

NEWSLETTER



Viewpoint: Register Now for Flagstaff!

Now is the time; reserve the dates! The Joint Meeting of the Arizona Hydrological Society and the American Institute of Professional Geologists will be held at the new High Country Conference Center in Flagstaff on September 20-24. The title of this Joint Meeting is "Changing Waterscapes and Water Ethics for the 21st Century." This promises to be the biggest and best Annual Symposium ever held in Flagstaff. Associated with AIPG, the 3rd International Professional Geologic Conference will be going on at the same time, lending an international flavor to the meeting.

Fabulous field trips will showcase the best geology and hydrology that northern Arizona can offer, which is saying a lot. The Flagstaff planners have arranged several excellent workshops, and the technical papers promise to be the best ever—even now the reviewers are evaluating over 150 abstracts. And your opportunities to expand your professional and personal horizons through networking will be greater than ever. We expect many out of state and foreign visitors. Opportunities are still available to get on board for this signature event as a Sponsor or Exhibitor—call me at (623) 773-7357.

The Website for the meeting can be visited at <http://www.aipg.org/2008/AIPG-AHS-3IPGC.htm>. On-line registration is now up and running—just click on "Register Online" under the categories to the left. It's time to finalize plans for September in beautiful Flagstaff. Sign up right away!

Change is a constant, and you will soon see a transition in the administration of AHS. Our Website will soon have a different yet familiar look as we return to our original hosting service. Matt Beversdorf and Paul Plato are working hard to put even more content on the Website, including archives of past Symposia abstracts,

Corporate Board minutes, information from our special seminars and field trips and other AHS events, and anything else that might be helpful to our membership. We appreciate your efforts, Matt and Paul!

Also, the Society welcomes Nick Melcher as our new Executive Director, replacing Jeanie Merideth as of the end of June. Nick is a Corporate Board representative from Tucson, and recently retired from the U.S. Geological Survey where he served for many years as Director of the Water Science Center. Nick is well known by many of our members, and he will be calling on his contacts in his new role of enhancing our Society. Nick will breathe a new technical freshness into the Newsletter over the coming months, and I think we are lucky to have him. Thanks, Nick, for stepping forward!

Alan Dulaney
AHS Corporate Board President 2008



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Member information

2008 MEMBERSHIP DUES

If you have not renewed your 2008 AHS Membership you no longer have access to the Members Only area of the Web site. Your membership is very important to us and we hope you will consider renewing promptly.

Dues, payable to AHS (\$45.00, \$15.00 for students) should be sent to:
Arizona Hydrological Society
Jeanie Merideth, Association Manager
PMB 139; 3305 N. Swan Road #109
Tucson, AZ 85712
Phone: (520) 299-6787

*Dues may also be paid using our
"Online Payment" system.
Go to*

www.azhydrosoc.org

*And click on "Join or Renew Online" and have
your credit card ready. AHS accepts Visa,
MasterCard and American Express.*

DON'T DELAY-DO IT TODAY!

How to visit the AHS Members Only area:

- Go to: www.azhydrosoc.org
- Located on the far right side of your screen click on Members Only
- Type in your username and password: Your username is the first initial of your first name and then your last name (i.e. Flo Waters would be FWaters). Your password is your zip code (that we have on file for you).

Once there you have access to documents that are not available on the public site.

REMEMBER you must be a currently paid member of AHS to have access.

Announcing the AHS 2008 Annual Fall Symposium

Changing Waterscapes and Water Ethics for the 21st Century

American Institute for Professional Geologists Annual Meeting
Arizona Hydrological Society Annual Symposium
3rd International Professional Geology Conference
September 20 -24, 2008
High Country Conference Center at NAU and Radisson Hotel
Flagstaff, Arizona

For more information:

<http://www.aipg.org/2008/AIPG-AHS-3IPGC.htm>

2008 Annual Symposium

We invite everyone to the 2008 Symposium:

Changing Waterscapes and Water Ethics for the 21st Century and

Global Geoscience Practice, Standards, Ethics, and Accountability

Meeting Highlights

- Technical sessions addressing critical water issues
- Professional sessions dealing with regulatory and educational concerns
- Technical tours
- Social events
- 7-day geological raft excursion through Grand Canyon

12 Field Trips, including:

- Grand Canyon
- San Francisco Volcanic Field
- Fossil Creek
- Sunset Crater/Wupatki National Monument
- Jerome Mining District/Sedona
- Meteor Crater

6 Workshops

- Intro to ArcGIS
- Intro to Arc Hydro
- Writing for the Reader
- Water Education/Project WET
- Students Entering the Profession
- Important Areas of Water Law

Who Will Attend

This convention will appeal to professionals in technical, education, regulatory, and legal disciplines. Professionals attending from the U.S., Canada, Mexico, and Europe will provide an international perspective to the proceedings.

Hosted by American Institute of Professional Geologists and
Arizona Hydrological Society

3rd International Professional
Geology Conference

High Country Conference Center and
The Radisson Hotel, Flagstaff, Arizona

September 20-24, 2008



Arizona
Hydrological
Society

Be sure to register early for this premiere event!

Go to www.aipg.org/2008/AIPG-AHS-3IPGC.htm for information on registration, sponsorship, exhibit booth, and advertising opportunities—act soon!

