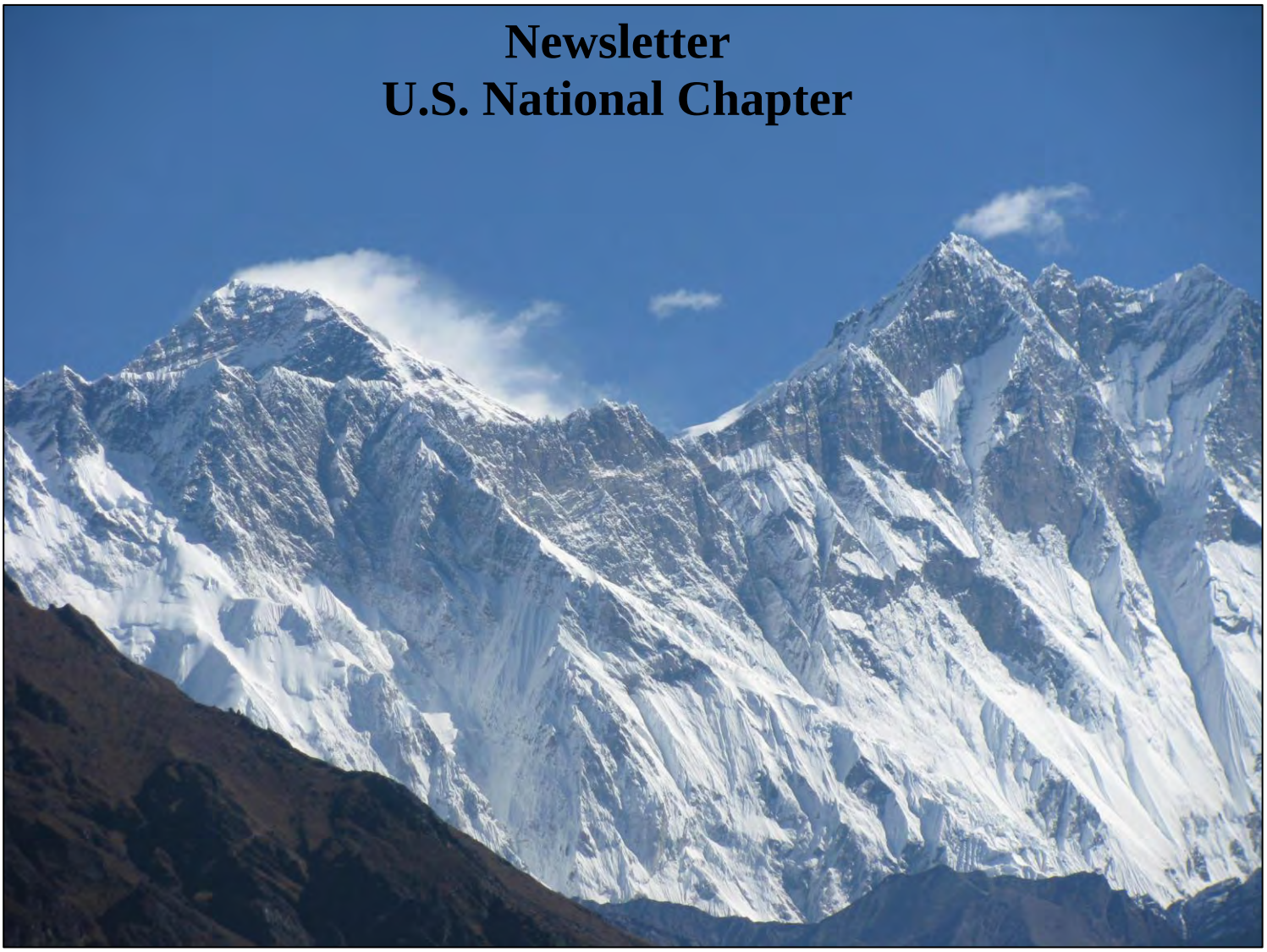
International Association of Hydrogeologists

Newsletter
U.S. National Chapter



In This Issue:

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Contribute to the Fall 2014 Newsletter:
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Photo: Mt. Everest from high in the Khumbu. October 2013.

International Association of Hydrogeologists
U.S. National Chapter
Spring 2014 Newsletter

Editor: Suzanne Pierce

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A Note From The Chair

As 2014 gets underway, the US National Chapter Board has been busy with several new initiatives. Our NGWA liaison and past chairman, Mike Wireman, co-chaired the 2014 NGWA Groundwater Summit in Denver, CO, on May 4-7 (http://groundwatersummit.org/), including many excellent technical sessions and guest speakers. Mike, along with past board member Bill Alley, also organized a special one-day NGWA conference entitled "Characterization of Deep Groundwater" immediately after the Summit (May 8th), that included sessions on both "Data Collection Methods and Techniques" and "Analysis Tools". Our US National Chapter held its semi-annual meeting Monday May 5th.

Our GSA liaison, Andy Manning, along with Grant Ferguson (Canadian National Chapter Chair) are putting together a special full-day Pardee Session at the upcoming 2014 Geological Society of America Annual Meeting (Vancouver, B.C. October 19-22) entitled "Energy Resource Development and Groundwater: Looking Broader and Deeper". This is the first of what we envision as an ongoing series of joint US and CA National Chapter events in upcoming years. We hope that you will be able to join as at GSA and attend this interesting session.

