



# The Hydrogeologist

NEWSLETTER OF THE HYDROGEOLOGY DIVISION OF THE GEOLOGICAL SOCIETY OF AMERICA

APRIL 1997

## Message from the Chair

### We are on the Web!

Visit the Hydrogeology Division on the Web at <http://gaea.glg.msu.edu/GSAHYDRO/> and list it on your Bookmark! David Long of Michigan State University has designed and uploaded our web page, and with the help of Alan Dutton presents some interesting information, including this newsletter, with more to follow. The site is maintained on the MSU server and linked to GSA's home page. The Management Board appreciates his efforts and skill at making this a super site—you even get the sound of a drop of water splashing when you sign on if you use the Microsoft browser! The web site allows color, much greater in-depth coverage of subjects, and a convenient way to express your opinions as it is linked to the Hydrogeology Division Chair's e-mail address.

Additional division news includes the switch to a Spring election to relieve the last-minute rush before the Fall meeting. Your ballot is attached to this issue of *The Hydrogeologist*. In the future, I hope that all voting will be done electronically as this well-developed technology will save the division about \$1,000  $\text{yr}^{-1}$  in mailing and production costs. To vote, you most likely will need your GSA identification number from the mailing label, your GSA member's card, or your dues statement.

One of the long-term benefits of developing the web site is saving the division money. We are currently spending approximately 10 to 12 percent more annually than we are generating from dues and other sources (such as continuing education courses and historical-mug sales) and are using interest (not principal) from our three endowment funds to make up this difference. This is expressly the purpose of the funds and as long as we can operate within the value generated by interest, all is well. The problem is not critical as we have \$80K in these endowed funds and they should generate annually between \$4K and \$8K in returns. In the past, we have reinvested the interest along with surplus operating funds in

the endowment funds, thus increasing their principal. Our reduced cash flow stems from our declining membership (fig. 1) as approximately 95 percent of our division operating revenue comes from dues. In viewing figure 1, please recognize that there will be some late payments and some new members join throughout the year; historically, however, the majority of the membership is firm by January.

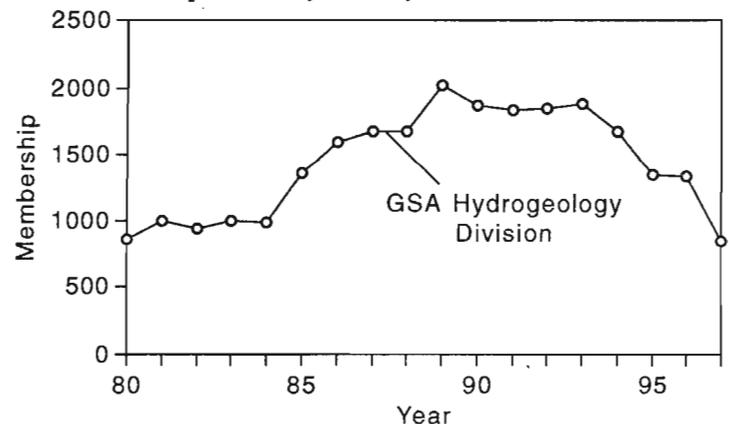


Figure 1. Membership in the GSA Hydrogeology Division.



Warren Wood  
Chair  
Hydrogeology Division

The decline in membership since 1993 is not unique to the Hydrogeology Division, as indicated by the decline in membership of AGWSE over the same time (fig. 2). However, we have experienced a larger percentage decline than AGWSE and ultimately we need to address this issue.

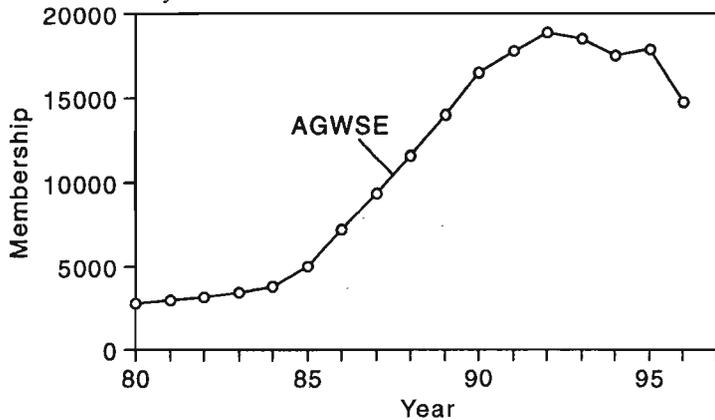


Figure 2. Membership in the Association of Ground Water Scientists and Engineers (AGWSE).