2008 Annual Symposium Cont.

AIPG/AHS/3rd IPGC 2008 Symposium

PROGRAM

Wednesday, September 17, 2008		Monday, September 22, 2008 (continued)	
9:00 am Depart	3-Day Backpack Trip (9/17-9/19)	7:00 am - 8:00 am	AESE - Surveys Breakfast Meeting
Saturday, September 20, 2008		7:00 am - 9:00 am	AIPG - Past President's Breakfast
7:00 am - 5:00 pm	Registration at Radisson	8:30 am - 5:30 pm	AESE - Sessions
7:00 am - 8:00 am	AIPG - Executive Committee Breakfast	8:30 am - 10:00 am	Plenary Session/3 rd IPGC
8:00 am - 12:00 pm	AIPG - Executive Committee Meeting	8:00 am - 5:00 pm	Exhibits Open
12:00 pm - 1:00 pm	AIPG - Foundation Luncheon	10:00 am - 5:00 pm	Technical Sessions/3 rd IPGC
1:00 pm - 4:00 pm	AIPG - Advisory Board Meeting	11:30 am - 1:00 pm	AESE - Business Meeting Luncheon
4:00 pm - 5:30 pm	AIPG - Joint Executive Committee Meeting and Business Meeting	12:00 pm - 1:00 pm	AHS - Awards Luncheon
8:00 am - 5:00 pm	Field Trip - San Francisco Volcanic Field	5:00 pm - 6:00 pm	AHS - Membership Meeting
8:00 am - 5:00 pm	Field Trip - Lake Mary/Walnut Creek Watershed	8:00 am - 5:00 pm	Field Trip - Grand Canyon Sightseeing
9:00 am - 4:00 pm	Workshop - Writing for the Reader: Strategies for Communicating Technical Information Effectively	8:00 am - 5:00 pm	Field Trip - Jerome Mining District/Sedona
9:00 am - 4:00 pm	Workshop - Water Education - Project WET	6:00 pm - 8:00 pm	Dinner and Cultural Entertainment Event at Radisson
9:00 am - 4:00 pm	Workshop - GIS I - Introduction to ArcGIS for the Earth Scientist	Tuesday, September 23, 2008	
Sunday, September 21, 2008		7:00 am - 6:00 pm	Registration at Radisson Hotel
7:00 am - 5:00 pm	Registration at Radisson Hotel	7:00 am - 4:00 pm	Registration at High Country Conference Center
12:00 pm - 8:00 pm	Registration at High Country Conference Center	7:00 am - 8:00 am	AESE - Freelancer's Breakfast
12:00 pm - 4:30 pm	Workshop - GIS II - Introduction to ARC Hydro	8:00 am - 3:00 pm	Exhibits Open
12:00 pm - 4:30 pm	Workshop - Students, Your First Steps in the Profession and the Future	8:00 am - 5:00 pm	Technical Sessions/3 rd IPGC
2:00 pm - 5:00 pm	AESE - Board Meeting	8:30 am - 5:30 pm	AESE - Sessions
7:00 am - 5:00 pm	Field Trip - Fossil Creek	12:00 pm - 1:00 pm	Luncheon with Speaker
8:00 am - 5:00 pm	Field Trip - Grand Canyon/South Rim	8:00 am - 5:00 pm	Field Trip - Sedona
8:00 am - 5:00 pm	Field Trip-Sunset Crater/Wupatki	8:00 am - 5:00 pm	Field Trip - Meteor Crater
5:00 pm - 6:00 pm	AHS - Foundation Board Meeting	6:30 pm - 8:30 pm	AESE - Awards Banquet
6:00 pm - 8:00 pm	Welcome Reception	6:30 pm - 8:30 pm	Reception/Awards at the Museum of Northern Arizona
6:00 pm - 8:00 pm	Exhibit Area Open	Wednesday, September 24, 2008	
Monday, September 22, 2008		8:00 am - 9:00 am	Registration at Radisson Hotel
7:00 am - 6:00 pm	Registration at Radisson Hotel	7:00 am - 8:30 am	AESE - Board Meeting
7:00 am - 6:00 pm	Registration at High Country Conference Center	8:30 am - 4:00 pm	Workshop - Important Areas of Law-What Does the Future Hold?
		8:00 am - 5:00 pm	Field Trip - Grand Canyon/South Rim
		8:00 am - 5:00 pm	Field Trip - Flagstaff's Water Supplies: Past, Present, and Future
		8:00 am - 5:00 pm	Field Trip - Montezuma Castle National Monument and Well
		9:00 am Depart	3-Day Backpack Trip (9/24-9/26)

2008 Annual Symposium Cont.



AIPG/AHS/3rd IPGC 2008 Symposium
Changing Waterscapes and Water Ethics for the 21st Century and
Global Geoscience Practice, Standards, Ethics, and Accountability
 September 20-24, 2008
 Flagstaff, Arizona, USA

