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**Winter-Spring 2017  
Newsletter Deadline:**  
**February 15, 2017.** Please  
send news items to Bill at  
[bill@geogiarocks.us](mailto:bill@geogiarocks.us)  
or to your state rep by Feb. 1.

**Southeastern Section Officers**

**President:** Christy Visaggi  
Georgia State University  
Geosciences  
Kell Hall 336  
Atlanta, GA 30302  
(404)413-5755  
[cvisaggi@gsu.edu](mailto:cvisaggi@gsu.edu)

**Past President:** David Kopaska-Merkel  
Geological Survey of Alabama  
P.O. Box 869999  
Tuscaloosa, AL 35486-6999  
(205)247-3695  
[dkm@gsa.state.al.us](mailto:dkm@gsa.state.al.us)

**Vice-President:** Frank Forcino  
Assistant Professor of Geosciences and  
Natural Resources  
Western Carolina University  
Cullowhee, NC 28723  
(828)277-2888  
[FLForcino@email.wcu.edu](mailto:FLForcino@email.wcu.edu)

**Secretary:**

Eleanor E. Gardner  
Florida Museum of Natural History  
3215 Hull Road  
Gainesville, FL 32611-2710  
(352)273-1936  
Email: [egardner@flmnh.ufl.edu](mailto:egardner@flmnh.ufl.edu)

**Treasurer/Webmaster:** Pamela Gore

Pamela Gore  
Perimeter College of Georgia  
State University  
555 North Indian Creek Drive  
Clarkston, GA 30021  
(678)891-3754  
[pgore@gsu.edu](mailto:pgore@gsu.edu)

**Newsletter Editor:** William Witherspoon  
[bill@geogiarocks.us](mailto:bill@geogiarocks.us)

## President's message

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by Christy Visaggi, SENAGT president

Welcome to the new school year! Not sure yet what new approaches you might use in your classes? Don't have a spare moment to Google and sift through the results looking for exciting resources to accompany your instruction? Well, lucky for you, at our annual meeting last spring during SEGSA (Geological Society of America – Southeastern Section), SENAGT had a brainstorming session regarding our favorite apps and online resources to use in the classroom! We've compiled 25 links for you to peruse at your leisure if you're looking to add maps, interactive data, videos, and more to your courses (see: <http://georgiarocks.us/nagt/ed-resources.pdf> ). This is only the beginning... we welcome your input for additional ideas! Please share with us your very own "picks" by posting your recommended links on our [Facebook](#) page and we'll continue to build this library. To learn more about our activities at SEGSA, and what lies ahead for the future, keep reading!

### SEGSA 2016: March/April 2016 (Columbia, SC)

SENAGT had a series of events at SEGSA last spring. We had remarkable attendance at the annual business meeting over lunch, during which we elected officers, discussed ideas for next year's meeting, as well as shared useful apps and online resources as I already mentioned. Our VP, Blair Tormey, had to step down due to his new role as Secretary-Treasurer for SEGSA. He will be greatly missed as a member of our leadership team. However, I'm delighted to report that Frank Forcino, Assistant Professor at Western Carolina University, was eager to come on board into the VP role, and is looking forward to leading the section as President come next spring. In addition, we officially elected Eleanor Gardner as Secretary, although she had already been graciously serving in that capacity. Thanks to all of our officers and state representatives for the work that you do for SENAGT!

With regard to sessions and field opportunities, below are a series of reflections submitted by session organizers and/or contributors that demonstrate the strong presence geoscience education had at SEGSA. Six posters including a focus on geologic mapping using iPads, 3D earth science visualizations, Google Earth, course-based undergraduate research experiences (CUREs), science communication and stream restoration, and reflections and recommendations for geology programs at historically black colleges and universities (HCBUs) additionally composed a general geoscience education poster session. Thanks to Bill Witherspoon, Frank Forcino, and Paige Flores for providing content pieces and/or the text for the summaries below.

#### Issues in Environmental and Climate Education

(Pamela Gore & Bill Witherspoon)

*Nearly 75 people attended this session, four of whom were K-12 teachers who received awards to attend via SENAGT. Most presentations addressed climate education. Topics included an inventory of environmental controversies in North Carolina, a citizen science project for groundwater monitoring, climate change in the NRC K-12 Framework, a new InTeGrate module on climate change and energy, a classroom simulation of the "Carbon Fee and Dividend" proposal, feature of the Polar Explorer App for exploring sea-level rise, and a new InTeGrate module on storm risk and resilience. One additional speaker on paleoproxies in climate education published an abstract but ended up unable to attend.*

#### Evolution and Geoscience Education

(Frank Forcino & Rachel Salter)

*This session was quite successful with up to 100 individual attendees representing K-16 geoscience educators to members of the general public. The presentations consisted of nine talks with a range of*

*subjects, including evolution education, women in geosciences, citizen science, using tools such as seismometers for teaching geoscience, and the importance of workshops for geoscience educators.*

### Deep Time in the Congaree: an Educator Field Workshop

(David Shelley & Bill Witherspoon & Scott Werts)

*Eight participants attended the Saturday workshop at Congaree National Park, a wetland system with over 26,000 acres of old-growth bottomland hardwood forests at the confluence of multiple rivers. Events for the day included a hike to Congaree River and overlook at Congaree Bluffs Heritage Preserve, walk to the old cypress tree, climate change discussion at the Visitor Center, and interactive coring at Muck Swamp. The geologic history of the landscape was linked to elements of the carbon cycle and how geochemical changes could be examined using isotopic analyses. Themes covered in the workshop related to cross-cutting concepts such as “Energy and Matter: Flows, Cycles, and Conservation” and “Scale, Proportion, and Quantity” in the NGSS K-12 Framework and standards specific to high school environmental science.*

For the last two years, we’ve offered modest forms of support for K-12 teachers to attend SENAGT-sponsored sessions and/or fieldtrips as part of our activities at SEGSA. This year, we awarded four grants, including a shared cost approach by partnering with the South Carolina and Georgia Geographic Alliances funded by National Geographic. Lauren Barker, Veronica Dau, Jessica Martinez, and Kathleen Snelgrove were our awardees who attended the meeting, and Paige Flores, our Education Liaison to SEGSA participated as well. Here are a few of the comments submitted by the teachers in giving feedback about the fieldtrip and presentations.

