



National Association of Geoscience Teachers
Southeastern Section Newsletter
Summer-Fall 2018

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www.usgs.gov

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Winter-Spring 2019

Newsletter Deadline:

February 15, 2019. Please
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or to your state rep by Feb. 1.

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Not the president's message

by Bill Witherspoon, SENAGT newsletter editor

Tough times

This is a difficult time for geoscience education in the Southeast and for our newsletter. As you will read in state news, longtime NAGT supporter in Tennessee, and the 1999 recipient of NAGT's Neil Miner award, Professor Don Byerly, passed away in April. Then in May, the worst nightmare of any geoscience teacher came true in Alabama when two field camp students were struck by a vehicle at a road cut. One student is recovering slowly, but the other did not. Our past SENAGT president and stellar Alabama state rep, David Kopaska-Merkel, has thankfully arrived home this past week, following more than two weeks in the hospital with pneumonia. Another past SENAGT president and current state rep could not send in her state's news because of a serious illness in the family. Our current president found himself so buried under the beginning of the school year, that this is not the president's message. All of this before considering government at various levels that can seem ever less supportive of both science and education.

And yet we are still here, as you will read in these pages. There are many great opportunities to connect with geoscience education at science education and geoscience professional meetings, as well as field trips, science festivals and the everyday works of museums, universities, state geologic surveys, and even agricultural extension services and "senior universities."

2018 SEGSA meeting

This year the NAGT sponsored field trip at the SEGSA meeting in Knoxville did not make. Thanks to Michael Gibson and the late Don Byerly for creating the guidebook chapter that was published by GSA, *Lessons from Limestone: How to Teach All Sciences with Limestone*. Our president Frank Forcino led our annual lunch meeting. The position of vice president remains open as of this writing. Our secretary, too, has moved out of our region and has graciously remained on board until a replacement is found. Ideas were floated for a session and/or field trip for the 2019 SEGSA meeting in Charleston, and also for getting more involved with meetings of NSTA and its affiliates. Obviously, new volunteers who see potential in an organization such as ours will be welcomed with open arms, and should get in touch with our president or me.

Among those we welcome, as this may be your first issue as an NAGT member, are the state winners of the OEST award. If this is you, congratulations! Some of you are recognized in state news below, others are not, depending on the energies of your state reps. All of your bios and pictures are now on the [NAGT website](#).

Your response needed

by Bill Witherspoon

Do you value this newsletter? Over the years, many hours have been devoted to it by people who believe in NAGT in the Southeast. It has been my privilege twice a year since 2007 to assemble all their efforts for you to read. Now SENAGT needs to hear from you. In our age of social media and boundless access to information, is the newsletter worth the effort? There is now a [Facebook site](#), which could convey an increased share of announcements and news, in a more timely fashion. Your ideas of alternatives are welcome.

Depending on how many readers respond, I am hoping for a lively discussion of these questions at our next annual luncheon meeting at SEGSA in Charleston. And thank you to those who have put your time into the newsletter in this or previous years.

Please do email both me and our president at the email addresses listed on the front page of this newsletter. Even a very short response to say you have read this will be welcome; any decisions can come at the annual meeting.

Meeting Calendar

Most recently reported dates of past or future meetings

National Science Teachers Association and Affiliates		
Area	Latest date on web site	City
National	April 11-14, 2019	St. Louis
Eastern	Nov. 15–17, 2018	National Harbor, MD
Southern	Nov. 29 – Dec. 1, 2018	Charlotte
Alabama	Nov. 5-6, 2018	Tuscaloosa
Florida	Oct. 25-27, 2018	Miami
Georgia	Feb. 14-16, 2019	Columbus
Louisiana	Oct. 22-24, 2018	Shreveport
Mississippi	Oct. 28-30, 2018	Biloxi
North Carolina/ NSTA S	Nov. 29 – Dec. 1, 2018	Charlotte
South Carolina	Nov. 8-10, 2017	Columbia
Tennessee	Nov. 1-3, 2018	Murfreesboro

