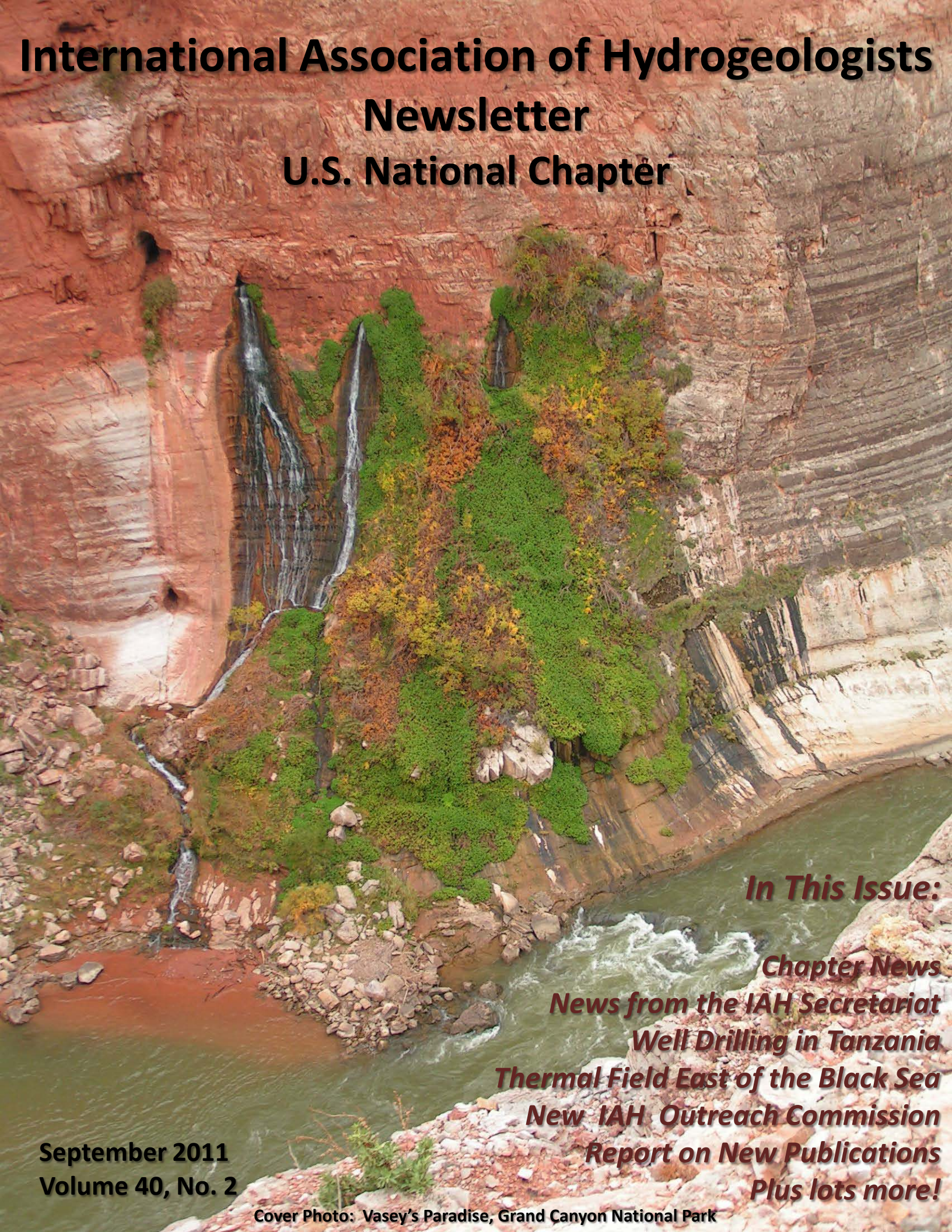
International Association of Hydrogeologists Newsletter

U.S. National Chapter



In This Issue:

Chapter News
News from the IAH Secretariat
Well Drilling in Tanzania
Thermal Field East of the Black Sea
New IAH Outreach Commission
Report on New Publications
Plus lots more!

September 2011
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Cover Photo: Vasey's Paradise, Grand Canyon National Park

International Association of Hydrogeologists
U.S. National Chapter
Newsletter

Vol. 40, no. 2: September, 2011

Editor: Dave Kreamer, University of Nevada, Las Vegas

CONTENTS

A Note from the Chair – MIKE WIREMAN
A Note from the Vice President for North America – LENNY KONIKOW
Treasurer's Report – VIC HEILWEIL
News from the IAH Secretariat – JOHN CHILTON

ARTICLES, REPORTS, NOTICES, AND ANNOUNCEMENTS

- **IAH USNC Executive Board Meeting at Geological Society of America (GSA) Annual Meeting in Minneapolis, October 10, 2011 - Open to All Members**
- **IAH USNC Co-sponsors Session, 2011 Geological Society of America Annual Meeting Minneapolis, MN, October 9-14, 2011**
- **Special issue of Water International on Transboundary Groundwater Resources**
- **New IAH Commission on Groundwater Outreach to Decision Makers**
- **Opportunity for Free IAH Graduate Student Memberships**
- **IAH Congress Preparations get the Official Stamp of Approval**
- **Dr. A. Ivan Johnson Obituary**
- **Dr. Charles W. "Bill" Fetter Obituary**
- **Announcement of Special Springer Groundwater Publications**
- **A Message to IAH Chapters and Commissions**
- **Well Drilling in Tanzania**
- **Thermal Conditions of Prospective Oil-bearing Structures in the East part of the Black Sea**

CONFERENCES AND ASSOCIATED SOCIETIES

- **IAH 39th Congress, Niagara Falls, Canada, 16 – 21 September, 2012**
- **International Conference on Fractured Rocks, Prague, Czech Republic, 21-24 May, 2012**
- **28th Biennial Groundwater Conference and 20th Annual Meeting of the Groundwater Resources Association (GRA), Sacramento, California, 5-6 October, 2011**
- **Upcoming GRA Events**
- **Summary of Upcoming Events**

IAH/US NATIONAL CHAPTER: EXECUTIVE COMMITTEE 2009-20012

Chairman:	**Michael Wireman** **wireman.mike@epa.gov**	**U.S. Enivronmental Protection Agency** **(303) 312-6719**
Vice President, North America:	**lkonikow@usgs.gov**	**Leonard F. Konikow U.S. Geological Survey**
Past-Chair:	**John M. (Jack) Sharp** **jmsharp@mail.utexas.edu**	**Univ. Texas, Austin**
Secretary:	**Dave Kreamer** **dave.kreamer@unlv.edu**	**University of Nevada, Las Vegas** **(702) 895-3553**
Treasurer:	**Victor Heilweil** **heilweil@usgs.gov**	**U.S. Geological Survey**
Director:	**William Alley**	**U.S. Geological Survey**
Director:	**Vicki Kretsinger Grabert**	**Luhdorff & Scalmanini, Consulting Engineers**
Director:	**Jim Lamoreaux**	**PE LaMoreaux & Associates, Inc.**

Some Participants at the Board Meeting of the International Association of Hydrologeogists, U.S. National Chapter at the Ground Water Summit, Baltimore, MD, May 2, 2011. From left to right are: Vicki Kretsinger Grabert, Tim Larson, Donald Jones, Ira May, Ben Ross, Richard Laton, Bill Alley, and Lenny Konikow

A NOTE FROM THE CHAIR

First I want to thank all USNC members for your continued support. Membership in the US National Chapter continues to be strong – as of August, 2011 the USNC has 251 paid members and 25 honorary members. Individual USNC members have sponsored 13 developing country memberships, and the USNC is sponsoring 5 developing country members and 4 student members. A meeting of the Executive Committee was held on May 2, 2011 during the NGWA Ground Water Summit in Baltimore. Meeting notes were sent to all members via email. Thanks to Dave Kreamer for chairing the meeting in my absence. We especially appreciated the attendance of six non-Board members.

