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Program News

Honors College Geologists Daniella Herrera and Sara Beers Graduate Magna Cum Laude



Two of our Geology majors, Daniella Herrera and Sara Beers, graduated in May from the Honors College with top honors.

Daniella Herrera was one of our highest performing undergraduate students within the Geosciences program. While attending Texas A&M University-Kingsville, she earned an overall GPA of 3.64 and received various awards, including \$1,000 for the Peacock Arts and Science Scholarship. This high academic achievement was made

while working within the department as a both a teaching and research assistant, as well as for the City of Kingsville as a GIS Technician. Daniella was also highly involved with various honor societies, such as the Order of Omega and the Golden Key International Honor Society, as well as both the student chapter president and vice president of the American Association of Petroleum Geologists. In addition, she served as Treasurer, Standards Officer, and Corresponding Secretary for the Kappa Delta Chi Sorority, Inc. Daniella had strong leadership, skills, and initiative while employed as a teaching assistant in several classes within the GIS Certificate Program over the past few years, including Introduction to GIS, Remote Sensing, Field Mapping, Cartography & GPS, and Advanced GIS. As a teaching assistant in the department, there were many students enrolled in GIS classes that greatly benefited from her knowledge and helpful advice to be able to complete various labs and projects.

Daniella is the first GIS minor graduated from the Geosciences program. Her strong skills in GIS software have proven a vital asset in completing several research projects with various Geosciences faculty, principally with Drs. Su and Hedquist. In 2013, she published a poster on her research work with Dr. Su on "Spatial-temporal analysis of Padre Island shoreline changes using GIS techniques and airborne LiDAR data" at the Texas Geography Student Research Symposium (TXGSRS), in San Marcos, Texas. In 2014, she published her work done with Drs. Hedquist and Su on "Remote sensing image based analysis of the relationship between the urban heat island and land cover/land use change in San Antonio, Texas" at the Javelina Research Symposium, Kingsville, Texas. Drs. Hedquist and Su plan on submitting this work to a peer-reviewed journal later this year with Daniella as a co-author.

Daniella Herrera writes, "In my four years as an undergraduate I tried to become involved as much as possible. I was involved in a service sorority, Geosciences Club and AAPG. These organizations taught me how to be a team player as well as a team leader. Aside from the standard degree plan, I tried to stand out so that my resume would stand out in the general pool of applications."

Sara Beers finished her career at TAMUK with a 3.76 GPA and received numerous awards from both within the university and outside sources. She was repeatedly on both the President's List and Dean's List while at TAMUK and received multiple scholarships from the Corpus Christi Geological Society. Additionally, she received research support from the Honor's College and from the South Texas Minerals Section of the Society for Mining, Metallurgy and Exploration. She was also involved in many Geosciences Club activities and served as an officer in the student chapter of American Association of Petroleum Geologists.

Sarah's research focused on pegmatite mineralization at Badu Hill in central Texas. As her background knowledge grew, her research expanded from basic mineral identification to geochemistry and even ore genesis (how and why mineral deposits form). She was able to present her research at both regional conferences such as at the Texas A&M University System Pathways Student Research Symposium and also internationally at the Geological Society of America annual meeting in Vancouver, BC. Sarah was also a valued teaching assistant for both introductory labs and more advanced labs geared towards majors. These included Earth Science, Physical Geology, Nature of Earth and the Universe (a lab for teachers), Historical Geology, Winter Intersession Field Camp, Mineralogy, and Petrology. In addition to her leadership and teaching services, Sarah was employed as a tutor at the Center for Student Success on campus and involved with the Upward Bound Math and Science Program, which is a summer program focused on STEM education for local high school students. Sarah was a truly exceptional student that loved to both learn and teach about geosciences.

