International Association of Hydrogeologists
U.S. National Chapter
Spring 2020 Newsletter
Editor: Gary Robbins

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Cover Photo: The nymphaeum (spring fed fountain) in the ancient Roman city of Jerash, Jordan constructed in 191 AD. Photo by G. Robbins

IAH/U.S. NATIONAL CHAPTER: EXECUTIVE COMMITTEE 2017-2018

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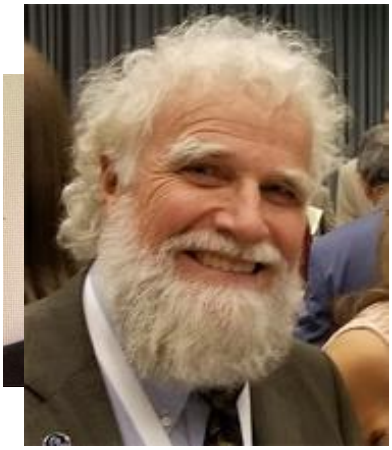
A Note from the Chair – *Jim LaMoreaux*



With us being about a quarter of the way into the new year, we have some good news in that as we celebrate World Water Day- water supplies have had minimal impact from the Corona Virus to date. If we continue to take care of them they will help us fight this virus and win. On behalf of the US National Chapter (USNC) and its Board of Directors we want to wish everyone a safe and healthy passage through and recovery from these distressing times.

With many conferences being rescheduled or cancelled we are still hopeful that the highlight of the year will take place as planned. The International Association of Hydrogeologists (IAH) 2020 International Congress is still on schedule to be held in Sao Paolo, Brazil, September 20-25. The Brazilian National Chapter has worked hard to organize an excellent conference. Sao Paolo is a fascinating place and close to other attractions so you can include them as well. Attendance of USNC members at the international congress has increased the last two years and we're hopeful that will continue to be the case this year. Please make plans to attend.

Fortunately, the conflict of dates between the Geological Society of America (GSA) and IAH is not a problem this year and the USNC will plan to hold its biannual meeting in Montreal at the time of GSA on October 25-28, 2020. Our meeting is open to all members and we encourage you to attend to learn more about USNC activities and/or how to become more active in the organization. Please follow our website at iah-usa.org for details on the date, place, and time. As always, we will go to dinner at a nearby restaurant afterwards. Everyone is invited to join us and recommendations for restaurants are welcome.

In regards to involvement we particularly encourage young professionals to become more active. To this end we are also trying to expand their ranks. Andy O'Reilly with the help of Jenny Pittman led the effort to compile a list of well qualified graduate students as candidates to receive one year memberships in the USNC. Those young people chosen for this honor have their profiles included in this newsletter. They represent future leaders of our organization and are automatically eligible to participate in the Early Career Hydrogeologists Network (ECHN). Please email them to congratulate them and welcome them to the USNC.

Speaking of ECHN, the USNC's team of young professionals is continuing its efforts to expand membership. They are also looking for volunteers to serve as liaisons for the Geological Society of America (GSA) regional section meetings. Rory Cowie has stepped up to take Adam Milewski's place as President. Adam has done an excellent job and will continue to work with the board in other capacities. Existing officers have stepped up to fill other positions and we are looking for additional members to step into leadership roles. Please let us know if you are

interested. Look for the details on these and other activities on their Facebook page (ECHN USA IAH), or their website (echn-usa-iah.org).

Tim Parker is continuing to represent the USNC with the American Geosciences Institute (AGI). The IAH USNC is an Associated Society of AGI and as such our members are eligible for discounts at AGI sponsored functions and on AGI products. Please take advantage of this benefit. Another benefit IAH has added recently is a reduced subscription price for Sustainable Water Resources Management. A 20% discount is now being offered to members. Jim LaMoreaux and Cliff Voss are Editor and Associate Editor respectively of the journal published by Springer.

Continuing to expand our contacts in the Americas we are reaching out to Joanne Thompson, IAH Vice President for North America, Diana Allen, President of the IAH Canadian National Chapter, Carmen Julia Navarro, President of the IAH Mexican National Chapter, and Carlo Molana, Vice president of the Colombian National Chapter. Former USNC President Mike Wireman is helping professionals in Cuba research forming a Cuban National Chapter. Another USNC Past President Vic Heilweil is making contacts in South America through his travels for USGS. These combined activities have the goal of possibly organizing an IAH Congress in the Americas in 2022 or 2023. We are looking for volunteers who may want to spearhead this effort. I attended a meeting of the Mexican National Chapter in the fall of last year and they are very interested in pursuing this also. If you are interested in or have contacts that would help further develop this outreach so that we could organize an IAH Congress in the Americas please let us know.

As you can tell from this “Note from the Chair,” many people are involved in keeping your national chapter running efficiently. I would like to thank all those mentioned above and many others for their efforts on the USNC’s behalf. In this regard, Dave Kreamer continues to serve in an ambassadorial role for the USNC carrying our torch internationally. See his article in this issue also. Let’s keep working hard to make the rest of our year successful. Visit the USNC website at iah-usa.org to see how you can become more active. Please share this newsletter with your friends and colleagues and encourage them to become members and thank Gary Robbins for serving as our editor.

