



The Hydrogeologist

Newsletter of the
GSA Hydrogeology Division

October 1999
Issue No. 51

Message from the Chair

In the June *Hydrogeologist*, I examined some of the changes that have occurred to the hydrogeology discipline in the 40 year history of our Division. I noted that the field has become increasingly interdisciplinary and that only by combining knowledge from hydrogeology, geochemistry, biology, engineering, and other fields can we address complex questions about water resources, develop new tools, and understand processes that control the movement and transport of fluid phases. Our meeting program reflects the interdisciplinary nature of our work, and this year you will find a record number of sessions on a broad range of topics (see our program listing for the 1999 Denver meeting). In this issue I would like to focus on the strengths of the Hydrogeology Division and discuss why scientists should continue to support the Division. The Division has evolved from a struggling group in the 1960's to one of the three largest Divisions in GSA. Although our membership is about 33% lower than our all time high in 1989, it has been stable ($1,340 \pm 12$) for the last 5 years (1995 through 1999). Our membership stands at 1,333 as of September 1999.

First, let's look at the health of the discipline. Many Universities have established programs in hydrogeology, and societal concerns over water issues remain high. One indicator that the discipline is healthy is the record number of abstracts submitted in hydrogeology for the annual meeting in Denver. Clearly, the discipline is not expanding as rapidly as it was 10 years ago; however, Universities are attracting excellent students and some consulting companies are expanding. Government hiring is low because of constraining budgets, and non-permanent positions are easier to find than are permanent positions. This may point to a problem in the discipline; that is, career-developing positions are not as readily available as they were several years ago. Nationally, more emphasis is being placed on water issues and this may lead to more opportunities for professionals in the future. For example, the National Research Council has established a Committee on Hydrologic Science which will address various topics (currently looking at the U.S. Global Change Research Program) and a document is in progress to outline a framework for reassessment of basic research and educational priorities in hydrologic sciences at the National Science Foundation. Although some of this emphasis on

hydrology is driven by the concern over climate change and the distribution of surface water, ground water is a major continental reservoir of water and must be a component in any examination of hydrologic budgets.

The question is, why are we not growing at a time when the discipline is healthy? Possibly because we don't communicate well enough about the advantages of joining professional societies and the divisions that represent specific disciplines. In looking at the Hydrogeology Division, there are at least two major reasons why scientists should support the Division: (1) for professional interactions and (2) as an investment in the future of the discipline. Consider these two reasons in more detail. Professional interactions, such as participation in technical sessions, are a major reason to be a part of a professional society. In four days at GSA, a scientist can find out what exciting new directions are emerging in a field, determine how their work contributes to the development of answers to large scientific questions, and meet with colleagues. The Division reception, luncheon, business meeting, Birdsall-Dreiss lecture, and student reception, all held on Tuesday afternoon for convenience, provide an informal atmosphere to see colleagues and to meet new people. The second reason individuals should support the Division is as an investment in the future. Many of our resources go to support activities

Continued on page 2



Mary Jo Baedecker
Chair
Hydrogeology Division

that benefit students, such as student grants, travel for the Birdsall-Dreiss lecturer, and the student reception at the annual meeting. We should be willing to look beyond our individual needs to invest in the future of the discipline. I urge you to support the Division, pay your dues (only \$8 for professionals and \$3 for students per year), attend regional and national meetings, and volunteer to make the Division a strong leader in the hydrologic sciences.

I want to mention several individuals who deserve special recognition for service to the Division this year. Bill Simpkins, at Iowa State University, is serving as our Technical Program Chair and he has had a very successful year planning and organizing our annual program for the Denver meeting. GSA received 3,000 abstracts with the Hydrogeology Division receiving about 350, which is the largest number of abstracts that we have had submitted. Carol Wicks, at the University of Missouri at Columbia, served as our representative to the environmental geoscience discipline and she helped organize about 140 abstracts. Ira Sasowsky, at the University of Akron, is serving as our Newsletter Editor and he has the task of getting the articles, formatting the newsletter, and working with GSA to distribute the letter by email (some members are receiving copies by mail at their request). We received positive responses about being able to vote electronically this year and the response was greater, about 200 votes which is 17% of our membership compared to 5.6% of our membership who voted in 1998. David Diodato, at the U. S. Geological Survey, is serving as our webmaster and has redesigned our web page which includes the addition of a link called "job listings" that connects to "The Hydrogeologist's Home Page" and therein lists employment opportunities, software

packages, and other interesting topics. Other individuals, including our management board members, committee members, regional representatives, council members, and representatives to other societies provide many hours of service to GSA and to the Hydrogeology Division. Our regional and annual meetings do not happen by accident and are possible only because a large number of people devote their time and energy to committee assignments and developing programs. We greatly appreciate your efforts.

As you know, Donald Davidson, the executive director of GSA resigned as of June 30, 1999, and Sara Foland has taken over as the new CEO. GSA is undergoing organizational restructuring at Headquarters in Boulder. In her vision for the future Foland says, "we need to leverage strategic partnerships with other organizations, to avoid redundant effort and make the best use of available resources." Pat Chenworth, the Division Contact at GSA, is an invaluable source of information and advice. Pat and the other staff members at GSA are diligently working toward a successful meeting in Denver.