Geological Societies		
Organization (Area)	Latest date on web site	City
GSA (National)	Nov. 4-7, 2018	Indianapolis
GSA (Southeastern)	Mar. 28-29, 2019	Charleston, SC
GSA (South Central; incl. LA)	Mar. 25-27, 2019	Manhattan, KS
Alabama Geological Society	Nov. 15-17, 2018	Birmingham
Carolina Geological Society	Oct. 5-7, 2018	Boone, NC
Georgia Geological Society	Oct. 5-7, 2018	Augusta

State News in Geoscience Education

Alabama (submitted by Denise Hills, Alabama Geological Survey)

Alabama rep home from hospital

[Ed. note: I was sure there was something wrong when no response came in from our past president and Alabama state representative, David Kopaska-Merkel. Fortunately, I am in e-mail contact with his Alabama Geological Survey colleague, Denise Hills. She explained that David had spent the last two weeks in the ICU, hospitalized for pneumonia, but was improving. A few days later I was relieved to learn from Denise that he was to come home from the hospital that day. The very next day, David sent a reply to my August 1 request to the state reps. He said he had been sick, but was it too late to send Alabama news? I replied it was not too late, but please just concentrate on getting well. The next day I had this from him: "Thought I had something almost done, but I do not: sorry. I can tell you that none of my contacts responded this time." I expect all of his readers sorely miss his usual 2 pages or so of diverse news and pictures, as I do, and wish him a swift and complete recovery. And now on to an update on the sad news that many of you received earlier this year, courtesy of Denise.]

Tragedy strikes Auburn Field Camp

Field camp is a rite of passage for most geoscientists. Auburn University Geoscience undergraduate students were taking part in their summer field camp, working on a roadside outcrop, when on May 28, 2018, a driver lost control of their vehicle, ran off the road, and struck two students. Nick Hood and Cole Burton were severely injured in this accident. Both students were life flighted to the UAB hospital in Birmingham to the Neuro ICU.

Nick's injuries were quite severe – both legs broken, broken ankle, broken pelvis and sacrum, broken shoulder, internal injuries, some facial fractures, and some brain leakage. He was placed in a medically induced coma. On Saturday, June 30th, Nick succumbed to his injuries and passed away. A celebration of his life was held on Saturday, August 11, in Auburn, Alabama.

Cole's injuries were also severe – he was immediately taken to surgery to repair the damage done to his abdomen. He had broken ribs and a broken finger, as well as a brain bleed. He was moved into a rehab facility in Atlanta in late June, where he made great progress – learning to walk again, rebuilding strength and range of motion. He graduated to an outpatient facility on August 22, where he continues to improve every day. For updates on Cole's journey, please follow the Facebook page [Pray for Cole](#).

Our geoscience community is heartbroken for these young men's families.

Alabama Geological Society tours “Birmingham Miracle” Nov. 15-17

[Ed. note: This will be the second recent year that one of the mainstays of the Georgia Geological Society shares his skills with Alabama's sister group. Below are paragraphs quoted from the [AGS webpage](#) on the Birmingham trip that University of West Georgia Professor Emeritus Tim Chowns will co-lead with Andrew Rindsberg of the University of West Alabama, the weekend before Thanksgiving.]

“The fortuitous combination of iron ore, coal and limestone flux that led to the meteoric growth of Birmingham at the end of the nineteenth century is world famous. During this year's field trip we will revisit this storied history both from the perspective of geology and industrial archaeology. We will make stops at iron mines in Ruffner Nature Reserve and Red Mountain Park, coal mines and coke ovens at West Blocton, and limestone-dolostone quarries at the old Thomas Works. We will follow the trail of these raw materials to civil war era charcoal furnaces at Tannehill and twentieth century blast furnaces at Sloss, and trace the route of the Birmingham Mineral Railroad that linked these resources. This industrial technology is now history; the last mines closed down in 1970 and US Steel closed its blast furnace at Fairfield in 2015. Nevertheless, the iron industry has left an indelible footprint. At the former Thomas works and elsewhere the vertical integration of mines, coke furnaces, blast furnaces and workers housing is remarkable.

