

# **GeoNews**

Newsletter of the Association of Environmental & Engineering Geologists,
Carolinas Chapter

2009, 2011, 2013, 2016, 2017, and 2020 AEG Chapter of the Year

Winter 2023



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# **SAVE THE DATES**

Jahns Lecturer Presents at AEG Dinner Meeting Olde Mecklenburg Brewery, Charlotte, NC February 8, 2024

> Geological Field Course Chatham County, NC March 23, 2024

AEG Dinner Meeting
The Patio at Clouds Brewing, Raleigh, NC
April 11, 2024

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#### Thanks to our Sponsors!

**GeoNews** is a publication of the Carolinas Chapter of AEG. There are four issues per year, with deadlines and issue publication dates listed below. We publish news of the profession, announcements, student member news, technical articles, and job openings.

# **Deadlines for submittal to AE Carolinas GeoNews**

(can be flexible depending on events)
Spring—deadline March 1, issue date March 21
Summer—deadline June 1, issue date June 21
Fall—deadline Sept 1, issue date Sept 21
Winter—deadline Dec 1, issue date Dec 21

#### **Deadlines for submittal for the National AEG News:**

March issue—January 15
June issue—April 15
September issue—July 15
December issue—October 15

# **AEG Carolinas Chapter**

#### **Current Officers and Contacts**

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AEG Carolinas Chapter Websitewww.aegcarolinas.org

www.aegweb.org

**AEG National Website** 

**Cover:** Photo of AEG members who attended the Geological Field Trip to the Grandfather Mountain Area, North Carolina on Saturday, October 7, 2023. The field trip was lead by North Carolina Geological Survey's Bart Cattanach, Ashley Lynn, Brennan Trantham, and David Korte.

# Message From the Chair

By Jennifer Thomas, P.G., AEG Carolinas Chapter Chair

The new year is upon us and I hope it's a good one for everyone. Winter is starting and I'm thankful for the Carolina sunshine even if the weather is cold. Since everyone stays pretty busy this time of year, we're going to pick back up in the new year with our first meeting February 8 in Charlotte. We are fortunate enough to have the 2024 Jahns Lec- view it the following day. Stay tuned as we turer presenting and will be returning to Olde further develop the plans for a couple of ex-Mecklenburg Brewery. It seemed like the food and vibe were a hit for attendees last year. I plan on being in attendance and hope to see lots of your faces there! For those of you who are students, we will once again be doing a college/university tour. This will be in the western half of North Carolina and will probably include some South Carolina schools as well.

We also have a meeting happening this April in Raleigh with a presentation exploring an emerging contaminant, microplastics, that you may have been seeing in the news. Once again, we'll be on the patio at Clouds Brewing to take advantage of the lovely spring weather.

**Rick Kolb**, our Field Course Chair and elder statesman of AEG Carolinas, is working on putting together not one but two field courses in different regions of the Carolinas this

spring! This March, Phil Bradley will be leading a field course at Jordan Lake in the Raleigh area. Later in the spring we'll be meeting and eating in beautiful Charleston while we learn about the Orangeburg Scarp in the South Carolina Lowcountry. We'll get a background presentation at the meeting and cellent weekends.



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# **Message From the Chair**

(continued from page 3)

Lastly, we need your help! We need a new Student Liaison for our Visiting Professional program. As the name implies, the program involves a professional visiting a college/ university to share his/her career path for the purpose of showing geoscience students what they can potentially do with their degrees. The Student Liaison would find AEG members who are interested in speaking to local geoscience departments and arrange visits with the schools. The Student Liaison would also set up college tour schedules for visitors like the Jahns Lecturer. The chapter maintains a list of regional contacts at participating schools. If you are interested in volunteering, please contact me at jen@jenntecllc.com.

JB Fr

Jennifer Thomas, P.G. jen@jenntecllc.com AEG Carolinas Chapter Chair





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# **AEG Carolinas Chapter Q3 2023 Treasurer's Report**

By Walt Plekan, P.G., Carolinas Chapter Treasurer

Association of Environmental & Engineering Geologists								
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Phone: 330-578-4900 Manager@aegweb.org								
Chapter	r Fi	nancial R	ер	ort: FY 2	02	.3		
Chapter: Carolinas								
Balance on Jan 1:	\$	17,017.42			Ва	lance on Se	pt 30:	\$ 17,206.45
		C	НА	PTER RE	VΕ	NUE		
	F	irst Quarter	Sec	ond Quarter	Т	hird Quarter	Fourth Quarter	YTD Total
		Jan-Mar		Apr-Jun		Jul-Sept	Oct-Dec	
Chapter Dues	\$	710.00						\$ 710.00
Subscriptions								\$ -
Meetings	\$	3,735.13			\$	55.00		\$ 3,790.13
Short Courses								\$ -
Field Trips			\$	670.02				\$ 670.02
Publications and Other Sales								\$ -
Bank/Investment Interest	\$	5.42	\$	4.91	\$	4.97		\$ 15.30
Contributions/Gifts/Sponsorships	\$	3,500.00	\$	1,625.00	\$	550.00		\$ 5,675.00
Advertising: Web & Newsletter	\$	160.00	\$	60.00				\$ 220.00
Other Income								\$ -
Accounts Receivable								\$ -
Unaccounted								\$ -
TOTAL INCOME	\$	8,110.55	\$	2,359.93	\$	609.97	\$ -	\$ 11,080.45
				PTER EXP				
Meetings	\$	5,638.60	\$	2,113.73	\$	1,361.15		\$ 9,113.48
Short Courses								\$ -
Field Trips								\$ -
Publications								\$ -
Advertising								\$ -
Printing, Postage	\$	185.86			\$	28.75		\$ 214.61
Student Support								\$ -
Merchandise Purchases								\$ -
BOD Meetings								\$ -
Banking Fees	\$	276.58	\$	85.16	\$	21.51		\$ 383.25
Website/E-Communication	\$	580.08						\$ 580.08
Lobbying/Political Outreach								\$ -
Other Expenses:					\$	600.00		\$ 600.00
Unaccounted								\$ -
TOTAL EXPENSES	\$	6,681.12	\$	2,198.89	\$	2,011.41	\$ -	\$ 10,891.42
Quarterly Surplus (Deficit)		1,429.43	\$	161.04	\$	(1,401.44)		\$ 189.03
FY Balance	\$	18,446.85	\$	18,607.89	\$	17,206.45	\$ 17,206.45	\$ 17,206.45