Stay safe and healthy,

Jim

Wanted Articles About You

As the editor of the newsletter, I need your help. Our newsletter is all about informing you of what the organization is doing and providing you with other news in our field that you may find useful. Of course all that is interesting, but it is also an opportunity to get to know each other, to network and to further bond in our mutual love of this field. So I am asking you to help with the next newsletter. Send me a picture of you working with a brief description (name, company, where the picture was taken and what does the picture show you doing). Send me a brief article about some interesting place you are working or visited related to hydrogeology. Have some interesting groundwater related picture? Send that with a description of who took the picture and where. How about a brief article about you for our Members News Section (see below)? Send material to Gary.robbins@uconn.edu See if you can beat this picture— Me walking across a 1st century AD Roman aqueduct in Tarragona, Spain.

IAH International News

IAH and COVID-19

The IAH Events website still lists many upcoming events in the short term. I am sure much of this will change in response to COVID-19. The situation is an opportunity to further develop online programs. As someone who has run an online educational website for professionals and who teaches brick and mortar and online courses at the college level, I think online programs can be very useful in conveying the latest in research and in deliberating on groundwater- societal related issues. But they will never replace rubbing shoulders with colleagues and they have their own attention span related issues. Virtual field trips are possible. I use them in classes but even then you lose the feel of a location (tour our well field). No breeze. Virtual Reality field trips where you wear VR goggles might change that. I have taken such a trip in the baths of Caracalla in Rome. Another alternative idea is to integrate simulations into online programs. A good training tool for workshops. I just want to personally wish everyone to be safe.

Contributed by Gary Robbins

Note from the Vice President for Science and Program

The IAH Executive Committee (IAH President, Secretary General, two Vice Presidents, and the Executive Director and staff) met in Reading, England for three days in February (photo below) and discussed many different items related to IAH. Financial matters were gone over in detail and IAH yearly budget and expenditures are holding steady and on a good course. Membership is at a record high from 135 plus countries. Our publications, including the

Hydrogeology Journal and Journal of Sustainable Water Resources Management were discussed in Reading, as well as the progress of IAH Commissions, Networks, and National Chapters. Our Burdon Groundwater Network for International Development continues to distribute groundwater textbooks to early career hydrogeologists and others in sub-Saharan Africa. Two new groups were formed in IAH during 2019 – a Commission on Groundwater Quality headed by Dan Lapworth of the British Geological Survey, and the Socio-Hydrogeology Network led by Viviana Re of the University of Pisa. The Groundwater Quality Commission has a range of activities. They met with UNESCO at their offices in Paris last December and discussed initiatives such as a journal theme issue on groundwater quality, and a salinity map of Africa. Viviana is putting together a session on "Gender and hydrogeology" for our next Congress in Sao Paulo, Brazil this September.

IAH has a Strategic Overview Series (which are short, six page papers describing aspects of groundwater and society, and can be found on the IAH website) that is being translated into other languages - (Spanish, Portuguese, French, Chinese, Hungarian, and Arabic). Last year our new "SOS" paper was on Climate Adaption and Groundwater. We are moving forward on an initiative to identify "The Frontiers and Future of Hydrogeology", with the goal of creating visionary groundwater publications – contact me if you are interested.

Past and future IAH Congresses were discussed by the Executive Committee in England, along with new proposals for future Congress venues. In addition to our upcoming Congress in September 2020 in Sao Paulo, Brazil (photo right), we have Congresses planned for Brussels, Belgium in 2021, and Wuhan, China in 2022 - (glad it's not this year!!).

Also elections for IAH officers are coming up. The terms for Council Members are for 4 years starting in September 2020, and the position of Vice President for North America will be open as will several other positions. Nominations close at the end of March and require a nominator, a C.V., and note from the person nominated that they are willing to stand for election. Please feel free to join in on any of these efforts that interest you – Commissions, Networks or Council positions. Participation is open to all!

I hope this note finds you and your colleagues all doing well, following your interests and intellectual curiosities, and continuing to make the world a better place.

Contributed by David Kreamer

Message from Joanne Thompson, IAH VP North America

Happy spring everyone. I live in the country and where I am, they refer to this as 'mud season'. There is water running everywhere as the snow pack melts so perhaps it is better to wish everyone a happy recharge season!

It's hard for me to believe that it is 2020. I was on the executive committee for the IAH CNC for almost 20 years and this will be my 4th year on the IAH Council as VP North America. So it is high time for some new blood! LOL. I have decided to leave the position this fall. I am often asked why I volunteered to serve the IAH for so many years. Short answer….it has been very rewarding. Longer answer….it has given me a great opportunity to meet interesting, dedicated and inspiring colleagues from around the world, to have a voice at the table, and to make a real contribution to the success of the IAH.

I would like to encourage everyone to get involved with this organization. If you are interested in running in the election for the VP position (or any other position), let me know or check out the requirements at iah.org. Also, you do not have to serve on the executive to help out….you can benefit the IAH by simply attending conferences, talking to a colleague and encouraging them to attend an IAH event, sharing the newsletters, encouraging students to get involved with the ECHN, etc. Bookmark the iah.org website, and when you see events of interest, pass them along!

