

The Hydrogeologist

Newsletter of the
GSA Hydrogeology Division

Summer 2017
Issue No. 91



The 2017 GSA Annual Meeting is October 22-25, 2017 in Seattle, Washington and once again the Hydrogeology Division is sponsoring or co-sponsoring a large number of events, 41 technical sessions, a Pardee Keynote, and a post-meeting field trip to the Hanford site. All of these remarkable technical sessions need your help to actually run, so please submit an abstract by the Aug. 1 deadline!

(<http://community.geosociety.org/gsa2017/science-careers/sessions/abstracts>)

This year we are adding a new event to our traditional Hydrogeology Tuesday, "Hydrogeology Division Careers and Networking Event", to provide an opportunity for students and

professionals to network and discuss careers in hydrogeology. The event will include an introductory panel and a roundtable mentoring session. We want to have mentors from a variety of career fields, including government, industry, and academia; so professionals please consider volunteering to be a mentor (contact Kallina Dunkle, dunklek@apsu.edu if interested).

As you make your plans to attend the meeting, don't forget to save room in your schedule for all of our division events:

o Monday afternoon: Henry Darcy Distinguished Lecture by Dr. Kamini Singha

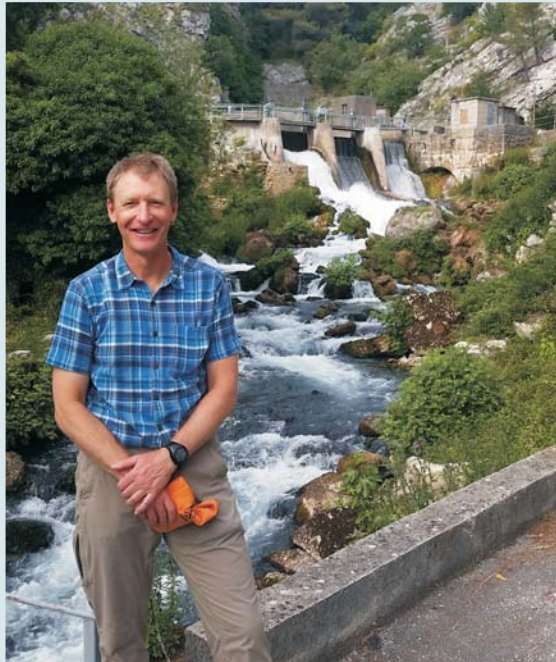
Please see **Seattle** on page 6

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Chair's Corner



**Abe Springer, Chair
GSA Hydrogeology Division**

Hopefully everyone reading this newsletter is doing so while catching up on some valuable summer rest and relaxation, or field work. I just returned from my NAU study abroad course to Bosnia & Herzegovina to study karst hydrogeology and am next traveling to an IAH Regional Groundwater conference in Alberta.

Your Division is gearing up for the annual meeting in Seattle from October 22-25. The GSA annual meeting is the premier meeting for Hydrogeologists on the west coast this year. We especially invite all of our colleagues on the west coast to join us in

Seattle. Kallina Dunkle, our joint technical program lead has worked with all of you to create a comprehensive program, including a field trip and a Pardee Symposium. Please follow the GSA website and our Division's Connected Community for more information on these events. Abstracts are due August 1.

If any of our members have items they would like to contribute to the student reception at Seattle, please contact Tara Root at troot@fau.edu. In addition to the student reception, this year we are debuting a new student mentoring special event. Please look for more details closer to the annual meeting and encourage your students to attend both events.

In the exhibitor hall in Seattle, look for the Hydrogeology Division booth to be co-located with other water-related organizations and societies. We hope to improve the traffic at the booth and raise the visibility of our associated societies and professional partners.

Many of our Division members have contributed their service to nominate and select candidates for our Division awards. We are pleased to announce all of our outstanding award winners, student research award winners, and GSA Fellows in this issue of the newsletter. Please be sure to join us at the Division luncheon in Seattle where we will congratulate all award winners. We recognize the cost of the luncheon budget may not fit everyone's travel budget, so you may join the award ceremony after the luncheon without purchasing a luncheon ticket.

