

Atlanta Geological Society Newsletter

Next meeting of the Atlanta Geological Society is
October 25, 2011
Fernbank Museum of Natural History (Clifton Road)
Social begins at 6:30 pm – Meeting begins at 7:00 pm

October 2011

ODDS AND ENDS

Ben Bentkowski, Newsletter Editor

Fall is a wonderful time for field trips. This last weekend's Georgia Geological Society's field trip to Middle Georgia has had wonderful weather. I hope the discussions were as brilliant as the skies. I have just returned from a week's trip through Arizona where I saw a sign warning motorists to "Watch for Rocks". I'm thinking this must be for the non-geologists traveling through the state. As geologists, we're watching for rocks *all* the time. Who among us has not mastered the skill of reviewing an outcrop at 60 mph, perhaps with some small peril to our traveling companions? On my first trip to Colorado with the woman who would become my wife, she said I should pull over and let her drive. I was momentarily hurt but soon realized we'd both be safer for it. Besides, then I'd have more time to gawk at the rocks. 'Dear, did you see that anticline/facies change/fault zone?'

Arizona is a state with many geologic wonders; the Grand Canyon, Meteor Crater, 400 volcanoes around Flagstaff, the red buttes towering over Sedona. And all of these features are more dramatic by the lack of vegetation due to the heat and very dry conditions. As a Ranger at the Grand Canyon said, 'Nobody would come see the big, green, smooth valley'.
Rock On! B. B.

OCTOBER MEETING

Join us Tuesday, October 25, 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 AGS President Nils Thompson, P.G. of Leggett, Brashears and Graham, Inc. He will present a study titled **Groundwater Issues in the Georgia Aggregate Mining Industry**. This talk will describing various water issues/problems encountered by the predominantly granite and limestone aggregate mining industry in Georgia, including mining land use and withdrawal permitting concerns, numerous case studies, and the potential for the post-mining use of quarries as reservoirs.

Atlanta Geological Society - Professional Geologist Candidate Workshop

Date: Saturday, November 5, 2011

Time: 10:00 am until 12:00 pm

Place: Fernbank Science Center, 156 Heaton Park Drive, NE, Atlanta, Georgia 30307
678-874-7102, <http://fsc.fernbank.edu>

Subject: Geologic Map Interpretation

Please note: this class is being held the first Saturday in November due to the upcoming holiday season scheduling. It will be the class for October and November. The subject of the workshop will be Geologic Map Interpretation. The interpretation of structure, rock type and age from geologic maps is an important skill for geologists. You might be asked four to eight questions based on a single geologic map. This class will help you answer those questions.

Lecturer: Dr. Tim Chowns, Ph.D.

Tim is a professor of Geology at the University of West Georgia and has received several teaching awards, including accolades from students. He was educated in England (BSc University of Leicester, PhD University of Newcastle upon Tyne) and immigrated to the USA in 1968. After teaching at the University of Georgia he moved to the University of West Georgia (West Georgia College in those days) in 1973.

His main interests are in sedimentation and stratigraphy and especially the geology of Georgia. He teaches courses in Physical and Historical Geology, Oceanography and Optical Mineralogy. Some areas of research include the origin of geodes, Pre-Cretaceous rocks below the Georgia Coastal Plain, the stratigraphy and depositional environment of the Birmingham iron ores, and changes in the location of inlets on the Georgia coast related to Holocene transgression.

Please join us. Two professional development hours are available for participants.