World Water Day is March 22, 2020 and the theme is about water and climate change. Climate change affects groundwater quality and quantity and is something we all need to think about. Check out more https://www.worldwaterday.org

News from the IAH Mexico Chapter

Dear colleagues the IAH-Mexico National Chapter wants to thank the USNC for this opportunity to introduce ourselves within the framework of the IAH in North America. As a starting point we would like to bring three items to your attention that have happened so far during the first months of the current administration: ⎫ For the first time in the election of a new Executive Committee 2019-2022, an online alternative was put in place to launch the call and monitor the voting process; the platform allowed the counting and scrutiny of the votes to be visible and available to all members, making the process more agile, transparent and, technologically, in accordance of our times. Executive Committee elected: President (for the first

time a woman): Dra. Carmen Julia Navarro Gómez. email: cjulia.next@gmail.com Secretary: Dra. Eloisa Dominguez Mariani. email: eloisadm@yahoo.com.mx Treasurer: Dr. Roger Gonzalez Herrera. email: gonzalez.herrera.roger@gmail.com ⎪ Work is being done on updating the statutes, to make the visibility of the IAHMexico Chapter more accessible and with rules more in line with our time. Likewise, the number of members increased substantially; with this opening almost 80%, some members who had already withdrawn, rejoined the association, but especially young graduates of universities that have postgraduate programs in the study of groundwater. ⎪ In this new panorama of members, it is distinguished that the associates are grouped into three main regions: North, Center and South of Mexico, being the same representativeness that the current Executive Committee has, Carmen Julia Navarro (North), Eloisa Dominguez (Center) and Roger Gonzalez (South).

Participation with similar associations in Mexico has been promoted, as was the case in the last congress in the City of Guanajuato, where the IAH-CM (International Association of Hydrogeologists, Mexico Chapter), AGM (Mexican Association of Geohydrologists) and ALHSUD (Latin-American Association of Groundwater Hydrology for Development), joined efforts in the framework of the National Congress of Groundwater, held from November 9 to 11, 2019. Dr Jim LaMoreaux, President of the IAH-US National Chapter, attended our meeting.

The participation of our members in the binational network, USA-Mex, on water security, focused on transboundary aquifers led by Dr. Maria del Rosario Sánchez Flores, has been promoted. (The permanent forum of binational water)

Interested in what the IAH-Mexico Chapter is doing? Read all about it in the website: http://iah-aih.mx

Contributed by Carmen Julia Navarro and Roger Gonzalez Herrera

Other Groundwater News

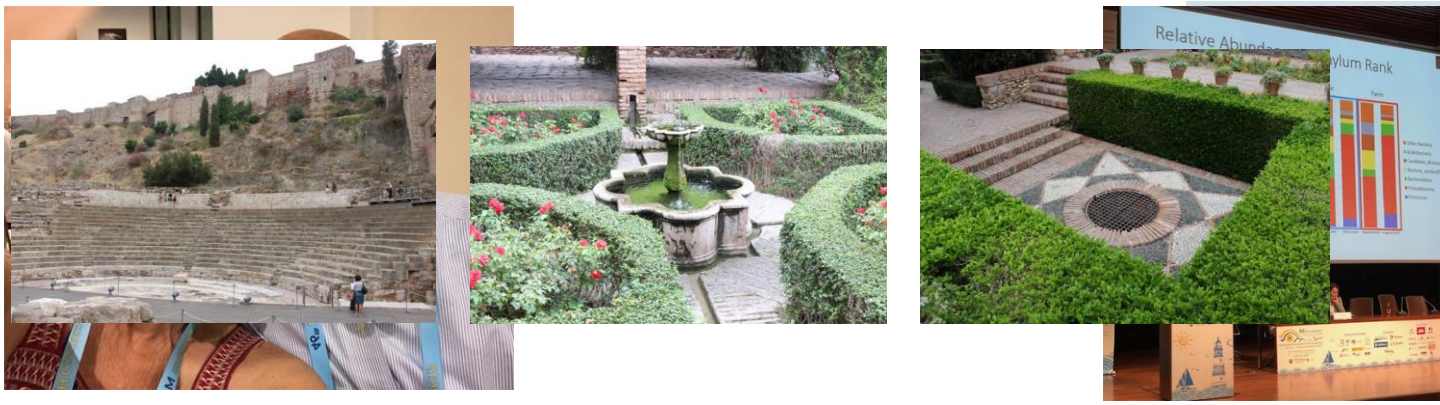
Malaga Conference 2019

Exploring the City and Countryside

Polished limestone paved streets, sandy Mediterranean beaches, delicious food and historic buildings pretty much sums up Malaga. It was a wonderful meeting in a wonderful city. It even has a Roman amphitheater and an incredible Moorish fortress (Alcazaba). A tour of the later reveals an intricate and beautiful network of fountains and cisterns

