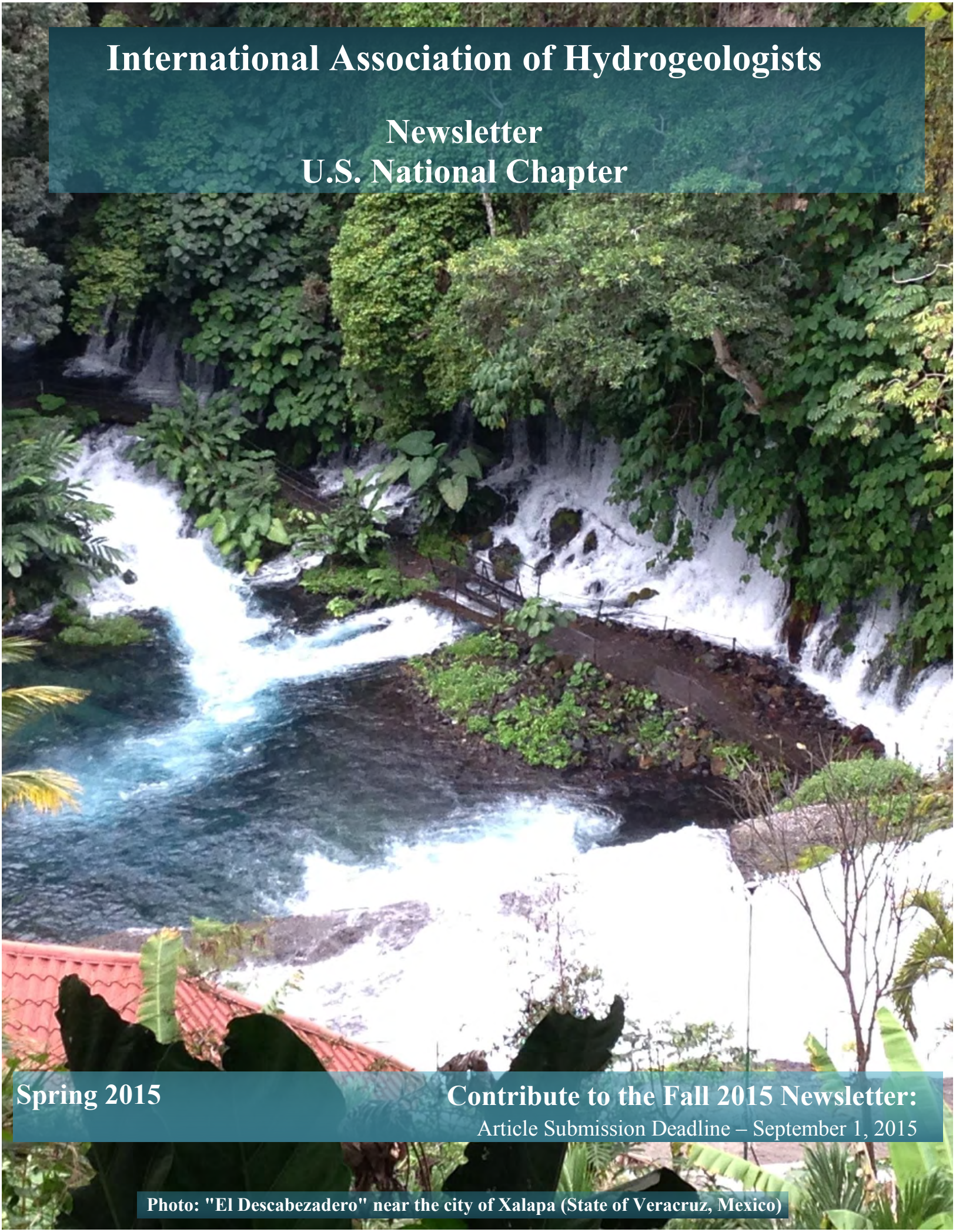
International Association of Hydrogeologists

Newsletter
U.S. National Chapter



Spring 2015

Contribute to the Fall 2015 Newsletter:
Article Submission Deadline – September 1, 2015

Photo: "El Descabezadero" near the city of Xalapa (State of Veracruz, Mexico)

International Association of Hydrogeologists
U.S. National Chapter
Spring 2015 Newsletter

Editor: Suzanne Pierce

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IAH/US NATIONAL CHAPTER: EXECUTIVE COMMITTEE 2012-2015

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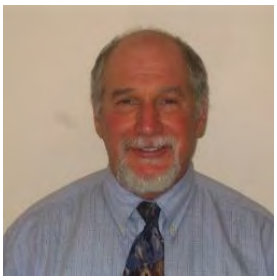
A Note From The Chair

Greetings! Many thanks to the contributors for this issue of our Newsletter. Please consider contributing an article to the Fall 2015 issue (submission deadline of September 1), particularly if you've been involved with international hydrogeology work or meetings.