REGISTRATION FORM

NAME (Last)	(First)	(Middle Initial)	NAME FOR BADGE		Member of:	✓
COMPANY/AFFILIATION			MEMBERSHIP NO. (if applicable)		AIPG	
ADDRESS					AHS	
CITY, STATE, ZIP CODE			COUNTRY		AIPG/AHS (both)	
PHONE			E-MAIL ADDRESS		AESE (AIPG)	
*SPOUSE/GUEST NAME			NAME FOR SPOUSE/GUEST BADGE		CCPG (AIPG)	
					EFG (AIPG)	
					Other	
FEES AND PAYMENT INFORMATION						
ANNUAL MEETING REGISTRATION		On or By 6/30/08	7/1/08-8/31/08	After 8/31/08	Amount	
Full Registration		\$380.00	\$425.00	\$495.00	\$	
Daily Registration <input type="checkbox"/> Sat <input type="checkbox"/> Sun <input type="checkbox"/> Mon <input type="checkbox"/> Tues <input type="checkbox"/> Wed		\$260.00	\$260.00	\$260.00	\$	
AESE Full Registration		\$380.00	\$425.00	\$495.00	\$	
*Spouse/Guest (Includes Registration Packet and Admission to Welcome Reception and Exhibits)		\$100.00	\$100.00	\$100.00	\$	
Student Full Registration		\$25.00	\$25.00	\$25.00	\$	
Daily Student Registration <input type="checkbox"/> Sat <input type="checkbox"/> Sun <input type="checkbox"/> Mon <input type="checkbox"/> Tues <input type="checkbox"/> Wed		\$15.00	\$15.00	\$15.00	\$	
I Would Like to Pay for a Student's Full Registration		\$25.00	\$25.00	\$25.00	\$	
FIELD TRIPS (Must be Registered)		On or By 8/31/08	After 8/31/08	No. Attending	Amount	
(All field trips depart from the Radisson Hotel)						
3-Day Backpack Trip (Weds., 9/17 to Fri. 9/19, Depart 9:00 am)		\$275.00	\$345.00		\$	
San Francisco Volcanic Field (Sat., 9/20, 8:00 am - 5:00 pm)		\$100.00	\$150.00		\$	
Lake Mary/Walnut Creek Watershed (Sat., 9/20, 8:00 am - 5:00 pm)		\$100.00	\$150.00		\$	
Fossil Creek (Sun., 9/21, 7:00 am - 5:00 pm)		\$100.00	\$150.00		\$	
Grand Canyon/South Rim (Sun., 9/21, 8:00 am - 5:00 pm)		\$100.00	\$150.00		\$	
Sunset Crater/Wupatki (Sun., 9/21, 8:00 am - 5:00 pm)		\$80.00	\$120.00		\$	
Grand Canyon Sightseeing (Mon., 9/22, 8:00 am - 5:00 pm)		\$100.00	\$150.00		\$	
Jerome Mining District/Sedona (Mon., 9/22, 8:00 am - 5:00 pm)		\$100.00	\$150.00		\$	
Sedona (Tues., 9/23, 8:00 am - 5:00 pm)		\$80.00	\$120.00		\$	
Sedona with Jeep Tour (Tues., 9/23, 8:00 am - 5:00 pm)		\$155.00	\$200.00		\$	
Meteor Crater (Tues., 9/23, 8:00 am - 5:00 pm)		\$100.00	\$150.00		\$	
Grand Canyon/South Rim (Weds., 9/24, 8:00 am - 5:00 pm)		\$100.00	\$150.00		\$	
Flagstaff's Water Supplies (Weds., 9/24, 8:00 am - 5:00 pm)		\$100.00	\$150.00		\$	
Montezuma Castle and Well (Weds., 9/24, 8:00 am - 5:00 pm)		\$80.00	\$120.00		\$	
3-Day Backpack Trip (Weds., 9/24 to Fri. 9/26, Depart 9:00 am)		\$275.00	\$345.00		\$	
WORKSHOPS				Amount	Amount	
Writing for the Reader: Strategies for Communicating Technical Information Effectively (Sat., 9/20, 9:00 am - 4:00 pm)				\$99.00	\$	
Water Education - Project WET (Sat., 9/20, 9:00 am - 4:00 pm)				\$25.00	\$	
GIS I - Introduction to ArcGIS for the Earth Scientist (Sat., 9/20, 9:00 am - 4:00 pm) (0.7 CEU's)				\$175.00	\$	
GIS II - Introduction to Arc Hydro (Sun., 9/21, Noon-4:30 pm) (0.5 CEU's)				\$100.00	\$	
Students, Your First Steps in the Profession and the Future (Sun., 9/21, Noon - 4:30 pm)				\$20.00	\$	
Important Areas of Law - What Does the Future Hold? (Weds., 9/24, 8:30 am - 4:00 pm)				\$99.00	\$	

2008 Annual Symposium Cont.

SOCIAL EVENTS/MEETINGS	On or By 8/31/08	After 8/31/08	No. Attending	Amount
AIPG Foundation Luncheon (Sat., 9/20, Noon – 1:00 pm)	\$30.00	\$40.00		\$
Welcome Reception (Sun., 9/21, 6:00 pm – 8:00 pm)	Included with Registration			\$
AIPG Past-Presidents Breakfast (Mon., 9/22, 7:00 am–9:00 am)	Invitation Only			\$
AESE Surveys Breakfast (Mon., 9/22, 7:00 am – 8:00 am)	\$25.00	\$35.00		\$
Dinner and Cultural Event (Mon., 9/22, 6:00 pm – 8:00 pm)	\$60.00	\$75.00		\$
AESE Freelancers Breakfast (Tues., 9/23, 7:00 am – 8:00 am)	\$25.00	\$35.00		\$
Museum Reception/Awards (Tues., 9/23, 6:30 pm – 8:30 pm)	\$60.00	\$75.00		\$
DONATIONS TO FOUNDATIONS (Voluntary)			Suggested Amount	Amount
AIPG Foundation			\$25.00	\$
AHS Foundation			\$25.00	\$
TOTAL AMOUNT DUE				\$