Abe



The Hydrogeologist

The Hydrogeologist is a publication of the Hydrogeology Division of the Geological Society of America. It is issued three times 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://community.geosociety.org/hydrodivision>. 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 and material are most welcome, and should be directed to the Editor. Submission as a Word or WordPerfect document is most expedient. **The deadline for the Fall issue is September 15, 2017.**

Andrea E. Brookfield, Editor
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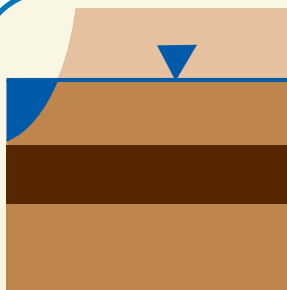
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Technical Sessions and Field Trips sponsored or co-sponsored by GSA Hydrogeology Division

Technical Sessions

- T1. 21st Century Rock Flow Properties and Processes: 3D Printing, Digital Rock Physics, and Hydrogeophysics
- T2. A Showcase of Undergraduate Research in Hydrogeology (Posters)
- T3. Advances in Ground-Source Geothermal Energy: Monitoring and Modeling
- T4. Approaches to Applied Modeling for Industry and the Public
- T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security and Treatment
- T6. Cross-Border Community Engagement Using Geoscience Research, Education, and Outreach
- T7. Diffuse Recharge and Infiltration in Karst and Pseudo-Karst Terrains
- T8. Fate, Effects, and Mitigation of Chemical and Fuel Releases in Surface and Subsurface Environments
- T9. Groundwater Flow in Coastal and Marine Settings: From the Intertidal Zone to the Deep Seafloor
- T10. Groundwater Influenced Ecosystems: Springs, Gaining Streams, and Terrestrial Ecosystems
- T11. Hydrogeology of Island Environments in a Changing Climate
- T12. Hydrogeology, Geochemistry, and Wetland Processes: A Special Session in Honor of the Career of Donald I. Siegel
- T13. In Honor of John M. (Jack) Sharp Jr.: Celebrating over 40 Years of Science, Students, and Stewardship
- T14. Lead Them to Water: Teaching Innovative Hydrogeology
- T15. Monitoring the Complex Nature of Water Balances and Solute Transport at the Groundwater-Surface Water Interface
- T16. Novel Approaches to Mine Remediation: Addressing the Legacy of Hardrock Mining through Innovative and Practical Methods
- T17. Polar and Alpine Changes
- T18. Remote Sensing Applications in Hydrology and Geology
- T19. Springs: Providing Insights on Critical Groundwater Quality and Quantity Issues
- T20. The Critical Zone As Heterogeneous Media: Implications for Physical, Chemical, and Biological Processes
- T21. Using Natural and Anthropogenic Tracers to Determine Recharge and Residence Times within Arid to Semi-Arid Inter-Montane Aquifer Systems
- T22. Water Resources and Management in Coastal and Inland Aquifers- Emphasis on Small Island Developing States of the Caribbean
- T23. Water Sourcing, Disposal, and Induced Seismicity Issues related to Unconventional Shale Oil and Gas Development
- T24. How Nick Crawford's Vision Helped Shape Contemporary Karst Science and Education
- T32. Geoscience on National Forests and Grasslands—Stewardship, Education, and Research
- T35. Urban Geochemistry
- T75. Planetary Climate Disruption Demands Urgent Global Policy Action
- T81. Oil and Gas Waste Waters: Characterization, Treatment, Injection, Uses, and Impacts
- T111. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management
- T118. Integration of Field and Laboratory-Based Experience Towards Designing Pedagogically Sound Curriculum Enhancement Activities in the Geosciences (Posters)
- T119. International Field Experiences in the Digital Age, from Introductory Field Trips to Capstone Course
- T142. What Lies Beneath: How to Build Digital Datasets and Visualize Subsurface Geology Through GIS and 3D Modeling
- T145. Geologic Maps and their Derivatives (Posters)
- T151. Consequences of Fluids in Subduction Zones: From Grain Scale to Plate Boundary Shear Zone
- T154. Imaging the Rock and Fluid Interactions of Geologic Carbon Sequestration
- T167. The History of the Petroleum Industry: Hydraulic Fracturing—The 20th and 21st Century
- T189. Landscapes in the Anthropocene

