



Dinner Meeting

The Carolinas Chapter of the Association of Environmental & Engineering Geologists

Guest Speaker:



Rick M. Wooten, P.G.

AEG Richard H. Jahns Lecturer

Senior Geologist for Geohazards and Engineering Geology at N.C. Geological Survey (retired)

RICHARD H. JAHNS LECTURE SERIES PRESENTATION:

**“2018-2020: TWO YEARS, EIGHT STORMS, 320+ LANDSLIDES, AND AN EARTHQUAKE
(WHAT DOES IT MEAN, AND WHAT DO WE DO NOW?)”**

MEETING DETAILS

Place: Holy City Brewing, 1021 Aragon Ave, North Charleston, SC 29405

Date: Thursday, February 17, 2022

Time: 5:30 PM Social Hour
7:00 PM Buffet Dinner
8:00 PM Presentation

Cost: Non-members \$40
AEG or ASCE Members \$30
Public Sector Employees or Teachers \$20
Students **free** with college ID

Reservations: Please make reservations online at www.aegcarolinas.org by 6:00 PM on Thursday, February 10, 2022

Rick Wooten's Bio

Rick Wooten has over 40 years of experience in applied geology in the Cascade Mountains of Washington State, and applied geologic research in the Piedmont, and Blue Ridge Mountains of North Carolina. He earned his B.S. and M.S. degrees in geology at the University of Georgia in 1973 and 1980. Rick recently retired from the North Carolina Geological Survey where he was the Senior Geologist for Geohazards and Engineering Geology from 1990 to 2021. His previous work includes mapping geologic resources and conditions for land-use planning, landslide investigations and applied geotechnical geology for the USDA-Forest Service on the Gifford Pinchot National Forest in Washington State from 1980 to 1990. His work with the North Carolina Geological Survey includes the scientific regulatory review and field investigations for a low-level radioactive waste disposal project, and bedrock geologic mapping in the Piedmont and Blue Ridge Mountains. Since 2003 his main focus has been on landslide hazard mapping and research, and responding to landslide events North Carolina Blue Ridge. He has a special interest in the relationships of ductile and brittle bedrock structures with geomorphology and landslides processes, and communicating landslide hazards information with stakeholders.

Presentation Synopsis

Rick's presentation (previously presented at the AEG 2021 national meeting) will highlight topics he will cover during in his Jahns' lecture series. These themes include interconnecting geoscience, weather patterns, and history in landslide hazard studies; using drones and lidar in emergency landslide responses and hazard mapping; building multi-disciplinary partnerships in applied geology and research; and, communicating with stakeholders about landslide hazards.

He will explore these topics in the context of the North Carolina Geological Survey's (NCGS) landslide response and landslide mapping efforts between 2018 and 2020. A two-year period of record above-normal rainfall that began in 2018 and continued into 2020 resulted in a steady increase in landslide activity over the preceding four years throughout the Blue Ridge Mountains of western North Carolina. Eight extreme rainfall events related to low pressure systems, convective storms, and tropical cyclones triggered over 320 debris flows and debris slides, and cumulative rainfall over this period contributed to the reactivation of large, slow-moving landslides that continue to threaten property and regional infrastructure. This interval of increased landslide activity began abruptly on May 18, 2018, when an orographically enhanced, convective storm along the Blue Ridge Escarpment triggered at least 240 debris flows and debris slides that resulted in a fatality, destroyed homes, and severely damaged infrastructure. Shortly after this event, the N.C. General Assembly reinstated funding for the NCGS landslide hazards program. During the course of rebuilding this program and concurrent countywide landslide mapping the NCGS responded to an additional 80 recent landslides. Notable among these was the August 24, 2019 convective storm in the Nantahala River Gorge that triggered at least 32 debris flows and debris slides, many originating in areas burned by the Ferebee wildfire during the record drought of 2016. This event caused more than \$1M in damages with adverse impacts to local, state and federal agencies, and to the local economy. Data on these and over 5,000 other landslides are now publicly available via a suite of online tools to examine landslide hazards in North Carolina.

The August 9, 2020 Mw 5.1 earthquake near Sparta, North Carolina caused over \$15M in damages to buildings and other infrastructure. Ongoing collaborative investigations identified the first modern fault rupture directly attributed to recent seismicity in the Southeastern U.S. Ground surface ruptures along the newly discovered, ESE-trending Little River Fault parallel other linear topographic features crossing the southern Blue Ridge in locations linked to frequent landslide activity.

The confluence of new technology, the passage of National Landslide Preparedness Act and the ongoing impacts of extreme weather patterns linked to climate change present a compelling opportunity for the geoscience community to press forward in a coordinated effort to reduce losses from landslides. An essential part of meeting this challenge is building partnerships within and outside of the scientific community to increase public awareness of geologic hazards.

Thanks to the Sponsors of the Carolinas Chapter of AEG

Thanks to our chapter sponsors, without which our meeting dinners would be more expensive, and we couldn't offer reduced rates for the public sector employees and teachers, and free dinners for students. Be sure to tell them thanks for supporting AEG and our profession.

The list below includes those companies that sponsored our chapter in 2019. Due to Covid and our lack of face-to-face chapter meetings, we did not solicit sponsors for 2020 and 2021, but we are now with meetings and are contacting our past sponsors to sign up again in 2022.

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