Dynamic flood risk: case studies

Giuliano Di Baldassarre

UNESCO-IHE, Department of Integrated Water Systems and Governance, Delft, Netherlands
(g.dibaldassarre@unesco-ihe.org)

While many progresses have been made in the static assessment of (current) flood risk, additional transdisciplinary research is required for the development of new methods for the dynamic assessment of (future) flood risk, which is very much needed in a rapidly changing environment. To this end, it is essential to understand why flood risk has changed in the past. This presentation shows the scientific outcomes of diverse case studies (the Po river in Italy and a number of African rivers), whereby data and models are utilized to analyse and interpret the dynamics of flood risk. In particular, a number of hypotheses were tested by considering different agents of change, such as climate and/or land-use, flood prevention measures, human population dynamics. These case studies show that one of the main challenges in assessing (dynamic) flood risk is the deep interconnection not only between the different agents of change, but also between the components of risk (i.e. hazard, exposure, vulnerability or resilience). For instance, changes in flood hazard often trigger changes in exposure and vulnerability to flooding, and vice versa. These complex interactions seem to make predictions of future flood risk over long time scales rather difficult, if not impossible.