I look forward to seeing you in Denver at our annual meeting. We have an excellent technical program and I hope that you will attend our reception, luncheon, and business meeting on Tuesday, October 26, 1999, at 12:00 p.m. at the Marriott Hotel. At the luncheon, we will honor Edward A. Sudicky as the O.E. Meinzer Award recipient and Warren W. Wood and Richard R. Parizek as the Distinguished Service Award recipients. The Hydrogeology Division welcomes your viewpoints and encourages your participation in our technical sessions and activities.

Visit our web site at
<http://www.uakron.edu/geology/gsahydro>


Feature Article

Barnstorming for Hydrology

By Stuart Rojstaczer

I only had an inkling of what I was getting into when I signed up for the Birdsall-Dreiss lecture tour. Before I began, I just knew about the logistics: thirty-five stops and fifty-five days on the road. Once I started, I understood that I was in for a truly unique experience. Travelling from school to school, I encountered typical and atypical mishaps (some funny in hindsight, others best forgotten) associated with travel, and perpetual fatigue caused by my inability to sleep in hotels. On the plus side, I was able to meet a fair number of interesting people and take the pulse of hydrology and the earth sciences in the academic world of North America.

I was invited to far more schools than I could possibly visit, and I apologize to those whose invitations I had to decline. In organizing my itinerary, I picked a broad mix of schools to visit: flagship state schools, satellite state campuses, private research universities, and liberal arts colleges. In a



The Hydrogeologist

The Hydrogeologist is a publication of the Hydrogeology Division of the Geological Society of America. It is issued twice a year, to communicate news of interest to members of the Hydrogeology Division. During 1998, the publication moved from paper-based to electronic media. The electronic version may be accessed at: <http://www.uakron.edu/geology/gsahydro/>. Members of the Hydrogeology Division who have electronic mail will receive notification of all new issues. Other members will continue to receive paper copies.

Contributions of material are most welcome, and should be directed to the Editor. Submission via ASCII (text) is most expedient.

Ira D. Sasowsky, Editor
The Hydrogeologist
University of Akron
Akron, OH 44325-4101

voice (330) 972-5389
fax (330) 972-7611
email ids@uakron.edu

**Deadline, Spring Issue:
March 1, 2000**

minor attempt at hydro-evangelism, I tried to visit a good number of schools that had no hydrology faculty. I also tried to achieve broad coverage of the continent, from Alaska to Florida, from California to Massachusetts.

What did I find on my journeys? One piece of good news is that hydrology continues to be increasingly accepted in earth science departments across the country. This doesn't mean by a long shot that hydrology is fully accepted as a legitimate aspect of earth science research in North America. As partial evidence of the lack of full acceptance, I note that I received very few invitations from the elite private universities in this country. The earth science departments at places like Harvard and Yale continue to view hydrology as a pedestrian area of study.

But in places where hydrology faculty are in place, there is now, if not an outright appreciation of these faculty by those in traditional aspects of geology, at least a realization that an earth science department often benefits by having hydrology faculty. Thankfully, the era when hydrology faculty were begrudgingly hired, and frequently misunderstood and unappreciated by colleagues in earth science departments is coming to a close.

Another piece of good news is that hydrology is broadening from its engineering roots. To be sure, examination of very practical water resources problems continues to be done at universities across the country. But in addition, to such "operational" hydrology research, there continues to be slow and steady growth in research to understand the fundamental underpinnings of hydrologic processes.

Frequently this type of research is highly interdisciplinary and has the ability to provide valuable information not only to the hydrology community, but also to geologists, atmospheric scientists and ecologists. My own view is that a necessary component to establishing hydrology's legitimacy as a fundamental science depends on continued growth in fundamental research on the hydrologic cycle and its interactions with the biosphere, atmosphere and lithosphere. I hope that funding will continue to be available to support such research.

Now for the bad news. While hydrologic components of earth science departments are doing pretty well or at least holding their own, earth science departments are generally suffering. There are significant exceptions to this rule. Earth science departments in states that are highly dependent on revenue from oil and mining, in good times and bad, continue to support earth science in their public universities. Student interest in earth science in these states not too surprisingly remains fairly strong which also helps matters.

Another exception includes liberal arts colleges that preferentially draw outdoorsy students. These colleges continue to be able to attract students in earth science classes, particularly if their curricula are filled with field trips. I note

that at one such institution, with mountains clearly in view from the campus quadrangle, I lectured to an upper-division structural geology class whose enrollment constituted 1.5% of the entire student body. Finally, departments in research universities that rank highly in National Research Council evaluations, particularly if few non-earth science departments in these institutions rank highly in their respective disciplines, seem to have a halo about them.

But for most departments, the news is not good. It's telling that the most common line I heard from earth science faculty was "Our dean doesn't like us." In most cases it was easy to see why. Geologists dominate earth science departments. The roots of geology, like the roots of hydrology are very practical, and the source of employment for most geologists has historically been dominated by the needs of mining and petroleum companies.

