Atlanta Geological Society Newsletter

Next meeting of the Atlanta Geological Society is
November 29, 2011
Fernbank Museum of Natural History (Clifton Road)
Social begins at 6:30 pm – Meeting begins at 7:00 pm

November 2011

ODDS AND ENDS

Ben Bentkowski, Newsletter Editor

Imagine my surprise last Sunday when I read in my hometown Lawrenceville paper about new seismic monitors to be placed in Georgia. Seems there is a project called USArray which works between multiple universities and various government agencies to monitor and map the earth's movements. There is a fixed network of reference stations which is enhanced by a network of portable stations that are being deployed eastward across the country. More specifically to Georgia, three professors are deploying a network of 85 stations from the mountains down to the Florida coast to research the North American/Africa suture zone. I spoke with Rob Hawman of UGA who said this array would use the energy of earthquakes to provide the signal monitored by the stations. With this, they hope to assess the suture as well as the deep structure of the mountains. Dr. Hawman was especially interested in the multi-year funding which allows many students to be involved with all phases of the project over multiple years. It's good to hear of this ongoing research here in Georgia.
See you Tuesday!
http://www.usarray.org/
http://blog.al.com/wire/2011/11/scientists_to_place_new_earthq.html

NOVEMBER MEETING

Join us Tuesday, November 29, 2011 at the Fernbank Museum of Natural History, 760 Clifton Road NE, Atlanta GA. The pre meeting social starts at 6:30 pm and the meeting will start at 7 p.m. The speaker for the evening will be Professor Michael F. Roden, PhD. who will be speaking on "Supervolcanoes in the Hinterlands of the Andes of Argentina". This talk will draw upon a project that started in 2007 that focuses upon recent volcanism in the high Puna plateau east of the Andes in northern Argentina. Dr. Roden got his doctorate at M.I.T. in 1982, came to UGA in 1984 where he has been the Dept. Head since 2005. Please join us for what undoubtedly be an interesting presentation.

The November AGS Meeting Sponsor is **REGENESIS**.

REGENESIS
Established in 1994

Advanced Technologies for Contaminated Site Remediation

Mission Statement

Our mission is to develop, manufacture and market advanced, innovative technologies for the restoration or remediation of natural resources such as groundwater and soil. Regenesis' efforts are driven by and focused on technology performance, customer needs and cost-effectiveness. Our technologies will be supported by the highest level of scientific research and technical support within the industry. Looking forward, we will seek out and explore new technologies for the prevention and/or remediation of a broad range of environmental concerns.

Regenesis offers a range of specialty soil and groundwater remediation products, each one has been specifically designed for environmental applications with an emphasis on performance, cost-effectiveness, ease of use and environmental safety. Regenesis' product line includes applications for enhanced aerobic biodegradation, enhanced anaerobic biodegradation, in-situ chemical oxidation, metals immobilization and bioaugmentation.

For further details, please see Drew Baird of the Greenville, SC REGENESIS office at the meeting on Tuesday evening. You may also contact him at these numbers: P: 864.240.9181 | M: 864.884.4346 or via email; dbaird@regenesis.com

http://www.regenesis.com/
Thanks to REGENESIS for sponsoring this month's meeting

AGS Members… Geology Enthusiasts Needed!!

If you are an AGS member and would like to contribute to the Professional Registration Committee by leading a lecture on one of the subjects listed below, then please contact me either by e-mail or at the monthly AGS meetings. The lecture should be for one hour followed by a Q&A session. We need different speakers for each workshop. Your volunteering to teach on one of these subjects is essential to the success of the Professional Registration Committee – we need more widespread participation by the AGS membership. Speakers can be compensated for expenses and will receive certificates to acknowledge their participation.

The following content domains are covered in the Georgia Professional Geologist exams:

A. General Geology
B. Mineralogy, Petrology, & Petrography
C. Sedimentology, Stratigraphy, & Paleontology
D. Economic Geology & Energy Resources
E. Structure, Tectonics, & Seismology
F. Hydrology & Environmental Geochemistry
G. Engineering Geology
H. Quaternary Geology, Geomorphology, & Surficial Processes

We do not "teach the test" our aim is to review fundamental concepts of the earth sciences and acquaint candidates with industry specific information not easily obtainable from the literature. Please inform anyone who might be interested in becoming a professional geologist of our workshop. Please consider joining us even if you are not a P.G. candidate. The workshops are interesting and informative.