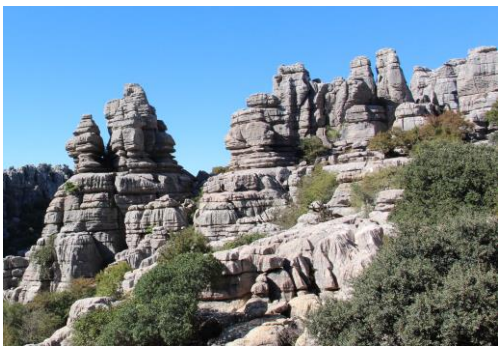
US IAH Members at the Malaga Conference

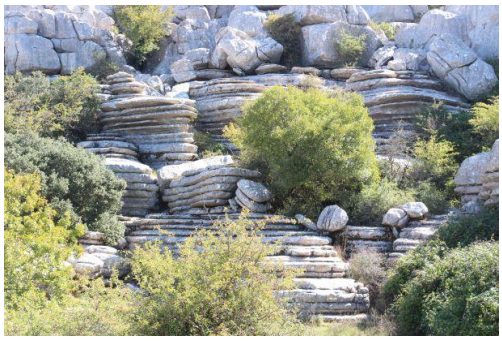
We had a nice bunch of colleagues at the meeting. Mark Higgins (top middle photo), a graduate student member of the ECHN, gave an eye catching presentation on the usefulness of groundwater bacteria analysis for deciphering hydrogeologic problems.



Exploring the Karstic Terrain near Malaga

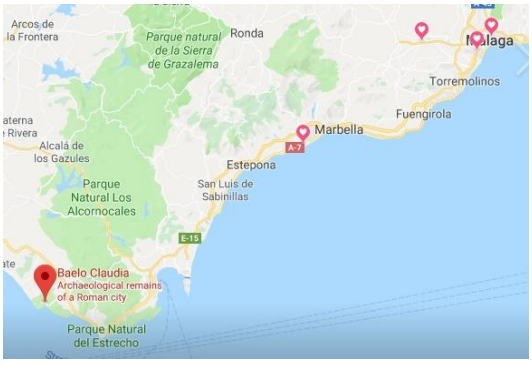
The countryside North of the city consists of Jurassic karstic limestones that form spectacular pinnacles and accentuated layering as these pictures show. They come complete with rock climbing goats.





The Ancient Roman City of Baelo Claudia

Not too far from Malaga is Baelo Claudia, a Roman city founded in the 2nd Century B.C. The city was a fishing town and shipped fish and garum (sauce made from fish guts) all over the Roman empire. The Romans put the sauce on just about everything they ate. The ruins are very well preserved. The city got its water supply from three aqueducts. While in Malaga, I had a chance to visit the ancient ruins. The upper right photo is one of the aqueducts. The photo in the middle on the right is the Roman forum. The photo in the middle on the left is a garum factory where they ground the fish and fermented the fish sauce (yummy). Like every Roman city this one had a bath complex (photo on the lower left). In the lower right photo are lead pipes and a three way connector.



AGI News

Sharon Tahirkheli Accepts New Role as AGI Interim Executive Director

ALEXANDRIA, Va. - The American Geosciences Institute (AGI) is pleased to announce that longtime AGI Director of Scholarly Information Sharon Tahirkheli takes on an additional new role as AGI Interim Executive Director, effective immediately.

Tahirkheli has provided leadership in the field of geoscience information for more than 30 years. She currently oversees GeoRef, AGI's premier bibliographic database for the geosciences, as well as other information products and services such as the Glossary of Geology, additional online databases, and open geoscience information collections. She was instrumental in establishing GeoScienceWorld, an aggregate of linked and interoperable earth science journals, and participated in the development of the Digital Library for Earth System Education (DLESE) and the Multilingual Thesaurus of Geosciences

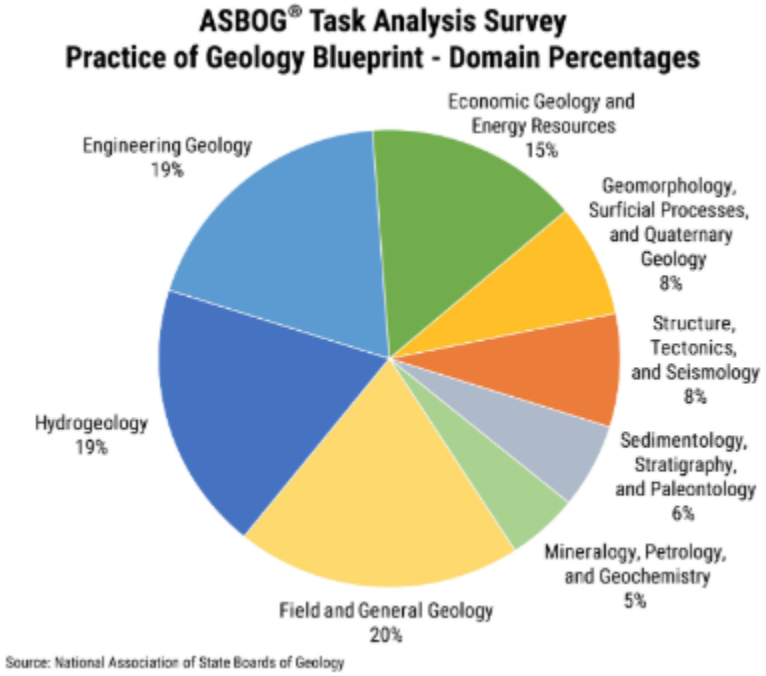
Tahirkheli has authored numerous publications and served as speaker at professional conferences, meetings, and workshops. She is a past president of the Geoscience Information

Society (GSIS) and was honored with the GSIS Mary B. Ansari Distinguished Service Award, which recognizes significant contributions to the geoscience information profession.

