

## **Relating BTOPMC model parameters to physical features of the Mekong River basin**

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**Abstract** In hydrological modelling, reducing uncertainty in parameter estimation and enabling prediction in ungauged basins is an important challenge. This makes it necessary to relate parameter values to physical basin features including topography, land cover and soil types, etc. This study focuses on investigating the relationship between physical characteristics of the Mekong River and parameters of a physically-based distributed hydrological model: block-wise use of TOPMODEL with the Muskingum-Cunge routing method (BTOPMC). The strategy of gridded parameterization is explored. Rainfall and discharge data sets for 1980–1982 are used for optimization by the SCE-UA algorithm; the 1985 data sets are used for validation. The IGBP Version 2 land-cover map (USGS) and FAO soil map are used. The basin is subdivided into 737 natural sub-basins. Results indicate that the parameter values obtained are physically reasonable and it is possible to identify parameter values for BTOPMC according to physical basin features.

**Key words** BTOPMC model; gridded parameterization; Mekong River; physical basin features

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