The USNC board has been busy. The finance sub-committee (Vic Heilweil, Jack Sharp & Mike Wireman) has developed a specific proposal and mission statement to establish a USNC endowment fund. The mission statement was accepted by the USNC Executive Board at the May 2, 2011 Board meeting. A final decision regarding the establishment of an endowment fund will be made at the October 10, 2011 Board meeting. If approved by the Board, the Endowment fund will be managed as a separate fund and a portion of the earnings would be available for various uses related to the mission of IAH and the USNC. As of August 2011, more than $2200.00 has been donated for purposes of establishing the fund.

During the past 3 months I have been talking with Art Enns, Development Director for Engineers Without Borders, about the potential for a partnership between the EWB and USNC – IAH. We are exploring areas of common interest and ways that the USNC members could provide support to EWB activities. This will be an agenda item at the next USNC Executive Board meeting.

We continue to work with our Canadian colleagues Rick Gerber and Ken Howard to coordinate activities at the 2012 IAH Congress in Niagara Falls. I strongly encourage USNC members to attend the 2012 Congress. The 2012 IAH Congress will be a great opportunity for USNC members to attend an IAH Congress.

The next full Executive Committee meeting will be held on October 10, 2011 at the GSA meeting in Minneapolis. All USNC members and guests are invited. A meeting agenda is included in this newsletter. As always feel free to contact me or any of the Board members with questions, suggestions, requests, etc.

Mike Wireman, Chair – IAH-USNC Executive Board

From the Vice President for North America

The IAH Council and Executive will meet during the "International Conference on Groundwater: Our Source of Security in an Uncertain Future" to be held in Pretoria, South Africa, during Sept. 19-21. Unfortunately, I am unable to attend this meeting, which will include discussions on continuing action related to the Forward Look recommendations and the plans for improving the quality of IAH Congresses in the future. The latter is based on an issue paper that Antonio Chambel (IAH Vice President for Finance and Membership) and I prepared and submitted for consideration by the IAH Council. The Council will also be discussing plans for upgrading and improving the IAH website.

The next IAH Congress will be held in Niagara Falls, Canada, in just one year from now. I hope that most of you will take advantage of the nearby location to attend and participate in this event. The abstract submission deadline is March 15, 2012, so start planning. I hope to see you there. Check out the details at http://www.iah2012.org/

I will be representing IAH/USNC at the American Geological Institute's Leadership Forum 2011: Importance of the Geosciences, which will be held on September 19. Among the goals are (1) encouraging students to consider a career in geosciences by elucidating what value we place on geosciences as individuals and why we chose to go into geosciences; and (2) developing approaches to communicate the value of geosciences to government officials and to the public.

If you are attending the Annual GSA Meeting in Minneapolis, plan to stop by the IAH booth in the Exhibit Hall and meet and chat with John Chilton, Executive Manager of IAH. I will be attending the USNC business meeting during GSA on Monday (Oct. 10), and look forward to seeing you there.

Lenny Konikow

Treasurer's Report for the National Chapter (August 2011)

2011 USNC memberships:

- **As of August 19th, we have 251 paid USNC members and 25 honorary members. There are 54 members from 2010 that have not renewed their 2011 membership.**
- **Individual members in the USNC have sponsored 13 developing country memberships this year (2011).**
- **In addition, the USNC is sponsoring 5 developing country and 4 student members in 2011.**

2011 Financial Status:

- **We currently have about $31,300 in our JPMorgan Chase checking account and about $14,500 in our Vanguard Mutual Fund Account (Total Stock Market Index Fund), with an additional $500 being automatically invested monthly.**
- **We will receive about $2,360 in membership dues for 2011 (10% of the approximately $23,600 dues received to date from US National Chapter IAH members)**
- **We have received two endowment donations (total of $500) from USNC members in 2011, bringing our total endowment funds to about $2,280.**

2011 Expenditures to date:

- **$200 to Curtis Rasmussen for tax preparation**
- **$451 to sponsor 5 developing country and 4 student members**
- **$474 to American Geological Institute for 2011 membership dues**
- **$50 for non-profit tax filing in Colorado**

Vic Heilweil

FROM THE IAH SECRETARIAT

At the end of an English summer which has been cooler than normal and in some places also much wetter than normal, Kellie, Sharon and Sue (IAH staff in the UK) are just settling their children back into school and I'm busy trying to finish everything and clear the desk before setting off to South Africa for the conference and the IAH Council meeting. I didn't quite realise when I took on this job that my busiest time would come in the middle of the summer with annual reporting, August newsletter, council papers and all the other tasks associated with our annual conference or congress. Fortunately the annual work cycle of peaks and lulls is not the same for all of us, with membership renewal for Sharon coming mostly at the beginning of the year and the accounts for Kellie also coming early each year.

The Secretariat has certainly had a busy year. To follow up the actions from the Forward Look review and the meeting of national chapter representatives in Krakow, we prepared a questionnaire for IAH's national chapters to find out more about how they operate, what activities they undertake and what support they would like to have from IAH centrally. We know that IAH's national groups have grown up gradually over the years and in different ways, and we certainly don't want to force them all into the same mold. The response was not complete, but we certainly learned some useful things, reinforcing the need for better communication between IAH centrally and its various components. This will be reported to Council and then made more widely available via the IAH website.

Also in response to the Forward Look, and concerns that had been expressed even before that, Lenny Konikow and Antonio Chambel have prepared an excellent paper for Council, reviewing IAH's congress and conference operations. Their recommendations cover all aspects, from the financial basis on which they are mounted, the relationship between IAH centrally and the local organising committee to the scientific and technical content of the conferences.

Conferences are the shop window of any professional association, and it is clear that we could do a lot to raise the scientific standard of our conferences to embrace more recent, higher level research and attract better papers and stronger participation. The paper also makes proposals for changing the financial basis on which congresses are set up so that the Association centrally bears some of the financial risk, but receives some part of an operating surplus each time. This would in turn be re-invested in greater Secretariat support in marketing and conference preparation and possibly in conference software to help ensure consistent standards of conference registration and abstract submission and review. This would help to avoid successive congress organising committees starting from the beginning each time. On the other hand, we do not want to price our congresses too high and risk losing the inclusiveness that has been one of the strengths of our Association. Watch out for developments!

