Atlanta Geological Society Newsletter

Next meeting of the Atlanta Geological Society is
January 27, 2015
Fernbank Museum of Natural History (Clifton Road)
Social begins at 6:30 pm – Meeting begins at 7:00 pm

January 2015

ODDS AND ENDS

Happy New Year AGS Members! I trust you had a good holiday season. Geologic highlights for me include rock collecting with my granddaughter at Stone Mountain and the receipt of a book about unusual ammonites, 'Heteromorphs'. I mentioned this in the May 2014 issue of the newsletter. I'll have to do a book review for an upcoming issue.

Carl Froede informs me that the American Geophysical Union has now moved their newspaper on-line and it is FREE. Thanks Carl. https://eos.org/

Also, with the New Year, comes the start of our dues cycle. At $25 it is still a great bargin; access to Fernbank for Dinner under the Dinos, interesting speakers, access to more field trips this year and more (see Pg. 5). Please print out the membership form on the last page and bring it filled out to the meeting Tuesday. Lucy Mejia, our new treasurer, will collect your dues, verify your details and make sure that your email address gets back to me to assure that you continue to receive the newsletter.

The GeoWord of the Day for 11/11/14 from the AGI's Glossary of Geology: **allotriomorphic-granular – an obsolete synonym of xenomorphic-granular**. But I'm sure you knew that already. See you Tuesday.
Ben Bentkowski, Newsletter Editor

JANUARY MEETING

Join us **Tuesday, January 27, 2015** at the Fernbank Museum of Natural History, 760 Clifton Road NE, Atlanta GA. The meeting social starts at 6:30 pm. This month the speaker is Steven J. Stokowski, PG Principal Petrographer for TEC Services, Lawrenceville, GA. The title of his talk is 'A Pertographic Odyssey'. The abstract for the presentation and Speaker's Bio are on the next two pages.

Our sponsor for Tuesday evening's meeting is EDR, Inc., a provider of Smart Data and Smarter Workflow for property due diligence. Please read their information on Page 4.

Please come and enjoy the social time, pay your dues if necessary, talk with our generous sponsor and learn from an interesting presentation.

A Petrographic Odyssey

Steven J. Stokowski, PG
Principal Petrographer
TEC Services, Lawrenceville, GA

Microscopic analyses and geologic understanding are essential for the correct diagnosis when building materials deteriorate, as these three case histories illustrate. The first case history is of the 1930's Fore River Bridge between Quincy and Weymouth, Massachusetts. This bascule drawbridge is a choke point for ship access to the historic Quincy shipyard and for commuter access to a portion of the Boston metropolitan area. The Depression-era concrete was originally of surprisingly good quality. Deterioration of the mass concrete bridge elements was, however, severe after 64 years. Alkali silica reactivity (ASR) in the concrete bascule piers resulted in severe expansion that caused the drawbridge mechanism to bind and jam in the upright position, resulting in long commuter delays. ASR caused the bascule bridge structure to be removed at the cost of $6 million; it is now replaced by a temporary vertical-lift galvanized steel structure ($60 million+ in one press account), a new, planned bridge may cost over $260 million. The second case history is of the deteriorated brownstone loggia at the Oakes Ames Memorial Hall, North Easton, MA. This building is one of many designed and constructed by H. H. Richardson, a famous 1800's architect who designed many multi-hued brownstone and granite buildings that are part of the New England heritage. H. H. Richardson's buildings are more-durable than those of many famous modern architects, however, flat stone panels, arches, and decoratively carved columns in the loggia of this building began to deteriorate over 100 years after construction. The cause of the deterioration was the formation of the sodium-sulfate salts, mirabolite and thenardite, consequent to the weathering of pyrite in the brownstone. In addition, calcium chloride deicing salt, a hygroscopic material, probably increased the number of cycles of destructive hydration volume changes of the sodium sulfate. The recommended corrective action included polticing, as opposed to the proposed infrared heaters, which would have accelerated the deterioration due to the sodium sulfate salts. The final case history is of a total replacement failure of a large memorial to WWII veterans in the Rhode Island Veterans Cemetery, Exeter, RI. This…

Continues on Page 3

Speaker's Biography

Steven J. Stokowski, PG
www.linkedin.com/in/stevenstokowski/
cell: 508-259-3536 email: sstokowski@tecservices.com

Principal Petrographer with TEC Services, Lawrenceville, GA. TEC provides concise, timely, and accurate petrographic analyses of aggregates, concrete, mortar, tile, stone, and similar construction materials. Steve was previously the President of Stone Products Consultants in Massachusetts and Virginia, the Aggregate Technologist/Petrographic Laboratory Expert at the Turner-Fairbank Highway Research Center (FHWA), McLean, VA, the Research Scientist and Manager of the R & D Lab for Vulcan Materials in Birmingham, AL; the Research Engineer for Genstar Stone Products Company in Baltimore, MD, and with Martin Marietta Laboratories and the U.S. Geological Survey. He has a MS in Geology from the South Dakota School of Mines and Technology. Member of AGS, AIPG, AEG, GSA, and SME. Registered or Certified as a Geologist in Georgia, Tennessee, Virginia and other states.

