MIKE URBAN+ / MIKE URBAN+ ARCGIS

Integrated urban water modelling

MIKE URBAN+ is the urban water modelling software of choice when important parameters for model selection are stability, workflow, openness, flexibility, GIS integration and physical soundness. MIKE URBAN+ covers all water networks in the city, including water distribution, storm water drainage and sewer collection in separate and combined systems.

APPLICATIONS

Drinking water
- Master planning
- System rehabilitation and pressure optimisation
- Leakage analysis and reduction
- Fire flow analysis
- Water quality risk analysis

Wastewater and storm water
- Master planning
- Capacity management and operational maintenance
- Wet weather management and overflows, rainfall dependent inflows and infiltration mitigation
- Emergency response planning for urban flooding
- Evaluation of storm water best management practices and low impact development
- Design and optimisation of real-time controls
- Sulphide gas formation analysis

MODEL MANAGER

The Model Manager is the core of the MIKE URBAN+ user interface. The wealth of features enable you to efficiently go through all phases of preparing the model input data as well as analyse and present results from the simulation engines.

The Model Manager provides:
- Network data management for storm water collection systems, wastewater collection systems, water distribution systems and 2D flooding
- Feature-rich in-built GIS functionality powered by ThinkGeo
- Optional integration with Esri’s ArcGIS Pro
- Effective time series data management, comprehensive data processing and manipulation tools as well as powerful data visualisation capabilities for all data entities
- Result interpretation and presentation within MIKE URBAN+, Result Viewer, but also for an unlimited number of users with our freeware MIKE VIEW

WATER DISTRIBUTION

The water distribution (WD) modules, WD-Basic and WD-Tools are based on DHI extensions to the worldwide standard EPANET engine.

WD - BASIC

These modules allow the following simulations for modelling water distribution networks: steady state simulations, extended period simulations, water quality simulations under extended period conditions.

Demand Allocation
- Junction node demands
- Geocoding and aggregating of consumption data
- Computing water demands for each node of the network system

Water Quality
- Blending water from different sources
- Age of water throughout a network
- Chlorine residuals
- Growth of disinfection by-products
- Contaminant propagation

WD-TOOLS

This module includes features such as:
- Automatic calibration
- Control options for extended period simulations
- Pressure dependent demands suitable for simulation of system shutdown, maintenance and intermittent water supply systems
- Special analyses tools including pipe criticality, hydrant flushing, multi source tracing, extended rule based control, variable speed driven pumps and PID control, sustainability and cost analysis
- Analysis of improvements to meet fire flow requirements and calculation of available flow and residual pressure
COLLECTION SYSTEM

The collection system modelling is based on DHI’s multi-core MIKE 1D engine.

CS - BASIC
This is the basic module for CS, which contains the US-EPA SWMM5 engine.

CS - PIPEFLOW
This module simulates unsteady flow in pipe and channel networks which include:
- Standard and flexible cross-sections, circular manholes, retention basins, soakaways, overflow weirs, orifices, pumps, flow regulators and storm water inlets
- Simulation of subcritical and supercritical flow conditions in partially full, full and pressurised pipes
- Continuous simulations of long periods

CS - RIVER
This module simulates the flow in the natural river. Connections can be made seamlessly between pipe network and river. Supports weirs and culverts.

CS - CONTROL
This module features advanced real-time control capabilities. It makes the definition of complex operations logic for regulators.

CS - POLLUTION TRANSPORT
This module includes pollution transport by advection and dispersion as well as sediment transport.

CS - MIKE ECO LAB
This module allows modelling of all kinds of water quality aspects. See page 20.

CS - RAINFALL RUNOFF
This module includes multiple rainfall-runoff models such as time area method, kinematic wave and LIDS, linear reservoir and UHM. An RDI module for simulating continuous slow response inflows such as infiltration. Also, a storm water quality module for modelling the build-up and wash-off of pollutants.

INTEGRATED MODELLING

MIKE URBAN+ provides efficient solutions to meet the increasing needs for combining 1D modelling of sewer and storm water drainage systems with other models.

OVERLAND RIVER AND PIPE FLOW MODELLING
With a dynamically coupled combination of 1D and 2D models, you can model floods in an urban environment - in an accurate and efficient way based on MIKE 21 FM within MIKE URBAN+. In addition, you can also use MIKE FLOOD. For more information, see MIKE FLOOD on page 24.

GROUNDWATER AND PIPE FLOW MODELLING
Accurate modelling of the two-way interaction between pipes in the ground and the surrounding aquifer. This allows you to model infiltration to and leakage from pipes as well as the potential side effects of infiltration prevention. For more information, see MIKE SHE on page 22.

SELECTED TOOLS IN MIKE URBAN
In addition to the variety of modules, MIKE URBAN+ also includes a number of tools to optimise your work. These include:
- Scenario manager
- Instant data validation
- Interpolation and assignment tool
- Catchment delineation tool
- Network simplification tool
- Geocoded wastewater load and demand allocation
- Model results presentation through static and animated time series, profiles, maps, tables and statistics

MIKE URBAN+ ARCGIS
Adds sophisticated GIS capabilities to MIKE URBAN+ and integrates smoothly with ArcGIS Pro. Embeds ArcGIS Pro software.

BENEFITS

MIKE URBAN+ is the modelling software package for all urban water modelling activities.

You can maximise your productivity and fully leverage your investment in GIS and water modelling software tools.

All GIS licences and components required are embedded in the MIKE URBAN+ licence.

MIKE URBAN+ is available in many languages and we provide local support in more than 30 countries.

Regardless of which engine you choose or which model you build, all your data is stored in one database.

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