*“I enjoyed watching and participating in the discussion on collecting data and analyzing it, and how what we expect is not always what we find!”*

*“I am hoping to involve members of the community, such as the senior center down the street, and local scientists in fielding questions from my students and grading and critiquing presentations by the students so that they have a real world perspective of how science is done. <...> I also plan to use Margie Turrin’s app on Sea level rise, if I can get the iPads for a few days.”*

*“Mr. Manda’s approach involved training residents of North Carolina to collect their own ground water data rather than rely on pre-produced data, increasing the likelihood that the citizens would care more about the issue at hand. I started thinking about how Mr. Manda’s process with adults could be replicated with second graders.”*

*“I found David Shelley’s presentation applying crosscutting concepts using climate change as the common thread to be enlightening. I look forward to using his presentation with the other science teachers in my department. The resources available on the SERC site make it easier to incorporate climate change principles across the curriculum. The Sea Level app gives students an opportunity to actively change variables and observe the outcome.”*

### **SEGSA 2017: March 2017 (Richmond, VA)**

We are in the midst of planning for an exciting SEGSA meeting in Richmond, VA, next spring. Sessions have been proposed on 1) *Methods for assessing knowledge and understanding among K16 students and the general public* and 2) *Transforming geoscience teaching and learning*. Thanks to Frank Forcino (Western Carolina University) and Jason Jones (North Carolina State University) for leading the way in planning these sessions! In addition, we look forward to welcoming colleagues from the Eastern section of NAGT at our events while in Virginia for SEGSA.

## Scholarships, Awards and Internships

Did you know that NAGT offers a range of scholarships, awards, and internships such as recognizing outstanding TAs, support for field-based courses, and experiential learning opportunities with the USGS? If you're not already aware of these resources, I invite you to explore the [awards](#) and [students](#) sections of the NAGT website for more information. As many of you know, SENAGT has a strong history of honoring Outstanding Earth Science Teachers in our region, and I'm delighted to report that this year, we had winners for all states in our section! For more information on the awardees, see page 8 in this newsletter. Congratulations!

## Earth Science in the News

The importance of geoscience education is increasingly apparent in a world that feels the effects of global climate change, strives to explore alternative energy sources, and is reminded of the power of our planet in the face of natural disasters. Most recently, flooding has devastated much of the landscape in Louisiana, and many of our fellow educators in that state are struggling to begin the new school year. There are a number of ways in which you can contribute to relief efforts, but if you're looking to make a direct impact in support of education, please read the following article and state news submitted by Jean May-Brett, which includes a request for classroom materials to be distributed at their state conference in October. Contact the LESTA President at [hedwac@gmail.com](mailto:hedwac@gmail.com) for details regarding donations needed. I should additionally mention Lisa Doner's presentation on education regarding storms and community resilience as part of a session at SEGSA 2016 as a point of interest to note here for future instructional opportunities. Her work involves collaboration with the NSF InTeGrate Program to develop a cross-disciplinary module regarding education of storm risk uncertainty that will be available later this year. Data on specific events will be used (e.g., Hurricane Sandy) and the module will include an examination of a range of impacts and consequences for communities after storms.

In closing, I'd like to remind you that Earth Science Week (ESW) is rapidly approaching (October 9-15), so don't forget to give a bit of extra geo-love to your classes or other educational programming that week (and then remind your students not to take you for granite)! For ideas on what to do or how best to celebrate at your institution, school, work, park, or wherever, or to find an event near you, stop by the ESW website hosted by the [American Geosciences Institute](#). Also, if you have events to advertise for our region, please feel free to share them on [Facebook](#). Thanks for reading y'all!

Sincerely,

*Christy C. Visaggi*

## Louisiana – Canary in the Coal Mine?

by Jean May-Brett

*[Ed. Note: Jean May-Brett retired a year ago as Math and Science Partnership State Director of the LA Department of Education. She continues to work in the education field assisting with programs in and out of Louisiana and is an officer in both the state math and science associations. Years ago she was recognized as Louisiana OEST. When she was gracious enough to cover for SENAGT state rep Wendy Demers on state education news for this issue, we asked for some words on the August flood event. We received the following eye-opening account, which amplifies some of the programming at this year's session at SEGSA.]*

There are so many things to look at when reviewing Louisiana's recent flooding. Caused by what has been described as an inland tropical depression, it has been tagged as a 500 or even 1000-year rainfall event. Perhaps a case can be made that Louisiana, with the flooding its citizens have experienced in 2016, is a canary in the coal mine in the current study of climate change.

Earlier, in March of this year, 26 inches of rain fell over parts of the state, resulting in flooding that damaged many of the northern and central parishes of the state. Lives were threatened and property was lost. Businesses, schools and state offices closed in 40 of the state's 64 parishes (counties). Shelters were opened; people were rescued. Record river crests were recorded at several places around the state, and Toledo Bend Dam [on the Sabine River] was releasing over 1.5 million gallons of water per second, or double the flow of Niagara Falls. Water funneling south caused Interstate 10 between Louisiana and Texas to be closed for a week. Because of bridge damage and road closures, journeying between the two states meant a detour through Shreveport, adding hours of travel time.

Now during this historic August "2016 Flood" many of those families and businesses flooded in March are among the tens of thousands who have been flooded out of home, business and school.

LSU's Earth Scan Laboratory has produced a video look at the Louisiana flood-inducing storm over an 11 day period which can be found at: <https://www.esl.lsu.edu/imagery/IOTW>. NOAA's Ocean Services has posted amazing before and after images of multiple Louisiana sites: <http://oceanservice.noaa.gov/news/aug16/louisiana-flooding.html>



Denham Springs, LA before and after August flooding, from NOAA web site.

Anyone familiar with the hydrology of Louisiana the "Sportsman's Paradise" knows there are bayous, creeks, and rivers everywhere. The state's geography and physical landscape has been shaped by the hydrology. A helpful resource is the new *Annotated Student Atlas of Louisiana* on the webpage of the Louisiana Geography Alliance: <http://lagea.ga.lsu.edu/atlas/>

The people in places like Abbeville, Denham Springs, Holden, Walker, etc. never wanted national attention of this type. There people live in communities where neighbor helps neighbor. But now as river crests are more than double the flood stage level everyone is I need of help. As water levels rose so quickly people were stranded on the interstate for 24-30 hours because flooding in front of and behind them trapped them. Helicopters were used to bring supplies to the stranded with nowhere to go. True to Louisiana hospitality, people made new friends as they lived through their experience.

Twenty parishes have been declared federal disaster zones with over 40,000 homes destroyed. Over a week after the rainfall, as much as 30 inches in some areas, waters are still rising. With classes cancelled, college students are tearing up carpets, pulling down sheet rock, cleaning floors and comforting families. Shelters are overflowing with people seeking the necessities of life and a meal for their children.

