



Extreme floods value distributions under recent global warming in Northern Italy, and new risk management policies. The project FLORIMAP

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Flood risk in Italy is a wide-spread and never-ending issue. Traditional flood defense focused on making the river system “resistant” to flood events, possibly by flood-control structures including floodwalls, levees, dams and channels. These actions reduce the frequency of inundations, but they do not affect flooding effects, and associated impacts once the flood plain is inundated. In fact, structural flood defenses are designed and operated to accommodate floods not exceeding a given magnitude, as fixed by the original design. Thus, these engineering works are highly inefficient to cope with capacity-exceeding floods, the magnitude of which was fixed many years ago using poor data sets, and it is expected to increase with climate changes.

FLORIMAP (Smart FLOod Risk MAnagement Policies), a project funded by Fondazione CARIPLO aims to revalue extreme floods distribution in the different homogeneous areas of northern Italy using regional approaches based upon recent data from the last three decades.

FLORIMAP will first cover open issues associated with the quantification of flood hazard and inundation risk, then it will assess human exposure and vulnerability, and combine these issues with strategies of communication and risk management, because risk communication is an important activity that can influence the flood risk management. Communication is the bridge between the technical and professional community, decision makers, elected officials, funding sources, and the public at large. The literature on risk communication and perception has highlighted that the understanding of the psychological perception of environmental risk is a crucial factor in order to foster the community resilience and to promote adaptive attitudes and behaviors.

Here, we present a preliminary assessment of updated extreme values distribution for the case study of Northern Italy hydrologically homogeneous regions. The results will be then compared against those obtained with previous dataset dating until 1970, to study the evolution of flood hazard and inundation risk under recent climate change. We then provide application of flood hazard, and risk for a case study area, and demonstrate modified hazard under recent climate change.

We then discuss implications for risk communication in the target areas, and provide suggestions for prosecution of the FLORIMAP project.

