



ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS
Carolinas Chapter

Field Course to Explore the Colon Cross-Structure
Chatham County, North Carolina
Saturday, April 6, 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

Details: 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

Location: 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 (<https://maps.app.goo.gl/6uvGZoXzCWnz5iUS8>). The afternoon-stop parking is located at the NC Wildlife Resources Commission Beaver Creek Fishing Access area at the Google maps link of <https://maps.app.goo.gl/hrzHWqG6waLm7vLo9>.

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

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

Field Trip Waiver: Please sign/date and return field trip waiver to Rick Kolb at [rick.kolb1@gmail](mailto:rick.kolb1@gmail.com) 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 [CGS 2023 Supplemental paper 2](#)).

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.

