International Association of Hydrogeologists

Newsletter
U.S. National Chapter

Fall 2015

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Spring Contributions Welcome!
Through January 10, 2016

[Image Credit: Khurkh-Khuiten Ramsar site, Mongolia from Joe Gurrieri, Director of IAH Groundwater & Ecosystems Network]

International Association of Hydrogeologists
U.S. National Chapter
Fall 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! Our Fall 2015 IAH US National Chapter meeting was just held on November 1st at the annual Geological Society of America meeting in Baltimore. The meeting was well attended, with all of our Board Members present (in-person or via conference call), along with several other US National Chapter members. We discussed a wide range of topics including our upcoming 2016 elections, news of the recent 2015 Canadian Chapter meeting, the migration of our website to WordPress, news from our associated societies (GSA, NGWA, AGI), our new USNC International Service Award (see separate article), and our increased initiative to attract new members through our Student Sponsorship Program. Afterward, several of us went out for dinner – a nice chance to relax and catch up with each other.

I wanted to share some thoughts on our 2015 IAH Congress in Rome this past September. While enjoying the global hydrogeologic community, I realized that it was just this type of international interaction with hydrogeologists from other countries that initially attracted me to IAH. My first Congress was Zacatecas, Mexico, in 2004. I found it fascinating to learn about both similarities and differences in groundwater systems of other countries, novel approaches being developed elsewhere, and opportunities to disseminate methods and techniques developed here in the U.S. Eleven years later, the Rome Congress nicely highlighted the progress that has been made in areas and concepts that had been relatively new or in early stages of development about a decade ago, such as climate-change impacts, transboundary aquifers, GW/SW interaction and groundwater-dependent ecosystems, the water/energy/food nexus, groundwater governance, etc. The Rome Congress was a great opportunity to see how far we've collectively made advances in better understanding and striving to protect and sustainably develop groundwater resources globally. Of course, there is much future research and applied studies to look forward to, which will keep our upcoming IAH Congresses vibrant and relevant. I would urge each of our US members to consider attending an upcoming Congress and experience firsthand the synergies, networking, and knowledge/technology exchange at this confluence of our global hydrogeologic community. The next three Congresses will be held in Montpelier, France (2016), Seoul, Korea (2017), and Dubrovnik, Croatia (2018). Next year's Congress in France will be celebrating the 60th anniversary of IAH. In preparation, the organization has requested contributions of IAH historical stories and photos - they can be sent to 60years.iah.org.

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

A Note from the Vice President for North America

Happy Autumn! The Rome IAH Congress was a great one with great technical talks of high quality. The Italian Chapter did a marvelous job organizing an outstanding conference. There were over 800 participants from 84 countries, and Americans were very well represented. In the opening ceremony, a film was shown on Italian hydrogeology (available with other highlights at https://storify.com/IahNicholson/congress-2015-highlights), the mayor of Rome welcomed us, and the ceremony was topped off with beautiful Italian opera performances. Plenary sessions were particularly good. On Wednesday at the same time as mid-conference field trips were going on, the Pope welcomed IAH to Rome at the Papal audience in St. Peter's Square in the Vatican City. Evenings had fun get-togethers with an introductory mixer one evening, at a pub with the Early Career Hydrogeologists Network another, and conference dinners at Italian restaurants other nights (one appropriately named "Eataly"). There were varied pre-conference workshops, and mid-conference and post-conference field trips. All-in-all it was a great opportunity to learn about all aspects of our science and have lots of fun as well. The Canadian Chapter of IAH had its annual meeting at the end of October in Waterloo, Canada with such notables as John Cherry, Beth Parker, Ian Clark, Garth van der Kamp, Bill Alley, Robert W. Gillham, Emil Frind, James Barker, R.E. "Dick" Jackson, and Cathy Ryan. The fun included a banquet and an Octoberfest night. Some exciting news for Canada is that Al Freeze and John Cherry's 1979 textbook "Groundwater" will be updated in an online version that will be constantly updated with an editorial review board including the original co-authors. Proceeds of the new "GW2.0" textbook will go to the philanthropic group, Hydrogeologists Without Borders. Diana Allen from Simon Fraser University was this year's Farvolden Award winner, and she is also the new president of the Canadian Chapter of IAH, succeeding Grant Ferguson. IAH North America is certainly moving forward. Hope you all have a terrific Fall season!