Please see [Sessions](#) on Page 6



2018 Hydrogeology Division Officer Candidates

The 2017 officer elections will begin shortly. These elections will determine the upcoming Hydrogeology Division Officers. Online voting will begin soon (watch your inbox!) and paper ballots will be mailed to those who have requested them. Here is a preview of the candidates for the 2018 Hydrogeology Division officers:

Chair:

Steve Van der Hoven, Ph.D. 2000, University of Utah, is a Senior Hydrogeologist at Genesis Engineering & Redevelopment, Inc. in Lodi, California, where he is the principal scientist on a variety of projects, with an emphasis on sites contaminated by chlorinated solvents. As an Associate Professor at Illinois State University from 2000-2010, his research interests included using dissolved noble gases to quantify hydrogeologic processes and nutrient cycling between surface water and groundwater, and he taught courses in aqueous geochemistry, contaminant transport, hydrogeologic and geochemical field methods. He is a member of NGWA, served as an Associate Editor for Hydrogeology Journal, was the Kohout Early Career Award Committee Chair (2012-2015), organized the Hydrogeology Division Student Reception at annual meetings (2009-2013), and has organized theme sessions at annual meetings.

Statement of Interest: I have attended GSA meetings since I was an undergraduate, and have been a GSA and Hydrogeology Division member since 1995. One of my main goals as a professor was to prepare the next generation of hydrogeologists, and the Hydrogeology Division supported both my personal goals and those of my students. As an environmental consultant, the Division provides me with access to new ideas and techniques that I can apply to the remediation of contaminated groundwater. As a member of the Management Board, my main objective would be to foster greater interaction between the research and applied hydrogeologist to improve practice of hydrogeology and provide opportunities for students to interaction with non-academic professionals.

1st Vice Chair:

Bill Cunningham, M.S. 1992, The Ohio State University, is the Senior Science Advisor for Groundwater at the USGS in Reston, Virginia and the Chief of the USGS Office of Groundwater. His office provides leadership in the development of techniques for the collection, analysis, and interpretation of groundwater data; applied research and practical applications of hydrogeophysical tools and techniques; and development and oversight of MODFLOW and other USGS groundwater simulation software. Prior to joining the Office of Groundwater, he conducted groundwater investigations in the Ohio and North Carolina Water Science Centers where his work focused on characterization of groundwater contamination and evaluation of groundwater availability through numerical modeling. He is co-chair of the federal Advisory Committee on Water Information Subcommittee on Groundwater, Chair of the U.S. National Committee for the UNESCO International Hydrologic Programme, a fellow of GSA, and a member of AGU and IAH. He served on the GSA Joint Technical Program Committee as a Hydrogeology Division representative from 2009-2010, and was lead organizer for the Hydrogeology Division technical program in 2010. He served as the second-vice chair for the Division in 2016-2017.

Statement of Interest: One of the legendary leaders at my alma mater said that "you can never pay back, so you should always try to pay forward." I have been introduced to many innovative tools and techniques from my GSA experiences over the last two decades. The Division helps me maintain personal and professional relationships, and establish new ones. My main objective as a member of the Management Board would be to enhance the interaction among government scientists, consultants, and academia. It would be my honor to "pay it forward", and serve the Division as a member of the Board.

Please see [Elections](#) on Page 7

Notes from the 2016 Birdsall-Dreiss Lecture Tour

Shemin Ge

Department of Geological Sciences, University of Colorado-Boulder



I always thought the average number of Birdsall-Dreiss lectures given in a year was crazy, so I set a goal of 20 to 30 lectures for myself. That goal was brutally shattered about middle way into 2016, and I stopped counting and continued

the lecture tour until early December with unabated energy. I delivered approximately equal numbers of lectures on each of the following two topics: (1) Fluid Induced Earthquakes: Insights from Hydrogeology and Poro-mechanics and (2) Groundwater Dynamics in Headwater Regions under a Changing Climate.