A Pertographic Odesy (cont.)

… memorial, which consisted of large "black granite" panels carved with the names of veterans, was constructed with community-raised funds, was designed as a focal point of the cemetery, and was to be a showpiece for the contractor who diligently and expeditiously constructed the memorial through one of the worst summer droughts in RI history. Unfortunately, the onset of rain resulted in staining, cracking, and widespread deterioration (36 of 58) of the stone panels. The cause of the deterioration was expansion of the water-absorptive clay saponite, a hydrothermal alteration product of small amounts of pyroxenes in the black anorthosite panels selected as an alternate source by the landscape architect after political sanctions prevented importation of the original stone. Contractor delisting and multiple lawsuits ensued, but eventually the contractor was vindicated.

BENEFITS OF AN AGS MEMBERSHIP

- Location – AGS meets at the Fernbank Museum of Natural History, which is a truly awesome facility central to most of our membership.
- Cost – AGS membership ($25 general; $10 student) is the most inexpensive for any geological society in the SE.
- Active – AGS holds nine lectures a year and is one of the most active geological societies in the SE.
- AEG – For one of our lectures, AGS co-sponsors with the Association of Environmental & Engineering Geologists to annually present the "Richard H. Jahns Distinguished Lecturer" while in Atlanta.
- PDH – AGS is recognized by Alabama, South Carolina, and other professional state boards to provide Professional Development Hours for our lectures, as well as field trips and workshops.
- PG Classes – AGS offers nearly monthly Professional Geologist development training classes in preparation for passing the ASBOG examinations and has been recognized by the Georgia State Geologist as enhancing PG test scores for participants.
- Free Food – AGS offers free pizza and Coke at all of our regular meetings, sandwiches and hors d'oeuvres at the Jahns lecture, and a sit-down BBQ dinner at our June social.
- IMAX – As part of the June social, AGS and Fernbank present a free IMAX movie.
- Networking – AGS meetings include professionals, academics, regulators, and others who all share the same interest in geological sciences.
- Resume – AGS membership and even involvement in one of our many committees will enhance any resume.

Annual membership dues for the Atlanta Geological Society are $25 for professional membership, $10 for students, and $100 for corporate sponsorship (which includes up to 4 professional memberships). Please complete the application form and submit with your payment to the AGS Treasurer, Lucy Mejia

For further details about membership, please contact the AGS Membership Chairman – **Burton Dixon** Dixonburton1@gmail.com

Continent-Sized Scan Reveals US Underbelly

by Becky Oskin, Senior Writer | December 03, 2014 07:12am ET
http://www.livescience.com/48986-seismic-scan-reveals-us-underbelly.html

Abstract http://onlinelibrary.wiley.com/enhanced/doi/10.1002/2014GL061231/
Mantle seismic structure beneath the United States spanning from the active western plate margin to the passive eastern margin was imaged with teleseismic *P* and *S* wave traveltime tomography including USArray data up to May 2014. To mitigate artifacts from crustal structure 5–40 s, Rayleigh wave phase velocities were used to create a 3-D starting model. Major features of the final *P* and *S* models include two distinct low-velocity anomalies at depths of ~60–300 km beneath the central and northern Appalachians and passive margin. The central Appalachian low-velocity anomaly coincides with Eocene basaltic magmatism, and the northern anomaly is located along the Cretaceous track of the Great Meteor hot spot. At depths of ~300–700 km beneath the central and eastern U.S. large high-velocity anomalies are inferred to be remnants of the Farallon slab that subducted prior to ~40 Ma during the Laramide orogeny.

_____

A continent-sized scan of North America is giving researchers the sharpest view yet of mysterious geological structures underneath the United States.

The impressive view comes from an ambitious experiment called EarthScope, which has scanned the country from California to Maine using hundreds of portable seismometers. (The next stop is Alaska.) Launched in 2004, the massive effort has already revealed new details about the geology of the western and central United States, such as the shape of Yellowstone's magma plume. Now, the first clear images of the entire continent are beginning to emerge, according to a study published Oct. 15 in the journal Geophysical Research Letters.

