



# Arizona Geological Society Newsletter

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NOVEMBER 2019

## December 3rd, 2019 DINNER MEETING

**Who:** Anita Grunder 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 online reservation (\$10 without).

**RESERVATIONS ARE REQUIRED:** Reserve on the AGS website (<http://www.arizonageologicalsoc.org/events>) by **11 am on Friday, November 29th**. Please indicate Regular (Top Sirloin with Mushroom Au Jus), Vegetarian (Spinach and Mushroom Polenta), or Salad (Cobb Salad) meal preference. Please cancel by **Friday, November 29th at 11 am** if you are unable to attend - no shows and late cancellations will be invoiced.

### The December dinner meeting is sponsored by:

We are still accepting sponsors for the December 2019 dinner meeting.

If you are interested in sponsoring current or future AGS dinner meetings, please contact:

[info@arizonageologicalsoc.org](mailto:info@arizonageologicalsoc.org)

### Arizona Geological Survey presents:

## Legacy of Cenozoic Volcanism in the Pacific Northwest: Emphasis on the High Lava Plains of Oregon

by Anita Grunder  
Professor Emeritus, Geosciences, Oregon State University

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## ABSTRACT



The High Lava Plains of eastern Oregon are a Miocene to Recent basalt plateau with westward younging rhyolite domes and flows and ignimbrites. They make a geomorphic, compositional and age progressive mirror image to the Yellowstone hotspot and lie at the northern margin of the Basin and Range Province. The basalts are derived by melting of depleted Pacific mantle entrained by Cascadia slab roll-back and steeping. Persistent invasion of basalt has driven reworking of the crust and

has contributed the heat and source rocks to create rhyolites, as well as accommodating extension.

## ABOUT THE SPEAKER



Anita Grunder is professor emerita at Oregon State University where she served from assistant professor to associate dean of academic programs. She graduated from UC Berkeley in Paleontology in 1977 and, after holding various odd jobs, went on to obtain her PhD at Stanford University in 1986. At Oregon State University she taught courses in petrology, volcanology, geochemistry, field geology, among others.

Her interests are centered on understanding the interaction between magma and the crust over time in diverse tectonic settings. Her work is based in field studies of the volcanic record supplemented by diverse analytical techniques and modeling. Her present interest areas are volcanism in extensional settings (High Lava Plains), arcs (Andes and Cascades), and hotspots (Steens Basalt).

She has served the professional community as an officer in the GSA, AGU and IAVCEI and as a member of the editorial board of *Geology* and *JGR*, *solid Earth*. She has served in her community by starting a rural Charter School focused on experiential learning. She is married to John Dilles, also a geologist, and they have three grown children, Anita, Zoe, and Leo.

## Arizona Geological Society is pleased to announce the scholarship recipients for 2019!

### 2019 M. Lee Allison Scholarship Recipient:



### Lydia Bailey

Lydia Bailey received a B. S. in Geology from the University of Edinburgh in the United Kingdom in June 2015 and a M. S. in Earth Sciences from the Swiss Federal Institute of Technology in Zurich, Switzerland in September 2017. She is currently a second year Ph.D. candidate working toward a degree in Geosciences at the University of Arizona.

As an undergraduate at the University of Edinburgh, Lydia received numerous awards for academic achievements in geology. In September 2017, she received the prestigious Geologische Gesellschaftin Zurich Best MSc Thesis Award from the Zurich Geological Survey for the best Masters thesis in Earth Science completed at a Swiss academic institution. More recently, Lydia was recognized as one of the "change-making" scientists of our future, when she received the University

of Arizona College of Science Galileo Circle Scholarship.