Carolina Board Meeting Minutes 11-27-2023, 4:30pm— Microsoft Teams Meeting

By Laura Elliot, P.G.—Carolinas Chapter Secretary



# AEG CAROLINAS CHAPTER BOARD OF DIRECTORS MEETING MINUTES November 27, 4:30 PM

Call to Order - 4:35

Roll Call – Laura Elliott, Walt Plekan, Sheri Maslow, Paul Weaver, Jen Thomas, Rick Kolb, Brad Worley

#### Carolinas Chapter Finances - Walt

Checking \$1,329.02; Savings \$13,209.79; \$100 in Paypal (to cover refunds)

Lowest balance in recent years. We need chapter sponsors.

\$3000 used for this year's scholarship fund

Jen - Motion to transfer to \$3000 to scholarship fund for next year; Walt - Second; all in favor

Bank account may need to be registered with NC Sec of State to be in legal compliance

Paul says that AEG National headquarters could keep our money as singular account

#### Position changes

Jared does not want to be sponsor chair anymore. Laura will reach out to some potential sponsor chairs. Jen will send out the latest membership list to narrow who may be an option.

Social Chair – Adam may be willing to help organize events, but may need help or may need a replacement.

Student Liaison - Brad does not think he will have the time. We will look for a replacement.

#### **Upcoming Meetings**

Charlotte- Cynthia Palomares is this year's Jahns Lecturer. She is available to come the whole week of Feb 5. UNCC, WCU, Furman+Clemson, ASU, USC

Who is organizing the meeting? Jen can help - find someone in Charlotte from 40 members.

Olde Mecklenburg Brewery will be the space.

Thursday February 7 or 8, depending on school schedules.

Topics Selected: Why join a professional society? (possibly to combine) How Climate Change Impacts Infrastructure? (definitely)

We'll need to make an announcement and include in newsletter.

Brad will email schools to gauge interest.

Raleigh - Rick suggested a meeting in Raleigh with a presentation by Kim Nimmer (she/her), City of Raleigh on microplastic contamination in March. Spring meeting.

# Carolina Board Meeting Minutes 11-27-2023, 4:30pm— Microsoft Teams Meeting (continued from page 6)

Upcoming Meetings (cont.)

Asheville- Per Rick Kolb, Rob Young is a WCU professor who can speak on coastal issues/sea level rise. This doesn't need to be planned yet but I'm going to keep it on the radar. Jen will plan this meeting later in the year. Fall meeting – early November?

Jen has asked AEG President Sarah Kalika about visiting for a meeting next fall. There will be a school tour with that as well. Greensboro Fall meeting September? Suggestion made for the location to be IN Greensboro for better attendance.

#### Visiting Professionals - Brad

Typically this has been done spring semester.

GEONews - Meredith and Colleen (Colleen will be working on this issue)

The goal is to get submissions by 12/1 for 12/21 publication.

Jen needs to put together articles for fall meeting and field trip which involves finding the photos. Jen also needs to do a msg from the chair.

What do you need?

#### Field Trips - Rick

Spring field trip with Will Doar (South Carolina survey) to Orangeburg Scarp in Lowcountry with a meeting in Charleston the night before

Phil Bradley, NCGS, is looking at a field trip in eastern NC in the spring for PDHs.

Western NC options will be discussed with Bart (NCGS)

Should we spend funds to send chair or vice chair to national meeting?

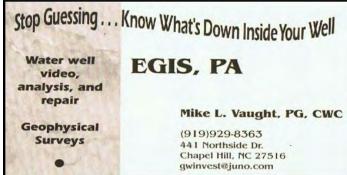
Paul suggests this would be very helpful for our chapter.

(\$1000-1500 could cover it) It will be in Philadelphia 2025. Chattanooga 2026. Both drivable. Then Chicago 2027.

#### Other business

We should push for more environmental abstracts/talks to be given at national meetings.

#### End Meeting at 5:29







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# **UNC Charlotte Student Wins Two AEG Scholarships**

By Rick Kolb, Co-Chair, Student & Young Professional Support Committee



The AEG Foundation awarded **Justin Coley**, a graduate student at UNC Charlotte, two scholarships for this academic year. I asked Justin to tell us about himself and his academic background, and told him we will introduce him at our February chapter meeting in Charlotte. Here is his story:

"My name is Justin Coley and I am a graduate student at UNC Charlotte. I am fortunate enough to have received the West-Gray and Norman R. Tilford Field Study Scholarships from AEG this year. I'm currently working on my Master's thesis research, which is focused on hydrogeology and groundwater chemistry. My ultimate goal is licensure as a professional geologist, and to that end I passed the FG exam in March of this year (2023). I hope to end up in a role focused on environmental geology and hydrology after finishing school.

My thesis research is based on examinations of drill cores collected by the NC Department of Environmental Quality's Piedmont and Mountains Resource Evaluation Program (PMREP). Using x-ray fluorescence, microscopes, and visual inspection, I am trying to identify the depths at which biotite begins to oxidize and weather out. The goals of my research are to better understand how groundwater flow through fractures in competent bedrock initiates weathering, and how the release of iron through biotite weathering consumes oxygen. The presence or absence of oxygen has a direct effect on processes such as contaminant breakdown and heavy metal dissolution and precipitation.