"This appointment recognizes Sharon Tahirkheli's leadership and service to both AGI and the publishing transformation occurring in the geoscience community," said AGI President Carolyn Olson in making the announcement. "Since becoming the Director of GeoRef more than 20 years ago, Sharon has overseen the evolution of the bibliographic database from print products to a web-based search system relied upon by geoscientists around the globe. Sharon has not only been a witness to the advancement of geoscience professions, she has helped enable that advancement."

The AGI Executive Committee launches a search for a permanent Executive Director following the departure of former Executive Director Allyson Anderson Book, who is pursuing a new opportunity in the private sector. AGI wishes to express thanks to Anderson Book for her contributions to AGI over the past three years.

How do Geoscientists Make a living?



See the article and more on AGU Geosceince Currents

https://www.americangeosciences.org/geoscience-currents.

Geoscientists Without Borders

Geoscientists Without Borders (GWB) [Robert] Merrill presented the GWB program. It is a humanitarian program started after the 2004 tsunami in Indonesia, thanks to a Schlumberger $1 million grant to jump start it. Several others, such as ConocoPhillips, have also donated. Merrill said that another aspect of the program is to engage young people in different countries to become interested in the geosciences. All projects have a budget and focus on a humanitarian mission and student involvement. Most proposals come from U.S. universities and involve the topics of water, sanitation, health, disaster preparedness, and food security. He gave the example of an irrigation system to ensure crop yields. All projects also include the local community and are funded up to $50,000/year. There were 45 proposals presented for funding in 2018, of which 8 were approved. SEG could do more projects if there were additional funds. There are no salaries for U.S. professors, but there may be funds to in-country professors, if needed. Any equipment used in the project stays in the country so work can continue after the GWB team leaves. Historically, teams were invited to attend the SEG Annual Meeting. This is no longer always possible, so SEG has started to produce webinars to communicate project results. Anderson Book added that GWB is a true philanthropic program and AGI is supporting this by informing other organizations in their community.

Excerpt from the AGI Member Society Council Meeting Minutes (May 20, 2019).

Member News and Notes

2020 Stockholm Water Prize to Dr. John Cherry

Congratulations to IAH member Dr. John Cherry on his being selected to receive the prestigious Stockholm Water Prize for 2020. He is cited for discoveries that have revolutionized our understanding of groundwater vulnerability and for raising awareness of how groundwater contamination is growing across the world; his work has led to new, more efficient methods to tackle the problem. He is certainly well deserving of this very high honor, and we send him our best wishes and congratulations. The Stockholm Water Prize is an international water award presented annually since 1991. More information is available from: https://www.siwi.org/latest/groundwater-expert-dr-john-cherry-wins-2020-stockholm-water-prize/?utm_campaign=email_chamando_para_o_site_gw-project_-_autores_e_colaboradores&utm_medium=email&utm_source=RD+Stati

Gary Robbins Sinkholes in the Desert

Over our winter break I had an opportunity to go to Israel. Looking from Masada I could see the Dead Sea. The Sea level is lowering about a meter a year and more and more lake bottom is being exposed. To my surprise, I could see sinkholes in the exposed sea bottom. In fact one took out the road I was

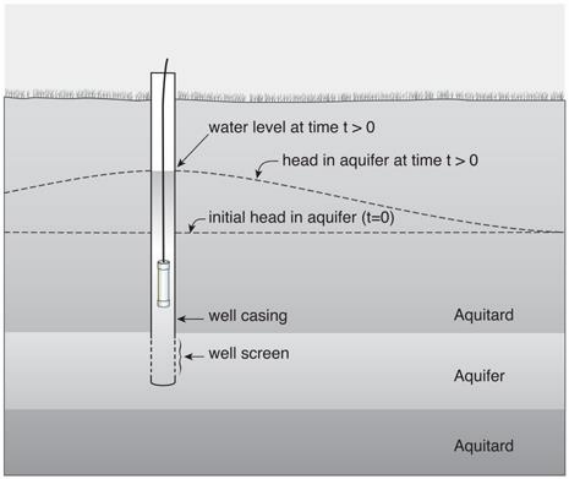
driving on. It seems as the lake is receding, fresh groundwater is propagating seaward and dissolving out salt within the exposed seabed. This can cause the clay seabed to deflocculate developing sinkholes. The picture on the right was taken from Masada. As you can see a good deal of lake bottom is now exposed and sinkholes are actively forming.

