

Harness data and new modelling tools to inform and communicate integrated flood modelling

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Summary

Modelling pluvial and sewer flooding across the whole urban catchment this work aims to inform integrated flood modelling applying alternative modelling & visualisation tools.

Research Question

How can we harness data and information from CityCAT to inform and communicate integrated flood modelling in practical applications?

CityCAT (Glenis et al 2013) is a new hydrodynamic modelling software capable of simulating large areas at high resolution. Readily available dataset can be applied. Cloud deployment functionality. Infiltration and optional roof storage implemented.

Cause - Hydrodynamic of floods
Understanding the behaviour of a flood event and the flow-pathways across the catchment.

Consequence - Impact of floods
Understanding the impacts of flood events for people and properties.

Open source

Applying open source environments (Python, Jupyter, QGIS) to develop apps for analysis and visualisation purposes.

1D/2D - Gully network

CityCAT applies gullies to link surface and sub-surface domain respectively. Lack of GIS records on gullies encountered. A method is developed to generate a synthetic gully network.

Reference

Glenis, V., McGough, A.S., Kutija, V., Kilsby, C. and Woodman, S. 2013. Flood modelling for cities using Cloud computing. Journal of Cloud Computing: Advances, Systems and Applications, 2(7), p.14.

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