Recently, the US IAH National Chapter has been seeking opportunities to coordinate with the Canadian Chapter. One product of this effort was a jointly-sponsored Pardee session at the 2014 GSA meeting (article by Andy Manning in this issue). We have also been discussing with our Canadian counterparts the possibility of a stand-alone joint US-CA Chapter IAH meeting in the near future. Both chapters believe that such transboundary endeavors will be mutually beneficial to our members. In this same theme, the US National Chapter would be interested in pursuing similar activities with Mexico. Although Mexico is aligned with the "Latin America" IAH region (rather than North America), hydrogeologists in both countries could benefit from increased cross-border collaboration. I recently participated in an IAEA-sponsored mission to Veracruz, Mexico, assisting counterparts at Universidad Veracruzana and Universidad Nacional Autonoma de Mexico with a groundwater study. Their knowledge of hydrogeology was impressive, along with their strong passion for improving their in-country analytical and technical capacities. But they expressed a sense of professional isolation, partly because of the language barrier. As is true for hydrogeologists in other non-English speaking nations, they must translate their research into English prior to publishing in most international journals. One way that our US National Chapter could get involved would be assisting in the translation of technical manuscripts from Spanish to English. If any of our members are bilingual and would like to provide such assistance, please contact me.

Our next US National Chapter meeting will take place at the National Groundwater Association's Groundwater Summit in San Antonio, Texas. We will be meeting in the Presidio B Room of the Grand Hyatt Hotel (600 East Market Street) from 5:15 to 6:30 pm on Tuesday March 17th. Afterward, many of the board members are planning to go to dinner together. Please join us for either– we look forward to seeing many of you at the Summit!

Vic Heilweil, Chair – IAH USNC
Email: heilweil@usgs.gov



A Note from the Vice President for North America - *Dave Kreamer*

Hello! Best wishes for a great winter and spring season. IAH and IAH North America are moving forward nicely with some exciting upcoming events, hydrophilanthropic efforts (including sponsorship of new IAH members from economically developing countries), and increasing collaboration between chapters. We had very successful IAH meetings at the 41st International Congress last September in Marrakech and chapter meetings in Vancouver at the Geological Society of America (GSA) Meeting this last October. I hope you were able to attend these great conferences. Members of the Canadian National Chapter and the U.S. National Chapter teamed up to present an excellent special Pardee Session on water and energy at the latter meeting. An informal mixer followed the special session, and both national chapters had productive board meetings at the GSA. Upcoming meetings with IAH involvement include:

1. The Canadian National IAH Chapter Meeting in Waterloo October 27-30, 2015 (abstract deadline February 1)
2. The Universities Council on Water Resources/ National Institutes of Water Resources / Consortium of Universities for the Advancement of Hydrologic Science Inc. meeting joint/ annual conference to be held in Las Vegas, NV June 16-18, 2015
3. The National Ground Water Association's "Groundwater Summit" to be held March 16-18, 2015 in San Antonio, Texas (abstract submission closed)
4. The 42nd IAH Congress in Rome, Italy to be held September 13-18, 2015 (abstract deadline March 31).

One note on the latter meeting (the Rome IAH Congress), I spent a month and a half, each of the last two summers in Italy. I found Rome's metro and train system to be efficient, and hotels near the train station, not too distant from the venue were clean and not expensive. Hope to see you at these meetings. Have a great season and new year!

Treasurer's Report – *Vicki Kretsinger Grabert*

2015 U.S. National Chapter (USNC) Memberships

At of the end of 2014, we had about 273 USNC members, including 31 honorary members and 26 sponsored members, this is approximately the same as last year at this time. In addition, individual members in the USNC sponsored 11 developing country memberships and the USNC sponsored 5 developing country and 3 student members in 2014. The USNC is will again be sponsoring developing country members.

If you have not yet renewed, please do so soon, or you will miss out on member benefits, especially the *Hydrogeology Journal*. Renew online or send checks to:

Vicki Kretsinger Grabert
USNC Treasurer
500 First Street
Woodland, CA, 95695

2015 USNC Financial Status

Regarding our general funds, we currently have about $15,200 in our JPMorgan Chase checking account and about $38,400 in our Vanguard Mutual Fund Account (Total Stock Market Index Fund). Separately, we have about $21,000 in our Endowment Fund, split evenly between two Vanguard Funds (STAR and Extended Market Index). **Good news – we reached our goal of establishing an Endowment Fund total of at least $20,000!** We will continue to add additional contributions and let these funds grow. The USNC Endowment Fund is for purposes such as sponsoring students and developing country memberships, supporting national chapters in developing countries, and promoting international activities that further the advancement and application of hydrogeology, including research, education, outreach, and training. The US Chapter's Finance Committee, in coordination with the Executive Committee, will be identifying specific ways to begin using these funds for their intended purposes.

A hearty <u>THANKS</u> to those members who sent sponsor funds along with their membership renewal! Your funds help support the IAH Endowment Fund and will expedite the timeframe within which funds will be actively used to support students and developing country members.

Announcing the new IAH USNC International Service Award!

The IAH USNC seeks to recognize the efforts of hydrogeologists based in the United States who have shown an outstanding commitment to assisting the international community with groundwater-related needs.

Criteria: The award will be presented to one individual each year who has performed exceptional work in assisting those outside of the US (particularly in developing countries). Achievements related to with developing, managing or protecting groundwater resources for public and/or ecosystem benefit will be recognized.