- Dave Kreamer

Treasurer's Report – *Vicki Kretsinger Grabert*

2015 U.S. National Chapter (USNC) Memberships

This year the USNC has about 270 USNC members, including 31 honorary members and 26 sponsored members. In addition, individual USNC members sponsored 11 developing country memberships and the USNC (using chapter funds) sponsored 7 developing country and 5 student members.

2015 USNC Financial Status

Regarding our general funds, we currently have about $15,600 in our JPMorgan Chase checking account and about $37,200 in our Vanguard Mutual Fund Account (Total Stock Market Index Fund). Separately, we have about $20,400 in our Endowment Fund, split evenly between two Vanguard Funds (STAR and Extended Market Index). This year 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.

Membership Renewals Coming Soon…

Please consider sending sponsor funds along with your 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.

Dr. Michael Campana Receives

2015 IAH US National Chapter International Service Award

at Geological Society of America Meeting in Baltimore

This year's recipient of our IAH US National Chapter International Service Award is Dr. Michael Campana, Professor of Hydrogeology and Water Resources, Oregon State University. Mike is the first recipient of the new award, which will be presented each year during the GSA Hydrogeology Division Luncheon. He was nominated by Dr. Todd Jarvis, also at Oregon State and the following are some abridged excerpts from Todd's nomination letter:

"Dr. Campana's storied career spans over 40 years. On the international front, he was one of the pioneers in recognizing the importance of transboundary aquifers and was instrumental in elevating the importance of this topic… In 2009, Dr. Campana helped secure a Study of the U.S. Institute for the Environment (SUSIE), sponsored by the State Department's Bureau of Educational and Cultural Affairs, and has hosted over 30 students from Central America and the Caribbean. More recently he helped launch a Master's Program in Water Cooperation and Peace, coordinated by UNESCO, the University for Peace in Costa Rica, and Oregon State University. Dr. Campana currently serves on the Steering Committee of the Global Water Partnership and volunteers for both Lifewater International and Living Water International. He founded the Ann Campana Judge Charitable Foundation that supports projects related to water, health and sanitation issues in Latin America, Africa, and India. He also currently serves as the Technical Director for the American Water Resources Association."

Dr. Campana is also a great communicator of science and a champion of social media. His twitter feed "@WaterWired" and his blog are two of the most followed sites related to water. In summary, he exemplifies the selfless dedication of a scientist who has applied his expertise to improve the lives of others and is extremely deserving of this international service award.

Updates on IAH USNC Activities and Projects of Interest

2015 National Chapters Meeting at the Rome IAH Congress - *Vic Heilweil and Dave Kreamer*

Each year at the IAH Congress (since 2010), representatives of the National Chapters meet to learn about each other's chapters, communicate suggestions or concerns to the IAH Executive Council, and exchange ideas for improving Chapter activities and relevance for their members. IAH has over 40 national groups (not all of which are formal "Chapters") with quite varied sizes and levels of activity. This year's meeting covered a broad range of topics. The following is a summary of a few discussions during the meeting that may be of interest to our U.S. Chapter members:

- Total IAH membership has stood at about 4,000 over the past several years, fluctuating by +/ 500 from year to year. We discussed things each Chapter could do to attract and retain members. Because many hydrogeologists can access Hydrogeology Journal articles without a subscription, National Chapters need to be active (organizing meetings, networking, and training courses; communicating via website, newsletter, social media) in order to compel people to join. Emphasis should be placed on attracting younger members, such as advertising employment opportunities and promoting the Early Career Hydrogeologists Network.
- It was proposed that each National Chapter select a representative to communicate with other National Chapters via a LinkedIn group to discuss topics such as attracting and retaining new members, providing assistance to newly forming National Chapters (e.g. sharing documents such as Articles of Incorporation), developing the agenda for the National Chapter Representatives meeting at upcoming Congresses.
- The concept of Chapter Twinning was discussed and is of particular interest to several developing country nations. Ireland and Uganda are currently considering a twinning arrangement. The U.S. National chapter has taken initial steps to help Bolivia form a National Chapter and may consider eventually entering into a twinning relationship, but communication on this has recently stalled.

