



# Everglades Geological Society

# BULLETIN

Volume 5, Number 4

December 1998

**Meeting This Month:** December 15, 1998

6:00 P.M. at the Morgan House Restaurant & Trading Post

*(social hour starts at 5:00)*

**Speaker:** Dr. Weixing Guo

**Topic:** Simulation of Saline/Fresh Water

Flows Using MODFLOW/MT3D

*(abstract on page 3)*

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**Everglades Geological Society**  
**P.O. Box 61684**  
**Fort Myers, FL 33906**

The Everglades Geological Society is an organization which seeks to promote interest in and understanding of Geology and the related Earth Sciences, and to provide a common organization for those individuals interested in geology and the related earth sciences.

The Bulletin is a monthly (September-June) publication of the Everglades Geological Society, Inc.

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**EGS MEETING THIS MONTH AT:**

Dave Kelly

Joe Ball



**2207 First St. Fort Myers, Florida 33901 • 337-3377**

**Upcoming Events:**

We are pleased to announce the January speaker will be AAPG Distinguished Lecturer John R. Underhill. John will speak on Monday, January 18, 1998 on the role of propagating normal faults in controlling sequence variability and sediment dispersal in rift systems. We would like to encourage all members to attend the Everglades Geological Society's first visiting AAPG lecturer. The Monday meeting is currently scheduled to meet at the Morgan House. Stay tuned for any additional information.

On February 16<sup>th</sup>, Sarah Kruse from the University of South Florida will speak on ground penetrating radar and seismic surveying in the Big Cypress Swamp.

**Looking for Field Experiments:**

Marie-Laure Vigneron will be visiting South Florida from England to research and film a documentary on the Everglades for PBS. She would like to film geologists at work (field trip, drilling or other field work) while here. She would like to film between January 18 and February 2, so if anyone is involved in relevant activities and would like to volunteer, please contact her at <Marie.vigneron@walltowall.co.uk.>, or

# **Simulation of Saline/Fresh Water Flows Using MODFLOW/MT3D**

**Weixing Guo, PhD.**  
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Fort Myers, FL 33919  
e-mail: missimer@peganet.com

## **ABSTRACT**

Sea water intrusion has caused problems in many part of the world. To address these problems, a number of numerical models have been used to simulate the flow of saline/fresh water, treating water density as a function of salinity. A new computer program, SEAWAT, is developed by coupling a modified version of MODFLOW to the popular transport code, MT3D. Density terms are added to MODFLOW, and flow is calculated from fresh water head gradients and density difference terms. The resulting flow field is passed to MT3D for concentration calculation; a new density field is then calculated and fed back into MODFLOW. SEAWAT has been tested in solving several problems and has yielded good agreement with published solutions. It can be applied to horizontal or sloping aquifers, and it can be used for three-dimensional simulations.

SEAWAT provides a convenient tool for the simulation of variable-density flow, in that it utilizes familiar software. All the major features of MODFLOW and MT3D are preserved. Except for minor changes in the MODFLOW Basic Package input file, input files for SEAWAT are identical to the standard MODFLOW/MT3D input files, and they can be generated using any existing preprocessor programs for MODFLOW/MT3D.

## **BIOGRAPHY**

Dr. Weixing Guo is a Senior Hydrogeologist at Missimer International, Inc. He received his BS in geology from Chengdu College of Geology in 1983, his M.S. in physical geography from Chinese Academy of Sciences in 1986, and his Ph. D in hydrogeology from The Pennsylvania State University in 1993. He worked with S. S. Papdopulos & Associates, Inc. from 1993 to 1997, and joined Missimer International, Inc. early this year.

Weixing has more than five years of experience in modeling both groundwater flow and solute transport, and his primary interests are in air flow in porous media, saltwater intrusion and other non-linear problems. He is the author of several commercially available computer software packages: MODAir, P3Dai, and SEAWAT. Dr. Guo has extensive experience using MODFLOW and he provides technical support to MODFLOW users world wide. In July, Weixing taught the first MODFLOW

# APPLICATION FOR MEMBERSHIP

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*(Not required if Active member of society listed above)*

Type of Membership Approved:

\_\_\_\_\_ Date:

## PRESIDENT'S MESSAGE

Paul Attwood

### **"Spam" for Christmas**

My wife has this friend in Las Vegas who sent us some "funny sayings" the other day. Sooo...instead of composing a lengthy President's message filled with tidbits that only a few will find useful, I've decided to pass along these amusing statements found on actual products:

1. On hairdryer instructions...

"Do not use while sleeping."