What have we learned? In both cases the massive, slow moving storms were referred to as unusual. Are they really? Is this the beginning of our new normal? Some who study the models, review the records, gather the data indicate, maybe warn is a better word, that flooding will become a greater problem not only in Louisiana but around the world as temperatures warm. However, much more study needed to be definitive on episodes like the Louisiana floods of 2016. As some consider developing a scale for classification or coming up with names for events like the Louisiana floods a beginning may be to start with a new vocabulary for how experts refer to these incidents and speak to the people in the communities before, during and after the storms. In addressing communication and setting up guidelines for outreach to the people in an area of impact it should be possible to support and strengthen community resilience.

## Meeting Calendar

Most recently reported dates of past or future meetings

National Science Teachers Association and Affiliates		
Area	Latest date on web site	City
<a href="#">National</a>	Mar. 30–Apr. 2, 2017	Los Angeles
<a href="#">Eastern</a>	Oct. 27–29, 2016	Minneapolis
<a href="#">Alabama</a>	Mar. 7-8, 2017	Birmingham
<a href="#">Florida</a>	Oct. 20-22, 2016	Orlando
<a href="#">Georgia</a>	Feb. 1-3, 2017	Stone Mountain
<a href="#">Louisiana</a>	Oct. 24-26, 2016	Baton Rouge
<a href="#">Mississippi</a>	Oct. 23-25, 2016	Biloxi
<a href="#">North Carolina</a>	Oct. 20-21, 2016	Greensboro
<a href="#">South Carolina</a>	Nov. 2-4, 2016	Columbia
<a href="#">Tennessee</a>	Dec. 1-3, 2016	Murfreesboro

Geological Societies		
Organization (Area)	Latest date on web site	City
<a href="#">GSA (National)</a>	Sept. 25-28, 2016	Denver
<a href="#">GSA (Southeastern)</a>	Mar. 30–31 2017	Richmond
<a href="#">GSA (South Central; incl. LA)</a>	Mar. 13–14, 2017	San Antonio
<a href="#">Alabama Geological Society</a>	Nov. 17-19, 2016	Oxford-Anniston
<a href="#">Carolina Geological Society</a>	Oct. 28-30, 2016	Boone, NC
<a href="#">Georgia Geological Society</a>	Oct. 7-9, 2016	Jekyll Island

## **FOSSIL Project Announcements**

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by Eleanor Gardner, FOSSIL Project Coordinator and SENAGT Secretary

1. The National Science Foundation funded project called FOSSIL (Fostering Opportunities for Synergistic STEM with Informal Learners) is holding a short course entitled “Facilitating Effective STEM Learning and Public Engagement in Paleontology” on September 23 prior to the 2016 national meeting of the Geological Society of America in Denver, CO. Learn more about this and other short courses at <http://community.geosociety.org/gsa2016/science-careers/courses>. FOSSIL is offering to pay the registration fees for 10 individuals to attend both the short course on the 23<sup>rd</sup> and the entire GSA meeting taking place September 25-28. This year, the GSA meeting features a huge number of geoscience education theme sessions, posters, and events! Florida K-12 teachers are highly encouraged to apply – contact Eleanor Gardner at [fossil@flmnh.ufl.edu](mailto:fossil@flmnh.ufl.edu) for more information.

2. The FOSSIL Project is also sponsoring a four-part online webinar series on the fundamentals of fossils, and K-12 teachers can earn CEUs for attending! The first webinar is scheduled for Wednesday, August 31<sup>st</sup>, from 7-8pm. The first speaker will be Jayson Kowinsky, a high school physics teacher in Pittsburgh, PA, who runs the website [www.fossilguy.com](http://www.fossilguy.com). Jayson’s topic is “Fossil Collecting: Where, How, and When.” The second webinar, on recording field data, will be presented by Bruce MacFadden of the Florida Museum of Natural History on Thursday, September 29. The third webinar will be held on Wednesday, October 19, about fossil excavation techniques and led by Dava Butler of Montana State University. The fourth and final webinar will take place on Wednesday, November 30<sup>th</sup>, and will be hosted by Rachel Narducci of the Florida Museum of Natural History on the basics of fossil preparation. If you are interested in attending these webinars, please contact Eleanor Gardner at [fossil@flmnh.ufl.edu](mailto:fossil@flmnh.ufl.edu) for more details.

## **(Truly) Outstanding Earth Science Educators**

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Compiled by Bill Witherspoon, SENAGT Newsletter editor

Kudos to our OEST winners this year and to President Christy Visaggi and state representatives for our full slate of state winners, a feat seldom matched by any NAGT section. Below is an extended writeup of our Southeastern Section OEST, Lindsay Knippenberg of North Carolina, as well as photos and snippets about all the state winners (including North Carolina's Outstanding Earth Science Educator, a separate award for educators outside of K-12). You can read more about the State OESTs on NAGT's web page at <http://nagt.org/nagt/awards/oest/2016.html>.



### **2016 Southeastern and North Carolina OEST Lindsay Knippenberg**

Lindsay teaches at Mooresville Senior High School in Mooresville, North Carolina where she has taught marine science and environmental Earth science for the past four years. In addition to her teaching responsibilities, she serves as an advisor for several clubs, facilitates a program to bring STEM into the lower elementary grades, and is a coach for the girl's soccer team. One of Lindsay's passions is to bring science to all learners including students with disabilities and lower elementary students. Her other passion is to connect her students to scientists and real-time data to inspire them to be the next generation of scientists.

She rose to the challenge of creating labs, activities, and projects for a blind student. Each creation had to be converted to braille and had to allow the students to use more senses than just sight. Some of her favorite experiences have been watching her blind student identify rocks based on touch versus sight and having her assemble Pangaea based on the evidence for continental drift using different types of foam. While making the lesson accessible to this student, the adaptations also benefited her other students who learned to use their other senses to aid in their observations.

Lindsay has participated in the Ocean Exploration Trust Science Communications Fellowship, NOAA Teacher at Sea, and the NSF PolarTREC program. Through these experiences, she has traveled to Antarctica, the Bering Sea, Galapagos Islands, and Caribbean Sea to bring real science into her classroom and to inspire her students to be scientists, too.

Prior to Mooresville, Lindsay taught for seven years outside the city of Detroit, MI and was an Albert Einstein Distinguished Educator Fellow for two terms with the NOAA Office of Education in Washington, DC. She graduated from Michigan State University with a Bachelor's degree in biological sciences and completed her Masters degree in environmental science at the University of Michigan-Dearborn.



Lindsay's blind student assembling Pangaea using tactile foams and a key in braille.



## State Winners 2016



**Alabama's Katy Busby** takes complex science topics and breaks them down so that all her 3<sup>rd</sup> grade learners can understand and relate to the topic in meaningful ways. She enables them to engage in argument from evidence, as well as construct explanations and design solutions.

