



AGS NEWSLETTER

ARIZONA GEOLOGICAL SOCIETY, INC., TUCSON, ARIZONA

March 2008

MARCH 4, 2008 DINNER MEETING

Dave Maher

Bronco Creek Exploration

Reconstruction of Middle Tertiary extension and Laramide porphyry copper systems, southeast Arizona

ABSTRACT—In east-central Arizona, overlapping sets of Tertiary normal faults are dismembered, variably extended, and exposed up to 15 km of the upper crust, including portions of several Late Cretaceous to Paleocene (Laramide) igneous centers and their associated porphyry copper systems. These exposures enable both a rigorous evaluation of the nature of extension in the upper crust and systematic reconstruction of the 3-dimensional distribution of several major porphyry copper centers.

Synthesis of existing geological data and new mapping provide the basis for reconstructions of district and regional scale cross sections through an area comprising about 4,000 km² centered on the Dripping Spring Mountains of east-central Arizona. The study area is located within a highly extended portion of the Basin and Range province and encompasses the Globe-Miami, Superior, and Mineral Creek (Ray) mining districts and numerous other deposits and related occurrences.

The field evidence and the reconstructions demonstrate that sequential sets of initially steeply dipping normal faults generated multiple half-grabens and associated sedimentary fill. Complex overlap of >10 sets of these half-grabens led to aggregate extension of about 100% across the study area,

but the amount of extension locally varies from less than 20% to well over 400% depending on the amount of overlap and direction and amount of displacement on the various fault sets. These fault sets were not kinematically linked and do not merge into a master fault at depth, but are inferred to feather into a broader zone of mid-crustal flow, which may resemble the characteristics of nearby metamorphic core complexes.

Reconstructions at regional (10's of kms) to copper deposit (a few kms) scales demonstrate that multiple deposits, prospects, and other hydrothermal features in the Globe-Miami, Superior and Ray districts are dissected portions of originally fewer, larger hydrothermal centers. These restorations delineate exposures ranging from near paleosurface to locally >10 kms paleodepth and enable comparisons of different systems and of well mineralized portions along with their roots, tops, and margins.

Digest 22 Update

The Digest 22 editors report that 18 Tectonics and 16 Economic Geology manuscripts have been received to date. Assuming all goes smoothly with reviews and responses, Digest 22 will have at least 32 topical papers.

Dinner Meeting Information — InnSuites, 475 North Granada, Tucson

To reserve your place for dinner, call 520-663-5295 before 5 pm, Friday, February 29, 2008.

AGS CAN NO LONGER GUARANTEE DINNER SEATING FOR THOSE WHO SHOW UP WITHOUT A RESERVATION.

Cost: Members \$24, Guests \$27 Students \$10 (+\$3 for late registration)

Cash Bar @ 6 pm

Dinner @ 7 pm

Talk @ 8 pm

For dinner selection, indicate if a low-salt or vegetarian meal is required. Please cancel if you are unable to attend.

Announcements

Spring 2008 Field Trip - Tucson Water

Free!

AGS SPRING FIELD TRIP SATURDAY, MARCH 29, 2008

For the spring field trip, AGS has arranged a half-day guided tour of the Hayden Udall Water Treatment Plant (H/U) and the Clearwater Renewable Resource Facility (Recharge and Recovery Project) (CRRF). The trip will be held Saturday, March 29th. Meet at the Tucson Water Building downtown at 7:30 am. The trip is free and compliments of Tucson Water. They have a van that will take up to 14 people; any more than that can carpool behind the van.

SCHEDULE:

07:30 - 08:00 AM- Meet at Tucson Water Building, 310 W Alameda St Tucson, AZ 85701 (See downtown map, below.)

08:00 - 08:30 AM- Travel to H/U Water Treatment Plant

08:30 - 10:00 AM- Tour of H/U Water Treatment Plant

10:00 - 10:30 AM- Travel to CRRF

10:30 - 11:30 AM- Tour of CRRF facility

11:30 AM-12:00 PM- Travel back to Tucson Water Building

For more details about the sites, please check "Guided-Tours"

<http://www.tucsonaz.gov/water/ed-outreach.htm>

Please contact Rich Brown if you have any questions.

rbrown@clearcreekassociates.com

Tucson Water



SME Announces New On-Line Library

SME has recently launched the highly anticipated "OneMine" on-line digital library. The library contains thousands of documents—currently there are more than 7,000 papers—and every month 2000+ more will be added to the site. The library also will include papers from AIME and SAIMM. Only members of SME can access the library.

To access OneMine:

1. Go to www.OneMine.org
2. In the upper right hand corner, click on "Register." You will need your SME member number but you will only need to register on your first visit. After that, you will use the login box in the upper left hand corner of the home page.
3. Search using basic search or the advanced tab for more extensive search criteria.

The digital library is a BETA site, which means that there will be multiple changes within the site as it evolves and as SME receives feedback. SME requests that members use the FEEDBACK button on the web site to address issues and concerns or to make comments about the site.

For more information, please contact the Project Administrator, Sally Kennerson by phone, 303-948-4225 or by email at kennerson@smenet.org.