Organization Meetings (see Program for Dates and Times) – Please Indicate If Attending

	Attending		Attending
AIPG National Executive Committee Meeting (9/20)	yes / no	Welcome Reception (9/21)	yes / no
AIPG 2008 Advisory Board Meeting (9/20)	yes / no	AESE Business Meeting Luncheon (9/22)	yes / no
AIPG 2008-2009 Joint Executive Committee (9/20)	yes / no	AHS Membership Meeting (9/22)	yes / no

Note

Full Registration includes Welcome Reception, Technical Sessions, Exhibits, Student Poster Sessions, Continental Breakfast, Lunch, Refreshment Breaks, and Registration Packet.

I understand that by registering for this event, I release and agree to indemnify the American Institute of Professional Geologists (AIPG), the Arizona Hydrological Society (AHS), the 3rd International Professional Geology Conference (3rd IPGC) and the agents, officers, volunteers and employees of AIPG, AHS, 3rd IPGC from all liability for any loss, damage or injury sustained by me while involved in any way with the convention and its events including field trips except that each of AIPG, AHS, 3rd IPGC is not released from such liability to the extent the same is caused by its actual gross negligence or willful misconduct. I have read and understand this waiver and release.

I also understand that submission of this registration form gives AIPG the authority to utilize any photograph taken of me at the conference for conference related publicity (e.g., photo gallery on cd, web site, TPG, etc.). AIPG agrees not to use my likeness for any other purpose. Please contact Vickie Hill at AIPG if you DO NOT wish to have your image used.

METHOD OF PAYMENT

TOTAL AMOUNT DUE \$ _____

PLEASE CHECK METHOD OF PAYMENT

- Check No. _____ Enclosed (drawn in U.S. Dollars on a bank located in the US or Canada)
- International Postal Money Order (in U.S. Dollars)
- VISA MasterCard American Express (Credit cards are processed in US dollar amounts only)

Card No. _____ Expiration Date _____

Print name of cardholder: _____

REQUIRED: Credit Card Billing Address (street, city, state, and zip): _____

Authorized Signature _____

Mail to:
 American Institute of Professional Geologists
 1400 W. 122nd Avenue, Suite 250
 Westminster, CO 80234
 or fax to (303) 253-9220 or register on-line at www.aipg.org
 National AIPG Phone Number is (303)412-6205

Refund Policy: A 90% refund of total fees paid (10% withheld to cover administrative costs) will be given upon receipt of a written request until 7/18/08. Cancellations made by written notification received between 7/19/08 and 9/1/08 will be assessed a charge of 20% (to cover administration costs) of the total fee paid. NO refunds will be given for cancellations received after 9/1/08 or for no-shows after the meeting. Based on the decisions of AIPG/AHS/3rd IPGC, field trips and workshops are subject to cancellation due to lack of participation. Notification and a full refund for field trips or workshops will be given in case of required cancellations.

FLAGSTAFF CHAPTER

Flagstaff Chapter Officers

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U.S. GEOLOGICAL SURVEY FLAGSTAFF
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Flagstaff AHS Corporate Board Representatives:
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AREGAI TECLE

Treasurer:
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Corporate Board Member at Large:
Margot Truini

Announcements

AHS Newsletter Articles

Anyone wishing to submit articles of interest to AHS members may do so by emailing your article to nickpaulame@msn.com. Deadline is the 15th of the month prior to publication.

The AHS Editorial team reserves the right to publish or not publish your article.

FAREWELL

As announced by Alan Dulaney on the first page of this newsletter, as of June 30th I will no longer be working with AHS as the Association Manager. I have learned a lot about water issues in Arizona during my year and half with AHS. I have lived in Arizona my entire life (yes, I'm a native) and always knew water was one of our biggest issues but had no idea of the behind the scenes work that you people do. Thank you for this opportunity to glimpse into an industry that affects us all.

My life has taken some changes that will require more of my attention. Nick Melcher will do a wonderful job as your new manager. The next newsletter will give you all of his contact information and in the meantime I'm sure he will be in contact with all of you.

Thank you again,

Jeanie Merideth

Did you know that AHS has a

JOBS

page on our web site? Visit:

www.azhydrosoc.org and then click on JOBS to view the most recent postings. If you would like to post an opening just email it to nickpaulame@msn.com and Nick will post it for you.

NOTE TO MEMBERSHIP:

In this newsletter you may find several web addresses that appear to be links to web sites. When you open this document please keep in mind this is a pdf file and many if not all of the links will not connect you directly to these web sites. If you wish to visit these sites (and we encourage you to do so) please type in the web address to your web browser and click go. These addresses are being published for your convenience and AHS assumes no responsibility for their content.