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Field Camp Teaching Assistant Matt Dabney Graduates Magna Cum Laude



Matt Dabney was another one of our top graduating seniors in May. A transfer from Blinn College, Matt finished with a GPA of 3.62 and was a leader in both teaching and research while in our department. Matt taught labs for classes in Earth Science, Physical Geology, and Field Geology. He was selected as our teaching assistant for summer field camp this year where his leadership and mentorship of students was unparalleled (his cooking was pretty good too!) In addition to his teaching, Matt was a self-starter in research and finished a senior project on the Eagle Ford shale that won best poster at the Eagle Ford Center Research Symposium for Oil and Gas Operations. He won multiple competitive Geosciences writing awards, was often on the President's list or Dean's list and won a number of outside scholarships, including multiple awards from the Corpus Christi Geological Society. He was also a member of the Geosciences Club and officer in the student chapter of American Association of Petroleum Geologists. In addition to his degree, Mr. Dabney holds certifications in Bruker Portable X-ray Fluorescence (pXRF) operation and safety, Geographic Information Systems, and Basic Seismic Interpretation.

Matt Dabney writes, "My time at Texas A&M University Kingsville has been the most fulfilling time of my life. I transferred here from Blinn College in the fall of 2013 and since then I have never looked back. In the 2 years I have spent here I worked diligently to earn my Bachelor's Degree in Geology. Over a short amount of time I built up a good relationship with my professors by demonstrating my learned skills and coming up with a few new ones. I have won numerous awards and scholarships for writing, high GPA and a senior research project poster, all of which I am very proud of. Because of hard work and dedication I graduated Magna Cum Laude this spring and the feeling couldn't be better. I would like to say a special thanks to the professors and my parents as this would not be possible without their support and guidance."

Cody Winn Graduated in Spring 2015



Charles Cody Winn attended Del Mar College from Fall 2008 through summer 2010. He transferred to Texas A&M University-Corpus Christi and attended from Fall 2010 through Spring 2011. Mr. Winn attended TAMUK from Fall 2012 through Spring 2015. He attended our Winter Intersession Field Camp and our Big Bend Field Camp. He also attended the South Dakota School of Mines Field Camp.

Students Receive GIS Certificates



Several of our majors received their GIS Certificate this semester in a ceremony following student presentations of their work for the Advanced GIS class on May 7, 2015. These students did a great job in their presentations illustrating high quality work. Geosciences majors receiving the Certificate included **Matt Dabney, Sarah Beers, Blanca Garza, Jacob Byerly, Dakota Kubiak, Emilio Martinez** and **Carolyn Barnett Core**.

Matt Dabney Receives Award at Eagle Ford Center Research Symposium



Matt Dabney won an award for the best undergraduate poster at the Eagle Ford Center Research Symposium for Oil and Gas Operations, held on April 23, 2015 in Kingsville. The award came with recognition of outstanding work as well as \$500. The title of his poster was, "Using pXRF to Identify Pay Zones in Hydrocarbon-Rich Shales: A Lithochemical Analysis of The Eagle Ford Shale." His poster was co-authored with Dr. Mark Ford, and TAMUK students **David J. Wood** and **Jake D. Ewing**.

Abstract: Finding the pay zones of potential hydrocarbon-rich shales is vital to the success of the oil company and investors. In this work, we identify key zones in the Eagle Ford shale (south Texas) by using geochemical data obtained with a pXRF (portable X-ray fluorescence) spectrometer. Lithochemistry is important in interpreting where pay zones are because slight changes in lithology chemistry can indicate changes in hydrocarbon potential. Our goal in this research is to use a pXRF spectrometer to quantify certain elements in Eagle Ford shale samples that were provided by Pioneer Drilling. Shales trap hydrocarbons along with certain elements such as molybdenum, vanadium and chromium, allowing us to correlate elemental data with hydrocarbons. With rapid expansion in shale plays both here in Texas and around the globe, the implications for this technique are becoming more important, and a simple, reliable method to identify pay zones is needed.

CCGS Scholarships Awarded to Eight Geology Majors

The Corpus Christi Geological Society awarded eight of our students scholarships this semester. Scholarship awardees included **Noelia Arredondo, Holden Butler, Matt Dabney, Sarah Dillon, Blanca Garza, Justin Kelley, James Quisenberry, and Payton Campbell**. Congratulations to these student awardees!