I am a non-traditional student, and Marine Corps veteran who has no remaining GI Bill eligibility, and these scholarships have made a significant contribution to my ability to continue pursuing graduate work. The funds contribute not only to the cost of attending school, but will also be used for supplies and travel to and from the PMREP sites. I am truly grateful to the AEG Foundation and the Carolinas Chapter for these scholarships that enable my research, and look forward to putting the knowledge and experience I gain toward my career in the future."

By Jane Gill-Shaler

A hardy group of about fifteen geologists (active, retired, and students) gathered at the NC DEQ parking lot in Swannanoa on a crisp Saturday in October for a full day of exploring the roadside outcrops within the Grandfather Mountain tectonic window. Field trip leaders were Bart Cattanach, Ashley Lynn, Brennan Trantham, and David Korte, all with the North Carolina Geologic Survey.

A second meeting spot was in a Marion parking lot for attendees coming from the east. Before proceeding to the stops on this course, Bart gave an overview of the complicated history of the Blue Ridge geologic province, a large composite thrust sheet of deformed and metamorphosed rocks transported tens to hundreds of miles to the northwest. The tectonic history, metamorphic development, and rock type are specific to each of the thrust sheet components. The Grandfather Mountain Window (GMW) is the large tectonic window exposed by erosion through the Blue Ridge-Piedmont composite thrust sheet. The GMW has 1,000+ Ma granitic gneisses at its core; failed rifting ~735 Ma deposited sedimentary and volcaniclastic rocks unconformably on top of the gneisses. Later rifting up to the Cambrian, and Paleozoic orogenic events culminating with the continental collision of proto-Africa and proto-North America ~320-290 Ma, created giant mountain chains, deforming, metamorphosing, and thrusting rocks within the collision zone. The field trip guidebook explains the tectonic history of the area more thoroughly; it includes a list of references.

We all climbed into a few vehicles to facilitate parking along the various two-lane roads, as parking is limited. Our first stop was at an outcrop of the Linville Falls fault on the northwest side of the Grandfather Mountain Window. This recently mapped outcrop may be the best accessible location along the contact of the GMW and the 520 Ma Shady dolomite, where the latter has not been omitted by faulting. The Shady dolomite is a dolomitic limestone, but here the original dolomite has been recrystallized into a dolomitic marble by strain along the Linville Falls fault. Bart pointed out the metamorphic gradations within the outcrop, and lenses of hematite and pyrite. He also mentioned that the Shady dolomite in North Cove contains karst features, and hosts several high-yield wells, making it a valuable resource for water.







(Continued on Page 11)

(continued from page 10)



Ridge thrust stack. We viewed greywacke sandstone, peaks. interpreted to be turbidites deposited off the rifting Laurentian margin. Metamorphism of these sediments We all stopped briefly along Hwy 221 to view the Deof 460-440 Ma.

We all then caravanned along the Blue Ridge Parkway, enjoying the fantastic view of the burgeoning fall colors. The trees were not at their fall peak yet, but well on their way to becoming a glorious riot of color. I so enjoy this time of year!

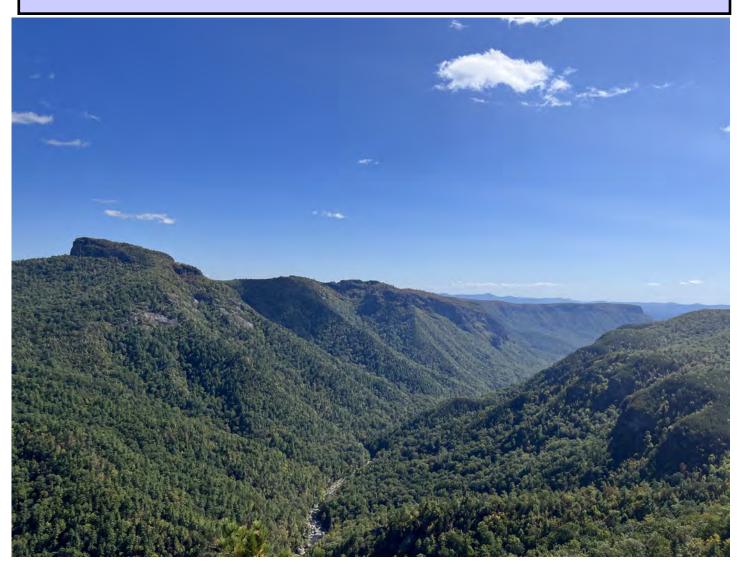
For lunch, we stopped at the Switzerland Inn; lunch was particularly tasty, and the full menu gave us many fine choices. The Inn is at the top of the Blue Ridge escarpment, which is the transition zone between the Mountain and Piedmont physiographic provinces, and so gave us an opportunity to see a panoramic view of the area.

Afternoon stops included three overlooks; Bearden (North Cove Valley), North Toe River Valley (mining Our second stop was about ten miles away, along in Spruce Pine Plutonic Suite), and Wiseman's View Highway 226A, where we viewed rocks typical of the (Tablerock Thrust sheet and Chilhowee quartzite with-Ashe Metamorphic Suite and Spruce Pine Plutonic in Linville Gorge). The latter stop afforded our group Suite. This outcrop is within the Spruce Pine thrust a spectacular view of Tablerock (Chilhowee Quartzsheet, arguably the highest sheet within the Blue ite) and Hawksbill (Grandfather Mountain Formation)

is interpreted to be related to the Taconic orogenesis bris Flow Track above English Farm, the visible reminder of an embankment failure debris flow which



(continued from page 11)



was triggered by rainfall from the remnants of Hurricane Frances during September 6-8, 2004, nearly 20 years ago. This slow-moving, large hurricane caused floods in both Florida and North Carolina. Our group didn't have time to view the 80-ton boulder that was transported by the embankment failure-debris flow. Another hurricane, Ivan, added to the woes of the region only 10 days later; the terrible two triggered over 300 landslides of various types, causing 5 fatalities, damaged and destroyed homes, and disrupted transportation networks throughout western NC.

The last stop was at Beuchel Stone, where we walked through the quarry on Highway 221 N, taking home (with permission) as many weathered feldspathic sandstone samples we could carry in our pockets!