“The title of the field trip [*The Birmingham Miracle: Iron, Coal and Limestone*] is a nod to the US Geological Survey Bulletin by Ernest Burchard, Charles Butts and Edwin Eckel (1910). Despite more than a hundred years of work the origin of the Birmingham and other ooidal ironstones is still an enigma. Lacking a modern analog, we will show that the Birmingham ores make an important contribution to our understanding of the depositional environment and microbial biogeochemistry of Phanerozoic ooidal ironstone.”

Florida (submitted by Kim Cheek, State Representative)

Earth Explorers in Jacksonville through Sept. 9

The Museum of Science and History (MOSH) in Jacksonville has a National Geographic traveling exhibit entitled, Earth Explorers. The exhibit has six themed and immersive environments for visitors to learn about the work of National Geographic explorers. It will be at the museum until Sept. 9, 2018.

Permian Monsters in Gainesville beginning Sept. 29

The Florida Museum of Natural History in Gainesville has a new exhibit that begins on Sept. 29, 2018 and runs through May 5, 2019. It's called Permian Monsters: Life Before the Dinosaurs. The exhibit will feature fossil displays, full size replicas of Permian fauna, and a dig pit.

Georgia (submitted by Bill Witherspoon, Newsletter Editor)

From where I sit as a retired geoscience educator, still very active in educating the public, three bright spots stand out in Georgia this year. They are the Georgia Master Naturalist program, the “senior universities,” and new programs of the Atlanta Science Festival (ASF) organization.

Georgia Master Naturalist program

According to the University of Georgia Extension Service, the [Georgia Master Naturalist](#) program “provides hands-on environmental education that explores habitats and ecosystems in Georgia and human impacts on those environments. The program is delivered in a series of weekly sessions customized to local habitats such as swamps, ponds, rivers, wetlands, mountains, forests, farms, and urban landscapes. After completing this fun and interactive program, Georgia Master Naturalists are encouraged to share their knowledge with their communities by volunteering in local schools or nature centers. This program can provide staff development credits for teachers and others.”

At least one of the day-long classes in many of these programs familiarizes participants with their local geology. Pamela Gore and I have each taught for several years in the course offered at Chattahoochee Nature Center in Roswell. Last March, I was fortunate to tag along on a field excursion to Heggie’s Rock near Augusta, beautifully led by lichen expert Malcolm Hodges and geologist Walt Kubilius for the Master Naturalist class at Phinzy Center for Water Sciences. This fall, Clint Barineau, geology head at Columbus State University and I will each teach in a class for the Muskogee County Cooperative Extension Service Master Naturalist program, offered in cooperation with Oxbow Meadows at Columbus State. I will have the pleasure of leading that group to Providence Canyon, a site with fascinating geology and environmental history.

Continuing Education for Seniors

Chatting with Southeast geology superstar and recently retired UT Professor Robert Hatcher on a recent field trip, I learned that he and I both have been involved teaching well-educated, curious groups of seniors in local “Senior University” type programs. In February, I offered a four-hour class that ranged from recognizing local rock types to tracking Georgia’s changing climates through time, for an engaging group of retirees on the campus of Young Harris College near the foot of Georgia’s highest summit, Brasstown Bald.

On Atlanta’s Perimeter I-285, about a mile from my house, Rehoboth Baptist Church is the meeting place of the [Senior University of Greater Atlanta](#). My geologist neighbor John Clarke, himself recently retired from USGS Water Resources Branch, created an eight-class course, “Georgia and its environment--water, climate, and energy” in which I taught two classes in March on geology, mineral resources, and climate history. In October, I will teach the geology class in “The Natural History of the Chattahoochee Environs for Beginning Naturalists,” organized by naturalist-educator Jerry Hightower of the National Park Service.