Ken Simonton, P.G., kws876@gmail.com
AGS Professional Registration Committee

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

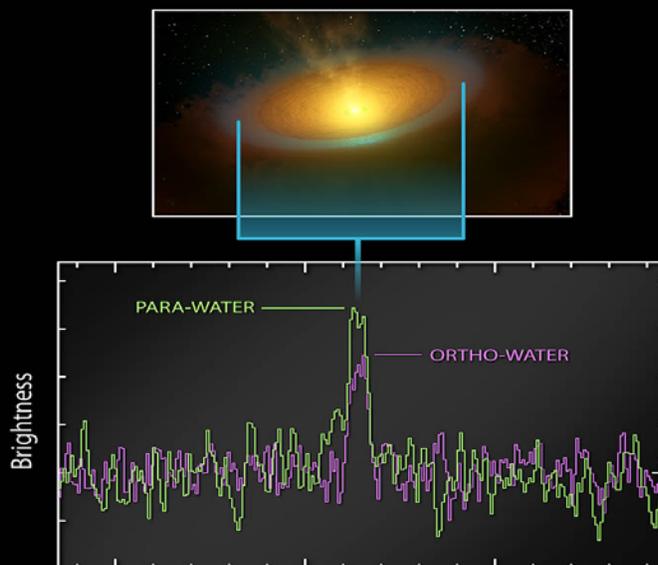
Nils Thompson is a Professional Geologist in 14 states, including Georgia, and has almost 25 years of experience conducting hydrogeological assessments for industrial, power, and mining clients throughout the United States. He is an Associate with Leggette, Brashears & Graham (LBG) and manages their Atlanta office. Mr. Thompson is also President of the Atlanta Geological Society and Vice-chair of the environmental committee for the Georgia Construction Aggregate Association. He holds a B.S. degree in Geology from Penn State and an M.S. degree in Geology from Western Kansas.

PASADENA, Calif. -- Astronomers have found a new cosmic source for the same kind of water that appeared on Earth billions of years ago and created the oceans. The findings may help explain how Earth's surface ended up covered in water. New measurements from the Herschel Space Observatory show that comet Hartley 2, which comes from the distant Kuiper Belt, contains water with the same chemical signature as Earth's oceans. This remote region of the solar system, some 30 to 50 times as far away as the distance between Earth and the sun, is home to icy, rocky bodies including Pluto, other dwarf planets and innumerable comets.

"Our results with Herschel suggest that comets could have played a major role in bringing vast amounts of water to an early Earth," said Dariusz Lis, senior research associate in physics at the California Institute of Technology in Pasadena and co-author of a new paper in the journal *Nature*, published online today, Oct. 5. "This finding substantially expands the reservoir of Earth ocean-like water in the solar system to now include icy bodies originating in the Kuiper Belt."

By tracking the path of Hartley 2 as it swoops into Earth's neighborhood in the inner solar system every six-and-a-half years, astronomers know that it comes from the Kuiper Belt. The five comets besides Hartley 2 whose heavy-water-to-regular-water ratios have been obtained all come from an even more distant region in the solar system called the Oort Cloud. This swarm of bodies, 10,000 times farther afield than the Kuiper Belt, is the wellspring for most documented comets.

Given the higher ratios of heavy water seen in Oort Cloud comets compared to Earth's oceans, astronomers had concluded that the contribution by comets to Earth's total water volume stood at approximately 10 percent. Asteroids, which are found mostly in a band between Mars and Jupiter but occasionally stray into Earth's vicinity, looked like the major depositors. The new results, however, point to Kuiper Belt comets having performed a previously underappreciated service in bearing water to Earth.



HIFI Spectroscopic Signatures of Water Vapor in TW Hydrae Disk
ESA/NASA/JPL-Caltech/M. Hogerheijde (Leiden Observatory)

More information is online at

http://www.nasa.gov/mission_pages/herschel/news/herschel20111005.html

<http://www.herschel.caltech.edu>

<http://www.nasa.gov/herschel>

and

<http://www.esa.int/SPECIALS/Herschel/index.html>

 **FERNBANK MUSEUM**
of NATURAL HISTORY

Fernbank Museum of Natural History

Upcoming Public Programs and Events

(All programs require reservations, including free programs)

UPCOMING EVENTS:

Fernbank BOO-seum Trick-or-Treat

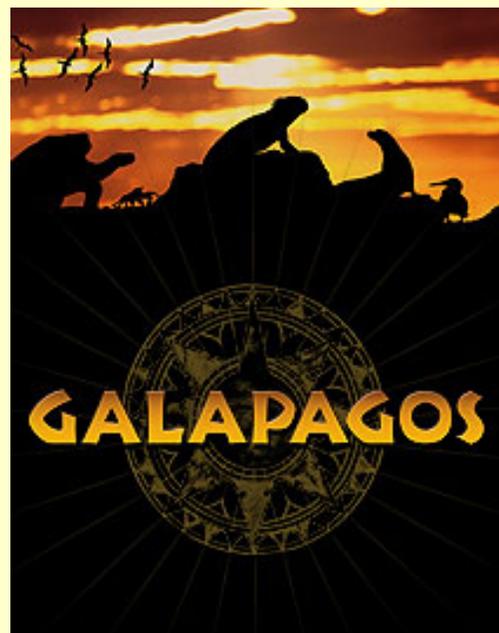
• Saturday, October 29 from 10 a.m. – 2 p.m. Get ready to have a screaming (in delight) good time! For one day only, Fernbank Museum is becoming Fernbank BOO-seum. Enjoy a frightening-ly fun Halloween party featuring games, crafts, hands-on activities and special treats for kids in costumes.* (*Treats available while supplies last.)

Science at Hand Day

• Saturday, November 12 from 10 a.m. – 2 p.m. Biology, astronomy, ecology—oh my! Which of the sciences will you try? This is a unique chance to learn what it’s like to be a scientist and explore different scientific fields. Guests will enjoy one-on-one opportunities to talk with scientists and community volunteers, learn more about sciences through hands-on activities, and much more.

Now Showing in the Fernbank IMAX movie theater:

(Check our website for special screenings)



Hubble

Galapagos

Friday evening schedule Hubble, 8 & 10 pm Galapagos, 7 & 9 pm

Fernbank Museum of Natural History

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

Special Exhibits On View:

[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.

[Learn more.](#)

[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.

[Learn 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 2011/2012. Please mark your calendar and (Check our website for special screenings) make plans to attend.

October 25 Nils Thompson, P. G.

November 29 TBD

December No meeting

January 31

February 28

March 27
Hubble

Friday evening schedule Hubble, 8 & 10 pm Galapagos, 7 & 9 pm

April 24



Rare Meteorite Found Using New Camera Network In Australian Desert

Science Daily (Sep. 17, 2009) — Researchers have discovered an unusual kind of meteorite in the Western Australian desert and have uncovered where in the Solar System it came from, in a very rare finding published in the journal *Science*. Dr. Phil Bland, the lead author of today's study from the Department of Earth Science and Engineering at Imperial College London, said: "We are incredibly excited about our new finding. Meteorites are the most analyzed rocks on Earth but it's really rare for us to be able to tell where they came from. Trying to interpret what happened in the early Solar System without knowing where meteorites are from is like trying to interpret the geology of Britain from random rocks dumped in your back yard."

The meteorite appears to have been following an unusual orbit, or path around the Sun, prior to falling to Earth in July 2007, according to the researchers' calculations. The team believes that it started out as part of an asteroid in the innermost main asteroid belt between Mars and Jupiter. It then gradually evolved into an orbit around the Sun that was very similar to Earth's. The other meteorites that researchers have data for follow orbits that take them back, deep into the main asteroid belt.

Dr. Bland added: "We're not the first team to set up a network of cameras to track fireballs, but other teams have encountered problems because meteorites are small rocks and they're hard to find in vegetated areas. Our solution was quite simple - build a fireball network in a place where it's easy to find them. The Nullarbour Desert is ideal because there's very little vegetation and dark rocks show up really easily on the light desert plain. It was amazing to find a meteorite that we could track back to its origin in the asteroid belt on our first expedition using our small trial network. We're cautiously optimistic that this find could be the first of many and if that happens, each find may give us more clues about how the Solar System began."

The researchers' network of cameras takes a single time-lapse picture every night to record any fireballs in the sky. When a meteorite falls, researchers can then use complex calculations to uncover what orbit the meteorite was following and where the meteorite is likely to have landed, so that they can retrieve it.