Underlying much of what we and other similar associations do are the services and facilities provided by a website. We have looked at some of those of our sister associations. Although we compare favourably with most, it is clear from the Forward Look questionnaire and the meeting in Reading, from what the national chapters said and the recently completed web survey that there is much we can do to improve the structure and content of our own website. Kellie has been doing some background research and produced a paper for Council and, provided Council approves, we expect this to be a high priority activity for us over the next couple of years. We shall be consulting widely as we try to match our ambitions in this regard to the modest capacity of an association with fewer resources than many others.

Improved benefits to members from better web services and stronger national chapters are essential to maintaining and building IAH's membership. At present, in the current rather gloomy economic conditions, we are more or less holding our own with membership numbers, but we need to make greater efforts to convince those who have joined to stay with us, and to recruit new members, especially from the younger hydrogeologists coming into the profession. We need your help in doing this.

Finally, I am looking forward to a rare trip to the US to the GSA meeting in Minneapolis next month. This is part of the strategy of improving communication, raising the profile of IAH and encouraging membership. I should be at the US National Chapter committee meeting, and the Hydrogeology Division lunch, and I'm hoping to meet a good number of our American colleagues.

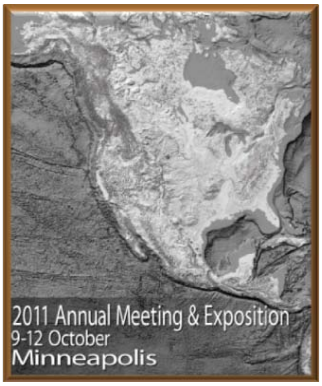
John Chilton, Executive Manager, IAH Secretariat

ARTICLES, REPORTS, NOTICES, AND ANNOUNCEMENTS

Open to All IAH Members!

IAH USNC Executive Board Meeting at Annual Meeting of the Geological Society of America in Minneapolis, October 10, 2011

The U.S. National Chapter of the International Association of Hydrogeologists will have an Executive Board Meeting at the Annual Meeting of the Geological Society of America on Monday, October 10, 2011 at 4:00 pm in the Marquette Ballroom at the Hilton Minneapolis (1001 Marquette Avenue). All are welcome. The tenative agenda is:



Welcome – Mike Wireman
Secretary's Report -Dave Kreamer
Treasurer's Report – Vic Heilweil
Endowment Fund – Vic Heilweil and Jack Sharp
Partnering with Engineers Without Borders – Mike Wireman
2012 IAH Congress –Ken Howard / Lenny Konikow
Report from IAH international – John Chilton

Also

The United States National Chapter (USNC) of the International Association of Hydrogeologists (IAH), as an Associated Society of the Geological Society of America (GSA), is pleased to co-sponsor a session at the 2011 GSA Annual Meeting and Exhibition in Minneapolis, MN on October 9-12, 2011. This year's overall conference theme is "Archean to Anthropocene: the Past is the Key to the Future."

SESSION T99. Hydrogeology of Glaciated Terrain: Linking Glacial Geology, Quaternary History, and Groundwater Research

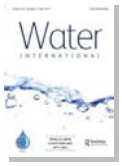
This session in being co-convened by Bill Simpkins at Iowa State University and Rick Gerber at the Oak Ridges Moraine Hydrogeology Program in Ontario, Canada. Session co-sponsors include IAH; GSA Hydrogeology Division; GSA Quaternary Geology and Geomorphology Division; National Ground Water Association; and the GSA Engineering Geology Division. This session will discuss how aquifers and aquitards of glacial origin present a unique challenge for hydrogeologists. Papers that link glacial geology and Quaternary history with studies of groundwater recharge, hydraulics, age dating, hydrogeochemistry, fracture flow, and modeling are encouraged.

2011 Geological Society of America (GSA) Annual Meeting

Minneapolis, MN; October 9-12, 2011

ARCHEAN TO ANTHROPOCENE: *THE PAST IS THE KEY TO THE FUTURE*

Special Issue of Water International



The special issue of Water International on "Strengthening Cooperation on Transboundary Groundwater Resources" is now available on-line at: http://www.tandfonline.com/toc/rwin20/36/5.

UNESCO partnered with the International Water Resources Association to produce this special issue and will distribute copies at various international fora, including the upcoming 66th Session of the UN General Assembly (at which the draft articles on transboundary aquifers are scheduled to be discussed), as well as the forthcoming 2012 World Water Forum organized in Marseilles.

Those of you who are members of IWRA can access all of the articles free of charge by first logging on to your IWRA account [http://www.iwra.org/] and then clicking into the journal via the "Member Space" page; those of you who are not IWRA members should consider joining [individual memberships are less than $100 USD per year].

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Gabriel Eckstein, ***Texas Wesleyan University School of Law,*** **geckstein@law.txwes.edu**

NEW IAH COMMISSION:
GROUNDWATER OUTREACH TO DECISION MAKERS

The IAH Council has approved the creation of a Commission on Groundwater Outreach to Decision Makers. USNC IAH member Andrew Stone, Executive Director of the American Ground Water Trust, will Chair the Commission with co-Chairs Karen G. Villholth, Senior Researcher, Geological Survey of Denmark & Greenland and José Joel Carrillo Rivera, Professor, Universidad Nacional Autónoma de México.

Background to the Commission:

World-wide, ignorance and misunderstanding of groundwater is a major barrier to effective water resources management. Groundwater professionals need to be advocates for sensible water policy to ensure that water allocation decisions are based on hydrologic reality. The new Commission plans to help IAH members and IAH national chapters promote awareness and appreciation of the value of groundwater. IAH "branded" technical information in non-technical format will be developed to assist members target their expertise among policy makers, end-users and resource managers. Science-based knowledge, effectively communicated, can support the dual objectives of sustainably maximizing the use of groundwater for economic, social and environmental benefit while protecting against overdevelopment and contamination.

Action Item:

Providing resource materials and links for school teachers that showcase the importance of groundwater will be included as part of the Commission's work. Today's school children will be tomorrow's decision-makers. The first official event for the Commission will be as a co-sponsor of a two-day teacher-training for forty teachers from El Salvador, Dominican Republic, Honduras and Guatemala. In Central America teachers are a potent force in rural communities in local policy decisions. The two-day training is in San Antonio, TX and is organized by the American Ground Water Trust in partnership with the US Geological Survey and the San Antonio Water System. IAH members can help this initiative by going to (IAH teacher training support) and sponsoring a teacher ($125 per teacher). Anyone who sponsors is welcome to attend the October 12-13, 2011 program.

What will the Commission Do?

"Packaging" and "selling" hydrogeologic expertise is a major element of the Commission's mission. The Commission will develop processes for identifying the elements of groundwater science that are relevant for specific issues and management challenges. The Commission expects to support in-country workshop events in collaboration with national chapters. These events will focus on developing education and outreach strategies appropriate for specific in-country issues and decision maker targets.

