Global water risk dynamics

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Both the Sendai Framework for Disaster Risk Reduction and the Sustainable Development Goals recognise the urgent need to reduce the impacts of natural disaster on humans and society. In order to reduce the risk resulting from natural hazards globally, a profound understanding is required of both current and future risk. To increase this understanding of global risk, large efforts have been made in recent years to develop global scale risk models for a whole range of different natural hazard types. In the field of water risk, huge scientific advances have been made in the global modelling of both flood and drought risks. A major challenge is the dynamic nature of risk at varying spatial and temporal scales. This presentation will discuss the extent to which dynamic risk drivers are currently considered and accounted for in global water risk modelling, drawing from examples from our recent research. It will also discuss future challenges and potential ways to address these. It will consider questions such as: What are the main drivers of global flood and drought risk on different timescales, and are these captured in our current modelling approaches? How well do our current methods incorporate spatial dynamics in risk drivers, and what does this mean for the resulting risk assessments? To what extent do our current approaches account for dynamics in human behavior? How can we improve our models by better capturing interactions between risk drivers?