2. On a bag of Fritos...

"You could be a winner! No purchase necessary.  
Details inside."

3. On a bar of Dial soap...

"Directions: Use like regular soap."

4. Frozen dinner that says...

"Serving suggestions: Defrost."

5. On a hotel-provided shower cap...

"Fits one head."

6. On Tesco's Tirimisu dessert...

"Do not turn upside down." (printed on the  
bottom of the box)

7. On Marks & Spencer bread pudding...

"Product will be hot after heating."

8. On packaging for a Rowenta iron...

"Do not iron clothes on body."

9. On Boots' (Rx chain in the U.K.) children's  
cough medicine...

"Do not drive a car or operate machinery after  
use."

10. On Nytol...

"Warning: May cause drowsiness."

11. On a Korean kitchen knife...

"Warning: Keep out of children."

12. On a string of Chinese-made Christmas  
lights...

"For indoor or outdoor use only."

13. On a Japanese food processor...

"Not to be used for the other use."

14. On Sainsbury's peanuts...

"Warning: Contains nuts."

15. On a packet of American Airlines peanuts...

"Instructions: Open packet, eat nuts."

16. On a Swedish chainsaw...

"Do not attempt to stop chain with your  
hands "

## CALENDAR

DECEMBER 1998

**Dec. 6-10** American Geophysical Union, ann. mtg., San Francisco, Calif. (American Geophysical Union, Meetings Dept., 2000 Florida Ave., Washington, D.C. Phone: 202/462-6900. Fax: 202/328-0566. E-mail: [meetinginfo@kosmos.agu.org](mailto:meetinginfo@kosmos.agu.org). WWW: <http://www.agu.org>).

**December 8-9**, Geosynthetic Institute Annual Conference: Lessons Learned from Geosynthetic Incidents, Philadelphia, Pennsylvania. Information: Marilyn Ashley, Geosynthetic Institute, 475 Kedron Ave., Folsom, PA 19022-8440, (610) 522-8440, fax 610-522-8441.

**Dec. 13-16** National Ground Water Association National Convention and Exposition, Las Vegas, Nev.(NGWA. Phone: 800/551-7379. Fax: 888/440-NGWA)

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**January 10-15**, American Meteorological Society 79th Annual Meeting & Exhibition, Dallas, Texas. Information: AMS, 45 Beacon Street, Boston, MA 02108, (617) 227-2425, fax 617-742-8718, [hallgren@ametsoc.org](mailto:hallgren@ametsoc.org).

**January 19-21**, Applications of Remote Sensing and GIS for Disaster Management, Washington, D.C. Information: Greg Shaw, George Washington University VA Campus, 20101 Academic Way, Suite 220B, Ashburn, VA 20147-2604, (703) 729-8271, fax 703-729-8272, [gshaw@gwu.edu](mailto:gshaw@gwu.edu), <http://www.gwu.edu/~cms/gis/>.

**February 7-10**, International Society of Explosives Engineers 25th Annual Conference on Explosives and Blasting Technique, Nashville, Tennessee. Information: Lynn Mangol, 29100 Aurora Rd., Cleveland, OH 44139, (440) 349-4004, fax 440-349-3788, <http://www.isee.org>.

**March 1-3**, 13th International Conference and Workshops on Applied Remote Sensing, Vancouver, British Columbia. Information: ERIM Geologic Conferences, Box 134008, Ann Arbor, MI 48114-4008, (734) 994-1200, ext. 3234, fax 734-994-5123, [wallman@erim-int.com](mailto:wallman@erim-int.com), <http://www.erim-int.com/CONF/conf.html>.

**Mar. 1-4** Society for Mining, Metallurgy, and Exploration, ann. mtg., Denver, Colo. (SME, 8307 Shaffer Parkway, P.O. Box 625002, Littleton, Colo. 80162-5002. Phone: 303/973-9550. E-mail: [smenet@aol.com](mailto:smenet@aol.com))

**March 25-26**, GSA Southeast Section Meeting, Athens Classic Center, Athens, Georgia. Submit completed abstracts to Michael F. Roden, Dept. of Geology, University of Georgia, Athens, GA 30602-2501, (706) 542-2416, [mroden@uga.cc.uga.edu](mailto:mroden@uga.cc.uga.edu). (Abstract deadline: December 14, 1998.)