Atlanta Science Festival/ Science ATL

This year’s festival in March drew 53,000 attendees to 120 events, including 25,000 at the Exploration Expo event in Piedmont Park on the last day. The diversity of this audience is demographically similar to Metro Atlanta. Goals are to “build a curious community, foster connections, and highlight Metro Atlanta.”

In August, Atlanta Science Festival announced Science ATL, its new year-round programming and partnership-building arm. This includes #ATLSciChat Twitter events every other month, such as August’s chat about the science behind sports medicine, from physicians Dr. Scott Boden and Dr. Amadeus Mason of Emory Healthcare. There is also a Science Scene events calendar, and perhaps most interestingly, the training of middle and high school students to be Chief Science Officers (CSO’s). In an August event, 22 CSOs participated in design challenges, built leadership and communication skills, and developed Action Plans to bring more STEM experiences to their peers. Community groups who are interested in having a youth voice involved in science decisions are encouraged to make use of these students representing their local school. More is in the [ASF August newsletter](#).

Louisiana (Submitted by Wendy Demers, State Representative)

LUMCON hosts Alexandria students in coastal wetland



Students at Poland Junior High School in Alexandria brought the classroom outside when they learned about the Louisiana's coastal wetlands. The students visited Louisiana Universities Marine Consortium in Cocodrie, Louisiana. At LUMCON, students participated in several hands on activities exploring the biodiversity of a coastal marsh, as well as the threats to this delicate ecosystem. Students left with a new respect for Louisiana's wetland habitat and the roles it plays.

Series of Field Trips and Conference for Plaquemines students

A group of Plaquemines Parish students have been participating in a series of field trips organized by the nonprofit Coalition to Restore Coastal Louisiana (CRCL). On their third trip, students boarded air boats and toured the Caernarvon Freshwater Diversion and the 600+ acres of wetlands built by it in the Big Mar since 1998. Students from Phoenix High School and Belle Chasse High School also attended the biennial State of the Coast Conference where they presented New Orleans Mayor LaToya Cantrell and LA Governor John Bel Edwards with a book commemorating their experiences in the field.



Ten teachers get Louisiana Tech ARC-GIS training

Chris Campbell, Master Teacher at Louisiana Tech University in Ruston, hosted a professional development event called [Power of Data](#). Teachers representing grades 6-12 from north and south Louisiana spend 4 days learning how to use ArcGIS to incorporate geospatial data inquiry into their curriculum. The participants received access to ArcGIS online. Faculty from Northern Arizona University in Flagstaff designed the training.



The participants with their schools were Richard Arnold, Jonesboro-Hodge; Maureen Barclay, Captain Shreve; Laura Billings, Sulphur High ; Jamie Bolton, Ruston High; Marty Cantrell, Quitman High; Geetha Chennam, Washington-Marion; Rose Kebe, IA Lewis; Katelynne Levesque, IA Lewis; Lori McGee, CPSB Prep at McNeese; and Jennifer Underwood, Iowa High.

January 2019 Louisiana Tech Science Olympiad Invitational

Louisiana Tech is also hosting the only science Olympiad invitational in the state on January 26, 2019; the Olympiad includes Earth and Space Science challenges. The competition is division B (6-9) and division C (9-12).

Mississippi (Submitted by Renee Clary, Mississippi State University, State Representative)

Mississippi State University Dunn-Seiler Museum

October 17 National Fossil Day

Fossil Extravaganza: The Dunn-Seiler Museum will host a public Fossil event for National Fossil Day, October 17, with tours, refreshments, and fossil activities from 5:00 – 7:30 PM.

Competition: The museum will again sponsor an art and story competition, which focuses upon Mississippi's Mesozoic reptiles. The contest information can be found on the [Dunn-Seiler website](#).



Earth Day: The Last (Plastic) Straw

The Dunn-Seiler Museum sponsored a competition to promote awareness about the environmental damage caused by discarded plastic drinking straws. Mississippi K-12 students submitted creative solutions using plastic straws that would otherwise be discarded, including vases, decorative lights, and sculptures. Winning entries are on display at the Dunn-Seiler Museum at Mississippi State University.