The decline in membership that both professional societies are experiencing parallels the general decline in new employment opportunities in the field of ground water, as represented by the number of job openings advertised in the journal *Ground Water* (fig. 3). Thus we need new members to

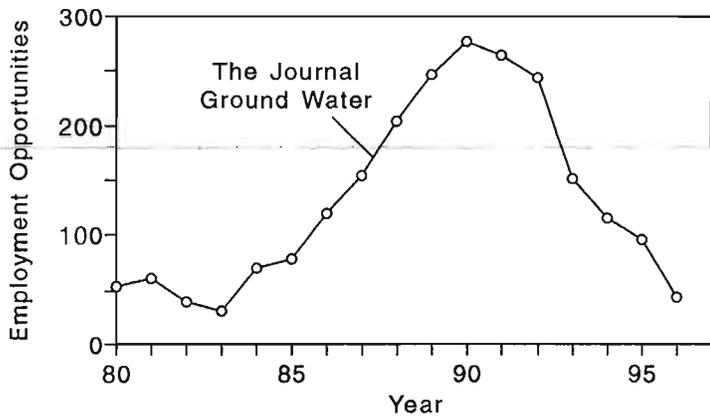


Figure 3. Number of job postings advertised in the journal *Ground Water* since 1980.

replace those who retire and change careers. While there is a history of cyclical employment in the petroleum geology discipline, our discipline might be too young for us to identify the controls on the possibly cyclical employment of hydrogeologists. The bottom line is that the division must accept the reality of lower membership and thus lower income in the near future. We need to recruit hydrogeologists, starting with those who are members of GSA but not of the division.

Table 1 summarizes the division's operating income and expenses for 1996. GSA headquarters will not have the final figures for 1996 until after our publication deadline, so these are estimates rather than final values. Interest from and contributions to the Birdsall, Dreiss, and Award funds are not used for general operating expenses and are not included as income in this budget. Annual meeting expenses include refreshments, snacks, and a room for the student reception; a room for the Birdsall-Dreiss lecture; luncheon tickets for award

Table 1. Income and expenses for 1996.

	Income 1996	Expenses 1996	
Dues	\$8,900	Annual meeting	\$2,000
Mugs sales	\$1,000	Mug production	\$500
Continuing education	\$100	Birdsall, Dreiss, and Awards	\$6,000
		Newsletter production	\$2,500
Total	\$10,000		\$11,000

recipients and citationists; special AV equipment; and miscellaneous other expenses. \$1,100 of the annual meeting expense is for the student reception. The Birdsall-Dreiss lecture costs are for transportation.

We propose to save money in the future by phasing out the hardcopy version of *The Hydrogeologist*—printing and mailing costs are about \$2 yr<sup>-1</sup> member<sup>-1</sup>. You can help the division in this effort by contacting Joe Yelderman (Secretary-Treasurer) and tell him that you decline to receive the paper copy of the newsletter. It is our goal to have a completely electronic version of *The Hydrogeologist* within the next 2 to 3 years. A second, although smaller, cost saving can be realized by eliminating snacks at the student reception, which at \$500 is not a good value.

Your thoughts and comments are appreciated and any suggestions on allocating our resources, generating additional revenue, and adding members will be greatly appreciated.

### Impressions of a Frequent and Fatigued Flyer

by Kirk Nordstrom, 1996 Birdsall-Dreiss Lecture

The experience of being the Birdsall-Dreiss Distinguished Lecturer for 1996 was unique, exciting, inspiring, and unforgettable. I traveled to 36 universities, lectured at 44 institutions including 2 national laboratories, 2 regulatory agencies, and 4 U.S. Geological Survey offices, and had no troublesome disconnections (although my family considered me seriously disconnected). The USGS and some other institutions graciously contributed to some of the airfare. The bad news is that my lecture tour coincided with the two largest furloughs ever experienced by the U.S. government and my own project and my research were (and still continue to be) threatened. I am now an extinguished lecturer.