(Continued on Page 13)

Summary of the Geological Field Course to Grandfather Mountain Area—October 7, 2023 (continued from page 12)











Check out their website, https://buechelstone.com.

(continued from page 13)





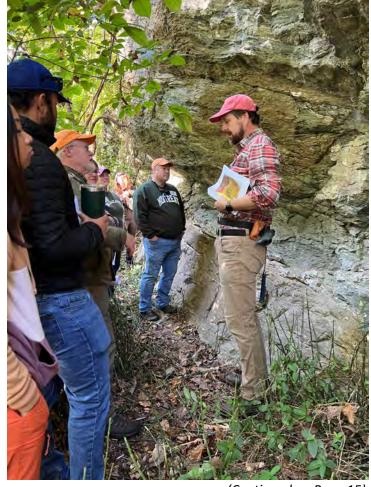


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Summary of the Geological Field Course to Grandfather Mountain Area—October 7, 2023

(continued from page 14)









Our sincere thanks to Bart Cattanach, Ashley Lynn, Brennan Trantham, and David Korte (and to their employer, the North Carolina Geologic Survey) for their expert leadership and wealth of information provided by this field course. The Field Course Guidebook was one of the major sources of information for this article.

Just a note, this is the first field course I have attended in years. I am currently a full-time caregiver for my husband Dick, whose short-term memory was impaired due to the post-operative effects of hospitalizations in early 2021. I am beyond grateful to my daughter Janet for taking time off from her architectural career to care for Dick while I joined the field course group. It was a joy to be part of this dynamic and interesting geologic community again!

Summary of the Geological Field Course to Grandfather Mountain Area—October 7, 2023

(continued from page 15)



Field Trip Leaders:

Bart Cattanach, NC Geological Survey, M.S., NC State university (98); Professional geologist with over 20 years of experience in geology and geologic mapping of North Carolina.

Ashley Lynn, NC Geological Survey, M.S., UNC-Chapel Hill (2023); Project geologist and field mapper with 4 years experience in geologic mapping, GIS and map production.

Brennan Trantham, NC Geological Survey, B.S. UNC-Asheville (2022); Geologist with experience in geologic mapping, GIS, database design, and map production.





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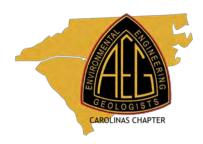
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# **Carolinas Chapter Dinner Meeting**

The Carolinas Chapter of the Association of Environmental & Engineering Geologists
Presents Guest Speakers:



**Cynthia Palomares** 2024 Distinguished Jahns Lecturer

# **How Climate Change Impacts Infrastructure**

Dinner and Talk: 5:30-9:00 PM
Thursday, February 8, 2024
Olde Mecklenburg Brewery, Charlotte, North Carolina

# **Meeting Details**

Place: Olde Mecklenburg Brewery, 4150 Yancey Road, Charlotte, North Carolina

Date: Thursday, February 8, 2024

Time: 5:30 PM socializing begins, 7:00 buffet dinner, 8:00 Cynthia's talk

**Cost**: AEG members \$35; non-members \$50; public-sector employees and teachers \$20. *Registration will be \$5 more* 

at the door. Students free w/ college ID.

Reservations: Please make reservations by 6:00 PM on Friday, February 2, 2024 at <a href="http://aegcarolinas.org/news/">http://aegcarolinas.org/news/</a>

Meeting Drink Sponsors: To be announced

**Continuing Education:** The NCBLG has preapproved AEG Carolinas to offer 1 CE credit for this presentation.

# **Abstract**

# How Climate Change Impacts Infrastructure

The terms global warming and climate change are often used interchangeably, but the two phenomena are different. Global warming is the rise in global mean temperature due to the release of heat trapping gasses like carbon dioxide and methane. Climate change is a more general term that refers to changes in many climatic factors (such as temperature and precipitation) from the global to the local scale. These changes are happening at different rates and in different ways in response to global warming. The timing and amount of rainfall is changing, which is generally resulting in more severe storms. In addition, global warming and associated climate change is shrinking ice caps, melting glaciers, causing water shortages, causing sea level to rise and increasing wildfire risk. The climate is becoming more extreme in response to global warming. As a result, infrastructure (e.g. buildings, roads, power supplies) are being impacted at an alarming rate. A record number of hurricanes, wildfires and floods cost the world \$210 billion in damage in 2020. Specific weather related impacts, and potential mitigation to infrastructure will be discussed.

## Cynthia's Bio

Cynthia Delaney Palomares, P.G., P.E. has over 30 years of experience as both an Engineering Geologist and Environmental Engineer. Her last position was as an Adjunct Instructor (retired), at Texas A&M University, Texas Engineering Extension Service (TEEX) in College Station, TX, from 2016 –2020. As an adjunct instructor, Ms. Palomares conducted training courses for environmental professionals for certification of Hazardous Waste Operations and Emergency Response. Prior to working for TEEX, Ms. Palomares was a Project Manager, at Texas Commission on Environmental Quality, Austin, TX, from 1993 –2016. As a project manager in the Industrial & Hazardous Waste Permits Section, Ms. Palomares reviewed and evaluated hazardous waste permit applications, compliance reports and notices of waste management activities for both regulatory and technical completeness to ensure compliance with applicable hazardous waste, radioactive waste and Texas Risk Reduction Program rules and regulations. In addition, Ms. Palomares was a member of the Waste Permits Division Disaster Response team and was also a project manager for RCRA Authorization rule projects that adopt EPA hazardous waste amendments into Texas Administrative Code regulations. Prior to her position as a project manager in the I&HW Permits Section, Ms. Palomares conducted technical reviews and processed applications for underground injection control (UIC) and in situ leachate uranium mining facilities in the UIC/ Radioactive Waste Section of the TCEQ. In 2016, Ms. Palomares was recognized for 25 years of service with the State of Texas. Prior to employment with the TCEQ, Ms. Palomares was employed as a staff scientist for Westinghouse Hanford Company in Richland, Washington for 3 years. Ms. Palomares earned a Bachelor of Science in Engineering Geology from Texas A&M University, College Station, TX, and a Master of Science in Engineering Geology from Texas A&M University, College Station, TX in 1990. She is both a licensed Professional Geologist and Licensed Professional Engineer in Texas.