TUCSON CHAPTER NEWS

Tucson Chapter Monthly Meeting
 ***New Meeting Time!

Monthly meeting time for the Tucson Chapter has been changed! We have rolled back the time of the meeting by 1 hour. The social half hour now starts at 6 pm, and the speaker will speak at 6:30. Come have some dinner and enjoy the talk! Hope to see you there!

June 10th, 2008
 6:00 Social half-hour
 6:30 speaker
 Location: Offices of Errol L. Montgomery & Associates, Inc
 1550 E Prince Rd, Tucson, AZ
 Speaker: Jeff Kennedy
 Topic: Urban Recharge

A Note to the Tucson Chapter Membership

Recently, we sent out a survey in an attempt to better understand the needs of our members. We will be making adjustments to the monthly meetings in an attempt to increase attendance. Note that the social half hour for the meeting in

June will be held at 6 pm, instead of the regular time. We hope to see you all there! Thanks to all who responded to the survey.

May Tucson Chapter Meeting Summary – Jeff Gawad, Tucson Chapter President

Earth Fissures – by Todd Shipman

On May 13th, the Tucson Chapter hosted a meeting at the offices of Errol L. Montgomery and Associates. Eleven people attended "Crack in Arizona", presented by Dr. Todd Shipman, a Senior Research Scientist with the Arizona Geological Survey. Dr. Shipman is currently in charge of the earth fissure mapping program for the state of Arizona. Earth fissures are cracks or faults caused by the compaction of basin fill sediment. Most documented earth fissures form in response to groundwater overdraft; however, natural processes, such as earthquakes, can also cause the formation of earth fissures. In Arizona, the vast majority occur in agricultural areas, with the first reported occurrence was near Picacho

(Continued on page 9)

Tucson Chapter Officers

President Jeff Gawad
 (General Errol L. Montgomery & Associates
 Chapter (520) 881-4912
 Information) jgawad@elmontgomery.com

Vice-President Robert McGill
 (Monthly (520) 647-3315
 speaker
 (organization))

Secretary Marla Odom
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 records) modom@elmontgomery.com

Treasurer Mike Mahan
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 mmahan@email.arizona.edu

Chapter Dan Guido
 Director Errol L. Montgomery & Associates
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 records and dguido@elmontgomery.com
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Tucson AHS Corporate Board Representatives:

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 Water Management Consultants,
 (520) 319-0725
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Corporate Nick Melcher
 Board Member nickpaulame@msn.com

Tucson Chapter continued

(Continued from page 8)

Peak in the 1920's.

There are two main types of earth fissures – shear and tension. Shear earth fissures have a dip-slip component. Displacement can be horizontal, vertical, or both, and the magnitude of displacement can increase with time. Earth fissures caused by tension typically show a surface crack of only a few inches, but are frequently enlarged by erosive forces. Dramatic pictures of this phenomena were presented. Often times, just a single intense storm can open a tension fissure by a few feet in just a couple of hours.

Earth fissures must be distinguished from polygonal cracks. Polygonal cracks have a similar surface expression to earth fissures, but are caused by completely different phenomena. Though the exact cause of their formation is not understood, the current theory prevalent in Arizona states that they form in response to capillary induced tension caused by the drying of a shallow clay body. As such, polygonal cracks are near-surface phenomena that can be safely filled in by land developers, while earth fissures usually hinder development. An example of what happens when a developer attempts to fill in an earth fissure was presented. During just one storm event west of Phoenix, a rural road that was paved over a filled-in earth fissure was washed away as the fissure re-widened. The only safe way to construct roads

or canals over earth fissures is to bridge them, as was done during construction of Highway 202 in Phoenix, AZ and the CAP canal.

Earth fissures are one of the few geologic occurrences that happen on a human time scale. As such, mapping earth fissures is challenging. Their dynamic nature necessitates that any map depicting earth fissures be continually updated. Often times, earth fissures have minimal, if any surface expression, and so they are easily missed.

There is still much to be learned about earth fissures. Interactions between the aquifer and water that is transmitted into the ground through earth fissures has yet to be studied in detail. It is thought that earth fissures can aid in recharge, though there is a concern that they could also serve as a direct conduit for pollutants. Earth fissures have been known to close as well, and there is not an understanding of what factors determine the length of time an earth fissure will remain open.

For more information on earth fissures, visit the AZGS's website at: <http://www.azgs.az.gov/>. There you will also find the most recent earth fissure map completed for the State of Arizona, which was released on April 23rd, 2008.

**Sonoran Spa and Water For People
Invite you to Relax and Renew at**

**Westward Look Resort
245 East Ina Road, Tucson, AZ**

**on the 3rd Thursday of the Month
5:30 p.m. to 7:00 p.m.**

**for a Healthy Planet Happy Hour to
Benefit Water For People**

**\$50 Donation and Choice of Three
for your 1 ½ Hour Spa Session
Chair Massage, Mini-Facial, Nail
Care, Yoga, or Health Consult**

**Call (520) 917-
2467 to Reserve
your Spa Ses-
sion and
Choices**



PHOENIX CHAPTER NEWS

May Meeting Summary

Our May speaker was Doug Wolfe, Principal Investigator for the Zuni Basin Paleontological Project, Adjunct Curator for the New Mexico Museum of Natural History and President of Renaissance Environmental Management, L.L.C.