My sincere apologies to the numerous institutions I was unable to visit, and I hope to cross paths in the future. Despite being habitually on a rope-tight schedule, I was a lucky traveler and the friendly skies gave me no glitches or cancellations. Highway patrols were equally kind except one officer who unmercifully issued me a speeding ticket during my very last driving stretch of the tour for driving at about 55 mph on an open country road as I was immersed in the beauty and solitude of the Appalachians. I am grateful to the GSA Hydrogeology Division for this lecture opportunity, the donors to the lectureship fund, the host institutions for their hospitality and contribution to offset the travel costs, my students and colleagues for putting up with my being away too frequently, University of Colorado for their support, and my family for their love.

Except four excursions to Canada, Germany, South Korea, and Taiwan my lectures were all within the US. Traversing from the southern tip in the Everglades to the Pacific northwest, from the southern borders in Arizona and Texas to the tribal nations in Montana, and many fascinating places in between: the epicenter

of induced seismicity in Oklahoma, karst terrains in Kentucky, the rolling hills in the Appalachians, the travel was thrilling and overwhelming at the same time.

I enjoyed hikes to field research sites, opportunities to observe field classes, and biking alongside waterways. Earthquakes in Oklahoma greeted me twice while I was in the land of induced seismicity. Meeting with students was a consistent highlight throughout the tour, which has been nothing short of inspirational and optimistic. I met a father and a son who are attending college at the same time and both are interested in pursuing hydrology; a cop of 20 years returned to graduate school to pursue Ph.D. in hydrogeology; undergraduate students are eager to explore research options; graduate students demonstrate amazing leadership and fresh energy and ideas. All makes me wonder why I am still here not retiring.

I was introduced to hydrogeologic research in the middle 1980s when I started my graduate study journey first at the University of British Columbia and later at Johns Hopkins University. What I observed from this tour is the immensity of how much the field of hydrogeology has changed and yet how steadily the very foundation of hydrogeology remains unchanged.

The evident changes are that hydrogeology increasingly has become an integral and often central part of multidisciplinary collaborative research, for example, in areas of sustainable agriculture, development of geothermal and unconventional fossil fuel energy, urban development, and climate impact on future water resources. The new generation of hydrogeologists is taking advantage of technological development for gathering more data over larger scales, remote or indirect. What remains steady is the classic hydrogeology foundation that ensures new discoveries enabled by technological and data revolution are validated by the first principles.

A final thought. While technological advances in hydrologic monitoring are impressive and exciting, progress in direct groundwater monitoring remains modest at the best. Monitoring

2017 Hydrogeology Division Award Announcements

Congratulations to the following 2017 Hydrogeology Division Awardees. More information will follow in the Fall Edition of the Newsletter.

2018 Birdsall-Dreiss Lecturer:

David Boutt, University of Massachusetts, Amherst

2017 Meinzer Award:

Donald Rosenberry, United States Geological Survey

2016 George Burke Maxey Distinguished Service Award:

Carol Wicks, Louisiana State University

2017 Kohout Early Career Award:

Martin Briggs, United States Geological Survey

2017 Graduate Research Grants in Hydrogeology Division:

Inoka Peiris
Kaitlin Salley
Tyler King
Kayla Lockmiller
Christina Richardson



Sessions from page 3

T190. Linking Physical and Ecological Processes from Source-to-Sink to Investigate Multi-Scale Response to Restoration
T195. Undergraduate Research Talks: The Next Step in Student Research Projects
T216. Spatiotemporal Variations and the Role of Fluids in Fault-Zone Hydromechanical Processes
T246. Weather-Induced Landslides, Debris Flows, and Rock Fall

Pardee Keynote Symposium

P2. Landscapes in the Anthropocene

Field Trip

417. Groundwater Remedial Activities at Department of Energy's Hanford Site, Southeastern Washington



Seattle from page 1

- o Tuesday lunch: Hydrogeology Division Luncheon & Awards Reception (ticketed event), followed by business meeting
- o Tuesday early afternoon: Hydrogeology Division Careers and Networking Event
- o Tuesday late afternoon: Birdsall-Dreiss Lecture by Dr. Ed Harvey
- o Tuesday evening: Hydrogeology Division Student Reception

See you in Seattle!