AEG Experience: Ms. Palomares joined AEG in 1986 as a student member of the Lone Star student chapter at Texas A&M University. In 1990, she was awarded the "Best Student Presentation Award" at the Texas Section Spring Meeting. In 2011, she was awarded the "Floyd T. Johnston Outstanding Engineering Geologist Award" at the Texas Section Fall Meeting. In 2022, she was awarded the Association-level "Floyd T. Johnston Outstanding Engineering Geologist Award" at the AEG Annual Awards Banquet in Las Vegas, Nevada. Service to AEG includes the following positions: Lone Star Student Chapter Officer (1986-1990), Washington Section Field Trip Coordinator (1991-1993), Texas Section Board (2001-2012), 2010 Shlemon Specialty Conference Chair on "Gulf Coast Subsidence and Sea-level Rise", Governance Committee member (2010-2012), Section/Chapter Support Committee Chair (2012-2018), AEG Strategic Planning Committee Co-Chair (2014-2016), DEI Committee Member (2020-present), AEG Executive Council (2016-2021), Floyd T. Johnston Outstanding Engineering Geologist Award (2022).





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# ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS

**Carolinas Chapter** 

# Field Course to Explore the Colon Cross-Structure Chatham County, North Carolina Saturday, March 23, 2024 - 9:00 AM to ~4:00 PM

#### **Field Course Leaders:**

Phil Bradley- North Carolina Geological Survey and Ron McDaniel – Independent consulting geologist

**Event:** Exploring the Colon Cross-Structure

<u>Details</u>: Geological hike to an abandoned quarry within the Colon-Cross Structure and a visit to an outcrop of Triassic-aged conglomerate along the shore of Jordan Lake; lunch between the two stops – bring your own

<u>Location</u>: The morning hike starts at the trailhead for a portion of the Deep River Trail system in the parking lot for the Moncure Community Health Center at 7228 Moncure-Pittsboro Road in Moncure (<a href="https://maps.app.goo.gl/6uvGZoXzCWnz5iUS8">https://maps.app.goo.gl/6uvGZoXzCWnz5iUS8</a>). The afternoon-stop parking is located at the NC Wildlife Resources Commission Beaver Creek Fishing Access area at the Google maps link of <a href="https://maps.app.goo.gl/hrzHWqG6waLm7vLo9">https://maps.app.goo.gl/hrzHWqG6waLm7vLo9</a>.

**Cost:** \$20 for AEG members, teacher members, and the public; \$30 for non-members; free for student members of AEG

<u>Registration</u>: Register online at <u>www.aegcarolinas.org/news</u>. <u>Reservation deadline: 5:00 PM, Wednesday, March 20, 2024</u>

<u>Field Trip Waiver:</u> Please sign/date and return field trip waiver to Rick Kolb at <u>rick.kolb1@gmail</u> by March 20, 2024 or bring it with you to the field trip.

**Continuing Education Credits:** 6 hours for North and South Carolina geology boards

# **Background:**

The field trip will visit two locations detailed in the 2023 Carolina Geological Society (CGS) Field Trip guidebook – Stops 8 and 9. Participants are responsible for their own transportation to the stops (we encourage car-pooling) and for their own lunch. The morning geological hike, after coffee and doughnuts from Dunkin' (AEG will provide), will be to an abandoned quarry within the Colon Cross-Structure. The afternoon stop will visit an outcrop of Triassic-aged conglomerate along the shore of Jordan Lake.

The Colon Cross-Structure (Campbell and Kimball, 1923; Reinemund, 1955) is a constriction zone between the Durham and Sanford sub-basins of the Deep River Triassic basin and is characterized by crystalline rocks overprinted by complex brittle faulting.

# Field Trip Description:

The morning stop will involve an approximate 30-minute one-way hike (and a 30-minute return hike) along trails in the Deep River Trail Park near Moncure, NC. A stop description is provided as Stop 8 in the CGS Field Trip guidebook. At this stop we will also learn about the possibility that some brittle deformation may be related to a meteorite impact (see <u>CGS 2023 Supplemental paper 2</u>).

After lunch, the group will visit Stop 9 from the 2023 CGS guidebook to examine outcrops of Triassic conglomerates and to discuss the complicated structure of the Colon Cross-Structure.

## Links:

2023 Carolina Geological Society Field Trip guidebook:

https://carolinageologicalsociety.org/2020s files/CGS2023 gb version10 14 2023.pdf

#### Detailed geologic maps of area:

Merry Oaks Geologic Map:

https://www.deq.nc.gov/energy-mineral-and-land-resources/geological-survey/ofrs-geological-survey/geologic-map-merry-oaks-75-minute-quadrangle-chatham-and-lee-counties-north-carolina

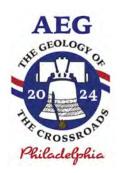
## Compiled Chatham County Geologic map

https://www.deq.nc.gov/energy-mineral-and-land-resources/geological-survey/ofrs-geological-survey/geologic-map-chatham-county-and-surrounding-areas-north-carolina

# References:

Campbell, M.R., and Kimball, K.W., 1923, The Deep River coal field of North Carolina: North Carolina Geological and Economic Survey Bulletin 33, 95 p.

Reinemund, J.A., 1955, Geology of the Deep River coal field, North Carolina: U.S. Geol. Survey Prof. Paper 246, 159 pp.







