

## Urban pluvial flooding in Jakarta: applying state-of-the-art technology in a data scarce environment

A. P. Hurford, Č. Maksimović and J. P. Leitão

### ABSTRACT

Available data relating to major pluvial flooding events in Jakarta, Indonesia were used to investigate the suitability of two different levels of sophistication in urban modelling tools for modelling these events. InfoWorks CS v9.0 was employed to build 1D and 1D/2D models of a 541 ha area of inner city Ciliwung River catchment which has a history of being particularly badly affected by flooding during heavy rainfall events. The study demonstrated that a 1D model was sufficient to simulate the flood extent of a major event using the limited data available. While the 1D/2D model also performed well, more data and time would have been required to match the 1D model's simulation of flood extent. Much more detailed data would have been required to produce reliable results in the 1D/2D model and to enable any kind of verification or calibration of the two models beyond visual comparison with crude flood extent maps.

**Key words** | 1D, 1D/2D, data scarcity, Jakarta, pluvial flooding, surface water flooding, urban drainage

**A. P. Hurford** (corresponding author)  
HR Wallingford,  
Howbery Park,  
Wallingford,  
Oxfordshire OX10 8BA,  
UK  
E-mail: [a.hurford@hrwallingford.co.uk](mailto:a.hurford@hrwallingford.co.uk)

**Č. Maksimović**  
**J. P. Leitão**  
Department of Civil and Environmental  
Engineering,  
Imperial College London,  
SW7 2AZ,  
UK  
E-mail: [c.maksimovic@imperial.ac.uk](mailto:c.maksimovic@imperial.ac.uk);  
[j.leitao05@imperial.ac.uk](mailto:j.leitao05@imperial.ac.uk)