To all who invited me to your institutions, I wish to extend my most humble thanks—I can't tell you how much your generosity meant to me. I have made several new friends, renewed old friendships, met numerous students working on challenging projects, and enjoyed some very profound and personal discussions. My mug collection has doubled in size (the banana slug mug is my favorite!), and my reprint collection quickly expanded. Requests from within and without the USGS prompted me to make videotapes of both of my lectures. The tapes are made and I am now awaiting the reviews so that I can submit them for approval as USGS Open-File Reports. In 2 to 3 months they should be available for loan or purchasing by the public. Please contact Mike Moore [(415) 329-5009], USGS photo and AV librarian in Menlo Park, CA.

The Birdsall-Dreiss Distinguished Lectureship is one of the more valuable foundations created by a professional society.

I wish to make this point for three reasons—it deserves and needs your financial support, it is unusual among scientific societies, and it is one means of providing unity and coherence for the hydrogeologic community. While I was on tour I thought about how few distinguished lectureships exist in other societies. The opportunity it provides for faculty and students to meet with other professionals in their field and to discuss important scientific, philosophical, and political issues is unparalleled. I discovered that this lectureship is a superb way of keeping hydrogeologists in touch with each other as well as providing scholarly presentations. Perhaps we need to find some innovative ways to support it better, but meanwhile, I urge you to consider giving the Birdsall or Dreiss Funds or both your increased support as a tax-deductible designated gift through the GSA Foundation.

I would like to end with a few comments directed toward hydrogeological education, the future of scientific research, and social-political trends. One of the most common questions from students that I heard was "how can I make the best of my education to better my chances in the job market." My primary response to this question is to broaden your education, develop marketable skills, and learn as much as you can about another field. I once hired a graduate from Stanford who had a double major in geology and English. That worked well for her; the last I heard she had a good job as a technical editor at Woodward-Clyde. Industry and academia have a big need for hydrologists who also know microbiology or chemistry or astronomy, etc. Other combinations that will work with hydrogeology are law, risk assessment, land-use planning, economics, agriculture, industrial production, forensic science, demography, and toxicology. I hope these suggestions encourage some team teaching and the creation of new courses at universities where the expertise exists. I doubt that there are any two subjects that cannot be combined in a creative way to provide better opportunities in the job market. Your original combination of acquired expertise will probably be a winning asset. Our traditional fields of study have been too narrow. We all must expand our knowledge base, learn to cooperate and interact with other scientists, engineers, safety assessors, regulators, lawyers, economists, developers, politicians, and the public. While in school, take every opportunity to improve your communication skills (speech, logic, technical and non-technical writing, literature, and debate). Include some courses in sociology, psychology, and philosophy, because they are an integral part of effective communication.

One aspect of education that I encountered on my tour is related to the evolving programs and curricula in geoscience departments. Most departments have recognized the need to include some type of expertise in hydrogeology. Some departments bring about change by hiring the right type of people, others go further and develop new programs or even new interdisciplinary departments. A few departments, however, have held on strongly to a traditional geology program without hydrogeology or environmental geochemistry. This decision, I feel, is a mistake. A very few departments have attempted to hire in hydrogeology or environmental geochemistry or both without a clear understanding of what those fields are and how they can be combined most effectively with traditional geological subjects.

Sometimes scientists regard hydrogeology as "engineering" or "unscholarly" subjects. I believe that faculty who hold this opinion are far removed from everyday life and are not providing educational services desired and needed by students.

Funding for hydrogeological research is an increasing challenge. It is easier to find additional income in consulting than it is for innovative basic research. This problem is simply part of the larger problem of finding research dollars for science at a time when budget-cutting is the order of the day. Certainly, these are difficult times in general for support of scientific research but the applicability of hydrogeology makes it easier to justify than many other fields. Never lose sight of our relevance to society and remember that sound scientific principles and clear thinking are not only the cornerstone of science but also of the application of science to societal and environmental problems.