Teachers Tammie Bright (left) and Tammie Franklin (right) drop off middle school students' entries for the 2018 Dunn-Seiler Museum Earth Day Creative Recycling competition (Photograph R.M. Clary)

November Mural Unveiling

In November, the Dunn-Seiler will host the unveiling of a Mississippi Cretaceous Panorama, produced by two MSU senior fine art students, Todd Rowan and Moesha Wright, under the direction of W.L. Giles Distinguished Professor of Art Emeritus of MSU. Check out the [website](#) in mid-October for more information.

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

Charlotte hosts NSTA Area Conference and NCSTA-PDI, Nov. 29-Dec. 1

The [Area Conference of National Science Teachers Association](#) (NSTA) and the [North Carolina Science Teachers Association](#) Professional Development Institute (NCSTA-PDI) are combined this year in Charlotte.

Two Earth Science Share-a-thons are scheduled, one each on Thursday Nov. 29 and Friday Nov 30, 2018.

Outstanding Earth Science Teacher (OEST) and Educator (OESE) awards will be presented at the conference during the Award Ceremony on Thursday Nov. 29, 2018 starting at 5 pm, with a reception at 6:00 pm.

2018 N.C. Outstanding Earth Science Teacher and Educator Winners!



Phillip Cox is the North Carolina and the Southeastern Section OEST winner for 2019. Mr. Cox graduated from NC State University with degrees in both Geology and Science Education. He has been teaching in the North Carolina public school system for 29 years (with a five-year intermission doing informal public education at the North Carolina Museum of Natural Sciences).

Krista Brinchek is the North Carolina OESE winner for 2019. Ms. Brinchek earned her undergraduate degree in geology and her Masters of Arts in Teaching. As a geologist she worked in environmental engineering for over 7 years. She became passionate about education following the birth of her first child and has followed that path ever since.



Environmental Educators of North Carolina Conference September 27-29

The 2018 [Environmental Educators of North Carolina Conference](#) will be in Atlantic Beach Sept. 27– 29. The theme is EE For All. Environmental Education is a process that helps individuals, communities, and organizations learn more about the environment while developing skills and understanding about how to address global challenges and inspire change. But if EE is not accessible to everyone, the potential impact is limited.

Is there an EE organization or an upcoming conference in your state? Check here: [Southeastern Environmental Education Alliance \(SEEA\)](#) or the [North American Association for Environmental Education](#).

Carolina Geological Society

The 79th meeting of the Carolina Geological Society will be held October 5-7, 2018 in the area of Boone, N.C. The one-and-a-half-day field trip is entitled “Old Wine in New Bottles: Active Tectonics and Landslides in an Ancient Orogen.” It will examine the relationships between tectonic history, landscape evolution and slope movement processes, faults, lineaments, rock slides and debris flows. [Details are here](#) and you can [register here](#).

North Carolina Science Festival

The April 2018 celebration was another record-breaking year! If you haven't reviewed the final report, you can do so [here](#). There were some 132,940 participants at 472 public events (not counting K-12 and year-round events, which together totaled to similar numbers). The [website](#) has been relaunched. The 2019 NCSCIFEST will run the month of April, with the theme MADE IN NC. Note that those offering events are not required to align with the theme. It's just something fun to keep things fresh and catalyze new ideas for teams and audiences.

Puerto Rico (State Representative position open)

South Carolina (submitted by Gwen Daley, State Representative)

Spartanburg High School Scores at National and South Carolina Envirothons

Congratulations to the Spartanburg High School Teams A and B and the Spartanburg Day School Team for their great showing at the [South Carolina Envirothon](#) (winning first, third, and second places respectively). The Spartanburg High School A team finished in fifth place at the 2018 National Envirothon competition held in Pocatello, Idaho this summer in a competition that included teams from over 40 U.S. states as well as teams from several Canadian provinces and two teams from China. (<http://www.southcarolinawild.org/2018/06/28/spartanburg-high-envirothon/>).

