# Identification of characteristic basin descriptors for flood frequency curves behaviour

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The estimation of flood frequency curves in ungauged basins is a crucial issue for practical and technical applications. In this field, a significant contribution may come from the use of theoretically derived probability distributions where parameters have a physical meaning that may be related to the basin features. The challenge is to define synthetic basin descriptors able to interpret and classify the main characteristics of flood probability distribution.

In the present work, a variant of the theoretical model proposed by *Iacobellis and Fiorentino* [2000] has been adopted with the purpose to describe and classify the model according to the hydrological processes underlying the flood generation mechanisms. The model has been modified including a two flood generation mechanisms accounting for the nonlinear behaviour of soil response. Climatic and physiographic basin features are investigated as possible basin descriptors in order to predict the statistical moments of the flood probability distributions. The analyses are carried out over a wide area of Southern Italy that includes 33-gauged basins belonging to the Regions of Basilicata, Calabria and Puglia. Results allow a better understanding the role played by the climate, soil permeability and basin morphology in flood statistics.