



Program News

Seven Geosciences Majors Graduated in December, 2011

It is always tough to say goodbye to graduates. They all play a very-important role in the success and vitality of our program. We are going to miss these Geoscientists as we prepare our new majors. But we look forward to seeing them grow in our professional society. More importantly almost **100 % Geosciences graduates are employed** at this risky period. Congratulations to our precious new alumni members.



Inside This Issue:

Program News

..... 1

Geosciences Club News

..... 4

Photo Gallery

..... 5

Contact us / Editors

..... 1

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Frank Roberts Involved in an Accident



Dr. Frank Roberts was involved in an accident at his residence on November 3 after helping us on our Central Texas fieldtrips. He will be involved with multiple surgeries to repair his right hand and replace his left hand with prosthesis. Frank is doing well and will be joining us on many fieldtrips to come. We are glad he will be out on the rocks soon.

QEP Mineralogy Fieldtrip to Badu Hill in Central Texas

This was one of the best fieldtrips we had in decades. Frank Roberts, Thomas McGehee, and Dan Jackson supervised 12 geology majors and a TAMUK Civil Engineering major in their study of the historic Badu Hill Pegmatite. We took one of the Universities Total Workstations up to Badu Hill in Central Texas to map the historic REE pegmatite mine. Three teams were assembled to accomplish the work. Alexandra Breeding, Daniel Jurach, Stephanie Resendez and Lisa Maclaughlin completed a photomosaic of the inner workings and mapped the traverses with a brunton compass. Leah Ball, Naomi Pankratz, Juan Cavazos, and Jessica Garcia completed sketches of the working faces and identified the mineralogy around the perimeter of the mine. Paul Laraway, Alexandra Breeding, and Professor Dan Jackson collected quartz samples across the working face for future fluid inclusion work. Adam Pasciak, Michael Hill, Paul Laraway, and Talitha Costley started a total workstation survey of the site. We started a collection of minerals containing REE from this trip.

QEP Fieldtrip to PreCambrian Geology of Central Texas



Frank Roberts, Jim Chude (Geologist), Thomas McGehee, Jaehyung Yu, Dan Jackson, and John Buckley led thirty-three students on our second trip to study an ophiolite suite, measure a stratigraphic section of Cretaceous rocks, study the hydrogeology of the Buckley Ranch area, and measured structural extension in Boudinage under the Llano Bridge in Llano Texas. Jim Chude began the study of the stratigraphic section with an overview of the geologic units. Student teams measured the thickness of each unit and studied the compositional changes in lithology within stratigraphic units.

Students determined that the sedimentary rocks east of the Red Granite Quarry recorded a transgression of the sea during Cretaceous time. Frank Roberts, Tom McGehee, and Dan Jackson led the fieldtrip to the ophiolite on the Smith Ranch. We walked for a mile over amphibolites grade metamorphosed oceanic crust to a large segment of the ophiolite that contained large crystals of hornblende with a cumulate texture. On the opposite end of the ophiolite we studied and sampled rocks and minerals at the serpentine quarry.



Javelina Symposium and Pathways to the Doctorate

GIS Based Management System and Spatial Analysis of Enrollment Pattern
 *Jessica Garcia, *Adam Pasciak, *Jaehyung Yu
 *Department of Geosciences, Texas A&M University - Kingsville

Abstract
 The main focus of any successful university lies within their enrollment and recruitment capabilities. In order to provide a more effective recruitment method, an innovative Geographic Information System (GIS) based recruitment management system is introduced. This system is designed to manage recruitment and enrollment data we constructed a database to complete a spatial analysis revealing the pattern of new student enrollment. By comparing the last several years and the census data, we have figured out the social and economic characteristics of each major. By geocoding a street layer data file we can reference the data and create the students' home from spatiality. This analysis of enrollment data at universities identifies locations of potential students to concentrate the recruiting efforts to areas that produce students within a specific field of study.

Methodology Continued
 Geocoding: The process of finding associated geographic coordinates from other geographic data, such as street addresses or zip codes. With the address available, the features can then be mapped in a spatial representation.
 Spatial Join: The process of using a join to link table records. Within each county feature the summary of attributes will allow us to know the schools where TAMU students originated from to show trends.
 Density Mapping: A method for presenting the concentration density of an attribute by shading areas based on statistical values.

Results and Discussion Cont'd
 The overall trend shows that the students attending TAMU originate from the largest cities in South Texas. For example San Antonio, Houston and Corpus Christi.
 Specific trends for majors vary slightly. Certainly there are more students coming from the larger cities in the more general areas such as the deep south, and central Texas.
 The most popular major field of study for students in Kingsville is Education, followed by Engineering, Science, and then Agriculture.
 With attention to these areas, TAMU can now focus its recruiting efforts, increasing the effort spent where students are not interested.
 This process will also minimize the effort spent where students are not interested.

Final Map
 This study employed various geostatistical models to identify students density, size, and school of origin in order to improve recruitment capabilities. The spatial and temporal characteristics of students' backgrounds are investigated for the first time within a university setting. Moreover, the physical environment, and socio-economic data are related to the spatial and temporal variations of each major classification. The attributes and spatial characteristics of each county, city, and school of origin are presented for the first time. This GIS based management system technique will help universities everywhere dramatically improve their recruitment capabilities.

