

Flash floods risk variation of steep drainage basins in Calabria (Italy) and the role of rainfall and anthropogenic modifications since 1800

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Abstract In this work, data concerning the historical series of floods which have occurred since the 17th century have been collected from a study area located in the southernmost province of continental Italy. Damage caused by flood events was discussed, together with rainfall regime and trend (for the period in which data are available) and with main modifications due to population variations. The aim was to assess if the frequency of damaging floods is changing, and if there is a role of rainfall and/or of anthropic modifications of land-use on these changes. Of 150 damaging floods analysed, 4% of the total were floods which caused damage to people, and which mainly occurred in past centuries. Notwithstanding, the trend of damaging floods is increasing due to the effects of floods observed in the last decades. At the same time, the rainfall trend is generally decreasing, as observed at a regional scale, and is not significant enough to justify the flood recurrence increase. The population trend is characterised by a huge increase observed in recent decades. On this basis, the progressive urban enlargement, with no care for drainage network characteristics and extreme floods, can be considered as the main source of increasing risks due to damaging floods.

Key words floods; historical research; rainfall trend; land use; Calabria, Italy