

**Department of Geology
MCMICKEN COLLEGE OF ARTS AND SCIENCES**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 3, 2008

The Department of Geology is pleased to offer the following research project for the summer of 2008. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.

CHEMICAL “FINGERPRINTING” OF SILURIAN VOLCANIC ERUPTIONS

**Professor Warren Huff
Department of Geology
Room 614 GEO-PHYS Bldg.
P. O. Box 210013
University of Cincinnati
Cincinnati, OH 45221-0013
Tel: (513) 556-3731
Fax: (513) 556-6931
E-Mail: Warren.huff@uc.edu**

Project Description

Current investigations of K-bentonites (altered volcanic ash) of Silurian age, approximately 430 million years ago, from both North America and Great Britain reveal the presence of unaltered crystals of zircon, apatite, biotite and other volcanogenic minerals. Careful study of these minerals has been shown to be extremely useful in pinpointing the type, magnitude and even the location of source volcanoes. Such knowledge is very important in reconstructing the past scenarios of Earth history. Explosive volcanic eruptions are associated with tectonic plate collision margins, thus the ability to determine the location of ancient volcanoes provides a pathway to reconstructing past plate geometries. I have approximately 60 samples of Silurian K-bentonites that need to be processed for mineral separation. The crystals that are recovered will be studied by X-ray diffraction and by scanning electron microscopy. All of the laboratory supplies and facilities required for this work are available, either in the Department of Geology or in the College of Engineering. The WISE candidate under my supervision will do the mineral separation and instrumental analyses. I expect the results will be presented at a future scientific conference and may even result in a publishable manuscript.