MIKE 11

MIKE 11 is synonymous with top quality river modelling covering more application areas than any other river modelling package available. Whether your project deals with flooding, navigation, water quality, forecasting, sediment transport, a combination of these or other aspects of river engineering, MIKE 11 handles it. MIKE 11 also includes options for investigating river bank overflow and catchment hydrology.

APPLICATIONS

TYPICAL MIKE 11 APPLICATIONS
- Flood analysis and flood alleviation design studies
- Real time flood or drought forecasting
- Dam break analysis
- Optimisation of reservoir and canal gate and structure operations
- Ecological and water quality assessments in rivers and wetlands
- Water quality forecasting
- Sediment transport and long term assessment of river morphology changes
- Salinity intrusion in rivers and estuaries
- Wetland restoration studies
- Integrated modelling of river and groundwater interaction

ENGINES

MIKE 11 offers a variety of hydraulic and hydrological simulation engines:

HD - HYDRODYNAMICS
- Our classic 1D hydrodynamic engine for rivers and open channels. Unsurpassed in flexibility, robustness and features, including:
  - Fully dynamic solution to the complete nonlinear St. Venant equations for open channel flow
  - Muskingum and Muskingum-Cunge routing method options for simplified channel routing
  - Automatic adaptation to subcritical and supercritical flow
  - A large suite of standard hydraulic structures, such as weirs, culverts, bridges, pumps, energy loss and tabulated structures
  - Extremely flexible control module for movable gates, pumps, turbines, etc
  - Choice of fixed, tabulated or adaptive simulation time step

DISTRIBUTED HYDROLOGY
- Overland flow - using a simplified, semidistributed method or a 2D diffusive wave method. This allows you to do simplified 1D/2D flood modelling with MIKE 11.
- Unsaturated infiltration - using a two-layer water balance method for infiltration losses.
- Evapotranspiration - from intercepted storage, ponded water, the root zone and groundwater.
- Groundwater - using linear reservoir groundwater calculations for basin-wide water balance and river inflow calculations

MODULES

MIKE 11 includes a wide range of add-on modules allowing you to create your own tailored river modelling framework for specific river modelling projects:

RR - RAINFALL-RUNOFF
Includes a variety of RR-models, amongst others, a lumped conceptual and continuous hydrological model, urban runoff models as well as the standard unit hydrograph SCS method.

SO - STRUCTURE OPERATION
Simulates operational structures such as sluices, overflow and radial gates as well as pumps and reservoir releases from user defined operating strategies.

DB - DAM BREAK
Provides options for definition of initial dam geometry and dam breach development methods. Options available are either a time and space definition or a soil erosion failure mode. DB includes NWS DAMBRK and energy equation breach calculation methods.

AUTOCAL - AUTOMATIC CALIBRATION
Automatic calibration process for a wide range of parameters, including RR parameters, Manning numbers, head loss coefficients and WQ parameters.

STRATIFIED - MULTILAYERED RIVER FLOW
Modelling of vertical density differences, such as salinity or temperature in two-layered or multilayered stratified water bodies.
MODULES

FF - FLOOD FORECASTING
Modelling of real time flood forecasting, including state updating and data assimilation features.

ST/GST - NONCOHESIVE SEDIMENT
Transport, erosion and deposition of uniform and graded noncohesive sediments, including morphological changes of river bed bathymetry.

AD - ADVECTION-DISPERSION
Transport and spreading of conservative pollutants and constituents, including a linear decay option (includes heat modelling).

ACS - COHESIVE SEDIMENT
Cohesive sediment modelling applying an advanced three-layer bed description with quasi-2D erosion dynamics as well as settling and deposition dynamics.

ECO LAB - ECOLOGICAL MODELLING
ECO Lab is applied for all water quality related applications with MIKE 11, using predefined or user defined water quality model templates. See ECO Lab flyer for details.

PACKAGES

In order to make it easier to configure your MIKE 11 toolbox, two value added packages are available:

MIKE 11 STUDIO
Ideal for small to medium sized river modelling applications with the HD solution limited to 250 calculation points (HD-250).
In addition, MIKE 11 Studio includes the structure operations (SO) and the dam break (DB) modules as well as the distributed hydrology component.

MIKE 11 ENTERPRISE
Ideal for professionals working with detailed river modelling. It has no limits in size and detail of the HD solution and includes the SO, DB, rainfall-runoff (RR), AD and AUTOCAL modules. Furthermore, it includes distributed hydrology.
Specific enterprise packages are also available for real time, sediment transport or water quality applications.
All packages can be extended with extra add-on modules as required.

BENEFITS

With MIKE 11 you get one of the world’s most well proven and widely applied 1D river modelling packages.

MIKE 11 is the preferred choice of professional river engineers when reliability, versatility, productivity and quality are the keywords.

MIKE 11 is a powerful river modelling toolbox with more features than any other river modelling package.

MIKE 11 is the software product, which made the MIKE brand name synonymous with top quality modelling software from DHI and it remains one of the most widely used MIKE by DHI products.

Contact: MIKE by DHI Customer Care
mikebydhi@dhigroup.com
Visit: www.mikebydhi.com