

UWO scientists reveal geosciences research results

by **Kristen Manders - Wednesday, November 17, 2010**

<http://www.uwosh.edu/today/7101/uwo-scientists-reveal-research-results/>

Professors at the University of Wisconsin Oshkosh do more than stand behind podiums talking about scientific principles.

Eric Hiatt and Jennifer Wenner, geology professors at UW Oshkosh, presented their research at the Geological Society of America's (GSA) Annual Meeting and Exposition from Oct. 31 through Nov. 3 in Denver, where almost 6,000 scientists were expected to attend.

Discovery of early ocean life

Hiatt described what he and an international team of scientists discovered about the interactions of early life and the oceans.

"We presented the discovery of the earliest bacteria directly involved in cycling nutrients in nearshore marine sediments 2 billion years ago," Hiatt said.

The photosynthetic bacteria discovered by the science team made the first oxygen, which collected in the atmosphere. The oxygen in the atmosphere changed the way nutrients were cycled in the oceans.

"We showed that bacteria exploited the new chemical conditions at the seafloor to form complex communities and that phosphorus was mineralized in a fundamentally different way than occurred later in Earth's history," Hiatt said. "This has major implications for how countries explore for economic deposits of phosphorus for fertilizer."

Microbial life in the early oceans caused phosphorus levels to increase at the seafloor, which resulted in the fossilization of the microbial life.

"These seafloor precipitates can be used as signposts to fossil early life, and this discovery could help NASA scientists focus their search for fossil life on Mars," Hiatt said.

'The Math You Need, When You Need It'

At the GSA meeting, Wenner presented the pilot study of "The Math You Need, When You Need It." UW Oshkosh was one of five universities to participate in the study.

"The Math You Need" study provided online tutorials that helped students develop quantitative skills needed in geology courses. Mathematical skills used in geosciences are not taught in one, first-year course, which can be problematic when instructors are designing courses and incorporating quantitative material.

Instructors were able to customize the content of the tutorials based on the class, which gave instructors more time during lectures to devote to teaching geoscience topics.

The data gathered from the five universities showed that students were more successful on tests when they participated and had a better attitude about the course. Additionally, students' geologic problem-solving skills improved.

Results of the study were presented at the conference, encouraging educators to utilize "The Math You Need" tutorials in their courses.

Information presented at the conference was absorbed by thousands of scientists and will contribute to future research and education in geosciences.

Read more about geoscience research and GSA:

- [Research conducted by Eric Hiatt](#)
- ["The Math You Need, When You Need It" tutorials](#)
- [The Geological Society of America 2010 Annual Meeting and Exposition](#)