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## GRADUATE RESEARCH OPPORTUNITIES AT THE UNIVERSITY OF WISCONSIN, MADISON

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### SEDIMENTARY BASINS, PALEOCLIMATE AND PALEONTOLOGY

This program in the department is strongly interdisciplinary. There are five professors in the general realm of sedimentary basins, paleoclimate and paleontology. While each of us has a research specialty, there is enough overlap so that our students can obtain broadly-based expertise, both in their courses and their thesis research. The program is popular with students and employers. Of a total of about 73 graduate students in the department, around 21 are in sedimentary geology. We have a modern building with excellent equipment for most types of geologic research. We have two new laboratories; one dedicated to seismic visualization and the other to paleontological research. Further, we have numerous petrographic research microscopes, as well as image analysis and cathodoluminescence capabilities. In addition, there are electron probe, and SEM facilities in the department, as well as three mass spectrometers for stable and radiogenic isotopes, low-temperature inorganic and organic geochemical facilities, and abundant microcomputers and terminals. The main departmental computer is interactive with many microcomputers as well.

- Charles W. Byers*      SEDIMENTARY GEOLOGY  
*Emeritus*              Research focuses on the relationship of organisms and sediments in Cretaceous shales of the Rocky Mountains and Paleozoic orthoquartzite-carbonate suite of the Mid-West. Phone: (608) 262-2361; email: [cwbyers@geology.wisc.edu](mailto:cwbyers@geology.wisc.edu)
- Anders Carlson*      GLACIAL & QUATERNARY GEOLOGY/PALEOCLIMATOLOGY  
Research interests include the interactions of ice sheets, oceans and the climate system on multiple time scales; and subglacial processes with their attendant effects on ice motion and climate. Techniques include basic field mapping and observations, reconstructing ice sheet chronologies, ice sheet, groundwater, atmospheric and oceanic numerical models, geochemical proxy application, geotechnical testing. Phone: 608-262-1921; Email: [acarlson@geology.wisc.edu](mailto:acarlson@geology.wisc.edu)
- Alan R. Carroll*      SEDIMENTARY BASINS  
Research on sedimentary tectonics, provenance, and the relationship between continental weathering and sedimentation. Emphasis on lacustrine sedimentary basins, and on collaborative studies of Paleogene weathering and radiogenic isotopic provenance within the Gulf of Mexico watershed. Phone: (608) 345-0667; e-mail: [carroll@geology.wisc.edu](mailto:carroll@geology.wisc.edu)
- Dana H. Geary*      PALEOBIOLOGY  
Evolutionary patterns and processes, particularly relating to speciation, diversification, and the relationship of evolutionary to environmental change. Research utilizes morphometric, phylogenetic, and geochemical methods. Projects include molluscan radiations in ancient lakes (especially Miocene Lake Pannon of central Europe), and evolutionary patterns of Neogene molluscs in the Caribbean and eastern tropical Pacific. Phone: (608) 263-7754; email: [dana@geology.wisc.edu](mailto:dana@geology.wisc.edu)
- Clay Kelly*            MICROPALAEONTOLOGY, PALEOBIOLOGY, AND PALEOCEANOGRAPHY  
Research focuses on relating patterns of biotic evolution to ocean/climate change, and the dynamic interplay between the biosphere and global biogeochemical cycles. Research "tool box" includes stable isotopes, morphometrics, scanning electron microscopy, x-ray diffractometry, and active participation in the Integrated Ocean Drilling Program. Field areas range from continental deposits in western North Dakota to deep-sea cores from the Weddell Sea off the Antarctic coast. Phone: (608) 262-1698; email: [ckelly@geology.wisc.edu](mailto:ckelly@geology.wisc.edu)

*Stephen Meyers*

PALEOCLIMATOLOGY, SEDIMENTARY GEOCHEMISTRY, STATISTICAL ANALYSIS  
IN GEOSCIENCE, STRATIGRAPHY

Research addresses three primary topics: the mechanisms of climate change, the controls on the global carbon cycle, and the measurement of geologic time. These subjects are fundamentally interrelated, as there are linkages between climate and the carbon cycle, and the establishment of reliable chronologies is essential for determining rates of climatic and biogeochemical change in Earth's past. Research approach integrates geochemical, sedimentologic and stratigraphic data with novel modeling and statistical techniques, to unravel the history of the climate system, oceans and geosphere. Phone: (608) 262-8960; email: smeyers@geology.wisc.edu

*Shanan E. Peters*

SEDIMENTARY GEOLOGY AND PALEOBIOLOGY

Research focuses on macrostratigraphy and the large-scale quantitative analysis of sedimentary successions and their relationships to the evolution of life and climate. Field studies address the sedimentary records of key intervals, including the Eocene-Oligocene climate transition and the Cambrian-Ordovician biological radiation. Phone: (608)262-5987; email: peters@geology.wisc.edu