



WHI Enews



**waterloo
hydrogeologic**
A Schlumberger Company

Water Solutions in Perspective

September 2006

In this edition...

Product News

- [Visual MODFLOW Premium Version 4.2 Now Released!](#)
- [HydroGeo Analyst Maintenance Release!](#)

Consulting Services News

- [WHI Exhibiting at Workshops and Conferences Around the World](#)
- [Integrated Water Management Solutions for the Mining Sector](#)

Training News

- [Upcoming Environmental and Groundwater Modeling Courses](#)

Tips & Tricks

- [PHT3D Integration between AquaChem 5.1 and Visual MODFLOW 4.2!](#)

NEW RELEASE...



**Visual MODFLOW
Premium 4.2**
Now Released!

**Seamlessly analyze
the groundwater &
surface water
relationship.**

[What's New in version 4.2!](#)

Product News

Visual MODFLOW Premium Version 4.2 Now Released!

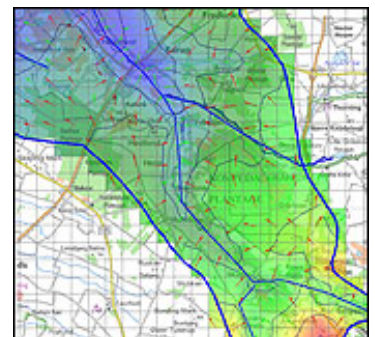
3D groundwater flow and contaminant transport modeling just got better!

[Visual MODFLOW Premium*](#) v.4.2 features our most advanced combination of enhancements yet! With the ability to simulate groundwater and surface water interactions and the added capability of calculating changes to groundwater chemistry, groundwater professionals now have a complete set of tools necessary for addressing water quality, groundwater supply, and source water protection initiatives.

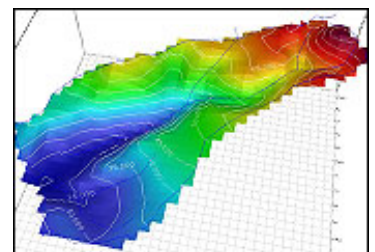
Contact (519) 746-1798 for a FREE 30-day trial today!

What's New

Conjunctive Groundwater / Surface Water Modeling using MIKE 11: [MIKE 11**](#), developed by DHI ([view press release](#)), is a world-recognized surface water modeling package designed for simulating the hydrodynamic conditions found in rivers, lakes, reservoirs, and irrigation canals. Visual MODFLOW Premium v.4.2 and MIKE 11 are now available as a fully coupled, groundwater and surface water simulation environment. This powerful combination represents the only truly conjunctive groundwater/surface water model combining USGS MODFLOW and DHI's MIKE 11.



Surface water / groundwater flow interactions



Ideally suited for:

- Analyzing the hydraulic connection between rivers, streams, and aquifer systems
- Determining groundwater base-flow and potential impacts to ecologically sensitive areas
- Calculating infiltration rates from surface water to groundwater during rainfall events
- Developing comprehensive watershed management plans

PHT3D Integration: Link directly to PHT3D multi-component transport models, for advanced three-dimensional reactive transport in saturated, porous media. Ideally suited for:

- Assessing water-rock interactions during aquifer storage and recovery projects
- Addressing acid-mine drainage and metal contamination problems in groundwater
- Simulating transport, attenuation and nitrification of ammonium-contaminated groundwater
- Optimizing groundwater remediation through in-situ reactive zones/wells

New License	Price
Visual MODFLOW Pro	US \$2,495
Visual MODFLOW Premium	US \$3,495
Call us for upgrade pricing today! 519-746-1798	
Maintenance	US \$395
MIKE 11 Pricing	Price
MIKE 11 HD 75	US \$495
MIKE 11 HD 250 + SO (structure operations)	US \$2,495

**Mike 11 sold separately

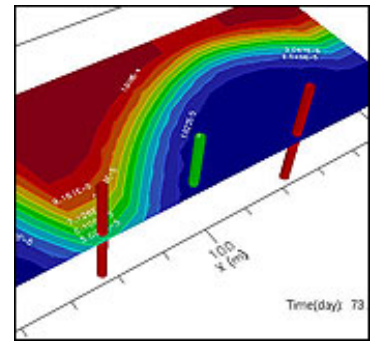
For more information, contact us:

Phone: +1-519-746-1798

Email: sws-sales@slb.com

Website: [Visit our Visual MODFLOW Premium webpage](#)

3D visualization of watershed flow patterns



Concentrations representing aqueous geochemistry



[Download the Visual MODFLOW Premium 4.2 Demo Today!](#)

TOP

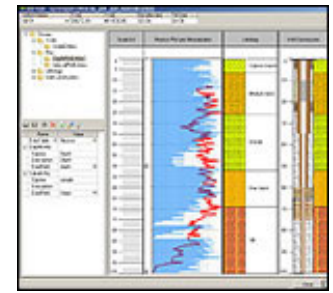
HydroGeo Analyst Maintenance Release - HydroGeo Analyst

HydroGeo Analyst Maintenance Release is now available for download! As part of our Annual Software Maintenance Program, you are entitled to access this latest software build which includes several new features and software updates.

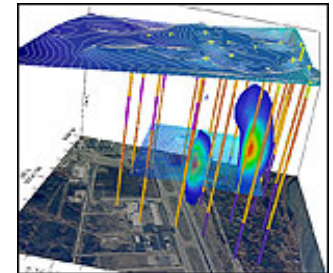
What's Included:

In addition to a number of program improvements, we have also added some incredible bonus features to the program, making HydroGeo Analyst even easier to use for your data management, analysis, and visualization needs, click [here](#) to see the full list!

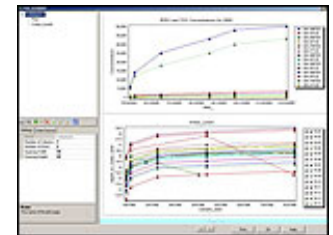
Type	Price
HydroGeo Analyst - Single User Stand-Alone License	US\$ 4,995
HydroGeo Analyst - 5-User Stand-Alone License	US\$ 14,985
HydroGeo Analyst - 10-User Stand-Alone License	US\$ 24,975
HydroGeo Analyst - Site License	Please call for a quote
HydroGeo Analyst - Maintenance	Only US\$ 595



Analysis and Interpretation



3D Interpolation



Time Series Data: Diver Water Elevations

All v.3.0 users please click [here](#) to download this latest maintenance release (all files in this location must be downloaded). If you have any questions, contact our technical support team by phone at +1-519-746-1798, or our sales team by email at sws-sales@slb.com.

For more information, contact us:
Phone: +1-519-746-1798
Email: sws-sales@slb.com
Website: [Visit our HydroGeo Analyst web page](#)

TOP

Consulting Services News

SWS Exhibiting at Workshops & Conferences Around the World

Waterloo Hydrogeologic will be exhibiting our services at a number of upcoming conferences and workshops throughout Canada and USA. Our hydrogeologists and engineers will be attending these events and we would like to meet you and demonstrate our advanced monitoring service, software tools and discuss our full suite of services.

Upcoming Events

- **Groundwater Monitoring Services Workshop**

Dates:

September 21st, 2006 8:00am-5:00pm

November 1st, 2006 8:00am-5:00pm

Location:

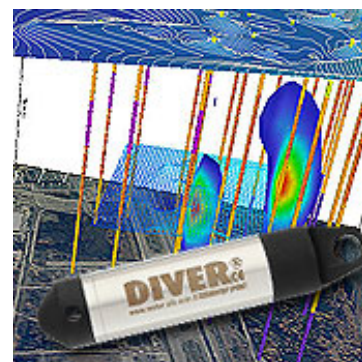
Waterloo Inn

475 King Street North

Waterloo, ON N2J 2Z5

Canada

Join us for an informative, hands-on workshop showcasing Diver dataloggers and integration into Waterloo Hydrogeological Software. Please visit our website for more information and how to register. **Registration is free**, however space is limited. Reserve your spot today!



Integrate your field data into our complete suite of software solutions!

For more information, please contact:

Phone: +1-519-746-1798

Email: sws-services@slb.com

Website: www.waterloohydrogeologic.com/consulting/consulting_services.htm

Integrated Water Management Solutions for the Mining Sector

Mine site initiation, operation, and rehabilitation present complex challenges for hydrogeologists and mining engineers. The Schlumberger Water Services team blends a high degree of technical expertise with innovative technologies designed to address mine dewatering, water supply management, wastewater containment and impact analysis.