February 24–27, 2008

2008 SME Annual Meeting & Exhibit

"New Horizons/New Challenges," Salt Lake City, Utah

1-800-763-3121

National Groundwater Association Courses

Tucson—March 2008

- Estimating Times of Remediation Associated with MNA and Contaminant Source Removal (#157)—3/17-18
- Environmental Geochemistry of Metals: Investigation and Remediation (#576)—3/18-20
- Design and Construction of Wells (#285)—3/19-20

1-800-551-7379

March 2–5, 2008

PDAC 2008

International Convention Trade Show & Investor Exchange, Toronto, Canada

1-416-362-1969

Celebrating 60

THE PRESIDENT'S COLUMN

BY LEE ALLISON

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O&O Guidebooks Now Available

AGS has reordered field-trips guidebooks that were prepared for the O&O Symposium. Copies can be purchased at the monthly dinner meetings, and arrangements are being made for on-line purchases. Each book is \$20 except FT 7 and FT 8, which are \$10 and \$25, respectively.

FT 01—Watanabe and others, *Epithermal gold deposits in the Kagoshima prefecture in southern Kyushu, Japan*

FT 04—Barton and others, *Laramide porphyry copper systems and superimposed Tertiary extension: A life cycle approach to the Globe-Superior-Ray area, Arizona*

FT 07—Stavast and others, *Roots of a pluton and porphyry copper system, Pima District, Arizona*

FT 08—Graybeal and others, *Porphyry copper systems of southern Arizona*

FT 13—Bartolino and Mayor, *La Herradura, Sonora and Mesquite, California — The two world-class gold deposits of the Sonora-Mojave region*

FT 15—Colpron and others, *A transect through the accreted terranes of the northern Canadian Cordillera*

FT 18—Duebendorfer and others, *Orogenic models for the Paleoproterozoic of the southwestern US: Implications for global reconstructions*

FT 19—Spencer, *A geologist's guide to the core complex geology along the Catalina Highway, Tucson area, Arizona*

Merging AZGS and DMMR

Rep. Theresa Ulmer of Yuma is sponsoring HB 2584 ("Arizona geological survey, restructuring") that would roll the Department of Mines and Mineral Resources into the Arizona Geological Survey. After receiving feedback from email messages and comments on Lee Allison's blog site, Rep. Ulmer stated that she is in the process of drafting legislation to amend the name of the merged agency to Arizona Bureau of Mines and Geology. She further stated she will change "Department of Mines and Mineral Resources" to "Division of Mines and Mineral Resources," rather than "Division of Mineral Resources" as originally intended.

The merger is projected to save the state \$150,000 per year. However, Rep. Ulmer could not account for the savings since all DMMR state personnel are to be transferred to comparable positions and pay classifications in the new agency and DMMR will remain in its present building in Phoenix. She stated she will look into the projected savings.

Interested parties can contact Rep. Ulmer at 602-926-3002. The proposed legislation can be found on the Internet at www.azleg.gov/legtext/48leg/2r/bills/hb2584p.pdf, although it is in the process of being amended.

A highlight of celebrating AGS' 60 years as a professional society is recognizing those people who contributed so much to our success. The one name at the top of everyone's list is Walter E. Heinrich, Jr.

Walt is a founding member of AGS, former president, man of many talents, and still active, enthusiastic, and outspoken. The Society will bestow Honorary Lifetime Membership on Walt at the March 4 dinner meeting, so please join us for this special event. We are preparing a biography of Walt for a later newsletter edition. Not surprisingly, the Mining Foundation of the Southwest bestowed Honorary Membership on Walt just last week during their annual meeting in Tucson.

As part of the 60th anniversary of AGS, I'd like to collect historical records, photos, and other memorabilia of the Society's activities and members to document and preserve our history. As I look back through our official publications, there is very little about the people and events that shaped the Society and our profession.

So, dig into your photo albums and old files. The pictures don't have to be ancient – shots from last fall's Ores and Orogenesis symposium should be preserved as well as those from 1950. Bob Kamilli is developing plans for archiving existing official Society records so we'll talk about adding historical materials to the collection as well.

2008 CALENDAR OF EVENTS

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|--------|--|
| 4/1/08 | Phil Davis , USGS: <i>Remote sensing characterization of the mineral resources of Afghanistan</i> |
| 5/6/08 | Adam Schwarz , Resolution Copper: <i>Geology of the Resolution porphyry copper-moly system</i> |
| 6/3/08 | Mark Myers , Director, USGS: <i>Topic to be determined</i> |
| 7/1/08 | Steve Enders , Newmont, <i>Bridging the gaps in exploration and mining opportunities for research and development across the life cycle of an ore deposit</i> |



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FOR INFORMATION
ABOUT THE
ARIZONA GEOLOGICAL SOCIETY
AND UPCOMING EVENTS
VISIT OUR WEBSITE
www.arizonageologicalsociety.org

AGS books and maps are sold at the monthly
dinner meeting and by the
Arizona Geological Survey. Visit the
AZGS website www.azgs.state.az.us
and click on Non-AZGS Publications

As always, please keep us up to date as you move, change jobs, or change your e-mail address.

2008 AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

Please mail check with membership form to: Arizona Geological Society, P.O. Box 40952, Tucson, AZ 85717. Dues (circle one): 1 year: \$20; 2 years: \$35; 3 years: \$50. (Full-time students receive free membership. The newsletter is by e-mail only, and a membership application form must be returned to AGS annually to remain on the membership list.)

Name: _____

Position: _____

Company: _____

Mailing Address: _____

Street

City

State

Zip Code

Work Phone: _____ Home Phone: _____

Fax Number: _____ Cellular Phone: _____

E-Mail: _____

Please send the newsletter by e-mail only ☐ by regular mail only ☐ by e-mail AND regular mail ☐

If registered geologist or engineer, indicate registration number and state: _____

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