The 2014 IAH Congress (http://www.iah2014.org/) will take place this year in Morocco September 15-19. The theme of the meeting is "Groundwater: Challenges and Strategies". While the abstract submission deadline has just passed, I would still encourage you to consider attending this meeting in the spectacular and historic city of Marrakech.

Devin Galloway (Membership liaison) and Vicki Kretsinger-Grabert (Treasurer) have been very busy reaching out to potential student and developing country members. The US National Chapter selected five new students from the Student Member Raffle for sponsorship this year (in addition to other students sponsored by individual USNC members). We are also continuing to sponsor developing country members from Bolivia, Costa Rica, Georgia, and Peru. Related to this effort, Jim Lamoreaux (Secretary) has been in communication with IAH members from Bolivia as we continue to foster the formation of a Bolivian National Chapter.

Suzanne Pierce (our USNC editor) has done an excellent job putting together this Spring 2014 Newsletter. I am sure you'll find the diversity of articles and announcements both interesting and informative. We regularly reach out to our membership through these newsletters, as well as through our website (http://usa.iah.org/), emails, and our presence at national and international meetings. We are always open to suggestions for improving our outreach and relevance, so please feel free to contact myself or any of our other Board Members with ideas and suggestions.

Vic Heilweil
IAH-USNC Chair
heilweil@usgs.gov

A Note from the Vice President for North America

Dave Kreamer

Dear colleagues, I hope this note finds you well. Members of the IAH Executive Council have just been to Marrakech on a liaison visit to the local organising committee for the 2014 Annual IAH Congress this coming September. Preparations for the Congress are going well; as always abstract submission started slowly but picked up rapidly as the deadline approached (which was extended to March 29), and there are now well over 350 abstracts received. The conference venue is large, modern and in beautiful grounds, and Marrakech is a wonderful city. There will be some top class field visits after the congress, check them out on the website. The Secretariat and Executive Council are working with the local committee on the keynote speakers and the technical program, and on sponsorship and financial support for delegates. The IAH Council met last year in June as well as at the Congress in Perth. This year we will only be meeting in Marrakech, on Sunday 14 September, so if you have any ideas to be put forward, please contact me!

Treasurer's Report – *Vicki Kretsinger Grabert*

2014 U.S. National Chapter (USNC) Memberships

As of March 2014, we have about 216 renewed and/or new 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 are sponsoring 11 developing country memberships and the USNC is sponsoring 5 developing country and 3 student members this year.

2014 USNC Financial Status

Regarding our general funds, we currently have about $15,000 in our JPMorgan Chase checking account and about $35,300 in our Vanguard Mutual Fund Account (Total Stock Market Index Fund). Separately, we have about $18,300 in our Endowment Fund, split evenly between two Vanguard Funds (STAR and Extended Market Index). Our goal is to add additional contributions and let these funds grow to $20,000 before utilizing earnings for funding our endowment goals.

If you have not renewed, you should do so soon! Otherwise, your subscription to the *Hydrogeology Journal* will soon be terminated along with other IAH member benefits. Renew online or send checks to: Vicki Kretsinger Grabert, USNC Treasurer, 500 First Street, Woodland, CA, 95695.

Energy Development and Groundwater- *Andy Manning*

Groundwater and energy are two fundamental resources that are frequently interconnected. Demands for both water and energy are projected to increase in the coming decades resulting in the need for sound information and planning efforts that span scales and sectors. To improve the knowledge and capabilities of hydrogeologists to address emerging issues related to the interdependencies of energy and groundwater, The National Ground Water Association, with support from the Ground Water Research and Education Foundation of the Ground Water Protection Council, held a 1-day conference focused on deep groundwater immediately after the 2014 Ground Water Summit in Denver, CO. In addition, the USNC and the Canadian National Chapter of IAH are sponsoring a Pardee Session entitled "Energy Resource Development and Groundwater" at the upcoming Geological Society of America Meeting in Vancouver in October 2014. We encourage IAH members to watch for updates as the GSA meeting and abstract deadlines draw near.

Efficiency and Cost Reduction with Groundwater Dataloggers– *Donald Thompson, Schlumberger Water Services*

Groundwater scientists are constantly seeking cost-effective methods for obtaining groundwater measurements, obtaining accurate and reliable field measurements and maintaining data accuracy during user input. Advances in datalogging equipment and software are providing a cost-effective alternative to manual measurement methods. A recent case study in Tuscon, Arizona has shown that dataloggers improved the sampling efficiency, provided more frequent measurements, and reduced the time and resources needed to gather water level data.

Dataloggers offer improved method for measuring data. (photo courtesy of Richard Boak with *Diver* datalogger)

The City of Tucson Water operates more than 215 groundwater wells, covering more than 300 square miles, providing more than 37 billion gallons of potable water to the City of Tucson's 730,000 inhabitants each year. In the past, Tucson Water gathered information from wells on a monthly basis via manual water level meter readings and field samples. Schlumberger Water Services provided Tuscon Water with a total of 22 groundwater dataloggers which were deployed in key monitoring wells to measure conductivity, temperature, and water levels. Technicians downloaded the data on a monthly basis.

The dense data collected from dataloggers will provide Tucson Water a better understanding of the quantity and quality of the water in their aquifer. This will allow for better prediction of the effects of groundwater pumping on the surrounding environment and facilitate planning to meet the demands of the ground population

Introducing the IAH Networks

In 2013 we highlighted the role and activities of IAH Commissions. In 2014 we are highlighting the Network initiatives of IAH. The Networks serve as a point of contact among members with interests in specific themes and relevant issues. The section lists each of the networks by topic and includes contact information for the individual Chairs. We include brief descriptions of the existing networks below. For further information or to get involved, please contact the individual Network Chairs, whose email addresses are listed here and also at: http://iah.org/groups/commissions-networks.