Schlumberger Water Services recently completed a large project in South America for one of our mining clients. Based on our experiences completing this and other projects, we have developed an approach based on Schlumberger technologies, to characterize, operate and close mines, providing clients with a high level of value. Our monitoring, logging, modeling and information management tools are very well suited to mining applications. Tools that we frequently apply include:

The Westbay System*: Cost-effective, multilevel monitoring designed for long-term characterization and monitoring of groundwater water levels and water quality.

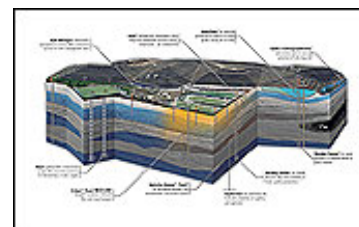
Diver* Datalogger: Compact groundwater monitors designed for frequent, long-term monitoring of groundwater levels, temperature and conductivity.

AquaChem*: Advanced software designed for graphical and numerical analysis, modeling, and reporting of water quality data. AquaChem also integrates PHREEQC analysis for seamless geochemical modeling of mine tailings.

Visual MODFLOW Premium: Superior 3D groundwater flow and contaminant transport modeling engineered to optimize pumping well locations for dewatering projects, as well as assessing water budgets.

Petrel*: Revolutionary software designed to develop geologic models and assess subsurface conditions including the analysis of advanced geophysical logs.

HydroGeo Analyst*: A complete groundwater data management and geologic characterization tool to facilitate groundwater model development and compliance reporting.



[View our complete suite of water management solutions for mining](#)



[Learn more about WHI's Consulting Services on the WHI website!](#)

Visit us at these Upcoming Conferences!

1st SWIM-SWICA

Dates & Location: Sept. 24-29, 2006 Cagliari, Chia Laguna Italy

With the addition of PHT3D to Visual MODFLOW Premium, we are able to evaluate coupled geochemical and groundwater flow modeling with PHREEQC and MODFLOW. Integrating our tools into your workflow will ensure that information flows quickly and unaltered from project inception to completion enabling accurate and timely project decision making. To learn more about our advanced capabilities please visit our web site at www.water.slb.com or contact us at +1-519-746-1798.

[Aquatech 2006](#)

Dates & Location: Sept 26-29, 2006 Amsterdam, The Netherlands

For more information, please contact:

Phone: +1-519-746-1798

Email: sws-services@slb.com

Website: www.waterloohydrogeologic.com/consulting/consulting_services.htm

TOP

Training News

Environmental and Groundwater Modeling Course Line-Up

The 2006 Waterloo Hydrogeologic Open Enrollment schedule is in full swing! The following list of courses will be offered over the next six months.

Can't make it to one of our Open Enrollment Courses? Call us about our [On-Site Custom](#) Courses designed to suit your specific needs!

[Request your free 2006 Training Course Schedule Catalog!](#)

[Get our full 2006 training schedule!](#)



TOP

Applied Groundwater Flow and Contaminant Transport Modeling (Sept. 12-15)

Theory and hands-on applications using MODFLOW-2000, MODPATH, MT3D and WinPEST

This 4-day course was designed to present the theory behind groundwater flow and contaminant transport modeling, and the practical application of Visual MODFLOW for developing simple to complex groundwater models. Lectures alternate with hands-on computer exercises to emphasize practical development of real-world modeling solutions.

Learn more about this course:

Details: www.waterloohydrogeologic.com/training/groundwater_training_course_aftm.htm

Registration: www.waterloohydrogeologic.com/training/training_course_registration_us.htm

TOP

Finite Element Groundwater Modeling (Sept. 19-22)

Advanced Applications for Sat/Unsat Flow & Transport, Density-Dependent Flow and Heat Transport using FEFLOW

This 4-day course presents the theory behind the Finite Element method for groundwater modeling, and its practical application using FEFLOW. This course provides a more complete understanding of the use finite elements in groundwater modeling, and includes such topics as groundwater flow and transport modeling, principles of unsaturated flow, fracture flow modeling, thermal transport, and density-dependent flow modeling.

