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Simulation of Urban Drainage System by Using Overland Flow and EXTRAN Model

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Simulation of urban drainage system consists of the computation of surface runoff and flow in the sewer network system. For urban drainage management and operation, modeling of urban drainage system does not only describe the flow in the conveyance network, but also present the flood risk map in the basin. However, the available urban drainage models, such as Storm Water Management Model (SWMM), MOUSE, Illinois Urban Drainage Area Simulator (ILLUDAS), etc. . ., are not capable of simulating the inundation in the basin. Therefore, the purpose of this study is to integrate the two-dimensional diffusion wave overland flow model into one-dimensional hydraulic routing model, namely EXTRAN, a component of SWMM, for urban drainage modeling. Further more, the interaction between storm sewer and overland flows also describe and discuss. The integrated model is capable of description both spatial and temporal distribution of runoff. The accuracy of model is evaluated by the performance of outlet hydrograph and inundation area in the watershed.