DEPARTMENT OF PHYSICS AND GEOSCIENCES

Geosciences Newsletter

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Inside This Issue:

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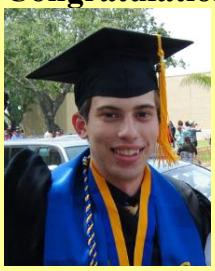
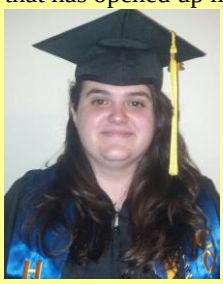
Program News

Congratulations to our Three Honor's College Spring 2013 Grads



Jonathan Sulaica graduated this May with the highest honor with a Bachelor's of Science degree in Geology. He was nominated by the Geosciences Program for the Distinguished Student Undergratuate award for the College of Arts and Sciences. He has been a part of the Physics/Geosciences department since Fall 2010. While attending school at Texas A&M University - Kingsville, he has been Vice-President and Historian of the Geosciences Club, active member of AAPG, Upperclassman Representative of the Honors College, and a member of Golden Key International Honor Society. He has been involved with 4 research projects, two which were presented at Pathways Research Symposium. His Honor's College project entitled "Central Texas Well Core Study**:** Sedimentation and Diagenesis of Late Cambrian – Cretaceous Rocks in Fredricksburg, Tx." involved the preparation of thin-sections, petrography, library research, and Power Point presentation. He also completed two GIS research projects and a highly regarded TAMU System *Pathways to the Doctorate Symposium* poster presentation entitled "Economic Evaluation of Rare Earth Element (REE) Potential at Badu Hill, Texas." Jonathan Sulaica, Naomi Pankrantz, Alexandra Breeding, and Talitha Costly (Engineering), completed a poster and presented in Spring 2011. Mr Sulaica's job included the preparation of a Geographic Information Systems analysis for the group project. He will be attending graduate school at Texas A&M University supported with a Research Fellowship in Fall 2013 to continue his education. When asked what his degree meant to him, he replied, "It is an accomplishment that has opened up many doors of opportunity. It shows that hard work really does pay off."



Naomi Pankratz graduated this May with a Bachelors of Science degree in Geology with high honor. She has been with the Physics/Geosciences department as a geology student since fall 2010. While attending Texas A&M University-Kingsville she has been involved in four research projects. She has served as the treasurer for the Texas A&M University-Kingsville AAPG student chapter since its formation. She has also served as upperclassmen representative for Honors College Student Council and been involved in the Geosciences club. She is also a member of the Golden Key International Honor Society. Her Honor's College project entitled "Resource Potential of Late Cambrian Age Hickory Sandstone" involved the preparation of 8 thin-sections, petrography, library research, and Power Point presentation. She also completed two GIS research projects and a highly regarded TAMU System *Pathways to the Doctorate Symposium* poster presentation entitled "Economic Evaluation of Rare Earth Element (REE) Potential at Badu Hill, Texas." Naomi worked with a team of three geosciences majors and one engineering major. Ms Pankratz's job included the identification, preparation, and curation of a mineral collection from this historic deposit. She also measured the radioactivity of the REE mineral complex with the Physics Department to be used in future exploration activities in the Central Texas area. Naomi will be attending the graduate program at the Un8iversity of Texas at Dallas (UTD).. When asked what her degree meant she replied, "It means the beginning of an even better adventure. It is a continuation of my lifetime of learning, and a gateway to graduate studies."

Cody Barker graduated with a Bachelors of Science degree in geology with honors. He has been a geology student since the spring semester of 2010. During his time as a geology student, he took part in three research projects, and was treasurer of the geology club for 2012. His Honor's College project entitled "Interpreting Well Cores from the Llano Uplift" involved bringing the core down from Fredricksburg, splitting the core and taking core plugs, rebuilding a vacuum pump, mentoring Jonathon and Naomi through the project, and preparation of his Power Point presentation. He worked with Dr. Hedquist this semester gathering data with Jacob Byerly to study the heat

island effect in Kingsville, Texas. His preliminary work entitled "Detecting and Mapping the Urban Heat Island in a small semi arid South Texas City" was presented at the Javelina Symposium in April 18, 2013. The study was funded through the TAMUK Council for Undergraduate Research (TCUR). Cody Barker worked with Mr. Paul Tybor Manager of the Hill Country Underground Water Conservation District on an internship during the Christmas break. Cody applied to the Geosciences Department at UTSA and received acceptance for the Fall, 2013. He is currently working for Gisler Brothers mudlogging, and will be attending graduate school after 1-2 years of work.

