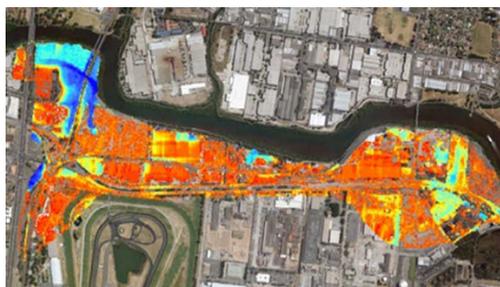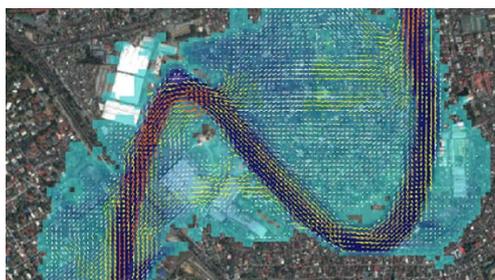# Flood Modeller
2D ADI Solver

Quick, accurate and robust two-dimensional flood modelling

The Flood Modeller 2D ADI (Alternating Direction Implicit) solver is quick, accurate and robust, and has a fully hydrodynamic computational engine designed to work alone or with the 1D solver, enabling dynamic interaction between 1D and 2D models.

Flood Modeller features three 2D solvers for a range of applications - the 2D ADI solver is most widely used for different types of sub-critical flow application. Originally developed in the 1980s, it has a long history of modelling shallow water hydraulics.

Our software's user-friendly interface provides an intuitive environment for building, running, and analysing 2D fluvial, overland, estuarine and coastal models where flow is not rapidly changing.

It is used throughout the world for surface water modelling, local and catchment scale assessments, flood mapping, embankment and asset failure and other flood risk management studies.

The solver works by representing the model domain as a grid of square cells. Water levels are calculated at each cell centre, and the two components of velocity at cell edges. This allows the model to use the velocity components to calculate flow across cell edges and between cells.

Flood Modeller enables 1D and 2D models to be linked using shapefiles, by specifying the model cells in the 2D domain to be linked to 1D model nodes. Models can be linked by water level or by flow and can represent lateral floodplains, a 1D channel running into a 2D estuary, spill over defences, and other river, coastal or floodplain systems.

Multiple 2D domains, with different cell sizes, time-steps and simulation times can be coupled to a single 1D model to represent different areas of a floodplain at different resolutions.

The 2D ADI solver was used on flood mapping projects in Sydney, Australia

The 2D ADI solver was used to produce a national flood risk assessment for the Philippines

Key features

- Available free – up to 100,000 2D cells!
- Provides quick, accurate and robust model simulations
- Incorporates a modern user interface that delivers an even more intuitive environment for building, running and analysing flood models
- Dynamic linking to the Flood Modeller 1D solver and third-party software, including US EPA's SWMM model
- The multiple domains module allows any number of 2D domains of different cell size and orientation to be built into a model
- Provides a range of analysis and visualisation tools for spatial data
- Seamlessly loads flood extents as well as other shape files and images to Flood Viewer to easily share model results with others

Contact us

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