Jim Butler's Design, Performance, and Analysis of Slug Tests (2nd edition)

The slug test can provide valuable information for hydrogeologic investigations ranging from assessments of sites of groundwater contamination to the monitoring of well deterioration through time. Inappropriate procedures in one or more phases of a test program, however, can introduce considerable error into the resulting parameter estimates. This book is designed to remedy that situation and place the slug test on sounder theoretical and procedural grounds.

The first edition has become the standard reference for all aspects of slug tests; this revised edition updates the earlier material and expands the topical coverage with new developments that have come to the fore in the intervening years (21) between editions. In particular, this second edition

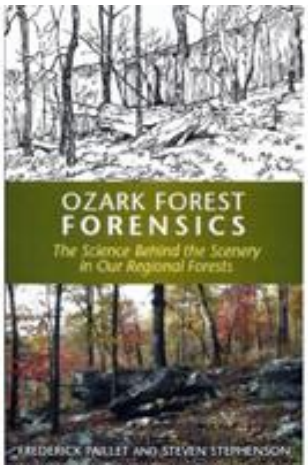
- Describes and demonstrates the eight key steps for the performance and analysis of slug tests;



- Presents new methods for the analysis of tests in unconfined aquifers and in highly permeable settings;
- Expands topical coverage to include LNAPL baildown tests and slug tests in small diameter wells;
- Includes numerous flow charts that illustrate easy-to-use strategies for selection of analysis methods, and field examples demonstrate how each method should be used to get the most out of test data;
- Offers straightforward practical guidelines that

summarize the major points of each chapter.

Fred Paillet's New Book Ozark Forest Forensics



Chapter 1 – A Walk in the Woods
Chapter 2 – The Geological Foundation of Ozark Forests
Chapter 3 – The Principle Trees of an Ozark Forest
Chapter 4 – Other Forest Realms
Chapter 5 – The Original Forests of the Ozarks
Chapter 6 – Forest Changes Over Time
Chapter 7 – Catastrophic Events in the Forest
Chapter 8 – The Flow of Water
Chapter 9 – Shrubs, Vines and Understory Trees
Chapter 10 – Species of Special Interest
Chapter 11 – Wildflowers, Ferns and Other Plants
Chapter 12 – Mushrooms and Other Fungi
Chapter 13 – Diseases and Pathogens
Chapter 14 – Conservation issues

Meet the New 2020 IAH-USNC Sponsored Graduate Student Members

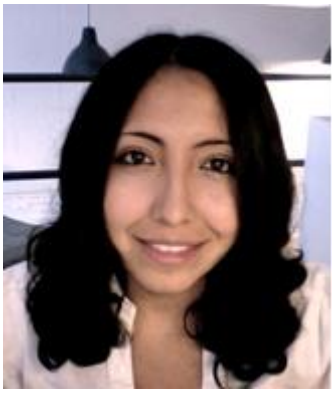
The IAH U.S. National Chapter (USNC) sponsors one-year, graduate-student memberships annually through general funds and through generous individual contributions of our members. This year we are sponsoring ten students, nominated by their faculty advisors and/or IAH-USNC members. This year's sponsored students represent a diverse, ambitious and accomplished group of graduate students who are conducting research with significant relevance to international hydrogeology. If you are interested in sponsoring or nominating a student for sponsorship, please contact the IAH-USNC Membership Liaison (Andy O'Reilly, aoreilly@olemiss.edu).

FERN BEETLE-MOORCROFT, M.S. Candidate (Hydrologic Science & Engineering), Dept. of Geology & Geological Engineering, Colorado School of Mines (Nominated by Dr. Kamini Singha [Advisor]). fbeetlemoorcroft@mines.edu

Fern earned a BA from Haverford College in Geology (2014). Following graduation, she moved to Cape Town, South Africa to work with the South African Education and Environment Project, where she tutored students in environmental science. Then, she moved back to the US and worked as a Geologist for the New Jersey Geological and Water Survey. She is now pursuing her M.S. in Hydrologic Science & Engineering at the Colorado School of Mines and working part-time as a Hydrogeologist at HRS Water Consultants. Her research broadly focuses on groundwater and surface water exchange along ephemeral streams in arid environments using a coupled approach of field measurements and modeling. To study these dynamics and interactions she is using the

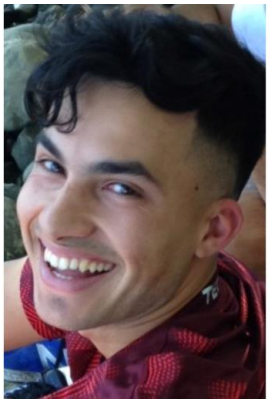
Alamosa River in the San Luis Valley as a case study. Fern looks forward to the opportunity to connect with other members of IAH and to learn about groundwater research globally.