But the market for ore and petroleum geologists underwent a severe decline in the early-to-mid 1980's and that market never has returned to anything close to its old vigor. The need for geologists in the environmental sector has not made up for this decline. Without a strong need for professional geologists, student enrollments in earth science departments, both at the graduate and undergraduate level are in a slump with no end in site.

Unfortunately, from a practical standpoint it is likely that given the diminished need for geologists, the size and number of earth science departments across the country is probably too large. It seems inevitable that there will be downsizing of geology faculty in departments and elimination of many stand-alone geology departments altogether, particularly given the bottom line approach to management of contemporary university administrators. Arguments to administrators that try to justify maintaining earth science departments on intellectual grounds alone will not infrequently fall on deaf ears. In fact, downsizing of the earth sciences in academe has already begun.

In my view, the future of earth science departments would be far healthier if they recognized the limitations of their almost exclusive focus on the solid earth (with a smattering of faculty in near-surface process areas like hydrology). They need to dramatically broaden. I can't help but think that it would be extremely beneficial if we were to redefine our departments so that earth science was inclusive of the entire earth from the atmosphere to the oceans and even at least a part of the biosphere. Such broadening would draw more students and bring in significantly more research funding into these departments.

A few departments I visited were already moving in this

Continued on page 4

direction and incorporating atmospheric scientists, oceanographers and microbiologists into their departments, sometimes at the expense of retiring geology faculty. My prediction is that most earth science departments will follow their lead in an effort to vouchsafe their future.

But enough of trends and predictions. I enjoyed a good deal of my travels. There were many high points along the way, some of which I list here:

Most scenic drive: Laramie, Wyoming to Fort Collins, Colorado at sunset (a geologist's dream drive). Most charmingly tacky drive: Jacksonville to Gainesville, Florida in the afternoon (wonderfully colorful billboards and roadside souvenir stands that brought back memories of my family's many drives to Miami in the 1960's). Most nostalgic visit: University of Wisconsin (many old acquaintances and friends and even some relatives). Most cryptic comment about one of my lectures: "We haven't had someone give a talk like that in years." (Is that good or bad?). Most solicitous and friendly faculty: Arizona State (thanks for helping out with escorting my mom around your building). Best hotel: La Jolla, California (wonderful weather, wonderful beach). Best hotel room: Colorado Springs, Colorado (great bed and a Jacuzzi to boot). Best meal: Philadelphia, Pennsylvania (sea bass to die for). Best regional food: Tuscaloosa, Alabama (catfish in a pretty setting). Best tap water: Vancouver, British Columbia (the wonders of mountain snowmelt). Best gift received: pocket protector with MIT logo (no item could possibly define the word nerd more). Healthiest looking students: Colorado College (they all looked like they could run a 10K without breaking into a sweat). Prettiest campus: Duke University (I realize that I may have some personal bias here, but if you come to visit I think that you'll agree).

My advice to future lecturers is simple: pack light, relax about the inevitable glitches, and don't snow your audience with a lot of math. I want to give special thanks to all who hosted me along the way, Duke University for giving me teaching relief for one semester, and to my wife and daughter who generously agreed to let me go on tour.

New & Notes

Gift to the Hydrogeology Division

Mary Jo Baedecker, Chair of the Division, was informed that the Hydrogeology Division Award Fund is the beneficiary of an accelerated planned gift from Claire B. Davidson. Claire is retired from the U.S. Geological Survey and has been a member and supporter of the Division since 1973. She joined the

Board of Trustees of the GSA Foundation in 1994 and requested that the Foundation transfer her gift to the Hydrogeology Division Award Fund. This will allow us to give more annual awards to student recipients. With the contribution from Claire, the Award Fund of the Division is currently at \$46,000. The Division and the hydrogeology community appreciate the generosity Claire B. Davidson.

Note from the Webmaster

David M. Diodato

For your convenience, mailto URLs have been added to the Committees page of the Division's web page at <http://www.uakron.edu/geology/gsahydro/>. Clicking on the underlined committee member's name should launch your email tool. If any committee member does not wish to have his or her email posted, or prefers a different address, please send a note to Dave Diodato at ddiodato@usgs.gov

AGU Hydrology Section News

Mary P. Anderson

AGU will soon be electing new officers. Hydrologist Steve Burges (Univ. of Washington) is running for President of the Union against Bob Dickinson (Univ. of Arizona). Candidates for officers of the Hydrology Section are: Leslie Smith and Ken Bencala for President-Elect, and Wendy Graham and Brian Berkowitz for secretary.

At the upcoming Fall AGU meeting in San Francisco (Dec. 13-17, 1999) there will be a number of special sessions under a new theme of "Biogeochemistry, Biogeophysics, and Planetary Ecosystems". These sessions include some that will be of interest to hydrogeologists, for example: Wetlands; Transport of Microorganisms in the Subsurface Environment; Assessing the Range of Central North American Droughts and Associated Land Cover Change; Coupled Hydrologic and Ecologic Processes in Arid and Semiarid Environments; Isotopic Tracers of Hydrologic and Biogeochemical Processes. The chairman for these theme sessions is Dork Sahagian (University of New Hampshire, Durham, NH 03824, email- gaim@unh.edu; fax: 1 603 862 3874; ph: 1 603 862 3875).

