

Eawag Seminar Invitation

Coupled Human-Natural Systems Modelling for Flood Resilience

Speaker Prof. Richard Dawson, University of Newcastle; UK

When October 19, 11.00 – 12.00 a.m.

Where Forum Chriesbach, room C20, Eawag Dübendorf

Abstract Floods pose threats to human safety and disrupt the infrastructure services that underpin modern society. Whilst many hydrological problems can describe human activities as boundary conditions, to assess and improve resilience to flooding requires consideration of interactions between human, infrastructure and natural systems.

I will introduce some of the modelling approaches that I have developed to tackle this. These include (i) an agent based modelling to understand risks to people during a flood event; (ii) a network resource model to assess disruption to transport, food supply, and other infrastructure services; and (iii) the interplay between urban development and land use change to identify flood management policies that are resilient in the long term.

The case studies highlight the significant impacts from indirect flood damages that are often unaccounted for in flood management decisions, and can change the priority for investment in flood resilience measures. However, over the longer term urban development strategies to reduce flood risk can lead to tradeoffs with other risk and sustainability objectives.

Short Biography:

Professor Richard Dawson's research in the School of Engineering at Newcastle University focuses on the analysis and mitigation of environmental and climate change risks to river catchments, infrastructure systems and urban areas. Richard has published over 65 journal papers and been awarded the Lloyds Science of Risk (2012) and ICE's Robert Alfred Carr Prize (2004). He has editorial roles for the journals Climatic Change, and the Journal of Flood Risk Management. Richard led the Infrastructure section of the 2017 UK Climate Change Risk Assessment, and was recently appointed by the United Nation's Intergovernmental Panel on Climate Change as a lead author on the Cities, Settlements and Infrastructure Chapter of their 6th Assessment Report.