Presentation: An engraved plaque will be presented at the Geological Society of America's Annual Meeting at the Hydrogeology Division Luncheon

Selection Process: Candidates must be nominated by at least one hydrogeologist other than themselves who is a member of either IAH or GSA. 2015 Nominations should be sent to the IAH US National Chapter's GSA liaison (amanning@usgs.gov) by August 1st, 2015. Please see our website for details!

Updates on IAH USNC Activities and Projects of Interest

USGS Afghanistan Water Project Update- *Thomas Mack*

The Fall 2014 IAH US newsletter featured a USGS news release on a decade-long collaboration between Afghan scientists and hydrologists at the USGS. The Afghan and USGS collaboration is further discussed in a recent article in EARTH by Jon Campbell, USGS Office of Communication and Publishing. The EARTH article provides additional insight into the hydrologic and institutional conditions faced in Afghanistan at the beginning of this collaboration and provides additional description and photographs of water resources activities conducted during the USGS Afghan water project. The EARTH article can be found at the following link: http://www.earthmagazine.org/article/dry-and-ravaged-land-investigating-water-resources-afghanistan

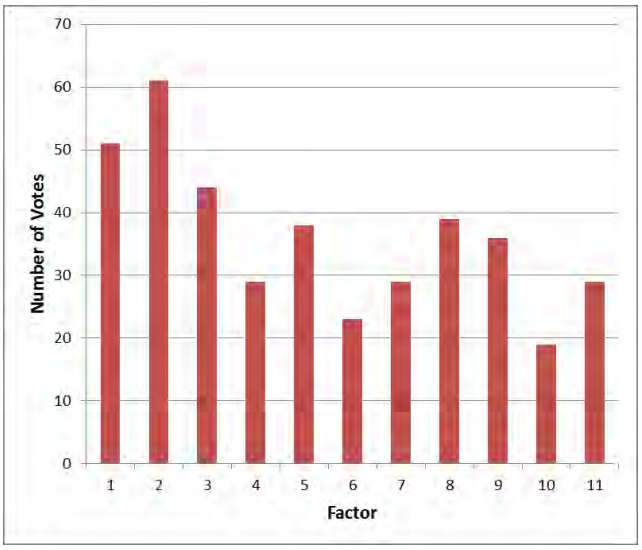
Much of Afghanistan relies on subsistence farming with small irrigation systems running from snowmelt-filled streams such as the Balkhab River. Credit: Thomas J. Mack, USGS.

A Solid Success for Energy and Groundwater follow-up from the IAH Pardee Symposium at GSA 2014 - *Andy Manning*

The U.S. National Chapter (USNC) and the Canadian National Chapter (CNC) of IAH together sponsored a Pardee Keynote Symposium at the 2014 Geological Society of America Annual Meeting entitled "Energy Resource Development and Groundwater: Looking Broader and Deeper". Andy Manning of the USNC and Grant Ferguson of the CNC served as co-conveners. The session featured an all-star lineup of speakers with expertise in deep groundwater systems and energy development, such as Steve Ingebritsen and Chris Neuzil of the USGS, Rob Jackson of Stanford University, and Chris Ballentine of Oxford University, to name a few. Talks ran the full gamut of this broad and complex issue, covering deep permeability, structural considerations and induced seismicity, deep fluid geochemistry and migration, characterization methods and modeling, potential environmental impacts on shallow groundwater resources, regulatory oversight of deep waste injection, and protection of deep groundwater resources. The all-day event was very well attended and well received by the GSA community, and provided some nice visibility for IAH.

There were two primary motivations for the symposium. The first was to provide a session on a timely topic of considerable interest to hydrogeologist both inside and outside the United States, especially Canadian hydrogeologists since the meeting was being held in Vancouver, BC. The second was to promote discussion and gain preliminary feedback on the possibility of a future "IAH North America Meeting" jointly organized by the USNC and CNC. Is there a need for such a meeting? Is there a niche it could fill? What form might it take? What would most motivate people to attend? There was some good discussion regarding these and other questions in the halls outside, and at the catered reception following the session. The conveners used the oldest principle in the book of geologic gatherings to get some more tangible "highly semi-quantitative" feedback – provide beer, and they will come! At the reception, a free drink was dispensed to each attendee who filled out the following simple questionnaire asking them to "Choose 3-5 factors below that would most motivate you to attend a possible future IAH North America Meeting:"

1) Nice location
2) Focus on a hot topic in hydrogeology
3) High-profile scientists are speaking
4) Smaller and interactive, with scheduled discussions
5) Focus on my area of expertise in hydrogeology
6) My friends/colleagues are attending
7) Emphasis on charting/prioritizing new research directions in hydrogeology
8) Emphasis on socially-relevant issues, and including industry and policy-makers
9) Emphasis on broad interdisciplinary topics and new directions in hydrogeology
10) Field trips and training workshops
11) Opportunities for students to network and present research



The responses are tallied in the chart above. Nice location, Focus on a hot topic, and high-profile speakers were the top three vote-getters. The USNC will be continuing to work with the CNC to evaluate this feedback and other factors and determine if there is sufficient interest to move forward with planning an IAH North America Meeting. **Meanwhile, all IAH members are encouraged to weigh in and send their feedback and ideas to us at sawpierce@gmail.com or via twitter using #IAH and #Groundwater Please let us know what you think!**

Development and Implementation of a National Groundwater Monitoring Network - *Mike Wireman*

Groundwater monitoring at local, regional and national scales is a key element of sustainable groundwater resource management. The U.S. Congress recognized this need in the 2009 SECURE Water Act (P.L. 111-11), which authorized the development of a national groundwater monitoring network in the USA. The Subcommittee on Groundwater (SOGW), part of the Advisory Committee on Water Information (ACWI)[1], has guided a collaborative effort to develop a framework for design and implementation of a long-term, nation-wide groundwater quantity and quality monitoring network.

