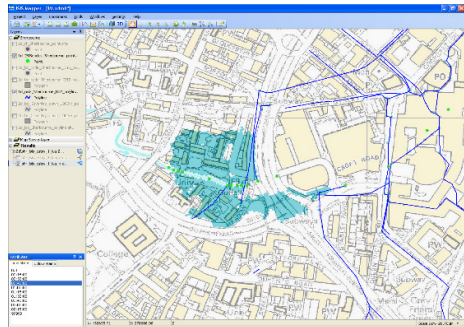


Flood Modeller Pro

TUFLOW Link

Combining open-channel, closed pipe and overland flow models

Flood Modeller Pro provides a selection of 1D and 2D solvers to undertake flood modelling. BMT WBM's software, TUFLOW, complements our range of software and has allowed us to develop the TUFLOW Link which enables users to dynamically link the 1D solver within Flood Modeller Pro with TUFLOW.



The TUFLOW Link has been used to model combined fluvial and pluvial sources of potential flooding in Coventry, UK. This built on an existing Flood Modeller Pro 1D model of the main watercourse, linking to underground (1D) and overland (2D) flow in TUFLOW. A rainfall event was then applied to the whole area in TUFLOW, and fluvial inputs to the Flood Modeller Pro 1D model.

The TUFLOW Link enables an integrated approach to modelling, combining open-channel, closed pipe and overland flow, suitable for modelling flood risk in urban areas, amongst other scenarios.

It allows information, such as flow and water levels to be exchanged between the two models and fully combines the complementary strengths of Flood Modeller Pro such as 1D open channel flow, a wide range of structures and complex operating rules alongside TUFLOW's 2D domains.

This provides the user with greater flexibility in producing an integrated model using the most appropriate modelling method for different parts of the floodplain.

Existing models can be linked together with minimal extra effort, making use of concepts already familiar to the modeller. Flood Modeller Pro 1D models can be linked to TUFLOW via HX and SX boundaries so that level or flow information can be exchanged between the two models.

The exchange can be driven by either component, therefore Flood Modeller Pro calculates water level; TUFLOW calculates discharge or Flood Modeller Pro calculates discharge; TUFLOW calculates water level. Exchange of information between the two models will occur at each multiple of the common time step.

The 1D Flood Modeller Pro model can be linked to multiple TUFLOW 2D domains and each 2D domain can have a different time step and resolution.

The TUFLOW Link also provides a direct 1D-1D dynamic link between Flood Modeller Pro's and TUFLOW's 1D components. This fully combines the complementary strengths of the 1D solver within Flood Modeller Pro and TUFLOW's 1D component (ESTRY), whose additional strengths are in pipe modelling, especially those of small cross-sectional area and conveying low or no flows.

This allows, for example, an ESTRY (1D) pipe network to be dynamically linked to Flood Modeller Pro (1D) river units, which can all be linked to TUFLOW's 2D domain(s).

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Flood Modeller Pro is developed by CH2M, a global leader in consulting, design, design-build, operations and program management.