AGI Offers Access to Earth Science Images – *Lenny Konikow*

The ***Earth Science World Image Bank*** is a service provided by the American Geosciences Institute (AGI). This Image Bank is designed to provide quality geoscience images to the public, educators, and the geoscience community. The Image Bank now has over 6,000 images available to search, making it one of the largest sources of Earth Science imagery available on the web. Images from the Earth Science World Image Bank are available for acceptable non-commercial uses, provided proper credit is given. More details on the image bank, conditions for use, and search tools are available at: http://www.earthscienceworld.org/images/

Groundwater Dependent Ecosystem Conservation in Mongolia - *Joe Gurrieri, Director IAH Groundwater & Ecosystems Network*

In 2013, the U.S. Forest Service (USFS) International Programs (IP) provided a grant to the International Crane Foundation (ICF) (https://www.savingcranes.org/) in collaboration with the Wildlife Science and Conservation Center of Mongolia (WSCC) (http://www.wscc.org.mn/) as part of IP's broader efforts to establish conservation partnerships in Mongolia. The third trip to Mongolia supporting this project took place in July 2015.

USFS hydrogeologist, Joe Gurrieri, and rangeland specialist, Josh Voorhis, worked with a field team from WSCC and the Mongolia National University to train young scientists in groundwater dependent ecosystem assessment and rangeland monitoring on livestock exclosure sites. The USFS scientists were also able to meet with local families in the Khurkh Valley to discuss community needs and aspirations, changes they see in the landscape, and current and past grazing practices at the Ramsar site.

The field location encompasses groundwater supported Ramsar wetland sites located in the transition zone between Mongolian forest and steppe zones in the basin of the Khurkh-Khuiten river. The wetlands are in the permafrost zone and exhibit thermokarst features from melting of the permafrost. The wetlands are critical habitat for many threatened and endangered species from the southern taiga, Central Asian steppe, and forest steppe of Daguur-Manjuria. They support populations of White-Napped Crane, Eurasian Crane, and Demoiselle Crane. The main land use is animal husbandry which is increasing and damaging the wetlands. Climate change and melting permafrost have implications for future changes in the hydrology of the wetlands.

Mongolia is rich in groundwater dependent wetlands, and many hydrogeologic questions remain unanswered. Biologists and others working to protect these areas would benefit from the input of hydrogeologists. Important questions generated during our visit include: How will the melting permafrost from climate change affect the wetlands and the herders that rely on them? How is the distribution of bird nesting related to the hydrology of the wetlands? What is the thickness of the active zone for groundwater in the permafrost and is it changing? What is the fate of the thermokarst lakes which is important for birds as the permafrost underneath melts?

Currently, no conservation measures have been taken to protect these sites. Data and strategies developed by this project will be used to lobby decision makers for protections to these ecologically valuable groundwater supported systems.

The Groundwater & Ecosystems Network is working toward meaningful engagement with Ramsar on groundwater issues. This project stands as an example of how the management of wetland ecosystems can benefit from the input of hydrogeologists. Recently the IAH Groundwater & Ecosystem Network sent a "Call to Action" letter to the IAH National Chapters encouraging their members to interact with Ramsar site management and offer help with technical review or provide hydrogeological input on issues related to groundwater. The letter is available at http://usa.iah.org/call-to-action.pdf.

Caption: Demoiselle Cranes coexisting with horses in the Khurkh-Khuiten Ramsar site, Mongolia. Note trampled, hummocked, and overgrazed wetland soils in foreground.

Groundwater Governance – *Lenny Konikow*

According to their website, “Groundwater Governance - A Global Framework for Action” is a joint project supported by the Global Environment Facility (GEF) and implemented by the Food and Agriculture Organization of the United Nations (FAO), jointly with UNESCO's International Hydrological Programme (UNESCO-IHP), the International Association of Hydrogeologists (IAH), and the World Bank. The project is designed to raise awareness of the importance of groundwater resources for many regions of the world, as well as to identify and promote best practices in groundwater governance as a way to achieve the sustainable management of groundwater resources.

