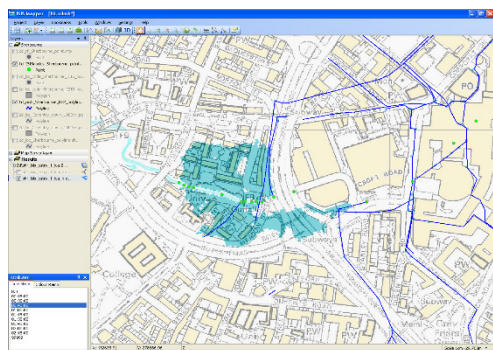


# Flood Modeller TUFLOW Link

## Combining open-channel, closed pipe and overland flow models

BMT's TUFLOW software complements the 1D and 2D solvers within Flood Modeller. The TUFLOW link enables users to dynamically link the Flood Modeller 1D solver with TUFLOW (2D), it's 1D component (ESTRY) as well as the new 2D HPC solver which utilises GPU technology.



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 1D model of the main watercourse, linking to underground (1D) and overland (2D) flow in TUFLOW.

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.

The link allows information, such as flow and water levels to be exchanged between the two models and fully combines the strengths of Flood Modeller 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 Flood Modeller 1D model can be linked to multiple TUFLOW 2D domains, with each domain having a different time step and resolution.

The TUFLOW Link also provides a direct 1D-1D dynamic link between the Flood Modeller and TUFLOW 1D solver, 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 (1D) river units, which can all be linked to TUFLOW's 2D domain(s).

The latest update to the TUFLOW link is capable of connecting Flood Modeller's 1D Solver, with TUFLOW's HPC 2D Solver, which utilises GPU technology. TUFLOW's HPC 2D Solver runs on CPU or Nvidia GPU hardware and considerably reduces simulation run times.

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