

Topic 1b - Hazard models - Tropical Cyclones

[Dr Claire Souch] Our understanding of the linkages between how many tropical cyclones might form in a basin and how many actually make landfall is still an area where we don't have a very good approach to modelling that connection.

If we think about purely the North Atlantic hurricane basins-- that's where we get hurricanes going through the Caribbean and to the United States-- we've had, in the last decade, two very contrasting situations.

So in 2010, we had a year where there was a very large number of tropical cyclones form in the Atlantic Basin. And almost none of them made landfall.

Contrast that to 2004, 2005, where we had a very large number of tropical cyclones forming, and a very high proportion of them making landfall. And this was the influence of shorter time scale weather patterns, steering currents, and lots of influences over exactly where the cyclones form and where they end up tracking to.

So that regional view and understanding of the weather systems, the ability to model it for the use in forecasts, as well as in the catastrophe models, I think is an area where there is already a little bit of work going on. But it's an area that would be of great interest to us as an industry, because it's one of the biggest areas that there are standard assumptions applied to, both on a catastrophe modelling front, but also on that forecasting front as well.

When a hurricane forms, how do we know where it's going to end up making landfall?

Now our modelling of those regional processes is beginning to improve. But I think it's an area where more focus is needed, both from a seasonal forecasting perspective-- so in a few years time, we might be able to have forecasts that not just forecast the overall activity in the basin, but can also forecast how many of those are going to make landfall. And it will also improve the catastrophe models that we have today, which generally use a very standard assumption about how many hurricanes are going to make landfall. Whereas in reality, that proportion changes hugely year to year.