Groundwater-Dependent Ecosystems Network – *Joe Gurrieri (jgurrieri@fs.fed.us)*

It's been over one year since the Groundwater-Dependent Ecosystems Network kick-off meeting at the Niagara Falls Congress and we've been busy. Moving ahead on several fronts, the Network has initiated: 1) a short publication defining what we mean by "groundwater dependent ecosystems"; 2) a working group coordinated by co-director Alessandro Gargini, to develop guidelines to forecast, evaluate and mitigate impacts to GDEs from human activities (focusing on tunnel excavation and pumping/dewatering schemes); 3) a partnership with the GENESIS project, "Groundwater and dependent ecosystems: new scientific basis on climate change and land-use impacts" for the update of the EU Groundwater Directive, and 4) communications with Ramsar Convention stakeholders and IAH national chapters on the importance of incorporating groundwater into management of Ramsar sites. The Ramsar Convention is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their "*Wetlands of International Importance"* and to plan for the sustainable use of all of the wetlands in their territories. We will be convening a Network meeting at the Morocco 2014 IAH Congress to continue discussions on Network activities and encourage all of those interested to attend. Please join the Network discussions on LinkedIn: http://www.linkedin.com/groups?gid=4734407&trk=groups_item_detail-h-dsc&goback=%2Egde_4734407_member_5808698908716580868

Early Career Hydrogeologists Network – *Viviana Re (re@unive.it)*

The Early Career Hydrogeologists' Network provides a forum for hydrogeologists at the start of their professional or academic careers. All hydrogeologists at the start of their professional careers, who are members of IAH, are welcome to join this group to get involved and benefit from the network's activities. At the same time, the group is open to senior members and their experienced advice will be well received.

The group started with the involvement of nine junior hydrogeologists after the IAH 2010 Congress held in Krakow (Poland), with the aim to provide support in information sharing, networking and strengthening the status of early career hydrogeologists within IAH. The LinkedIn group is one of the steps toward new information sharing possibilities in an international network of junior hydrogeologists. Please join discussions on LinkedIn: http://www.linkedin.com/groups?viewMembers=&gid=3717583&sik=1319444267870 or visit the website: http://echn.iah.org/.

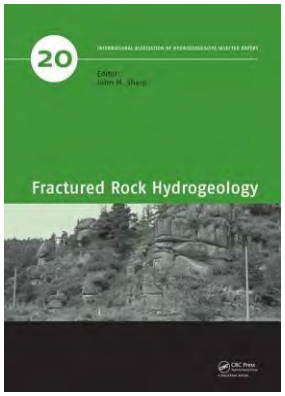
Urban Groundwater Network – *Ken Howard (gwater@scar.utoronto.ca)*

The Urban Groundwater Network (IAH-UGN) was established on July 1st, 2011 and was formerly known as the IAH Commission on Groundwater in Urban Areas. The Network fosters opportunities for members to exchange information with a focus on developing science, engineering, and management for urban groundwater. Please visit the IAH-UGN website for more information on recent activities, advances, and opportunities to connect: http://www.scar.utoronto.ca/~gwater/IAHUGN/index.htm

Coastal Aquifer Dynamics Network – *Giovanni Barrocu (barrocu@unica.it)*

This IAH Network aims at promoting the development of tools for gaining a better understanding of the specific hydrological process dynamics in coastal areas and for improving the assessment, development and management of water resources endangered by saltwater intrusion. The network addresses the interest expressed in the recommendations issued on different occasions by UNESCO and IAEA for studying coastal areas in the framework of joint programs in cooperation with other international agencies. Special emphasis is placed on education, specifically the organization of teaching and training activities, and promoting greater and closer international cooperation in order to accelerate progress and train qualified practitioners for optimizing action especially in developing countries. You can learn more and contact the Network organizers to join at: http://www.iah-cad-czm.net/

Fractured Rock Hydrogeology Network – *Uwe Troeger (uew-troeger@tu-berlin.de)*



An excerpt from the IAH publication, "Fractured Rock Hydrogeology" sums up the focus and need for this Network quite aptly. "*Fractured rocks extend over much of the world, cropping out in shields, massifs, and the cores of major mountain ranges. They also form the basement below younger sedimentary rocks; at depth; they represent a continuous environment of extended and deep regional groundwater flow. Understanding of groundwater flow and solute transport in fractured rocks is vital for analysis of water resources, water quality and environmental protection, geotechnical and engineering projects, and geothermal energy production*." The study and interest in fractured rock hydrogeology gives attention to some of the most challenging problems faced in groundwater science. This network connects practicing hydrogeologists, engineers, ecologists, resource managers, and students of earth sciences in the shared pursuit of understanding fractured rock systems. Contact the Network Chair, Uwe Troeger, for more information about the activities and opportunities to connect with the Fractured Hydrogeology Network.