Doug presented a story of his work and findings of rare "middle" Cretaceous (Turonian)-age track sites, fossil plants, vertebrate microsites, and sedimentary features in the rocks of the Zuni Basin near the Arizona-New Mexico border.

The Turonian epoch (about 90 million years ago) is associated with a dramatic rise in atmospheric carbon dioxide and hence contains possible clues to the impacts of modern global warming. The Zuni Basin dinosaurs and associated fossil indicators show that climate in the Turonian was generally wetter and more dynamic in the area during peak "greenhouse" conditions than during adjacent epochs.

Doug has offered to assist AHS with a possible fall field trip to see some of the rocks and fossils in the Zuni Basin first hand. We like to gauge interest so we can begin planning logistics, etc. If you are interested in such a field trip, please contact Ted Lehman at ted@jefuller.com or 480-222-5709.

We'd like to thank Doug for sharing his time and knowledge with the Phoenix Chapter. We look forward to a possible field trip with Doug in the fall! Keep your look out for more soon!

June Meeting Announcement

Our speaker will be Bruce Robinson, Senior Hydrogeologist at ATC Associates. An extended abstract on Bruce's talk is provided below.

[How to Regulate Perchlorate, the Risk to Reward Conundrum](#)

Abstract

Introduction

Perchlorate is a wonderful example of the struggle between the scientific process of risk

assessment and economic practicality for contaminant regulation. This presentation will inform the audience about the perchlorate issue and why it is so difficult to promulgate a standard. The perchlorate issue is currently getting significant attention in Washington. On May 6, 2008 the Senate Environment and Public Works Committee met to evaluate the status of drinking water regulations for perchlorate and to consider three bills that would give the EPA 18-months to set drinking water standards. During the hearing the EPA Assistant Director of Water told the Committee there was a "distinct possibility" EPA officials would not take action because they do not know if the regulation would meaningfully reduce the health risk. Members of the Senate expressed their disappointment that the EPA had not promulgated a standard.

Perchlorate, What is the Problem

Most of the attention focused on perchlorate contamination has concerned groundwater and surface water. However, perchlorate can also contaminate soil and vegetation and has entered the human and environmental food chains. The potential for perchlorate contamination in drinking water and food supplies is a human-health concern because it can interfere with iodide uptake by the thyroid gland and result in decreased thyroid hormone production. There is currently no federal Maximum Contaminant Level (MCL) for perchlorate in drinking water.

Perchlorate may appear to be just another addition to a growing list of halogenated chemicals that persist in the environment, but the chemical characteristics of this inorganic anion make it quite unusual. Perchlorate is a highly soluble inorganic anion (2.09 kg/L for NaClO₄-) that adsorbs poorly to activated carbon, is not easily remediated, is not retarded during groundwater transport and is used or created as a by-product of industrial processes, agriculture and drinking water disinfection.

Perchlorate is an emerging contaminant that has garnered a great deal of attention over the

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past decade. Emerging contaminants are a concern because these chemicals have demonstrated toxicity, are found to be accumulating in the environment, or are being detected in humans or other living organisms, and may have some newly-identified potential to cause adverse effects on public health or the environment. Unfortunately the process of establishing a drinking water standard for perchlorate has not been entirely academic and has been quite political due to the economics of remediation.

Toxicology

Thyroid hormones regulate metabolic activity, affect the function of virtually every organ system, and are required for normal central nervous system development and skeletal growth in fetuses and infants. Perchlorate can interfere with the normal functioning of the thyroid gland by competitively inhibiting the transport of iodide into the thyroid. Iodide is an important component of two thyroid hormones, T3 and T4, and the transfer of iodide from the blood into the thyroid is an essential step in the synthesis of these two hormones. The resulting iodide deficiency, if severe, could lead to hypothyroidism (deficiency of thyroid hormone production), which can result in clinical disorders, such as goiter and developmental defects (neurological) in fetuses. For adverse effects to occur in healthy people iodide uptake would probably have to be reduced by at least 75% for months or longer. However, a relatively small change in thyroid function could have a profound affect on sensitive populations including people with hypothyroidism, pregnant mothers, and infants. It appears that children up to 12 years of age are at risk to decreased iodide uptake from perchlorate.

Distribution and Occurrence

Perchlorate has been detected in groundwater in over 35 States, has affected public drinking water supplies in 22 States and 42 States have known users or manufactures. Contamination from a Henderson, Nevada manufacturing facility has impacted the water quality of Lake Mead and the lower Colorado River affecting approximately 26 million water users in three

States. The result of this widespread distribution of perchlorate occurrence has been the contamination of food sources and drinking water supplies. During the last six years several studies have documented perchlorate concentrations in bottled water, milk, lettuce, spinach, arugula, melon, cucumber, tomato, peppers, citrus and feed grains. It is this additional exposure beyond drinking water that increases the risk of exposure and potential impact to sensitive populations.

