



# Surface-water Modeling System Version 10.1

## What's New in SMS 10.1

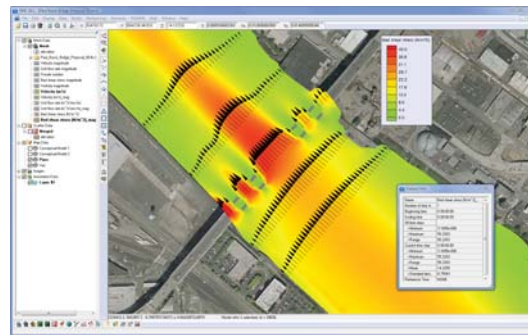
- Support for several breakline creation options
- Convert GIS/CAD data to TINs while preserving triangulation
- Dataset Toolbox for creating datasets from existing data
- New Annotations including north arrows, screen space images (logos) & scale bars
- 64-bit version available for large datasets
- Many more!

## Model Interfaces

- RMA2  
Hydrodynamics
- RMA4  
Contaminant Transport
- FESWMS (FST2DH)  
Hydrodynamics & sediment transport
- TUFLOW  
1D/2D hydraulics and rural/urban flooding
- ADCIRC  
Coastal circulation
- CMS-FLOW  
Coastal circulation & sediment transport
- CMS-WAVE  
Spectral waves
- STWAVE  
Spectral model (full & half plane)
- CGWAVE  
Wave transformation
- BOUSS2D  
Boussinesq wave transformation
- PTM  
Particle tracking

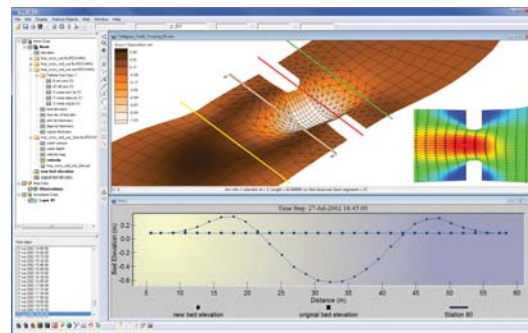
## Hydraulic & Coastal Modeling Solutions

- Quickly & intuitively build 2D Hydraulic Models
- Save time with the conceptual modeling, GIS based approach
- Improve understanding & communication with advanced graphical tools
- Use a wide range of models for riverine & coastal applications
- Analyze complex flow conditions



## Coastal Circulation Modeling

- Ocean circulation modeling with ADCIRC
- Coastal circulation & sediment transport with CMS-FLOW
- Spectral wave modeling with CMS-WAVE & STWAVE
- Wave transformation modeling with CGWAVE
- Boussinesq wave modeling with BOUSS2D

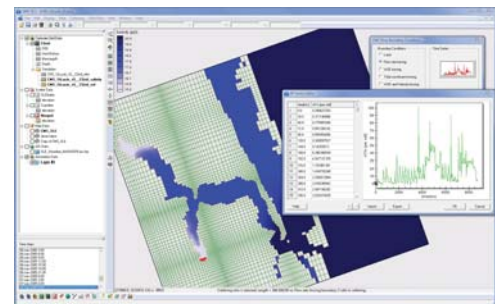


## 2D Hydraulic Modeling

- Import elevations, map & GIS data
- Use GIS features to conceptualize model & map elevations & parameters
- Automated mesh generation
- Run hydraulic model
- Visualize model results
- Use automated calibration tools

## Advanced Hydraulic Capabilities

- Steady state & dynamic flow
- Model complex flow conditions
- Urban & rural flooding modeling
- Directly represent hydraulic structures
- Feature stamping
- Advanced visualization & animations



## Contaminant & Sediment Transport

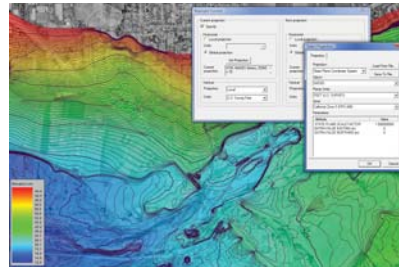
- Model contaminant transport with RMA4
- Sediment transport with FESWMS
- Particle tracking with PTM

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# Conceptual Approach for 2D Hydrodynamic Modeling

## Import Background Data

- Elevations & bathymetry
- Topo maps & aerial photos
- CAD & GIS data



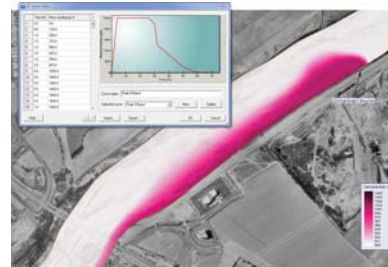
## Create Conceptual Model

- Delineate model domain
- Assign material properties
- Define boundary conditions
- Set parameters for automated network generation



## Generate & Run Numerical Model

- Automatically generate grid or mesh
- Interpolate elevations from background data
- Map materials & boundary conditions
- Define parameters & run model
- Visualize results



## Model Highlights

### CMS-Flow

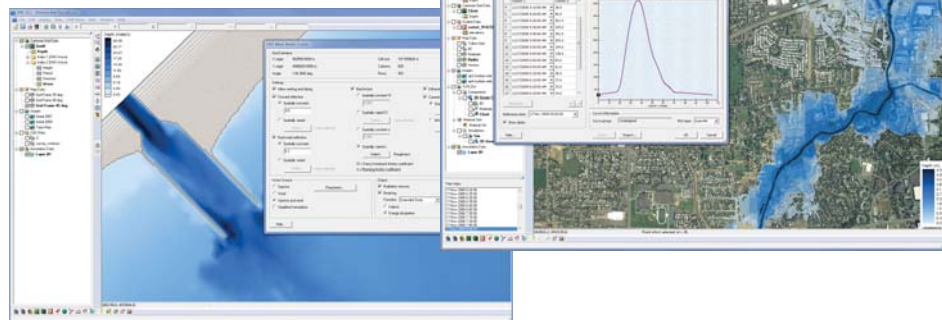
- Robust 2D circulation model
- Spatially varying bottom friction
- Forcing with water level, flow, tidal constituents, wind & wave stresses
- Sediment morphology

### CMS-Wave

- 2D wave spectral transformation
- Wave diffraction & reflection
- Couple CMS-Flow & CMS-Wave

### TUFLOW

- Rapid & stable wetting and drying
- Multiple simulation management
- 1D & 2D supercritical flow
- Flexible 1D & 2D dynamic linking
- 1D & 2D hydraulic structures



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