Learn more about this course:

Details: http://www.waterloohydrogeologic.com/training/groundwater_training_course_fem.htm

Registration: www.waterloohydrogeologic.com/training/training_course_registration_us.htm

TOP

Water Quality Data Management & Modeling (Sept 26-28)

Theory and Applications using AquaChem and USGS PHREEQC

The large quantity and range of water quality data types presents a challenge to environmental professionals who wish to develop a comprehensive interpretation of this data. This course provides hands-on experience in temporal and spatial water quality data interpretation, including the use of convenient computer software for organizing and plotting the data.

Learn more about this course:

Details: https://www.waterloohydrogeologic.com/training/groundwater_training_course_WQDM.htm

Registration: www.waterloohydrogeologic.com/training/training_course_registration_us.htm

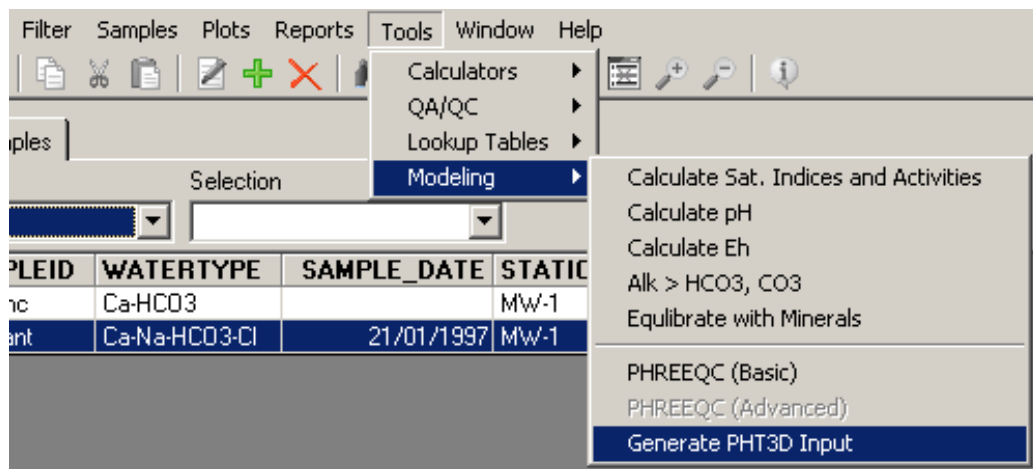
TOP

Tips & Tricks

PHT3D Integration between AquaChem 5.1 and Visual MODFLOW 4.2!

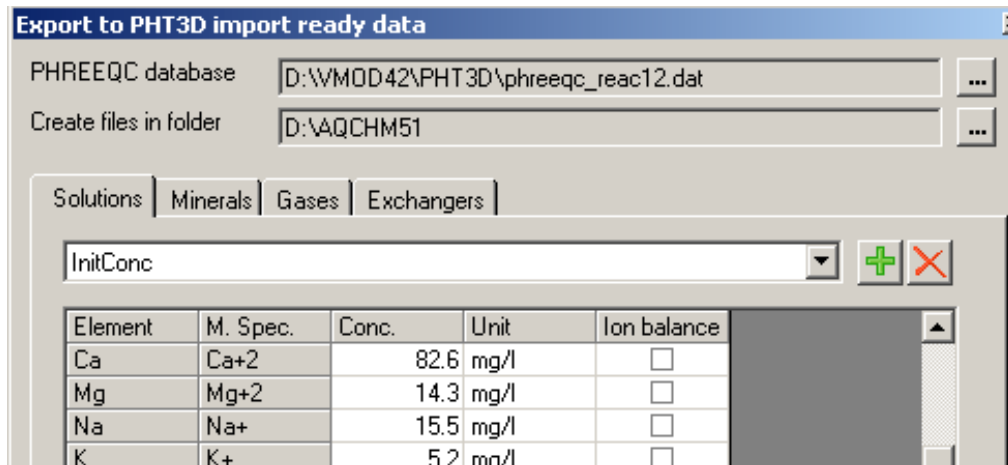
One of the exciting new features of Visual MODFLOW 4.2 is the implementation of the PHT3D modeling utility. The PHT3D modeling utility is a multi-component transport model for three-dimensional reactive transport in saturated porous media. The input files for PHT3D can be created in AquaChem 5.1 and exported to a text file format supported by PHT3D for input into Visual MODFLOW 4.2. The steps below present a brief introduction to creating and exporting the PHT3D input file using AquaChem 5.1, and importing the files into Visual MODFLOW 4.2. This example uses the tutorials provided with the installation of the software packages.