The SOGW released an initial framework document in 2009 (A National Framework for Groundwater Monitoring in the United States) which described a National Groundwater Monitoring Network (NGWMN) as a voluntary, cooperative, integrated system of data collection, management and reporting, to be focused on major aquifers in the USA[2]. The NGWMN was to consist of selected groundwater monitoring sites included in established State / Tribal groundwater monitoring networks. To qualify for inclusion in the NGWMN, monitoring sites were to meet a minimum set of criteria related to baseline data history and metadata.

Following the release of the initial framework document, the SOGW facilitated five pilot studies in partnership with six states. The studies were conducted to determine the feasibility and effort required for data providers to: (a) designate selected existing monitoring wells for inclusion in the NGWMN, (b) evaluate field practices and data management procedures and (c) evaluate gaps in existing networks. The pilot tests demonstrated the overall feasibility of the NGWMN and helped to identify improvements needed in the framework. In 2013, the SOGW released an updated version of "A National Framework for Groundwater Monitoring in the United States". This document: (a) includes a summary of Statewide and regional groundwater monitoring networks, (b) describes the goals and objectives of the NGWMN, (c) provides details of the network design, field data collection practices and data management, and (d) provides detailed information that can be used to develop a network design, categorize potential monitoring locations, and determine appropriate sampling and measurement frequencies.

Critical to the success of the NGWMN was the development of a web-based NGWMN portal through which groundwater data from the NGWMN can be viewed or downloaded by the public. The portal was developed by the USGS Center for Integrated Data Analytics (CIDA). The portal (map-based interface) translates from the many different data providers and the various data formats into a common standard format for the portal's interaction with the data user. The data provider maintains data ownership - however NGWMN data must be freely available without restriction via the portal.

Congress provided an initial appropriation for the NGWMN in the 2015 federal fiscal year. This appropriation will allow the SOGW to begin implementation of the NGWMN with approximately ten states. More States (and other data providers) will be added in future years depending on interest and continued funding. The Co-Chairs of the SOGW are Bill Cunningham, Chief of the Office of Groundwater at the USGS (Reston, VA) and Bob Schreiber, VP at CDM Smith, representative to ACWI for the American Society of Civil Engineers. The SOGW has an excellent website at www.acwi.gov/sogw.

[1]The ACWI was established by the Secretary of the Interior in 1996 as part of the Water Information Coordination Program pursuant to the Federal Advisory Committee Act. The purposes of the ACWI are to identify water information needs, evaluate the effectiveness of water information programs and recommend improvements. The ACWI membership includes all levels of government, Indian Tribal governments, and the private sector. See www.acwi.gov for further information.

[2] The USGS has identified and described principal aquifers in the USA in Hydrologic Investigations Atlas 730 – Groundwater Atlas of the United States. The NGWMN is primarily focused on these aquifers. However, other regional scale aquifers not included in HA-730 will be included if these aquifers are important to individual States or Tribes or other data providers.

IAH USNC Sponsored Members

The IAH U.S. National Chapter sponsors student and developing country members each year through general funds. This year we are welcoming several new developing country members, three of whom are highlighted below. If you would like to nominate or help sponsor a new member in either the student or developing country categories, please contact Devin Galloway (dlgallow@usgs.gov).

Artem Iatsenko is a Senior Lecturer at the National Technical University of Ukraine within the Kyiv Polytechnic Institute. Before starting his current position, Artem completed doctoral research with a focus on protecting groundwater from uranium compounds using permeable barriers. He has interests in hydroecology and natural purification properties of ecologic systems. In addition, Artem has published ten articles on groundwater topics and holds a patent for a soil and groundwater remediation method.

Moutaz Al-Dabbas is a professor of water resources and environmental management in the Geology Department at Bagdad University. Dr. Al-Dabbas heads the Geological Society of Iraq, and he is a member of the Iraqi National Committee for Combatting Dust Storms. In addition, Professor Al-Dabbas contributes as an editorial board member of multiple peer-reviewed journals. Having written over 99 articles, Dr. Al-Dabbas has contributed to hydrogeosciences across a wide range of topics, such as modelling techniques for unconfined aquifers and assessing soil concentrations of heavy metals and hydrocarbons. He also consults actively with numerous Iraqi institutes to provide subject matter expertise on critical environmental and technical topics for his country.