The Global Framework for Action consists of a set of policy and institutional guidelines, recommendations, and best practices designed to improve groundwater management at country/local level, and groundwater governance at local, national, and transboundary levels. More information, publications, and references are available at: http://www.groundwatergovernance.org/

Reminders and Opportunities for Students and Faculty

– Devin Galloway

Remember to Nominate students each year for a *Sponsored* IAH Student Membership

Faculty members, each year the International Association of Hydrogeologists (IAH) U.S. National Chapter (USNC) encourages hydrogeology graduate students eager to learn more about hydrogeology in other countries to join IAH. The USNC expects to continue to sponsor one-year student memberships in IAH for select graduate students. To pursue this opportunity for next year, requests should consider the following:

- University professors in graduate hydrogeology programs can nominate one hydrogeology graduate student (who will remain a graduate student at least through a one-year membership period.
- Nominating professors should determine that the graduate student has an interest in and will benefit from this membership and submit the following qualifying information:
    - Submitting professor's name, academic affiliation and department, and contact information (mailing address, phone number and email);
    - Student name, academic affiliation and department, and contact information (mailing address, phone number and email);
    - Student graduation month and year (anticipated date); and
    - Statement relating to student interest and potential benefit derived from IAH membership (1 to 2 sentences).

Nominations are due each fall and you can email the requested application information to Devin Galloway, USNC Board Member and Membership Liaison at dlgallow@usgs.gov.

Don't forget the Springer Thesis Program – Students work diligently to complete the research and learning needed to become a hydrogeologist. Some of these research projects stand out and Springer has created a program to recognize outstanding theses. Please don't forget to nominate your superlative students! Students with the best thesis in their department from universities around the world can be nominated to submit their theses to Springer. If selected for publication the student gets their own individual publication and a monetary award of 500 Euros.

Member News and Notes

Groundwater Modeling Course in South Africa – *Ward Sanford and Richard Winston*

Hydrogeologists Dr. Ward Sanford and Dr. Richard Winston of the U.S. Geological Survey will be teaching a 3-day introductory course on the MODFLOW groundwater modeling software in Pretoria, South Africa during the first week of December of 2015. The class is being sponsored and paid for by UNESCO in support of their freeware HOPE program that aims to make widely used free hydrological software available to developing countries. The course will be attended by a variety of scientists and engineers from Namibia, Botswana, and South Africa. There are tentative plans to make this the first of three classes on MODFLOW, with each one building on the previous content. Ultimately, the three countries would like to use MODFLOW to co-develop a groundwater management model for the Stampriet Transboundary Aquifer System, which underlies those countries and whose students are being represented in the class.

Dr. Mary Hill recognized for 2015 Dooge Medal

Dr. Mary Hill, IAH USNC member, received the 2015 Dooge Medal from the International Association of Hydrological Sciences (IAHS). In the words of her citationist, IAHS President Hubert Savenije, Dr. Hill was awarded this medal for her "*significant and long-lasting contributions to groundwater modeling, particularly in inverse modeling, sensitivity analysis, uncertainty analysis and investigating the importance of existing and new data.*" The Dooge Medal is one of only two International Hydrology Prizes, and it is awarded to recognize achievement by hydrological scientists that make a fundamental contribution to the science of hydrology. **Congratulations Mary!**

Left to Right: Christophe Cudennec (Secretary General, IAHS), Anil Mishra (UNESCO), Hubert Savenije (President, IAHS), Mary Hill (Dooge Medal Recipient), Paul Pilon (WMO). Note: Image from the IAHS website.

Groundwater News of Interest

Dispatches from the Drought - *Katie Markovich and Stephen Maples doctoral students in Hydrologic Sciences at UC Davis*

California, along with much of the Western US, is in the throes of a severe drought. The major reservoirs, which supply water to a 46 billion dollar agricultural economy and a population of 38.8 million people, are at record low volumes. Wildfires in California, bolstered by the lack of moisture, have ravaged more than 300,000 acres of water-starved forests (three times the average for the same period), destroying over a thousand homes, and taking five lives this summer alone. Farmers have lost an estimated 2 billion dollars in revenue and 17 thousand jobs due to water-stressed crops and fallowed fields, and entire communities in the Central Valley have seen their wells dry up, forcing them to rely on expensive and inconvenient water importation. Unprecedented groundwater pumping has resulted in record-low groundwater levels throughout the state, and the resulting land subsidence from the dewatering of fine-grained silts and clays of the Central Valley alluvial aquifer is increasing at alarming rates.