**Florida's Mohammed Kabani**, as a middle school science coach, guides teachers to “foster higher-order thinking in the world of science,” challenging students to connect sciences with questions such as “Why are ...volcanism and plate tectonics so vital for life on earth?”



**Georgia's Stephen Csukas**, as Program Coordinator for developing Tucker Middle as the first STEM Certified Middle School in Georgia, led in changing school culture to a problem-based learning model. He worked with a math partner to create satellite systems activities from NASA's Space Math curriculum.

**Louisiana's Holly Payton** seeks to guide her middle school students “towards autonomy, mastery, and purpose,” enjoys “socratic seminars and introducing students to molecular modeling” and is a science teacher leader in her district.



**Mississippi's Shelby “Dixie” Houchen** seeks to make science for her junior high students applicable to the outside world. She began and sponsors the school's Nature Club, where students learn basic gardening techniques, bird identification, food chains, and recycling.

**North Carolina's OESE Roger Shew's** philosophy is one of data-driven assertions supported with direct observation. His classes at UNC Wilmington come highly recommended to budding science educators, with activities that adapt well to the secondary school setting.



**South Carolina's Deb Izell** balances “classroom technology ...with a wide array of hands-on investigations” and inculcates “environmental stewardship...through practical applications” such as her HS students growing food, distributed to those in need.

**Tennessee's John Griffin** finds the classes he teaches, including biology, chemistry, and physical science, “are gold mines for Earth science integration” in a state in which most high schools do not have dedicated Earth science courses.



## State News in Geoscience Education

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If you would like to contribute state news to the next newsletter, please send your geoscience education information and pictures to your state representative, before February 1, using the e-mail address at the end of this newsletter.

**Alabama** (submitted by David C. Kopaska-Merkel, Geological Survey of Alabama, Co-State Representative)

Things have been so quiet in Alabama that I literally heard back from only one person, who said that nothing has been happening. So this is all I have:

### Steven C Minkin Paleozoic Footprint site

This is the most important trace-fossil site of its age (Westphalian A) in the world.

A new book about the site, *Footprints in Stone*, was published in July by the University of Alabama Press. The book is aimed at students and adults who know little about geology or paleontology, although it contains plenty of information that would be of interest to more knowledgeable folks. The book covers the discovery, study, and preservation of the site, as well as descriptions of many of the trace fossils and other fossils that have been found there. In the interests of full disclosure, I should mention that Ronald Buta and I are the authors.

The State Lands division of the Alabama Department of Conservation and Natural Resources, which manages the site, periodically turns over spoil piles there. This brings unweathered fossil specimens to the surface, including Pennsylvanian trace fossils, arthropod body fossils, and a diverse assemblage of plant impressions. Trace fossils include tracks, trails, and burrows made by amphibians, reptiles, attenosaurus, fish, insects, horseshoe crabs, millipedes, and other organisms. The surface of the site is getting played out because State Lands only owns a small bulldozer. I am hoping they can spend a little more time to turn over the material more thoroughly next time, or perhaps they will buy a larger bulldozer. Nevertheless, a half dozen or so very nice specimens are found each time the site is visited. It is easy to arrange a visit to the site (contact the Alabama Paleontological Society at [alabamapaleo.org](http://alabamapaleo.org)). Scientifically important specimens must be donated to a museum in the state. The collectors may keep all other specimens.



Other information about the site can be found on the Alabama Paleontological Society website, [www.alabamapaleo.org](http://www.alabamapaleo.org), including a link to a downloadable version of the 2005 book about the site and links to online photographic databases of specimens found at this site and another of the same age (the Crescent Valley Mine).

(Left: *Attenosaurus subulensis* from the Minkin site. Scale is in centimeters.)

## Annual fall fossil workshop for teachers

The Geological Survey of Alabama, the University of West Alabama, Discovering Alabama, the Birmingham Paleontological Society, the Black Belt Museum, and the Alabama Geological Society are getting together again to host a one-day workshop on October 18 for K-12 teachers and other educators. This year the workshop will be a little different than it has been in the past. Participants will use biostratigraphy and lithostratigraphy to make a cross-section along part of a chalk bald in west Alabama. In other words, they will learn something about what geologists do, by doing it. They will also collect fossils and get lots of free stuff, including a copy of Jim Lacefield's hugely popular book *Lost Worlds in Alabama Rocks*. In case you know anyone who might be interested (there still are openings), the registration flyer is at <http://georgiarocks.us/nagt/livingston2016.pdf>.

**Florida** (submitted by Eleanor Gardner, SENAGT Secretary, and Kim Cheek, State Representative)

## Lesson Plans Shared at Conference

On June 28<sup>th</sup>, two Florida schoolteachers presented at the International Society for Technology in Education conference in Denver, CO. Megan Higbee Hendrickson and Julie Hughes, who teach at the Academy of the Holy Names in Tampa, shared middle school science lesson plans (featuring 3D printed fossils!) that they wrote with University of Florida PhD students Sean Moran and Victor Perez. Megan reported that their presentation was very well received and that people were excited to have NGSS-aligned lessons utilizing 3D printing technology.



## Florida Outstanding Earth Science Teachers: Danger 2015 and Kabani 2016

Christine Angel Danger, the 2015 state of Florida winner of the NAGT OEST award, was presented with the 2015 NAGT Outstanding Earth Science Teacher Award at the Hillsborough County School Board recognition meeting on May 17, 2016. Larry Plank, the STEM Director for Hillsborough County Public Schools, presented the award.

The 2016 awardee is Mohamed Kabani, a science resource teacher at Burnett Middle School near Tampa. He will be presented with the 2016 award later this year. More about Florida's 2016 OEST is on p. 9 and at [this link](#).

## June Paleontology Workshop

On June 23<sup>rd</sup> and 24<sup>th</sup>, the University of Florida and Florida Museum of Natural History hosted a fossil dig/paleontology workshop in northern Florida for 20 schoolteachers from across the US. The group included many local Florida teachers and provided them with the opportunity to craft paleontology-based lessons supporting STEM curriculum standards. In the field, the teachers were thrilled to find material from a large gomphothere dating to 5 million years old. You can read more about this event at [http://www.mercurynews.com/science/ci\\_30132636/santa-cruz-teachers-make-big-finds-florida-paleontology](http://www.mercurynews.com/science/ci_30132636/santa-cruz-teachers-make-big-finds-florida-paleontology).



### Upcoming events

Sept. 12 from 3:30-7:45 p.m. at the Florida Museum of Natural History in Gainesville, FL: The museum will host a Science Cafe entitled, *Marsquakes! Looking Inside Mars with the InSight Mission.* For more information go to <http://www.flmnh.ufl.edu/calendar/grid/science-cafe-fall-1/>.