In addition to obtaining, reviewing and collating existing educational resources (print, CD, DVD, etc.) the Commission will solicit member-provided video clips showing groundwater projects and technical subjects such as drilling, recharge, solar pumps or draw-down animations. These materials, given a consistent format and IAH identity, will add to the store of Commission compiled education resource materials.

It will be of particular importance for the Commission to identify and cooperate with "end-users" who most need to understand the benefits and the limitations of groundwater as a supply source and environmental asset. The means of achieving the Commission's mission is via developing communication skills and by providing resources that will be tools for education. The Commission does not plan to become involved with direct technical and scientific training in the field of hydrogeology.

The hydrologic system is integrated; the Commission recognizes the need to integrate its efforts with other professional associations, agencies, IAH Commissions and international organizations such as United Nations Educational, Scientific, and Cultural Organization (UNESCO), International Groundwater Resources Assessment Centre (IGRAC), International Water Management Institute (IWMI), Cap-Net, and MetaMeta Communications.

The Commission has a four-year term starting in October 2011. IAH members interested in assisting the work of the Commission should contact Andrew Stone (Concord, New Hampshire, USA) at 603 228 5444 – astone@agwt.org.

Professors of Graduate Students – Opportunity for *Free* Student Memberships

Applications due November 18, 2011*

A new student membership initiative is being launched this year. The IAH USNC encourages all graduate students enthused about hydrogeology and learning more about hydrogeology in other countries to join IAH.

The USNC is providing the opportunity for a free, one-year student membership in IAH for up to 3 graduate students. To pursue this opportunity, the USNC requests the following:

- **Any university professor in a graduate hydrogeology program can nominate one hydrogeology graduate student (who will remain a graduate student at least through June of the following year) for a one-year membership.**
- **The professor should determine that the graduate student has an interest in and will benefit from this membership.**
- **The nominating professor will submit the following application information:**
  - **Submitting professor's name, academic affiliation and department, and contact information;**
  - **Student name, academic affiliation and department (confirm whether same or different), and contact information;**
  - **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 by Friday, November 18, 2011; email application information to Vicki Kretsinger Grabert, USNC Board Member and Membership Liaison at vkretsinger@lsce.com.**

The IAH USNC Executive Committee will select graduate students for the free memberships by December 1 to allow sufficient time to submit data and payment to IAH headquarters and to start the subscription to the *Hydrogeology Journal* by the first issue of the membership year. Before December 1, the USNC Executive Committee will tally the number of nominations, select awardees on a random selection basis if there are more nominees than can be selected, and notify winners (both the nominators and the winners). Following the 2011 launch of this new initiative, if more nominations are received in 2011 than can be awarded, the 2011 winning nominators and universities shall be eliminated from the random drawing process for 2012 (this applies only for one sequential year to help assure a fair distribution of awards over time).

The USNC looks forward to increasing student participation in IAH!

IAH Congress Preparations get the Official Stamp of Approval

Antonio Chambel reported to the Executive of IAH, in the UK on June 17th, that IAH-CNC's preparations for the 39th Congress of IAH are "progressing extremely well". He complimented the Congress Organizing Committee on its excellent choice of Congress location and appealing technical program. Antonio, a Professor of Hydrogeology at the University of Evora in Portugal, is IAH Vice President for Finance and Membership. Some may also remember him as the organizer of the 35th Congress of IAH, "Groundwater and Ecosystems" held in Lisbon, 2007. This was one of the most successful and well attended meetings in IAH history. Antonio visited the Canadian Congress steering committee between May 29th and June 2nd, 2011 to evaluate the preparations for the 2012 Congress on behalf of the IAH Executive Committee.

A global traveler, it was Antonio's first time on Canadian soil. Steve Holysh and Ken Howard (Congress Co-Chairs) took him to Niagara Falls where he toured the Sheraton on the Falls meeting facilities and was shown some of the hotel rooms. He was very impressed by the spacious facilities and was overwhelmed by some of the spectacular views. They also took the elevator to visit the tunnels and viewing galleries that extend beneath the Falls, and they visited several other nearby sites that we expect all our visitors will enjoy, including the Niagara-on-the-Lake wine region.

The IAH-CNC and the 2012 Congress Committee very much thank Antonio for his visit, his advice and his valuable contribution towards our Congress goals. We look forward to an excellent meeting and invite you to attend. Please plan to be there!

Steve Holysh, Ken Howard and Antonio Chambel at the Canadian 'Horseshoe' Falls

Antonio Chambel at the American Falls

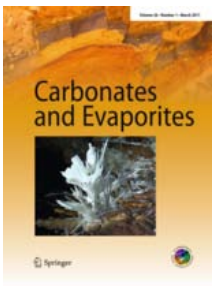
Dr. A. Ivan Johnson Passes Away

A giant in the field of hydrology died on August 31, 2011. A. Ivan Johnson, P.E., P.H.G.W., Ph.D., was also a member of the U.S. National Chapter of IAH. Ivan was born in Madison, Nebraska on June 3, 1919. He was married to his wife Betty Lou (deceased) for 62 years. They had 3 children, 10 grandchildren and 9 great grandchildren. During World War II he served in the United States Navy Sea Bees, and then served 31 years with the United States Geological Survey in Denver, CO and Reston, VA. He then served as Chief of the National Water Resources Training Center, Assistant Chief of the Office of Water Data Coordination, and as a private consultant. His foreign travel included: UNESCO Consultant to Turkey and Mexico; UNDP Consultant 7 times to Turkey; Technical Tours in Israel, Russia, Finland, Japan, France, Australia, Germany, Hungry and Italy; and Private Consultant to Sultanate of Oman, Jordan, Egypt, Senegal and Morocco. During his long career he received many honors and awards. He will be greatly missed.

Dr. Charles W. "Bill" Fetter Jr. Dies

Celebrated author of many groundwater texts, Dr. Charles W. "Bill" Fetter, Jr., age 69, passed away peacefully at his summer home in Sayner, WI on September 10, after a brief battle with cancer. Born in Dayton, OH to the Rev. C.W. Fetter, Sr. and Grace H. Fetter, he was a graduate of DePauw University and earned his Ph.D. from Indiana University. He spent his professional career at the University of Wisconsin-Oshkosh, as a Professor of Geology from 1971-1996, including 16 years as department chairman. Dr. Fetter was an internationally recognized expert in hydrogeology, working on more than 200 national consulting projects in groundwater supply and contamination. He is the award-winning author of *Applied Hydrogeology*, the standard textbook for university courses on the subject, which has been in continuous publication for more than 30 years. He is survived by his wife of 46 years, Nancy B. Fetter, his sister Susan (Richard) Hedley of Naples, FL, and his three children and seven grandchildren. Bill was a soft-spoken man, a remarkable, productive, scientist, and a great colleague.

D.K.



PELA GeoEnvironmental Chairman Announces Special Springer Publications

From September 1-3, 2011, Dr. Jim LaMoreaux, Chairman of PELA GeoEnvironmental, formerly PE LaMoreaux and Associates, Inc., attended the 9th H2 Karst Conference on Limestone Hydrogeology in Besancon, France. Originally a Franco-Swiss Symposium, this international conference drew participants from 27 countries on four continents. Over 140 abstracts were submitted to the Conference, with 210 professionals in attendance.