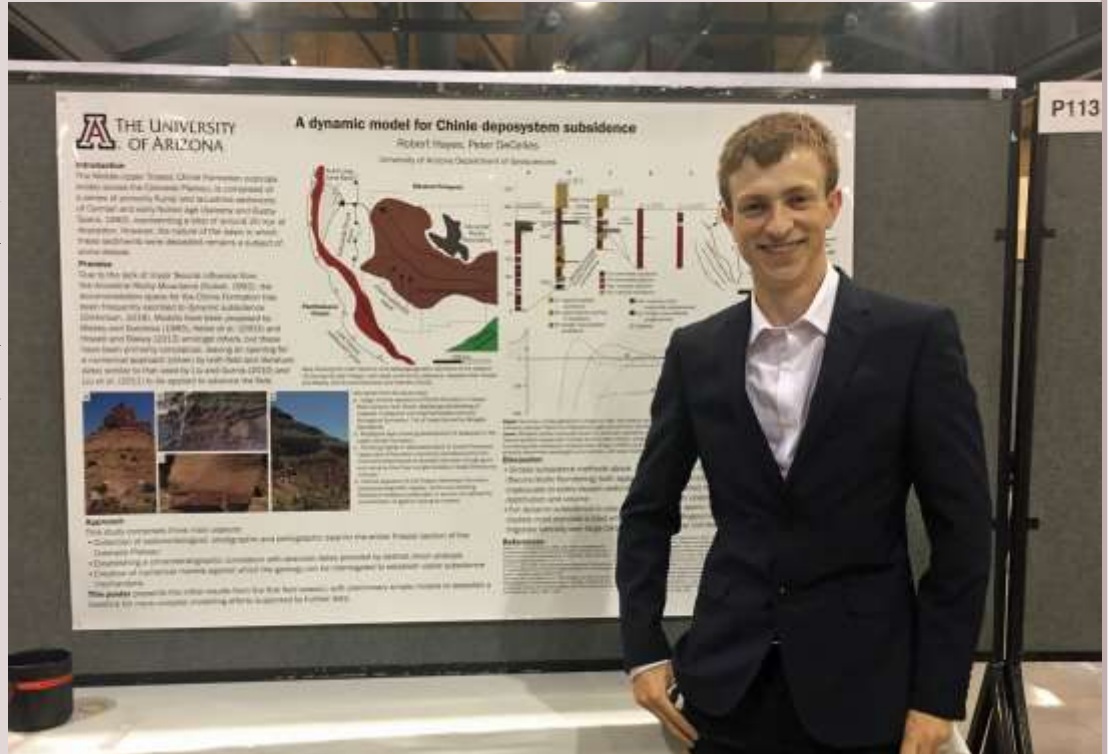
Lydia has also had numerous community outreach and leadership roles including being an organizer of a student-led Geology Expedition to Southern Greenland, Secretary for the Economic Geologists ETH Student Chapter at the Swiss Federal Institute of Technology and Secretary for the Arizona Chapter of the Association of Women Geoscientists. She is also a long-time member of the Scout Association, an organization, devoted to mentoring today's youth, encouraging them to achieve their full potential.

Lydia's current research at the University of Arizona evaluates timescales, fluxes, geochemical changes and driving forces of basin-scale paleo-fluid flow in the Paradox Basin, located on the Colorado Plateau. This study involves age-dating distinctive flow manifestations within the basin to get an integrated perspective on how it evolved over space and time. This study is a part of a larger collaborative effort to learn more about the evolution of crustal paleo-fluid flow systems, which involves faculty, researchers and students from the University of Arizona, Fort Lewis.

## 2019 Courtright Scholarship Recipient:

### Robert Hayes

Robert Hayes received a M.S., specializing in Geology and Paleobiology, from the University of Leicester, United Kingdom in July 2018. Currently a second year Ph.D. candidate in the Department of Geosciences at the University of Arizona, he is focusing his research on developing an evolutionary model of the Colorado Plateau for the time period spanning the end of sedimentation in the miogeocline and the formation of the Cordilleran foreland.



This regional study spans the Colorado Plateau, extending into eastern Nevada, corresponding with the aerial extent of the Chinle and Moenkopi Formations. It involves the firsthand measurement of complete stratigraphic sections throughout the entire succession. Of particular interest is the grain size distribution, which can be used to back-strip the succession and more accurately map the basin.

Petrographic analysis of thin sections from samples gathered throughout the region will provide basic data on source region heterogeneity across the basin and over time. Fluvial architecture studies will help provide a better understanding of inherent heterogeneity of the Chinle Formation and how it relates to the evolution of the basin. Isotopic studies of abundant carbonate and evaporate intervals will further our understanding of how connected the Moenkopi Formation was to the global ocean circulation system, providing both tectonic and palaeoclimatic information.

**A big congratulations to our scholarship recipients, and we are excited to meet you at the December 3rd dinner meeting!**

## Society Announcements:

The Arizona Geological Society is seeking volunteers for next year's AGS Executive Committee.

We are looking for a:

- Vice Treasurer
- Secretary
- Vice President of Programs, and
- Vice President of Marketing

For more information, please contact us at:  
[info@arizonageologicalsoc.org](mailto:info@arizonageologicalsoc.org)

## Member Announcements:

Congratulations to longtime AGS Member **Nancy Gracia-Gungor** who was recently promoted to President & CEO of Skyline Assayers & Laboratories! We thank Skyline and Nancy for their consistent support to AGS!

