On the correlation of observed discharges and geomorphologic characteristics in Central Italy

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In small and middle catchments or intermittent rivers, characterised by low or no flow for long time of the year, it is possible to have water management and quality problems and sudden floods.

The aim of this work is to show the influence of precipitation volume, type of precipitation and morphologic characteristics on the river flow. Furthermore, the correlation between these parameters and the flow discharge indicators, as Q100, Q95, Q50, Q5 and Q0 (i.e. discharges that are exceeded 100% 95%, 50%, 5% and 0% of the times) is estimated.

Using the geomorphologic characteristics of the catchment (catchment area, concentration time, Curve Number) and the climatic characteristics (mean annual precipitation calculated over the catchment and time variability of rainfall events) different regions are pointed out in the target area, in particular showing the role of mountains.

Finally a multiple regression relationship is found between this flow discharge indicators and morpho-climatic characteristics and statistical tests are used to assess the model, calibrated for all basins of Lazio and Umbria Regions.