Despite this bleak state of affairs, there are some bright spots. Most importantly, the drought has resulted in a collective acknowledgement among Californians of the vital importance of water to the state's economy and people. Both the state government and the residents themselves have taken unprecedented steps forward in addressing both the drought and the inherent climate variability that has plagued human settlement in this region for centuries. In 2014, Governor Brown and the state legislature passed the historic Sustainable Groundwater Management Act, requiring vulnerable groundwater basins to form management agencies, draft a management plan, and achieve sustainable levels of use by the mid-21st century. Proposition 1 passed after that, making available 7.1 billion dollars to fund state upstream and downstream infrastructure projects, such as surface water and groundwater storage, drinking water protection, water recycling and wastewater treatment, drought relief, emergency water supplies, and ecosystem and watershed protection and restoration. Lively discourse continues throughout a diverse range of media outlets on complex drought-related topics like El Niño, groundwater overdraft, atmospheric rivers, and remote sensing, which have raised public awareness and understanding of climate science and hydrology. Finally, state water use has dropped by 25 percent compared to average consumption, aided by the seemingly unanimous adoption of state-mandated watering restrictions. To many observers, these steps would have been insurmountable before the drought.

In recent months, much of the media discussion has shifted to speculation of drought-busting El Niño conditions in the Pacific Ocean. Regardless of whether these conditions bring heavy rain and snow this winter, California should continue to advance its new-found conservation habits given future climate change and population growth pressures. If El Niño turns out to be a bust—which it very well may—the newly drought-minded Californians must continue adaptation and conservation. Either way, at least now they know the drill.

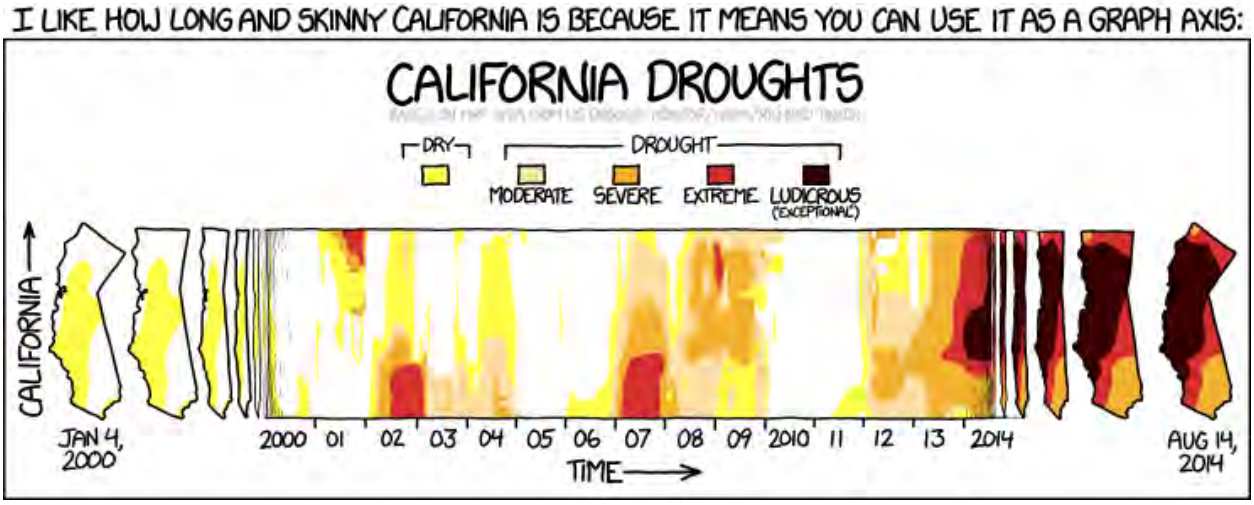


Image contributed by Katie Markovich, USNC Student Member enrolled in an interdisciplinary water science program at University of California at Davis.

Upcoming 2015/16 Meetings and Conference Notes

- Vicki Kretsinger Grabert & Suzanne Pierce

9th International Symposium on Managed Aquifer Recharge:
Mexico City | June 20-24, 2016
The Engineering Institute of the National Autonomous University of Mexico (UNAM) is hosting the 9th International Symposium on Managed Aquifer Recharge (ISMAR9) in conjunction with the Biennial Symposium on Managed Aquifer Recharge (BSMAR15) in Mexico City. For more information visit: http://www.ismar9.org/Default.htm

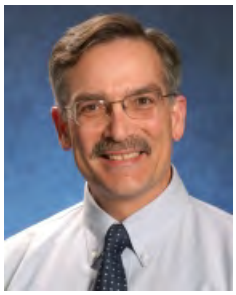
The National Ground Water Association Groundwater Summit:
Denver, Colorado | April 24-27, 2016

Join fellow industry professionals from around the world at NGWA's preeminent technical conference, the Groundwater Summit, which will be focusing in 2016 on "Solving Groundwater Challenges Through Research and Practice". For more information see http://groundwatersummit.org/.