1. Generate the PHT3D Input file in AquaChem 5.1: Open your current database project in AquaChem 5.1. From the main menu, select Tools > Modeling > Generate PHT3D Input



Integrate your field data into our complete suite of software solutions!

2. Export of PHT3D data from AquaChem 5.1: Select the PHREEQC database to be used and the destination of the exported files. Define the appropriate details by browsing through tabs for Solutions, Minerals, Gases and Exchangers. Once complete, select the Export button which will create a solution with the input values specified, launch a PHREEQC simulation in the background and generate results in a text file.



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3. Import of files into Visual MODFLOW 4.2: In a Visual MODFLOW 4.2 project define a variant. To use PHT3D, select this as the Transport Engine. Under the species tab select 'Yes' for the active species. The other input options will be dependant on your project needs. Click 'OK' to close the window.

Variant Parameters

Variant Title: [Var002] Transport Engine:

Description:

Sorption:

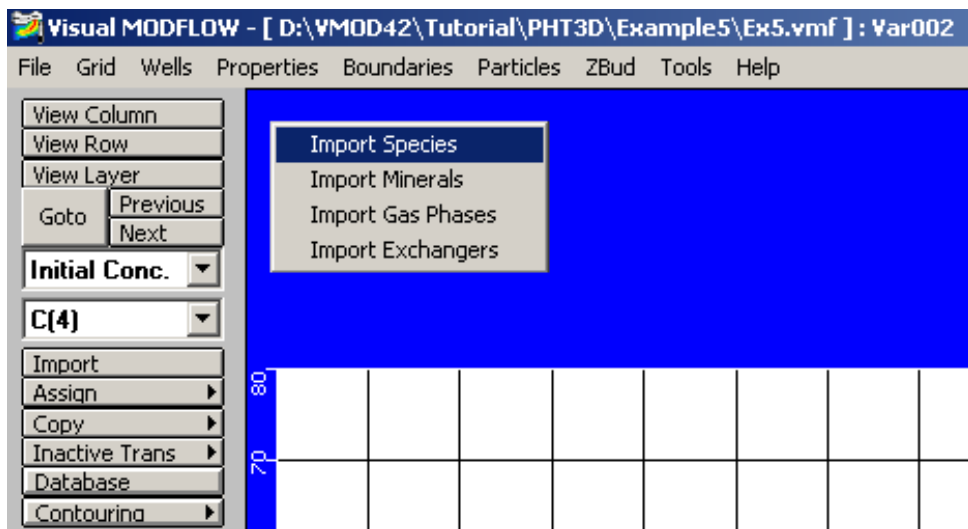
Reactions:

Are the reaction parameters constant or spatially variable?

Designation	Component Description	Mobile	SCONC(mol/L)	Active
C(4)	Total Inorganic Carbon	yes	0	yes
C(-4)	Methane	yes	0	yes
Ca	Calcium	yes	0	yes
Cl	Chloride	yes	0	yes

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4. Import data: From the input menu select Properties > Initial Concentration, then right-click over the grid to select the Import options. You will be prompted to browse to the location of the txt file that was created. Click to open this file.



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5. Initial Concentrations Database: Browse through the list of species on the left hand toolbar; click the Database button to see the value of the species.

Cl Initial concentration			
Zone	Cl [mol/l]	Active	Distribution Array
1	0.00024103	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Integrate your field data into our complete suite of software solutions!

Further information regarding these new features can be found in the PHT3D tutorial provided with the Visual MODFLOW 4.2 installation and in the User's Manual.

For more information, please contact:
Phone: +1-519-746-1798
Email: sws-support@slb.com
Website: www.waterloohydrogeologic.com/support.htm

TOP

Thank you for reading Water Solutions in Perspective.

For more information about Waterloo Hydrogeologic, please visit: www.waterloohydrogeologic.com



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2. After adding the "waterloohydrogeologic.com" domain, go to Tools > Options > Security tab > Download Pictures section > Change Automatic Download Settings button.
3. Select "Permit downloads in e-mail messages from senders and to recipients defined in the Safe Senders and Safe Recipients Lists used by the Junk E-mail filter."