"This was the dream to start with," said Brandon Schmandt, lead study author and a seismologist at the University of New Mexico in Albuquerque.

The EarthScope process resembles snapping a CT scan of the Earth, with a field crew moving sensitive earthquake detectors across the surface and researchers constructing an image of the rocks below.

Continent-Sized Scan Reveals US Underbelly (cont.)

In the new study, Schmandt and his co-author, Fan-Chi Lin of the University of Utah, built a detailed, 3D map of the Earth's upper mantle, which is the rocky layer between the crust and core. The results could help researchers solve some long-standing geologic puzzles. The mantle is not only a time capsule, preserving the history of crashing tectonic plates, but also a force that influences what happens at the surface.

Deep discoveries

Clues to geologic mysteries may lie hidden in the mantle, the study reports. One mystery is why there are a handful of 48-million-year-old volcanoes in Virginia, when no other volcanic features have formed on the East Coast since about 200 million years ago.

The East Coast has been a passive margin, with no colliding tectonic plates, for 200 million years, so the Virginia volcanoes are unusual features, Schmandt said. But it turns out that the mantle beneath the East Coast isn't as cold and dense as one might expect after so many millennia free from jostling.

The researchers found alternating zones within the mantle where earthquake waves shift gears, from fast-moving and slow-moving speeds and back. This differs from the more uniform mantle under the old and tectonically stable central United States.

(Earthquake waves speed up and slow down when they hit rocks with different temperature, density or composition.)

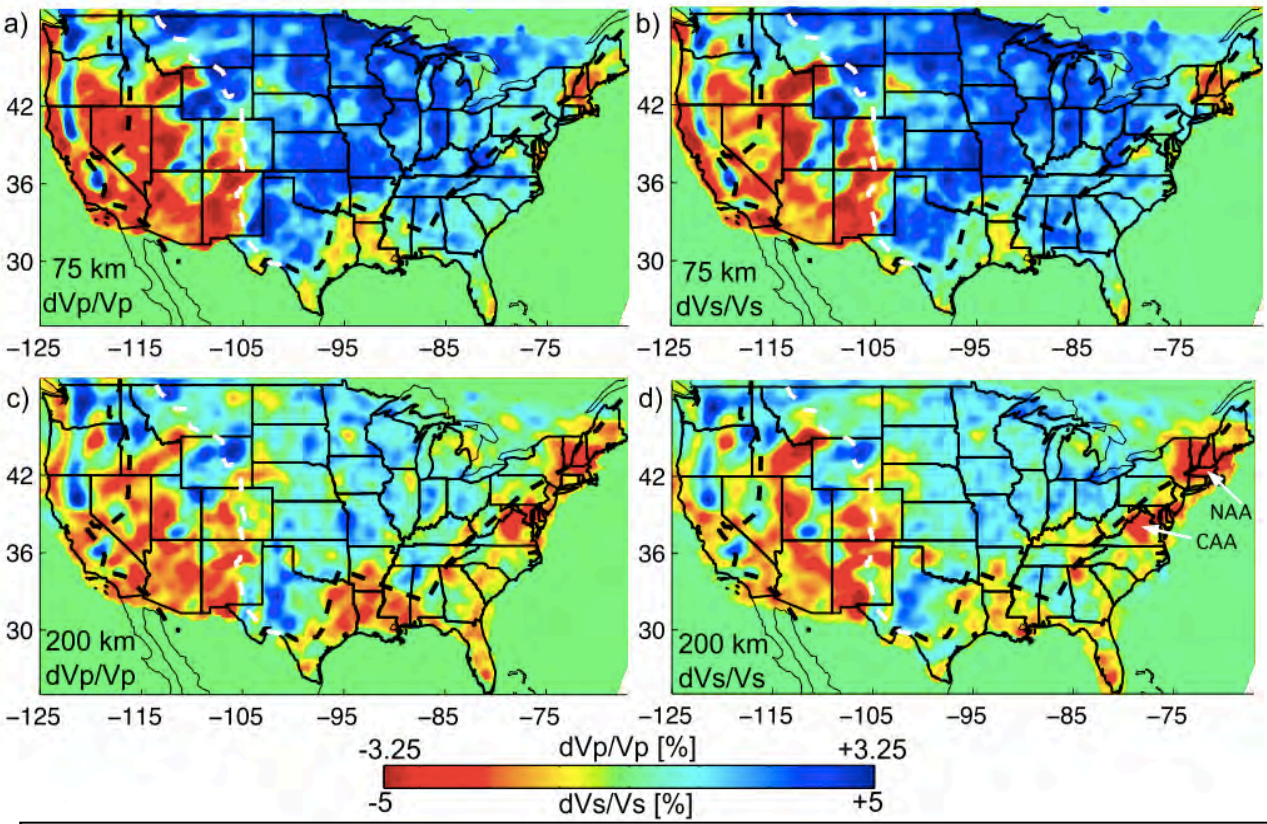
The new model revealed that two of sites where seismic waves suddenly slow down match up with geological features on the Earth's surface. One is in the central Appalachians, centered directly below the Virginia volcanoes. The second, located in the northern Appalachians, lines up with a feature called the Great Meteor hotspot track in Canada, Schmandt said. The track is a chain of progressively younger volcanoes that starts in Canada and stretches out into the Atlantic Ocean.

