



Arizona Geological Society Newsletter

MAY 2017

May 2, 2017 DINNER MEETING

Who: Robert Glennon is the featured speaker. See abstract below.

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 **SABINO 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 \$30, Guests \$33, Students Members free with on-line reservation (\$10 without).

RESERVATIONS ARE REQUIRED: Reserve on the AGS website (www.arizonageologicalsoc.org) by **11 a.m. Friday, April 28**. Please indicate Regular (Beef Teriyaki), Vegetarian (Roasted Vegetable Towers) or Grilled Salmon Salad meal preference. Please cancel by **Friday, April 28 at 11 a.m.** if you are unable to attend - no shows and late cancellations will be invoiced. (Please call or text Alison Jones at 520-270-2825 if you must cancel after the deadline. We may be able to sell your meal and you won't be billed).



AGS is grateful to

Clear Creek Associates

for sponsoring the May dinner meeting.
Learn more about Clear Creek at their
website:

www.clearcreekassociates.com

ABSTRACT

UNQUENCHABLE: AMERICA'S WATER CRISIS AND WHAT TO DO ABOUT IT

by Robert Glennon

America's self-inflicted water crisis is coming. Throughout the United States, even in places that are not particularly dry or hot, communities, farmers, and factories are struggling to find water, and even running out altogether. Our water woes will get worse before they get better because we are slow to change our ways, and because water is the overlooked resource. From the Vegas Strip to faux snow in Atlanta, from mega-farms to Washington's love affair with biofuels, heady extravagances and everyday waste are sucking the nation dry. This presentation will illustrate the urgency of this problem and the need for action on multiple fronts to solve it. We cannot engineer our way out of the problem with the usual fixes or zany schemes. America must make hard choices, and Glennon's answer is a provocative market-based system that values water as a commodity and a fundamental human right.



About the May Dinner Meeting Speaker

Robert Glennon is an expert on water policy and law. The recipient of two National Science Foundation grants, Glennon serves as an advisor to governments, corporations, think tanks, law firms, and NGOs looking to solve serious challenges around water sustainability and planning.

Glennon is the author of *Unquenchable: America's Water Crisis and What To Do About It*, which has become a go-to resource for environmental policy stakeholders nationwide. *Unquenchable* received a Rachel Carson Book Award for Reporting on the Environment from the Society of Environmental Journalists. He is also the author of *Water Follies: Groundwater Pumping and the Fate of America's Fresh Waters*.

In 2014, Glennon and two co-authors collaborated with the Hamilton Project at the Brookings Institution to explore solutions to broken federal and state laws that are contributing to worsening water shortages in California and other Western states. Their groundbreaking report, *Shopping for Water: How the Market Can Mitigate Water Shortages in the American West*, received widespread national attention and is viewed by many as a game-changer for water policy moving forward.

Glennon is a Regents' Professor and Morris K. Udall Professor of Law and Public Policy in the Rogers College of Law at the University of Arizona. He received a J.D. from Boston College Law School and an M.A. and Ph.D. in American History from Brandeis University. He is a member of the bars of Arizona and Massa-



**Allison McGraw,
winner of the
2017 Doug Shakel Award**

Congratulations to Allison McGraw, winner of the 2017 Doug Shakel Award at University of Arizona's GeoDaze. The \$500 award is given to the best undergraduate poster presentation at the annual event. Allison is an undergraduate in Geosciences, Planetary Sciences, Astrobiology, and GIS. The NASA Arizona Space Grant Consortium supports this research. Her mentor is Dr. Vishnu Reddy of the Lunar and Planetary Lab at the University of Arizona.

The title of her presentation was "Characterizing Mineralogy of Asteroids: Do L-Chondrites come from the Gefion Asteroid Family?"

Abstract: This is an observational campaign to verify a link between the Gefion asteroid family and L-chondrite meteorites. Near-infrared spectra of asteroids (2386) Nikonov, (1839) Ragazza, (2373) Immo, (2521) Heidi and (3860) Plovdiv were obtained at the NASA Infrared Telescope Facility. The spectral data were reduced using the IDL-based software Spextool. Spectral band parameters including Band center, and the Band Area Ratio were measured using a Python code. We found that some members of the Gefion family have composition similar to H-chondrites primitive achondrites and basaltic achondrites. No evidence was found for L-chondrites among the Gefion family members in our small sample study. The three other asteroids with non-ordinary chondrite compositions might be interlopers in the Gefion family.

