

M R B NEWS

Featured Faculty: Luis Gonzalez; Associate Professor, Geology

Academic Areas:

Geology and Geochemistry

Research Interests

Stable isotope chemistry and its application to continental paleoclimatology, paleoenvironmental reconstructions. Carbonate geochemistry with emphasis on isotopic and trace elemental chemistry, experimental growth of carbonate minerals using simulations of natural systems; Carbonate geology with emphasis on karst development and carbonate deposition in marine and karst systems; Carbonate diagenetic processes. Carbonate geochemistry, stable isotope geochemistry, paleoclimatology, diagenesis, chemostratigraphy

Educational

Background:

PhD University of Michigan, 1989.

MS University of Michigan, 1983.

BS University of Puerto Rico, 1978.



The Luis Gonzalez Lab concentrates on measuring the stable isotopes of carbon, oxygen, nitrogen, hydrogen and sulfur in a variety of materials including animal and plant tissue, rocks and mineral, water and gases, and fossils. The laboratory services the research needs of the Gonzalez group and several other research groups in Geography, Geology, Ecology and Evolutionary Biology, the Kansas Biological Survey, and the Kansas Geological Survey Active projects include paleoclimate/paleoenvironmental research using speleothems focusing on the Holocene from Jamaica, Venezuela, Nepal, and the North American mid-continent. Paleoclimate/paleoenvironmental research using pedogenic and marine (stabilized by meteoric diagenesis) carbonates from mid-Cretaceous deposits of the North American Western Interior Sea Way, Mexico, Colombia, and China. Diagenetic and chemostratigraphic studies in the Cretaceous and Oligocene-Miocene of Puerto Rico, the Pennsylvanian of the North American mid-continent sequences.

Stalagmite Based Paleoclimate Reconstructions Of Northern South America

A significant portion of Gonzalez' research emphasizes the use of stalagmites for paleoclimate and paleoenvironmental reconstructions. The group efforts now focus on stalagmites from northern Venezuela. The group emphasizes the last ten to twenty thousand years of Earth's history to attempt to understand how climate defining events such as El Niño Southern Oscillation (ENSO) and the North Atlantic Oscillation (NAO) have varied in the past.

Cretaceous Paleoenvironments, Paleoclimatology, and Paleohydrology

At present the majority of students in the Gonzalez group are studying various aspects of Earth history in a time slice ranging from 120 to 90 million years before present. The work is a collaborative effort with Greg Ludvigson at the Kansas Geological Survey and various scientists in Nebraska, Iowa, Utah, New Mexico, Oklahoma, Colombia, Mexico, and China. Various group members are using the stable carbon ($^{13}\text{C}/^{12}\text{C}$) and/or oxygen ($^{18}\text{O}/^{16}\text{O}$) isotopic composition of ancient carbonates (CaCO_3 and FeCO_3) and organic matter present in sedimentary rocks representing lakes, rivers, estuaries, and flood plains, and in paleosols (ancient soils) developed on many of these ancient sediments. Others are studying the oxygen stable isotopic composition of fossil teeth, scales, and other phosphatic materials from organisms such as dinosaurs, turtles, fishes, and early mammals. One group member is utilizing Rare Earth Elements in dinosaurian bone material to decipher the environments in which these organisms such as dinosaurs, turtles, fish and early mammals. One group member is utilizing Rare Earth Elements in dinosaurian bone material to decipher the environments in which these organisms died and were buried, soon she will be attempting to extract organic matter from these bones to decipher their paleodiet through the use of carbon and nitrogen stable isotopic compositions.



Paleoceanography and Biogeochemistry of the Pennsylvanian Mid Continent Epeiric Sea

This project focuses on the changes in carbon and nitrogen stable isotopic composition of organic matter included in marine sedimentary rocks deposited in eastern Kansas during the middle to upper Pennsylvanian (310 to 290 million years ago). The project aims to quantify the contribution of terrestrial and marine organic matter into the system and understand circulation and sedimentary history of the epeiric sea present over Kansas during this time slice.



MEET THE POST DOC:



Name: Jianxin Guo
Lab Group: Russ Middaugh Lab
Field of Study: Pharmaceutics
Time at KU: 2 1/2 years
Hobbies: Travel, Reading
Home Town: Nanping, China

MRB CONTACTS:

TERI HERBERGER
FACILITY MANAGER
Phone 864-2382
EMAIL: teriherb@ku.edu

CARLA RAMIREZ
PROGRAM ASSISTANT
Phone 864-7345
EMAIL: cramirez@ku.edu

ANN SMITH
PROGRAM ASSISTANT
Phone 864-7271
EMAIL: annsmith@ku.edu

MRB Help Desk 4-1959 or email rithelp@ku.edu

IMPORTANT BUILDING INFORMATION

Congratulations to Cory Berkland and his wife Jodi on the birth of their newest daughter, Ava Marie, 6 lb 8 oz, born December 29, 2006.

~~~~~  
As a new semester begins there are several reminders for new staff/students in our building:

- We must have an email from the PI to set up building access and to check out keys.
- Please do not chain bicycles to the downspouts. Bicycle parking has been provided at the end of the MRB sidewalk
- Coffee is .10 per cup.
- Bicycles are not allowed inside the building or in the dock area.

~~~~~  
The IT staff have moved to room 160. Their email address is rithelp@ku.edu

We have already had our share of slick, icy weather, but there could always be more. Please be careful in the MRB parking lot. The KU policy is to clear all sidewalks before parking lots. Facilities Operations then has two trucks scrape and/or drop salt and sand for every parking lot on campus. The order in which lots are attended to changes each time. Seems like we were last after the first storm, but we got immediate attention over the Martin Luther King Jr. holiday. Even when the lots are scraped or salted, the trucks cannot get to the areas where cars are parked. Please be very careful.

~~~~~  
**As you might have noticed, vending prices for pop and candy have risen. If you choose to bring your own pop please put your name on items placed in the refrigerators.**

In an effort to conserve energy, the Provost has mandated that office space be no more than 69 degrees during the day, and that heating controls turn off over night. Rooms should start heating back up around 7:30 a.m. While the use of space heaters may bring some comfort, they actually may cause cold air to be forced into your room. If the temperature in your office gets above 70 degrees, the computer reads that it is too warm and will blow cold air until the temperature drops back to the 69 degree mark.

~~~~~  
If you would like to hang a poster on the walls, and the white boards or cork boards are not large enough, you may tack it to the wall using push pins. Please do not use tape as the tape pulls the paint off the wall. We have push pins for anyone that needs them.



Pictured above: Winter International Potluck at MRB, December, 2006