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A Flood geodatabase and its meteorological applications: The case of Catalonia for the last century

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Floods are the natural hazards that produce the highest number of casualties and material damages in Western Mediterranean. An important task to analyse this problem is to develop accurate flood databases. A complete database for the 20^{th}century concerning Catalonia (NE Spain) is presented in this work. A total of 217 flood events have been identified and reconstructed for this period, through the analysis of a wide variety of documents including scientific papers, available technical notes, precedent data compilations related to specific localities or regions, newspapers and instrumental information. Results from previous projects like SPHERE or RAMSHES, among others, have been considered. These data have been organised into a relational database for its access and management and have been implemented into a GIS in order to find an effective way of displaying past flood information within a geographical scenario, as well as for its analysis using simple queries, overlapping and calculus. In this way it can be a helpful tool aimed to improving flood risk assessment. Some examples concerning this subject are presented. On the other hand, thanks to the possibility of integrating in this tool a wide range of data, like other meteorological fields, this geodatabase can be a helpful tool for making an episode analysis. This paper is also focused on this meteorological application, where radar data and meteorological model outputs (MM5) are integrated. The application over the flood event of October 2000 in Eastern Spain shows this last possibility.