Burdon Groundwater Network – *Alan MacDonald (amm@bgs.ac.uk)*

There are still 1.1 billion people in the world without access to safe water. The only realistic way of increasing access to safe water is by developing groundwater resources. The IAH Burdon Network is supporting hydrogeologists in developing countries who are working to help achieve the Millennium Development Goals and increase access to safe water. The initial focus of the IAH Burdon Network is sub-Saharan Africa, where most of the rural inhabitants have no access to safe water and the need is greatest. To learn more and contact the Network members visit: http://burdon.wwgw.org

IAH-USNC-Sponsored Members

The IAH U.S. National Chapter sponsors student and developing country members each year through general funds. The following are short descriptions of each of our five USNC-sponsored student members. Although not included here, individual USNC members also sponsor additional Developing Country members. If interested, please contact Devin Galloway, our Membership Coordinator.

Meet the new 2014 IAH-USNC Sponsored Student Members

The IAH U.S. National Chapter sponsors new student memberships each year through general funds (three raffle winners in 2014) and through generous individual contributions of our members. So far this year we are sponsoring five new student members. Each of the sponsored students was nominated by their faculty advisors, professors, or IAH-USNC members as part of the annual raffle. The students represent a diverse, ambitious and accomplished group of young scientists with strong international interests. If you are interested in sponsoring ($39–52/yr) or nominating a student for sponsorship please contact the IAH-USNC Membership Liaison (Devin Galloway, dlgallow@usgs.gov, 916-801-2040).

Chuck Abolt, M.S. Candidate, Jackson School Fellow, Department of Geological Sciences, John A. and Katherine G. Jackson School of Geosciences, University of Texas at Austin (Nominated by: Dr. Michael H. Young, Associate Director for Environment and Senior Research Scientist, Bureau of Economic Geology, John A. and Katherine G. Jackson School of Geosciences, University of Texas at Austin).
chuck.abolt@beg.utexas.edu

Chuck is studying the impacts to surface and shallow subsurface hydrologic flows from exploration and production infrastructure development in the Eagle Ford Shale play in South Texas. He is also involved in research characterizing dissolved organic carbon transport through the active layer of permafrost on the Alaska North Slope. Before coming to UT-Austin, he completed his Bachelor's degree at Duke, where he volunteered with organizations that served agricultural communities in North Carolina and West Africa.

Taylor Ball, M.S. Candidate (Hydrogeology emphasis), Department of Geoscience, University of Nevada, Las Vegas (Nominated by Dr. David K. Kreamer, Professor, Department of Geoscience, University of Nevada, Las Vegas; and Vice President for North America, International Association of Hydrogeologists, and President-Elect Universities Council on Water Resources).
ballt1@unlv.nevada.edu

Taylor Ball grew up in Cherry Valley, California. He earned his Bachelors of Science in Geology from Brigham Young University. He is currently attending the University of Nevada, Las Vegas and pursuing a Master's degree in Geoscience with an emphasis in Hydrogeology. For his Master's thesis he is studying the effect that gravity has on water vapor as it diffuses through and re-wets desiccated soils. He enjoys being outdoors and spending time with his wife and daughter.

Erik Cadaret, M.S. Candidate (Hydrogeology), Department of Geological Sciences and Engineering, University of Nevada, Reno Inter-disciplinary Hydrogeology Program (Nominated by Dr. Simon R. Poulson, Research Professor, Department of Geological Sciences and Engineering, and Faculty member of the University of Nevada, Reno Inter-disciplinary Hydrogeology Program). Ecadaret.reno@gmail.com

Erik grew up in southern California and attended California State University, Fullerton for his undergraduate studies in Geology under the direction of Dr. Richard W. Laton and Dr. John H. Foster. His interest in geology and hydrogeology research in developing countries grew with more involvement with the National Groundwater Association (NGWA) and meeting individuals actively applying their skills in developing countries. His research interests include: 1) Groundwater/surface water interaction and Isotope Geochemistry/Biogeochemistry, 2) Water policy, law, environmental economics, and sociology in developing countries as applied to water-related research, and 3) Hydrologic and geologic controls on water quality in Uganda and Ghana. Erik's long term goal is to work internationally aiding in water development projects at various scales, education, and environmental/water management.

Lilly Corenthal, M.S. Candidate (Hydrogeology), Department of Geosciences, University of Massachusetts–Amherst (Nominated by Dr. David F. Boutt, Associate Professor, Director of Professional M.S. Program in Geohydrology Department of Geosciences, University of Massachusetts–Amherst). lcorenthal@geo.umass.edu

Lilly is constructing a regional hydrogeologic model of a watershed in the Atacama Desert of northern Chile for her Master's project. She received a B.A. from Middlebury College where she participated in research investigating the source of arsenic in groundwater in Vermont. She hopes to pursue a career in applied hydrogeology and work on questions related to water quantity and quality.

Jennifer Georgek, M.S. Candidate, Department of Geology and Geophysics, University of Utah (Nominated by Dr. Vic Heilweil, Department of Geology and Geophysics, University of Utah; and, Research Hydrologist, U.S. Geological Survey). jengeorgek@gmail.com

Jennifer received her bachelor's degree in geophysics from the State University of New York at Geneseo. She followed her dream of moving to the western United States for graduate school, and is currently studying groundwater-surface water interaction. She is always looking for challenging opportunities to further her education, and upon graduating she hopes to gain international experience by working abroad as a hydrogeologist.

Twinning Efforts between the IAH-USNC and a new Bolivian Chapter

”What is twinning?” Twinning is a process that IAH has designed to give new chapters the opportunity to partner with existing chapters. Through this mechanism relationships are formed and information can be shared across borders. The newer chapters can receive support and knowledge from the existing groups, while the existing chapter members can learn from our counterparts about the different hydrogeological realities around the world.