# **Spring Dinner Meeting**

# The Carolinas Chapter of the Association of Environmental & Engineering Geologists Presents Guest Speaker:



**Kim Nimmer**Senior Policy Analyst, City of Raleigh

#### Kim's Presentation:

# WHAT'S THE BIG DEAL WITH SMALL PLASTIC?

So, we had USTs in the 1990's, chlorinated solvents and vapor intrusion in the 2000's, and PFAS in this decade. What's the next big topic in environmental consulting, the next "contaminant of emerging concern" that we will deal with? Some of you are old enough to remember the movie, *The Graduate*, during which Dustin Hoffman was pulled aside at his graduation party by one of his dad's friends, who told him the future in one word --- "Plastics." Well, here we are, over 50 years later and plastics are *everywhere* - in the ocean, in the food chain, in our blood stream; yes, everywhere. Is this a big deal?

# **Meeting Details**

Place: The patio at Clouds Brewing, 126 N. West Street in Raleigh

Date: Thursday, April 11, 2024

**Time**: 5:30 PM socializing begins, 7:00 buffet dinner, 8:00 Kim's talk

Cost: AEG and ASCE members \$35; non-members \$50, public-sector employees and teachers \$20. Students free w/

college ID.

**Reservations**: Please make reservations and prepay by 6:00 PM on Monday, April 8, 2024 at <a href="http://aegcarolinas.org/">http://aegcarolinas.org/</a>

news/. Registration will be \$5 more at the door.

Students: Register by April 6 online for \$1 or by RSVP'ing meeting planner Rick Kolb at rick.kolb1@gmail.com.

**Continuing Education:** The NCBLG has preapproved AEG Carolinas to offer 1 CE credit for our chapter meetings.

#### Kim's Abstract

# What's the Big Deal with Small Plastic?

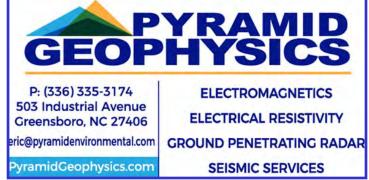
Plastics have become pervasive in modern life and are now used in a wide range of commercial and industrial applications. Microplastics may be intentionally produced for specific purposes and products or may result from the degradation and fragmentation of larger plastics. Regardless of their origin, microplastics are now ubiquitous in our environment and are one of the biggest emerging threats to the global environmental community.

Because of their small size and pervasiveness in the environment, microplastics, along with any other contaminants that are adsorbed to the microplastics or intentionally added through the manufacturing process, may be consumed by humans and other organisms. Microplastics have been reported in human blood, in the deep lung, and in placenta. The science surrounding microplastics, their potential health effects, and knowledge of their fate and transport are very new and developing, with research articles being published at a rapidly accelerating rate. Even techniques and best practices for sample collection and analysis of these tiny particles and fibers are still evolving. Kim will highlight information from the Interstate Technology and Regulatory Council's (ITRC) Microplastics Guidance Document, which was released online in February 2023. The guidance provides the reader with information on microplastics and the state of the applied science without having to go to the scientific literature.

# Kim's Biography

Kim Nimmer is a Senior Policy Analyst with the City of Raleigh and was co-leader of the ITRC's Microplastics Team that produced the ITRC Microplastics Guidance Document. She currently co-leads a group on ITRC's Contaminants of Emerging Concern Team. Kim previously spent 20 years with the North Carolina Department of Environmental Quality's Division of Water Resources (DWR), where she served as DWR's first Emerging Compounds Coordinator. She also served as the Interbasin Transfer Program Coordinator and managed the state's 319(h) grant from the U.S. Environmental Protection Agency to protect and restore waters impaired by nonpoint source pollution. Kim has worked in private consulting, the nonprofit sector, and Wisconsin state government, working on stream-restoration projects, site assessments for Superfund and Brownfields sites, and the development of state technical standards for soil- and water-conservation practices. Kim holds an M.S. in Water Resources Management from the University of Wisconsin at Madison and a B.S. in Geology from the University of North Carolina at Chapel Hill.





# Local Spotlight—Joan Smyth of Raleigh, NC

From the AEG National Newsletter

Meet AEG's New Liaison to ASBOG

# Joan Smyth

Smith Gardner, Inc., Raleigh, NC

oan is vice president and senior hydrogeologist with Smith Gardner, Inc.'s Raleigh office. She has over thirty years of experience in geological and hydrogeological site evaluations for landfill permitting and site assessment, including design and performance of subsurface investigations to evaluate site geology and hydrogeology. She also focuses on contamination



assessments for vertical and horizontal impact, as well as the evaluation of background and naturally occurring contaminants. Finally, she also has experience designing and implementing groundwater and landfill gas remedial strategies, including pilot studies to prove anticipated outcomes for remedial strategies.

"I am excited to take on the role of liaison between AEG and ASBOG because of the importance of these organizations, and their ability to support and enhance one another. ASBOG is fundamental to our profession in ensuring that the individuals that practice have sufficient knowledge to protect public welfare, and AEG's commitment to the stewardship of the profession is an important key to ASBOG's success in measuring professional proficiency." says Smyth.

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# **AEG Carolinas Chapter Asheville Dinner Meeting Summary**

By Jennifer Thomas, P.G., AEG Carolinas Chapter Chair

We gathered in Asheville this past fall at Hi-Wire Brewing Event Space for Dr. Lisa Raleigh and Renee Fortner of River Link presenting on environmental remediation and the French Broad River in Asheville. We learned about the industrial history of Asheville's newest park, Karen Cragnolin Park and the environmental remediation that took place to get the site from a car crushing operation to the current greenway. The presentation also addressed stormwater runoff and the French Broad River watershed. A more detailed description of the program can be found in the September issue of GeoNews for those who are interested but couldn't attend.

Karen Cragnolin Park connects with a series of green spaces along the French Broad River and is close to the popular Carrier Park. Most Asheville residents are familiar with the bike track and sports facilities where there was once a racetrack.

Being the Carolinas Chapter, we enjoyed a catered bbq dinner. There was also locally brewed beer, as is customary.