Juan Pérez Quezadas is currently a candidate for the degree of Doctor of Earth Sciences at the National Autonomous University of Mexico (UNAM). He previously completed a Bachelor's degree in Physics at the University of Veracruz (UV) and a Master of Science degree in hydrology at UNAM. Has been collaborating on hydrogeological projects with the Isotope Hydrology Group of the Institute of Geophysics at UNAM since 2005. Juan has participated in international hydrogeology courses sponsored by the IAEA at the Polytechnic University of Catalonia (Spain) and University of the Republic of Uruguay. Juan participates as a technical coordinator of Technical Cooperation Projects (PCT) granted to the UNAM and UV, supported by the International Atomic Energy Agency (IAEA). He also collaborates with the Center for Earth Sciences (CCT) of UV in the development of the "National Program Against Drought" (PRONACOSE). Juan is considered a pioneer in the application of isotope techniques in the state of Veracruz and participates in investigations pertaining to national hydrological problems, providing technical expertise for technical approaches relating to the exploration of groundwater.

Member News and Notes

IAH Commission on Groundwater for Decision Makers – *Andrew Stone*

The IAH Commission on Groundwater for decision makers is looking for a few volunteers from the US National Chapter to review some draft educational groundwater presentations. The plan is to make these presentations available to IAH members via the HQ web-site so that they can be used as an IAH-branded educational resource. Having quality images and "approved" text can assist IAH members in promoting groundwater awareness to the public and decision makers while at the same time raising the profile of the IAH as a professional organization.

Currently, there are three (draft) presentation sets ready for review, comment and editing. Threats to water quality (50 slides), Geology Fundamentals (35 slides), and Hydrology Fundamentals (36 slides). Please contact the Commission Director, Andrew Stone (astone@agwt.org) if you are interested in helping to finalize these first three presentation sets and provide guidance and input to develop additional educational slide sets. The draft presentations will be made available via internet download followed by an on-line discussion among the reviewers. Please call (603) 228 5444 [American Ground Water Trust] if you want more information before making a volunteer commitment.

2014 Contaminated Site Investigation and Remediation Technology Workshop

-Mike Wireman and Dr. Xin Song

The 2014 Workshop on Contaminated Site Investigation and Remediation Technology was held 9-12 November 2014 in Nanjing, China. The Workshop was sponsored by the Institute of Soil Science, Chinese Academy of Sciences (ISSAS) and organized and hosted by Professor Xin Song (ISSAS) and her students. The Workshop brought together professionals from government, academia and private and state-owned consulting firms and included speakers from the USA and China. The Workshop focused on the legal, engineering and scientific aspects of site characterization and remediation of contaminated soil and groundwater. There is a rapidly emerging focus on identifying, characterizing and remediating contaminated soil and groundwater in the Republic of China. Rapid urbanization and the ever-growing agriculture demand are key issues driving the increased effort. Governments at all levels (national, provincial and city) are taking some concrete steps to facilitate the growing efforts to improve management of soil and water resources. Remediation companies are growing rapidly, and the academic community is actively engaged in research to support the developing characterization and remedial efforts. Mike Wireman, past Chair of IAH USNC attended the workshop and presented a keynote talk.

Memorial to Ralph Heath (1925-2015) – *John Moore*

Ralph Heath, a retired U.S. Geological Survey hydrologist, died January 12, 2015 in Raleigh North Carolina, at the age of 89. Ralph was known for his outstanding ability to write and review technical reports. His book *Basic Ground-water Hydrology* (WSP 2220) had 10 printings and was translated into German and Brazilian. He was a member of the U.S. Navy V-12 program and was commissioned as an Ensign in 1945. After his discharge from the Navy he went to UNC Chapel Hill and received a BS degree in geology and in 1948 he joined the U.S. Geological Survey (USGS). During his USGS career he worked in Florida, New York (District Chief) and North Carolina (District Chief). He played a positive force as district chief for both States. After he retired from the USGS, he began a second career as a teacher-Duke University and NC State. He received many professional honors - Department of Interior Meritorious Service Award, American Institute of Hydrology Founders Award, Geological Society of America Distinguished Service Award, and the NGWA Distinguished Service Award.

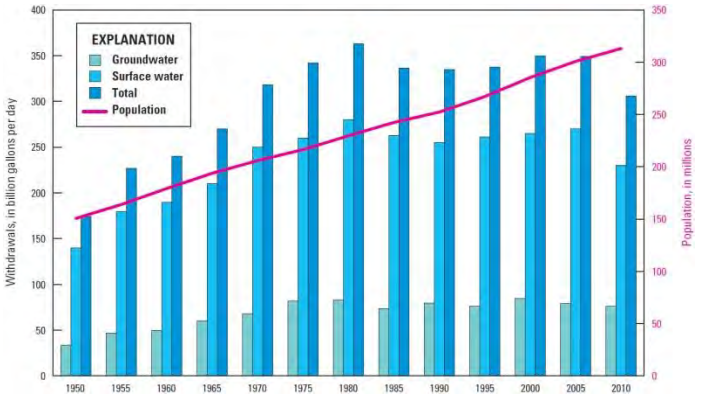
Books and Publications of Interest

Water Use in U.S. Decreases – *Lenny Konikow*

According to a new USGS report, about 355 billion gallons of water per day (Bgal/d) were withdrawn for use in the entire United States during 2010, and water use across the country reached its lowest recorded level in nearly 45 years. This represents a 13 percent reduction in water use from 2005 when about 410 Bgal/d of surface water and groundwater were withdrawn and the lowest level since before 1970, even though U.S. population continued to grow. Fresh groundwater withdrawals (76.0 Bgal/d) were about 4 percent less than in 2005.

