Determination of the Runoff Coefficient (C) in catchments based on analysis of precipitation and flow events

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Abstract

Runoff coefficient (C) values are tabulated and enshrined in hydrological engineering. Its values are considered to be constant although it may not correspond to reality. In the same catchment, they can vary according to the intensity, temporal and spatial distribution of precipitation events, humidity conditions, soils and land uses. This study had the objective of analyzing extreme events of precipitation and their corresponding flows to obtain experimental runoff coefficients (C) and compare them with the tabulated values. The study was conducted in five experimental catchments in the state of São Paulo, Brazil, with different land uses. The runoff coefficients (C) were obtained from the analysis of hydrograms and using a digital filter, which allowed the separation of the direct runoff, of the total flow. We observed a variation of the flow coefficient values between catchments different from those obtained from the tables. The runoff coefficients had a high correlation with land use. In the catchments with original vegetation cover, such as cerrado and forest, it varied little among the events analyzed, differently from the catchments where land use is diversified, with predominantly agricultural and urban occupation.

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