



SWS Enews



Water Solutions in Perspective

March 2007

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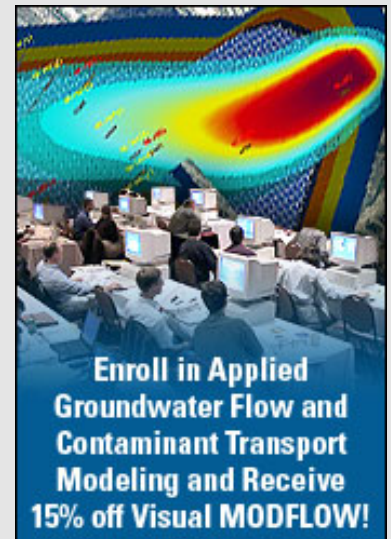
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Enroll in our AFTM Course today, and save 15% on Visual MODFLOW!

Product News

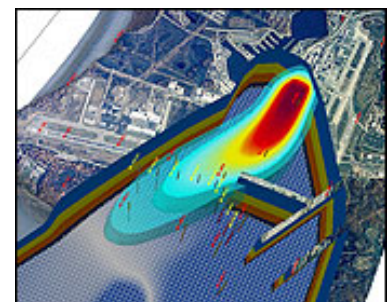
Visual MODFLOW Pro now available in Chinese

Schlumberger Water Services has partnered with Beijing Water International Ltd. to develop our first Chinese release of Visual MODFLOW Pro version 4.1. Visual MODFLOW Pro seamlessly integrates several powerful numeric engines with an easy-to-use graphical user interface. Visual MODFLOW Pro is trusted and used by groundwater professionals around the world!

[Download the Visual MODFLOW Pro Chinese PDF!](#)

Visual MODFLOW Pro Chinese now includes:

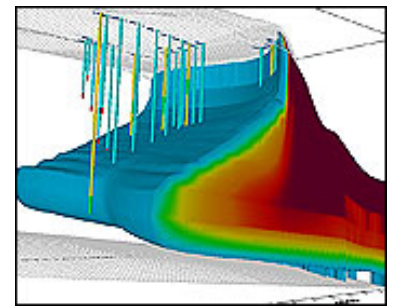
- **SEAWAT-2000**, the latest USGS modeling code designed to address three-dimensional, variable-density and transient groundwater flow conditions
- **MODFLOW-2000**, the world standard for groundwater flow simulations



Visual MODFLOW 3D Visualization

- **MODPATH**, the standard package for forward and reverse particle tracking
- **RT3D**, for reactive transport simulations
- **MT3DMS**, for multi-species contaminant transport simulations
- **Stream Routing Package** for surface water and groundwater interactions
- **Zone Budget**, for sub-regional water budget calculations
- **MGO**, a new package for optimizing pumping well and injection well rates
- **GMG (Geometric Multi-Grid) Solver**, the latest USGS solver designed to optimize memory usage and reduce model run times
- **WinPEST**, a Windows-based version of PEST for automated calibration and sensitivity analysis
- **VMOD 3D-Explorer**, 3D visualization and animation tool for rendering model input and results

For more information on Visual MODFLOW Pro Chinese, please contact Beijing Water International Ltd. at 01186-10-8233-6364



Saltwater Intrusion modeling with Visual MODFLOW Pro



Pumping & Injection Well Modeling



For more information, contact us:
 Phone: +1-519-746-1798
 Email: sws-sales@slb.com
 Website: [Visual MODFLOW Pro Chinese PDF](#)

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Efficiently Analyze and Report Groundwater Data with Diver Dataloggers and AquiferTest Pro Software

Now efficiently manage all phases of your groundwater project with the Aquifer Pumping Test Kit. We have combined our industry trusted [Diver*](#) Dataloggers and [AquiferTest Pro](#) software for pumping test and slug test data analysis – allowing you to quickly record, analyze and report the hydraulic properties of your aquifer(s).

What's included with the Aquifer Pumping Test Kit?

