



Flood inundation models for reconstructing historical events and for assessing the effects of levee heightening

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In the latest years, an increased socio-economic relevance of river flood studies triggered the development of complex methodologies for the simulation of the hydraulic behavior of river systems.

In this context, we present the results of numerical simulations performed in the middle reach of the Po River (Northern Italy). In particular, we collected a series of topographical, hydrological and inundation data referred to the 1878 Po river geometry and the June 1879 flood event, characterised by an inundated area equal to 432 km². Numerical simulations were performed by coupling a two-dimensional finite element code, TELEMAC-2D, with a one-dimensional finite difference code, UNET.

The aim of the study is two-fold: (1) show the applicability of flood inundation models for reconstructing the June 1879 event and (2) assessing the effects of levee heightening on flood wave propagation in the 190km reach of the Po river.