Ken Simonton, P.G., Chair
Professional Registration Committee

www.atlantageologicalsociety.org

Speaker's Bio: Professor Michael F. Roden, Ph.D.

Born & raised in northern New Jersey. Graduated Ridgewood High School (1968), Hamilton College (1972, B.A. geology), US Army 1972-1975 (mostly at Ft Riley, KS), University of Texas at Austin (1977, M.S. geology), M.I.T. (1982, Ph.D. geochemistry), Research Associate, University of Minnesota (1982-84), Assistant through full Professor, University of Georgia (1984-present), Dept Head (2005-2011).

Current Research Ever since finding spinel lherzolite xenoliths at Buell Park while working on a master's thesis under Doug Smith, Dr. Roden has been fascinated with these samples of the upper mantle. In many ways xenoliths are like meteorites in that the samples are intriguing but the context is lacking. Consequently it is not surprising that in collaboration with his colleague Alberto Patino-Douce his attention has turned to meteorites. Together they are looking at phosphate relations in meteorites (with undergraduate S. Cox) to try to understand how merrillite and apatite co-precipitate and what this means for the relative fugacities of H_2O, F and Cl (see for example Patino Douce and Roden, 2006).He still continue to work on xenoliths (for example, Roden et al., 2006), but my focus has certainly shifted from just upper mantle xenoliths, most recently to recent volcanism and magmatic histories from chill zones of diabase dikes.

The Strange Rubbing Boulders of the Atacama

ScienceDaily (Oct. 11, 2011) — A geologist's sharp eyes and upset stomach has led to the discovery, and almost too-close encounter, with an otherworldly geological process operating in a remote corner of northern Chile's Atacama Desert.

The sour stomach belonged to University of Arizona geologist Jay Quade. It forced him and his colleagues Peter Reiners and Kendra Murray to stop their truck at a lifeless expanse of boulders which they had passed before without noticing anything unusual.

"I had just crawled underneath the truck to get out of the sun," Quade said. The others had hiked off to look around, as geologists tend to do. That's when Quade noticed something very unusual about the half-ton to 8-ton boulders near the truck: they appeared to be rubbed very smooth about their midsections. What could cause this in a place where Earth's most common agent of erosion -- water -- is as almost nonexistent?

About the only thing that came to mind was earthquakes, said Quade. Over the approximately two million years that these rocks have been sitting on their sandy plain perhaps they were jostled by seismic waves. They caused them gradually grind against each other and smooth their sides. It made sense, but Quade never thought he'd be able to prove it.

Then, on another trip to the Atacama, Quade was standing on one of these boulders, pondering their histories when a 5.3 magnitude earthquake struck. The whole landscape started moving and the sound of the grinding of rocks was loud and clear.

"It was this tremendous sound, like the chattering of thousands of little hammers," Quade said. He'd probably have made a lot more observations about the minute-long event, except he was a bit preoccupied by the boulder he was standing on, which he had to ride like a surfboard."The one I was on rolled like a top and bounced off another boulder. I was afraid I would fall off and get crushed."

He managed to stay atop his boulder, of course, and became thoroughly convinced that the earlier hypothesis about the boulders was correct.

These are huge boulders in Chile's Atacama desert which appear to be rubbed very smooth about their midsections.

http://www.sciencedaily.com/releases/2011/10/111011112457.htm

FERNBANK MUSEUM of NATURAL HISTORY

Fernbank Museum of Natural History

Upcoming Public Programs and Events

(All programs require reservations, including free programs)

UPCOMING EVENTS:

WINTER WONDERLAND CELEBRATION WEEKENDS

Saturday, November 19 and Sunday, November 20; Saturday December 10 and Sunday, December 11; and Saturday, December 17 and Sunday, December 18

Join us for special activities, performances, crafts, games and more inspired by the cultural and holiday celebrations of ***Winter Wonderland***.

CAROLING & CUPCAKES WEEKEND

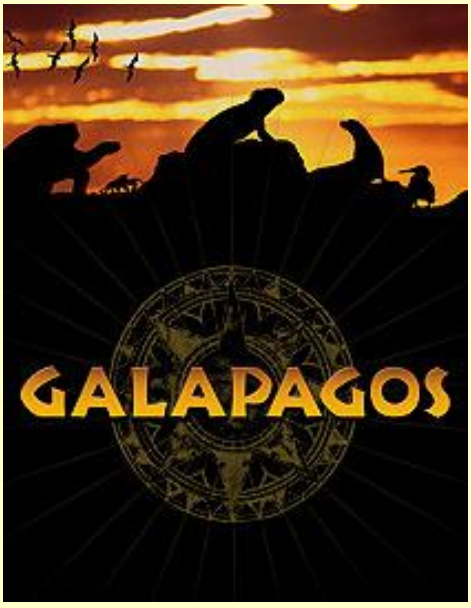
Saturday, December 3 and Sunday, December 4

Enjoy the sounds of the season and a free holiday delights including performances by the Georgia Boy Choir, ornament-making crafts and more.

