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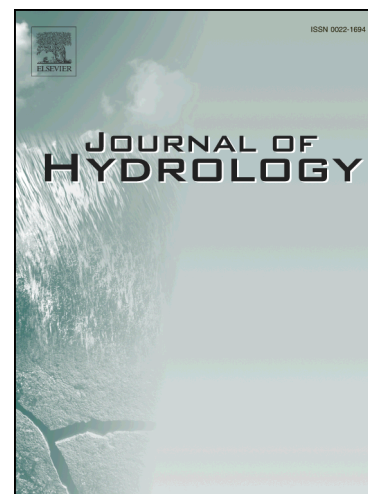
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## A Rapid Urban Flood Inundation and Damage Assessment Model

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### Abstract

Urban pluvial flooding is a global challenge that is frequently caused by the lack of available infiltration, retention and drainage capacity in cities. This paper presents RUFIDAM, an urban pluvial flood model, developed using GIS technology with the intention of rapidly estimating flood extent, depth and its associated damage. RUFIDAM integrates a 1D hydraulic drainage network model (SWMM or MOUSE) with an adapted version of rapid flood inundation models. One-metre resolution topographic data was used to identify depressions in an urban catchment. Volume-elevation relationships and minimum elevation between adjacent depressions were determined. Mass balance considerations were then used to simulate movement of water between depressions. Surcharge volumes from the 1D drainage network model were fed statically into the rapid inundation model. The model was tested on three urban catchments located in southeast Melbourne. Results of flood

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