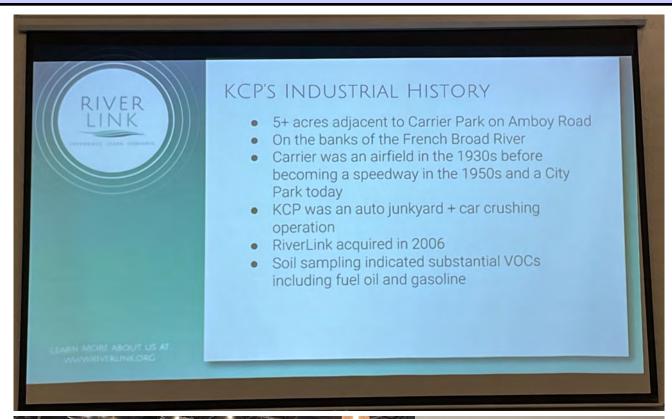
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# **AEG Carolinas Chapter Asheville Dinner Meeting Summary**

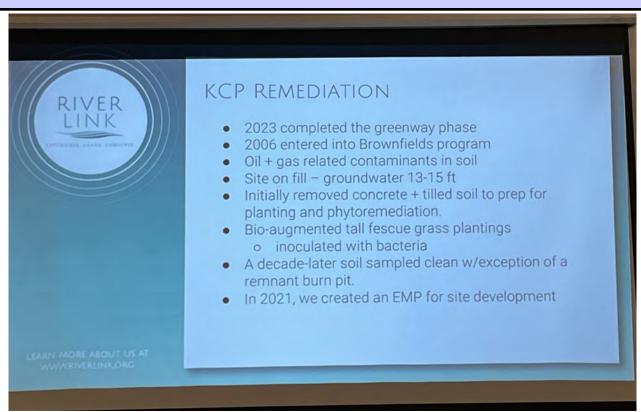
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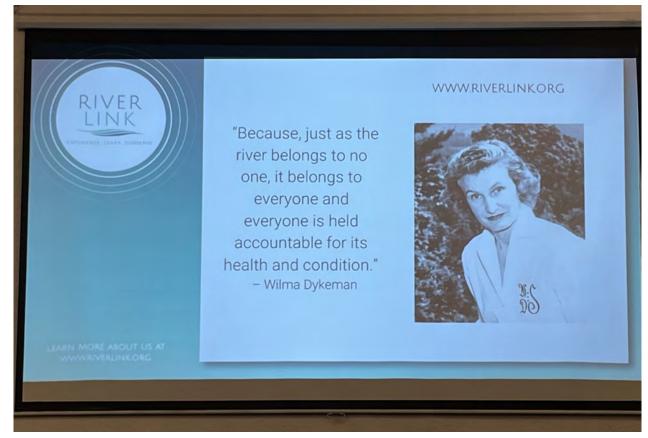




# **AEG Carolinas Chapter Asheville Dinner Meeting Summary**

(continued from page 27)





By Paul Weaver, P.G., AEG Carolinas Chapter Chair Advisor/AEG Treasurer 2023-2024

Photos Provided By Paul Weaver, Mark Miller, and Jeremy Devore

The Carolinas Chapter of AEG held our fall meeting on October 19, 2023 at the Red Oak Brewery in Whitsett, North Carolina. The 2022-2023 Jahns Lecturer, Vince Cronin was the invited speaker. His talk was entitled "How Can Engineering Geology Help Society Meet the] Challenge of a Changing Climate?" In his talk, Vince discussed how engineering geology forms an important part of the practical interface between humans and our Earth's environment. He pointed out that this year has been marked by record heat worldwide, both on the land surface and in most oceans, and the highest concentrations of atmospheric greenhouse gases ever measured. He said that we have just emerged from the most severe drought condition in 1200 years in parts of the western United States, quenched by an unprecedented series of atmospheric rivers. Massive fires in desiccated areas have devastated grasslands, forests, and communities. Supplies of potable fresh water have been reduced in many places. Rising sea level now places coastal infrastructure and communities at risk, and historic rainfall events from atmospheric rivers and hurricanes cause equally historic floods and trigger landslides. He emphasized that mitigating the effects of a warming climate will require the sustained efforts of the engineering and engineering geoscience communities throughout the coming decades. Vince discussed the need to provide reliable information to society so that the adverse effects of a changing climate can be avoided or mitigated in conjunction with the need to reduce the human-controlled drivers of global warming, He closed his talk by stating that ignoring the problems does not generally lead to solutions, but preparing to address the problems will lead to opportunities for engineering geologists to provide great service to society.



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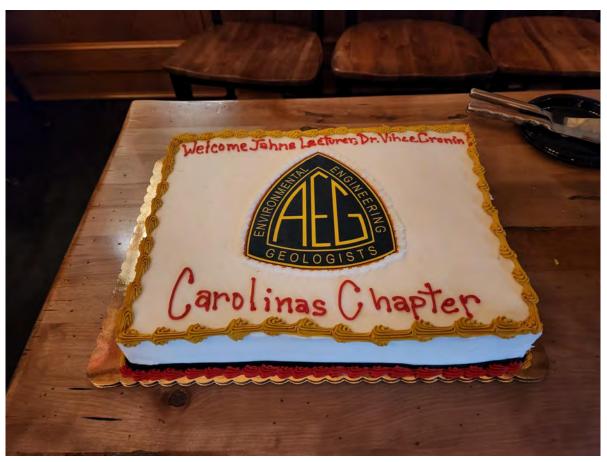


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Unfortunately, the turnout at the meeting was not what we have come to expect at our chapter meetings. Even so, those of us who were able to attend thoroughly enjoyed Vince's talk, the beer, the food, and the comradery.