Dr. LaMoreaux is Editor of Springer Science and Business Media Publications, *Environmental Earth Sciences* and *Carbonates and Evaporites*. Both international journals will publish a special issue from selected papers presented at the conference. In addition a book will be published from the conference as part of Springer's Environmental Earth Science (EES) Series.

Dr. LaMoreaux would also like to announce the introduction of two new publications as part of the EES series: Springer Briefs and Springer Theses. Springer Briefs are monographs concerned with the latest research and application across a broad range of fields. At only 50 to 125 pages, Springer Briefs create an efficient way for authors to publish and readers to absorb the latest in their field. Authors benefit from an individual publication and a monetary reward.

"Springer Theses" is a series containing a selection of the best PhD theses concerning the environmental sciences from around the world. Authors are chosen first by their respective university departments and those theses are then submitted to the Springer Theses editorial board. Authors of those exceptional theses selected for publication by the editorial board will receive not only the benefits of individual publication, but also a monetary prize.

For more information on Springer Briefs and "Springer Theses", please contact Dr. LaMoreaux at jlamoreaux@pela.com.

Editor's note: PELA GeoEnvironmental is an environmental consulting and engineering firm based in Tuscaloosa, Alabama, United States. For over five decades PELA has provided clients with geologic, hydrologic, engineering, environmental, and archaeological expertise.

MESSAGE TO NATIONAL CHAPTERS AND COMMISSIONS

A Forward Look for our Association – IAH's Future Plans to 2020 and Beyond

We have just produced a short document which gives a summary of IAH's activities and developments proposed in the recent Forward Look review. The report also provides an indication of the future timeframes involved. To read the report online go to: http://www.iah.org/downloads/ annual_reports/forwardlookweb.pdf. IAH members who opt to receive postal copies of the Hydrogeology Journal etc. will receive the printed document in their next mailing. Online members will be notified in the next journal alert. If you would like to order printed copies by post for yourself, your chapter, commission, events etc., we are happy to arrange this. Email your full mailing address to knicholson@iah.org indicating how many copies of the report you require.

Reform of the IAH Commissions

As you are all aware another major task recently undertaken by the Association is the reform of the IAH scientific commissions. We are still interested to receive new proposals and would also like to encourage more members to join our commissions and networks. Please help publicise this at any upcoming meetings, so we can ensure all IAH members who would like to participate in the new commissions or networks have a chance to do so. A full report was made in the summer newsletter http://www.iah.org/downloads/ news-information/summer11newsletter.pdf and commission information is also available on the IAH website (http://www.iah.org/about_ commissions.asp).

Commission and Chapter Information

We have recently been updating the Commissions page and improving the accuracy of the information on National Chapters, but this also depends on you. Please check the details which are relevant to you and send us any necessary corrections. Please also ensure that we have a correct postal address so that we can send publicity material for you to use to help recruit new members to IAH. We hope all this information is clear to you. If you have any questions or comments please do not hesitate to email me, jchilton@iah.org.

John Chilton, Executive Manager, IAH Secretariat

WELL DRILLING IN TANZANIA

By Ron Reed, mrron@sbcglobal.net

Along with being a criminal defense attorney and a Public Defender, I drill water wells in Tanzania. I enjoy my job as an attorney, but the adventure of drilling water wells in Africa is something I especially like to talk about. On August 10, 2011, I provided a presentation to the Sacramento Branch of the Groundwater Resources Association of California about water well drilling in Tanzania.

I first traveled to Tanzania in 2004 with the organization Global Volunteers, where I spent three weeks working with a secondary school and clinic. I returned the next year and realized that the greatest need was for clean water. I decided to learn the basics of water well drilling by receiving training from Lifewater International, reading the literature, and spending time working with a well driller in Texas. I found that if I wanted to help people in Tanzania I should train local people to become well drillers rather than having outsiders do the work.

Clinic at Ihimbo before Drilling. The Families of Patients at the Clinic Helped Carry Water from 3 Miles Away to the Drilling Site.

School Children Helping the Drill Crews by Bringing Water for Drilling

In 2007, with the help of my sons and friends, I built three well drilling machines in my shop in Chico, CA and loaded them into a cargo container to ship to Tanzania. On one of my trips, I met a clerk at the hotel who I found to be honest and hard working. I hired him to be the program field manager and paid him $250 a month. With his help, we selected ten young people to be trained as well drillers. They were mostly street kids who never had a job, and we paid them $25 a month. Two of the ten young people were women, even though we were initially informed that women could not be well drillers. However, I insisted that they also receive an opportunity to participate in the program. I arranged for a well drilling company to engage the young group as drilling crew helpers. The young men and women worked hard and soon were doing most of the work. They called themselves the "Kilolo Star Well Drillers" after their village.

In June 2008, the cargo container with the well drilling rigs arrived and the Kilolo Star Well Drillers drilled their first well. Ten more trainees, including three more young women were added to the drilling team. The pay provided to the first trainees was increased to $50 per month, and the new workers were paid $25 per month. A water engineer was retained to teach well drilling theory and practice. An experienced well driller was hired as a trainer. A truck was rebuilt and driver hired to transport the driller and drilling crew and drilling equipment. In

September 2008, a fourth drilling rig was added, and a drilling team composed entirely of women was formed. The women proved that they can be well drillers, and they called their team the "Mama Simbas." This drilling team has drilled many successful wells.

Ida is a Crew Chief

Mama Simba Drilling Team

By June 2009, the drilling crews had drilled 50 wells and set hand pumps to provide clean water for 12 villages. More trainees were hired, and the drillers were paid $80 a month.

The drilling rigs are called the KS 1000, and the overall cost to drill a well and provide a hand pump is $3,000. Over 150 wells have been constructed. The workers are now paid $120 per month, which is equal to that earned by a school teacher. There are ten KS 1000 drilling rigs and 23 well drillers, including eight women.

Testing the Water

Students at School at Kilolo

Groundwater is typically encountered at a depth of about 80 feet. Well depths are commonly 100 feet, but some wells have been constructed to depths of 200 feet. The drilling rigs are able to drill through most unconsolidated subsurface materials, but the rig is moved to a new location if hard rock is encountered. The latter circumstance occurred in only one village where a well was unable to be installed due to hard rock conditions. The drilling process has had its challenges with several broken drill pipes and a few lost drill bits. However, all the wells constructed as part of the Kilolo Star program still provide water. The drillers are now learning how to manage their earnings so they can have their own business as well drillers.