Further work on the anomalies could help explain why Virginia's rare volcanoes appeared. For instance, Schmandt said he was impressed that 50 million years later, the mantle beneath the volcanoes is still altered by whatever process triggered the eruptions. "It's a little bit surprising to see these strong changes in a place that's been a passive margin for such a long time," Schmandt told Live Science.

To the south, a puzzling bite in the Appalachian Mountains called the Mississippi Embayment stands out sharply in the new model. The corner-shaped region of the embayment pokes northwest from the Mississippi River delta. Geologists have long argued over what created the embayment, which is concealed under miles of Mississippi River mud.

. http://www.livescience.com/48986-seismic-scan-reveals-us-underbelly.html

Continent-Sized Scan Reveals US Underbelly (cont.)



Map of the upper mantle. The black dashed line marks Precambrian rift margins, and the white dashed line marks the Rocky Mountain front. The central Appalachian anomaly (CAA) and northern Appalachian anomaly (NAA) are highlighted with arrows.
Credit: Brandon Schmandt/GRL

The new data suggests a piece of North America was ripped out long ago, then later replaced by another drifting chunk, perhaps a piece of an island chain similar to Japan. "It really looks like a different type of lithosphere in there," Schmandt said. Fragments of islands and other continents that smashed onto North America can appear as hotter mantle regions beyond the outline of the original continent.

Old history

Some of the clearest shapes in the new mantle map are ancient relics. Earlier studies have shown North America sits above a graveyard for discarded pieces of old ocean floor. The pieces of oceanic crust (or slabs) were consumed at a subduction zone offshore the West Coast. A subduction zone is where one plate sinks underneath another. "It's fascinating to see slabs that subducted 10 to 100 million years ago," Schmandt said. "It tells us what the [tectonic] driving forces were like in the past."

But beneath North America, the slabs of crust aren't sinking in the way scientists thought they would. Schmandt and Lin discovered fragments of old oceanic crust at about 310 miles (500 kilometers) depth under the central and eastern United States, whereas younger pieces of oceanic crust have dropped nearly twice that depth beneath the western United States. The researchers suggest a large piece of oceanic crust that subducted more than 40 million years ago broke into several large fragments, at least two of which foundered.

"Figuring out how those got there and whether they correspond to important events at the surface will be a good challenge," Schmandt said. http://www.livescience.com/48986-seismic-scan-reveals-us-underbelly.html

Earth Science Picture of the Day Tammany Bar

Photographer: Tom Foster**;** Tom's Web site **Summary Author**: Tom Foster

This photo was taken at Tammany Bar - just south of Lewiston, Idaho along the Snake River. Ice Age flood deposits sit in the valley here - an amazing set of deposits recording truly spectacular floods that raced through the Pacific Northwestthousands of years ago.
The Bonneville Flood struck 17,400 years ago. Lake Bonneville in Utah - an Ice Age predecessor to today's Great Salt Lake - spilled into southern Idaho's Snake River Valley, surged through Hells Canyon, and then followed the Columbia River Gorge to the Pacific Ocean. At Tammany Bar, the Bonneville water was midway on its journey. All of the rocks below the geologist's (Nick Zentner - Central Washington University) hand were deposited in just a few weeks during the singular Bonneville Flood. At this location, twenty Missoula Flood deposits sit on top of the Bonneville deposit. Notice the lack of rocks and the repetitive look to these Missoula layers. Why do they look so different than the Bonneville layer?

The Missoula Floods did not surge through Lewiston, Idaho. Glacial Lake Missoula - the source of the floods in western Montana - flooded through northern Idaho and raced across Washington to Wallula Gap, the eastern gateway to theColumbia River Gorge. At the gap, the high-energy water was stopped, and the slack water slowly backed up river valleys as the Missoula Floodwater waited to pass through narrow Wallula Gap. The result? Sluggish, brown water slowly crept up the Snake River all the way to the Lewiston area. As the water sat in this valley, suspended silt in the water slowly deposited at the bottom of the lake. Photo taken November 12, 2014.

