Comparison between Infoworks hydraulic results and a physical model of an urban drainage system

Matteo Rubinato[1] , James Shucksmith[2] , Adrian J. Saul[3], Will Shepherd[4]

[1] University of Sheffield, UK, m.rubinato@sheffiekd.ac.uk
[2] University of Sheffield, UK, j.shucksmith@sheffield.ac.uk
[3] University of Sheffield, UK, a.j.saul@sheffield.ac.uk
[4] University of Sheffield, UK, w.shepherd@sheffield.ac.uk

ABSTRACT

The recent increase in the frequency of flooding as experienced in many parts of the UK and elsewhere may be due to many factors; e.g. increasing urbanisation, the physical deterioration or blocking of the aging network and the impacts of climate change. Work undertaken to study urban flooding frequently uses software such as Infoworks and a use of such software allows the user to investigate the impact of all aspects. The models also serve to establish if the urban drainage system needs minor adjustments or if more significant work is required such as major refurbishment or implementation of SUDS schemes. In spite of their widespread use, the accuracy of hydraulic models in predicting flow and depth is rarely validated against real data. This is due to the difficulty in obtaining field data and the expense and complexity of the establishing such data from physical models. The work presented in this paper will directly compare flows and hydraulic performance obtained using the Infoworks software with data from a direct physical scale model of a sewer network in Yorkshire, UK. Different tests have been completed to reproduce a variety of real rainfall events measured in the catchment over a period of 1 year (April 2008- June 2009). The comparison of these events with Infoworks simulations has demonstrated the accuracy of the hydraulic modeling software and has increased the understanding of the hydraulic performance of typical drainage systems.

KEYWORDS

Infoworks , Real Time Control , Urban Drainage, Modelling,