In 2010, more than 50 percent of the total withdrawals in the United States were accounted for by 12 states in order of withdrawal amounts: California, Texas, Idaho, Florida, Illinois, North Carolina, Arkansas, Colorado, Michigan, New York, Alabama and Ohio.

California accounted for 11 percent of the total withdrawals for all categories and 10 percent of total freshwater withdrawals for all categories nationwide. Oklahoma and Texas accounted for about 70 percent of the total saline groundwater withdrawals in the United States, mostly for mining.



Trends in population and freshwater withdrawals by source, 1950-2010 (source: USGS, 2014).

For the first time, withdrawals for public water supply declined between 2005 and 2010, despite a 4 percent increase in the nation's total population. The number of people served by public-supply systems continued to increase, and the public-supply per capita use declined to 89 gallons per day in 2010 from 100 gallons per day in 2005.
The report ("Estimated Use of Water in the United States in 2010" by Maupin et al. 2014, USGS Circular 1405) can be downloaded from http://pubs.usgs.gov/circ/1405/

Springer Thesis and Briefs for Early Career Hydrogeologists – *Jim LaMoreaux*

Early Career Hydrogeologists Network (ECHN) and professors at their universities may be interested in a new program developed by Springer Science and Business Media. Dr. Jim LaMoreaux, Secretary of the IAH US National Committee Executive Board, serves on the Advisory Board of Springer Thesis and Briefs Program. Dr. Johanna Schwarz of Springer is the Editor of the program for Springer.

Universities with programs in Environmental Earth Sciences and Hydrogeology are encouraged to nominate one student a year from their programs that have the best thesis in their department. The student's thesis is then sent to Springer and, if Springer concurs, the student receives their own individual publication and monetary reward of 500 Euros. The thesis is made available through Springer's International distribution system and marketed as a Springer publication worldwide.

The Nomination Form is to be completed by the student's supervisor and returned with an abstract of the thesis to Dr. Schwarz at Johanna.schwarz@springer.com with a copy to Dr. LaMoreaux at jlamoreaux@pela.com. Once Springer has had a chance to determine the suitability of the thesis in terms of scope, the student is asked to send a pdf, which will, of course, be handled confidentially.

Once the thesis is accepted for publication, some minor changes to the manuscript may be requested to agree with Springer's in-house style for the series. Furthermore, the student's supervisor will be asked to write a 1-2 page foreword that explains why the thesis is outstanding. Additional information on Springer Briefs and Thesis Program may be found at www.springer.com/series/8790**.**

New Journal of Sustainable Water Resources Management (SWAM) – *Jim LaMoreaux*

Springer is pleased to announce the addition of a new journal to its international publications, "Sustainable Water Resources Management (SWAM)". SWAM will be published four times per year in March, June, September, and December. The IAH has agreed to lend its support to the development of the journal, and its logo will appear on the front cover.

IAH US National Committee members Drs. Jim LaMoreaux and Cliff Voss will serve as Editor-in-Chief and Associate Editor, respectively. Twenty internationally recognized professionals from around the world will compose the Editorial Board. Potential members could include representatives from IGRAC, ISMAR, IAH, UNESCO, academia, consultants, industry, and planning, socio-economic and regulatory professionals. If you are interested in serving on the editorial board or as a reviewer, please contact Jim at swarmh2o@yahoo.com.

The Aims and Scope will emphasize articles addressing water resources management, sustainability of water resources, groundwater and surface water quality and quantity, water use and reuse methods and research, geopolitical and socio-economic effects and constraints, ecological impact and human health, agricultural and climatic effects on water resources, natural and man-induced contamination of water resources, geothermal uses, water availability, surface water and groundwater interaction, managed aquifer recharge and storage.

The purpose of the journal is to provide a platform for authors from developing countries and their collaborators from developed countries to inform the larger scientific community of current projects and results of research. This will help meet the need for professional recognition of these authors and to disseminate this information to English-speaking readers. Additionally and of equal importance, this journal will meet the demand of developed countries for reliable scientific data and information to be used for projects in the developing countries. This international

interaction will increase the quality and scope of research of both audiences of the developed and developing countries and enhance the quality of this journal and future publications.

Springer has recently established its Water Program under the leadership of Dr. Carlo Schneider. The journal will be marketed through this program that will help it have an immediate base readership. In addition, the journal will benefit from Springer's marketing and distribution power to develop its readership more rapidly. Sustainable Water Resources Management is unique in that it will target the scientific community and the socio-economic, policy making and stakeholder communities. Bringing the two areas together will give SWAM a broader audience so as to be better able to develop lasting solutions to the critical concern of sustainable water resources management.