Oct. 1 from 9:00 am to 5:00 p.m. at Sam's House at Pine Island, Brevard County: The League of Environmental Educators in Florida is hosting a one-day mini conference called, *Across Time and Space.* For more information go to <http://leef-florida.org/net/content/go.aspx?s=47776.0.110.37432>.

Oct. 1 from 10:00 am to 5:00 pm at the South Florida Museum in Bradenton, FL: The museum is celebrating National Fossil Day. They will have a traveling exhibit from the American Museum of Natural History called *Dinosaur Discoveries: Ancient Fossils, New Ideas.* For more information, see <http://community.myfossil.org/event/national-fossil-day-celebration-at-the-south-florida-museum/>.

**Georgia** (submitted by Christy Visaggi, SENAGT President, Bill Witherspoon, Newsletter Editor, and Katy Smith, Georgia Southern University, State Representative)

### STEMfest at Georgia Southern U.

Georgia Southern University will be holding its annual STEMfest on September 24, from 10 am - 4 pm. This is a free event with over 50 stations with activities in Science, Technology, Engineering, and Math, geared toward Elementary, Middle, and High school students. More information about STEMfest can be found here: <http://research.georgiasouthern.edu/stemfest/>

### Outdoor Learning Symposium

This year's OLS will be in Atlanta on October 14 at Southwest Atlanta Christian Academy. Sponsored by the Environmental Education Alliance of Georgia and the Council on Outdoor Learning, "this annual fall symposium ... provides an opportunity for sharing lessons learned and inspiring teachers to take their kids outside!" The theme this year is "Innovations in Outdoor Learning" [ed. note: I will team up with *Natural Communities of Georgia* author Leslie Edwards to offer a workshop called "Biology and Geology Learn from Each Other in Georgia - an Innovation?"].

Details will appear soon at <https://eeag.memberclicks.net/outdoor-learning-symposium>.

### **Presentation opportunities**

Georgia will host two Southeastern conferences and two Georgia conferences in the coming months at which geoscience education presentations are welcome. Two of the four have proposal deadlines in the very near future.

Southeastern Association for Science Teacher Education, Kennesaw, October 21-22, 2016

Call for Proposals TBA at <http://www.saste.net>.

SASTE is the regional division of the Association for Science Teacher Education (ASTE), and according to the website, “the SASTE annual meeting has historically been a ‘safe’ forum for graduate students to present their Master’s and doctoral level research under the tutelage of veteran science educators.” –

Georgia STEM Forum, Athens, October 24-25

Call for proposals **by September 9** at <http://stem.wpgadoe.org/wp-content/uploads/2016/07/STEM-Forum-2016-Flyer.pdf>.

Developed by the Georgia Department of Education, this annual forum attracts “hundreds of STEM educators to share and learn how other schools and teachers implement STEM/STEAM.”

Georgia Science Teachers Association, Stone Mountain, Feb. 2-4

Call for proposals by Oct. 31 to <http://gsta.wildapricot.org/event-2288484>

“With the theme, Georgia Science... Engage!, this year’s conference will help teachers engage their students in 3D science learning with the new Georgia Standards of Excellence.”

Southeastern Environmental Education Alliance Conference, Buford, Mar. 3-5

Call for proposals **by September 1** at <http://www.eealliance.org/>

“Join educators from the eight southeastern regional member states, including Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee as we explore the richness of environmental education through your practice, profession and partnerships.”

### **Field Trips**

Two fascinating state geological society field trips will visit opposite ends of Georgia this fall.

On **October 7-9**, Georgia Geological Society journeys to the coast for the first time in a decade. The program, “Rising Sea Level on the Georgia Coast,” will be headquartered at the Holiday Inn on Jekyll Island. According to the web page at <https://www.westga.edu/~ggsweb/fieldtrip/fieldtrip2016.html>:

“With climate change and sea level much in the news, the time is right for a field trip to assess the results of rising sea level on the Georgia coast. During the trip we will visit localities on St. Simons and Jekyll islands where rapid changes are occurring due to both erosion and deposition...On Saturday afternoon we will visit the new Southern Ionics Mission Mine where zircon, rutile and ilmenite are being mined from Pleistocene sands of the Penholoway shoreline.”

Leading the trip will be Chester Jackson (Georgia Southern University, who “will demonstrate the use of terrestrial LiDAR to document shoreline change”), Tim Chowns (University of West Georgia), Burt Carter (Georgia Southwestern College), Don Thieme (Valdosta State University), Jim Renner (Southern Ionics), and Clark Alexander (Skidaway Institute of Oceanography).

A bonus for GGS trippers returning to north Georgia after the 2:00 close on Sunday afternoon, **October 9**: our own Georgia state representative Katy Smith will give a tour in the Georgia Southern Museum in Statesboro at approximately 5:00 PM. We will see the famous “whale with legs” skeleton, the oldest whale fossil found in North America, with the museum open by special arrangement till 6:30.

On **November 17-19**, three University of West Georgia geologists will lead a trip that straddles both the Georgia-Alabama border and the fault separating the Valley and Ridge from the Piedmont, for the Alabama Geological Society. The trip is “Geology of Indian Mountain, Rock Run, and Borden Springs Area, Georgia and Alabama: A New Paradigm.”

According to the web site at <http://alageolsoc.org/announcements.html> , “The focus of this year’s trip in Cherokee and Cleburne Counties, Alabama, and Polk and Floyd Counties, Georgia, will be the Paleozoic rocks of the Indian Mountain area and metamorphic rocks in the hanging wall of the Emerson-Talladega fault [where] detailed geologic mapping has revealed a complex structural relationship between slate of the lower Cambrian Chilhowee Group, rocks previously considered to be middle Ordovician Rockmart Slate, and phyllite along the metamorphic front, in the hanging wall of the Emerson-Talladega Fault.”

Trip leaders will be Randy Kath, Tom Crawford, and Karen Tefend of UWG.

**Louisiana** (State Representative: Wendy Demers) Many thanks to Jean May-Brett who stepped in with this state news after a death in Wendy’s family.

### LSTA Annual Conference

LESTA members are now preparing for the annual state conference. This year’s event will be a joint science math conference in Baton Rouge October 24th-26<sup>th</sup>. Several earth science sessions will be available, but the big attention grabber, as always, will be the ROCK RAFFLE. Heather Cregut, LESTA President, and the officers are actively seeking specimens for this year’s event. So many of our colleagues have lost much of their materials through the spring flooding in Monroe and Alexandria and our current flooding event in much of the southeast and central area. Any donations will be appreciated...as you know there aren’t a lot of collecting sites in Louisiana for rocks, minerals and fossils. You can contact Heather at [hedwac@gmail.com](mailto:hedwac@gmail.com).