Health Implications

In 2005 Texas Tech University researchers reported an investigation of 36 samples of human breast milk collected from 17 different States. Detectable concentrations of perchlorate were found in 100% of the samples analyzed. This first ever sampling of perchlorate in breast milk from nursing mothers in the United States revealed levels as high as 92 parts per billion (ppb), which expose infants to concentrations of the contaminant that are 20 times higher than the safe dose recently recommended by a National Academy of Sciences (NAS) committee. In 2006 a study (Blount et al. (2006)) measured perchlorate in urine samples collected from a nationally representative sample of 2,820 U.S. residents, ages 6 years and older. The study detected perchlorate at concentrations greater than 0.05 µg/L in all 2,820 urine samples tested. The demographic with the highest concentration of urinary perchlorate was children between the ages of 6 to 11 years!

Regulation

In January 2005, the National Research Council (NRC) of the NAS published "Health Implications of Perchlorate Ingestion," a review of the current state of the science regarding potential adverse health effects of perchlorate exposure and based on the NAS study the EPA established a reference dose (RfD) recommendation of 0.0007 milligrams per kilogram per day (mg/kg/day) Based on the EPA RfD a Drinking Water Equivalent Level (DWEL) of 24.5 µg/L can be calculated. This assumes the only potential exposure path is through drinking water.

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In April of 2007 the EPA published the Regulatory Determinations Support Document for the Contaminant Candidate List 2 (CCL 2). In that document the EPA states it is not able to make a preliminary determination for perchlorate at this time. The EPA concludes additional information may be needed to more fully characterize perchlorate exposure and determine whether regulating perchlorate in drinking water presents a meaningful opportunity for health risk reduction.

Several States have elected to promulgate drinking water standards. Massachusetts passed a drinking water standard of 2 µg/L in July of 2007. California passed a drinking water standard of 6 µg/L in November of 2007 and New Jersey has established a standard of 5 µg/L. These standards are lower than those proposed by the NRC study and the EPA because they take into account that drinking water is not the only source of perchlorate exposure. A significant volume of evidence has started to surface about human exposure to perchlorate through food sources.

Conclusion

This is not an aerospace or defense issue. Perchlorate is used in or formed as a by-product in so many industrial/commercial processes, including the disinfection of public drinking water. Perchlorate is just an example of how involved the federal process is for establishing drinking water standards. Unfortunately, it is a chemical that touches each of our lives and could have a detrimental effect on the development of our children.

Come to the Phoenix Chapter Dinner Talk and share your thoughts on exposure to and regulation of perchlorate. Please join us June 10th at El Penasco at Mill & Broadway in Tempe. Hope to see you there!

Date: June 10, 2008
 Location: El Penasco Mexican Kitchen
 19 E. Broadway Road
 Tempe, AZ 85282

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Speaker: Bruce Robinson, Senior Hydrogeologist, ATC Associates

Chapter Board Meeting: 5:00 PM – 5:40 PM
 Happy Hour & Dinner: 5:45 PM – 7:00 PM
 Dinner Speaker: 7:00 PM – 8:00 PM

Cost: \$15 member, \$20 non-member, \$5 student

RSVP with Beth Proffitt at bproffitt@caslab.com or 602-437-0330.

All chapter members (and non-members) are

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welcome to attend the board meeting too!

2009 AHS Annual Symposium

The 2009 Annual Symposium, "Managing Hydrologic Extremes", will be held at The Westin Kierland Resort & Spa August 30 through September 2, 2009 in Scottsdale. The event will be a joint symposium with the 2009 national conference of the American Institute of Hydrology (AIH). With the help of AIH and all our AHS volunteers and participating sponsors, we hope to put on a fabulous, successful event at a super venue. We are also planning to organize a published volume of the proceedings papers. AIH normally produces published proceedings and we are looking to continue their tradition for 2009. So if you or someone you know is interested in seeing their paper in print, here's your chance. Start thinking of those paper ideas now! Look for more details as the 2009 planning continues...

Planning for 2009 Symposium continues

Planning for the 2009 AHS Symposium continues and we will be meeting regularly to hammer out details of program, speakers, sponsorship, marketing, proceedings, workshops, field trips, etc. If you are interested in helping with the planning process or just listening in, please contact Ted Lehman at ted@jefuller.com or 480-222-5709, Lee-Anna Walker at LeeAnna.Walker@arcadis-us.com or Christie O'Day at coday@acstempe.com or 480-894-5477 or Keith Ross at keithr@hgcinc.com or 480-421-1501.

Surface Water Issues Workshop – Great Success!

The Phoenix Chapter's second Technical Session was held on May 15, 2008 at ADWR. We had an excellent, highly informative day with nearly 70 attendees! Our primary beneficiary, 2008 Herman Bouwer Intern, Cheri Topel, was also in attendance and provided assistance with the day's event. Thanks in part to our sponsors, ADWR, Arcadis, EEC, EL Montgomery & Associates, Golder Associates, Lewis & Roca,

and PBS&J, Cheri's intern stipend is more than adequately funded!

We'd like to thank our sponsors, speakers, and participants for a supremely successful event. We look forward to another technical seminar in the near future.

We'd also like to send special thanks to all our AHS volunteers who made this event happen. In particular, we'd like to thank Lee-Anna Walker for spearheading this effort and Matt Beversdorf for coordinating with ADWR and maintaining our website for the event. If you see Lee-Anna or Matt, please express your thanks.