- 5 x Diver dataloggers
- 1 x Baro-Diver (measures barometric pressure)
- 1 x license if [AquiferTest Pro](#) Version 4.1 **NEW**
- 5 x 30ft of Diver Data Cable (DDC)



- 1 x 3ft of Diver Data Cable (DDC) for Baro-Diver
- 1 x DDC to PC Interface cable
- 1 x LoggerDataManager software
- 1 x Pocket-Diver Manager acquisition, storage, and transfer PDA software

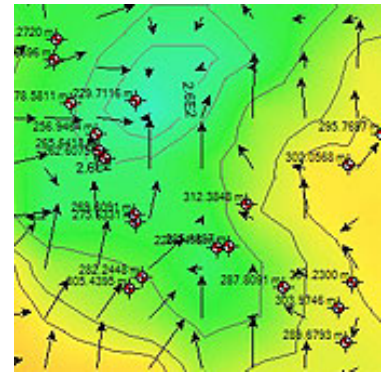
Aquifer Pumping Test Kit benefits:

- Minimize the need for continuous site visits - a major cost savings!
- Optimize your test results via with more data points and greater accuracy
- Diver dataloggers offer a robust, proven technology for collecting groundwater data
- Customize your pumping tests or use pre-determined pumping tests programmed within the Diver
- Efficiently analyze and report your pumping test or slug test data for quick, accurate results
- Variety of analysis methods available for added convenience

Realize the meaning of your groundwater data using the Aquifer Pumping Test Kit!

Learn more about Diver dataloggers - [Click here](#)

Learn more about AquiferTest Pro - [Click here](#)



Monitoring Network



Cera-Diver

Aquifer Pumping Test Kit Special Includes...	
SOFTWARE:	AquiferTest Pro, Pocket-Diver & LoggerDataManager Software
HARDWARE:	5 - Diver dataloggers + 1 Baro-Diver
ACCESSORIES:	5 x 30ft - Diver Direct Cable (DDC), 1 x 3ft DDC for Baro-Diver, 1 x DDC to PC Interface cable



Aquifer Pumping Test Bundle!
AquiferTest Software + Diver Dataloggers!

Contact us to quote your Monitoring Network Kit today!

* - conductivity only available with CTD-Diver



Fill out our [online form](#) to receive your complimentary Monitoring Services CDROM!

For more information, contact us:
Phone: +1-519-746-1798
Email: sws-diver@slb.com
Website: [Visit website](#)

TOP

Oak Environmental Receives Top Distributor Award

Oak Environmental was recognized for their effort in growing the Diver Datalogger brand in Western Canada by receiving the **2006 Schlumberger Water Services Top Distributor Award** in Waterloo, Ontario, Canada in February.

Peter Westerhuis presented the award personally to Business Development Manager Frank Magdich, marking the high point of the successful relationship between Oak Environmental and Schlumberger Water Services. Oak Environmental Inc. builds solutions for the environmental, hydrogeological, geotechnical, mining, and oil and gas industries. Since 1985, Oak Environmental has specialized in the design, manufacture, distribution, installation, rental, and repair of geosciences equipment and instrumentation.



Oak Environmental - 2006 Schlumberger Water Services Top Distributor Award

For more information, contact us:
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Website: [Visit website](#)

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Consulting Services News

Improving groundwater quality understanding in Ontario

As part of Ontario's on-going activities to better understand and manage groundwater resources, Waterloo Hydrogeologic, Inc. has been working to evaluate regional water quality across Southern and Central Ontario. Following the Walkerton inquiry, the quantity and protection (security) aspects of groundwater management have been addressed through other studies. However, characterization of regional groundwater quality throughout gained little attention. As groundwater management efforts in the province move toward source water protection which will consider all activities that may potentially impact water resources within a watershed, a baseline groundwater quality evaluation is essential.

Approach

To develop a solution that matched the requirements of project stakeholders, a web based survey was conducted. This survey revealed important information about how chemical and biological parameters are most commonly stored and analysed in the hydrogeology community. It was identified early, that the ability to combine geology and water quality information was among the most important aspects of this projects. This was achieved by integrating 2 existing

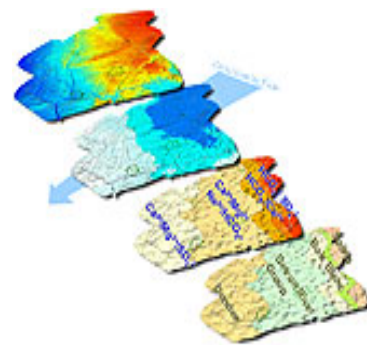


Study Area and Bedrock Geology

data model standards for geology and water quality. Water quality was compiled from numerous electronic sources and over 250 reports. Over 14000 samples were added to the database, quality checked and ranked according to their reliability. An interface to the hydrochemistry interpretation software AquaChem was implemented facilitating statistical analysis and the development of hydrochemistry plots such as Piper and Schoeller plots.

