



Arizona Geological Society Newsletter Newsletter

JULY 2014

July 1, 2014 DINNER MEETING

Who: **Jim Leenhouts** will speak about "Surface-water/groundwater Interactions in Arizona: Physical Realities and Experiences in the Real World".

Where: Sheraton Tucson Hotel and Suites, 5151 East Grant Road, (at the intersection of Grant and Rosemont on the North side of Grant in the **PIMA BALLROOM** (enter at northwest corner of the building) and go upstairs to the meeting room.

When: Cash Bar at 6 p.m.—Dinner at 7 p.m.—Talk at 8 p.m.

Cost: Members \$27, Guests \$30, Students Members free with online reservation (\$10 without).

RESERVATIONS ARE REQUIRED: CALL (520) 663-5295 or reserve on the AGS website (www.arizonageologicalsoc.org) by 11 a.m. by Friday, June 27th. Please indicate regular (Herb Marinated Chicken Breast with a dill buerre blanc), vegetarian, or Cobb salad meal preference. Please cancel by Friday, June 27th at 11 a.m. if you are unable to attend—no shows and late cancellations will be invoiced.

The July dinner meeting is sponsored by: ALS Minerals



AGS is grateful for ALS Minerals' sponsorship, which helps us to offset dinner meeting costs.

Abstract

Surface-water/groundwater Interactions in Arizona: Physical Realities and Experience in the Real World

by James Leenhouts

Streams and aquifers are hydraulically connected in many hydrologic systems across Arizona. Such a connection occurs when the groundwater level in an aquifer intersects a stream, spring, or even the roots of riparian plants. In these hydraulically-connected systems, the surface water and groundwater interact as a stress imposed on one part has an effect on the other. Often this interaction is observed as a reduction in stream base flow caused by groundwater withdrawals from a connected aquifer – a process often called “streamflow depletion” or “capture”. An aquifer recharge project or a change in climate represents stresses that also have

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effects. The nature of the connection between surface-water and groundwater was thoroughly described and established in the literature by C.V. Theis in 1940. The timing of the effect, and where it is observed, however, varies greatly among hydrologic systems, and depends on only two factors: (1) distance between the stress and the connected stream, and (2) the diffusive hydraulic properties of the aquifer. Hydrologists often understand the nature of these relationships, but many in the public and many resource managers hold misperceptions. For example, a common misperception is that the amount of recharge to an aquifer affects capture—often the perception is that systems with greater recharge should be impacted less by groundwater pumping. However, the timing and rate of capture is independent of recharge and inflows and outflows of the flow system. Hydrologists at the Arizona Water Science Center have worked across the state to develop groundwater-flow models for assessing and communicating groundwater/surface-water interactions. These tools have been used for making various resource management decisions, but they have also initiated useful and revealing dialogs regarding the connections of surface water to groundwater.

About the July Dinner Speaker

Jim Leenhouts received an undergraduate degree in geology from Oberlin College in 1990, a M.S. in Hydrology from the University of Arizona in 1994 and a Ph.D. in Hydrology with a minor in Soil, Water and Environmental Science from the University of Arizona in 2000.

He joined the USGS Arizona Water Science Center as a hydrologist in 2000. From 2000 to 2007, Jim worked first on three projects in the Upper San Pedro Basin. The first was to quantify the groundwater and surface-water requirements of the riparian vegetation and the second was to quantify stream-aquifer interactions as part of the groundwater model development. Following these projects, Jim led the “Section 321” project that evaluated the water budget and hydrogeology for the San Pedro basin and summarized findings in annual reports to congress. A key aspect of this work was interpreting the wide variety of data collected and working with the Upper San Pedro Partnership to assess progress toward sustainable withdrawals of groundwater. From 2007 to 2013, Jim has served as the Center’s Associate Director and Investigations Section Chief. In that role Jim has worked in the Verde River basin to explain surface-water/groundwater interactions as represented by the USGS Northern Arizona Regional Groundwater Model. Currently, Jim is the Director of the Arizona Water Science Center.

Geological Society of Nevada 2015 Symposium**Call of Papers**

The Geological Society of Nevada has announced a [call for papers](#) to be presented at its 2015 Symposium, which will be held at John Ascuaga’s Nugget in Reno/Sparks, Nevada on May 14-24, 2015. Co-hosts for this event include the Society of Economic Geologists, Nevada Bureau of Mines and Geology and the U. S. Geological Survey. Its theme is New Concepts and Discoveries. Anyone wishing to present a paper at this meeting needs to submit a draft abstract no later than October 1, 2014. [For more information on this event visit this link.](#)

Special Announcement

During the May executive committee meeting, the officers of the society discussed ways to educate and remind everyone that we are the Arizona Geological Society and not the “Tucson Geological Society”. One way to address this concern would be to possibly have one or more monthly meetings in the Phoenix area each year. A recent survey of 89 AGS members residing in the Phoenix area was quite positive. There was also discussion about organizing a Phoenix chapter of the Arizona Geological Society.

