Flood Modelling for Kenilworth, UK, Using OpenMI

Kenilworth is a residential market town in the West Midlands (UK) with a history of flooding from various sources. There is a complex foul / combined sewer system that, for historical reasons, does not always perform well in dealing with flood situations (it does not have adequate hydraulic looping). It was necessary to identify a method for simulating this situation accurately and allowing recommendations to be made for improvements.

An OpenMI integrated composition linking two independent models of the area: InfoWorks-CS (Collection Systems) to model the drainage network (including a wastewater treatment plant) and InfoWorks-RS (River Systems) to model the town stream channels was developed with interactions between them established as bi-directional links so that data could be exchanged between both models as they produced results. This allowed the models to influence each other as they ran. It was also possible to add a data monitoring system so that values passing between the models could be examined.

The integrated model study showed that the downstream flows remained backed up for longer than had been predicted when the two models were run separately. The downstream river levels were found to stay higher for longer than expected, under the influence of the overflow discharges, rather than as represented in the separate models where the sewer overflows began to spill into the river only when its level fell.

Keywords

Sewer, Overflow, Integrated, OpenMI, River, Discharge, Kenilworth.

For More Information

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