



# AGS NEWSLETTER

ARIZONA GEOLOGICAL SOCIETY, INC., TUCSON, ARIZONA

August 2009

## August 4, 2009 DINNER MEETING

### Impacts and their record in the Southeastern Coastal Plain of the United States

Mark Cocker, U.S. Geological Survey, Tucson, AZ

Meteoritic impacts in the neritic zone of the continental shelf may produce impact breccias, basement fracturing, breccias, proximal ejecta, and partial melting of the impacted sediments. Airborne ejecta, composed of shock-metamorphosed quartz grains, coesite, and melted sediments may be transported for hundreds to thousands of kilometers from the impact site. Impact-generated tsunamis may produce chaotically deposited conglomerates and conglomeratic sandstones along the coastlines of the impacted marine basins.

Two major marine impact sites (Chicxulub, Mexico and Wetumpka, Alabama) are known within the Gulf of Mexico basin. The Wetumpka impact occurred in the Upper Cretaceous about 82 Ma and is a fairly well-exposed, 7.6 km wide, crater complex. The Chicxulub impact occurred at the end of the Cretaceous, about 65 Ma, and is a buried, 170-310 km wide crater complex in platform carbonates of the Yucatan Peninsula. Airborne ejecta and tsunami deposits have been found in Belize, Cuba, northeast Brazil, sediments in the North Atlantic and Gulf of Mexico, Alabama, Missouri, Texas, and South Dakota. Effects of this impact may include the major extinction event at the end of the Cretaceous.

The Chesapeake Bay impact occurred during the Late Eocene, about 35 Ma. Ejecta from this impact in the form of tektites and shock-metamorphosed grains are found throughout the North American tektite field, which extends from Martha's Vineyard to Texas and to Barbados in the West Indies. Over 2000 tektites have been found in Georgia.

Exotic, multilithic, conglomeratic sediments with angular to rounded clasts of shale, sandstone, kaolin, and chert are found in two distinct stratigraphic horizons in the

Upper Coastal Plain of Georgia. One horizon marks the base of the Paleocene Clayton Formation where it unconformably overlies the Upper Cretaceous Providence Formation. A second horizon lies above the middle Eocene Claiborne Group sandstone and beneath the middle Miocene sandstone of the Altamaha Formation. Locally, underlying sediments exhibit chaotic bedding indicating soft sediment deformation. A high-energy deposition regime is indicated by the mixture of exotic clasts, the wide range of angularity and underlying sediment deformation. Georgia's Coastal Plain appears to record impact-related, tsunami-deposits from both the Chesapeake Bay and Chicxulub impacts.

### Message from AGS President Kevin Horstman

Your Executive Committee recently formed a Publications Committee to document and to archive the AGS digests and guidebooks produced over our 61-year history. The Publications Committee also is striving to disseminate our publications to research libraries, particularly in Arizona, and to increase marketing efforts for our in-print digests such as our newly published Digest 22. Most of the major Arizona libraries had a few AGS digests and guidebooks in their collections, but none had a complete set. Missing copies of in-print digests and guidebooks have been sent to the Cline Library at NAU, the Noble Engineering & Science Library at ASU, the Science and Engineering Library and the Department of Geosciences Antevs Library at UA, the Arizona State Library in Phoenix, and to the libraries at the Arizona Dept. of Mines & Mineral Resources and Arizona Geological Survey. The focus now is on documenting and

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## July Dinner Meeting — Sheraton Four Points, Wildcat Room, 1900 E. Speedway

(NO-SALT AND VEGETARIAN/VEGAN MEALS ARE AVAILABLE UPON REQUEST.)

**RESERVATIONS ARE REQUIRED. PLEASE CALL 520-663-5295 BEFORE JULY 31, 2009, OR MAKE YOUR RESERVATION ON LINE AT THE AGS WEB SITE UNTIL MIDNIGHT, AUGUST 2, 2009.**

Cash Bar @ 6 pm

Dinner @ 7 pm

Talk @ 8 pm

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

# A **NNOUNCEMENTS**

2009-2010

## Field Trip Announcements

6 October 2009 - Saturday

AGS Fall 2009 Field Trip

RED MOUNTAIN & HARDSHELL SILVER PROSPECT – near Patagonia

A day trip!

Leader: Fleetwood Koutz

Cost: To be determined

More information and a description are coming soon!

13-15 November 2009

AIPG field trip to LA HERRADURA MINE , northwestern Sonora, and petroglyphs near CABORCA

Overnight in Puerto Peñasco (Rocky Point)

More information is coming soon!

First or second weekend in December 2009

AGS Winter 2009 Field Trip

PINACATE VOLCANIC FIELD - NW Sonora

A camping trip!

Leader: Dan Lynch (retired)

Cost: To be determined

More information and a description are coming soon!

Late March / Early April 2010

AGS Spring 2010 Field Trip

MOROCCO (via Frankfurt am Main, Germany).

In search of Trilobites (and Cephalopods) in Trans-Atlas Morocco and the northern Sahara Desert!

Preliminary Description: See side bar.

-16 days Overseas

Preliminary cost estimate: \$3,100

Trip limited to 10 participants

More information is coming soon!

## AGS Welcomes New Members

Jon P. Broderick, retired (former member)

Joe Wilkins, consultant, semi-retired

## MOROCCO 2010

At the July AGS dinner meeting our VP for Field Trips, Doug Shakel, distributed a preliminary flyer announcing a projected trip to check out fossil collecting in Morocco next March/April. You can view or download the flyer at: [www.rheologic.net/AGS/PrelimFlyer-5th.pdf](http://www.rheologic.net/AGS/PrelimFlyer-5th.pdf).