Upcoming 2015 Meetings and Conference Notes - *Vicki Kretsinger Grabert*

The National Groundwater Association Groundwater Summit is coming soon on March 16-18, 2015 in San Antonio, Texas. This year's conference theme is "Offering Solutions to Groundwater Challenges." For more information about the Groundwater Summit see http://groundwatersummit.org/. This year's conference has some blockbuster presentations, including:

- The integration of the NGWA's second Pillars of Groundwater Innovation event, in which Drs. John A. Cherry and R. Allan Freeze will keynote a session dedicated to their groundbreaking work on the 35th anniversary of the publication of the textbook *Groundwater*; with Cherry presenting Assimilation Capacity of Groundwater Systems: Re-examination of an Old Concept and Freeze presenting Hydrogeological Decision Analysis — Revisited

- Featured speaker Dr. Rula A. Deeb, BCEEM, PMP, California-based principal civil and environmental engineer, presenting the H_2O Talk State-of-the-Practice on Addressing Perfluoroalkyl Compound Impacts

- 2015 NGWREF Darcy Lecturer Dr. Rainer H. Helmig with the University of Stuttgart in Germany presenting Numerical Models for Evaluating the Competitive Use of the Subsurface: The Influence of Energy Storage and Production in Groundwater

- 2015 Birdsall-Dreiss Lecturer Dr. Clifford I. Voss of the U.S. Geological Survey presenting Density-Driven Groundwater Flow: Seawater Intrusion, Natural Convection, and Other Phenomena

The XVth World Water Congress and Exhibition

May 25-29, 2015, Edinburgh, Scotland

Organized by the International Water Resources Association and hosted by the Scottish Government, the XVth World Water Congress will provide a platform for open discussions and debates among scientists, practitioners, and policy makers from both developed and developing countries and from different disciplines and sectors.

In collaboration with Scotland´s Water, the IWRA Congress will promote in-depth discussions on the complexity of water policies, management, development, and governance practices at the

local, national, regional, and global levels in a rapidly changing world as the fast evolving global landscape is driving decisions in the sectors' policies, performance, and prospects.

Water resources professionals and related communities are invited to be part of this ongoing discussion to manage water efficiently, equitably and cost-effectively. Subthemes consider governance, management, vulnerabilities and risks, transboundary basins and aquifers, water valuation, non-conventional resources, and water law. For more information see http://worldwatercongress.com/.

2015 UCOWR / NIWR / CUAHSI Conference

June 16-18, 2015, Green Valley Ranch Resort, Las Vegas, Nevada

"Water is Not for Gambling: Utilizing Science to Reduce Uncertainty"The Universities Council on Water Resources (UCOWR) in collaboration with the National Institute of Water Resources (NIWR) and the Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) will hold this joint conference.

Water problems pose interdisciplinary challenges to world progress. The United Nations Secretary General Ban Ki Moon put it succinctly when he stated on March 22, 2013, that:

> *"Water holds the key to sustainable development, we must work together to protect and carefully manage this fragile, finite resource."*

Uncertainties in climate, population, land use, biodiversity, and infrastructure continue to pose enormous interdisciplinary challenges to our ability to effectively manage our water resources. UCOWR, CUAHSI, and NIWR invite you and your colleagues to join leading water managers, educators, researchers, and other professionals from across the country to the joint conference of these national organizations to address some of the most compelling and important challenges facing our profession. For more information see http://www.ucowr.org/conferences .

11th International Conference on Military Geosciences

11th International Conference on Military Geosciences

The ICMG will be held in Annapolis, MD from June 15-19, 2015. Organized by Desert Research Institute, this meeting will provide a venue for military personnel, academics, and practitioners from government service and commercial enterprises to explore a wide range of military geosciences. Participants will include geoscientists from North America, Europe, and South Africa and will discuss research conducted around the globe. Learn more at http://www.dri.edu/icmg11

Mark your calendars for the 42nd IAH Congress in Rome, Italy, September 13-15, 2015. The theme of this year's Congress is ***AQUA2015 Hydrogeology: Back to the Future.*** Learning from the past, the Congress will address the main issues facing hydrogeology in this millennium, including new perspectives related to groundwater and food. 21st century requirements, such as the adoption of new tools and the increasing demand for water from the present global population, will represent the basis of the discussions at the Congress.

The IAH Italian Chapter has already requested the support of the IAH Early Career Hydrogeologists' Network (ECHN) in the organization of the event. The UNESCO International Hydrological Programme (IHP) and the Rome-based United Nations' Food and Agriculture Organization (FAO), principal players in the challenge to ensure water and food availability, are the main scientific partners of the Congress. In addition, the President of the Italian Republic and the Minister of the Environment and Protection of Land and Sea have extended their patronage to the event.

The Congress will be held in the heart of the historical center of Rome, in the Angelicum Congress Centre, a 16th century building a few minutes' walk away from the Colosseum, the Imperial Forums, and the Quirinal Presidential Palace.

Francesca Lotti (Italy) and Jack Sharp (US and former IAH USNC President) would like to invite presentations for Session S_2_4, Hydrogeology of fractured rocks: progress in understanding of flow and mass transport. Abstracts are due in March 2015.

For the first time, the poster sessions will be enhanced with an electronic format. This e-poster innovative technology based on digital interactive viewing will increase the visibility and appeal of the poster sessions and will allow presenters to show more information compared to traditional paper-based posters. See the website for more information http://www.iah2015.org/.

2015 GSA Annual Meeting and Exposition

The Geological Society of America 2015 Annual Meeting and Exposition will be held in Baltimore, Maryland, November 1-4. Save the date to attend the conference and also the Fall 2015 IAH US National Chapter (USNC) meeting; watch for future announcements about the day and location.