## Hydrogeology Programs

### 1997 GSA Annual Meeting in Salt Lake City

A large number and variety of hydrogeology sessions have been proposed for the Annual Meeting to be held in Salt Lake City, October 19-23, 1997. Members of the Hydrogeology Division are encouraged to submit abstracts to these sessions, and above all, to attend the meeting. Questions regarding the hydrogeology program can be submitted to D. Kip Solomon [University of Utah, phone: (801) 581-7231, fax: (801) 581-7065, e-mail: ksolomon@mines.utah.edu]. See your meeting program for final revisions, speakers, titles, and room numbers. All of the theme sessions listed below will not make it, but that won't be determined until the Joint Technical Program Committee meeting in mid-summer.

**Symposia:** The anatomy and attenuation of chlorinated solvent plumes in granular aquifers—John Cherry and David McWhorter, convenors; Recent advances in chemical hydrogeology: A tribute to William Back's 50-year career—Mary Jo Baedeker and Janet S. Herman, convenors.

**Short Courses:** Applications of environmental isotopes to solving hydrologic and geochemical problems—Carol Kendall, instructor.

**Theme Sessions (Hydrogeology Division):** Hydrogeology of continental rift systems; Progress in dating young groundwater; Investigations of transport processes in fractured rock using groundwater tracers; Recent advances in density-dependent fluid flow and solute transport; Isotopic tools for detection of the origin and/or fate of environmental contaminants; DNAPL migration and remediation in fractured rock; Linking fault zone architecture and quantitative fluid flow studies; Approaches to understanding groundwater flow and contaminant transport in carbonate aquifers; Role of natural organic matter in solute fate and transport; Hydrochemistry of poorly confined aquifer systems; Regional groundwater flow and hydrochemistry of basins of internal drainage.

**Field Trip:** Geochemistry and hydrology of the Great Salt Lake—Briant Kimball, Blair Jones, and Kidd Waddell, leaders.

**Other sessions of interest:** Great Basin aquatic geology; Hydraulic properties and diagenetic processes of municipal

solid waste; Conservation geology: restoring and maintaining Earth's ecosystems; Hydrogeology of diagenesis; Hydrogeology of landslides; Geochemical records of hydrologic response to climate change; Trace metals in the environment: sources, transport, and fate; The Bonneville Lake Basin from a global perspective; Arroyos: hydroclimatology, Quaternary geology, and riverine processes; Environmental impacts on western rivers.

### 1998 Annual Meeting in Toronto

Ralph Davis is the Hydrogeology Division Program Chair for the 1998 Annual Meeting, which will be held in Toronto. Please contact Ralph [University of Arkansas, phone: (501) 575-4515, fax: (501) 575-3846, e-mail: ralphd@comp.uark.edu] with your suggestions for theme sessions, symposia, field trips, and short courses. The GSA deadlines are approximately December 1, 1997, for short courses and theme sessions and January 1, 1998, for symposia; however, the sooner the better.

There already are several field trips proposed to the GSA field trip committee. Theme sessions now under consideration include wetlands hydrogeology and hydrochemistry; flow and contaminant movement in fractured rocks, low-permeability flow, and the relationship of secondary porosity and matrix porosity to flow and contaminant movement. We are wide open for good suggestions for theme sessions and symposia at this time. If people have thoughts about additional field trips they need to get them in as soon as possible.

### 1996 Annual Business Meeting Minutes

The 1996 Annual Business Meeting of the Hydrogeology Division, Geological Society of America (GSA) was held on Tuesday, October 29, 1996, in the Marriott Hotel, Denver, Colorado. The meeting convened immediately after the luncheon and awards ceremony.

Steve Gorelick made the citation for the O. E. Meinzer award to John L. Wilson, who then gave his response. Jack Hess then presented the Meinzer Bowl and Certificate to John.

The Distinguished Service Award Committee selected Jack Sharp and Paul Witherspoon. Bill Back presented the citation on behalf of Jack and Shlomo Neuman presented the citation for Paul. Each awardee received an honorary plaque in recognition of his service to hydrogeology and the division.

Darryll Pederson presented certificates to the recipients of the 1996 Student Research Grants: Rachel Ames, Martin Helmke, and William Montgomery.