The proposed trip would officially begin and end in Frankfurt, Germany, the jumping off point from which we would fly to Morocco as a group. Trip costs are currently estimated at about \$3,100, which would cover all accommodations in both Germany and Morocco, all breakfasts and dinners in Morocco, and all ground transportation in Morocco (in 4-wheel-drive vehicles).

Doug led a similar trip to Morocco in 2003 while he was teaching at Pima Community College. He says NOT to expect to come home with pockets bulging with trilobites and cephalopods, but he's pretty sure you WILL find nice stuff to bring home. You'll also get to see labs where the various finds are prepped, and visit numerous sites where things that wind up at the annual Tucson Gem, Mineral, and Fossil shows are originally quarried. And we'll also see and partake of lots of Moroccan and Berber culture and landscapes as we traverse the high Atlas Mountains and the northern Sahara Desert in the Anti-Atlas region of southern Morocco. And you haven't fully lived until you've experienced the night market in Marrakech!

If you consider going on this trip, you'll need to get yourself to and from Frankfurt on your own, although Doug says if there's enough interest AGS may be able to make those arrangements for you. You should defer purchase of any tickets until after the ground plans for the Morocco part of the trip have been firmed up. Doug hopes to have final pricing and specific dates ready for inclusion in the September newsletter.

If you are seriously interested in joining this expedition, fill out the form at the base of the preliminary announcement flyer and return it to Doug via either conventional mail or electronically to get on the list of prospective participants and not miss updates on planning for this exciting adventure. Get your passports in order now!

### PRESIDENT—Continued from p. 1

scanning AGS publications to electronic format in order to make them more widely available. The details need to be worked out, but AGS intends to make the out-of-print digests and guidebooks available for download on the web site as a member benefit or as a set that can be purchased on DVD. Notable thanks already go to Michael Conway of AZGS and Don Hammer for loaning some guidebooks for scanning. If you have any guidebooks from 1960–1977 that you could loan to the AGS Publications Committee for scanning, please contact me at [kchorstman@aol.com](mailto:kchorstman@aol.com) or 742-1083.

**Please make your AGS dinner-meeting reservation BEFORE Friday, July 31, 2009.**  
**Call 520-663-5295 today or go online to [www.arizonageologicalsoc.org/](http://www.arizonageologicalsoc.org/)**

## 2009 Member Directory Sponsorship

It's not too late to advertise in the 2009 AGS Member Directory or submit your high quality photos of scenic Arizona, interesting outcrops, and members. The rates for advertising are listed below:

PAGE SIZE	RATE	DIMENSIONS
Business Card	\$25	Std Business Card
½ Page	\$100	4.7" W x 4" H
Full Page	\$200	4.7" W x 7.9" H
Inside Cover (Color)	\$400	4.7" W x 7.9" H

For additional information, see the July AGS Newsletter.

### ACCESSING YOUR MEMBERSHIP INFO ONLINE

AGS members with email addresses can access and update their membership information online at the AGS website: [www.arizonageologicalsociety.org/](http://www.arizonageologicalsociety.org/).

To get your password, enter your email address in the upper white box under MEMBER LOGIN and click on the red-colored "FORGOT PASSWORD." Your password will be sent to you at your email address within a couple of minutes. If you get an error for "invalid username", AGS either has a different email address listed for you or no email address at all for you.

To register an email address with AGS, to change your member password, or for any problems with this system, please send an email to the AGS web master at the following email address: [info@arizonageologicalsociety.org](mailto:info@arizonageologicalsociety.org).

### 2010 SME Annual Meeting

**February 28 - March 3, 2010, Phoenix, AZ**

Submit abstracts at [sme2010.abstractcentral.com/index.jsp](http://sme2010.abstractcentral.com/index.jsp)  
Abstracts are due August 1, 2009

The **NEW MEXICO GEOLOGICAL SOCIETY** announces their Fall Field Conference to Chupadera Mesa, Oct. 7-10, 2009. The conference conveners are Virgil Lueth (New Mexico Bureau of Geology) and Spencer Lucas (New Mexico Museum of Natural History). See the society's web site for additional information. <http://nmgs.nmt.edu/ffc/home.html>.

The **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.

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

Online Registration Deadline: August 21, 2009

Contact: [www.hydrosymposium.org](http://www.hydrosymposium.org)

## 2009 EVENTS CALENDAR

09/01/09

**Tom Zoellner**, *Topic to be announced* (Dr. Zoellner will be signing his book *Uranium* at the dinner meeting.)

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*

01/05/10

**Kenneth J. Hollett**, *USGS Retired, Water: An Emerging Challenge for US Foreign Security*

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 ended May 1, 2009. Abstract and registration forms, additional information, and the conference program are available on the AIPG web site: [www.aipg.org](http://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

Utravay 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)



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ARIZONA GEOLOGICAL SOCIETY  
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



*You can now update personal information on line as you move, change jobs, or change your e-mail address. Visit www.arizonageologicalsoc.org and log in with your email address to get your password.*

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.)

Name: \_\_\_\_\_

Position: \_\_\_\_\_

Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Street City State Zip Code

Work Phone: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Fax Number: \_\_\_\_\_ Cellular Phone: \_\_\_\_\_

E-Mail (business) \_\_\_\_\_ E-Mail (home) \_\_\_\_\_

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: \_\_\_\_\_

If American Institute of Professional Geologists member, indicate registration number: \_\_\_\_\_

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