

Topic 1c - Hazard models – Floods

[Dr Claire Souch] Flood modelling has traditionally been a bit behind the other perils, mainly because it's an extremely complex phenomena to model. You have to model the interactions between rainfall, the atmosphere, the soil, the ground water, the evapotranspiration, the climate, the temperature, and what the conditions have been in the preceding days and weeks.

And so for that reason, there is both a lot of uncertainty in flood modelling, and it is also very complex as a process to model. The other element for flood modelling that's really key is the man-made and man control systems that are involved, so dams and reservoirs.

The impact of those on the hydrological cycle, as well as flood defences, and mobile flood defences-- which we may not even know are going to be put in place before an event-- and the interaction between those types of man-made control systems for flood, and the hydrological and scientific processes, is something that is not really evident in today's models to any great degree.

So I think it's that sort of interaction that would benefit from more research and more collaborations between engineers and hydrologists, and the academic community, and also in enabling the end user to be able to understand the uncertainty, and perhaps even run different scenarios.

So for example, a different scenario of a flood defence failure. Or, as we've seen in some flood events around the world, what happens if somebody makes a decision to deliberately flood an area, or a town or village, in order to save another one, by manually manipulating the flood control systems.

So it's an area that would benefit greatly, and I think it's the next evolution in flood modelling that we need.