For the purpose of promoting and encouraging greater understanding of Earth Sciences, GSA and the Geological Society of China (GSC), at the suggestion of the International Section of GSA, initialed a Memorandum of Understanding in October 2011 on holding two joint scientific meetings in the second decade of the 21st century. The first joint meeting was held in China in 2013. The second joint meeting will be held November 1-2, 2015 in conjunction with the GSA Annual Meeting. Stay tuned for more information at http://www.geosociety.org/meetings/2015/.

Upcoming Groundwater Resources Association of California (GRA) Events, (An Associated Society of the Geological Society of America).The USNC/IAH has been a cooperating organization for a number of Groundwater Resources Association of California (GRA) events. As members of a cooperating organization, IAH members enjoy GRA member rates to attend these events. IAH members are welcome to express their interest in assisting with the planning of 2015 events or participating as a session organizer or presenter by contacting GRA. Learn more about GRA, or the programs in which IAH is participating with GRA as a cooperator, on the GRA web site at http://www.grac.org, or by telephone, 916-446-3626. Watch for updates at www.grac.org.

California Oil, Gas and Groundwater, February 18 and 19, 2015, Southern California. Hydraulic fracturing has been utilized for oil and gas production in California for decades. While it has proven vital in developing the nation's underground energy sources and the nation's economy, concerns have been expressed as to the impacts fracking activities may have on natural resources, specifically water quality. The purpose of this conference is to provide an open forum for the transfer of knowledge between regulators, water agencies, consultants, oil and gas stakeholders, and scientific experts to discuss the innovative strategies and techniques oil and gas companies use in managing the water quality and quantity component of the oil and gas production cycle. This will help clarify the potential impact, real or perceived, hydraulic fracking may have on California's water resources in local and regional aquifers and watersheds. The conference program tracks may include topics such as:

- Water Supply for O&G Production
  - Survey of current sources
  - Regulation of supply
  - O&G water demands
- Produced Water Management
  - Monterey produced water quantity and quality
  - California produced water disposal
  - Produced water recycling
- Water Quality Monitoring
  - Current monitoring programs
  - Baseline groundwater monitoring
- Coexistence with Stakeholders
  - Competition for water in CA
  - O&G as a good neighbor
  - O&G water management cases
- Water Transportation and Disposal
  - Transportation regulations
  - Disposal options

Introduction to Groundwater and Watershed Hydrology, Monitoring, Assessment and Protection, November 2015, California. This short course will review the fundamental principles of groundwater and watershed hydrology, water quality, and water contamination in an intuitive, highly accessible fashion. It will then provide an overview of the most common tools for measuring, monitoring, and assessing groundwater and surface water resources. And it will review current local, state, and federal programs dealing with groundwater, groundwater management, and watersheds.

Other Conferences and Workshops (in planning)

- Sustainable Groundwater Management (June 2015)
- Groundwater Modeling Short Course (September 2015)
- Biennial Groundwater Conference and GRA Annual Meeting (October 2015)

GRA Casts (90 Minute Webinars)

- Hydraulic Fracturing, No. 2 in Series (February 11, 2015)
- Groundwater Management, Part 3 in Series (February 25, 2015)
- Hydraulic Fracturing, No. 3 in Series (March 4, 2015)
- Groundwater Management, Part 4 in Series (March 18, 2015)
- MODFLOW, Part 2 in Series (April 1, 2015)
- Groundwater Management, Part 5 in Series (April 15, 2015)
- Groundwater Management, Part 6 in Series (May 13, 2015)
- Groundwater Management, Part 7 in Series (June 17, 2015)

Editor's Notes

IAH Interactive

IAH is an organization that serves the Hydrogeology community. We want to hear about the topics and issues that are most interesting to you, our members. For that reason, The US National Chapter is adding interactive elements to each of our newsletters. **For the Spring 2015 newsletter, let us know what would most motivate you to attend a possible future IAH North America Meeting?**

1) Nice location
2) Focus on a hot topic in hydrogeology
3) High-profile scientists are speaking
4) Smaller and highly interactive, with scheduled discussions
5) Focus on my area of expertise in hydrogeology
6) My friends/colleagues are attending
7) Emphasis on charting/prioritizing new research directions in hydrogeology
8) Emphasis on socially-relevant issues, and including industry and policy-makers
9) Emphasis on broad interdisciplinary topics and new directions in hydrogeology
10) Field trips and training workshops
11) Opportunities for students to network and present research

Send feedback and ideas either by email to sawpierce@gmail.com or via Twitter using #IAH #groundwater tags in your tweets.

Contributions Invited for the Fall 2015 Newsletter

Please send proposed articles to the USNC IAH Newsletter editor, Suzanne Pierce at the following email address sawpierce@gmail.com. **Article Submission Deadline** – Sept. 1, 2015

About the Cover Photo and a Collage

In the state of Veracruz, Mexico there is a huge spring named "El Descabezadero" near the city of Xalapa. USNC Chair, Vic Heilweil contributed this photo from his recent visit to the region for an IAEA Expert Mission to work with folks from the Universidad Veracruzana. The spring discharges from a more permeable layer of recent lava flows that fill the valley and makes an eye-catching cover photo. We are including a second image from Vic's trip below. Additionally, there are a few images from the last board meeting held during GSA in 2014. Do you have a great photo from an international field site or meeting? Send it to us as a candidate image for the upcoming newsletter!

Thank You!