



INNOVATORS

When David Martin left the University of Sussex with a BSc in Geography, his plan was to earn some money before continuing to study towards a Masters Degree in Geographical Information Systems – better known as GIS.

As part of his third-year dissertation - in 2005 - he had created a flood map of London, something which came to look increasingly farsighted over the next decade.

David knew that the campus was also home to Dr Justin Butler, a maths specialist who owned a clever piece of computer code known as Flowroute and who had set up a company called Ambiental to find ways of commercialising its potential.

“Flowroute looked at the water entering a given system and was able to show how much of it there would be at any one place at any particular time,” said David. “It did it much quicker than had been possible up until then and had obvious potential in helping to predict the risk of flooding

“Justin had won a government grant to look at ways of turning what was at that time a basic code into a useful commercial tool, and with my interest in GIS I fired off a quick email asking if we could meet up.”

The pair met for a coffee, found they had much in common and joined forces, with the result that less than a decade later Ambiental has become a ground-breaking company that is providing flood maps and models worldwide.

“I deferred the Masters degree for a year,” said David. “And then another – and another. I still haven’t done it.”

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WE CAN PREDICT THE DEPTH, PROBABILITY AND
SOURCE OF FLOODING OVER A GIVEN TIMESCALE FOR
ANY ONE OF 28 MILLION HOMES
”

ASSESSING FLOOD RISKS WORLDWIDE

WHY DAVID MARTIN STILL HASN'T GOT AROUND TO FINISHING HIS MASTERS DEGREE

While he may not have got his Masters, David has played a major part in a business success story that is providing vital – arguably life-saving – information to countries around the world by continuing to support the development of this innovative piece of software.

While David developed the Flowroute idea, Justin carried on with developing the business, which now employs 22 people and has become the longest-running tenant at the Sussex Innovation Centre, based on the university campus in Falmer.

Over the years, Ambiental has taken the Flowroute concept from a basic single-site level to a scale where anything is possible. In 2012 the company mapped five new countries – including Australia and a further 15 new models have already been developed in 2014

Predicting the scale and likelihood of potential flooding over the whole of Australia proved even

more difficult than it sounds. “We knew that most of the population lived near the coast, but when we began the work we discovered that there are pockets of people all over the country – so it took us a bit longer than we expected,” said David.

Ambiental takes data from satellites and from aircraft-mounted systems, along with its own Flowroute software, to work out the depth of any potential flooding, along with the likelihood of it happening within a specified number of years.

“We put in data and we get out knowledge,” explained David. “We continue to develop the Flowroute software so that it can provide more accurate information more quickly, but the basic principle is the same as it always was. It’s about working out the probability of an event happening.”

With planning guidance increasingly requiring developers and councillors to take flooding into account when planning new building, Justin started to build up a team to provide flood risk assessments to keep Ambiental busy while David supported and developed the Flowroute project.

Nick Bollens, who had an insurance background, had joined the team by this time to add his expertise, and before long the company was able to take on more staff as it continued to grow.

By 2007, with Flowroute now contributing to the team’s flood modelling capabilities and allowing Ambiental to provide ever more accurate risk assessments, it was five-strong, and just two years later the business could map on a regional scale or provide a complete data set for a small country.



› David Martin

In 2010 Ambiental released its UK floodmap, which proved particularly popular with insurers, and within just two years the software was powerful enough to tackle the land down under.

“The business continued to develop two income streams,” said David. “We were selling a few large-scale floodmaps for bigger sums of money and carrying out lots of flood risk assessments for smaller individual returns.”

It was a good business plan which led to further growth in the core services, together with the launch of RiskCentral, an online system that gives homeowners – or, more importantly, potential homebuyers – an indication of the flood risk facing an individual property. While the service is free at a basic level, detailed reports bring Ambiental useful extra revenue.

The amount of data Ambiental holds to support such a comprehensive system is staggering. “We can predict the depth, probability and source of flooding over a given timescale for any one of 28 million homes,” David explained. It is no surprise that the company’s computers are all set up to crunch the numbers in the background 24 hours a day while being used for more mundane tasks during the working day.

As well as starting to map new areas, including South Korea and the Phillipines, Ambiental now has a special projects division that works with organisations such as the World Bank and governments throughout the world to improve the lives of people living in flood-prone areas.

“We are currently working in Nigeria, which suffers from horrible, muddy flooding, in order to help the government decide where homes should be built and which areas to avoid,” David explained.

The company’s growth has been particularly rapid over the past year following an injection of private equity which has allowed it to expand, both at the science park, where it has taken on another unit, and by opening a new office in Singapore. Ambiental now also has a member of staff looking for new projects in Australia and Brazil thanks to the extra investment.

Another new product line is the company’s move into catastrophe modelling, a sort of mathematical approach to predicting potential worst, probable and best- scenarios designed to help insurers – and particularly re-insurers - assess financial risks on the widest-possible scale.

“We generate the impact of a huge number of possible events over 10,000 ‘virtual’ years using

random numbers that allow us to assess likely losses and help those who are holding risks to work out exactly what they are dealing with,” David explained.

“At the end of the day we are using our technology to provide people with information that allows them to make decisions,” he added. “Weather events seem to be getting more extreme and they are costing more to deal with; we believe that we can help people prepare for those events.”

Looking closely at the topography, soil, rainfall and river systems has already allowed Ambiental to provide flood maps for countries including Japan, Malaysia, New Zealand, Singapore, Indonesia and Thailand, but that’s just the start.

“Our ambition is to map the world – but only if we can do it to our usual high standard,” David said. “There is being the first, but there is also being the most accurate, which is what we are aiming at.”

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Greig Holbrook, MD, Oban Multilingual