CLAUDIA CORONA, Ph.D. Candidate, Department of Geological Science, University of Colorado Boulder (nominated by Dr. Shemin Ge [Advisor]), claudia.corona@colorado.edu



Claudia, growing up as an inner-city kid in Los Angeles, CA had no experiences with natural waterways and snow-capped mountains until high school, when she visited Mono Lake and the Eastern Sierras thanks to the Mono Lake Committee. She was left in awe, and decided to make hydrogeology and sustainable water use her life's work. She obtained a B.A. in Geosciences from Williams College, Massachusetts (2013). She then worked towards an M.S. in Geosciences at San Francisco State University (SFSU, 2016). At SFSU, she examined the teleconnections between climate and groundwater recharge, an urgent topic for drought-stricken California. After SFSU, she worked as an environmental consultant in the Bay Area. She is now pursuing aPhD in Geosciences at the University of Colorado, Boulder. Working with Dr. Shemin Ge, her research uses subsurface hydrologic modeling to better understand what happens to infiltration on its way to the water table. Given the projected worldwide increase in uneven, extreme precipitation, it is crucial to better understand how extreme precipitation may affect groundwater recharge. She aims to use the IAH membership to stay informed on the latest hydrologic advances and to network with members across career stages. She is interested in learning about various career paths in hydrology and if you would like to share your path, please send her an email, she would appreciate connecting!

DOMINIC ESLAMIAN, M.S. Candidate, Dept. of Geological Sciences, California State University Long Beach (nominated by Dr. Matt Becker [Advisor]), Dominic.Eslamian@student.csulb.edu



I graduated from San Francisco State University in 2018 with a BS Earth Science, with an emphasis in Hydrology under the guidance of Dr. Jason Gurdak. I am continuing my education at CSU Long Beach Geology as a MS Research Assistant in Hydrogeology as part of the Conroy Endowed Hydrogeology Program, under the advising of Dr. Matt Becker. Current research involves the use of intelligent distributed acoustic sensing (iDAS) to investigate and characterize subsurface hydrogeology. Also, this research will aid in pushing the iDAS technology towards measuring Earth Tide frequencies in the field.

MICHAEL GRATZER, Ph.D. Student (Engineering Science/Hydrology), Dept. Geology & Geological Engineering, University of Mississippi (nominated by Dr. Andy O'Reilly [Advisor]), mcgratze@go.olemiss.edu

I studied geological engineering for my undergraduate education at the University of Mississippi (UM), where I worked with Dr. Brian Platt at UM on a research project on paleosol development and trace fossils in the Upper Triassic Cooper Canyon Formation of the Dockum Group in Andrews County, TX. I studied Hydrology for my Master's degree at UM and researched groundwater recharge from an oxbow lake-wetland system to an alluvial aquifer with Dr. Andrew O'Reilly, Dr. Gregg Davidson, and Dr. J.R. Rigby. We collected and analyzed hydrologic data for two years at Sky Lake in Humphreys County, MS, and found that the oxbow lake-wetland system contributed significant recharge to the Mississippi River Valley alluvial aquifer during our measurement period. Our journal article on this research can be found in *Hydrological Processes* (https://doi.org/10.1002/hyp.13680). Now I am studying for my Ph.D. in Hydrology at UM and beginning a research project with Dr. Andrew O'Reilly on estimation of groundwater recharge to an alluvial aquifer using groundwater age dating, airborne and surface geophysical surveys, and other available hydrogeological data. My academic interests are hydrology and ecology. I enjoyed the opportunity to work as an environmental intern at Fisher Arnold Environmental in Memphis, TN, for two summers and as a teaching assistant at UM for three semesters. Currently, I am working as a hydrology student trainee for the United States Geological Survey. My professional interests are conducting research that informs sustainable use of natural resources as well as prevention and remediation of anthropogenic harm to the environment.

SUSAN LEDERER, M.S. Candidate, Department of Geoscience, University of Nevada Las Vegas (nominated by Dr. David Kreamer [Advisor]), leders1@unlv.nevada.edu

I am a 58-year-old woman and a first year Geoscience Master's student at the University of Nevada-Las Vegas (UNLV). I am studying Contaminant Hydrogeology and I am honored to have Dr. David Kreamer as my advisor. Specifically, I am researching the possibility that decades of uranium (U) exploration and mining, on the plateaus surrounding the Grand Canyon National Park, may have mobilized U and other heavy metals into the area's aquifers. The U ore bodies are hosted in solution-collapse breccia pipes and the breccia pipes are believed to be providing vertical conduits for meteoric water to flow into, and between, a perched and the regional aquifer systems. There is also a large degree of horizontal secondary porosity in both aquifers. My focus is on whether thousands of exploration boreholes, and that some of the former mines' water wells were not cased in entirety, has dramatically increased the vertical transport through *mineralized* breccia pipes. Thus, these factors may be important in potentially mobilizing U into the groundwater systems.

ANDREW OBERHELMAN, Pd.D. Student (Hydrologic Sciences), Dept. of Geological Sciences, University of Florida. aoberhelman@ufl.edu

Andrew received a B.S. in Geology (minor in Business) from the University of Puget Sound in 2017 and an M.S. in Hydrogeology from Illinois State University in 2019. Broadly, he is interested in conducting research on the physical and chemical hydrogeology of carbonate aquifers. He is also passionate about the management and sustainability of water resources. His current research focuses on the dynamics of redox conditions in karst aquifers related to the generation of methane and the remineralization of organic carbon. Upon completion of his Ph.D., he plans to continue pursuing a career in academia studying carbonate aquifers.

