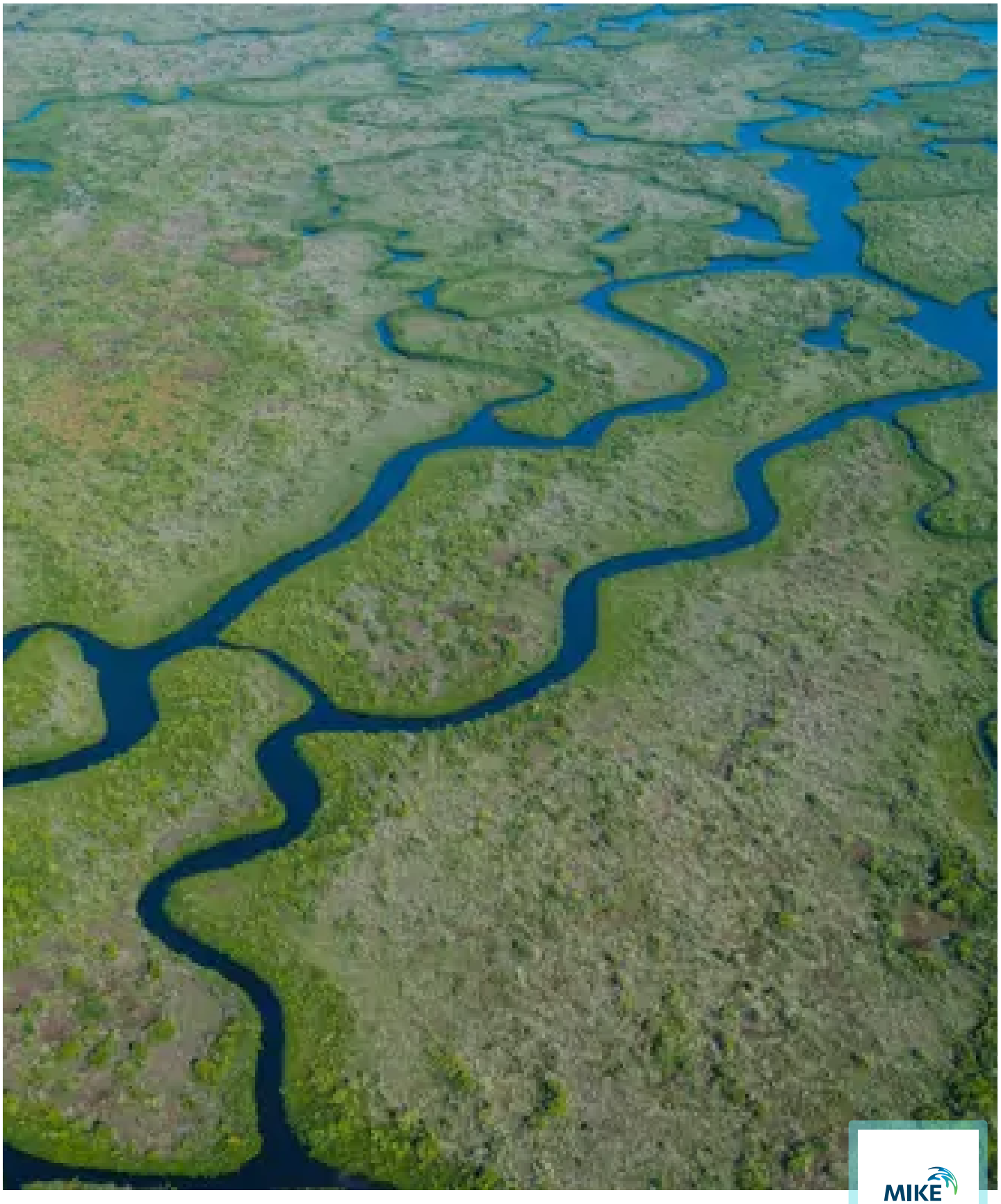


← Technologies

INTEGRATED CATCHMENT HYDROLOGICAL MODELLING

MIKE SHE

Analyse groundwater, surface water, recharge, and evapotranspiration processes

MIKE SHE is integrated catchment hydrological modelling software designed to simulate surface water and groundwater interactions in complex systems. Developed by leading experts in the field, MIKE SHE is widely used by hydrologists, engineers, and researchers to evaluate water resources, predict flooding events, and optimise water management strategies.

It incorporates advanced algorithms to simulate rainfall-runoff processes, groundwater flow, soil moisture dynamics, and surface water routing. By integrating these components, MIKE SHE enables users to assess the impact of various factors like land use changes, climate variability, and water management interventions on water resources and ecosystems.

