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Model parameterization using watershed geomorphology

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Finding the value of parameters of a conceptual model is a challenging task particularly in ungauged basins or basins where very less measurements are available. Hence, it has been the endeavor of many hydrologists to quantify and relate geomorphological characteristics of ungauged watersheds to their hydrologic response characteristics. The geomorphological characteristics of a watershed, such as size, shape, topography, geomorphology, land use and soil characteristics etc., play vital role in generating runoff and affect significantly the hydrological response of a watershed. Recently developed Modified Long Term Hydrologic Simulation Advance Soil Moisture Accounting (MLTHS ASMA) 15-parameters model performed better to simulate total stream flow than the existing one, but for its pragmatic application, it is required to relate model parameters with measurable geomorphological characteristics of the watersheds. Therefore, in the present study, the measurable geomorphological characteristics of the watersheds lying under different agro-climatic set-up of India are correlated with model parameters using step-wise backward elimination procedure via p-value of F-statistic of multiple regression analysis. In most cases, the parameters exhibited a good relationship with geomorphological characteristics of the watersheds.

Biography

Dilip G. Durbude is working with National Institute of Hydrology (An Autonomous Organization under the Ministry of Water Resources, Govt. of India). He is having more than 15 years of research experience in the area of Hydrology and its allied field such as water resources planning and management, environmental hydrology, RS and GIS application in hydrology and watershed modeling, soil erosion and reservoir sedimentation, etc. He has more than 50 publications to his credit including book chapters and research papers in various National and International Journals. His internationally acclaimed works are on SCS-CN based long term simulation modeling.

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