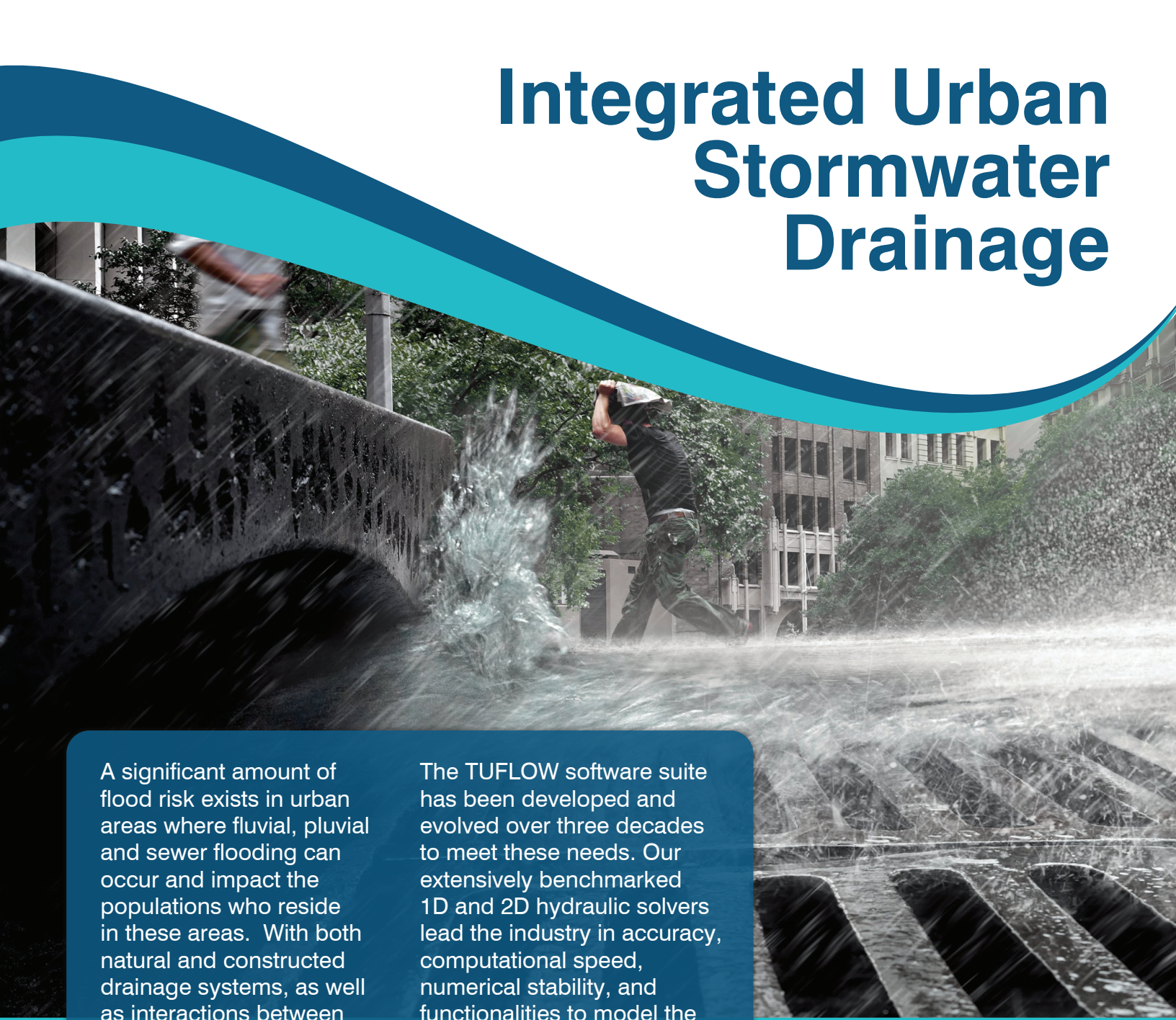# Integrated Urban Stormwater Drainage

A significant amount of flood risk exists in urban areas where fluvial, pluvial and sewer flooding can occur and impact the populations who reside in these areas. With both natural and constructed drainage systems, as well as interactions between them, urban environments need to be simulated using an integrated approach to provide a holistic view of the drainage response.