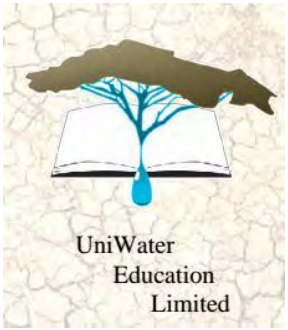
The USNC has started the twinning process in partnership with a planned Bolivian National Chapter (BNC). The process began with help from Hydrogeologists Without Borders, particularly David Bethune, who assisted the USNC in identifying contacts in Bolivia. Based on this we connected with Rafael Cortez of Sucre and Ronald Zapata of Lapaz. Together they started the formation of a national chapter, which John Chilton clarified can be started with as few as 10 members. Rafael and Ronal are renewing their efforts to recruit members and formally establish the BNC.

To date three hydrogeologists from the Vice Ministry of Water and Irrigation have subscribed and Rafael expects two more to do so shortly which, along with himself, would make six prospective members for the BNC. They are working to recruit several teachers from the Chemistry Faculty at Lapaz University. In addition, Ronald is working with the Sucre MSc students, of which there are 30, to get some of them to join. The USNC is currently sponsoring three Bolivian members (Gabriela Flores, Jhim Terrazas, and Etzar Gomez) who we hope will join the BNC, as well. In addition, Hydrogeologists Without Borders (HWB) is supporting an M.Sc. program in hydrogeology at the University of San Francisco Xavier (Sucre, Bolivia) and will be providing financial support via the HWB Fellowship for 3-4 Bolivian students in this program. For further information or to get involved in this effort please contact the IAH-USNC Liaison with the Bolivian National Chapter (Jim LaMoreaux, jlamoreaux@pela.com, (205) 752-5543) or the head of the Bolivian group (Rafael Cortex , rafocortez@yahoo.com)

Updates on Selected Non-Profit Organizations’ Activities

Hydrogeologists are working and volunteering around the globe to assure that people and communities have safe, fresh, and secure water supplies. In the interest of assisting with awareness among the IAH membership in relation to hydrophilanthropy, the IAH US National Chapter has asked some organizations with ongoing programs to describe their efforts, mission, and presence. We hope that this information can help keep our members in tune with on the ground efforts to teach about and provide aide through expertise in groundwater science. We would welcome information from other organizations that may be known to our members – please email Suzanne Pierce (sawpierce@gmail.com) to start the process for including another organization in the next newsletter. More importantly, we hope to help these highlighted organizations connect with our IAH-USNC members!

UniWater Success in Africa- ***Laurra Olmsted***



UniWater Education is building programs to assist Africans to solve their own water problems, thereby reducing their dependency on foreign aid and technical expertise. The organization has recently attained charity status within Canada and is establishing applied programs specializing in hydrogeology and water resources management with African universities. The UniWater staff and partners are currently working to get a pilot program started at four universities with a target start date in September of 2014. This effort is geared to create water programs that will train groundwater specialists with practical skills in African countries. More information is posted on the Uniwater website (UniWaterEd.org) or contact Laurra Olmsted for further information at uniwatered@gmail.com

Hydrogeologists Without Borders – *David Bethune*

The UK branch of Hydrogeologists without Borders HWB-UK, along with the Hydrogeological Group of the Geological Society and the International Association of Hydrogeologists, are organising a one day meeting entitled: *'Hydrogeology & WASH: What can hydrogeologists contribute to safe water supply and poverty reduction?'*

Scheduled for June 5, 2014 in Burlington House, London, thekey aim of the meeting is to promote links, discussion, and knowledge exchange between those actively involved in the delivery of WASH (Water and Sanitation Health) and experts from the groundwater community. We hope to highlight some of the specific challenges associated with developing groundwater resources in an aid context, and explore the short and long term benefits of incorporating robust groundwater science into water resources projects. We will hear from a range of experts from the donor, NGO and groundwater communities and are also looking for contributions to a soapbox session (posters/short presentations). These may include case studies from those actively involved in the delivery of WASH projects, with a particular emphasis on groundwater, or examples of relevant research from within the groundwater community. We are also very keen to engage with those working in the field who may be unable to attend the conference. If you are interested in contributing through a short pre-recorded presentation, or would like to submit any comments/questions to be discussed on the day, please get in touch using the contact details below. Further details can be found on the HWB website: www.hydrogeologistswithoutborders.org.uk/

UN-Water Decade Programme Information Brief on Water and Energy Sustainability - *Lenny Konikow*

For the 2014 International Annual UN-Water Zaragoza Conference and in preparation for World Water Day 2014 focusing on 'Water and Energy', the UN-Water Decade Programme on Advocacy and Communication has produced a series of information briefs on different issues and tools. One brief looks at how success in economic growth requires harnessing the potential of ecosystems to satisfy the demands of water and energy. It investigates managing the environmental impacts of water and energy, some environmental effects of water and energy, managing the environmental impacts of water and energy, and how to implement the water-energy nexus sustainably. The brief is available for downloading from a link at:
http://www.zaragoza.es/ciudad/medioambiente/onu/en/detallePer_Onu?id=826

UN-Water UN-World Water Day - *Lenny Konikow*

The UN World Water Day for 2014 was March 22, 2014 with the theme "Water and Energy." The UN System – working closely with its Member States and other relevant stakeholders – is collectively bringing its attention to the water-energy nexus, particularly addressing inequities. It also aims to facilitate the development of policies and crosscutting frameworks that bridge ministries and sectors, leading the way to energy security and sustainable water use in a green economy. Particular attention will be paid to identifying best practices that can make a water- and energy-efficient 'Green Industry' a reality. More information is available on their web site, at: http://www.unwater.org/worldwaterday/