**Mar. 25-28** National Earth Science Teachers Association, ann. mtg., Boston, Mass. (NESTA, 2000 Florida Ave., N.W., Washington, D.C. 20009. Phone: 202/462-6910. Fax: 202/328-0566. E-mail: [fireton@kosmos.agu.org](mailto:fireton@kosmos.agu.org))

**April 10-14**, 7th Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst, Harrisburg, Pennsylvania. Information: Gayle Herring, P. E. LaMoreaux and Associates, Inc., 106 Administration Rd., Oak Ridge, TN 37830, (423)

**June 20-24**, Coastal Sediments '99: Scales of Coastal Sediment Motion and Geomorphic Change, Long Island, New York. Information: Nicholas C. Kraus, USAE Waterways Experiment Station, Coastal & Hydraulics Laboratory (CEWES-CC), 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, (601) 634-2016, <http://www.coastalsediments.org>.

**June 21-24**, Fourth International Airborne Remote Sensing Conference and Exhibition, Westin Hotel, Ottawa, Ontario. Information: ERIM Airborne Conferences, Box 134008, Ann Arbor, MI 48113-1008, (734) 994-1200, ext. 3234, fax 734-994-5123, [wallman@erim-int.com](mailto:wallman@erim-int.com), <http://www.erim-int.com/CONF/conf.html>.

**June 21-24**, International Gemological Symposium, San Diego, California. Information: Dona Dirlam, Gemological Institute of America, 5345 Armada Dr., Carlsbad, CA 92008, (760) 603-4154, fax 760-603-4256, [ddirlam@gia.edu](mailto:ddirlam@gia.edu). (Abstract (poster) deadline: October 1, 1998.)

**June 26-July 1**, Clay Minerals Society 36th Annual Meeting, Purdue University, West Lafayette, Indiana. Information: Patricia Jo Eberl, Clay Minerals Society, P.O. Box 4416, Boulder, CO 80306, (303) 444-6405, fax 303-444-2260, [peberl@clays.org](mailto:peberl@clays.org). November 9, 1998

**Sept. 12-15** American Association of Petroleum Geologists, int'l. mtg., Birmingham, England. (AAPG Conventions Dept., P.O. Box 979, Tulsa, Okla. 74101-0979. Phone: 918/560-2679. Fax: 918/560-2684)

**Oct. 5-8** American Institute of Professional Geologists, ann. mtg., Anchorage, Alaska. (AIPG, Suite 103, 7828 Vance Dr., Arvada, Colo. 80003. Phone: 303/431-0831. Fax: 303/431-1332. E-mail: [aipg@netcom.com](mailto:aipg@netcom.com))

**Oct. 25-28** Geological Society of America, ann. mtg., Denver, Colo. (Becky Martin, GSA Meetings Department, Box 9140, Boulder, Colo. 80301-9140. Phone: 303/447-2020, ext. 164. Fax: 303/447-1133)

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**Apr. 6-9** National Earth Science Teachers Association, ann. mtg., Orlando, Fla. (NESTA, 2000 Florida Ave., N.W., Washington, D.C. 20009. Phone: 202/462-6910. Fax: 202/328-0566. E-mail: [fireton@kosmos.agu.org](mailto:fireton@kosmos.agu.org))

**Apr. 16-19** American Association of Petroleum Geologists, ann. mtg., New Orleans, La. (AAPG, 1444 So. Boulder Ave., P.O. Box 979, Tulsa, Okla. 74101-0979. Phone: 918/560-2639. Fax: 918/560-2626)

**May 7-11** Salt Symposium, The Hague, The Netherlands. (Secretariat Organizing Committee 8th World Salt Symposium, PO Box 25, 7550 GC Hengelo Ov, The Netherlands. Phone: 31 74 2443908. Fax: 31 74 2443272. E-mail: [Salt.2000@inter.NL.net](mailto:Salt.2000@inter.NL.net))

**Oct. 11-15** American Institute of Professional Geologists, ann.mtg., Milwaukee, Wis. (AIPG, Suite 103, 7828 Vance Dr., Arvada, Colo. 80003. Phone: 303/431-0831. Fax: 303/431-1332. E-mail: [aipg@netcom.com](mailto:aipg@netcom.com))

**Nov. 13-16** Geological Society of America, ann. mtg., Reno, Nev. (GSA Meetings, Box 9140, Boulder, Colo. 80301-9140. Phone: 303/447-2020, ext. 164. Fax: 303/447-1133)