PAULA PERILLA-CASTILLO, Ph.D. Candidate (Geology), Department of Earth and Planetary Sciences, The University of Tennessee (nominated by Dr. Larry D. McKay, Professor [Advisor], Department of Earth and Planetary Sciences, The University of Tennessee). pperill1@vols.utk.edu; https://eps.utk.edu/graduate/gradstudents.php

Paula earned a B.S. in Geology from the National University of Colombia in 2013 (Bogotá, Colombia). She worked with hydrogeology and environmental geology consulting companies in Bogotá. She earned a M.S. in Geology (2017) from the University of Oklahoma, were she worked as a GRA for the Oklahoma Geological Survey. Her M.S. thesis was a characterization of the Arbuckle Group in Oklahoma, aiming to provide more accurate hydrogeological parameters to the induced seismicity research that has been conducted in Oklahoma. To get the parameters, Paula studied water level fluctuations in deep wells as a product of Earth tides. As a Ph.D. student, Paula is working on paleo hydrology and paleoclimate in the Middle Tennessee River. Upon completion of her degree, Paula hopes to work in water resources, focusing on availability and protection of water for developing countries. To her, IAH membership presents a great opportunity to learn the latest information on protection of water resources strategies, workshops on water resources, and network with already established professionals.

BRADLEY SIMMS, M.S. Candidate (Hydrologic Sciences), Hydrologic Sciences Graduate Group, University of California Davis (nominated by Thomas Harter [Advisor]), bmsimms@ucdavis.edu I earned a B.S. in Watershed Science (2019) at Colorado State University, where I researched the impact of snow surface roughness on the energy balance and water availability in the Rocky Mountains. Currently, I am pursuing a M.S. in Hydrologic Sciences at the University of California, Davis. As a graduate student researcher, I am focused on developing a regional, integrated water budget model to inform local policy decisions toward sustainable groundwater management in

Northern California. After graduation, I hope to work on global, sustainable groundwater resource development in the face of anthropogenic influence.

KATHARINE SINK, Ph.D. Student, Dept. of Geosciences, University of Texas at Dallas (nominated by Dr. Tom Brikowski [Advisor]), Katharine.Sink@UTDallas.edu

I graduated with a B.S. in Geology from the University of Mary Washington (2003) and an M.S. in Geological Sciences with a concentration in Hydrogeology from Wright State University (2006). My thesis research was on correlating change in land use with changes in water quality within the Ohio River Basin. After graduating, I worked in environmental consulting on a variety of projects including site characterizations and remedial investigations. I am currently pursuing my PhD and my research will focus on runoff efficiency and the response to climate change on a more regional scale.

CATHERINE ZIDAR, Ph.D. Student, Department of Geology and Environmental Science, University of Pittsburgh (nominated by Dr. Daniel Bain [advisor]), CAZ47@pitt.edu

Kate joined in the Elliott lab in September 2019 after working as an Environmental Planner with a professional focus on green infrastructure, resilience and communications. Kate earned a M.S. at the Pratt Institute in City and Regional Planning where she also taught for seven years. She was a founding member of the Stormwater Infrastructure Matters (S.W.I.M.) Coalition, a policy think tank that figured centrally in establishing Green Infrastructure as a mainstream practice in New York City. She also began the North Brooklyn Compost Project, one of the many community garden-based efforts that ultimately "made the road by walking", preceding city-wide collection of organic waste in NYC. Kate's research interest focuses on exploring the underlying biogeochemical processes of green infrastructure.

Contributed by Andrew O'Reilly

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The 47th IAH CONGRESS SAO PAULO, BRAZIL

Brazil is deservedly well known for its great football and music, a sure recipe of joy. The 2020 Groundwater Congress will highlight that water makes up this joy into a trinity since Brazil has about 10% more water than the other two countries that have most fresh water in the world together.

Our groundbreaking 2020 Groundwater Congress gathered three large water groups, International Association of Hydrogeologists (IAH), Latin American Groundwater Association (ALHSUD) and Brazilian Groundwater Association (ABAS) to bring you a meeting with proposal and objectives.

Groundwater professionals bring joy to places where water is scarce and health is threatened by it. A local well put in place by technology and knowledge that we worked to create and disseminate changes the lives of people for better. These experiences are wonderful and shared among the members of our groundwater community.

Our 2020 meeting will engage the largest global groundwater community in the world. Enough of events that start and finish on given dates and leave little legacy and with frontiers between participants and society. Engaged community is the future of the events. And our event has already started with the construction of the community of the members of the participant entities who have the opportunity to digitally interact now.

Through our meetings we change the world because with them we build relationships, we share experiences, we know results from research, we better the public policies and we have access to all the products that the industry and service providers have created and developed.

Groundwater is paramount to sustainability and we mean it by our day to day work and research. Come to the 2020 Groundwater Congress in Brazil and share the joy to participate in the event that points towards the future of the groundwater community, with samba and football.