Mace Brown Museum Uncovers SC Walrus Fossil

The paleontologists at the Mace Brown Museum at the College of Charleston continue to uncover the amazing history of life recorded in South Carolina strata. This summer, Sarah Boessenecker reported a remarkable find from the museum's collection: a walrus tusk originally found in a Ridgeville quarry in the South Carolina Lowcountry in the late 20th Century. This Pleistocene walrus fills in a gap in the biochronology of North Atlantic walruses, as well as being one of the few walrus fossils found in South Carolina. The find was featured in a [Charleston Post and Courier article](#) as well as a journal article (Boessenecker et al., 2018, listed below under "Recent Earth Science Publications").



Winthrop U. Students Explore Subarctic

Students from Winthrop University traveled to Churchill, Canada with their professor, Scott Werts, this summer for an environmental science course called "Subarctic Landscapes." Students established two weather and soil remote sensing stations that can be monitored from Winthrop, examined the changing subarctic vegetation from the treeless tundra to the boreal forest, hiked through the Hudson Bay coastline at low tide, examined the permafrost of the Hudson Bay lowlands and spent time learning glacial geology on part of the Canadian Shield.

(Left: Winthrop University students examine life in the Canadian subarctic.)

Education Resources

The Clemson Hydrogeology Symposium field trip guides from 2009 onwards are available [here](#). These comprise detailed road guides and pictures from a wide variety of one day field trips around the Carolinas. Clemson is also offering a SC MAPS Distance Learning Class from early October to December (second fall 2018 semester) through the [Geology K-12 Outreach Program](#).

The USGS has made a very large amount of digital geologic map data available through the MR Data (Mineral Resource Data) website, including data sets sorted by state. South Carolina's map data can be found [here](#).

The South Carolina Department of Natural Resources (SCDNR) has a [new visualization of South Carolina regional geology](#). It is an ArcGIS dataset which, among other things, allows focusing the map in on street addresses. SCDNR has a wide variety of downloadable map data and dynamic maps through its [GIS Data Resource program](#).

The South Carolina Sea Grant Consortium has a Coastal Enviroscope© Model that can be loaned out at no cost to educators. Information can be found [here](#). The Sea Grant Consortium also has other classroom resources, including a variety of coastal geology educational materials [here](#).

The South Carolina Oyster Restoration and Enhancement Program (SCORE) was featured in an [SC ETV segment](#) on the "Making it Grow" program this summer. The video shows student participating in establishing the foundation for a new oyster reef using oysters recycled from South Carolina restaurants and other oyster consumers. SCORE also maintains a collection of K-12 educational activities, including descriptions of field activities, [here](#). Similar activities are available from the Center for Ocean Sciences Education Excellence (COSEE)'s [website](#).

Upcoming Meetings

The South Carolina Science Council (SC)² annual meeting will be held this fall. No information is currently available, but when it is, you can find it [here](#).

The Carolina Geological Society will hold its annual meeting and field trip, "Old wine in new bottles: Active tectonics and landslides in an ancient orogen" in Boone, North Carolina from October 5th-7th, 2018. More information can be found [here](#).

Recent Earth Science Publications about South Carolina

Anderson, E., D. Brantley, C.C. Knapp, B. Battista, P. Gayes, and C. Maschmeyer. 2018. Geomorphic assessment of the North Myrtle Beach (SC) continental shelf for wind energy development. *Southeastern Geographer* 58: 181-192. <https://muse.jhu.edu/article/698835>

Bell, D.W., S. Denham, E.M. Smith, C.R. Benitez-Nelson. 2018. Temporal variability in ecological stoichiometry and material exchange in a tidally dominated estuary (North Inlet, South Carolina) and the impact on community nutrient status. *Estuaries and Coasts* 41: 1-17. <https://link.springer.com/article/10.1007/s12237-018-0430-7>