Now Showing in the Fernbank IMAX movie theater:

(Check our website for special screenings)

Hubble



Galapagos

Martinis & IMAX will resume in January when there will be two new IMAX movies, **Born to be Wild** and **The Greatest Places**.

Fernbank Museum of Natural History

767 Clifton Rd, NE, Atlanta, GA 404-929-6400

Special Exhibits On View: http://www.fernbankmuseum.org/explore-exhibits/special-exhibitions

Darwin

On view September 24, 2011 - January 1, 2012

Set a course for adventure as you enjoy a unique look into the life of one of the world's most intriguing scientists. This special exhibition features live animals, amazing fossils and an array of scientific tools used by Charles Darwin.

Selections

On view September 24 – January 1, 2012

In celebration of ***Darwin***, Fernbank Museum has partnered with local artists and scientists to present a collection of illustrations, paintings and drawings that reveal the relationship between science and art. These eight Atlanta- and Athens-based artists, typically employed to create teachable science through literal imagery, reveal the evolution of art from science in this inspiring exhibition that recognizes the beauty of the natural world.

Winter Wonderland: Celebrations & Traditions Around the World

On view November 16 - January 8, 2012

Celebrate holidays, traditions and cultures in this festive exhibition and programming series featuring decorated trees, dance groups, musical acts, craft demonstrations, storytelling and more.

For tickets and details on exhibits, films, and events, please visit our website at www.fernbankmuseum.org Follow us on Facebook or Twitter for the latest news and updates! Please see the website for details about Martinis and IMAX on Friday nights.

AGS Officers

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AGS 2011/2012 Meeting Dates

Listed below are the planned meeting dates for 2011/12. Please mark your calendar and make plans to attend.

November 29 - Dr. Michael Roden, Supervolcanoes of Northern Argentina

December No meeting

January 31 TBA

February 28

March 27

April 24

AGS Committees

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Massive Volcanoes, Meteorite Impacts Delivered One-Two Death Punch to Dinosaurs

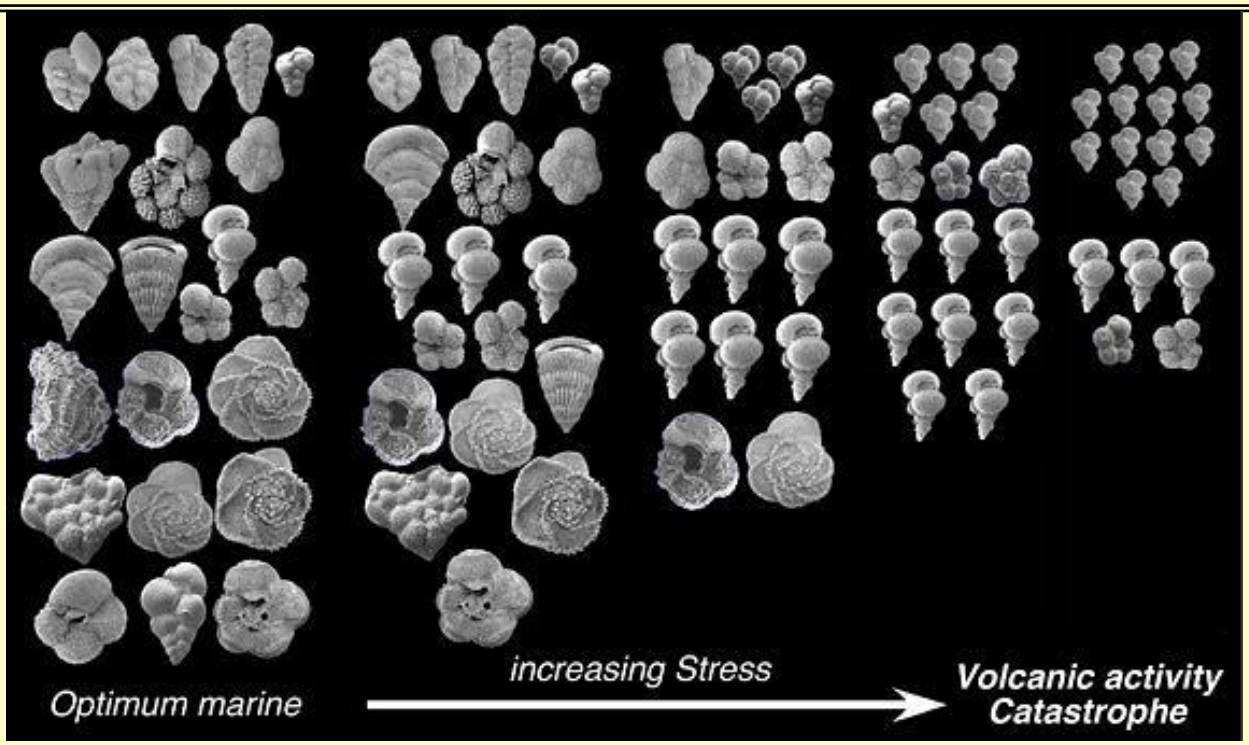
ScienceDaily (Nov. 17, 2011) — A cosmic one-two punch of colossal volcanic eruptions and meteorite strikes likely caused the mass-extinction event at the end of the Cretaceous period that is famous for killing the dinosaurs 65 million years ago, according to two Princeton University reports that reject the prevailing theory that the extinction was caused by a single large meteorite.