### Payton is OEST

Congratulations to Holly Payton of Lincoln Parish! More about Louisiana’s 2016 Outstanding Earth Science Teacher (OEST) is on p. 9 and at [this link](#).

### Core Element Workshops

Core Element offered two one-day workshops for teachers of earth science. Presenters Charlene Byrd, Janice Catledge, and Eileen Hite provided both elementary and middle school teachers with introductions to either the Playing with Petroleum or Knowledge Box kits. Teachers experienced the activities in the kits as students and are now able to borrow the kits for an extended period of time for use in their classrooms. The materials of both kits are aligned to the state standards.



First Row: Instructor - Bob Weinbeck; Instructor - Barbara Boustead; Michael Joyce; Joan Drew; NWS Director - Louis Uccellini; Julie Wight; Diane Ripollone; Helaine Hager; Instructor - Abby Stimach;  
Second Row: Kevin Mart; Karen Merritt; MaryJane Ziehl; Samantha Adams; Juliane Codd; Carrie Antoniazzi; Julia Schroeder; Nora Collazo  
Standing Row: George Nahay; Jared Foro; Brian Soash; William Donald; Sara Finnemore; Instructor - Jerry Griffin; Margaret Wylie; Barbara Stanoff; Nancy Hoehn; Instructor - Jim Brey; Amethyst Klein; Raymond Szczerba; Instructor - Chad Kauffman;  
NWS - Chief Learning Officer - John Orgen

### Project Atmosphere

Karen Merritt from Vivian, LA was a participant in the always popular and never enough spaces Project Atmosphere offered by the American Meteorological Society. Karen and the 2016 Project Atmosphere fellows are seen together for the annual course picture.

## Bergeon honored

The American Petroleum Institute Delta Chapter honored Tom Bergeon, Senior Geologist with its 2016 Meritorious Service Award. During his acceptance speech Tom thanked his parents for accompanying him to museums and fostering his geological interests. He also thanked the New Orleans Geological Society for their unwavering support. It is through the dedication of individuals like Tom that our educators and young learners have opportunities to learn more about where energy comes from and how it touches our everyday lives. Tom is seen here with his award and fellow API members.



**Mississippi** (Submitted by Adam Skarke and Renee Clary, Mississippi State University, state representatives)

## Mississippi State University



**Earth Day:** The Dunn-Seiler Museum, in partnership with Gaining Ground Sustainability Institute of Mississippi sponsored a competition to promote awareness about the environmental damage caused by plastic water bottles that are not reused or recycled. Mississippi's K-12 students were invited to design a creative use for plastic water bottles that would otherwise be thrown away. Winning entries are on display in the Dunn-Seiler Museum.



## Centennial Celebration, Department of Geosciences at Mississippi State University:

The Geosciences Department celebrates 100 years in the Fall 2016 – Spring 2017 academic year! Many fun events are planned, including Open House tours, Tailgating activities, and the identification of 100 outstanding Geosciences students. Information can be found on the website:

<http://www.geosciences.msstate.edu/>

**Fossil Art and Story Contest:** The Dunn-Seiler Museum is sponsoring a Fossil Art and Story contest to promote awareness of National Fossil Day, during Earth Science Week. The contest information can be found on the Dunn-Seiler website:

<http://www.geosciences.msstate.edu/dunn-seiler-museum/news-and-events/>

**Fossil Extravaganza:** The Dunn-Seiler Museum will host a public Fossil event for National Fossil Day. The Dunn-Seiler will offer tours, refreshments, and fossil activities on **October 12, 2016, from 5:00 – 7:30 PM.**

**North Carolina** (submitted by Randy Bechtel, N.C. Geological Survey, State Representative)

## North Carolina Science Teachers Association Professional Development Institute (NCSTA-PDI)

The NCSTA-PDI is back in its old stomping grounds this year, but with an earlier date: **October 20-21, 2016 at the Koury Convention Center in Greensboro, NC.** Registration is now open for participants and exhibit booths at [www.ncsta.org](http://www.ncsta.org).

The theme this year is 'Success in Science for All – Improving Student Literacy' with three strands:

Strand 1: 'STEM for All' will consist of the best classroom activities and examples for truly integrating the four areas of STEM.

Strand 2: 'Let's Get Physical' will focus on the area of Physical Science.

Strand 3: 'Integrating Science and Literacy' will provide teachers with ways to be more efficient with the time they have to teach each day. Sessions will demonstrate how to teach science concepts while requiring students to apply literacy skills to improve their reading, writing, speaking and listening.

There will be plenty of other session topics as well. In addition to the traditional professional institute sessions and exhibits, we are offering a separate workshop specially designed to show all K-6 classroom teachers the best practices for strengthening literacy skills through the use of STEM activities, called "STEM: The Key to Conquering [il]Literacy."

The N.C. Outstanding Earth Science Teacher (OEST) and Educator (OESE) awards will be presented during the NCSTA-PDI award ceremony on the evening of Thursday Oct. 20. The 2016 SENAGT Section OEST award winner is Ms. Lindsay Knippenberg from Mooresville Senior High School (MSHS) in Iredell County. The 2016 NC OESE award winner is Mr. Roger Shew from UNC Wilmington in New Hanover County. Both are featured in the article on OEST winners on p. 8-9.

To see previous winners and find out more about the awards, including the generous sponsors, visit the N.C. Geological Survey [website](#) (or google NC Geoscience Education).

### **North Carolina Science Festival (NCSF)**

NCSF, [www.ncsciencefestival.org](http://www.ncsciencefestival.org), is a multi-day celebration showcasing science and technology. This year the Festival will run from **April 7-23, 2017**. The Festival highlights the educational, cultural and financial impact of science in our state. Through hands-on activities, science talks, lab tours, nature experiences, exhibits and performances, the Festival engages a wide range of public audiences while inspiring future generations. This event offers an opportunity to celebrate science in fun and welcoming settings. It provides the opportunity to cultivate a positive environment which encourages children to pursue science-related careers and encourages businesses to invest in North Carolina.

In an era when recent reports indicate that the United States is losing ground as the world leader in science and technology, and fewer students than ever are pursuing careers in science and technology, the North Carolina Science Festival energizes our state's effort to respond to these challenges while building new and stronger relationships among the education, business and cultural leaders who will lead that response. Most importantly, scientists want everyone to know what they know – that science is fun!

