

.....

# John Kreft

## Senior Analyst Natural Hazards

.....

**Royal  
Geographical  
Society**

with IBG

Advancing geography  
and geographical learning



**Job title:** Senior Analyst Natural Hazards

**Organisation:** WSP

**Location:** Christchurch, New Zealand

### How did you get to where you are now?

I studied Geography and Natural Hazard Management BSc (Hons) at the University of Chester, graduating in 2012. My undergraduate dissertation focused on using GIS to inform on future fluvial flood risk to a small community, using numerical modelling and a study into community perception of flood risk. This was a 'lightbulb' moment in my choice of career direction as I found the idea of using GIS to inform on risk of natural hazards, fascinating. In the summer between my 2nd and 3rd years of university, I undertook a placement at a local engineering firm WSP (then Mouchel) to get some experience in the workplace. Seeing the aptitude that I had for applying GIS to inform on risk (skills developed during my studies), I was offered a permanent graduate position four days into the placement. After completing my studies, I worked eight years with WSP in the UK, progressing from Graduate through to Senior Engineer where I led on implementing infrastructure strategy for wastewater assets in

multiple UK water companies. I had project and financial management responsibilities, as well as being a mentor and line manager to numerous junior colleagues. In 2018 I became a Certified FME Professional in the software Feature Manipulation Engine (FME) and I recently achieved professional recognition as a Chartered Geographer (GIS), both of which were influential in reaching my current role as Senior Analyst Natural Hazards for WSP in New Zealand.

### Was there anything particularly useful that helped you get into this role?

I am very fortunate to have had many great opportunities to aid my continuing professional development (CPD) which have all helped me get to where I am today. I attribute two secondments that I have undertaken in my career to date, as significant positive influences on my CPD. The first was a long-term secondment into Severn Trent's tactical asset planning team, which helped me to rapidly improve my client relation skills and my infrastructure strategy knowledge. The second was a short-term secondment to WSP in New Zealand to contribute to and enhance their water infrastructure strategy capabilities. During this time, I successfully demonstrated the power of using GIS to inform on natural hazards risk and I was offered a chance to return in a permanent capacity the following year to take up a position in the risk and resilience team, working directly with natural hazard management.

### What do you do as part of your role?

I am a Senior Analyst specialising in natural hazards in the Risk and Resilience team operating primarily across the transport and water disciplines to provide expert advice on infrastructure resilience. A large part of my role is to develop WSPs in New Zealand's capability to help government agencies, local authorities and other clients

**W:** [www.rgs.org/geographyprofessionals](http://www.rgs.org/geographyprofessionals)

manage geohazards effectively and efficiently, using GIS and data science. As my role is so varied, there is no such thing as a typical week, which is great as it keeps it so interesting. A significant achievement in this role to date is the development of an automated geohazard management system to assess real-time rockfall risk to Waka Kotahi's (New Zealand's Transport Agency) and KiwiRail's transport infrastructure, in the wake of the 2016 Kaikōura earthquake. To progress this further, I have created mobile apps to facilitate the capturing of rockfall data for network contractors, which will help the ongoing calibration of the geohazard risk system. Another part of this role requires me to look for new ways to inform on natural hazard risk and exploring new data sources to facilitate this.

I also have a second responsibility within WSP in New Zealand which is to lead the growth of our national FME capability, which is a role I enjoy very much as it allows me to engage with all parts of the business, helping colleagues to incorporate data science into their operations.

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

Using geographical knowledge to assess risk to communities and infrastructure that natural hazards pose is only part of my job. I have found that creativity is a very valuable characteristic when communicating risks to stakeholders, with varying levels of GIS appreciation. I have found that there is significant power in simplicity, therefore it is very important to be able to exercise restraint when consolidating geospatial data to create communicative maps, as often the message can be lost in the detail. Using data to advise on natural hazards risk also requires me to be statistically adept to identify trends and make informed decisions. Being resilient and to have the ability to adapt are also important characteristics to have, especially in a country where exposure to natural hazards is a part of everyday life.

### **How does geography feature in your work/ what difference does it make?**

**W:** [www.rgs.org/geographyprofessionals](http://www.rgs.org/geographyprofessionals)

Geography is fundamental to my work and forms the foundation for what I am striving to achieve, which is to help New Zealand become increasingly resilient to the many natural hazards that it faces. Knowledge of geography's key concepts – time, scale and place – applied to geospatial technologies to assess and communicate risk, is simply essential. What do you enjoy most about your job? OR What is the most interesting or enjoyable project you've worked on, and why?

### **What do I enjoy most about my job?**

I am fortunate enough to work in a field which is directly related what I studied at university and to do so in a country as exposed to natural hazards as New Zealand. Through my job I am contributing to ensuring the safety of people and the infrastructure they interact with which leads to significant job satisfaction. To achieve this, I am afforded the freedom to be creative in how I communicate my messages of risk and resilience.

### **Do you get to travel for your role?**

My role is a national one and I am lucky enough to engage with a variety of colleagues and clients across New Zealand about the applications of GIS to natural hazard management.

As part of my experience in the water sector I have also visited colleagues across the Tasman Sea in Brisbane, Australia to share my knowledge and experience of infrastructure strategy. Looking forward, in 2021 I will be travelling further afield to Vancouver, Canada to deliver a technical paper at the FME User Conference on the use of GIS to inform geohazard risk in NZ.

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

Do not be afraid to take risks and make mistakes. It's how we grow and learn as professionals and as people. It makes us more resilient to future change and difficult situations.

If you want to go into a career involving geographic information, then my advice would be to make the most of the vast and increasing amounts of open source data that is available.

There are plenty of free online learning packages out there. Learn by doing and you will reap the rewards. Whatever your chosen vocation, be proud to be a geographer! Despite the light-hearted jokes from my friends at university saying I was doing a degree in colouring in, I am very proud to be a geography graduate and even more so that it is now central to my professional career. The knowledge of colouring in certainly helps with making maps.

### **How do you maintain your knowledge and interest in geography outside of work?**

Generally, I try to ensure I am regularly learning something new, whether that be through taking free online GIS courses to keep up with advancements in the field, listening to relevant podcasts or doing some reading around a geographical subject that caught my attention that week. I find that social media, particularly Twitter and LinkedIn, is a great source of information for learning about global developments in the field of geography and GIS.

Living and working in New Zealand allows me to truly appreciate the wonder and power of plate tectonics. The resulting extreme landscapes make very good playgrounds for running, cycling and hiking. Hearing the rumble of an earthquake before feeling the ground literally move beneath you certainly gets the adrenaline pumping and helps understand the differences between a P-wave and an S-Wave!

### **Why did you choose geography? Why should others choose geography?**

Simply, I chose geography because I enjoyed it the most at school, helped by an enthusiastic and very passionate teacher. I found the study of the basic physical geographical systems, such as geomorphology and the processes of natural hazards, fascinating. This interest progressed into learning how to read and curate maps, ultimately leading me to my passion for GIS today.

### **Why should others choose geography?**

As geographers, we explore the physical properties of the Earth's surface and our interactions with it, so the potential career paths accessible to us are truly vast in quantity and variety. My advice is to do whatever makes you happy. Studying and practicing geography certainly makes me happy.