About Thermal Conditions of Prospective Oil-bearing Structures in the East part of Black Sea

By Ludmila Glonti glonti2006@yahoo.com

Editor's note: Ludmila is a member of IAH from the Republic of Georgia and is sponsored by the U.S. National Chapter of IAH

The eastern part of the Black Sea within the territory Georgia may be divided in three tectonic units (illustrated below):

1. The southern end of the intermountain depression (Kolkheti) (I)
2. The Guria foothill (II)
3. The western end of Ajara-Trialeti folded zone (III)

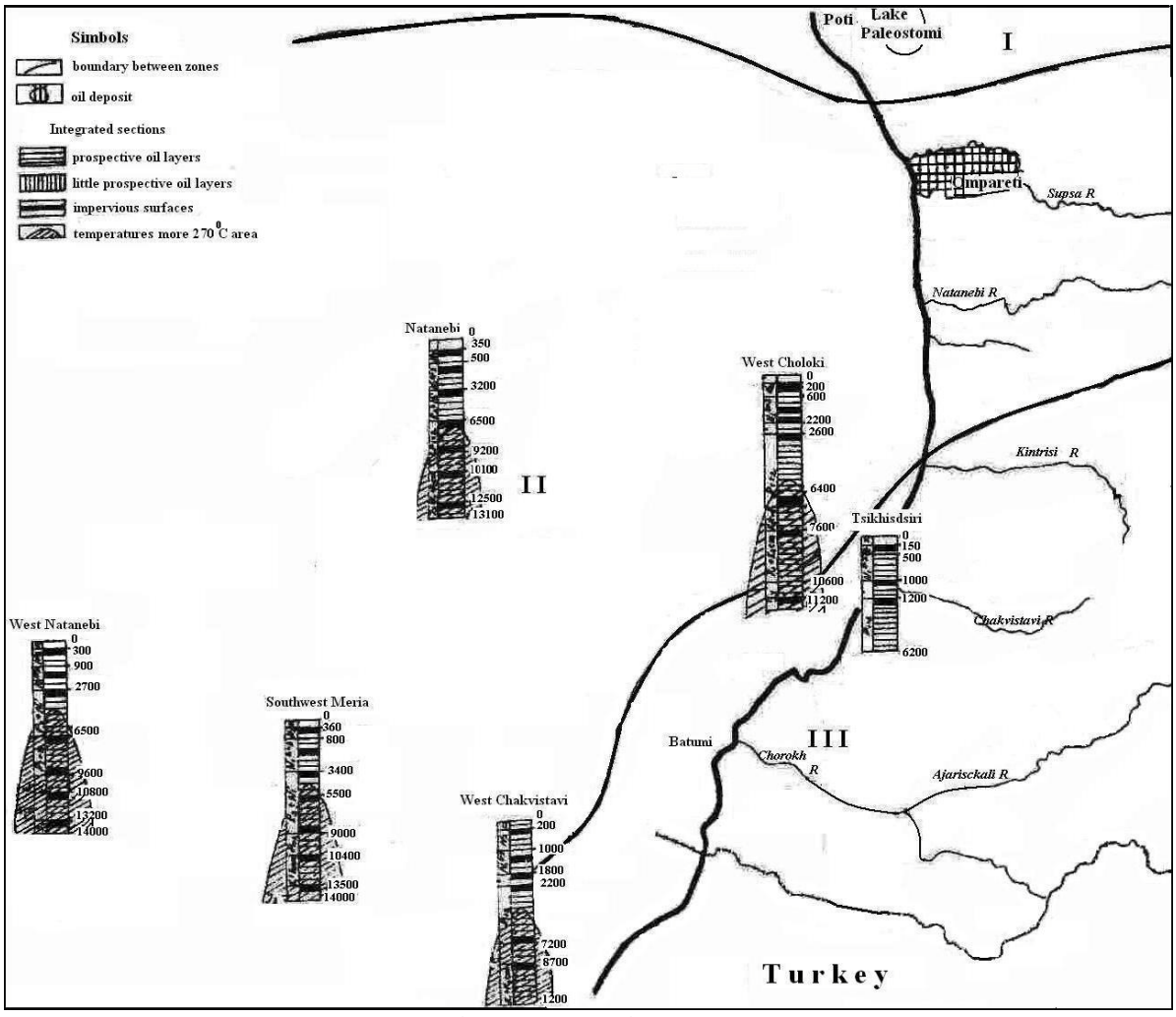


Figure 1. Tectonic zones

There is Supsa-Ompareti oil deposit in zone II, where productive structures are dated to Neogene-Sarmatian sediments. We researched the thermal field (values of heat flow and temperature distribution) of this tectonic zone in the water areas. Six structures on various depths of water area were considered (Figure 2). Thermal field elements were estimated on the basis of the previous expeditions. The heat flow was calculated as the product of two experimentally defined parameters – geothermal gradient T and heat conductivity coefficient of rocks λ.