The North Carolina Science Festival is an initiative of [Morehead Planetarium and Science Center](#), a unit of the University of North Carolina at Chapel Hill. Morehead recently received a \$750,000 grant from GlaxoSmithKline in support of NCSF expansion across the state. According to press reports, **"Morehead will use the four-year grant to build a statewide network of STEM (science, technology, engineering and mathematics) professionals who will serve as Science Festival Ambassadors.** The network will reflect and serve populations that are underserved and underrepresented in STEM,"

### **Carolina Geological Society Meeting and Field Trip**

Oct. 28-30, 2016 in Boone, NC Geology of the Mount Rogers area, revisited: Evidence of Neoproterozoic continental rifting, glaciation, and the opening and closing of the Iapetus Ocean, Blue Ridge, VA–NC. [www.regonline.com/cgs2016](http://www.regonline.com/cgs2016) [ed. note - this is similar to a trip following 2014 SEGSA in Blacksburg, which was fascinating. Leader Arthur Merschat of USGS is a fine teacher as well as field geologist. Enjoy!]

**Puerto Rico** (State Representative position open)



## **South Carolina** (submitted by Gwen Daly, Winthrop University, State Representative)

### **New SC Science Findings**

Greetings from the Palmetto State, where the fault that caused the great 1886 Charleston Earthquake continues to grumble and rumble. A new study of tiny earthquakes (magnitudes less than 2.6) in the Bulletin of the Seismological Society of America has revealed that the fault still has unresolved stress from that devastating seismic event (<http://www.bssaonline.org/content/106/2/364.short>). The study of these tiny seismic events has also revealed details about the morphology of the fault itself.

Fault activity is also on the minds of the workers modeling South Carolina's part of the South Georgia Rift Basin's feasibility as a candidate for CO2 injection and sequestration (<http://vibgyorpublishers.org/content/international-journal-of-earth-science-and-geophysics/ijesg-2-005.pdf>), who report about fault permeability as a critical factor in determining the suitability of the basin for CO2 injection.

A new analysis of the ever-fascinating Carolina Bays (<http://www.tandfonline.com/doi/abs/10.1080/15230406.2016.1162670>) indicates that the number of Carolina Bays that the huge variability of the reported number of these elliptical features can be affected by artifacts of map scaling. The actual number of Carolina Bays from the Mid-Atlantic States down to Florida is closer to 50,000 than the 500,000 previously reported.

### **Clemson's Bob Campbell Museum**

The new vertebrate paleontology curator at Clemson's Bob Campbell Museum, Dr. Adam Smith, opened a new fossil preparation lab (<https://www.facebook.com/events/705944916211588/>) in July. The lab is visible from the museum, and among other specimens, Dr. Smith and his workers are preparing a Triceratops collected from North Dakota (<http://newsstand.clemson.edu/mediarelations/to-brighten-its-future-bob-campbell-geology-museum-turns-to-a-dinosaur-from-the-past/>). The museum has formed cooperative agreement with the North Dakota Geological Survey, and Dr. Smith intends to perform more field work on both Cretaceous and Paleocene strata of North Dakota. Watch the Bob Campbell Museum's Facebook page for more information about their outreach program.

### **Upcoming Meetings**

There are two major meetings upcoming this fall and winter. The first is the Carolina Geological Society's annual meeting, which will be held October 28th – 30th in Boone, North Carolina (<https://www.regonline.com/builder/site/Default.aspx?EventID=1865559>). The field trip will focus on Proterozoic and Paleozoic geology of the Blue Ridge, especially the Mount Rogers and Konnarock Formations. The second is the South Carolina Science Council (SC2) annual meeting, held in Columbia from November 2nd – 4th (<http://www.scscience.org/sc2-conference>), with the theme "Connecting the Pieces Together." The South Carolina Earth Science Teachers Association will have a special session on November 4th, with their "Earth/Environmental Science Share-A-Thon." The session will include short demonstrations and activities on various Earth and environmental science topics.

## **Tennessee** (submitted by Michael A. Gibson, University of Tennessee at Martin, and Ann E. Holmes, University of Tennessee at Chattanooga, State Representatives)

### **University of Tennessee, Knoxville Project GP-IMPACT Aims to Facilitate the Community College to Four-Year University Transition**

The University of Tennessee Departments of Earth and Planetary Science and Geography, along with collaborators at three community colleges (Pellissippi State, Roane State and Volunteer State), have received funding from the National Science Foundation to implement the GP-IMPACT, a project to increase the number and success rates of Tennessee community college students who transfer to four-year universities to study geoscience. This three-year project aims to engage community college students through visits to UT, field trips, and research internships, as well as by providing UT mentors who will guide community college students through the transfer process and work with them throughout their studies at UT. A centerpiece of the project will be an annual retreat at the Great Smoky Mountains

Institute at Tremont, where students and faculty from the partner community colleges and UT will spend 3-5 days exploring the geosciences and building personal relationships that they can draw on when they enroll at UT. During the course of this project, we hope to significantly broaden the base of community college students who continue on to studies at 4-year universities to earn degrees in geology, physical geography, and environmental studies.

### **2016 NW TN STEM Hub Partners With Discovery Park of America and Local Schools For Exhibit Design**

Opened in 2013, the Discovery Park of America has quickly established itself as a premier destination for both families and schools. Faculty in geology and astronomy at the University of Tennessee at Martin helped design natural history exhibits for the park, including providing specimens for display.

Since opening, over 700,000 guests have visited the park. Located in rural northwest TN, one of the biggest challenges facing Discovery Park is the need to create new events and attractions that will keep the local population interested in making multiple visits as time passes.

Anticipating this need, park officials built a temporary exhibit hall into their main facility, the Discovery Center. The ATA Traveling Exhibit Hall is a 4000 square foot space, built to Smithsonian standards for artifact care and preservation. In the spring of 2015, Discovery Park hosted *Titanic: The Artifact Exhibition*. In the spring of 2016, the park hosted *Bodies Revealed*. Traveling exhibits are now booked through 2018! Park officials also have long-term plans to develop and build traveling exhibits that would first be displayed at Discovery Park of America, and then marketed to other institutions for display in their traveling exhibit halls and temporary exhibit galleries.

This year, Discovery Park is working with the Northwest Tennessee STEM Innovation Hub (part of the Tennessee STEM Innovation Network), an organization committed to helping inspire and train the next generation of STEM leaders. When first approached by the Hub, housed on the campus of UT Martin, in 2014, park officials quickly landed on a theme for a STEM Challenge: design a traveling museum exhibition. The challenge is sponsored by Imerys Ceramics. Imerys operates in 23 counties with over 1300 employees worldwide. In northwest TN, they operate mining and ball clay production facilities. Investing in local STEM education is just one part of the company's long-term operating plans. Hoping to grow talent locally, Imerys has sponsored cash prizes for the challenge teams and will be providing mentors to work with participating students.