Boessenecker, S.J., Boessenecker, R.W., and Geisler, J.H. 2018. Youngest record of the extinct walrus *Ontocetus emmonsii* from the Early Pleistocene of South Carolina and a review of North Atlantic walrus biochronology. *Acta Palaeontologica Polonica* 63 (2): 279–286. <https://www.app.pan.pl/archive/published/app63/app004542018.pdf>

Hung, C.-L.J., L. Allan James, and G.J. Carbone. 2018. Impacts of urbanization on stormflow magnitudes in small catchments in the Sandhills of South Carolina, USA. *Anthropocene* 23: 17-28. <https://www.sciencedirect.com/science/article/pii/S2213305418300377>

Smith, Vi.; Scurlock, D.; Butler, C.; Hollins, E.; Smith, K.; Spearman, T.; Fulghum, Christina; Di., John; K., Daniel I.; Denham, M.; and Smith, G. 2018. Using geological facies to estimate chromate sorption to soils. *Journal of the South Carolina Academy of Science* 16: Article 5. <https://scholarcommons.sc.edu/jscas/vol16/iss1/5>

White, T.M., J.E. Walea, and J. Robinson. 2018. New record of northern long-eared bats in coastal South Carolina. *Southeastern Naturalist* 17: N1-N5.
<http://www.bioone.org/doi/abs/10.1656/058.017.0112>

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

2018 Tennessee OEST Winner, Jana Young

Congratulations to Jana Young! Jana Young is a middle school science teacher at the Academic Academy at Northeast Middle School in Jackson, Tennessee, a program for gifted and high achieving students where she teaches Environmental Science to her eighth graders for high school credit. Jana is a 2010 Murray State University graduate certified to teach biology, chemistry, physics, and earth science. Jana has also received an award from NCEA for helping students achieve the necessary critical thinking skills and was recognized as a Tennessee Lottery's Teacher of the Week. Currently, Jana is working with a team of science teachers and state leaders to develop the trainings for the new science standards for the Tennessee Department of Education. Jana will officially receive her SE NAGT OEST award plaque at the Tennessee Science Teachers Association Awards Luncheon, to be held at the Embassy Suites in Murfreesboro, TN on Friday, Nov. 2 by representatives from the Tennessee Earth Science Teachers.



TSTA and TEST Annual Meeting Nov. 1-3

The Tennessee Science Teachers Association (TSTA) will hold its annual meeting at the Embassy Suites in Murfreesboro, Nov. 1-3, 2018. Information about the meeting and registration are available [here](#). Dr. Tiffany B. Saul will serve as the Awards Luncheon Keynote speaker on Friday, Nov. 2. Her presentation is entitled: *You Are What You Eat: How Forensic Anthropologists Use Isotopes to Identify Skeletons*.

Tennessee Earth Science Teachers (TEST) will hold its annual meeting in conjunction with the meeting on Friday, Nov. 2, 2018. All members and prospective members are invited. There will be door prizes for participants.

Math and Fossils Workshop at TSTA

On Thursday, Nov. 1, Drs. Michael A. Gibson and Lan DePriest, along with master teachers Bob and Tina King, will offer a half-day workshop entitled: *How many fossils will we find and what do they mean? Effective 3-D mathematics applied to global sea level change*.

Scientist-diver Dr. Sam Bowser was asked by a student: "Why do scientists collect sediment cores, and why does it matter?" How do scientists reconstruct past climate and environments? Why is Earth's past important to its future?

This workshop is in two parts: teams of six teachers conduct a simulated Skittle Core Lab that brings quantitative ecology into the classroom environment by providing students with the opportunity to model math skills that are integral to science and life by "coring" skittle-laden brownies to learn the predictive science behind coring. Students will learn to re-create population sampling in an area the size of a school gym, which is similar to scientists collecting cores under the Antarctic Ice.

The simulated activity will be followed by real-world application of these principles using 72-million-year-old sediments and fossils from the famous Coon Creek Formation of West Tennessee where the participants will investigate evidence of past sea level change in Tennessee and organism response to these changes. Participants receive fossil and sediment samples for their classrooms and student use.