2008 Event Calendar

June 10th - Bruce Robinson, ATC – How to Regulate Perchlorate, the Risk to Reward Conundrum

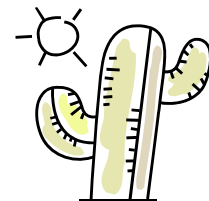
July 8th – Adam Freihoefer, ADWR – Salt River Basin Groundwater Model Update
Location to be determined

This will be the first public presentation of the new ADWR model. We expect there is a lot of interest out in the community. Therefore, we may need to find a larger venue than El Penasco. So, we would like interested parties to contact Ted Lehman at ted@jefuller.com or 480-222-5709 or Mike Hulst at mhulst@eecphx.com or 602-248-7702 as an advanced RSVP so we can plan for an appropriately sized venue.

August – OFF

September – 2008 Symposium Flagstaff

October - ???



Announcements



National
Association of
Environmental
Professionals

*Promoting Excellence in the
Environmental Profession*

Submission deadline:
September 15, 2008

Submission

Please download the abstract submission form on our web site at www.naep.org, Annual Conferences, 2009. Follow the instructions on the form to submit your abstract. If you have questions, please contact Darcey Rosenblatt at drosenblatt@esassoc.com or 415.896.5900.

Student research papers are welcome.

PLEASE NOTE: You will be notified in November if your abstract is selected, and the final paper/presentation will be due March 1, 2009. Your submitted paper/presentation will be included on our Conference Proceedings CD. If accepted, you are expected to register and present your paper/presentation at the conference in May. This allows NAEP to keep fees as low as possible for all conference attendees.

For more information about the 2009 NAEP Conference, refer to www.naep.org

MAKING SUSTAINABILITY HAPPEN: GOALS, PRACTICES, AND CHALLENGES

NAEP 34th Annual Conference
Radisson Fort McDowell Resort • Scottsdale, Arizona
May 3–6, 2009

Call for Papers/Presentations

Papers/presentations are requested for individual speakers, panels (four speaker maximum), hot-topic luncheons, and poster displays. Sessions will be divided into tracks and papers/presentation proposals are requested in the following areas.

Possible Topics

- Agriculture and the Environment
- Air Resources/Climate
- Brownfields
- Consumption/Consumerism
- Energy
- Environmental Education
- Environmental Management Systems/ISO 14001
- Environmental Policy
- Environmental Stewardship
- Hazardous Materials
- Health Risk Assessment
- Homeland/Environmental Security
- Natural/Cultural Resources
- NEPA/CEQA/Environmental Regulations
- Professional/Career Development
- Public Participation
- Sustainability and Planning
- Technology/GIS/Spatial Analysis
- Transportation
- Water Resources
- Land and Watershed Management

Preparation of Abstracts

All abstracts should be no more than 300 words long and in English. Unpublished, original works are preferred. The following guidelines are to be used in the preparation of abstracts.

Abstract Content

- Emphasize objectives and results
- Clearly state paper/presentation subject
- Define goals and hypothesis being tested (if applicable)
- State accomplishments (current or potential)
- State new or innovative aspects of topic

Abstract Evaluation

The 2009 Conference Committee will evaluate abstracts using the following criteria:

- Relevance to the conference theme
- Originality
- Quality
- Clarity of information
- Practical solution and application

Method of Presentation

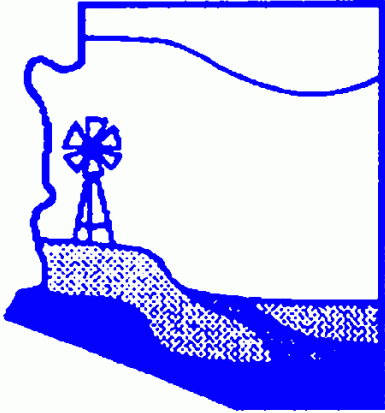
- Presentations will be oral (individual, panel, or hot-topic lunch) or a poster.

Individual presentations will be

- About 20 minutes in length
- LCD projectors with computers will be provided
- Presentations must be on a disk or flash drive
- Panels of 3–4 related oral presentations or discussions may also be submitted. (Those individuals submitting a panel will be responsible for finding panelists.)

Poster presentations will be presented on a 30"x40" poster, exhibited in the main conference area.

MEMBERSHIP APPLICATION



Arizona Hydrological Society

Jeanie Merideth
Association Manager
PMB #139; 3305 N. Swan Rd. #109
Tucson, AZ 85712
(520)299-6787
Fax: (520)299-6431
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www.azhydrosoc.org

ARIZONA HYDROLOGICAL SOCIETY c/o Jeanie Merideth Association Manager
PMB #139; 3305 N. Swan Rd #109, Tucson, AZ 85712
Membership Application (Dues: 1 year \$45, \$15 for students)

Name: _____ Position: _____

Company: _____ Email: _____

Mailing Address: _____

Work Phone: _____ Home Phone: _____ Fax: _____

In addition to my dues, I am enclosing

\$ _____ Herman Bouwer Intern Scholarship fund (Phoenix),
\$ _____ Leonard C. Halpenny Intern Scholarship fund (Tucson),
\$ _____ for the SARSEF Scholarship fund,
and/or \$ _____ for the state-wide AHS General Scholarship fund.

Total amount enclosed: \$ _____

Chapter Affiliation:

_____ Tucson

_____ Phoenix

_____ Flagstaff