UN-Water: Post-2015 Global Goal for Water - Lenny Konikow

Achieving universal access to safe drinking water, basic sanitation, and modern energy services is one of the greatest multifaceted development challenges confronting the world today. UN-Water has presented a paper summarizing key findings and recommendations for a post-2015 global goal for water. The paper, which was approved at the UN-Water meeting on 27 January 2014, is the result of a broad technical consultation process among UN-Water members and partners, as well as a range of other stakeholders and aims to inform and provide advice and recommendations in support to Member States in their decision-making process on the post-2015 development agenda. It proposes a set of potential targets and indicators to support a dedicated global goal for water and contributes towards the Sustainable Development Goals (SDG) consultation process. More information is available at: http://www.un.org/en/ga/president/68/settingthestage/1wsse.shtml

Member News and Notes

Lenny Konikow Retires – *Jack Sharp*

Lenny Konikow is retiring after a long and distinguished career at the U.S. Geological Survey. Lenny served as the Chair of the US National Chapter of the IAH and as IAH Vice-President for North America. He received a BA at Hofstra and his MS and PhD from Penn State. Lenny started work as a student in the USGS in 1971 and worked first in Colorado before moving to the USGS main office in Reston in 1978. He is an AGU Fellow, and received the O.E. Meinzer Award from the Hydrogeology Division of the Geological Society of America and was their Birdsall Distinguished Lecturer. He also received the M. King Hubbert Award from the National Ground Water Association. IAH thanks Lenny for his service and support. We hope and expect him to continue to be active in a variety of hydrogeological endeavors.

Herman Bouwer Award Announced

Presentation of the Herman Bouwer Award will occur on July 31, 2014 at the 14th Biennial Symposium on Managed Aquifer Recharge (BSMAR 14) in Orange, CA. In honor of Dr. Herman Bouwer's contributions to the field of MAR, an award named for Dr. Bouwer will be presented during a special luncheon on July 31. The award will be given to an individual or agency that has had a significant impact on increasing the understanding or utilization of MAR. A description of the award can be found at http://www.grac.org/bouwer-award.pdf. To nominate someone for the award, go to http://www.grac.org/bouwer-nomination.pdf

Books and Publications of Interest

Recently IAH released a book on Groundwater and Ecosystems edited by Luis Ribeiro, Tibor Y. Stigter, Antonio Chambel, M. Teresa Condesso de Melo, Jose Paulo Monteiro, and Albino Medeiros. The book provides an overview of important studies on groundwater and ecosystems, including a toolbox for assessing the ecological water requirements for GDEs, and relevant case studies on groundwater/surface-water interactions, as well as the role of nutrients in groundwater for GDEs and ecosystem dependence (vegetation and cave fauna) on groundwater. To see more summary information and purchase the book visit: http://www.crcpress.com/product/isbn/9781138000339?utm_source=August+2013+Connections+Enewsletter&utm_campaign=August+Connections&utm_medium=email

Hydrogeology Journal Updates

Each year Hydrogeology Journal Editors select top articles. These articles are specially selected by the Hydrogeology Journal (HJ) Editors. Selections are made for any of several good reasons including: outstanding science, innovative approach, potentially important conclusions, interesting field area or phenomenon, unusual topic, political/social/historical/philosophical interest, etc. Editors' Choice articles are ones that the HJ Editors believe that readers will find particularly interesting or useful. At the end of each publishing year, only five articles from among the year's crop of about 150 published articles are designated as Editors' Choice. These special articles are highlighted on the website of the International Association of Hydrogeologists (IAH) and are freely available for full viewing and downloading, at no cost to everyone for the most recent (two) years. To see the Editors Select Top Articles for 2013 visit the HJ website:
http://www.springer.com/earth+sciences+and+geography/hydrogeology/journal/10040?detailsPage=press

Upcoming 2014 Meetings and Conference Notes - *Jim LaMoreaux and Vicki Kretsinger Grabert*

This year's Annual Geological Society of America Conference will be in Vancouver, British Columbia Canada October 19-22. A Pardee Keynote Symposium and two Topical Sessions are being co-sponsored by IAH, as described below.

Pardee Keynote Symposium 3. Energy Resource Development and Groundwater: Looking Broader and Deeper
International Association of Hydrogeologists; GSA Hydrogeology Division; Energy/Petroleum Geology Discipline
Conveners: Grant Ferguson, Andrew H. Manning

Energy resource development is perturbing groundwater systems at an increasing rate. Installation of deep wells, hydraulic fracturing, and wastewater injection have the potential to broadly alter groundwater quality and flow, particularly in deep aquifers. Understanding these impacts requires knowledge of hydrogeology over a range of scales and depths. However, our understanding of deep systems and their hydraulic connections to shallow groundwater is poor. This session provides a venue for the presentation of current research on the impacts of energy resource development on deep and shallow groundwater resources, and discourse on research needs for characterizing and managing such impacts.

T151. Energy Resource Development and Groundwater: Looking Broader and Deeper (Posters)
International Association of Hydrogeologists; GSA Hydrogeology Division; Energy/Petroleum Geology Discipline
Conveners: Grant Ferguson, Andrew H. Manning

Energy resource development is perturbing groundwater systems at an increasing rate. Installation of deep wells, hydraulic fracturing, and wastewater injection have the potential to alter groundwater quality and flow at a range of depth and scales.