Photo details: CAMERA: Nikon D7000; Lens 18-200 at 27mm; ISO 200; f/18; 1/50s

Tammany Bar, Idaho Coordinates: 46.35743573, -117.05205001
Related Links The Bonneville Flood and Idaho's Red Rock Pass
Video about the floods shot the same day as the photo

OBITUARY

Ralph Carr Heath, **USGS** hydrologist for 34 years and then a consulting hydrogeologist, **died on 12 January 2015** in Raleigh, NC**.** He was 89.

From his **obituary** in the Raleigh ***News & Observer***:
After discharge from the Navy he returned to UNC Chapel Hill, receiving a BS degree in geology in 1948. During a career as a hydrogeologist with the U.S. Geological Survey from 1948 to 1982, he worked in Florida, New York, Connecticut, Rhode Island, and North Carolina. His positions in the Geological Survey included that of Acting District Engineer in Tallahassee, District Geologist in Albany for New York and southern New England, District Chief of New York, and District Chief in Raleigh for North Carolina. While serving as District Chief in Albany he taught courses in groundwater hydrology at Rensselaer Polytechnic Institute at Troy, NY.

Following retirement from the Geological Survey, Mr. Heath began a second career as a consulting hydrogeologist. He also became an Adjunct Professor of Civil Engineering at NC State University, Lecturer in the Department of Forestry and Environmental Studies at Duke University, and Adjunct Professor of Geology at East Carolina University. He taught courses in groundwater hydrology at NC State and Carolina in the 1980's and at Duke into the 1990's. Later, he taught short courses in the Duke Senior Executive Program, for the National Research Council in Denver, for the NC State University Soil Science Department, and for Olson Enterprises of Tabor City, NC.

Mr. Heath was the author or co-author of more than 70 scientific publications, including an introductory groundwater textbook and hydrogeologic maps of the United States and of North America. His Geological Survey publication entitled *Basic Ground-water Hydrology* has been printed 10 times, and translated versions have been printed in both Germany and Brazil.

His professional honors include both Distinguished Lecturer and the Henry Darcy Distinguished Lecturer of the National Ground Water Association, the first Founders Award of the American Institute of Hydrology, Award for Distinguished Service in Hydrogeology of the Geological Society of America, and the Meritorious Service Award of the U.S. Department of the Interior.

Bonus feature download
Basic Ground-Water Hydrology. **Download WSP2220_report**

AGS Professional Geologist Study Group

Date: Saturday, January 31, 2015
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

Lecturer: Dr. Tim Chowns, Ph.D.
Subject: GEOLOGIC MAPS & STRUCTURE

Dr. Chowns is professor-emeritus 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.

Tim's main interests are in Sedimentation and Stratigraphy and especially the geology of Georgia. He also 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.

Two professional development hours are available for participants.
Please join us, Tim is an excellent lecturer, learn why he is always popular with his students.

Please forward this announcement to anyone interested in becoming a PG, or that might be interested in the subject. AGS membership is not required, but we'd love to have you join.

Thanks,

Ken Simonton, PG
John Salvino, PG
Ginny Mauldin-Kenney

Atlanta Geological Society
Professional Registration Committee

A 3-D view of the Greenland Ice Sheet opens window on ice history

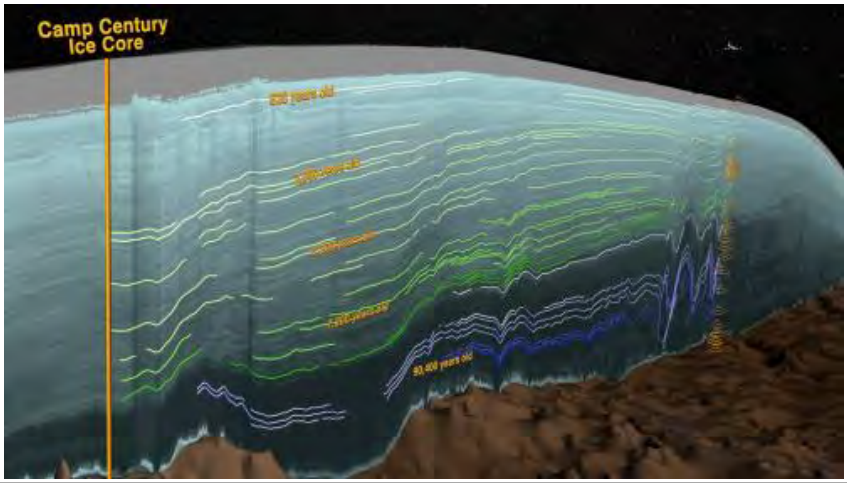
http://phys.org/news/2015-01-d-view-greenland-ice-sheet.html