Kirk Nordstrom was presented both the Birdsall-Dreiss Certificate and the cut-glass plaque by Jack Hess. Jack then announced the 1997 Birdsall-Dreiss Lecturer will be Mark Person. Mark's lecture topics are printed in the September 1996 issue of *The Hydrogeologist*.

The first agenda item was the necrology. Jack Hess requested a moment of silence in memory of Bob Brickshire, Dan Davis, W. Don Davidson, Jim Irwin, and Raymond Laird. The minutes of the 1995 Annual Meeting in New Orleans were approved as published in the April 1996 issue of *The Hydrogeologist*. The motion to approve the minutes was made by Steven Wheatcraft and seconded by Frank Schwartz. The motion passed unanimously.

John Harsh, Secretary-Treasurer, announced the results of the balloting for the Division Officers: Warren Wood, Chair; Darryll Pederson, First Vice-Chair; Mary Jo Baedecker, Second Vice-Chair; and Joe C. Yelderman, Jr., Secretary-Treasurer.

The fund balance as of September 30, 1996, was:

Division General Fund	\$ 8,293.06
Birdsall Fund	\$47,746.61
Dreiss Memorial Fund	\$21,228.14
Award Fund	\$20,882.59

Jack Hess discussed the desire to save money and become more timely with news by replacing the hardcopy edition of *The Hydrogeologist* with announcements and information on the Internet. A straw poll was taken and a large majority of the membership at the luncheon had access to the Internet. The need to save money is partly the result of declining membership over the last several years. The Chair encouraged hydrogeologists to belong to GSA and to the division. Another concern was many of the activities such as the awards reception and luncheon conflict with technical sessions and Council's meeting. Members should contact anyone on the Management Board about their thoughts regarding the luncheon and other activities on Tuesday of the Annual Meeting. Bill Simpkins discussed recent Penrose conferences and encouraged members to send ideas for future conferences. Mary Jo Baedecker reported on the program at the 1996 meeting and stated that although there was an intent to avoid conflicts with division activities and to avoid technical sessions on Thursday afternoon, the large number of papers made it difficult. Kip Solomon passed out a sheet of ideas being considered for the 1997 program. Co-chairs Ralph Davis and Ed Harvey also requested ideas for the meeting in Toronto in 1998. Mark Person, Birdsall-Dreiss distinguished lecturer for 1997, reported he already had 20 lectures scheduled and encouraged anyone interested to contact him as soon as possible.

The meeting was adjourned after the transfer of authority to the new Chair, Warren Wood.

Joe C. Yelderman Jr.  
Secretary-Treasurer  
October 29, 1996

### **Section News**

#### North Central

Bill Simpkins, Section Representative

Hydrogeology activities will move north and east to Madison, Wisconsin, in 1997 for the 31st Annual Meeting of the North-Central Section. Two hydrogeology symposia are planned—Hydrogeology of non-point source pollution (convened by George Kraft and Ken Bradbury) and Hydrogeologic studies in fractured media (convened by Ken Bradbury and Maureen Muldoon)—as well as general hydrogeology sessions. A two-day, pre-meeting field trip is planned to study the hydrogeology and stratigraphy of the Door Peninsula and is led by Mark Harris, Maureen Muldoon, and Ron Stieglitz. Results of tracer tests and permeability studies of the dolomite will be presented on the trip. [No word on whether a stop will be made at the Packer Hall of Fame in

Green Bay.] Another field trip of interest to hydrogeologists— Geoenvironmental problems and solutions, South-Central and Southeastern Wisconsin—is planned as a postmeeting trip. The leaders are Jack Travis, Doug Cherkauer, Joanne Kluessendorf, and Don Mikulic.

## Reports from Representatives to Other Societies

### Association of Ground Water Scientists and Engineers

Warren W. Wood, Representative

It has been a tumultuous year for NGWA. First, last spring they moved into their new headquarters, then they determined they could not afford the facilities and moved out in the fall. Because of a lack of fiduciary responsibility, inept planning, and incorrect projections by the former Executive Director and the Board of Directors, the organization went from over a million dollars in the bank to near bankruptcy associated with a drop of 15 percent in membership. Fortunately, much of this executive bumbling has had relatively little immediate impact

on the journals, education program, Darcy Lecture or other member benefits to AGWSE members. In the long term, however, it delays the hiring a new Science Councilor to replace Robert Farvolden (who passed away two years ago), it restricts the number of pages available for technical articles in the journals, and it eliminates some of the education programs. The new Executive Director, Kevin McCray, is attempting to bring income and expenditures into line by trimming staff and out-sourcing activities, and has started an aggressive membership recruiting program.