For many years the spring AGU meeting has been held in Baltimore. For the last two years, however, the meeting was located in Boston. In spring 2000, the AGU meeting will be held in Washington, D.C. (May 30th – June 3rd). It was last held in the Nation's Capital in 1979.

Planning is currently underway for next year's

Western Pacific Geophysics Meeting, which is jointly sponsored by AGU and several Japanese societies, including the Japanese Association of Hydrological Sciences. The meeting will be held in Tokyo during June 27-30, 2000. The hydrology program co-chairs are Harry Lins (U.S. Geological Survey, Mail Stop 415, National Center, Reston, VA 20192-0002 USA; Tel: +1-703-648-5712, Fax: +1-703-648-5070, E-mail: hlins@usgs.gov) and Yuichi Suzuki (6-17-17 Kinunodai Yawara-mura, Tsukuba-gun Ibaraki 300-2436, Japan; Tel: +81-485-391648, E-mail: ysuzuki@risgw.ris.ac.jp). Special sessions are being planned on: Groundwater Contamination and Aquifer Remediation (Fujinawa/Anderson), Subsurface Thermal Studies in Environmental and Groundwater Hydrology (Taniguchi/Sakura/Cermak), Wetlands Hydrology (Tase/Hayashi), Watershed Modeling (Leavesley-Fukami), Sediment Transport (Parker/Fujita), Flood Hazard Analysis (Costa/Suetsugi), Field Experiments (Engman/Fukami), and Hydroclimatic Variability and Trends. For more information about these sessions or to organize a special session contact the hydrology program chairs, Lins and Suzuki.

Upcoming Conferences

Ground Water: A Transboundary, Strategic and Geopolitical Resource AGWSE

Ground water, like many natural resources, knows no political boundaries. A single aquifer system can underlie numerous political entities, with its discharge areas in one jurisdiction and recharge areas in others, and abstraction all throughout its areal extent. Such a physical situation invites contention, be it Colorado versus Nebraska, the United States vs. Mexico, Syria versus Israel, Libya versus Egypt, Las Vegas versus its rural Nevada neighbors, or an Indian Nation versus a state or municipality.

The development of transboundary ground water resources has generated, and will continue to generate, acrimony between states, nations, provinces, Indian reservations and other political entities. As population increases and global change, with its uncertain effects, serves as society's hydrologic sword of Damocles, many regions are increasingly looking to ground water to nurture and sustain their residents and economies. The prospect that pumping wars could lead to shooting wars looms ever larger as we enter the 21st century. But ground water resources can also promote peace and accommodation, as jurisdictions who share a common ground water resource realize that cooperation is the only way to ensure resource protection and sustainability.

Weapons testing and production, military operations and armed conflicts have all taken their toll on ground water. We seek to explore these effects, present case histories and discuss remedies to try to ensure that past disasters are not revisited in the 21st century.

This conference will explore the technical, cultural, legal, economic, military, social and political facets of ground water as a transboundary, strategic and geopolitical resource. It will be held December 13-16, 2000, in Las Vegas, Nevada. We define "transboundary ground water" broadly: ground water that moves across the boundary between any two or more political jurisdictions, be they states, counties, municipalities, provinces, government reservations, irrigation or conservancy districts, Indian reservations, etc. Abstracts will be sought on (but not limited to) the following and related topics:

- Ground water and transboundary ecosystem sustainability
- Ground water as a weapon – pathogen/toxin transport, earthquake generation
- Strategic aspects of ground water
- Ground water contamination related to warfare, military operations, and weapons testing and production
- Transboundary contamination
- Case studies: compacts, treaties, agreements; joint projects; cooperation; and litigation
- Ground water and the peace process
- Flash points
- Enforcement issues
- Water transfers and their effects
- Sustainable management and development; conjunctive use
- Third party impacts and opportunities
- Role of models
- Effects of global change on transboundary ground water

A formal Call for Abstracts will be forthcoming and posted on the NGWA WWW site (<http://www.ngwa.org>). We also seek individuals and organizations who wish to sponsor sessions, symposia or panel discussions. Please contact Michael E. Campana (aquadoc@unm.edu; 505-277-3269) if you wish to do so.

SEPM/IAS Research Conference Environmental Sedimentology: Hydrogeology of Sedimentary Aquifers

This conference will be held September 24-27, 2000 at the Plaza Resolana Conference Center, Santa Fe, New Mexico. Conference topics include: Fluid flow in heterogeneous porous media, Reactive transport/

diagenesis, Aquifer characterization technology, Field trip to Tesuque outcrop study. For further information visit the SEPM web page: <http://www.sepm.org>, and select "Research Conferences".