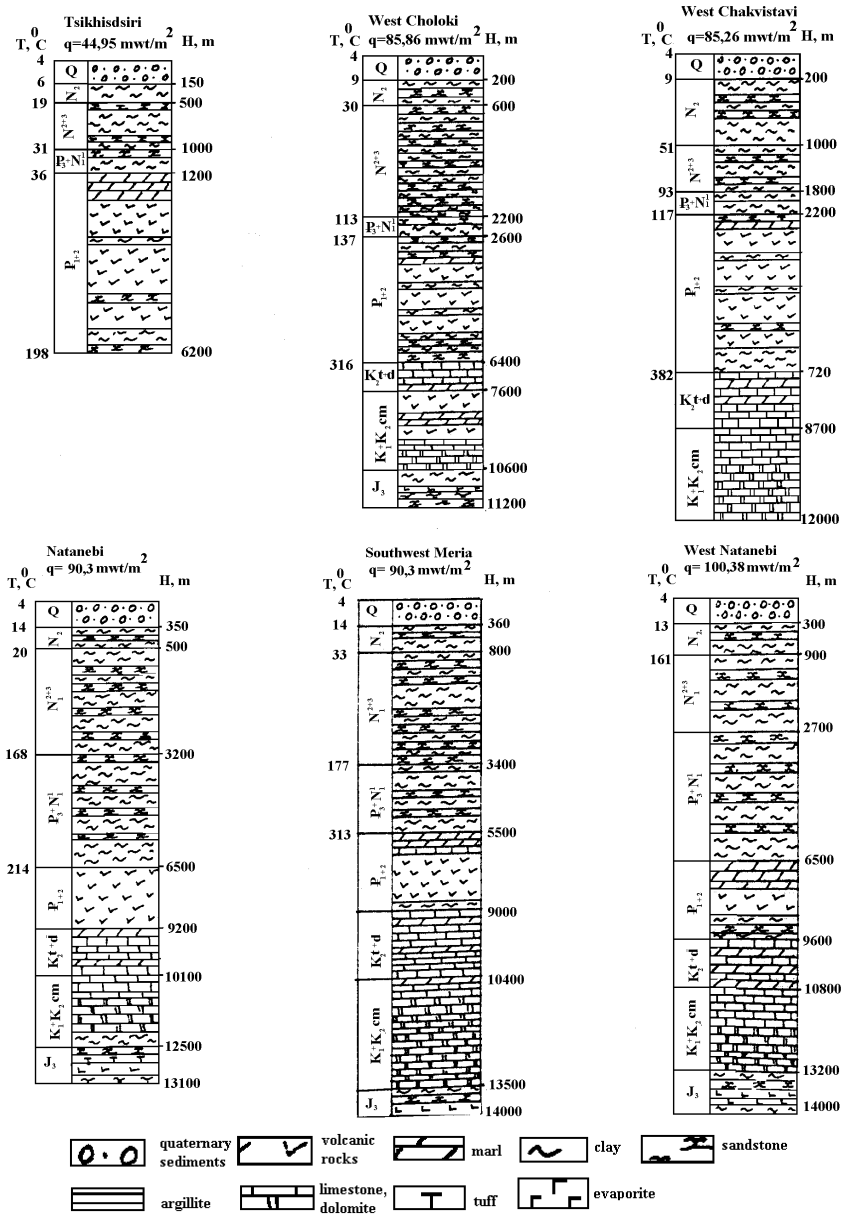


Figure 2. Lithologic Sections

Geothermal gradients were measured according to the thermogradient graph and heat conductivity coefficient – based on the Ratklif method. These calculations allowed the detailed characterization of the thermal field on various depths of water area. The temperature limit of hydrocarbons genesis (temperature border 270 ^{0}C) is marked on lithological sections of the tectonic scheme (Fig.1).

Similarly, the thermal conditions are favorable for prospective oil on the continental slope (1000-1500 m of sea depth), on the first sedimentary layer (Neogene) (Natanebi, Southwest Meria, West Natanebi), and on a shelf (depth of the sea 200-500м). Another prospective area is the Paleogene- Neogene sedimentary region (West Choloki, Tsikhisdsiri, West Chakvistavi).

As a whole, the investigated area coincides with the zone of the raised heat flows that are characteristic for oil areas.

CONFERENCES AND ASSOCIATED SOCIETIES

39th IAH Congress
Niagara Falls, Ontario, Canada
16 to 21 September, 2012

In September 2012, Canada will host the 39th IAH Congress in Niagara Falls, Ontario. The 2012 Congress theme is Confronting Global Change. The Congress will allow researchers to present on a wide variety of new and evolving hydrogeological issues and opportunities. Sub-themes to be highlighted include:

- **Climate Change**
- **Source Water Protection**
- **Groundwater and Energy**
- **Groundwater/Surface Water Interaction**
- **Groundwater and Cities**
- **Aquitard Hydrogeology**

A variety of field trips will be available to participants both on the mid-week field trip day as well as post conference.

2012 is a special year for hydrogeology in Canada as it is the 40th anniversary of the formation of the Canadian National Chapter of the International Association of Hydrogeologists (IAH-CNC Inc.). Historical plenary sessions featuring some of Canada's most esteemed hydrogeologists are being planned to honour this occasion.

Please visit www.iah2012.org for more information on this exciting conference.

IMPORTANT DATES

- **Deadline for abstract submission – Mach 15, 2011**
- **Deadline for early discount registration -June 15, 2012**
- **Deadline for discounted conference room rate-August 17, 2012**
- **Check-in for the Congress -September 16, 2012**

Niagara Falls is the place to be for the 2012 IAH CONGRESS. Don't miss the fun!!

Announcement (14 May 2011)

Jointly organized by

- International Association of Hydrogeologists (IAH), IAH Commission on Hydrogeology of Hard Rocks
- IAH National Chapter of Czech Republic
- International Association of Hydrological Sciences (IAHS)
- Faculty of Science, Charles University (Univerzita Karlova), Prague, Czech Republic
- T.G. Masaryk Water Research Institute (VÚV), Prague, Czech Republic

The conference is supported by many organizations, such as UNESCO-IHP, US Geological Survey (USGS), Fachsektion Hydrogeologie in der Deutschen Geologischen Gesellschaft (FH-DGG), British Hydrological Society (BHS), Geological Survey of Norway (NGU), Bayerisches Landesamt für Umwelt – Geologischer Dienst (LfU, Bavarian Enviroment Agency), British Geological Survey (BGS), and Bureau de Recherches Géologiques et Minières (BRGM).

GwFR'2012

http://web.natur.cuni.cz/gwfr2012/

International Conference on

Groundwater in Fractured Rocks

21-24 May 2012, Prague, Czech Republic

The deadline for abstract submission is 30 September 2011

BACKGROUND

GwFR2012 focuses on the occurrence and properties of groundwaters in fractured rocks, nowadays the most dynamic developing field in hydrogeology. These rocks exist all over the world, but for a long time were much neglected from the viewpoint of hydrogeology. European hydrogeologists paid attention to the so-called hard rocks in developing countries of Africa where these rocks in many arid and semi-arid areas were the only source of potable water. Hydrogeological studies in temperate climatic zones (thus in most of Europe) were directed mostly at basinal structures. Only the last decade has shown that fractured rocks represent in many respects attractive hydrogeological environments, deserving attention. Other reasons for the change of attitude include:

- Natural groundwater resources of hardrock areas, mainly those originating in mountains as source areas, have been proved large enough to cover water consumption and to maintain flow of water courses in adjacent piedmont zones during dry periods.
- Due to global climatic change water stress, groundwater resources of hardrock areas have become the only sources of drinking water in large areas.
- Regarding possibilities of groundwater abstraction, under the present-day general trend of water demand increase, adequately sited water wells or other water intake systems in hardrock areas typically can cover requirements on water supply for small communities, plants or farms and for domestic water consumption. In some areas groundwater abstraction possibilities are high enough to supply even small towns.

CONFERENCE THEMES -- (for topics see the web site):
THEME 1 – HYDROGEOLOGICAL STRUCTURE OF FRACTURED ROCKS
THEME 2 – GROUNDWATER FLOW IN FRACTURED ROCKS
THEME 3 – CHEMICAL, PHYSICAL AND ISOTOPE PROPERTIES OF GROUNDWATER IN FRACTURED ROCKS
THEME 4 – GROUNDWATER PROSPECTING, DRIILLING AND WELL CONSTRUCTION IN FRACTURED ROCK ENVIRONMENTS
THEME 5 – INVESTIGATION AND INTERPRETATION METHODS IN FRACTURED ROCK ENVIRONMENT
THEME 6 – MODELLING IN FRACTURED ROCK AQUIFERS
THEME 7 – VALORISATION OF FRACTURED ROCK ENVIRONMENT
THEME 8 – ANTHROPOGENIC IMPACTS ON FRACTURED ROCK ENVIRONMENT
THEME 9 – GROUNDWATER PROTECTION IN FRACTURED ROCK ENVIRONMENT
THEME 10 – LEGAL AND REGULATORY ISSUES IN FRACTURED ROCK ENVIRONMENT

