



Flood Propagation in the Middle-Lower Reach of the River Po for Different Scenarios of Floodplain Management

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The River Po is the longest Italian river, and the largest river in terms of streamflow. The middle-lower Po flows East some 350km in the Pianura Padana, a very important agricultural region and industrial heart of northern Italy. For this portion of the river, the riverbed consists of a stable main channel 200-500m wide and two lateral banks (the overall width varies from 200m to 5km) confined by two continuous artificial levees. The lateral banks are densely cultivated, and cultivations are protected against frequent flooding by a system of minor artificial levees. This sub-system of levees impacts significantly the hydraulic behaviour of the middle-lower Po during major flood events. This study utilizes a quasi-2D hydraulic numerical model. The model has been developed on the basis of laser-scanning DTM (resolution: 2m, topographic survey: 2005) and calibrated using the information available for the significant flood event of October 2000. The study aims at investigating the effects of the adoption of different floodplain management strategies (e.g., raising, lowering or removal of the sub-system of levees) on flood hazard along the river reach.