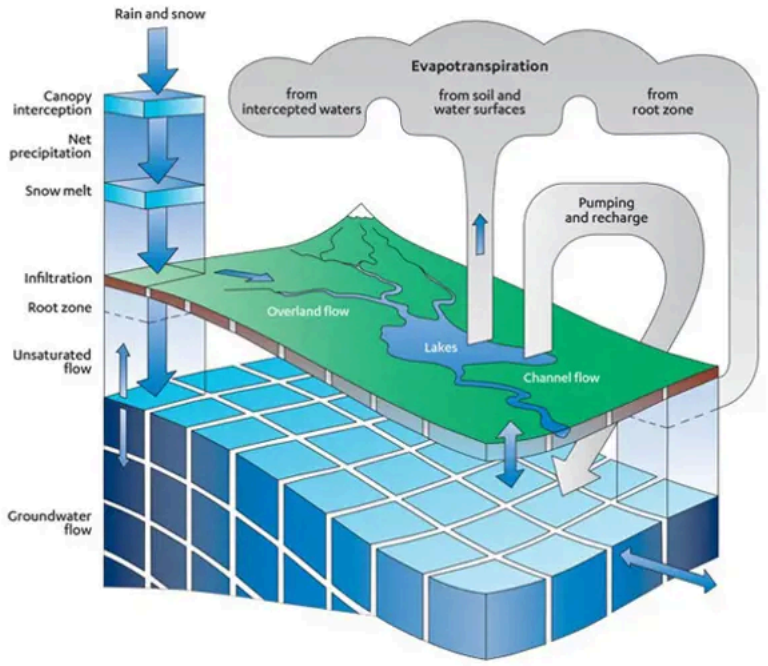
Interested in MIKE SHE?

CONTACT US

Resources

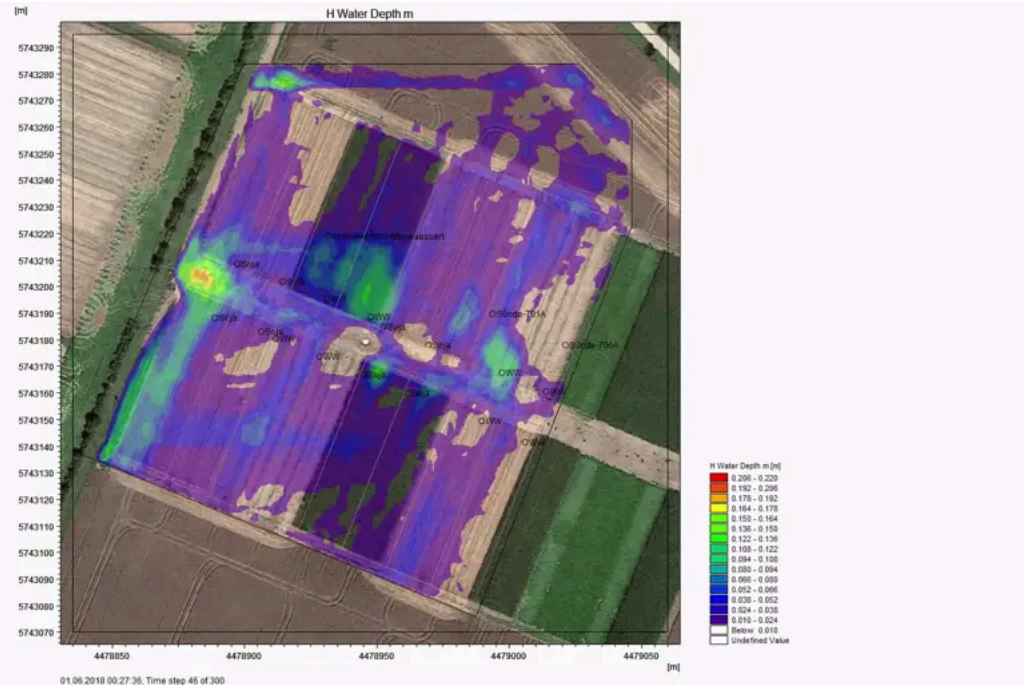
View pricing options
Download the latest version
Get support
Discover new features
Browse documentation
Explore training opportunities
Read the software catalogue

How does MIKE SHE help?



Unravel the hydrologic cycle

Delve into overland flow, unsaturated flow, groundwater flow, and dynamic channel flow with MIKE SHE's integrated physics-based models. Uncover intricate feedbacks and interactions while exploring processes like vegetation-based evapotranspiration, irrigation, snowmelt, and water quality.

