

School of Earth and Environmental Sciences Spring 2024 Colloquium Series

Zoom ID: 827 8857 5939
Passcode: 321

Wednesday, April 10 2024
12:15 PM-1:30 PM
Science Building C-201

Allan Ludman, PhD

Professor emeritus, School of Earth & Environmental Sciences,
Queens College, CUNY

AN OLD DOG LEARNS NEW TRICKS TO DECIPHER THE TECTONIC HISTORY OF THE NORTHERN APPALACHIANS

Creating a geologic map, a 4-dimensional interpretation of an area, is challenging because it requires rigorous outdoor physical activity (hiking, wading, canoeing, swatting) in all weather and an understanding of potential contributions from many geologic disciplines. I began mapping in Maine in 1966 and in the following 58 years produced maps of an area larger than the state of Connecticut.

Several innovations make geologic mapping today far more efficient before, during, and after fieldwork than it was in the 1960s: lightweight fieldboots, better bug dope; more detailed topographic basemaps; accurate (GPS) locations have replaced counting paces; readily available Google Earth and LandSat images help plan traverses.

The plate tectonic revolution provided an intellectual context far superior to the geosynclinal theory that preceded it. Technologic advances range from LED lights in my hand lens to more accurate LA-ICPMS, SHRIMP and TIMS radiometric dating methods. Improvements in macro- and micro-paleontology permit dating fossil-bearing strata to within two or three million years (*I should be so lucky*). Trace element compositions permit identification of ancient volcanic settings (island arc, continental arc, hotspot islands...).

This presentation will discuss current models for Paleozoic tectonism in the Northern Appalachians and show how they have been based on the innovations mentioned above.