SCIENTIFIC ADVISORY COMMITTEE

The following scientists are members of the Scientific Advisory Committee:
Werner Balderer (*Switzerland*), Giovanni Barrocu (*Italy*), John Black (*UK*), Philipp Blum (*Germany*), Antonio Chambel (*Portugal*), Miriam Fendeková (*Slovakia*), Bjørn Frengstad (*Norway*), Paul A Hsieh (*USA*), Patrick Lachassagne (*France*), Jean-Christophe Marechal (*France*), Henryk Marszałek (*Poland*), Shivandra Nath RAI (*India*), Shlomo Neuman (*USA*), Auli Niemi (*Sweden*), Ahmed SHAKEEL (*India*), John M. Sharp (*USA*), Stanisław Staśko (*Poland*), Georgios Stournaras (*Greece*), Willi Struckmeier (*Germany*), René Therrien (*Canada*), Uwe Tröger (*Germany*), Fermín Villarroya (*Spain*), Robert Ward (*UK*), Gerfried Winkler (*Austria*)

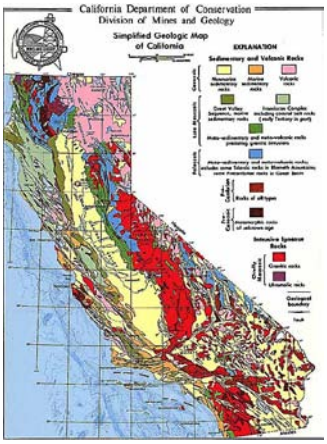
ORGANIZING COMMITTEE

- *Zbynek Hrkal*, Faculty of Science, Charles University, Prague, Czech Republic (also IAH National Chapter of Czech Republic)
- *Karel Kovar*, PBL Netherlands Environmental Assessment Agency, Bilthoven, the Netherlands (also International Commission on Groundwater, of IAHS)
- *Jiri Krasny,* Faculty of Science, Charles University, Prague, Czech Republic

Further information at http://web.natur.cuni.cz/gwfr2012/

Contacts: Dr Zbynek Hrkal, Institute of Hydrogeology, Engineering Geology and Applied Geophysics, Faculty of Science, Charles University, Prague, Czech Republic, Zbynek_Hrkal@vuv.cz ; or Karel Kovar, PBL Netherlands Environmental Assessment Agency, Bilthoven, karel.kovar@pbl.nl

View of Charles Bridge with Prague Castle in the background.



Groundwater Resources Association of California (GRA)

An Associated Society of the Geological Society of America

28th Biennial Groundwater Conference and 20th Annual Meeting of the Groundwater Resources Association

October 5-6, 2011

Radisson Hotel
Sacramento, California

Conference Organizing Entities:

GRA, University of California, California Department of Water Resources, Water Education Foundation, US Geological Survey, California Department of Toxic Substances

Cooperating Organizations:
Association of California Water Agencies, International Association of Hydrogeologists, National Ground Water Association

Program at http://www.grac.org/amagenda.pdf ; More details at www.grac.org

Plenary Session:

John Laird, Secretary of the California Natural Resources Agency: *Groundwater Management as Part of California's Water Future*

Steve Arakawa, Metropolitan Water District: *Present and Future Groundwater Outlook for Metropolitan Water District of Southern California*

Ken Belitz, US Geological Survey: *Statewide Groundwater Quality and the GAMA Project: Where have we been? What have we learned? Where are we headed?*

Special Features Include:

- *GRA's Celebrating 20 Years of Dedication to Groundwater*
- *2011 David Keith Todd Lecturers: Dr. John Bredehoeft and Dr. Prem Saint*
- *Collegiate Groundwater Colloquium*

Session Topics:

- *Present and Future Groundwater Outlook*
- *Groundwater Remediation: 20 Year Retrospective & Future Approaches*
- *Groundwater Recharge Approaches & Issues*
- *Regional Groundwater Monitoring: Implementation*
- *Nitrate in Groundwater: Current Status & Future Implications*
- *Groundwater Modeling: Latest Approaches*
- *Remote Sensing Technologies & Applications*
- *Managing, Organizing & Visualizing Data*
- *Local Groundwater Management Successes & Insights*
- *Climate Change/Enhancing Groundwater Reserves*
- *Statewide Planning Underground: Raising the Bar on Groundwater Management*

Groundwater Resources Association of California (GRA)

2011/2012 Events

by Vicki Kretsinger

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 2012 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.

Upcoming GRA Conferences

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28th Biennial Groundwater Conference and 20th GRA Annual Meeting
October 5-6, 2011; Sacramento, CA (see above flyer)

Advanced Tools for In-Situ Remediation Workshop
November 17, 2011
Check the web site at www.grac.org for more information.

GRA Events Being Planned or Considered for 2012

- **GRACasts, approximately quarterly Webinars**
- **Emerging Issues (Perchlorate, Chromium, and Others); February 7-8, 2012)**
- **Effects of Petroleum Practices on Water Resources, including Hydrofracking**
- **Salt and Nutrient Management Plans and Approaches**
- **Fractured Rock Symposium**
- **Groundwater Modeling Short Course**
- **Introduction to Groundwater and Watersheds Short Course**

Summary Calendar of Upcoming Events and Deadlines (see above for more information)

2011

5-6 October, 2011
Sacramento, CA, USA. 28th Biennial Groundwater Conference & 20th Groundwater Resources Association Annual Meeting *California's Water Future Goes Underground*
Web Site: http://www.grac.org/

9-12 October 2011
Minneapolis, MN, USA. Annual Meeting of the Geological Society of America. IAH USNC Board Meeting.
INFO: Web: http://www.geosociety.org/meetings/2011/

18-21 Oct 2011
Salta, ARGENTINA. 7th Argentine Congress of Hydrogeology & the 5th Spanish-LatinAmerican Seminar of Modern Groundwater Hydrology Topics. Organised by IAH Argentine Chapter and Dept. of Hydrogeology of Salta University. Sponsored by Sponsored by ALHSUD and IAH Spanish Chapter.
INFO: Email: viiconahi@gmail.com

29 Nov - 2 Dec 2011
Las Vegas, USA. 2011 NGWA Ground Water Expo and Annual Meeting (#6010). Organized by NGWA.
INFO: Web: http://www.ngwa.org/expo

29 Nov - 5 Dec 2011
Bamako, MALI. 3rd African Conference on Irrigation and Drainage along with 3rd Africa Show on Irrigation and Drainage (SAFID). Organised by ICID.
INFO: Web: http://www.amid-mali.org

2012

14-17 Mar 2012
Hannover, GERMANY. Hydrogeology of Arid Environments.
INFO: Email: kerstin.krueger@bgr.de

21-24 May 2012
Prague, CZECH REPUBLIC. GwFR 2012 - International Conference on Groundwater in Fractured Rocks. Organised by IAH Czech Chapter, IAH HyRoC, ICGW of IAHS.
INFO: Email: Zbynek_Hrkal@vuv.cz or Karel.Kovar@pbl.nlWeb: http://web.natur.cuni.cz/gwfr2012/

16-23 Sep 2012
Niagara Falls, CANADA. Confronting Global Change. 39th IAH Congress. Organised by IAH Canada.
INFO: Email: info@iah2012.org Web: http://www.iah2012.org/

27-29 Sep 2012
Katowice, POLAND. Calcium and magnesium in groundwater - distribution and significance. International Seminar. Organised by Polish Geological Institute.
INFO: Lidia Razowska-Jaworek. Email: Lidia.Razowska-Jaworek@pgi.gov.pl