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Effects of topographic data resolution on a two-dimensional hydraulic model

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In the recent past there has been a growing interest in river flood inundation prediction, therefore several studies have been performed concerning two-dimensional hydraulic models. The objective of this study is to evaluate the effects of topographic data resolution on a two-dimensional hydraulic model. A flood event on a 39 km reach of the River Secchia in Italy is simulated with a finite element model for solving shallow water equations. The floodplain area is described with Digital Elevation Model (DEM) of different resolutions. For each spatial resolution a numerical simulation is carried out using the same flood event. The results are compared in terms of inundated area, velocity and water depth. The study points out significant suggestions to practical applications in river flood inundation modelling, since it highlights the appropriate DEM resolution suitable in order to simulate a flood event.