Reference: Imperial College London (2009, September 17). Rare Meteorite Found Using New Camera Network In Australian Desert. Science Daily. Retrieved October 21, 2011, from <http://www.sciencedaily.com-/releases/2009/09/090917144123.htm>

Barringer Crater (a.k.a. Meteor Crater) in Arizona was the world's first confirmed impact crater. It's pretty amazing to see Meteor Crater, 4,000 feet across and 550 feet deep. It's even more amazing when you realize that this meteor pictured below is the biggest meteor piece ever found at Meteor Crater, only 2.5 feet long.



Meteor Crater with the ejected Kaibab limestone in the foreground.

Huge Meteorite Impact Found In UK -- Britain's Largest

ScienceDaily (Mar. 30, 2008) — Evidence of the biggest meteorite ever to hit the British Isles has been found by scientists from the University of Oxford and the University of Aberdeen. The scientists believe that a large meteorite hit northwest Scotland about 1.2 billion years ago near the Scottish town of Ullapool. Previously it was thought that unusual rock formations in the area had been formed by volcanic activity. But the team report in the journal *Geology* that they found evidence buried in a layer of rock which they now believe is the ejected material thrown out during the formation of a meteorite crater. Ejected material from the huge meteorite strike is scattered over an area about 50 kilometres across, roughly centred on the northern Scottish town of Ullapool.

Ken Amor of Oxford University's Department of Earth Sciences, co-author on the *Geology* paper, said: 'Chemical testing of the rocks found the characteristic signature of meteoritic material, which has high levels of the key element iridium, normally only found in low concentrations in surface rocks on Earth. We found more evidence when we examined the rocks under a microscope; tell-tale microscopic parallel fractures that also imply a meteorite strike.'

The proposed volcanic origin for the rock formations has always been a puzzle as there are no volcanic vents or other volcanic sediments nearby. Scientists took samples from the formations during fieldwork in 2006 and have just had their findings published.

Professor John Parnell, Head of Geology & Petroleum Geology at the University of Aberdeen, also a co-author on the paper, said: 'These rocks are superbly displayed on the west coast of Scotland, and visited by numerous student parties each year. We're very lucky to have them available for study, as they can tell us much about how planetary surfaces, including Mars, become modified by large meteorite strikes. Building up the evidence has been painstaking, but has resulted in proof of the largest meteorite strike known in the British Isles.'

Scott Thackrey, a PhD student at the University of Aberdeen, and also co-author of the paper, said: 'The type of ejected deposit discovered in North West Scotland is only observed on planets and satellites that possess a volatile rich subsurface, for example, Venus, Mars and Earth. Due to the rare nature of these deposits, each new discovery provides revelations in terms of the atmospheric and surface processes that occur round craters just after impact.'

Reference: University Of Oxford (2008, March 30). Huge Meteorite Impact Found In UK -- Britain's Largest. ScienceDaily. Retrieved October 21, 2011, from <http://www.sciencedaily.com-/releases/2008/03/080330190410.htm>

ATLANTA GEOLOGICAL SOCIETY

www.atlantageologicalsociety.org

ANNUAL MEMBERSHIP FORM

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

DATE: _____

NAME: _____

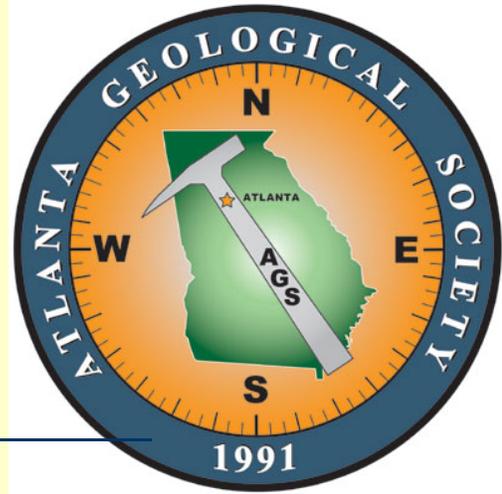
ORGANIZATION: _____

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: _____.)