To be successful in the challenge, students will need to engage with every STEM discipline, including geosciences, sometimes in unexpected ways. A group with a historic focus for its display can be surprised to learn how light can deteriorate a historic document. Students need to consider things like how to safely display an item weighing 500 lbs at eye level. Every good exhibit is designed with a foot traffic plan taking into account things like total square footage and maximum visitor capacity. Any group of students that doesn't come together as a team and capitalize on the strength of all its members will not be successful in the challenge. Those that do will have completed a challenge designed to be difficult, exciting, and engaging.

It will also have been a lesson in the ways STEM is used every day by people in all walks of life. For students who may often ask, "When will I use this," seeing STEM applied to the real world can be the most important lesson of all! Challenge schools should be southeastern schools within a hundred mile radius of northwest Tennessee. More details of the competition guidelines and award amounts are available at the park website: <http://www.discoveryparkofamerica.com/2016-2017-stem-challenge/>.

### **Earth Science Week Celebration at the Discovery Park of America.**

The University of Tennessee at Martin and the Discovery Park of America have partnered on a weeklong celebration of Earth Science Week, scheduled for Oct. 8-13, 2016. Kickoff events will occur on Saturday Oct. 8 and include the opening of several exhibits to celebrate Earth sciences, including *Jurassic Journeys*, which will highlight dinosaur skeletons and illustrations, with animatronic dinosaurs.

DPA staff and UT Martin students will be on hand as expert docents for the public. UT Martin alum Aaron Scott will interact with the public using Kimberly, a real mosasaur find collected especially for the park display. Dr. Don Byerly, professor emeritus from University of Tennessee Knoxville will be on-hand for a presentation and book signing for his book *The Last Billion Years: A Geologic History of Tennessee*. On Sunday Oct. 9, students and faculty from UT Martin will staff a mineral, rock, fossil and artifact identification booth. The public is encouraged to bring their collections for help in identification and tips on curating. Wednesday Oct. 12 visiting middle schools will be featured with a variety of “Fossil Day” programs to coincide with National Fossil Day.

Park docents and teachers from the Tennessee Earth Science Teachers (TEST) will hold teacher professional development on Friday Oct. 14. Each teacher will receive a Tennessee Fossil Box with representative fossils from across the state and from each of the eras of the Phanerozoic Eon, along with classroom lessons and instruction. All activities are tied to state standards. Aaron Scott will return on Saturday Oct. 15 to interact with visitors to the park and share his field experience in the badlands of Kansas collecting the mosasaur named for his wife Kimberly. For more information on the exhibit, to reserve tickets, or register for the professional development visit: <http://www.discoveryparkofamerica.com/> or contact Dr. Michael Gibson at UT Martin ([mgibson@utm.edu](mailto:mgibson@utm.edu); 731.881.7435).

### **Tennessee Science Teachers Association Meeting**

The Tennessee Science Teachers Association (TSTA) will hold its annual meeting in Murfreesboro, Dec. 1-3, 2016. This marks the 40<sup>th</sup> anniversary of TSTA. Information about the meeting and registration are available at: <http://www.tsta.wildapricot.org/>. The Tennessee Earth Science Teachers (TEST) will be offering several sessions aimed at helping teachers with a variety of geoscience topics. TEST will also be on-hand at the annual awards luncheon to recognize the 2016 OEST for Tennessee, John Griffin from Southside High School in Jackson, TN. More about Tennessee’s 2016 Outstanding Earth Science Teacher (OEST) is on p. 9 and at [this link](#).

## Your SE NAGT State Representatives

### Alabama

David Kopaska-Merkel  
Geological Survey of Alabama  
P.O. Box 869999  
Tuscaloosa, AL 35486-6999  
[dkm@gsa.state.al.us](mailto:dkm@gsa.state.al.us)  
(205)247-3695

### Florida

Eleanor E. Gardner  
Florida Museum of Natural  
History  
3215 Hull Road  
Gainesville, FL 32611-2710  
[egardner@flmnh.ufl.edu](mailto:egardner@flmnh.ufl.edu)  
(352)273-1936

Kim A. Cheek  
Department of Childhood  
Education, Literacy, and  
TESOL  
University of North Florida  
1 UNF Drive  
Jacksonville, FL 32224  
[k.cheek@unf.edu](mailto:k.cheek@unf.edu)  
(904)620-2794

### Georgia

Kathlyn M. Smith  
Curator of Paleontology  
Department of Geology and  
Geography  
Georgia Southern University  
[ksmith@georgiasouthern.edu](mailto:ksmith@georgiasouthern.edu)

Pamela Gore  
Perimeter College of Georgia  
State University  
555 North Indian Creek Drive  
Clarkston, GA 30021  
[pgore@gsu.edu](mailto:pgore@gsu.edu)  
678)891-3754

### Louisiana

Wendy DeMers  
6072 Louisville St.  
New Orleans, La. 70124  
[2ydnew2@gmail.com](mailto:2ydnew2@gmail.com)  
(504)218-4787

### Mississippi

Renee M. Clary  
Department of Geosciences  
Mississippi State University  
[RClary@geosci.msstate.edu](mailto:RClary@geosci.msstate.edu)  
(662)268-1032, x 215

Adam D. Skarke  
Department of Geosciences  
Mississippi State University  
[adam.skarke@msstate.edu](mailto:adam.skarke@msstate.edu)  
(662)268-1032, x 258

### North Carolina

Randy Bechtel  
NC Geological Survey  
Division of Land Resources,  
1612MSC  
Raleigh, NC 27699-1612  
[Randy.Bechteler@ncdenr.gov](mailto:Randy.Bechteler@ncdenr.gov)  
(919)707-9402

### Puerto Rico

open

### South Carolina

Gwen M. Daley  
Dept. of Chemistry, Physics and  
Geology  
Winthrop University  
Rock Hill, South Carolina 29731  
[daleyg@winthrop.edu](mailto:daleyg@winthrop.edu)  
(803)323-4973

### Tennessee

Michael A. Gibson  
Dept. of Agriculture,  
Geosciences, and Natural  
Resources  
University of Tennessee at  
Martin  
Martin, TN 38238  
[mjgibson@utm.edu](mailto:mjgibson@utm.edu)  
(731)881-7435

Ann Holmes  
Dept of Physics, Geology and  
Astronomy  
Univ. of Tennessee at  
Chattanooga  
Chattanooga, TN 37403  
[Ann-Holmes@utc.edu](mailto:Ann-Holmes@utc.edu)  
(423)425-1704