Results

A regional and local water quality study was conducted based on the compiled dataset. Spatial distribution of numerous inorganic constituents from overburden and bedrock wells were analysed and mapped. In a local scale study it was demonstrated how this reference database can be used to make interpretation at a local scale more accurate and efficient.



Water Quality Facies Transitions Through Major Bedrock Aquifers

SWS Exhibiting at Workshops & Conferences Around the World

Upcoming Events

- **AWWA - American Water Works Association 2007 Customer Service and Information Management & Technology Conference and Exhibition**
Dates: March 4-7, 2007:
Location: Austin Convention Center, Austin, Texas
- **Water China**
Dates: March 7-10, 2007
Location: Hall 1A Int'l Pavillion, Guangzhou Int'l Convention Cntr - Guangzhou, China
- **Americana 2007**
Dates: March 20-22, 2007
Location: Montreal Convention Centre - Montreal QC
- **WQA Aquatech USA 2007**
Dates: March 28-30, 2007
Location: Orange County Convention Center - Orlando FL



[Learn more about our Consulting Services!](#)

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Training News

Environmental and Groundwater Modeling Course Line-Up

Waterloo Hydrogeologic has finalized its calendar of training course locations and dates for 2007. We will be offering a full suite of Professional Short Courses on topics ranging from groundwater modeling using finite differences (Visual MODFLOW) and finite elements (FEFLOW), to GIS data management for environmental professionals, aquifer performance test analysis, water quality data management, contaminated site risk assessment and regulatory review of hydrogeology studies. We will also be offering some specific customized courses that were tailored to meet the needs of specific industry sectors. As in other years, we will be offering all of our standard WHI "Open Enrolment" courses at our training facilities in Waterloo, Ontario, Canada as well as at various selected venues around the world.

If you are interested in one of our courses, or if you would like to discuss a customized "On-site Training Course", simply contact our Training Department at sws-training@slb.com and we will work with you to develop a course that provides the content, topics, laboratory exercises and software that you require.

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!



[Download our 2007 Training Course Schedule!](#)

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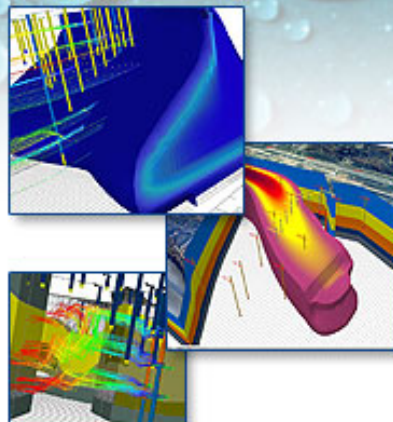
TRAINING COURSE SPOTLIGHT!

