



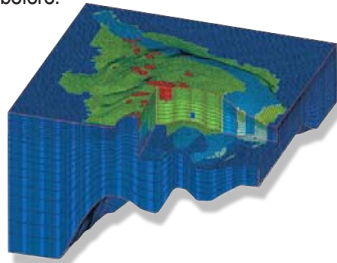
# MODFLOW-SURFACT™

...Management Strategies for a Sustainable Future



## MODFLOW-SURFACT Overview

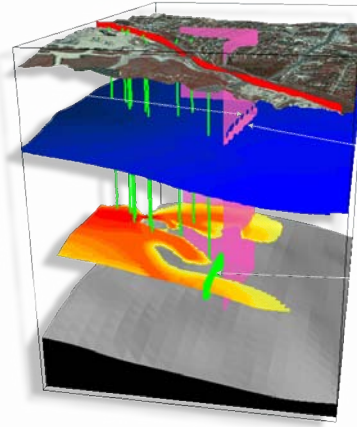
MODFLOW-SURFACT™ is a powerful 3D finite-difference flow and transport modeling code that offers substantial advancements over public-domain versions of MODFLOW. For example, MODFLOW-SURFACT™ addresses rewetting of drained cell, handling of pumping wells, solute mass balance problems, numerical dispersion and oscillations, and impacts of transient flow storage effects on transport. What's more, highly efficient, mass-conserving algorithms enable MODFLOW-SURFACT™ Version 3 to deliver accurate solutions faster than ever before.



## Advanced Capabilities

- ▶ Fully and variably saturated flow and transport modeling
- ▶ Prescribed-ponding recharge and seepage face conditions, as well as delayed yield
- ▶ Adaptive time-stepping to promote stability and convergence for flow and transport simulations
- ▶ Recharge package overcomes unphysical predictions for unconfined systems
- ▶ Total Variation Diminishing (TVD) schemes for physically correct solutions with adaptive temporal weighting
- ▶ Vapor flow for SVE and air sparging simulations
- ▶ Multiphase, multicomponent contaminant transport modeling with biodegradation
- ▶ Robust and efficient Newton-Raphson solver for nonlinear problems
- ▶ Fraction porous media simulation with dual porosity

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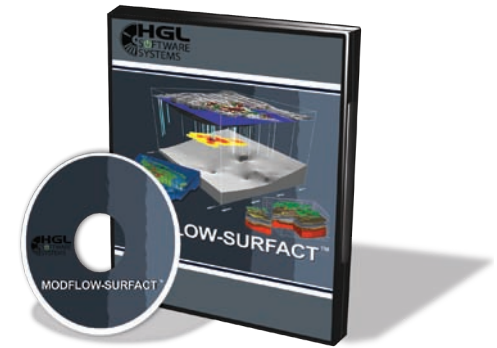
## New Features in Version 3

- ▶ Robust PCG5 Module up to 20 times faster than PCG4 solver. (Developed by Dr. Peter Forsyth at the University of Waterloo.)
- ▶ FWL5 Package uses logarithmic well function to depict flow from the matrix block to the well node.
- ▶ New Reaction Module incorporates user-defined reactions of among mobile and immobile chemical component species—invaluable for modeling biodegradation of industrial contaminants.
- ▶ Curvilinear Grid option for non-rectangular grids in the areal plane.
- ▶ ET and RCH Packages now include zonal input of values via separate time-series file, which is independent of the stress-period setup for varying boundary conditions.
- ▶ Cell-by-cell mass balance output.
- ▶ Additional packages, including the LAK# (lake package), Gage Package, Transient Flow and Head Boundary Package (FHB) and Evapo-transpiration Segments Package (ETS1) are also available.



## Graphical User Interface (GUI)

MODFLOW-SURFACT™ is compatible with all available MODFLOW-based GUI, including GroundWater Vistas, Visual MODFLOW, GMS, PMWIN, ModIME, and Tecplot. Two-dimensional visualization is utilized in both plan and cross-sectional views for contour plots, pathlines, and velocity vectors. Three-dimensional animation is the most effective way to observe changes in parameters, head and contaminant concentrations in a transient simulation, piezometric surfaces, pathlines, velocity vectors, and isosurfaces of contaminant plumes.



## Pricing and Packaging

MODFLOW-SURFACT™ comes with complete documentation including a User's Manual and step-by-step tutorials to get you up and running right away. System requirements are a PC Pentium, 100MHz, 128 MbRAM, and a SVGA monitor.

MODFLOW-SURFACT™ Ver. 3.0.....	<b>\$3,995</b> USD
MODFLOW-SURFACT™ Ver 3.0..... (FLOW ONLY)	<b>\$1,890</b> USD
PCG5 MODULE.....	<b>\$400</b> USD

Upgrade to MODFLOW-SURFACT™ from Version 2.2

FULL VERISION.....	<b>\$1,000</b> USD
FLOW ONLY.....	<b>\$500</b> USD
PCG5 MODULE.....	<b>\$400</b> USD

\*Virginia sales tax and \$50 shipping and handling fees