Annual geomorphic response model for prediction of runoff from ungauged watersheds

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■ **ABSTRACT :** All the watersheds cannot be gauged, as it would be costly and time consuming. Therefore, the indirect method of runoff quantification has to be resorted. For predicting runoff from the known causative factors, it is important to include topographic or geomorphic characteristics which reflect directly or indirectly on climate, geology and transportation processes from the watershed. In the present study ten watersheds from Tapi catchment of Maharashtra state, India were selected for development of geomorphic response models for prediction of annual runoff. Twelve geomorphic parameters were selected for development of model out of which two parameters, Sa and Rb were screened out in the PCA and remaining ten parameters were grouped into three physically significant components. Developed annual model when validated, it was observed that percentage deviation was within 10 per cent. Therefore developed annual runoff can be conveniently used for prediction of annual runoff from unguaged watersheds of the basin having similar physiographic conditions for design of different water harvesting structures.

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