Congratulations to Six Graduating Seniors

Michael Garza, Christina Jones, Michael Parker, Preston Ridley, Sarah Roos, and **Jordan Schwabe** graduate in May with our Honor's students (above). Each of these graduates made a major contribution to our program. Michael Garza, Christina Jones, Preston Ridley, and Jordan Schwabe were in our first field camp to Big Bend (2012). We thank all of you for your help in guiding this programs success.

Geosciences Program traveled to Central Texas for two Spring Fieldtrips

Twenty-six geology majors, Dr. Thomas McGehee, Dr. Brent Hedquist, and Dan Jackson traveled to Central Texas to examine an exposed ophiolite and study igneous and metamorphic rocks at 5 other outcrops. Jim Chude (retired geologist) helped out in recording accurate information in the field books. On our first day we mapped the ophiolite and surrounding metamorphosed mélange that was incorporated into an outcrop sketch. On the second day we looked at plutons (from batholiths size to dikes) in the Central Texas area.

Twenty-four geology majors, Dr. Thomas McGehee, Dr. John Buckley, and Dan Jackson traveled to Central Texas on April 11-13 to conduct field exercises for the Sedimentology and Stratigraphy fieldtrip North of Fredricksburg, and on Dr. Buckley's property. We also invited Vernon Kramer (Del Mar College Geology Instructor) and Jim Chude (retired geologist) to work with our majors. Vernon Kramer brought along Payton Campbell that will be in our program in the Fall. Jim Chude supplied his expertise in the stratigraphy exercise. This 2.5-day field exercise (Th-Sat) covered the rudiments of measuring a sedimentary stratigraphic section, identifying contacts, and improving map reading and orienteering skills.

Congratulations to fourteen majors that completed Spring Intersession: Big Bend National Park (TAMUK Field Camp)

Juan R. Cavazos, Stephanie Garza, Jacob Gomez, Andrew Hancock, Daniella Herrera, Zachary Hull, Casey Mibb, Veronica Nieto, Lauren O"Connell, Daniel Rios, Robert Schoen, William Sundland, Andrew Willias, David Wood, and Juan Zamora completed a part of their 8 hour commitment to Field Camp by completing the Spring Intersession: Big Bend National Park course. Dr. Scott Hughes said "this was the best group of students" and "the best field camp." We are very proud of these students!

Congratulations to eleven students that received their GIS Certification

Three Graduate students **Elmira Gabaidullina**, **Vince M. Martinez**, and **Ibrhem S. Qanha** completed the three required classes (Introductory GIS, Advanced GIS, and Remote Sensing) and was awarded certification. Eight undergraduate geology majors **Cody T. Barker, Jeffrey A. Elsworth, Karl T. Quade, Daniel Rios, Jordan S. Schwabe, Stephannie T. Resendez, Sarah B. Roos,** and **Juan R.Cavazos** completed all four courses (Introductory GIS, Field Mapping and Cartography, Advanced GIS, and Remote Sensing) and received their certificate. Good job!

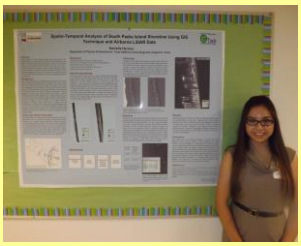
Congratulations to ten students in the UBMS Program that won first place for their Poster

For the past three weeks Bree Gonzalez and Katelyn Wallace have been teaching sophomores from Robstown about geology through a program called Upward Bound Math and Science - Urban. The students worked on new projects each week ranging from mineral and rock identification, recreating streams, trying to prove Wegener's hypothesis, to studying fossils. We all had a lot of fun and parents were telling me that their sons and daughters would come home on the weekends and talk about how much fun they were having. The students presented their research (oral and poster) yesterday on their stream study. We are happy (and humbly) to announce that our group placed first! Each student received a $100 stipend and Katelyn and I could not be any prouder. Dr. McGehee supplied some tiger's eye, which we awarded, along with certificates of accomplishments, to five of the ten students.