1999 GSA Annual Meeting Notes

Denver, Colorado - October 25-28

Bill Simpkins, Division Program Chair

This year's meeting had over 2900 abstracts submitted, more than any previous GSA. I handled about 350 abstracts, which is about 100 more than in Toronto. Excluding the 4 poster sessions, we have 20 - 1/2 day sessions and 2 - 1/4 days sessions and that HAS to be a record. The poster session on Wednesday afternoon will have about 55 posters from the 3 poster sessions. This will be a great meeting and I encourage members to stay for the whole thing. Please see the schedule of hydrogeology events elsewhere in this newsletter

Carol Wicks

Environmental Geosciences Representative

Craig Kochel and I were the representatives for the Environmental Geosciences portion of the 1999 Annual meeting of GSA. We had seven sessions to organize, four were topical sessions and three were general sessions. For the one topical session that had overlap with the Hydrogeology Division (Joe Donovan's Acid Mine Drainage session), I worked with Bill Simpkins to assure a good program. The other sessions had focused on aqueous geochemistry of surface waters, surfaces, and sediments.

Geoscientists in the Legal System: The Challenge for the Next Century

Pardee Keynote Symposium

Scott Bair, Steve Wheatcraft & David Stephenson

With increasing frequency, geoscientists are asked to provide expert testimony in public and private disputes related to resource depletion, natural hazards, and resource contamination. Although we are accustomed to communicating our professional opinions through the standard protocols of the peer review process provided by professional meetings and professional journals, communication of professional opinions within the legal system is foreign to most geoscientists and is full of unfamiliar rules, procedures, and pitfalls. The Pardee Symposium is designed to raise the consciousness of our membership in how to be an effective and ethical geoscientist within the context of our adversarial-style legal system.

Our inability to communicate within the legal arena was highlighted in the 1995 award-winning non-fiction book by Jonathan Harr, *A Civil Action*. The story is that of eight families in Woburn, Massachusetts, that filed a lawsuit against three companies alleging that improperly handled chemicals entered the local groundwater flow system, were captured by two municipal wells, and the prolonged ingestion of the contaminated water caused a cluster of childhood leukemias. A Civil Action directed the nation's attention to the difficulty that citizens have in trying to understand the often arcane vocabulary, obtuse concepts, and esoteric methods of analysis used by geoscientists, particularly hydrogeologists. The symposium offers those of us in the Hydrogeology Division and in other GSA divisions insight.

The symposium uses the national interest in the *A Civil Action* and the expert testimony presented at the trial as the backdrop to the more general issues facing geoscientists who willingly or unwillingly participate in the legal arena. To this end we have invited people who participated in the Woburn Toxic Trial to present generalized talks that rely on the Woburn trial for examples and anecdotes. The keynote speaker for the symposium is Jerry Facher, the lead defense attorney for Beatrice Foods, who was portrayed by Robert Duvall in the recent movie. Jerry will present his observations on effective scientific testimony and the difficulties scientific experts face in trying to convey their opinions to the lay jury. The next presentation will be by Jack Guswa, an expert witness who testified for W.R. Grace in the Woburn trial, who will describe the challenges facing a defendant's expert during pre-trial discovery and in court.

Following these two presentations, which are presented from a defendant's view, is a presentation from a plaintiff's view. Duane Miller, the lead attorney for the plaintiffs in the \$500 million DBCP contamination settlement for 19 central valley California cities from a group of chemical manufacturing companies, will present his perspectives on the role of the plaintiff's attorney in civil and environmental litigation. Tom Prickett, a groundwater hydrologist with extensive experience in trial preparation and expert testimony, will then describe the attributes of effective expert witnesses. The final presentation will be made by Judge Lynn Hughes, a federal judge in Houston, Texas, who will describe his views on expert testimony, professional ethics, and junk science — as seen first-hand from the judge's bench. After the presentations the speakers will participate in a panel discussion with the audience.

All of the speakers have been invited to the Hydrogeology Division Luncheon immediately following the symposium. We hope to see you at both events to share in this exciting agenda.

List of Speakers, Times, and Titles

- 8:00 8:10 *Opening Remarks* – Scott Bair
- 8:10 9:00 Jerry Facher – lead defense attorney for Beatrice Foods in Anderson et al. *versus* W.R. Grace et al. – *Keynote Speech - The Role of the Defense Attorney in Civil Litigation*
- 9:00 9:30 Jack Guswa – principal W.R. Grace expert in the Woburn Trial - *View of the Courtroom from the Perspective of a Defendant's Expert*
- 9:30 10:00 Duane Miller – principal in the firm Miller & Sher, worked with the plaintiffs in the \$500 million DBCP contamination settlement for 19 central valley California cities from a group of chemical manufacturing companies – *The Role of the Plaintiff's Attorney in Civil Litigation*
- 10:00 10:30 Tom Prickett – well known consultant and researcher with 20 years experience as an expert witness, testified in the Kansas v. Colorado water rights case heard by the U.S. Supreme Court – *Expert Testimony – How to be Effective*
- 10:30 11:00 Judge Lynn Hughes – federal court judge in Houston – *Overview of Scientific Experts in the Courtroom – Ethics and Junk Science*
- 11:00 11:30 Panel Question and Answer Period
- 12:00 2:00 All speakers invited to the Hydrogeology Division Luncheon

Sudicky to Receive Meinzer Award

The O.E. Meinzer Award is given annually by the Hydrogeology Division to an author or authors of a published paper or body of papers of distinction advancing the science of hydrogeology or a closely related field. The presentation of the award will be at the luncheon and business meeting of the Hydrogeology Division on Tuesday, October 26, 1999, at the Annual Meeting in Denver

The Meinzer Award Committee and GSA Council have selected Professor Edward A. Sudicky of the University of Waterloo, Canada to receive the 1999 O.E. Meinzer Award. In their decision, the following important papers were cited:

Burr, D. T., Sudicky, E. A., and Naff, R. L., 1994, Nonreactive and reactive solute transport in three-dimensional heterogeneous porous media: Mean displacement, plume spreading, and uncertainty. *Water Resources Research* 30 (3): 791-815.