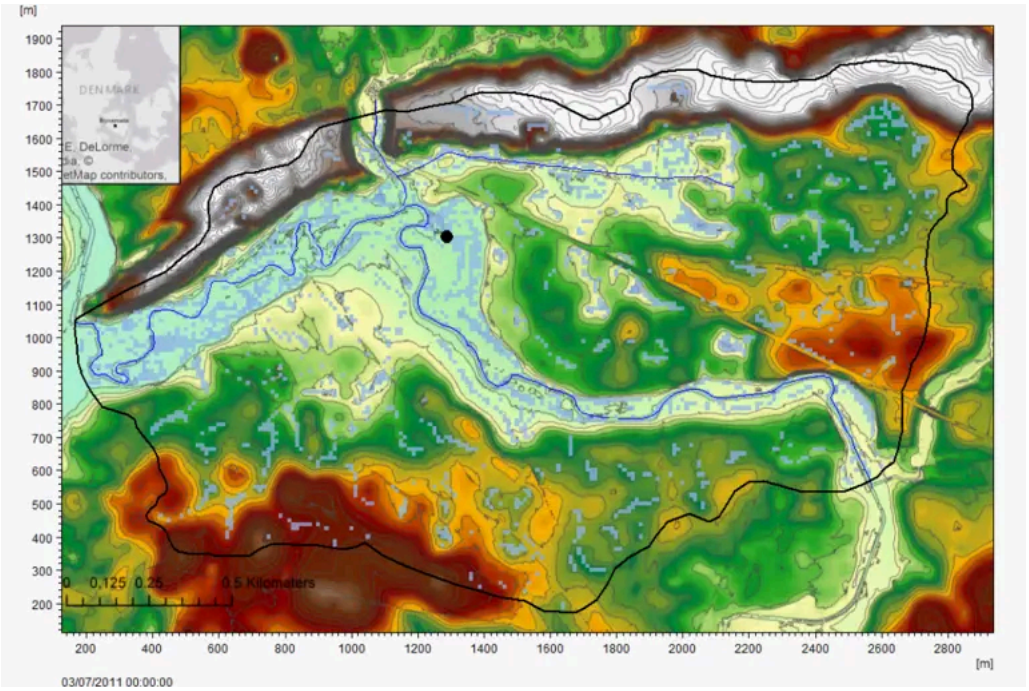


Optimise agricultural efficiency

Streamline irrigation potential management with MIKE SHE's land-use and irrigation modules. Evaluate agricultural operations, optimise irrigation management, and analyse crop water requirements to enhance productivity while conserving resources effectively. **Watch video**

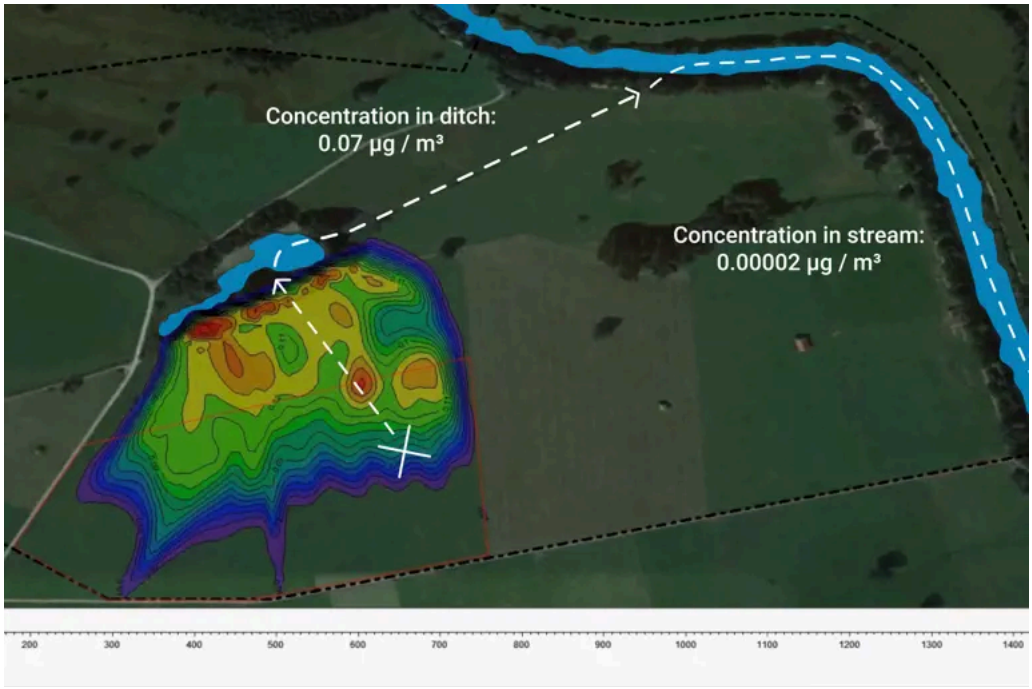
Harness dynamic control for water management

Achieve optimal water management with MIKE SHE's fully dynamic operation and control of surface water. Gain a solid understanding of upstream hydrology to reduce downstream flooding, maximise power generation, and maintain water levels efficiently.