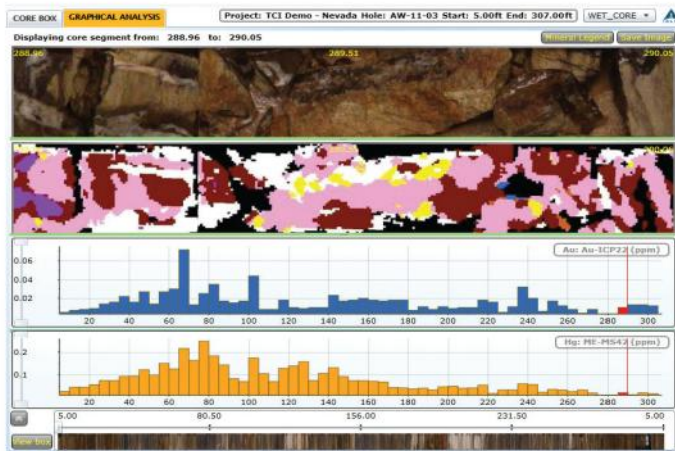
In response to this survey, the AGS Executive Committee has decided to hold our regular November dinner meeting in the Phoenix-Tempe area. This is being done as an experiment that will help us gauge what interest there is in having AGS monthly dinner meetings in the Phoenix area.

The Arizona Geological Society invites everyone to its November 4, 2014 dinner meeting, where Isabel Fay, of the University of Arizona, will present “Ores in synorogenic veins in the Central African Copperbelt: Remobilization or addition?” Additional details about this event, including the venue, will be announced at a later date.

Since we will not have a meeting in Tucson in November, we are currently working to organize car pools to make it more convenient for our Tucson members to attend this event. Anyone who might be interested in driving to Phoenix for this meeting, contact David Briggs at secretary@arizonageologicalsoc.org.



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Join your mining friends poolside at the Sheraton for a casual, relaxing summer event. Members and friends of all mining groups -- AGS, AMIGOS, AMA, ARPA, MFSW, and others -- are welcome to attend. Light appetizers provided. Ca\$h bar.

When: Friday, July 11, 5:30 - 7:30 p.m.

Where: Sheraton Tucson at 5151 E. Grant -- northeast corner of Grant & Rosemont, Tucson, AZ

Registration: No registration and no cost to attend. Ca\$h bar.

Who: Hosted by SME Tucson and these generous sponsors: Southwest Energy | Schlumberger Water Services

See you there!
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MAJOR

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What's New from the Arizona Geological Survey



[Arizona Mining Review](#) e-Video Magazine – 25 June 2014

- White House Energy Datapalooza and launch of the National Geothermal Data System with host Lee Allison
- Arizona Superfund Research Program & Mining Training Modules with Karletta Chief and Denise Moreno, University of Arizona
- Corescan core imaging facility comes to Tucson, A tour with Brigette Martini

Arizona Mining Review - The June episode will be broadcast at 10:00 am MST on 25 June on LiveStream (<http://new.livestream.com/accounts/2496466/azminingreview>). Immediately thereafter it will be available on our [AZGS YouTube Channel](#), along with episodes from January 2013 through May 2014.

New Publications

Briggs, D.F. 2014, [History of Helvetia-Rosemont Mining District, Pima County, Arizona](#), Arizona Geological Survey Contributed Report, CR-14-D.

Crouse, D.L, and Embree, P., 2014, Pinite in Nevada, and why it might be of interest, in, Conway, F.M., ed., Proceedings of the 48th Annual Forum on the Geology of Industrial Minerals, Phoenix, Arizona, April 30 - May 4, 2012. Arizona Geological Survey Special Paper #9, Chapter 5, p. 1-8.

Other AZGS News

AZGS played a strong supporting role in scheduling the upcoming U.S. **House and Senate Congressional briefings**: "Finding Stable Ground: Using Science and Partnerships to Manage Landslide Hazards." Hosted by Senator Maria Cantwell, moderated by Peter Lyttle of the USGS, and with speakers: Dave Norman, State Geologist, Washington Geological Survey; Jennifer Bauer, Principal geologist and co-owner of Appalachian Landslide Consultants, PLLC, North Carolina; and Dave Hard, Director of Emergency Management, Colorado Division of Homeland Security & Emergency Management. Monday, 23 June, Washington, D.C.

Our AZGS extension team prepared the following flier, '[Towards a Cooperative National Landslide Partnership Program](#)', for distribution at Monday's congressional briefings.

We are on the move. The **Phoenix Branch** office of AZGS is moving to the 4th floor at [3550 N Central, Phoenix, AZ 85012](#). Phone and fax numbers remain the same. Expect some disruption in service through the 1st week in July. Once Nyal Niemuth and crew get settled in, we hope you will pay them a visit.

ANNOUNCEMENTS

Welcome New AGS Members

Tanya Anderson

Jordan Krcmaric

Alan Richter

Petra Webb

Robabeh Entezari

Kevin Ortiz

Dan Taranik

Dan Glinski

Lucia Profeta

Joseph Valachovic

Arizona Geological Society is grateful to Freeport-McMoRan Copper and Gold for their generous support of our student members!



Freeport-McMoRan is sponsoring student dinners for the 2014 AGS monthly meetings.

2014 AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

Please mail check with membership form to: Arizona Geological Society, PO Box 40952, Tucson, AZ 85717

Dues (check box) 1 year: \$20; 2 years, \$35; 3 years: \$50; full-time student (membership is free)

NEW MEMBER or RENEWAL? (circle one) Date of submittal _____

Name: _____ Position: _____

Company: _____

Mailing Address: _____

Street: _____ City: _____ State: _____ Zip Code: _____

Work Phone: _____ Home Phone: _____

Fax Number: _____ Cellular Phone: _____

E-mail: _____ Check this box if you do not have an email address

All newsletters will be sent by email. If you do not have an email address, we will mail a hard copy to you, but we cannot guarantee timeliness.

If registered geologist/engineer, indicate registration number and State: _____

Enclosed is a _____ tax-deductible contribution to the J. Harold Courtright Scholarship Fund.