Ibaraki, M. and Sudicky, E. A., 1995, Colloid-facilitated contaminant transport in discretely fractured porous media. 1. Numerical formulation and sensitivity analysis. *Water Resources Research* 31 (12): 2,945-2,960.

Therrein, R. and Sudicky E. A., 1996, Three-dimensional analysis of variably-saturated flow and transport in discretely-fractured porous media: Model development and illustrative examples. *Journal of Contaminant Hydrology* 23 (1-2): 1-44.

Wood & Parizek to Receive Distinguished Service Awards

The 1999 Hydrogeology Division Awards for Distinguished Service will be presented to Warren W. Wood, U.S. Geological Survey, and Richard R Parizek, Pennsylvania State University. The Award was established in 1984 and honors George Burke Maxey, a distinguished hydrogeologist, teacher, and co-founder of the Division. This year's recipients, Warren Wood and Richard Parizek, have provided many years of dedicated service to the Division and to the field of hydrogeology through their research, teaching, mentoring, and consulting. The awards will be presented at the luncheon and business meeting of the Hydrogeology Division on Tuesday, October 26, 1999, at the Annual Meeting in Denver.

Student Research Grant Awards

The Hydrogeology Division Management Board has selected five of the top-rated 1999 recipients of GSA research grants to receive Outstanding Student Awards from the Hydrogeology Division. The Awards are funded from the GSA Student Research Grants Fund and the Hydrogeology Division Award Fund. The following students, listed here with their research topics and advisors, will be recognized at the Hydrogeology Division luncheon and business meeting on Tuesday, October 26, 1999, at the Annual Meeting in Denver.

Elizabeth R. James, Dept. of Geological Sciences, University of Oregon, *Mantle-derived helium and carbon in groundwaters of the Oregon Cascades and implications for quantifying the volcanic carbon dioxide flux*. Project Supervisor: Dr. Michael Manga

Kaveh Khorzad, Dept. of Geological Sciences, The University of Texas at Austin, *Land Subsidence Along the Texas Gulf Coast Due to Oil and Gas Withdrawal*. Project Supervisor: Dr. John M. Sharp, Jr.

Liz McVay, Dept. of Geology, University of Kansas, *Geomicrobial Denitrifying and Nitrifying Characteristics of a Kansas Alluvial Aquifer Influenced by Ammonium*

and Nitrate. Project Supervisor: Dr. Gwendolyn L. Macpherson.

Kristin A. Schultheis, Dept. of Geology, Washington State University, *Mechanisms of Pesticide Transport to Surface Water at the Field Scale in a Dryland-Agricultural Region*. Project Supervisors: Dr. Richelle Allen-King, Dr. Markus Flury, Dr. Jeff Smith.

Timothy Michael White, Geology Dept., Washington State University, *Measuring effects of ecosystem disturbance on the geological sink for atmospheric CO₂ studies in experimental ecosystems in New Hampshire*. Project Supervisor: Dr. C. Kent Keller.

Student Reception & Call for Donations

The annual reception for hydrogeology students will once again be held after the Birdsall-Dreiss Lecture, late Tuesday (See your program for details). This reception provides the opportunity for students and the professional hydrogeologists to meet and become acquainted. There will be munchies and drinks. A special bonus for attending is the opportunity for students to participate in drawings for books, etc. donated to the Hydrogeology Division. Some examples of books donated to date are:

(2) Groundwater in Geologic processes- Cambridge University Press, (3) Physical and Chemical Hydrogeology- John Wiley and Sons, (5) Groundwater and Surface Water- A single resource- USGS, (1) The Planets- Yale University Press, (1) San Francisco Bay, The Ecosystems- AAAS, (1) Regional Ground-Water Quality- Van Nostrand Reinhold, (1) Geology of National Parks- Kendall/Hunt Publishing Company, (1) Contaminant Hydrogeology- Lewis Publishers, (1) Environmental Hydrogeology- Lewis Publishers, (3) Roadside Geology of: Indiana, Hawaii, Maine Mountain Press Publishing, (1) Geology Underfoot in Death Valley and Owens Valley, (1) Groundwater Hydraulics and Pollution, (1) Modeling Density Driven Flow in Porous Media, Springer-Verlag, (1) Water in the Middle East, Springer-Verlag, (1) Ways toward Sustainable Management of Freshwater Resources, Springer-Verlag, (1) Hurricanes, Springer-Verlag, (1) Earth Systems Analysis, Springer-Verlag