Customise models for enhanced analysis

Integrate multi-species and kinetic reactions using MIKE ECO Lab, while modifying process models with Python scripts for tailored simulations. Coupled with MIKE+, explore dynamics like two-way subsurface infiltration, optimising stormwater management strategies for informed decision-making. **Watch video**



Gain unparalleled insight into nutrient transport

Understand nutrient flow at watershed or field scales with MIKE SHE. Gain invaluable insights into nutrient transport dynamics, from soil seepage to groundwater supply, empowering informed decision-making for environmental management. **Watch video**

Catchment hydrology and yield analyses

Optimise water yields with catchment modelling for sustainable water resource management.

Climate change resilience and impact

Adapt to future water resource challenges with robust simulations of climate change impacts on hydrology.

Contaminant fate and transport

Predict the movement and degradation of pollutants within catchments to guide remediation.

Drought and water scarcity

Evaluate and manage water system vulnerabilities to drought, ensuring sustainable usage and availability.

Ecological restoration projects

Model natural water processes to restore degraded ecosystems effectively and sustainably.

Environmental Impact Assessments (EIAs)

Provide detailed assessments of potential environmental impacts from water-related projects.

Eutrophication mitigation strategies

Simulate nutrient loading and retention to develop strategies for reducing eutrophication in aquatic systems.

Flood risk mitigation and management

Model flood dynamics across landscapes to improve flood risk mitigation and management.

Forecasting and early warning systems

Implement forecasting models for timely predictions of hydrological changes.

Green infrastructure & nature-based solution

Integrate natural water management features into urban planning to enhance ecological and water quality benefits.

Habitat response assessments

Assess how water-related changes affect habitat conditions and wildlife, aiding in conservation efforts.

Integrated water resources management

Support holistic management of water resources through hydrological and environmental simulations.

Irrigation scheme optimisation

Enhance irrigation efficiency and effectiveness by modelling soil-water interactions and plant water use.

Land use decision support

Inform land use decisions with hydrological data that predicts how changes impact water systems and resource sustainability.

Mine water management planning

Support mining operations by simulating water accumulation, movement, and quality within mined areas.

Peatland restoration initiatives

Model water dynamics in peatlands to guide restoration efforts and ensure ecological balance.

Surface water-groundwater interaction

Analyse the interactions between surface and groundwater systems to manage resources comprehensively.

Water protection zone mapping

Map the vulnerability of water protection areas to inform protection strategies and resource management.

Water quality evaluations

Assess changes in water quality across different scenarios to ensure environmental compliance and public health.

What's new in MIKE SHE - 2024 Update 1

Introducing a new water quality modelling option for floodplains

Save space with new lightweight results file for use in hotstarts

Get more done in less time with the modernised MIKE Zero user interface

- **Access the Results Viewer directly from the Processed Data tab**
- **Specify the spatial extent of irrigation output files**
- **View log files directly in MIKE SHE**
- **Access new tools, Cloud applications and an enhanced graphical overview from the redesigned MIKE Zero start page**
- **Available on Azure Marketplace**
- **Work smarter with an intuitive and dedicated user interface**
- **Create exactly the model you need without having to compromise**
- **Generate maps for distributed model insights**
- **Calculate detailed local and catchment-wide water balances**
- **Understand detailed, vertical unsaturated flow**
- **Estimate evapotranspiration and groundwater recharge**
- **Simulate rainfall, runoff and flooding**
- **Forecast snowmelt and its impact on spring runoff**
- **Evaluate downstream water quality impacts of upstream processes**
- **Define transient groundwater capture zones**
- **Access your results quickly with easy workflows and parallel solvers**

You may also like



Related technologies

FEFLOW

Simulate complex subsurface flow, mass, and heat transport processes.

EXPLORE

Global Hydrological Model

Easily access hindcast and forecast data.

EXPLORE

MIKE 21 Curvilinear Flow Model

Conduct advanced studies of river dynamics, focusing on sediment transport and morphology.

EXPLORE

SHOW ALL

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