Scientists using ice-penetrating radar data collected by NASA's Operation IceBridge and earlier airborne campaigns have built the first comprehensive map of layers deep inside the Greenland Ice Sheet, opening a window on past climate conditions and the ice sheet's potentially perilous future. This new map allows scientists to determine the age of large swaths of the second largest mass of ice on Earth, an area containing enough water to raise ocean levels by about 20 feet.

"This new, huge data volume records how the ice sheet evolved and how it's flowing today," said Joe MacGregor, the study's lead author, a glaciologist at The University of Texas at Austin Institute for Geophysics (UTIG), a unit of the Jackson School of Geosciences.

Greenland's ice sheet has been losing mass during the past two decades, a phenomenon accelerated by warming temperatures. Scientists are studying ice from different climate periods in the past to better understand how the ice sheet might respond in the future. Ice cores offer one way of studying the distant past. These cylinders of ice drilled from the ice sheet hold evidence of past snow accumulation and temperature and contain impurities such as dust and volcanic ash compacted over hundreds of thousands of years. These layers are visible in ice cores and can be detected with ice-penetrating radar.

Ice-penetrating radar works by sending radar signals into the ice and recording the strength and return time of reflected signals. From those signals, scientists can detect the ice surface, sub-ice bedrock and layers within the ice. New techniques used in this study allowed scientists to efficiently pick out these layers in radar data. Prior studies had mapped internal layers, but not at the scale made possible by these newer, faster methods.
Another major factor in this study was the scope of Operation IceBridge's measurements across Greenland, which included flights that covered distances of tens of thousands of kilometers across the ice sheet. "IceBridge surveyed previously unexplored parts of the Greenland Ice Sheet and did it using state-of-the-art CReSIS radars," said study co-author Mark Fahnestock, an IceBridge science team member and glaciologist from the Geophysical Institute at the University of Alaska Fairbanks (UAF-GI).



Researchers have developed 3-D maps of the age of the ice within the Greenland Ice Sheet. The new research will help scientists determine what may happen to the ice sheet as the climate changes.

Contnues on Page 15

Be sure to follow the link to the article and watch the video animation. Ed.

FERNBANK MUSEUM of NATURAL HISTORY

The Power of Poison

On view February 7 – May 3, 2015

From the pages of fairytales to the journals of modern medicine, the story of poison is surprising at every turn. Join the investigation to uncover the secrets of poison while exploring its role in nature, myth and human health. This new special exhibition creates an engaging and immersive environment through the use of interactives, models, multimedia and live animals.

Poison in Nature: Learn about toxic animals and plants in a remote Columbian forest, where poisons are just one of the many tools in an organism's struggle to survive.

Poison in Literature: Find out which familiar tales of illness, enchantment or death by poison contain kernels of truth.

Detecting Poison: Play detective with an engaging live show that delves into some of history's most intriguing poisoning cases, then try to solve a case yourself in a hands-on investigation that puts your inner sleuth to the test.

Poison for Good: From fatal dosages to life-saving drugs, discover how some poisons have become critical players in the advancement of new medicines.

Whether as a defense against predators, a source of magical strength or a lethal weapon used in lifesaving medical treatment, the story of poison is surprising at every turn.

Additional details, including special events, field trip opportunities and more will be available soon.

The Power of Poison is organized by the American Museum of Natural History, New York (www.amnh.org). Principal Investor: The Marcus Foundation, Inc.

