



Facts and perceptions on the flood-risk evolution along the Po River

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Has the flood risk increased in the Po river basin during the last half century? The increasing frequency with which floods damages are recorded, or reported by media, strengthen the common perception that the flood risk is dramatically increasing in Europe and other areas of the world, due to a combination of different causes, among which climate change is often described as the major factor. However, there is a growing awareness of how anthropogenic pressures, such as uncontrolled urban and industrial expansion on flood-prone areas, may strongly impact the evolution of flood-risk in a given area, increasing potential flood damages and losses. Starting from these considerations, our study aims at shedding some light on the impact and relative importance of different factors controlling the flood risk. Focusing in particular on the middle-lower portion of the River Po, we analyse the evolution of flood hazard in the last half century referring to long streamflow series for different gauging stations located along the study reach (~450 km), while the modification of anthropogenic pressure is evaluated by referring to land-use and demographic dynamics observed from 1950s. Our study proposes simplified flood-vulnerability indices to be used for large scale flood-risk assessments and, on the basis of these indices, (1) we assess the importance of the different elements contributing to the definition of flood risk and (2) represent the evolution of flood risk in time along the middle and lower portion of the River Po. The results of the study represent an important piece of information that can be particularly useful to decision-makers in the definition of large scale flood-risk mitigation strategies and development plans for the study area.