This year will include Special presentations for " Darcy Revisited" with three former NGWREF Darcy Lecturers addressing the advances made within their topic areas since their official Darcy Lecturer year.

Mary C. Hill, Ph.D., a professor in the Department of Geology at the University of Kansas, will provide updates on her 2001 Darcy Lecture, "Guidelines for Effective Model Calibration (Any Model!)," which focused on how nonlinear regression and associated statistics can be used to dramatically improve how data are used to calibrate and test models. Click here to view Hill's original lecture.

Kip Solomon, Ph.D., a professor in the Department of Geology & Geophysics in the University of Utah's College of Mines and Earth Sciences, will provide updates on his 2005 Darcy presentation, "Inert Gas Tracers in Ground Water" that illustrated the basic concepts of using inert gas tracers along with case studies describing their applications to real-world groundwater flow problems. Click here to view Solomon's original lecture.



Michael Celia. Ph.D., director of the Program in Environmental Engineering and Water Resources in the Civil and Environmental Engineering department at Princeton University, as well as a professor, will provide updates on his 2008 Darcy Lecture, "Geological Storage as a Carbon Mitigation Option," which talked about carbon capture and storage, or CSS, as one approach to reducing atmospheric carbon dioxide. Click here to view Celia's original lecture.

Groundwater and Society
60 years of IAH – 43 rd IAH Congress
25-29 September 2106
Montpellier, France

September 25-29, 2016
Montpellier, France

Mark your calendars for the 43nd IAH Congress in Montpelier France, September 25-29, 2016. The theme of next year's Congress is ***Groundwater and Society.***

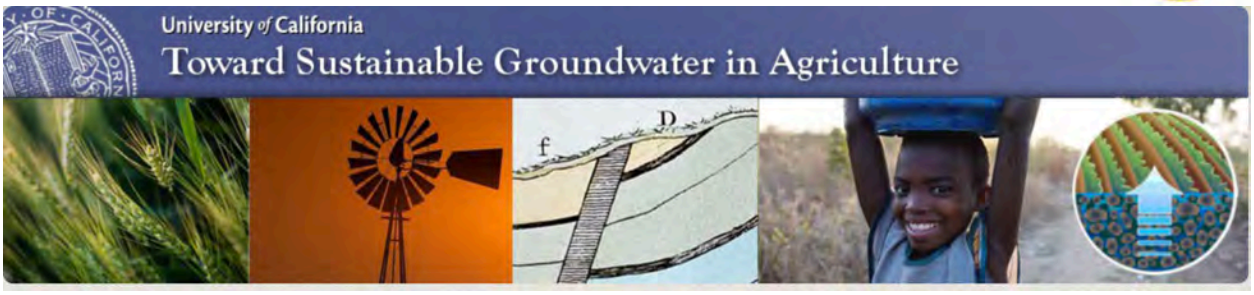
This congress will include a program of invited presentations to reflect on the achievements of IAH and to look forward to the further development of IAH and hydrogeological science. This will be combined with the submission of abstracts for a conventional technical program of parallel sessions and posters and post-congress field visits to some very attractive locations in the surrounding French countryside, and the normal IAH meetings.

It is highly appropriate that our French colleagues, who were so instrumental in establishing the Association, should host this anniversary meeting just as they did in in 2006 in Dijon. Moreover, at their invitation, IAH's German National Chapter, who also played an essential role in setting IAH on its way, will join the IAH French Chapter in organizing the meeting.

Key Dates:

- Call for abstracts: November 2015
- Registration opens: December 2015
- Abstract deadline: April 2016
- Early Bird registration closes: June 2016

See the website for more information: http://www.60iah2016.org/index.php/en/



Toward Sustainable Groundwater in Agriculture:

San Francisco, CA | June 28-30, 2016

International Conference "Toward Sustainable Groundwater in Agriculture 2016". A conference that links science and policy at the interface between groundwater and agriculture, with global perspectives from all continents. Abstracts welcome until November 30, 2015. For more information visit: http://ag-groundwater.org.

