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A SPATIALLY VARIED UNIT HYDROGRAPH MODEL

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ABSTRACT
In the recent past, instantaneous unit hydrographs based on geomorphology have been proposed as a tool to produce flood hydrographs from rainfall. This paper presents a flood hydrograph simulation model, formulated on the concept of a spatial unit hydrograph derived from a deterministic direct hydraulic simulation approach. The theoretical basis of the model is the time-area method for unit hydrograph derivation. The model employs a cell structure and routes the spatially distributed excess rainfall from one cell to the other following the maximum downslope direction to the watershed outlet. Application of the model is demonstrated by an example using data from a 230 km^2 watershed located on the eastern slopes of the Canadian Rockies in Alberta, Canada. The spatial unit hydrographs gave excellent results in simulating the observed flood hydrographs indicating the potential of this model as a useful tool for flood hydrograph estimation.

Reference: Ajward, M.H. and I. Muzik; A Spatially Varied Unit Hydrograph Model, Journal of Environmental Hydrology, Vol. 8, Paper 7, May 2000.

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