Cody Barker and Dr. Hedquist worked on their TCUR Undergraduate Research Project

Dr. Hedquist and Cody Barker recently completed a field study to study the urban heat island and microclimate effects within Kingsville, Texas. Geosciences major Jacob Byerly provided valuable assistance in the field. In April, Cody presented preliminary results with a poster presentation at the 1st Annual Javelina Research Symposium. In addition, Dr. Hedquist and Cody presented results on the project to the City of Kingsville, in particular the City Planner and City Engineer. The City is looking forward to future collaborations with our department and the University, including the tree-planting activities that will occur starting in the Fall (in association with a recent service learning grant awarded).

Daniella Herrera and Dr. Su worked on their TCUR Undergraduate Research Project



Daniella Herrera and Dr. Su are supported by TCUR (TAMUK Council for Undergraduate Research) for project 'Spatio-Temporal Analysis of Padre Island Shoreline Changes Using GIS Technique and Airborne LiDAR Data'. This study is to derive high accuracy shoreline from LiDAR elevation data to track the shoreline changes for Padre Island and to analyze the spatio-temporal changes in coastal morphology for a better understanding of the processes controlling shoreline movement. In March, Daniella presented preliminary results with a poster presentation on Texas Geography Student Research Symposium hosted at Texas State University-San Marcos. The presentation was well received.

Dean Abbey Zink purchased two polarizing microscopes for undergraduate studies

The Geosciences Petrology Lab received two new Nikon Polarizing Microscopes for petrographic studies. This increases our lab capability so that sixteen majors can do independent work in the mineralogy, petrology, and sedimentology courses during lab hours. Thank you for the much needed equipment!

Dr. Su won 2013 Olan Kruse Science Faculty Award and presented a paper at the AAG

Dr. Haibin Su won the 2013 Olan Kruse Award. This award is a competition among our scientists on campus to recognize one scientist each year for their research contributions. The recipient receives a stipend and a plaque.
Dr. Su attended the Association of American Geographer's (AAG) Annual Conference (April 9-13) in Los Angeles, CA and presented "Derivation of Bathymetric Information from Multispectral Satellite Imagery Using Localized Inversion Model."

Dr. Hedquist received grants and presented a paper at the AAG

Dr. Hedquist was awarded two internal grants in April. The first grant was a Student Engagement through Service Learning (QEP 2013-2014) grant for $9,386. This grant award will allow for the purchase of over 100 trees to be planted by student club volunteers across the city of Kingsville, with the City agreeing to water the trees until they are established. Students from both the Geology and Geosciences Clubs will learn about urban microclimates, urban heat island effects, and heat mitigation techniques, especially through the use of tree planting and urban forestry as a way to cool the city, as well as add beauty.
The second grant was through the Office of Title V programs for $15,000 and was with Dr. Haibin Su as Co-PI. The grant award is being used to purchase a differential GPS system and upgrade GIS labs to the latest Remote Sensing software (ENVI 5.0) for use in the GIS certificate program. These upgrades will allow students to use cutting edge tools and make them more competitive in future careers. It will also allow for leveraging for further funding through external grants.
Finally, Dr. Hedquist presented a research paper, "Detecting spatial and temporal patterns in the Phoenix, Arizona urban heat island utilizing infrared thermography" at the Association of American Geographers Meeting, Los Angeles, California. The paper was well received and research results will be submitted to a new journal *Urban Climate* this summer.

Dr. Mark Ford will be joining us in our Central Texas Field Camp

We have asked Dr. Mark Ford to join us in the second part of our field camp held in Central Texas. Dr. Ford will be handling the Igneous and Metamorphic exercises in the field. The field camp includes a study of isostacy related to the Llano Uplift, study of block faulting around Mason, County, and a study of the hydrogeology of Fredericksburg, Texas.

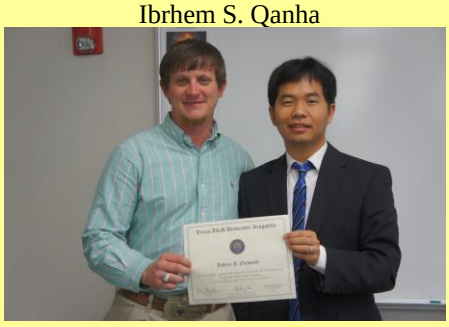
Photo Gallery (GIS Certificate Award Ceremony)


Vince M. Martinez


Ibrhem S. Qanha


Cody T. Barker


Karl T. Quade


Jeffrey A. Elsworth


Elmira Gabaidullina

Photo Gallery (Big Bend Field Camp)