



## **Flood risk assessment using improved stage-damage curves: evidences from Northern Italy**

Mattia Amadio (1), Jaroslav Mysiak (1), Lorenzo Carrera (1), and Koks Elco (2)

(1) Fondazione Eni Enrico Mattei, Natural hazard group, Italy, (2) Vrije Universiteit Amsterdam, The Netherlands

Assessment of potential economic damage caused by floods is commonly done applying a methodology based on Stage-Damage Curves. SDC are derived from site-specific observations but seldom validated when applied in different places. In Italy, despite damage reports being collected after almost every major flood, no specific functions have been developed so far. This is partly because the damage evidence is not systematically analysed and usually unavailable for scientific purposes. In this paper, we scrutinise the transferability potential of widely used SDC and develop a refined method applied on a case study in Italy. The hydrologic simulation of a recent flood event in Emilia Romagna (ER) is employed to build up the damage model and compare it with recorded data. Heterogeneous data sources are employed to classify exposed value on both the local and the national scale. Five flood scenarios developed by ARPA-ER are then tested for potential damage.