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Analysis of the linkage between hydrological and climatic information finalised to describe flood regime in Sicily

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River flood regime is the final result of complex hydrological processes occurring at catchment scale which dominate or control streamflow generation. In this context hydro-meteorological and hydrological indices should be capable of describing patterns of extremes events under various climatic and physiographic conditions.

Aim of this paper is to analyse which interactions between climate, soil moisture and catchment characteristics should be accounted to describe the flood regime in Sicily, Italy.

The research strategy is focused on the derivation of descriptors of hydrometereological events (i.e. timing of annual maximum daily rainfall and annual maximum flood peaks) using the approach outlined in Cunderlik and Burn (2002).

Furthermore, following Aronica & Candela (2004) which emphasised on the importance of the soil moisture conditions for flood formation process, the well-known API index is evaluated, at catchment scale, in order to derive the discrete probability distribution for the Antecedent Moisture Conditions related to the annual maximum flood events.

Hence, the hydrometeorological descriptors and the AMC distribution parameters have been compared both at catchment and regional scale to recognise similarities between climatic and hydrological information.