Students need only to attend to be eligible for the drawing. Please contact Darryll if you have items to contribute. (402)472-7563, pederson@unlinfo.unl.edu

Look for Mugs at the Denver Meeting to Support Research Grants

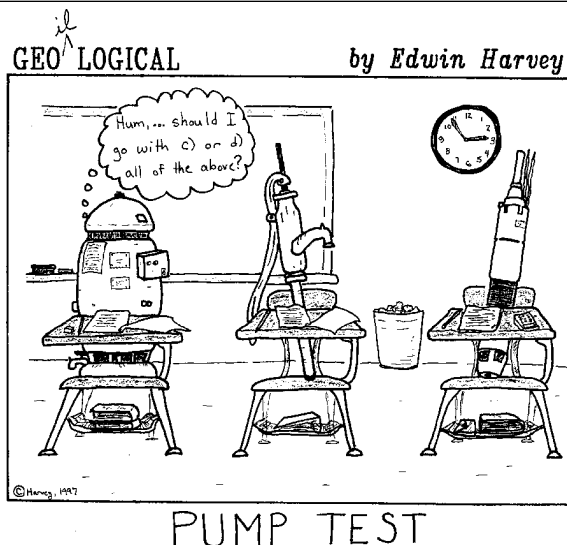
The Historical Committee of the Hydrogeology Division offers mugs that recognize outstanding hydrogeologists of the past. At the Denver Meeting

look for mugs that honor Mahdi S. Hantush (1921-1984) a civil engineer who is recognized for his analytical work on leaky aquifers and well hydraulics and who was the fourth recipient of GSA's O.E. Meinzer award. The mugs were offered last year in Toronto and they will be offered again at the Denver Meeting. The mugs are free in appreciation for contributions (\$25 suggested) to the graduate student research fund, and will be available before the Hydrogeology Luncheon. They may also be ordered from John Van Brahana, University of Arkansas, Department of Geosciences, 113 Ozark Hall, Fayetteville, AR 72701.

Editor's Note

This year is a benchmark of sorts for the Division. On November 3rd of 1999 we will mark our 40th anniversary as a GSA Division. Publication of our newsletter began in 1965, with William Back serving as the editor. Our transition last year to electronic publishing has allowed us to publish more material, and will open additional opportunities in the future. Please keep contacting me with your contributions, comments, and ideas.

Ira D. Sasowsky, Editor
The Hydrogeologist



1999 Hydrogeology Division Program – GSA Annual Meeting, Denver, CO

Monday, October 25

Morning Session

Calibration, Inversion, and Uncertainty of Groundwater Models

Eileen P. Poeter and Mary C. Hill, presiding

Sediments in Karst Systems: Processes, Mechanisms, Interpretation (Oral)

Ira D. Sasowsky, John E. Mylroie, and Victor J. Polyak, presiding

Measurement Techniques and Modeling of Spatial and Temporal Variability in Groundwater Recharge in Response to Past, Present and Future Climates (I)

Bridget R. Scanlon, Alan L. Flint, Lorraine E. Flint, presiding

Impacts of Urbanization on Groundwater Quantity and Quality

William S. Logan and John M. Sharp Jr., presiding

Afternoon Session

Sediments in Karst Systems: Processes, Mechanisms, Interpretation (Poster Session)

Measurement and Description of Flow and Transport in Highly Heterogeneous Systems

Hongbin Zhan and David A. Benson, presiding

Measurement Techniques and Modeling of Spatial and Temporal Variability in Groundwater Recharge in Response to Past, Present and Future Climates (II)

Bridget R. Scanlon, Alan L. Flint, Lorraine E. Flint, presiding

Hydrogeology I: Contaminant Fate and Transport

Philip C. Bennett and Blythe L. Hoyle, presiding

Tuesday, October 26

Morning Session

Pardee Symposium - Geoscientists in the Legal System: The Challenge for the Next Century

E. Scott Bair, Stephen W. Wheatcraft, and David A. Stephenson, presiding

Subsurface Transport, Fate, and Remediation of Nonaqueous Phase Liquid Contaminants in Multicomponent Biogeochemical Systems

John E. McCray and Mark L. Brusseau, presiding

Low Recharge Groundwater Systems (1/4 day)

Todd F. Battey and John A. Izbicki, presiding

Investigations into the Effect of Measurement Scale on Determining Hydraulic Conductivity: Field and Modeling Studies (1/4 day)

Todd W. Rayne and Kenneth R. Bradbury, presiding

Afternoon Session

Hydrogeology Division Reception, Lunch, and Business Meeting 12:00 to 3:30 pm

1999 Birdsall-Dreiss lecture, *Stuart Rojstaczer*, 4:00 to 5:00 pm

Student Reception, 5:30 to 6:30 pm

Wednesday, October 27

Morning Session

Hydrochemistry of Springs

Brian G. Katz and Carol M. Wicks, presiding

Field Scale Hydrodynamic and Geochemical Interactions at the Interface of Groundwater and Surface Water