T156. Agricultural Impacts on Water Quality: Are We Making Progress?
International Association of Hydrogeologists; GSA Hydrogeology Division; Soils and Soil Processes Interdisciplinary Interest Group
Conveners: M. Cathy Ryan, Edwin E. Cey

This session is targeted at the complex relationships between agricultural production and water quality and examining whether agricultural and water management practices aimed at achieving water quality protection are indeed producing societal benefits.

Sessions are now open for abstracts. ***Abstracts are due July 29, 2014.***

The Moroccan Committee of the International Association of Hydrogeologists (IAH-CM) is organizing the 41st International Congress of IAH in Marrakech (Morocco) in 2014, under the theme ***Groundwater: Challenges and Strategies***.

Around the world, the pressure on water resources and especially on groundwater resources is increasing, due mainly to growing demand and water quality degradation. Widespread access to safe drinking water, irrigation, urban expansion, industrial development, and tourism are among the factors that increase these pressures.

Exploration and mobilization of additional water resources have become high priorities in many countries. In general, groundwater resources are finite and are subject to temporal variability in the context of severe climate, to which climate change adds more uncertainty. This situation is further aggravated due to overexploitation of groundwater, the use of inefficient irrigation techniques, the proliferation of pollution sources (fertilizers and pesticides, untreated wastewater discharges, uncontrolled solid waste disposal, mining, urbanization, etc.), and other pressures. These pressures affect groundwater availability and sustainability.

It is therefore of a paramount importance to rethink groundwater policies and management in a more holistic and integrated vision, taking into account supply and demand, groundwater vulnerability and protection, mobilization of non-conventional water resources and groundwater recharge. From this perspective, groundwater governance is a central issue. Establishing frameworks for good governance will help access groundwater in a more equitable and sustainable way and also facilitate conditions for improved cooperation (rather than conflict) at local, national, and international levels.

The IAH Congress is being organized in the Middle East and North Africa (MENA) Region, one of the regions of the world that suffers severe water scarcity. This offers the opportunity to deal with topics such as extreme aridity and groundwater, non-renewable groundwater resources, and major trans-boundary aquifers.

The Congress in Marrakech will offer the opportunity to exchange ideas, knowledge, experience, techniques and knowhow in various aspects of groundwater. Sessions include:

T1: Climate change and groundwater resources
T2: Interaction groundwater / surface water
T3: Vulnerability, pollution and rehabilitation of groundwater resources
T4: Aquifers in fractured and karstic environments
T5: Coastal aquifers
T6: Management and governance of groundwater resources
T7: Tools and techniques for the investigation of groundwater resources
T8: Unconventional groundwater resources
T9: Hydrogeology of arid zones
T10: Groundwater and oil exploitation

The deadline for early registration is **June 15, 2014.** For more information see: **http://www.iah2014.org/**

Hydrogeology & WASH Conference, June 5, 2014, Burlington House, London

Groundwater plays a key role in the provision of reliable water supplies in many less-developed regions of the world. Due to its complexity, a detailed understanding of the groundwater environment is often required to ensure that resources are exploited in a safe, sustainable and cost-effective way. HWB-UK, along with the Hydrogeological Group of the Geological Society and the International Association of Hydrogeologists, are organizing a one day meeting entitled: *Hydrogeology & WASH: What can hydrogeologists contribute to safe water supply and poverty reduction?*

This one day meeting aims to promote links and discussion between experts from the groundwater community and those actively involved in the delivery of WASH (Water, Sanitation and Health Engineering) projects. The key objectives of the meeting are: (1) to highlight some of the specific challenges associated with delivering water resources projects in an aid or development context; (2) to explore the short and long term benefits of incorporating good groundwater science into water resources projects; (3) to highlight current research from within the groundwater community and facilitate discussion on how this is best transferred into practice. Organized by HWB-UK and supported by the Department for International Development (DFID), the International Association of Hydrogeologists (IAH), London Geological Society and the Hydrogeological Group, this conference provides an exciting opportunity for hydrogeologists and aid and development workers to meet and explore ways to work together to develop groundwater resources for the urban and rural poor.
For more information and to register visit:
http://www.hydrogeologistswithoutborders.org.uk/index.php/home/conference-2014.

Upcoming Groundwater Resources Association of California (GRA) Conferences

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 2014/2015 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.

Groundwater Resources Association of California and the Arizona Hydrological Society Present:
14th Biennial Symposium on Managed Aquifer Recharge (BSMAR 14), July 31 to August 1, 2014
Orange, CA
Cooperating Organizations:
Orange County Water District | University of Arizona Water Resources Research Center
International Association of Hydrogeologists | National Ground Water Association
California Association of Groundwater Agencies | Water Replenishment District of Southern California
United States Geological Survey | Lawrence Livermore National Lab | National Water Research Institute
Salt River Project (Phoenix, AZ) | California State University East Bay | California Water Boards
Orange County Water District Groundwater Guardian Team | City of Phoenix
The Recharge Initiative (University of California Santa Cruz) | California State University Long Beach

From 1978 to 2007, thirteen symposia on Managed Aquifer Recharge (MAR) were held in Arizona at approximate 2 year intervals. These symposia were important venues for policy-makers, practitioners, researchers, and educators to learn about the policies, regulations, and technical challenges affecting MAR. The information shared at these symposia moved the understanding and utilization of MAR rapidly forward. Today, MAR is understood as being a key part of a sustainable water resources management strategy. Even so, there is still much work that needs to be done to better understand how MAR can used to more efficiently utilize our increasingly scarce water supplies.

