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## Is hydraulic modelling parametrization the major source of variability in flood hazard assessment? Insight into hydrologic uncertainty and the role of design rainfall in probabilistic flood maps

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In this work, a methodology for quantifying the relative impact of hydrological and hydraulic modelling parameterizations on uncertainty of inundation maps has been developed and applied in the Marta river basin, central Italy. A lumped rainfall-runoff forced by a synthetic hyetograph derived from regionalized IDF curves and a Quasi-2D hydraulic model were adopted to delineate the flood hazard maps related to different return periods. The uncertainty related to the design rainfall estimation method, given by the limited length of the time series from which the IDF curves fitted, was considered adopting a Monte Carlo approach. On the other hand, the uncertainty related to floodplain roughness was considered adopting literature values. The above mentioned methodologies for representing both uncertainties were applied simultaneously and separately. Results, expressed in terms of variability of simulated flood extents and flow depths, suggest a significant predominance of the uncertainty related to hydrological modelling as respect to the hydraulic modelling.