Carmen Glenn
Optional assignment: Webcast
Event: Explore Earth CCRI-Wetlands
Topic: Sediment core research in Salt Marshes with students
Target audience: High school science educators

What was learned?
The presenter, Carol Wang Monduca, is a part of the CCRI program at NASA's Goddard Institute for Space Studies. She is a high school science teacher in New York City and did a summer research program on human influences on the paleoecology of salt marshes on Long Island Sound. Her research team included herself as an educator, a science graduate student, a science undergraduate student, a high school student and they worked under the supervision of a scientist at Goddard.

They took sediment cores from multiple locations in the salt marshes near Connecticut's rivers. Once the cores were collected, they used multiple methodologies to compare the layers of sediment: X-ray Fluorescence, measuring carbon content through combustion, looking as foraminifera fossils and mass spectrometry. The research was fascinating and the presenter made some interesting connections between the sediment samples and historical events such as the damming of a river or finding a lot of lead in the sediments during a period of ammunition production. The overall research goal was to understand carbon sequestration in wetlands and make hypotheses about how climate change could affect this in the future.

I asked a question about whether sediment deposition and therefore, depth, can be used as a "clock" to determine the age of deposition. She said yes, that generally 1 m of sediment in a marsh represents 400 yrs of time.

How can it relate to the classroom? In addition to completing the summer research, the presenter brought back the lessons to her classroom in Queens, NY. Ms. Monduca took her students to the Alley Pond Environmental Center and had them create their own hypotheses about sedimentation in the salt marsh. She showed an example of a literature review document that she used with her students that provided a great example of scaffolding a difficult task for students. As a teacher who teaches in a district on Long Island Sound and usually does a salt marsh field trip, I can see myself incorporating her work with sediments into my field lessons. The lab technique of measuring carbon content through combustion in crucibles can easily be replicated in a high school lab setting.

Attached: Certificate of Competion