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A new systematic partitioning approach for Muskingum flood routing models

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This study aims to propose a new systematic partitioning approach for Muskingum flood routing models. In the proposed approach, the inflow hydrograph of the flood event is partitioned into sub-regions with different model parameters. The optimum parameter values for each sub-region is determined by using the Generalized Reduced Gradient (GRG) based optimization model. The main novelty of the proposed approach is to prevent any kind of user intervention to generate the sub-regions. Applicability of the proposed approach is evaluated by solving several flood routing applications. Identified results indicated that the proposed approach can be effectively used to improve the identification performance of the Muskingum flood routing models.