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National Science Foundation Extends Funding for Morris REU

Summary: The National Science Foundation has awarded James Cotter, professor of geology, a research grant to help fund Morris's Research Experience for Undergraduates (REU).

(May 2, 2013)-The National Science Foundation (NSF) has awarded James Cotter, professor of geology, a research grant to help fund the University of Minnesota, Morris [Research Experience for Undergraduates \(REU\)](#), a research program for Native American women geology majors. The goal of the program is to develop time-constrained models for two proposed paleo-ice streams: the Late Paleozoic Paraná lobe of Brazil and Late Pleistocene-age Des Moines lobe of Minnesota.

The program includes 14 days of field research in Brazil, during which participants focus on climate's influence on ice stream movement, the significance of marine interaction and ice sheet grounding, and the nature of ice stream flow. Through the NSF REU program, Cotter and his students have already made three research trips to Brazil he and eight students will return this summer. The team will build on previous efforts to understand the glacial history of Brazil—and, subsequently, Minnesota—with the help of new technologies funded by the NSF grant.

The first of these technologies is optically stimulated luminescence (OSL), which is used to date sand grains. Utilized by Tammy Rittenour '96 in her lab at Utah State University, the technology allows researchers to place a detailed time constraint on a glacier's movement every ten miles. The group will use 3D images from Kinect camera scans to match different geologic strata with other forms, which provides insight into how a glacier was shaped and what took place underneath it during that time.

This REU program will nurture the development of 16 Native American women geology majors over the course of two summers by providing peer support, developing participant confidence, and introducing students to supportive role models. Responding to the dramatic under-representation of Native American women in the geosciences, Cotter has spent six years working to encourage these students and their study of geology by providing mentored research opportunities.

“We know having a close, working relationship with a faculty member positively affects retention, skills, confidence, insight, and independence of students,” says Cotter. “It's great experience for students, and it helps them find the next step.”

According to Kelsey Scareshawk '14, Savage, “these research opportunities are highly beneficial and help students gain experience that other students at other schools may not be able to have.” Scareshawk, who will be traveling with Cotter to Brazil this summer, believes the program not only helps students decide to pursue a particular field of study, but also provides them with future career options.

According to Cotter, these research endeavors have relevant impacts on the greater community as well. Citing research conducted by Morris students on the geology and hydrology of Stevens County, he adds, “basic science provides a

reference bank for all things. You never know what answers will come out of it.”

Pictured: Students participating in the REU program.

Through personal and academic discovery, the University of Minnesota, Morris provides opportunities for students to grow intellectually, engage in community, experience environmental stewardship and celebrate diversity. A renewable and sustainable educational experience, Morris prepares graduates for careers, for advanced degrees, for lifelong learning, for work world flexibility in the future, and for global citizenship. Learn more about Morris at morris.umn.edu or call 888-866-3382.