The issue of governance (equal representation on the Board of Directors by the four divisions: AGWSE, Contractors, Manufacturers and Suppliers) remains. While AGWSE constitutes approximately 75 percent of the total membership and revenue to NGWA, it has only 12 percent of votes on the Board of Directors, and 2 percent on the Board of Delegates (the rule-making body), a frustrating situation. The issue was brought up at the annual meeting in December and defeated by the Contractors who control the organization.

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## Biographies of Candidates

Following are biographies of the slate of officers for the Hydrogeology Division presented by the Nominating Committee. Please fill out the attached ballot and return to GSA no later than May 30, 1997. The Secretary-Treasurer is a two-year term and is not up for election this year. Election results will be announced at the Annual Meeting in Salt Lake City.

### Nominee for Chair

**Darryll T. Pederson**, born in Valley City, North Dakota, is a Professor of Geology at the University of Nebraska, Lincoln, and a Research Hydrogeologist at the Nebraska Conservation and Survey Division, Lincoln. Darryll received his B.S. in mathematics, chemistry, and physics from Valley City College. He received his M.S.T. in chemistry and physics and a Ph.D. in geology from the University of North Dakota. Darryll has been a long-time supporter of GSA and the Hydrogeology Division, both at the national and regional levels. He was Division Secretary-Treasurer from 1986–1990; he received the Distinguished Service Award in 1994; and he has served on the Management Board and numerous other committees, including the Student Award, Historical Hydrogeology, and Meritorious Service committees. Darryll has also been active in the American Institute of Hydrology where he currently serves on the Board of Registration. Darryll is an AIPG certified professional geologist and an AIH certified professional hydrogeologist. He also is a member of AGU, NGWA, AWRA, Nebraska Academy of Science, and Nebraska Geological Society. He has been an NSF Trainee Fellow and a NASA-ASEE Faculty Fellow. Prior to joining the Conservation and Survey Division and the Geology Department at the University of Nebraska, Darryll was an instructor in the public schools in Hannaford and Fargo, North Dakota, and taught at Minot State College and Appalachian State University. His publications include over 100 articles, abstracts, and reports on ground-water management, water-level declines, effects of agricultural chemicals, and interaction of surface and ground water.

### Nominee for First Vice-Chair

**Mary Jo Baedecker** has been a member of GSA since 1977 and a GSA Fellow since 1995. She is currently the Assistant Chief Hydrologist for Research at the U.S. Geological Survey in Reston, Virginia. She is a graduate of Vanderbilt University and holds a M.S. degree in chemistry from the University of Kentucky and a Ph.D. degree in

geochemistry from The George Washington University. Author or co-author of more than 50 publications on aqueous and organic geochemistry, she is a member of the AGU, ACS, GS, NGWA, and the Geological Society of Washington. She was Darcy Lecturer for the Association of Ground Water Scientists and Engineers in 1993; the Ineson Lecturer for the Geological Society of London in 1994; and is a lecturer at The George Washington University. As a member of the Hydrogeology Division, she served on the Meinzer Award Committee, 1985–1987 (Chair in 1987); Nominating Committee, 1990–1992 (Chair in 1992); and was Program Chair for the 1996 Annual Meeting in Denver.

