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New tools for comparing different strategies for flood risk management

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This study proposes an innovative technique for producing probability weighted hazard maps based on an ensemble of numerical simulations. These maps are generated by combining the results of several inundation scenarios, simulated by coupling 1D and 2D hydrodynamic models.
The methodology is applied to a specific test site (River Reno, Northern Central Italy). This test site is characterised by the presence of a weir that allows controlled flooding of a large flood prone area during major events. The proposed probability weighted hazard maps is used to evaluate how this structural measure alters the spatial variability of flood hazard in the test site. The presentation shows an application by constructing two different flood hazard maps: a first one which neglects the presence of the weir, using a regular levee system instead, and a second one that reflects the actual geometry, with the weir.
This study shows that the proposed methodology for producing probability weighted hazard maps can be a useful tool for comparing different strategies for flood risk mitigation and management.