The Groundwater Resources Association of California and the Arizona Hydrological Society are proud to team up to re-start this symposia series with the location of the event alternating between California and Arizona. The 2014 event was designed with families in mind as the hotel is only two miles from Disneyland. The hotel offers discounted Disneyland tickets has a dedicated shuttle that runs to and from Disneyland every hour. More information will be forthcoming about the venue and the many nearby attractions.

The 1.5 day symposium will feature numerous oral presentations, poster presentations, an awards luncheon as well an optional workshop and field trips the day prior to the symposium. Abstracts are being sought for oral and poster presentations on the topics listed below.

MAR Testing, Design and Construction
- Advanced methods for selection of aquifers, sites and methods
- Designing for storm water capture
- Predicting sediment loading/clogging
- Alternative recharge systems
- Innovation in harvesting and storing flood waters
- Overcoming the hydrogeology/engineering disconnect

MAR Operations and Maintenance
- Monitoring and modeling
- Tracer testing
- Clogging management
- Fate of pathogens and pollutants
- Geochemistry and hydrogeology
- Groundwater hydraulics and storage recovery
- Training for MAR operators
- Long-term maintenance requirements/budgeting
- Modifying operations for long-term sustainability

MAR Governance
- Integrated water resources management
- Recharge policies, standards and regulations
- Community engagement and awareness in MAR
- MAR to complement groundwater demand management
- Legal issues related to storm water capture by MAR systems

MAR and Water Resources Management
- Reclaimed water reuse via MAR
- Storm water harvesting via MAR (MS4 permitting, etc.)
- Quantification of benefits and costs of MAR
- MAR for drinking water quality improvement
- MAR with desalinated water
- Mining and industrial applications of MAR
- MAR to source heat pumps and geothermal injection
- Mitigating geological problems using MAR - land subsidence, seawater intrusion, etc.
- MAR for rural and irrigation water supplies
- MAR in conjunctive use of surface water and groundwater

MAR Case Studies
- Success factors for projects that worked
- Lessons learned from projects that did not work

Other Issues related to MAR
- MAR and climate change
- MAR in urban areas
- Greenhouse gas considerations in MAR operations

Abstracts are due April 30, 2014.
Guidelines for submitting an abstract can be found at: http://www.grac.org/abstractguidlines.asp.
To submit an abstract go to http://www.grac.org/BSMAR14-abstracts

Optional Workshop and Field Trips: July 30
Jean Moran (California State University East Bay), Ate Visser, Michael Singleton and Brad Esser (Lawrence Livermore National Laboratory) will offer a workshop on application of extrinsic and intrinsic tracers in MAR. Two field trips will also be offered with a morning trip to the Orange County Water District's (OCWD) Groundwater Replenishment System (www.gwrsystem.com) and seawater intrusion barrier and an afternoon trip to OCWD's surface recharge system. More information about the workshop and field trips will be forthcoming.

Sponsor and Exhibitor Opportunities
If you are interested in exhibiting your organization's services or products, or being an event co-sponsor, please contact Sarah Kline at skline@grac.org or 916-446-3626. For additional information: contact Adam Hutchinson (ahutchinson@ocwd.com; 714-378-3214) or Chris Petersen (cpetersen@westyost.com; 530-792-3239).

Land Subsidence in California – A Continuing Problem, September 2014, University of California at Davis, CA

This GRA organized symposium will focus on the subject of land subsidence to be held in September, 2014 in Davis, CA. The prevalence of drought conditions in California since 2007, and the related decline in surface-water supplies, has led to extensive groundwater extraction and associated subsidence rates approaching 1 foot per year. Concern over these very high, unsustainable rates of subsidence and the resulting costly damages to flood-control, water-delivery and other structures is driving the need for this symposium.

This symposium will address those issues and the need for an organized statewide effort that couples the monitoring of changes in land-surface elevation (the effect) with changes in groundwater levels (the cause). Such an effort will require funding for establishment and long-term maintenance of monitoring networks, development of a database or data portal for compilation and dissemination of subsidence-related information, and establishment of a data analysis program. Results from this statewide effort would inform local, regional and statewide management actions and the need (or not) for supporting regulation. Funding for such data, evaluation, and regulatory programs is always a touchy political issue because of a lack of understanding on the part of many policy makers and local entities about the long-term consequences of ignoring subsidence, and many competing needs for limited funds. It is GRA's intent to bridge that lack of understanding with this symposium. Subsidence is an issue that has been ignored for too long.

Key topics to be addressed in the subsidence symposium include:
- The various causes of subsidence, the difficulty in distinguishing causes, and how monitoring can help discriminate
- Case studies of areas where groundwater extraction has caused subsidence
- The importance of depositional environment, clay mineralogy, and other geologic factors in determining subsidence risk
- Subsidence monitoring methods, including recent advances
- Simulation of land subsidence
- The effects of land subsidence and associated economic and environmental costs
- Subsidence management – local case studies and considerations for statewide implementation.

Watch for updates at www.grac.org

Contributions Invited for the Fall 2014 Newsletter

Would you like to contribute to the Fall 2014 Newsletter? Please send proposed articles to the USNC IAH Newsletter editor, Suzanne Pierce at the following email address sawpierce@gmail.com.

Article Submission Deadline - September 6, 2014

Expected Newsletter Distribution Date - October 17, 2014.

Thank You!