Overall, students will learn that “doing the math” is needed in order to read the data to understand the science. Examples of geo-math include settings in which students must: find the area of a circle and rectangle; round numbers to the nearest whole number or the nearest tenth; find the x, y coordinates; find the percent; determine factors to estimate or project the population; graph data, and find the mean, median, and mode, and why each tells its own story. This lab activity will help students learn the difference between population and population density, as well as discuss science concepts: Limiting factors (abiotic, biotic), carrying capacity, adaptation, clustering, and patchiness in the oceans. This integration of Math and Science helps generate discussions about real world science, such as climate change, pollution, and environmental concerns.

Grade level: 3-5, 6-8, 9-12, Higher Education Registration is available on the [website](#) for \$25 per person. Participants will receive teaching materials that include Tennessee fossil kits.

Impact Cratering for Science Saturday at the Discovery Park of America.

The Discovery Park of America in Union City is continuing its popular has program aimed at introducing science to middle school age kids and including family participation in learning. On the first Saturday each month a different science discipline is highlighted with demonstrations and activities designed by professors and student groups from UT Martin. The next geoscience program has a planetary geology theme and scheduled for Saturday, Oct. 6, 2018. Drs. Michael Gibson and Lionel Crews and the UT Martin chapter of Sigma Gamma Epsilon will be simulating impacting processes with a “crater box”. Participants will be able to send their own “bolides” crashing onto the crater box to simulate a variety of impact processes. This program is part of the Earth Science Week celebration. The programs are free to the public. For more about the geology exhibits and programs at the Discovery Park of America visit: <http://www.discoveryparkofamerica.com/>.

Pink Palace/Coon Creek Science Center 2018-19 Academic Season Begins.

The [Coon Creek Science Center](#), located in McNairy County will remain open until the first week in November, at which time it will winterize until reopening in spring 2019. The site is the home of the Late Cretaceous Coon Creek Formation, which contains hundreds of fossil species, including the State Fossil of Tennessee (*Pterotrionia thoracica*), mosasaurs, sharks, bivalves, gastropods, turtles, and much more. Groups are encouraged to attend and can receive programs through the Pink Palace Museum, located in Memphis. For more information on day programs or to schedule a visit contact <http://www.memphismuseums.org/>. Though a long-standing agreement with UT Martin, university groups can arrange overnight visits. For information on overnight university visitation, contact Michael Gibson at UT Martin (mgibson@utm.edu; 731.881.7435).

Tennessee Educator Don W. Byerly Passes.

Don W. Byerly (1933-2018), Professor Emeritus University of Tennessee at Knoxville died April 25, 2018 of complications from heart bypass surgery. Byerly began his teaching career as a lecturer at UT Knoxville in 1957, finishing his PhD at UT in 1966, remaining there until retirement in 2000, except for a one-year appointment as assistant professor at Murray State University in Kentucky. Byerly was the founder of the Tennessee Earth Science Teachers (TEST) in the 1987 and was very active as a member of southeastern NAGT, including serving as president of the section. Byerly was well-known for his commitment to undergraduate education and teacher development, having run nearly twenty GeoCamps in Tennessee and GeoTreks around the country exposing pre-service teachers to Earth sciences. Earlier in his career he ran the University of Tennessee field camp near Dayton, Tennessee. [ed. note: I was his student there circa 1978] He was the 1999 recipient of the Neil Miner Award, recipient of TEST's Ptero Award for his contributions to Earth science education, and was named a Fellow of the Geological Society of America in 2015. Byerly was the author of *The Last Billion Years: A Geologic History of Tennessee* (2013). A fund has been set up in his name: Professor Don W. Byerly Field Camp Endowment. Donations can be made to the UT Foundation with the memo line IMO Don Byerly #115626/Byerl_d01/f010001065 and mailed to UT Foundation, 1525 University Avenue, Knoxville, TN 37921.

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