FERNBANK MUSEUM of NATURAL HISTORY

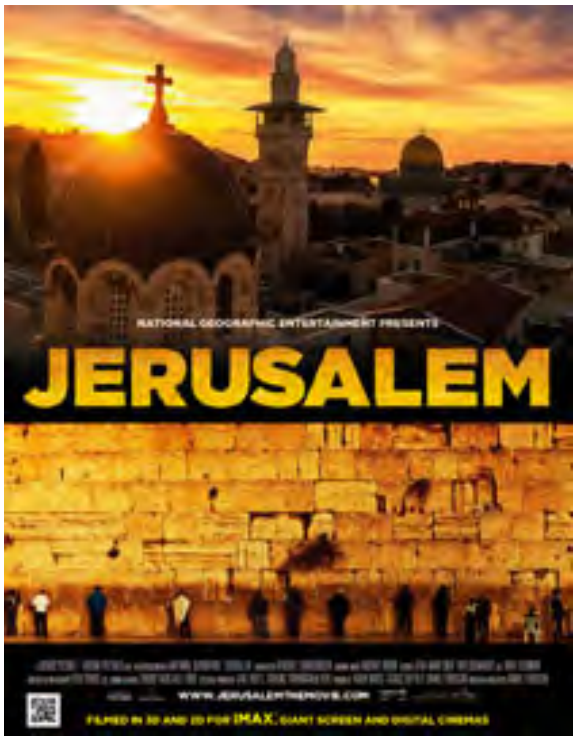
Fernbank Museum of Natural History

Upcoming Public Programs and Events

(All programs require reservations, including free programs)

	Professional	Student	Corporate*	Complimentary
2003	62	22	5	15
2004	81	3	8	15
2005	26	0	3	16
TOTAL	168	22	14	15

Now Showing in the Fernbank IMAX movie theater:

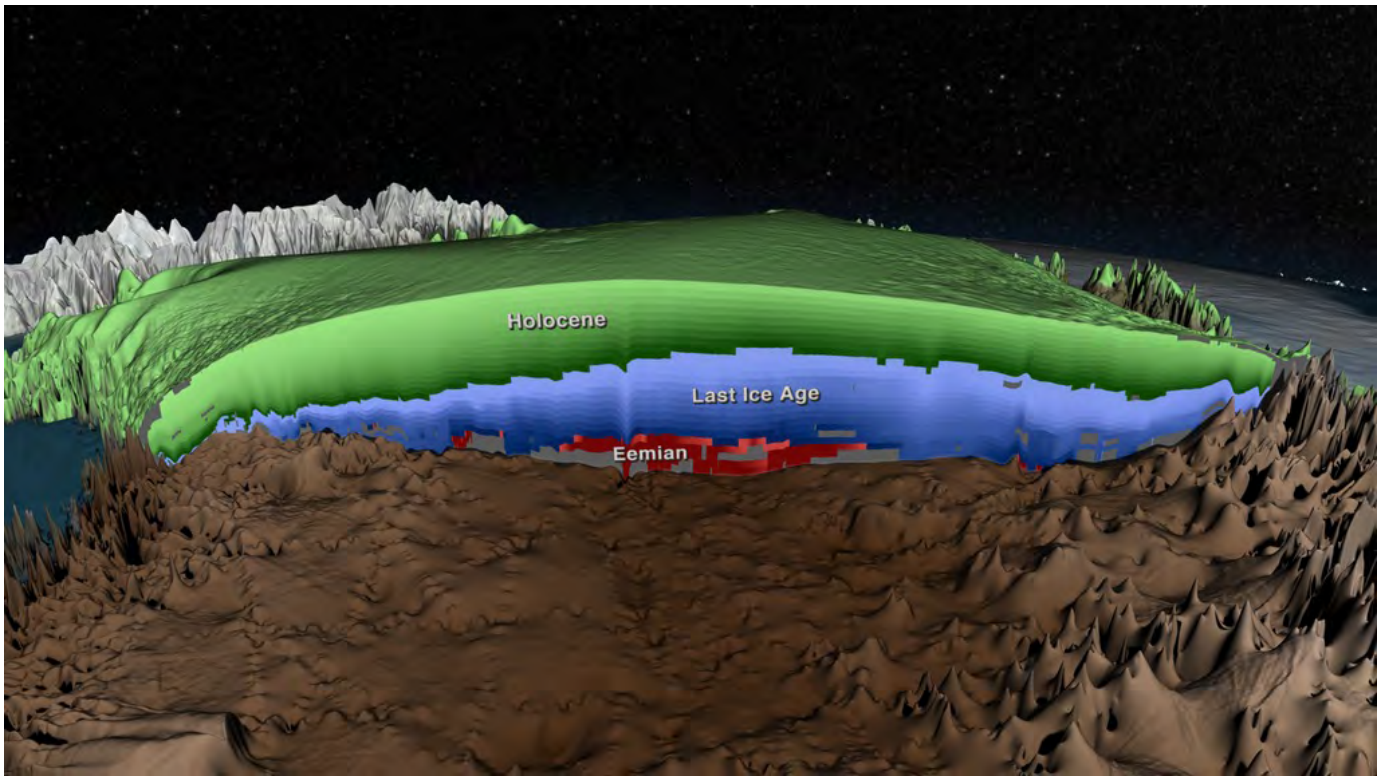


Galapagos: Nature's Wonderland

Travel to a paradise like no other. The Galapagos Islands is a wonderland of nature, a universe of remarkable and unique creatures that learned to survive against all odds on this volcanic archipelago that is constantly evolving. Meet these fascinating creatures and learn how they've adapted to unique environments in this new giant screen adventure.