Kallina Dunkle



Want to know what's going on within the Division?

Then visit our website at:

[<http://community.geosociety.org/hydrodivision>](http://community.geosociety.org/hydrodivision)

OR

Join the GSA Hydrogeology Division facebook group

to catch up on the latest events or find out how you can become more involved with our activities

Newly Elected GSA Fellows in the Hydrogeology Division

Congratulations the following Hydrogeology Division members who were elected as Fellows of the GSA:

Michael Gooseff
Tim Grundl
Gwendolyn Macpherson
John McCray
Alicia Wilson

Elections from Page 4

2nd Chair:

Benjamin J. Rostron, Ph.D. 1994, University of Alberta, is now a Professor in the Department of Earth and Atmospheric Sciences at the University of Alberta. His research interests are in large-scale fluid flow: regional groundwater flow; petroleum hydrogeology; hydrochemistry; numerical modeling; and geological carbon sequestration. He also maintains Isobrine Solutions Inc., a university spin-off company he co-founded in 2004. Ben is a Fellow of GSA, Fellow of Engineers Canada, and a Fellow of Geoscientists Canada, and is also a member of CSPG and AAPG. He served as the Technical Program Chair for the Hydrogeology Division at the GSA Annual Meeting in 2015.

Statement of Interest: I attended my first GSA meeting in 1988 as a graduate student. At that time I was blown-away by the strength and diversity of the technical program, and by the opportunity to meet (and put faces) to many people that I had only ever read about. I started bringing my graduate students to GSA in the early 2000's, and since then the GSA Annual Meeting has become my favorite technical meeting to attend during the year. My main objective serving as a member of the Management Board would be to continue the outstanding technical program(s) of the Division and to foster the interactions between students, academics, government scientists, and consultants.



Ge from page 5

wells that have long-term and high-frequency measurements of water levels or chemical sampling are few. We are becoming more reliant on remote sensing and indirect inferences to obtain hydrogeologic state variables and aquifer properties, as well as sophisticated computer models to enable solutions to large-scale complex system. Ground truth data and work on the ground has never been more important for ground-based hydrogeologists to ensure the checks-and-balances of hydrogeologic sciences and robust interpretation

of indirect data.

In closing, 2016 Birdsall-Dreiss lecture tour lets me witness the legacies of John Birdsall and Shirley Dreiss live on and reinforces my belief that hydrogeology is the coolest science that serves a societal purpose with a human dimension. The hydrogeology community inspires me to continue the pursuit of new knowledge to better understand the hydrologic cycle that is increasingly perturbed by climate change and anthropogenic activities and to make the world a better for all. Go hydrogeology.



Where in the World?



This edition's picture takes us abroad again, and is brought to us by our Division chair.

Think you know where this is? Let me know by submitting your guess to:

andrea@kgs.ku.edu

Hint: This is the third largest discharge spring in the world!

Photo credit: Abe Springer



Bamiyan Valley, Afghanistan

This is a photo of the Bamiyan Valley, Afghanistan. The first person to correctly identify this picture was Jim Palmer of the Interstate Commission on the Potomac River Basin. Alan Fryar, Don Whittemore, Carolyn Olson, and Jon Kaminsky also correctly identified the photo. Thanks to everyone for submitting their responses!

The Bamiyan Valley is nestled between the high mountains of the Hindu Kush in the central highlands of Afghanistan. Carved into the sandstone cliffs (Bamiyan Cliffs) were giant Buddha statues (55m and 38m), dating from the 4th and 5th centuries. These statues were destroyed by the Taliban in 2001. These cliffs also contain several caves that form Buddhist monasteries, sanctuaries, and chapels also dating from the 3rd to the 5th century.