FIELD TRIP REPORT

The Laramide-age Chilito Porphyry Copper Deposit, its host rocks, and styles of mineralization, Dripping Spring Mountains, Gila Co., Arizona

On April 22, the weather was excellent, and participants were plentiful for the Arizona Geological Society spring field trip to the Chilito porphyry deposit. Participants represented multiple mining and exploration companies, university faculty and students, and a variety of other interested geologists. The day started with an introduction to some of the important host rocks of the Chilito porphyry copper deposit. Participants observed the Keystone fault with weakly altered diabase in the footwall and Naco limestone in the hangingwall.



At the second stop, Don Applebee gave a description of regional stratigraphy and structure from a scenic overlook, and described historic workings at distal skarn and replacement deposits. At this locality, participants were able to look at examples of mineralization from core.



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Field Trip Report—Continued from Page 3

Stop three was a visit to the Velasco Pit, where the Troy Quartzite was historically mined for silica flux. Dikes of quartz diorite cut the Troy Quartzite at this locality. Participants enjoyed hunting for azurite, malachite, and chrysocolla hosted within the quartzite.



Participants were able to observe pervasive sericitic alteration in diabase and stock. At stop five, participants observed diopside skarn with copper mineralization in the Mescal Limestone. A final stop allowed participants to view multiple generations of dense quartz veining within the quartz diorite intrusion.

Overall, the field trip allowed participants to observe a range of alteration styles in different host rocks to better understand the Chilito porphyry copper deposit.

Many thanks to **Wolf Schuh** and **Don Applebee** for leading the trip, and to **Ortrud Schuh** and **Anna Schuh** for helping with some of the logistics.

Also thanks to **Freeport McMoRan** and **ASARCO** for generously helping to defray some of the guidebook costs.



AGS' s April 22 field trip to the Chilito deposit was a great success.

Photo credit: Marisa Lerew



Geoscience and Public Policy

The American Geological Institute has released policy recommendations for the new administration and the 115th Congress that outlines the ways to achieve national interests where geosciences play a significant role. You can see the document here:

https://www.americangeosciences.org/sites/default/files/GWG_2017TransitionDocument_Final_032017.pdf

Curiously, the word “climate” does not appear once in the 14-page document. But there is a recommendation to invest in more icebreaker ships to enhance national security by maintaining our military and economic capabilities in polar regions.

This runs counter to the Department of National Intelligence’s Threat Assessment, which is always an interesting read. Check it out here.

https://www.dni.gov/files/documents/SASC_Unclassified_2016_ATA_SFR_FINAL.pdf

Geoscience Policy Recommendations for the New Administration and the 115th Congress

This set of policy recommendations outlines ways to achieve our shared national interests where the geosciences play a significant role. The policy proposals build on the consensus document *Geoscience for America's Critical Needs: Invitation to a National Policy Dialogue*, which was developed for the 2016 election.

Geoscientists gather and interpret data about the Earth and other planets, providing the data, tools, and expertise to help solve some of America's greatest challenges. The policy proposals laid out in this document are centered around five high-level thematic areas:

- Enhancing national and homeland security
- Increasing economic prosperity
- Securing resources and strengthening national infrastructure
- Supporting strong and resilient communities, and
- Growing a dynamic workforce

This report highlights the shared priorities of nine professional geoscientific societies that represent some 250,000 members and are members of the Geoscience Policy Working Group. We in the geoscience community offer to share our scientific expertise and perspectives as you craft national policies to build a strong and competitive nation.

The societies listed below do not necessarily endorse or have expertise on every recommendation in this report.

Signed: American Association of Petroleum Geologists, Association of American State Geologists, American Geophysical Union, American Geosciences Institute, American Institute of Professional Geologists, Consortium for Ocean Leadership, Geological Society of America, National Ground Water Association, Soil Science Society of America.



For further information, please contact
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Welcome New AGS Members

Daniel Brisbin

Michael Chambers

Lizbeth Murillo

Phillip Nickerson

Bernie Stannus

Aryn Hoge

Arizona Geological Society is grateful to Freeport-McMoRan, Inc. for their generous support of our student members! Freeport-McMoRan sponsored student dinners for the 2017 AGS monthly meetings.



2017 AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

YOU CAN RENEW OR SIGN UP as a new member and pay online. Please go to our website, arizonageologicalsociety.org. Or use the form below if you are more comfortable with the old school approach.

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 or the M. Lee Allison Scholarship Funds.