



## **Occurrence of floods and the role of climate during the twentieth century (Calabria, Southern Italy)**

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In region as Calabria (Southern Italy), characterized by mountainous morphology, the areas suitable for agriculture and urban development are represented by narrow river and coastal plains. The human utilization of these areas is often hard fought with rivers and flowing waters; floods cause periodically damage to agricultural activities, roads, rural settlements and, sometimes, to people.

The morphological setting of the region is dominated by the presence of a main river network made up of ephemeral streams widely observed in southern Italy, are locally called fiumara. They show river beds that in plain sector are often larger than one kilometer, completely dry for almost the entire summer season and affected, during the winter, by severe flash floods characterized by huge sediment load. Because the migration of river channel through the wide river bed, discharge data are unavailable.

A wide archive containing data on historical floods occurred through the past two centuries and the defensive works carried out to cope with flood damage in Calabria has been recently upgraded by using data coming from the Ministry of Public Works.

In the present work, for a study area located in the northernmost province of Calabria, the historical series of floods which have occurred since 1800 has been collected. Damage caused by the different flood events have been compared to both rainfall data (if available) and data concerning defensive work construction. The aim is to assess if and (for what fiumara of the study area) works carried out in the past obtained the effect of reducing damage caused by flash floods. Results of the analysis can represent a useful tool to correctly drive the future development of the main plain of the study area.