Adam Pasciak and Jessica Garcia presented their research at this year's annual Pathways to the Doctorate Research Symposium. They won 3rd place in the Business and Computer Information Systems Division. Using ArcGIS they created a GIS based management system for the spatial analysis of enrollment patterns to help recruitment for the University. This research will be continued in the Spring of 2011.

Formation and Geologic Characterization of Deltaic Environments
 Alexandra Breeding*, Paul Laraway*, Dr. Thomas McEneaney
 Physics & Geosciences Department - College of Arts & Sciences - Texas A&M University Kingsville

Abstract
 In this paper, we present a review of the formation and geologic characterization of deltaic environments. We discuss the spatial distribution of number of students studying different majors from various counties of Texas, Texas A&M University Kingsville for students and a study in enrollment rate for many years. This management system will improve the recruitment capabilities for the university. No study has ever been performed for spatial distribution of students and characteristics for a university.

Introduction
 Deltaic systems are complex landforms that form at the confluence of a river into a larger body of water. They are characterized by their unique sedimentary architecture and are important for their role in sediment storage and carbon sequestration. This study aims to characterize the geologic formation and evolution of deltaic environments using remote sensing and geologic modeling techniques.

Methodology
 Remote Sensing: Satellite imagery and aerial photography are used to identify and map deltaic features. Geologic Modeling: Numerical models are used to simulate the hydrodynamic and sediment transport processes within deltaic systems.

Conclusions
 The study reveals that deltaic environments are highly dynamic and evolve over time. The geologic characterization of these systems is essential for understanding their role in sediment storage and carbon sequestration. The findings of this study have important implications for the management and conservation of deltaic environments.

Paul Laraway and Alexandra Breeding presented their work on delta systems at the Javelina Symposium and the 8th annual A&M System Pathways to the Doctorate Symposium. Their poster detailed the geology and progressive development of the three major delta sub-systems, taken from their research for the Army Corps of Engineers. Their work will provide the Army Corps of Engineers with the framework for a database of three-dimensional interpretations of various geologic environments, useful in many kinds of environmental and industrial applications. This poster won the Dean's award at the Javelina Symposium.

Monitoring Temporal Change of Antarctic Ice Margin as a Climate Change Indicator using Remote Sensing Data
 *Juan R. Cavazos, *Michael H. Hill, *Jaehyung Yu, *Shed D. Nelson
 *Department of Agriculture and Resource Sciences, Texas A&M University - Kingsville

Abstract
 The Antarctic ice margin is a key indicator of climate change. This study uses remote sensing data to monitor the temporal change of the ice margin. The results show a significant retreat of the ice margin over the study period, which is consistent with the observed warming trend in the region.

Methodology And Data
 Remote Sensing: Satellite imagery is used to track the ice margin's position over time. Data Analysis: Statistical methods are applied to the data to identify trends and correlations.

Results
 The study shows a clear and consistent retreat of the Antarctic ice margin over the period from 1980 to 2010. The rate of retreat is highest in the western part of the continent and lowest in the eastern part. This pattern is consistent with the observed warming trend in the region.

Conclusion
 The retreat of the Antarctic ice margin is a clear indicator of climate change. The findings of this study have important implications for the management and conservation of the Antarctic environment. Further research is needed to understand the underlying causes of this trend and to develop effective strategies for mitigating its impacts.

Juan R. Cavazos and Michael H. Hill Presented Their research at the Texas A&M student research symposium in Canyon TX, on October 22-23, 2010 as part of the pathways to the doctorate program. The research conducted was focused on monitoring the change in ice margins in Antarctica using Climate as a key indicator, under the supervision of Dr. Jaehyung Yu and Dr Shad D. Nelson. Their research is of great importance in raising awareness of global warming and can be used for future study. Their research will continue in the coming semesters.



Geosciences Open House in April

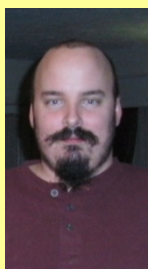
We are having an open house in April for our Geosciences Alumni followed by a reception. This open house will include a tour of the new University GIS Center housed in our College. We would like all alumni to come because we want you to meet all of your colleagues that are a part of our family.

Geosciences Students Receive Scholarships

Congratulations to **Michael Parker!** Michael was awarded \$2,500 by the 2010 Robert Cross Scholarship by the Board of Directors of Houston Gem & Mineral Society. Also congratulations are extended to **Paul Laraway, Leah Ball, Daniel Jurach, Alexandra Breeding, Jessica Garcia, and Lisa McLaughlin** for receiving CCGS scholarships.



Michael



Paul



Leah



Daniel



Alexandra



Jessica



Lisa

Geosciences Club News

Club Activity in Fall, 2010

This fall in the year 2010 The Geosciences club had a great semester. We had new members join us from other departments, and developed relationships with the community. During October we participated in Fall Carnival and profited over \$300.00 from the sales of rock and mineral specimens as well as our coveted dirt cups. In order to become strong members of the community we volunteered at the elementary schools to teach the students about geology. We also had a weekly movie night to teach the community about earth science. The Geoscience Club is looking forward to the next semester in order to become a contributing part of the community, learn about the earth, and have a good time.





Photo Gallery (Geosciences Field Trip & Christmas Party)