As a side note from someone who has put together many of our chapter meetings through the years, I'm still amazed at the number of people who RSVP for our chapter meetings saying they'll attend, then don't show up at the meeting, or don't RSVP and do show up at the meeting. I realize that sometimes emergencies arise that cause plans to be changed but I don't expect that is the case most of the time. Please keep in mind that the Chapter is required to give a head count to the venue/caterer at least a week out from each meeting. This headcount is the number of dinners that the Chapter is committed to paying for. If someone says they will be there and then doesn't show up, the Chapter has to pay for their meal and the cost of that meal comes out of Chapter funds that could be spent on more worthwhile endeavors. In addition, we seem to have a lot of people not RSVP until the week of the meeting or not RSVP at all, then show up at the meeting. We always have to make our best guess about how many will attend a meeting based on the RSVPs received a week out, on how many who RSVP's will not show up, and how many who didn't RSVP will show up. Please be considerate of all the volunteers who work hard to organize our Chapter meetings and of the money the Chapter spends on meals that do not get eaten, and keep all this in mind for future meetings.

# **CALENDAR OF EVENTS—2024**

# **Geological Events in the Carolinas**

Courtesy of AEG Carolinas Chapter—www.aegcarolinas.org. Last updated December 21, 2023 Send updates/corrections to Rick Kolb, rick.kolb1@gmail.com

Meeting Date, Time, and Location are Subject to Change—Please Verify Prior to the Meeting

Date: January 2024 (date TBD)

Event: How to Prepare and Strategize for the ASBOG® Fundamentals of Geology Exam

Location: Virtual

Cost: Free for AEG members and students,

\$20 for non-members

Details: AEG's Student & Young Professional

Support Committee presents the sixth

FG webinar

Registration: Go to the calendar at www.aegweb.org to register

Date: Thursday, February 8, 2024

Event: AEG Carolinas Chapter Meeting Location: The Hornet's Nest at Olde Mecklenburg Brewery, 4150 Yancey Road in Charlotte Cost: \$35 for AEG and ASCE members, \$50 for non-members, \$20 for public-sector employees and teachers; free for students w/ ID. Registration will be \$5 more at the door.

Details: 5:30-7:00 socializing, 7:00-8:00 buffet

dinner; 8:00-9:00 speaker

Presentation: How Climate Change

Impacts Infrastructure

Speaker: Jahns Lecturer (and former AEG

President) Cynthia Palomares

Date: Friday, March 15, 2024

Event: ASBOG FG and PG Exams – deadline to complete the application to take the spring

exams is December 29, 2023.

Location: The Prometric Testing Centers in

North and South Carolina Contact: www.ncblg.org or <a href="https://llr.sc.gov/geo/">https://llr.sc.gov/geo/</a>

Date: Thursday, March 28, 2024

Event: David N. Snipes Clemson Hydrogeology Symposium

Location: Madren Conference Center,

Clemson University

Field trips: March 27th and 29th

Details: https://www.clemson.edu/cecas/ departments/eees/symposium/index.html

Date: Thursday, April 11, 2024

Event: AEG Carolinas Chapter Meeting

Location: The patio at Clouds Brewing, 126 N.

West Street in Raleigh

Cost: \$35 for AEG and ASCE members, \$50 for non-members, \$20 for public-sector employees and teachers; free for students w/ ID. Registration will be \$5 more at the door.

<u>Details:</u> 5:30-7:00 socializing, 7:00-8:00 buffet

dinner; 8:00-9:00 speaker

Presentation: What's the Big Deal with

Small Plastic?

Speaker: Kim Nimmer, Senior Policy Analyst,

City of Raleigh

Date: April 15-16, 2024

**Event:** Geological Society of American Southeastern Section Annual Meeting Location: Asheville Renaissance Hotel;

Asheville, North Carolina

Details:

https://www.geosociety.org/GSA/Events/ Section Meetings/GSA/Sections/se/2024mtg/ home.aspx



# **CALENDAR OF EVENTS—2024**

Geological Events in the Carolinas

(continued from page 35)

**Date:** September 10-14, 2024 <u>Event:</u> AEG 67<sup>th</sup> Annual Meeting: The Geology of the Crossroads Location: Hilton Philadelphia at

Penn's Landing; Philadelphia, Pennsylvania Details: https://www.aegannualmeeting.org

**Date: September 22-25, 2024** 

<u>Event:</u> Geological Society of American Annual Meeting: Water in Our Changing World/Life

Along an Active Margin

Location: Anaheim, California

Details: https://community.geosociety.org/

gsa2024/home

Date: September 23-27, 2025

<u>Event:</u> AEG 68<sup>th</sup> Annual Meeting

<u>Location:</u> Westin Chicago River North;

Chicago, Illinois

Date: September 2026

Event: AEG 69<sup>th</sup> Annual Meeting

Location: Hotel TBD; Chattanooga, Tennessee







## AEG CAROLINAS CHAPTER – SPONSOR INFORMATION



The Carolinas Chapter of AEG supports many of its activities with financial assistance provided by our sponsors. Our activities include quarterly meetings, periodic field trips and seminars, a quarterly newsletter, and email announcements about our meetings and geoscience related activities. In addition, we donate large quantities of educational resources to science teachers.

We offer several levels of sponsorship, but they all have one goal: to keep the sponsor's name in front of our members and to bring you business. We have a real commitment to connecting our sponsors to potential buyers and will do all we can to help you build your business. Most of our members are practicing professionals with responsibility for selecting subcontractors, so our group is a great place to find new customers and to catch up with existing clients in an informal setting.

Our sponsors provide the financial support that allows us to have reasonably priced dinner meetings, host seminars, provide discounted dinner meeting costs for students and teachers, underwrite the cost of newsletters and our web site, provide geosciencementors for students and young professionals, and support science education tools to our teachers and in our schools. All costs listed below are per year and end in December. New sponsorships received after October will continue to December of the following year.

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Web Page: Acknowledgement on the AEG Carolinas Chapter Web Page, <u>www.aegcarolinas.org</u>, with a link to yoursite.

## Titanium Sponsor (\$650):

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Please complete the form below and mail to Eric Cross, AEG Carolinas Sponsorship Chair. Please call or email if you have any questions (contact information below).

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