Princeton-led researchers found that a trail of dead plankton spanning half a million years provides a timeline that links the mass extinction to large-scale eruptions of the Deccan Traps, a primeval volcanic range in western India that was once three-times larger than France. A second Princeton-based group uncovered traces of a meteorite close to the Deccan Traps that may have been one of a series to strike Earth around the time of the mass extinction, possibly wiping out the few species that remained after thousands of years of volcanic activity.

Researchers led by Princeton Professor of Geosciences Gerta Keller report this month in the *Journal of the Geological Society of India* that marine sediments from Deccan lava flows show that the population of a plankton species widely used to gauge the fallout of prehistoric catastrophes plummeted nearly 100 percent in the thousands of years leading up to the mass extinction. This eradication occurred in sync with the largest eruption phase of the Deccan Traps -- the second of three -- when the volcanoes pumped the atmosphere full of climate-altering carbon dioxide and sulfur dioxide, the researchers report. The less severe third phase of Deccan activity kept Earth nearly uninhabitable for the next 500,000 years, the researchers report. A substantially weaker first phase occurred roughly 2.5 million years before the second-phase eruptions.

Princeton University researchers found that massive, prolonged eruptions of the Deccan Traps in India gradually eliminated species and resulted in the Cretaceous-Tertiary mass extinction that killed the dinosaurs 65 million years ago. Marine sediment trapped between Deccan lava flows revealed that a species known as *planktonic foraminifera* -- widely used to gauge the severity of prehistoric disasters -- succumbed to lava mega-flows and volcano-induced environmental stress such as acid rain and drastic climate changes.(As shown in the figure below), conditions on Earth worsened, large, varied species (left) were eliminated. The no more than seven or eight smaller species (right) that remained dwarfed further. *(Image courtesy of Gerta Keller)*

http://www.sciencedaily.com/releases/2011/11/111117141201.htm



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http://www.sciencedaily.com/releases/2011/11/111117141201.htm

ATLANTA GEOLOGICAL SOCIETY

www.atlantageologicalsociety.org

ANNUAL MEMBERSHIP FORM

Please print the required details and check the appropriate membership box.

DATE:_____

NAME:_____

ORGANIZATION:_____

TELEPHONE (1):_____ **TELEPHONE (2):**_____

EMAIL (1):_____ **EMAIL (2):**_____

STUDENT $10 ☐

PROFESSIONAL MEMBERSHIP $25 ☐

CORPORATE MEMBERSHIP $100 ☐

(Includes 4 professional members, please list names and emails below)

NAME:_____ **EMAIL:**_____

NAME:_____ **EMAIL:**_____

NAME:_____ **EMAIL:**_____

NAME:_____ **EMAIL:**_____

For further details, contact the AGS Treasurer: stacy.durden@gmail.com.

Please make checks payable to the "Atlanta Geological Society" and remit with the completed form to:
Atlanta Geological Society, Stacy Durden-Phillips, Treasurer,
1925 Vaughn Road NW, Suite 100, Kennesaw, GA 30144-4560.

☐ **CASH**

☐ **CHECK (CHECK NUMBER:** _____**.)**