



Comparison between changes in flood hazard and risk in Spain using historical information

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Recently, the COST Action ES0901 “European procedures for flood frequency estimation (FloodFreq)” had as objective “the comparison and evaluation of methods for flood frequency estimation under the various climatologic and geographic conditions found in Europe”. It was highlighted the improvement of regional analyses on at-site estimates, in terms of the uncertainty of quantile estimates. In the case of Spain, a regional analysis was carried out at a national scale, which allows identifying the flow threshold corresponding to a given return period from the observed flow series recorded at a gauging station. In addition, Mediero et al. (2014) studied the possible influence of non-stationarity on flood series for the period 1942-2009. In parallel, Barnolas and Llasat (2007), among others, collected documentary information of catastrophic flood events in Spain for the last centuries. Traditionally, the first approach (“top-down”) usually identifies a flood as catastrophic, when it exceeds the 500-year return period flood. However, the second one (“bottom-up approach”) accounts for flood damages (Llasat et al, 2005). This study presents a comparison between both approaches, discussing the potential factors that can lead to discrepancies between them, as well as accounting for information about major changes experienced in the catchment that could lead to changes in flood hazard and risk.