Applied Groundwater Flow & Contaminant Transport Modeling

Theory and Hands-on Applications using MODFLOW, MT3D, SEAWAT, MGO and WinPEST



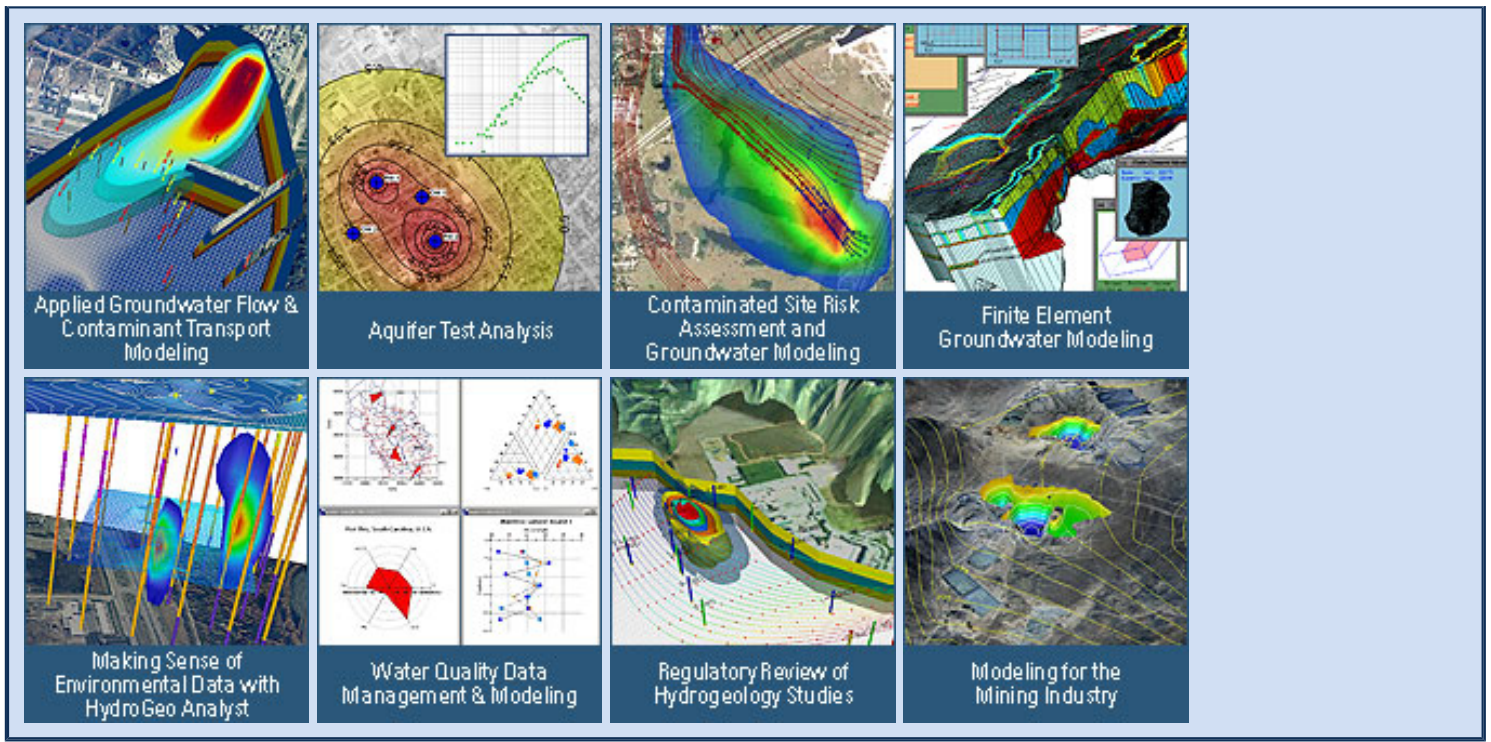
This 4-day applied groundwater modeling course was designed to present the theory behind MODFLOW-2000, MODPATH, Zonebudget, MT3D, SEAWAT and MGO, and to illustrate the practical development of groundwater flow and transport models using Visual MODFLOW Premium.



Course Details: [Visit our website for more details](#)

Registration: [Register online today!](#)

OTHER POPULAR COURSES OFFERED AROUND THE WORLD...



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Tips & Tricks

Importing MODFLOW data sets into Visual MODFLOW v4.2

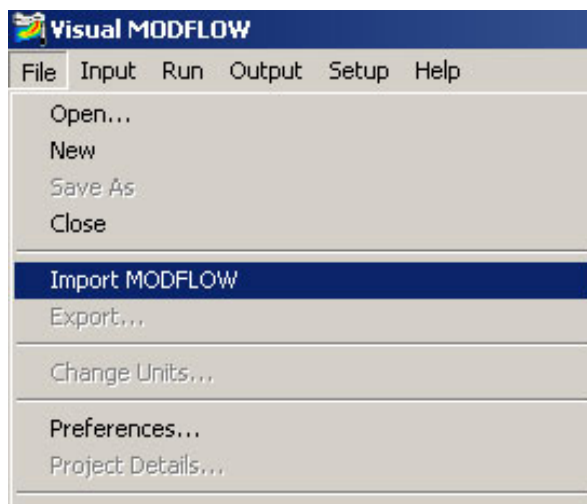
[Visual MODFLOW](#) can import existing MODFLOW data sets provided that the data set is in MODFLOW-2000 format. If the model data set is provided in a format from a previous version of MODFLOW (i.e. MODFLOW-96 or MODFLOW-88) these files must be converted using the USGS conversion utility MF96to2K.exe. This utility can be found within the Visual MODFLOW program folder.

