



AGS NEWSLETTER

ARIZONA GEOLOGICAL SOCIETY, INC., TUCSON, ARIZONA

June 2009

June 2, 2009 DINNER MEETING

Petro-realities: How Did Oil Prices Get So High?

Keith Long

US Geological Survey

Western Mineral and Environmental Science Center

ABSTRACT—From 2005 through 2007, capital costs for almost any investment anywhere in the world more than doubled. No economy can handle such a rapid escalation in the cost of investment; thus sometime late in 2007 the global economy entered into a recession. Why did capital costs get so high? Because oil prices soared, taking other energy and mineral costs with them. Why did oil prices get so high? Global demand exceeded supply but for a not very good reason. Out of the 50 largest oil companies in the world, 26 are state-owned entities that collectively control 92 percent of world oil reserves. These state-owned companies are investing only half of what is needed to increase global oil production to keep pace with demand. During this current recession, we can expect even less investment in oil. Once the world economy turns around, it faces the same problem of growth that exceeds the ability or willingness of energy and mineral producers to supply the energy and raw materials the world needs. Alternative energy sources are not mature enough for the short- to medium-term and require massive capital investments. Increasing the efficiency of oil-based energy use *and* increasing oil supply is the only viable strategy.

Possible October field trip to La Herradura, largest gold mine in Mexico?

Erick Weiland of the Arizona Section of the AIPG (American Institute of Professional Geologists) is inquiring whether there is sufficient interest in visiting the largest producing gold mine in Mexico. The La Herradura mine is some 40 km east of Puerto Peñasco, and a three day, two night trip is proposed for some time in October. There would be a mine tour on Saturday, followed by an optional petroglyph tour on Sunday. Some issues to consider...

- Steel-toed boots are required for the mine visit.
- No children are allowed on the mine tour.
- Overnight can be in either Caborca or Puerto Peñasco.

Please contact Erick if you are interested so he can decide whether to continue with plans for the trip: 520-629-8288 or e-mail eweiland@pirnie.com.

La Herradura Mine and Soledad-Dipolos Project

La Herradura Mine is an open pit, heap leach gold mine that commenced operations in January 1998 as a joint venture between Fresnillo plc and Newmont Mining Company (Newmont) under the Mexican subsidiary, Penmont. The planned production is an average of 40,000 tonnes per year of ore mined expected for the remaining life of mine. The current mine plan anticipates that production will end in 2018. Fresnillo's Soledad-Dipolos project, located about 10 kilometers away, will be an open pit gold mine with an average ore grade similar to Herradura. Construction is to be completed by the end of 2009 and operations will begin in 2010 with a project mine life of 11.5 years. It is expected to produce at a peak rate of approximately 100,000 ounces of gold annually.

La Herradura Mine is located within the basement rocks of the Caborca Terrain of northern Mexico. These units are overlain by thrust sediments and cut by intrusives emplaced during the development of the Continental Jurassic Arc. The ore body formed by mesothermal mineralisation associated with high-angle structural zones oriented N30°W, along the Jurassic age Mojave-Sonora Mega-Shear. The gold mineralisation occurs within broad shear zones containing,

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June Dinner Meeting — Sheraton Four Points, 1900 E. Speedway Blvd.

RESERVATIONS ARE REQUIRED.

AGS CAN NO LONGER GUARANTEE DINNER SEATING WITHOUT AN ADVANCED RESERVATION.

PLEASE CALL 520-663-5295 BEFORE MAY 1, 2009.

Cash Bar @ 6 pm

Dinner @ 7 pm

Talk @ 8 pm

Cost: Members \$24, Guests \$27, Students \$10

A NNOUNCEMENTS

AGS Welcomes New UofA Members

AGS is pleased to welcome the following new student members who joined between April 17 and May 15:

Guru das Bock	Robert Walter
Zachar Buchanan	Fariq Murtagha
Isabel Fay	Preston Hall

The **Department of Mines and Mineral Resources** for the State of Arizona has an opening for a Mining Engineer. The position is also open to Geologists. Details are on the DMMR web site. The closing date is May 31st. <https://secure.azstatejobs.gov/pljb/azgovjobs/mainjb/applicant/index.jsp>.

The **New Mexico Geological Society** announces their Fall Field Conference to Chupadera Mesa, October 7-10, 2009. The conference leaders/conveners are Virgil Lueth (New Mexico Bureau of Geology) and Spencer Lucas (New Mexico Museum of Natural History). For information see the society's web site: <http://nmgs.nmt.edu/ffc/home.html>.

The **American Institute of Professional Geologists** announces the 2009 Geology and Resources Conference: *Rocky Mountains and the Colorado Plateau Canyons, Resources & Hazards*. The abstracts deadline is May 1, 2009. Abstract and registration forms, additional information, and the program are available on the AIPG web site: www.aipg.org. Field trips to the following locations are in the works:

- Landslides - Lake City Area
- Douglass Pass
- Fossils, Petroglyphs and Oil Development of NW Colorado Coal and Mesa Verde Formation
- Interbasin Diversions and Colorado River Accounting (2 days)
- Surface Mining and Reclamation in NW Colorado (2 days)
- Surface and Underground Uranium Mine Tour
- Engineering Geology of the Mancos Shale, Montrose Area
- Uravan Uranium District Tour
- Gas Development in the Piceance Basin (oil field rig site tour)
- Oil Shales tour
- Water Resources of the Western Slope (Grand Mesa)
- Origins of Unaweep Canyon
- Mass Movement/Landslides
- Colorado National Monument
- San Juan Volcanics/Ouray/Silverton (2 days)
- Hard-Rock Mining History of the San Juans (2 days)

