MIKE URBAN

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 systems, storm water drainage systems, 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 and water distribution systems
- Feature-rich GIS functionality powered by Esri’s ArcGIS, effective time series data processing and manipulation tools as well as powerful data visualisation capabilities for all data entities
- US Environmental Protection Agency’s (EPA) engines SWMM5 and EPANET
- Result interpretation and presentation for an unlimited number of users with our freeware MIKE View

WATER DISTRIBUTION

The water distribution (WD) components are based on DHI extensions to the worldwide standard EPANET engine and DHI’s powerful simulation engine for transient flows. It allows the following simulations for modelling water distribution networks: steady state simulations, extended period simulations, water quality simulations under extended period conditions and transient flow simulations.

DEMAND ALLOCATION AND DISTRIBUTION
- 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 system
- Chlorine residuals
- Growth of disinfection by-products
- Contaminant propagation

WATER DISTRIBUTION (WD) TOOLS
It includes advanced features, such as:
- Automatic calibration
- Control options for extended period simulations
- Transient flow simulation of fully pressurised systems
- Pressure dependent demands suitable for simulation of system shutdown, maintenance and intermittent water supply systems
- Advisor tools including pipe criticality, sustainability and cost analysis
- Analysis of improvements to meet fire flow requirements and calculation of available flow and residual pressure
COLLECTION SYSTEM

All collection system (CS) modules are based on DHI’s MOUSE, MIKE 1D or SWMM engines with unrivalled numerical stability and efficiency.

CS - PIPEFLOW
This module simulates unsteady flow in pipe and channel networks. It has a wide range of network components and flow processes, such as:

- Standard and flexible cross-sections, circular manholes, retention basins, overflow weirs, orifices, pumps, flow regulators and storm water inlets
- Simulation of subcritical and supercritical flow conditions in partially full, full and pressurised pipes
- A long term simulation tool for continuous simulations of long periods and a unique automatic pipe design tool

CS - CONTROL
This module features advanced real-time control capabilities. It makes the definition of complex operational logic for interdependent regulators fully transparent and easy.

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, the fate of dissolved substances, or biological relations on population or individual level in sanitary systems and combined systems. See page 18.

CS - RAINFALL RUNOFF
This module includes multiple rainfall-runoff models such as time area method, kinematic wave, linear reservoir and UHIM. Also, an RDI module for the generation of continuous inflow typically applied for simulating slow response inflows, such as infiltration.

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 a flood in an urban environment - in an accurate and efficient way. 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 in MIKE URBAN, it also includes a number of tools to optimise your work. These include:

- Scenario manager
- Data validation, assignment and interpolation tool
- Catchment delineation tool
- Network simplification tool
- Geocoded load and demand allocation
- Model results presentation through static and animated time series, profiles, maps, tables and statistics

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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For more information, visit: www.mikepoweredbydhi.com