Jerusalem

Discover why this tiny piece of land is sacred to three major religions through the stories of Jewish, Christian and Muslim families who call Jerusalem home. Unprecedented access to the city's holiest sites and breathtaking aerial footage combine to make Jerusalem a unique and stunning cinematic experience.Learn more



Cross-section of the age of the Greenland Ice Sheet. Layers determined to be from the Holocene period, formed during the past 11,700 years, are shown in green. Layers accumulated during the last ice age, from 11,700 to 115,000 years ago, are shown in blue. Layers from the Eemian period, more than 115,000 years old, are shown in red. Regions of unknown age are gray. Credit: NASA

IceBridge's flight lines often intersect ice core sites where other scientists have analyzed the ice's chemical composition to map and date layers in the ice. These core data provide a reference for radar measurements and provide a way to calculate how much ice from a given climate period exists across the ice sheet, something known as an age volume. Scientists are interested in knowing more about ice from the Eemian period, a time from 115,000 to 130,000 years ago that was about as warm as today. This new age volume provides the first data-driven estimate of where Eemian ice may remain.

Comparing this age volume to simple computer models helped the study's team better understand the ice sheet's history. Differences in the mapped and modeled age volumes point to past changes in ice flow or processes such as melting at the ice sheet's base. This information will be helpful for evaluating the more sophisticated ice sheet models that are crucial for projecting Greenland's future contribution to sea-level rise. "Prior to this study, a good ice-sheet model was one that got its present thickness and surface speed right. Now, they'll also be able to work on getting its history right, which is important because ice sheets have very long memories," said MacGregor.

This study was published online on Jan. 16, 2015, in *Journal of Geophysical Research: Earth Surface*.
More information: *Journal of Geophysical Research: Earth Surface*, http://onlinelibrary.wiley.com/doi/10.1002/2014JF003215/abstract Provided by University of Texas at Austin

AGS Officers

President: Nils Thompson
nils.thompson@erm.com
Phone (678) 486-2766

Vice-President: Shannon George
Phone (717)-343-4452
shannonsgeorge@gmail.com

Secretary: Rob White
Phone (770) 891-0519
robeth@bellsouth.net

Treasurer: Lucy Mejia
Lucytaylor360@gmail.com

AGS 2015 Meeting Dates

Listed below are the planned meeting dates for 2015. Please mark your calendar and make plans to attend.

January AGS meeting, January 27, 2015
Steven K. Stokowski, P.G.
A Petrographic Oddesy
January P.G. Study Class, January 31, 2015
Dr. Tim Chowns; Structure and Stratigraphy

February AGS meeting, February 24, 2015
February P.G. Study Class, February 28, 2015
Dr. Jim Kennedy Hydrogeology

March PG Study Group March 28, 2015
March AGS Meeting, March 31, 2015

April PG Study Group, April 25, 2015
Dr. Grant Boardman, Paleontology
April AGS Meeting, April 28, 2015

May AGS meeting, May 26, 2015
May PG Study Group May 30, 2015

AGS Committees

AGS Publications: Open

Career Networking/Advertising: Todd Roach
Phone (770) 242-9040, Fax (770) 242-8388
tdr@piedmontdrilling.com

Continuing Education: Currently Open

Fernbank Liaison: Chris Bean
Phone (404) 929-6313
Chris.bean@fernbankmuseum.org

Field Trips: Open

Georgia PG Registration: Ken Simonton
Phone: 404-825-3439
kws876@gmail.com
John Salvino, P.G.
johnsalvino@bellsouth.net

Teacher Grants: Bill Waggener
Phone (404)354-8752
waggener80@yahoo.com

Hospitality: Currently open
And in need of a volunteer or two.

Membership Burton Dixon
Dixonburton1@gmail.com

Social Media Coordinator: Carina O'Bara
carina_do@yahoo.com

Newsletter Editor
Ben Bentkowski
Phone (404) 562-8507, (770) 296-2529
BBENTKOW@gmail.com

Web Master: Kathaleen Bentkowski
kathaleen770@gmail.com

www.atlantageologicalsociety.org

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: Lucytaylor360@gmail.com

.

Please make checks payable to the "Atlanta Geological Society" and remit with the completed form to:

Atlanta Geological Society
Attn: Lucy Mejia
2143 Melante Drive
Atlanta, GA 30324

☐ **CASH**

☐ **CHECK (CHECK NUMBER: _____.)**