### Nominee for Second Vice-Chair

**Stephen W. Wheatcraft**, born in Fort Riley, Kansas, on August 4, 1950. Member since 1978. Education: University of Missouri at Kansas City, B.S., 1972; University of Hawaii, M.S. in 1975 and Ph.D. in 1979. Professional experience: Assistant/Associate/Full Research Professor, Water Resources Center, Desert Research Institute, University of Nevada System, 1978–1992 (with joint appointment in the Department of Geological Sciences, University of Nevada, Reno); Professor of Hydrogeology, University of Nevada, Reno, 1993–Present; Associate Director, Interdisciplinary Graduate Program in Hydrologic Sciences, University of Nevada, Reno, 1993–Present. Publications include more than 40 technical reports, book chapters and journal articles on hydrogeology and contaminant transport. Fellow of the GSA and member of AGU, AGWSE, and IAH. Service to GSA and the Hydrogeology Division includes Publications Committee Chair, 1986–88; Program Chair, 1994; Distinguished Service Award Committee member, 1996–present. Associate Editor, Water Resources Research, 1988–93; Associate Editor, GSA Bulletin, 1994–95; Associate Editor, Groundwater, 1996–present. Peer reviewer for a number of journals and granting agencies. 1990–91 Henry Darcy Distinguished Lecturer (AGWSE). Cited twice by the University of Nevada System Board of Regents for outstanding achievement as a faculty member, in 1990. Professional interests include developing methods and theories for improved characterization of geologic heterogeneity for flow and transport modeling; density-coupled flow and transport processes, especially sea water intrusion; unsaturated fracture flow; use of geophysics in groundwater investigations; field and laboratory verification of hydrogeologic processes.

## Hydrogeology Division Organization

Based on the revised division Bylaws, we now have standing and ad hoc committees. The number and tenure of appointments to standing committees are specified in the Bylaws and the Rules and Regulation section. Ad hoc committees are not specified in the Bylaws and must be appointed each year. For example, the Membership Committee expired this year after completing its review of the subject. Representation to other societies also is reviewed annually.

### 1996 Management Board

**Chair:** Warren Wood [wwwood@usgs.gov]

**First Vice-Chair:** Darryll Pederson [pederson@unlinfo.unl.edu]

**Second Vice-Chair:** Mary Jo Baedecker  
[mjbaedec@qvarsa.er.usgs.gov]

**Secretary-Treasurer:** Joe Yelderman [joe\_yelderman@baylor.edu]

**Past Chair:** Jack Hess [jack@snsr.unr.edu]

### Section Representatives

<b>Cordilleran:</b> Kent Keller	<b>North Central:</b> Bill Simpkins
<b>Northeastern:</b> Grover Emrich	<b>Rocky Mountain:</b> Bill Woessner
<b>South Central:</b> Joe Yelderman	<b>Southeastern:</b> David Evans

### Standing Committees

#### Technical Program Committee:

Kip Solomon (Chair), Ralph Davis

#### Nominating Committee:

Frank Schwartz (Chair), Lenny Konikow, Don Siegel

#### Meinzer Award Committee:

Janet Herman (Chair), Frank Chapelle, Steve Gorelick, Berry Lyons, Ward Sanford

#### Birdsall-Dreiss Lecturer Committee:

Chris Neuzil (Chair), Kirk Nordstrom (Coordinator)  
Mark Person (Lecturer)

#### Distinguished Service Award Committee:

Darryll Pederson (Chair), Steve Wheatcraft, Grover Emrich

### Ad Hoc Committees and Representatives

#### Penrose Conference Committee:

Bill Simpkins (Chair), John Cherry, Don Siegel, Les Smith

#### Past Chair's Long-range Planning Committee:

Jack Hess (Chair)

#### Division Historical Committee:

Ira Sasowsky (Chair), William Back, Unnamed

### Representatives to Other Societies

#### American Geophysical Union (AGU) Hydrology Division:

Mary Anderson

#### American Institute of Hydrology (AIH):

Joe Rosenshein

#### Association of Ground-Water Scientists and Engineers (NGWA):

Warren Wood

#### International Association of Hydrogeologists (IAH):

Jack Sharp

#### GSA Engineering Geology:

Tom Holzer

#### GSA History of Geology:

Paul Seaber

#### GSA Quaternary Geology and Geomorphology:

Unnamed

#### GSA Council:

Les Smith

#### Division Web Site:

<http://gaea.glg.msu.edu/GSAHYDRO/>

#### Webmaster:

David T. Long [email: 14790dtl@ibm.cl.msu.edu;

web site: <http://www.ent.msu.edu/~long>]

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Send news by electronic mail or computer diskette. Deadline

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