## Fall 2019 Field Trip:

### AGS-AIPG Fall 2019 Field Trip to Examine Earth Fissures near Apache Junction and Chandler Heights



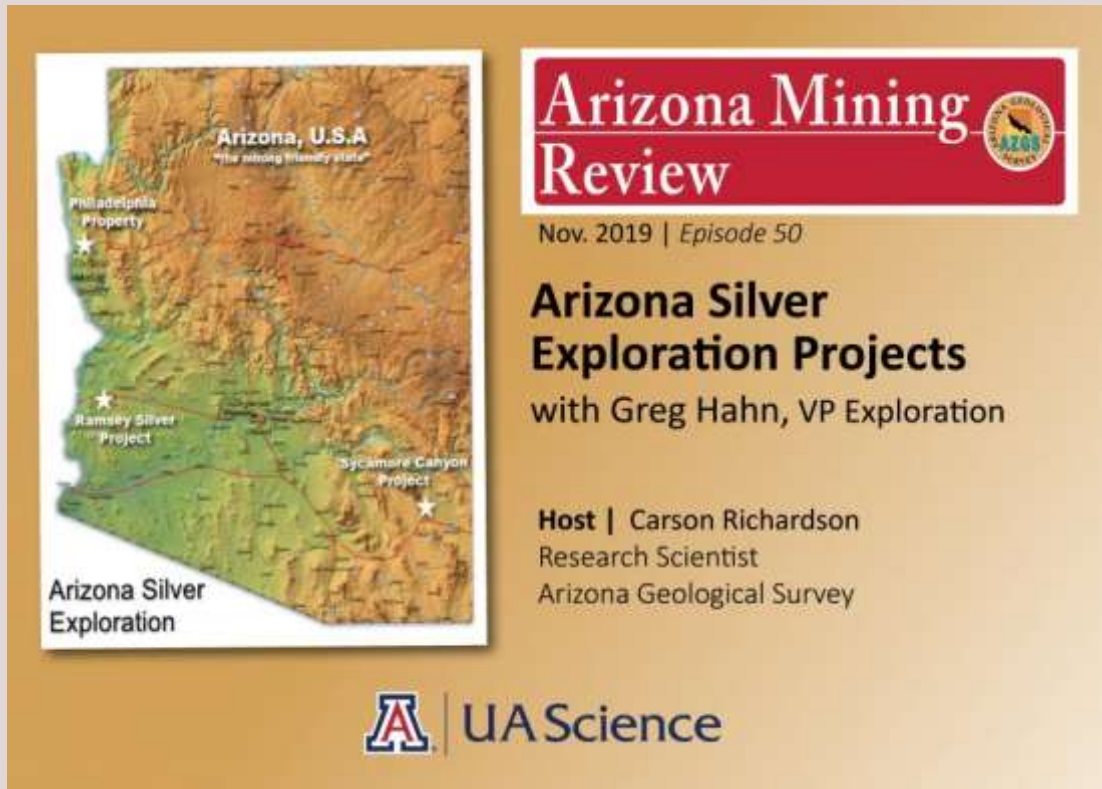
On Saturday 9 Nov., AGS joined with AIPG to examine earth fissures in Phoenix's East Valley area. Some of Saturday's activities are encapsulated in today's Arizona Geology blog:

<https://blog.azgs.arizona.edu/blog/2019-11/unesco-aipg-and-ags-examining-subsidence-and-earth-fissures-central-arizona>

We had great weather and excellent discussion on the role of groundwater harvesting and basin subsidence in driving earth fissure formation.

## AMR 50th Episode: Arizona Silver Exploration gold-silver properties

by Arizona Geology e-Magazine, Arizona Geological Survey



On 14 Nov. 2019, we filmed the 50th episode of the Arizona Mining Review (AMR) e-Video Magazine. The first episode was filmed in Jan. 2013, then part of a year-long celebration of the Arizona Geological Survey's 125th anniversary. Carson Richardson, AZGS Economic Geologist, hosted the latest episode, following in the footsteps of Lee Allison, Nyal Niemuth, Mike Conway and Phil Pearthree.

Arizona Silver Exploration VP-of-Exploration Greg Hahn joined Carson at the AZGS studio at 1955 E. 6th St. Greg has a long history prospecting for precious metals, beginning in Arizona in the late 1970s.

Read more of the blog article here:

<https://blog.azgs.arizona.edu/blog/2019-11/amr-50th-episode-arizona-silver-exploration-gold-silver-properties>

Watch the AMR 50th Episode here:

<https://www.youtube.com/watch?v=pJyU5aJaDbY&t=19s>

**Arizona Geological Society is grateful to Freeport-McMoRan, Inc. for their generous support of our student members!**

**Freeport-McMoRan has sponsored student dinners for the 2018-2019 AGS monthly meetings.**



### AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

YOU CAN RENEW OR SIGN UP as a new member and pay online. Please go to our website, [arizonageologicalsoc.org](http://arizonageologicalsoc.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: \$35;  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.