Information for this article was taken from the UNESCO website (whc.unesco.org)



Bamiyan Valley

Photo credit: Chris Gellasch



BULLETIN BOARD

2017 GSA Annual Meeting

October 22-25
Seattle, WA

Don't forget to submit your abstracts for the upcoming Annual Meeting of GSA in Seattle, Washington. The online abstract deadline is Tuesday, August 1, 2017. Please visit the GSA Webpage: www.geosociety.org/GSA/Events/GSA2017 to submit an abstract and register!

NGWA Groundwater Week

The NGWA Groundwater Week is planned for December 5 - 7, 2017 in Nashville, Tennessee. See the website for details:
www.groundwaterweek.com

AGU Fall Meeting

The 2017 AGU Fall Meeting will be held December 11 - 15, 2017 in New Orleans, Louisiana. See the website for details:
fallmeeting.agu.org/2017/

PLACE YOUR ANNOUNCEMENT HERE

From the Editor....

Welcome to the Summer 2017 edition of The Hydrogeologist. As is typical for our summer editions, this year's focuses on the upcoming annual meeting and Division elections.

The deadline for submitting an abstract to the 2017 GSA Annual meeting is August 1. On page 3 we provide a list of technical sessions sponsored or co-sponsored by the Hydrogeology Division. On page 6 we announce the winners of the 2017 Division awards who will be recognized at the Division luncheon and awards banquet at the meeting.

Information about the members running for positions during this year's election are provided on page 4. Please watch your inbox for the digital ballots, they will be sent out shortly!

As usual, if you have any comments or article ideas please pass them on to me at andrea@kgs.ku.edu.



Hydrogeology Division Contacts

2016 Management Board

Chair: Abe Springer: Abe.Springer@nau.edu

First Vice-Chair: Stephen Van der Hoven:
sjvanderhoven@gmail.com

Second Vice Chair: William Cunningham
wcunning@usgs.gov

Secretary-Treasurer: Eric Peterson:
ewpeter@ilstu.edu

Student Representative: Madelyn Percy:
madelyn@live.unc.edu

Past Chair: Alicia Wilson: awilson@geol.sc.edu

Standing Committees

Technical Program Committee: Kallina Dunkle (2017), Yu-Feng Forrest Lin (2018)

Nominating Committee: Alan Fryar (Chair), Madeline Schreiber, Alicia Wilson

Meinzer Award Committee: Charles Harvey (Chair), Brian Berkowitz, Andy Fisher, Jack Sharp, Barbra Bekins

Birdsall-Dreiss Lecturer Committee: Cliff Voss (Chair), Shemin Ge, Lenny Konikow, Ed Harvey, Holly Michael

Maxey Distinguished Service Award Committee: Robert Ritzi (Chair), Bill Simpkins, John Hess

Kohout Early Career Award: Janet Herman (Chair), Peter Knappett, Mike Cardiff, Ward Sanford, Steve Ingebritsen

Ad Hoc Committees

Section Representatives:

Cordilleran - Beth Weinman

Northeastern - Todd Rayne

North Central - Sue Swanson

South Central - Marcia Schulmeister

Rocky Mountain - Andrew Manning

Southeastern - Jeffrey Wilcox

International: Prosun Bhattacharya

Representatives to other Societies:

American Geophysical Union - Barbara Bekins

American Geosciences Institute - David Wunsch

Consortium of Universities for the Advancement

of Hydrologic Science - Holly Michael

National Ground Water Association - Bill Alley

International Assoc. of Hydrogeologists - Jack Sharp

Society for Sedimentary Geology - Gary Weissman

Soil Science Society of America - Michael Young

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andrea@kgs.ku.edu

Web Administrator: Mike Sukop

GSA Council Liaison to Hydro. Division: Ed Harvey

Hydrogeology Division Website: <<http://community.geosociety.org/hydrodivision>>



Do you have an interesting idea for a short scientific article? Perhaps an opinion on a new policy or technique? Any exciting news in your professional life? Upcoming conference? An announcement of interest to the hydrological community? If so, why not publish it in The Hydrogeologist? Send your submission ideas to andrea@kgs.ku.edu

STUDENTS, WE WANT TO HEAR FROM YOU TOO!