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Interaction between storm water conduit flow and overland flow for numerical modelling of urban area inundation

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ABSTRACT

Nowadays we can observe increasing frequency of inundations in cities. This makes accurate predicting of inundations more important than ever. Numerical modeling of this issue requires complex approach with simultaneous calculations of pipe flow and surface flow. In this paper, after short summation of known methods used for solving pipe and surface flow, we will try to answer question if presented methods would be sufficiently accurate to model inundations. We will also investigate if known formulas used for modeling interaction between pipe and surface flow describe the issue well and if they can be developed in any direction. There will be presented comparison between results of calculations and experiments built on test stand made for this purpose in Gdańsk University of Technology. The results could be treated as starting point for further recognition of the phenomenon.