Berlin where I got to meet with others in the industry and hear about upcoming products from model vendors.

What advice would you give to someone wanting to go into this career?

I would suggest that people interested in catastrophe modelling in insurance and reinsurance keep up to date with the developments in the industry by reading blogs and news articles from large insurance

companies, reinsurers and brokers, such as Willis Re's [Summary of Natural Catastrophe Events](#). Look out for catastrophe analyst or exposure management opportunities at syndicates, insurance companies and reinsurers.

Being able to provide examples of working with large datasets and experience with programming languages such as python or R are also very useful.

Why did you choose geography?

Geography looks at how principles from many other disciplines can be applied to make sense of how the world works— whether it's economics, physics, engineering or psychology there is always something new and interesting to learn! By choosing Geography you are equipping yourself with the knowledge and transferable skills to tackle any real-world problem and opening up yourself to range of career opportunities. And there's always the fieldtrips!

*** This interview was undertaken in 2021 and was correct at the time of publication. Please note that the featured individual may no longer be in role, but the profile has been kept for career pathway and informational purposes.**