Thomas C. Winter and William W. Woessner, presiding

Evolution and Remediation of Acid-Sulfate Groundwater Systems at Reclaimed Minesites

Joseph Donovan and David Atkins, presiding

Hydrogeology 2: Groundwater Modeling and Parameter Estimation

Graham E. Fogg and Susan J. Altman, presiding

Afternoon Session

Hydrogeology Posters

Hydrochemistry of Springs – Posters

From Atrazine to Hypoxia to Antibiotics: Occurrence and Fate of Agrichemicals in the Hydrologic System – Posters

NSF Opportunities in the Hydrologic Sciences, L. Douglas James, 4:00 to 6:00 pm

Thursday, October 28

Morning Session

From Atrazine to Antibiotics: The Occurrence and Fate of Agricultural Chemicals in the Hydrologic System

Dana W. Kolpin and Peter B. McMahon, presiding

Dynamics of Mass Transport in Fractured Rocks and Fine-Grained Sediments: Contributions from Laboratory and Field Analyses to Conceptual and Mathematical Modeling (I)

Peter R. Jorgensen and William W. Simpkins, presiding

Hydrologic Resources of Synorogenic Strata

William E. Sanford, Robert G. Reynolds, and Kirk R. Johnson, presiding

Hydrogeology 3: Geological Control of Groundwater Flow and Biogeochemistry

John W. Hess and Maureen A. Muldoon, presiding

Afternoon Session

Dynamics of Mass Transport in Fractured Rocks and Fine-Grained Sediments: Contributions from Laboratory and Field Analyses to Conceptual and Mathematical Modeling (II)

Peter R. Jorgensen and William W. Simpkins, presiding

Sustainability of Water Resources in the High Plains

Marios Sophocleous and Rex Buchanan, presiding

Wetland Hydrology and Geochemistry: The State of the Science

Donald I. Siegel and James LaBaugh, presiding

Hydrogeology Division Contacts

1999 Management Board

Chair: Mary Jo Baedeker [mjbaedec@usgs.gov]
First Vice-Chair: Steve Wheatcraft [steve@hydro.unr.edu]
Second Vice-Chair: Jean Bahr [jmbahr@geology.wisc.edu]
Secretary-Treasurer: John Van Brahana [jbrahana@usgs.gov]
Past Chair: Darryll Pederson [pederson@unlinfo.unl.edu]

Section Representatives

Cordilleran: Kevin Johannesson (khj@nevada.edu)
North Central: Bill Simpkins (bsimp@pop-2.iastate.edu)
Northeastern: Grover Emrich (emrich@aol.com)
Rocky Mountain: Bill Woessner (gl_www@selway.umt.edu)
South Central: Joe Yelderman (joe_yelderman@baylor.edu)
Southeastern: David Evans (dave_evans@ncsu.edu)

Standing Committees

Technical Program Committee:
Bill Simpkins (Chair; bsimp@pop-2.iastate.edu), Mark Person
Nominating Committee:
Don Siegel (Chair; disiegel@mailbox.syr.edu), Jack Hess, Warren Wood
Meinzer Award Committee:
Ward E. Sanford (Chair; wsanford@usgs.gov), Tom Corbett, Lenny Konikow, E. Scott Bair, Barbara Sherwood Lollar
Birdsall-Dreiss Lecturer Committee:
Mark Person (Chair; mperson@darcy.geo.umn.edu), Jefferey Hanor, Stuart Rojstaczer (Lecturer)
Distinguished Service Award Committee:
Grover Emrich (Chair; emrich@aol.com), John Harsh, Stanley N. Davis

Ad Hoc Committees

Historical Committee:
Steve Wheatcraft (Chair; steve@hydro.unr.edu), Paul Seaber
Past Chair's Long-range Planning Committee:
Warren Wood (Chair; wwwood@usgs.gov)
Penrose Conference Committee:
Les Smith (Chair; leslie@geology.ubc.ca), Don Siegel
Technical Program (Environmental Science)
Carol Wicks (geosccw@showme.missouri.edu, coordinated with Engineering Geology)
GSA Committee on External Awards
George M. Hornberger (gmh3k@virginia.edu)
Representatives to Other Societies
American Geophysical Union (AGU) Hydrology Section:
Mary Anderson (andy@geology.wisc.edu)
Assoc. of Ground-Water Scientists and Engineers (NGWA):
Warren Wood (wwwood@usgs.gov)
American Institute of Hydrology (AIH): Joe Rosenshein
GSA Engineering Geology: Tom Holzer (tholzer@usgs.gov)
GSA History of Geology: Paul Seaber (seaber@dri.edu)
GSA Quaternary Geology and Geomorphology: Karen Prestegaard (kp3b@umail.umd.edu)
International Association of Hydrogeologists (IAH): Jack Sharp (jsharp@maestro.geo.utexas.edu)
SEPM: Matt Davis (matt.davis@unh.edu)
Webmaster: David M. Diodato (ddiodato@usgs.gov)
Newsletter Editor: Ira D. Sasowsky (ids@uakron.edu)
GSA Council: Les Smith (leslie@geology.ubc.ca)

Web site location: <http://www.uakron.edu/geology/gshydro>