European Geosciences Union General Assembly 2016:

Vienna, Austria | 17–22 April, 2016

The EGU General Assembly 2016 will bring together geoscientists from all over the world to one meeting covering all disciplines of the Earth, planetary and space sciences. The EGU aims to provide a forum where scientists, especially early career researchers, can present their work and discuss their ideas with experts in all fields of geoscience. The EGU is looking forward to cordially welcoming you in Vienna. Find out more at the main website: http://egu2016.eu/home.html and submit abstracts before the deadline January 13, 2016.

IAHS |AISH GQ16

Shenzhen, China| July 24-28, 2016

Conference that explores the latest issues related to Groundwater Quality, including new approaches for measuring, modeling, and managing water quality. More information at: http://www.gq16.org/

Groundwater Resources Association of California
GRA HYDROFLASH

Upcoming Groundwater Resources Association of California Events
The following events are linked from the GRA HydroFlash. Updates and additional events can be found on events page of the GRA website: http://www.grac.org/events.asp

Online GRAcast | December 9, 2015 | Accessing Funding for Groundwater Under Proposition 1
Online GRA Course | February 8-9, 2016 | UC Davis, CA | Role of Models and Data in Implementing SGMA

Editor's Notes

Photo credits: *Dry riverbed in California* from Katherine Markovich (left), and *Texas rivers run high* from Steve Pierce (right).

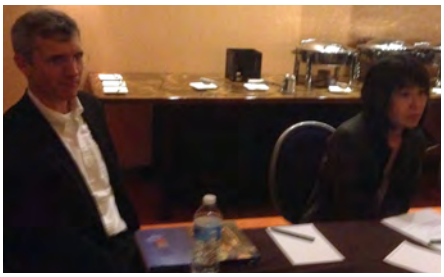
From drought in California to historic floods in Texas, the US water balance has been in extreme flux throughout 2015! Hydrogeologists continually find themselves at the heart of understanding and diagnosing water-related conditions. Beyond the borders of the United States, things are no different. The dynamics of aquifer systems are part of the intrigue and interest that draws us into the field. In light of the perpetual change in the systems we study, the US National Chapter is adding interactive elements to each of our newsletters. We want to capture information and knowledge about groundwater events, conditions, and insights as they are happening.

Transient Tweets about Groundwater: Believe it or not, you can learn a lot about current groundwater news by watching the stories that are shared via tweets by a global community. While "tweets" are simply short snippets of text that can be posted by users of the popular web service called Twitter, they can convey a surprising amount of information or include links to longer stories. Let us know what you would like to see, or tweet it out using #IAH or #Groundwater hashtags in your message – we're watching, and we will catch your news for updates in the US National Chapter website and newsletter!

Beyond Twitter, the IAH USNC is also updating online formats for communication. At the most recent USNC board meeting, the decision to move forward with an ongoing redesign of the website for the USNC was approved. You can expect to find new content with relevant news or information soon. The USNC serves the hydrogeology community and we want to hear about the topics and issues that are most interesting to you, our members.

In April 2016, the USNC will hold our **next Board Meeting during the National Ground Water Association Summit** from April 24-28, 2016. All members are welcome to attend and we hope to see presentations about your ongoing research, projects, or products in Denver, Colorado. Pictures from the Fall 2015 Board Meeting held during Geological Society of America conference in Baltimore, Maryland are in the collage below. Thanks to everyone who attended!

USNC IAH OUTTAKES FROM GSA 2015



Contributions Invited for the Spring 2016 Newsletter

Please send contributions to the IAH USNC Newsletter editor, Suzanne Pierce at the following email address sawpierce@gmail.com or via twitter @helpfultangent. **Articles are welcome anytime. Submission before –** January 10, 2016 - are assured inclusion in the next newsletter. Please send feedback or ideas any time, either by email to sawpierce@gmail.com or via Twitter using **#IAH #groundwater** tags in your tweets.

About the Cover Photo: The cover image was contributed by Joe Gurrieri, Director of IAH Groundwater & Ecosystems Network from the Khurkh-Khuiten Ramsar site in Mongolia. Send candidate images from your international field sites for an upcoming newsletter!

Thank You!