2009 EVENTS CALENDAR

07/07/09

Jon Spencer, AZGS, *Restoration of tectonic extension in the greater Tucson area and implications for original distribution of porphyry copper deposits*

08/04/09

Mark Cocker, USGS, *Impacts and their record in the Southeastern Coastal Plain of the United States*

09/01/09

Mike Zientek, *Topic to be announced*

10/06/09

Fleetwood Koutz, *Geology and mineralization of the Hard-shell silver, base-metal, manganese oxide deposits, Santa Cruz County, AZ*

11/03/09

Leslye Obiora, UA Law Professor, formerly Minister of Solid Minerals in Nigeria: *The challenges of mining and mineral exploration in Africa*

12/01/09

Lawrence Krauss, ASU, *Topic to be announced*

AHS ANNUAL SYMPOSIUM

The 2009 Arizona Hydrologic Society Annual Symposium, *Managing Hydrologic Extremes*, will be held at the Westin Kierland Resort & Spa August 30 – September 2, 2009 in Scottsdale. The event will be a joint symposium with the 2009 national conference of the American Institute of Hydrology. A volume of the proceedings will be published following the symposium.

Early-bird Special Hotel Rate (\$99) Ends: May 31, 2009

Registration Opens April 14, 2009

Early Registration Ends: July 17, 2009

Hotel Room Reservation Cut-Off Date: July 31, 2009

Online Registration Deadline: August 21, 2009

Contact: www.hydrosymposium.org

Please make your AGS dinner-meeting reservation BEFORE Friday, May 29, 2009.

MINERALOGY & MICROSCOPY OF ORE

DEPOSITS

A Short Course held at the Colorado School of Mines

June 22-26, 2009

This course will present fundamental methods and procedures of identification and textural interpretation of ore minerals utilizing polished thin sections and reflected light microscopy.

Class will meet each day from 9 to 5. The general schedule will include 30 minutes of illustrated lectures alternating with 60 minutes of microscope work. Course fee is \$995. For more information, contact Dr. Lufkin: 303-997-7365; lufk3@comcast.net; www.johnlufkin.com.

AGS WEB SITE

FOLKS—Before you do any more complaining about the new and improved AGS web site, please know that the site had to be moved from the USGS server to the commercial server before Anchorwave was totally done with design and revisions. The reason for the quick move was that we had to get our web site off the USGS server for changes they were making to their system. They hosted our site for years and we are very grateful for their help.

Presently we have minimal basic functionality. Our web master, Greta Orris, is working overtime on our behalf (in addition to her demanding day job) and she is doing a fantastic job. Anchorwave also is working diligently on our web site and the many issues it presents.

As functionality issues are solved, additional pages will be added to the site, and more and more of our information will be available on line to members. Eventually it will be possible to make dinner and field-trip reservations on line, blog with fellow geologists, participate in geology forums, and access the AGS member database.

Check out the web site periodically and if it's slow in getting up to speed by your standards, please be a little more patient with us. Remember: everyone in the joint is a volunteer. And we could always use YOUR help.

Digest 22 Vouchers

It was announced in the last newsletter that US folks who purchased Digest 22 at the Ores and Orogenesis Symposium would receive a voucher for \$20 because we are able to sell the volume for less than anticipated at the time of the symposium.

This is another admonishment: Please be patient. The vouchers will be mailed soon.

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dilational quartz veins emplaced into biotite and quartzofeldspathic-biotite gneiss. Typically, the mineralised veins have relatively shallow dips, ranging between 60° and 45° eastward. Gold occurs in native form and as electrum.

Petroglyphs

The area around Caborca is considered to be “the best of the best” by petroglyph aficionados. In the small hills around town there are hundreds of petroglyphs dating from 800–1200AD. Hundreds of rocks are carved with anthropomorphic, zoomorphic and geometric designs, including some very elaborate and complex ones. The Mogollon peoples inhabited the area from approximately 600 B.C. to 1400 A.D. Other native inhabitants included the Anasazi (100 B.C. to 1450 A.D.) and the Hohokam (300 B.C. to 1400 A.D.). One prized area is the Cerro Calera, which is a small area where the carvings are in large masses all over the hill, even king-sized murals.

SIGNIFICANT INCREASE SEEN IN NSF FUNDING

The President's FY 2010 budget request for the National Science Foundation (NSF) was released May 18 with very favorable numbers. NSF Director Dr. Arden Bement announced the agency's proposed \$7.045B budget request for FY10 is an increase of \$555M or 8.5 percent, with the Geosciences receiving \$909M. The split is as follows:

Atmospheric and Geospace Sciences: \$269.16M, +\$24.56M or ten percent (Key investments include “\$12M to support new Climate Research activity,”)

Earth Sciences: \$196.85M, +15.85M or 9.3 percent (key investments include \$7M to NSF's new Climate Research activity; \$35K will be added to CAREER awards bringing the total to \$4.3M).

Integrative and Collaborative Education and Research: \$93.92M, +32.75M or 53.5 percent (supports novel, complex, or partnership projects in both research and education.)

Ocean Sciences: \$359.07M, +28.71M or 8.7 percent (key investments include \$10.9M to support the initial operation of the Ocean Observatories Initiative project)



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ABOUT THE
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AND UPCOMING EVENTS
VISIT OUR WEBSITE
www.arizonageologicalsoc.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.

2009 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.)

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

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