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Estimation of flood risk for cultural heritage in an art city

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Flood risk assessment in art cities poses many challenges for the presence of cultural heritage at risk, which is a damage category whose value is hardly monetizable. In fact, valuing cultural asset is a complex task, usually requiring more effort than a rough estimation of restoration costs. The lack of an adequate risk evaluation of the cultural asset may also lead to enormous difficulties and political problems for the accomplishment of the structural mitigation solutions. The aim of the work is to perform a first analysis of the risk to cultural heritage avoiding a full quantification of exposure. Here we present a case study of broad importance, which is the art city of Florence (Italy), affected by a devastating flood in 1966. In previous studies the estimated flood risk, neglecting damages to cultural heritage and thousands of paintings, sculptures and ancient books. Proceeding similarly to the commonly accepted flood risk assessment method, the annual expected loss in terms of cultural heritage/artworks is estimated.