Complex infrastructure, both on the urban surface and in the sub-surface, require that detail is represented often across large scales requiring accurate hydraulic analysis that can be run in efficient timeframes.

The TUFLOW software suite has been developed and evolved over three decades to meet these needs. Our extensively benchmarked 1D and 2D hydraulic solvers lead the industry in accuracy, computational speed, numerical stability, and functionalities to model the most challenging hydraulic conditions in both the natural and built environments.

Enable your team to tackle the most complex urban stormwater drainage problems with TUFLOW.

As researchers, scientists and engineers we work in a range of industries that solve complex environmental problems. Our assessments span scales from the molecular, to the global, from the instantaneous to the inter-decadal. Our projects require flexible, accurate, fast and powerful tools backed up by research, benchmarking and support.

TUFLOW

Complete hydraulic software for integrated modeling of complex urban environments

TUFLOW Feature Focus

- Fully integrated 1D-2D solution to model the above and below ground drainage network.
- Advanced 1D solver to represent pipe networks, open channels and hydraulic structures.
- World's best 1D-2D linking capabilities.
- Quadtree meshes allows modeling of fine scale surface features in 2D without the hassle of creating a flexible mesh.
- Sub-grid sampling means you can accurately model open channels using coarse 2D resolutions at any orientation to the 2D grid.
- Powerful scenario and event management options to represent development scenarios, different configurations for boundary inputs and climate change epochs.
- Easy options to modify localized topography without changing the computational mesh.
- GPU acceleration provides significant benefits to project productivity, providing results 10 to 100 times quicker.
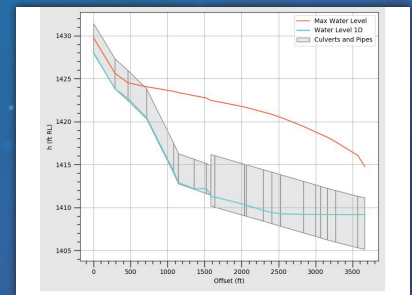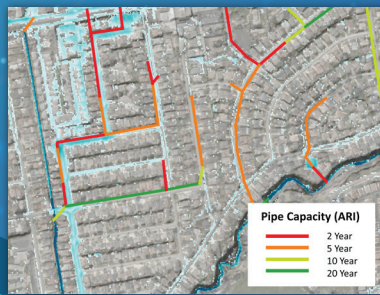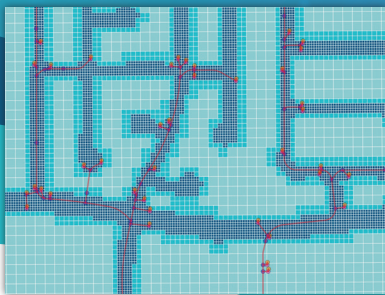
TUFLOW 1D and 2D solvers have been integrated for 30 years with continuous developments and enhancements making them one of the most accurate and efficient hydraulic solvers. TUFLOW includes:

- A range of sub-surface drainage network infrastructure features, such as pipes, manholes, gully pits or drains, and user defined inlets.
- Sophisticated structures and energy loss options with advanced automatic adjustment of losses.
- Simple representation of complex operational regimes for movable structures.
- Sophisticated options to build and represent the diversity of features that exist within an urban environment.
- Numerous workflow efficiency tools, such as the Pipe Integrity Tool, to assist in the preprocessing of error free model input datasets.
- Full integration with Geographic Information System (GIS) software

The engines are well benchmarked against both lab scale experiments and real-world historical flood events. The fine resolution modeling results offered by our engines allows the user to conduct detailed urban modeling down to the street and property scale, which is crucial for risk mitigation and evacuation planning within urban environments.

TUFLOW hydraulic modeling software is uniquely integrated with numerous GIS software such as ArcGIS, QGIS and MapInfo. This supports meaningful hazard mapping of hydraulic model results such as inundation, level, depth, velocity, DxV, evacuation route information, inundation duration and hazard category, providing quality information for flood risk managers, urban planners, emergency services and other stakeholders.

For more information:
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