



## **Statistical dependence of flood peaks in regional context: illustration of some case studies**

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Evaluating the probability of occurrence of extreme flood events and the corresponding return period can play a significant role in water resource planning and management to reduce damages caused by these natural events. In regional context, the pairwise statistical dependence of flood peaks is an important issue to be considered, which may influence the calculation of the occurrence probability, the evaluation of flood quantile and its relative uncertainty. This issue has been only partially addressed in the hydrologic literature. Here, considering some case studies in northern Italy, we firstly tried to quantify the pairwise statistical dependence using different measures of association, and then investigated the etiology of such dependence making some categorization.