



Detection of dominant runoff generation processes for catchment classification

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The identification of similar hydroclimatic regions in order to reduce the uncertainty on flood prediction in ungauged basins, represents one of the most exciting challenges faced by hydrologists in the last few years (e.g., IAHS Decade on Predictions in Ungauged Basins (PUB) - *Sivapalan et al.* [2003]). In this context, the investigation of the dominant runoff generation mechanisms may provide a strategy for catchment classification and identification of hydrologically homogeneous group of basins. In particular, the present study focuses on two classical schemes responsible of runoff production: saturation and infiltration excess. Thus, in principle, the occurrence of either mechanism may be detected in the same basin according to the climatic forcing. Here the dynamics of runoff generation are investigated over a set of basins in order to identify the dynamics which are responsible of the transition between the two schemes and to recognize homogeneous group of basins. We exploit a basin characterization obtained by means of a theoretical flood probability distribution, which was applied on a broad number of arid and humid river basins belonging to the Southern Italy region, with aim to describe the effect of different runoff production mechanisms in the generation of ordinary and extraordinary flood events.

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