Please ensure all of the MODFLOW files are in the same folder with a .NAM or .MODFLOW.IN file. If these model files have been moved to another location, open this file in a text editor to update the new file locations:

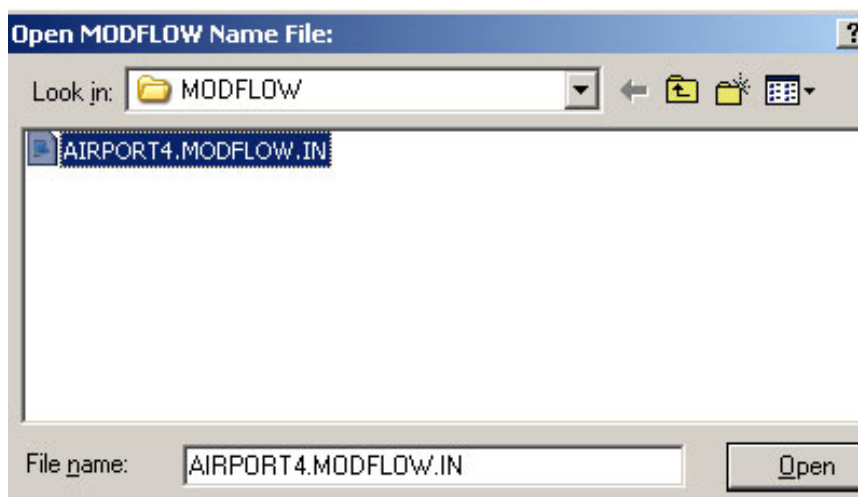
```

AIRPORT4.MODFLOW.IN - Notepad
File Edit Format View Help
LIST      6 D:\MODFLOW\Airport4.MODFLOW.IN
WHS      53 D:\MODFLOW\Airport4.WHS
BAS6     10 D:\MODFLOW\Airport4.BAS
BCF6     11 D:\MODFLOW\Airport4.BCF
WEL      12 D:\MODFLOW\Airport4.WEL
RCH      18 C:\vmodnt\Tutorial\Airport\Airport4.RCH
OC       22 D:\MODFLOW\Airport4.OC
DIS      34 D:\MODFLOW\Airport4.DIS
  
```

To import a MODFLOW data set, select File/Import MODFLOW from the top tool bar of Visual MODFLOW

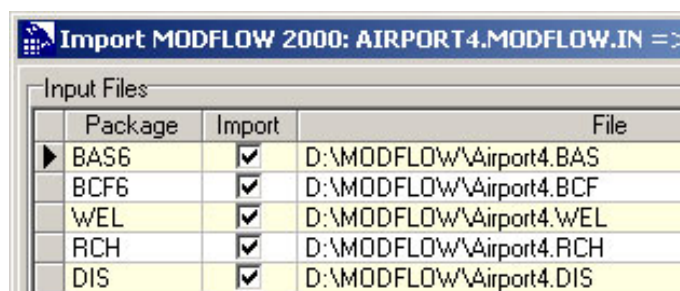


Select the desired model data file and click on the [Open] button to continue.



You will then be prompted to select a Visual MODFLOW project name and location. It is recommended to choose a name different from the original model name so that the original files are not overwritten.

The model data file selection window will appear listing all of the files associated with the model and will indicate which packages will be imported.



Once you have selected the data files to include in the imported model, click the [Next] button to continue. A preview of the layer settings for the imported model will be displayed:

Layer	Layer Type	Top	Bottom	Thickness	Confining Bed
1	03	[16.64, 21.09]	[10.45, 13.26]	[3.387, 9.819]	<input type="checkbox"/>
2	03	[10.45, 13.26]	[4.809, 10.02]	[0.9996, 8.447]	<input type="checkbox"/>
3	03	[4.809, 10.02]	[-1.752, 1.929]	[3.449, 9.013]	<input type="checkbox"/>

Once you have verified the layer dimensions, click the [Next] button to continue. The final step of the import process is for selecting the starting date and time of the simulation, measurement units and default values for selected model properties.

Date/Time		Property Zone Settings	
Start Date	10/13/2003	Import Conductivity as	<input type="radio"/> Distributed
Start Time	12:00:00 AM	Import Storage as	<input type="radio"/> Distributed
Units		Defaults	
Length	meters	Kx	0.0001
Time	day	Ky	0.0001
Conductivity	m/sec	Kz	1E-5
Pumping Rate	m ³ /day	Ss	1E-5

Click the [Finish] button to complete the import process. A confirmation message will appear that the model was created successfully. The model will open in Visual MODFLOW automatically so that you may add additional properties and run the model.



For more information, please contact:
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1. On your Outlook menu bar, go to: Actions > Junk E-Mail > Add Sender's Domain to Safe Sender's List.
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."

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