GEOINT Assistantships Awarded to Nine Geology Majors

As part of the National Geospatial-Intelligence Agency grant Drs. Su & Hedquist received in the February (see our March newsletter for more details), the Geosciences program awarded nine GEOINT assistantships this May. Assistantships awardees included **Jacob Byerly, Monica Estrada, Allen Hibler, Tristin Shaw, James Quisenberry, Iain Macey, Mark Alaniz, Dylan Bass** and **Emily Hager-Hahn**. The selected students are committed to earn a minor in GIS and will receive \$1,000 per year for two years. Congratulations to these student awardees!

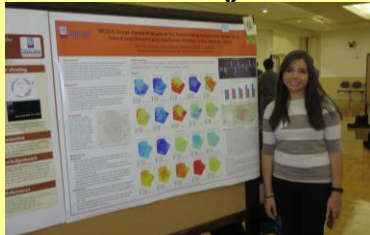
Graduating Students Present at the Spring 2015 Honors College Senior Research Symposium



Sarah Beers

Daniella Herrera and **Sarah Beers**, both spring graduates enrolled in the Honor's College, presented their final project results in a meeting held on campus on May 2, 2015. Sarah talk was titled, "Evidence of Precambrian Organic-rich Shales in a Granitic Pegmatite, Llano County, Texas." Daniella's talk was titled, "Utilizing MODIS Imagery to Analyze the Relationship Between the Urban Heat Island and Recent Land Use/Cover Change in San Antonio, Texas." Congratulations to our two Honor's College graduates and great job on your research projects!

Two of our Majors Present at the Javelina Research Symposium



Daniella Herrera

Daniella Herrera and **Jacob Byerly** presented a research poster at the 6th Annual Javelina Research Symposium, held at TAMU-K on April 6, 2015. The poster was titled, "Utilizing MODIS imagery to analyze the relationship between the urban heat island and recent land use/change in San Antonio, Texas."

Summer Field Camp Kicks off in May with a Trip to Big Bend National Park



Mark Alaniz, Alexander Johnston, Justin Kelley, Payton Campbell, Andrew Garcia, Tabitha Head, and Karen Linares attended our fourth annual field camp to Big Bend National Park. Three of the students, Andrew, Tabitha and Karen, were new to our program and were attending our field camp to fulfill graduation requirements at their home institution. We again camped out at the Terlingua Ranch Lodge just outside of the Christmas Mountains. Professors **Mark Ford, Thomas McGehee, and Dan Jackson** organized, supervised, and evaluated the field activities and projects performed by our majors and we were very impressed by the

individual performances of each of our majors. **Matt Dabney** was exceptional as a teaching assistant for this camp and he performed at the level of a graduate student. The faculty would like to thank **Jim Chude** for his continued assistance to our field education efforts. He provides a considerable amount of time and expertise to our field school efforts and our students and our program benefits greatly from his work.

Some of the projects this year included understanding and mapping some of the diverse volcanism of Big Bend National Park, constructing a cross-section of the Marathon Orogeny, measured stratigraphic sections and understanding ore genesis. Last year while at Big Bend, **Jim Chude** and teaching assistant **Brent Winborne (2014)** scouted out a new project site for us in the Christmas Mountains. This effort led to a new 3-day final mapping project that required applying all the knowledge students had learned to date. A final written report tied all of the projects together into a single geologic history spanning the past 400 million years.

It was difficult to choose the winners of our field awards as all students did a very good job. **Alexander Johnston** was the winner of the **Best Field Observations Notebook**. His detailed and clear observations and sketches are similar to what one would see in a professional's field notebook. **Karen Linares** turned in the **Best Final Field Report**. Her final report was clear, well written and similar to what one would expect at the conclusion of a large project, totaling 28 pages of text and 51 figures. **Mark Alaniz** is the winner of the **Best Overall Field Performer** award and his individual projects, field notebook and final report ranked either first or second.



Spring Geology Field Trips



Three Geology field trips were planned for the spring semester. However, mother nature had other plans in store. First, a March Field trip to study the Hydrology of Central Texas was canceled due to freezing temperatures (with a subsequent re-scheduled trip in April cancelled due to heavy rain). A second field trip was also canceled due to the very wet conditions experienced this spring in Texas. Much of this can be explained by the effects of El Nino this year, with a persistent subtropical jet stream pattern bringing continuous moisture to the state of Texas, as well as much of the Southern Plains. Fortunately, Geology students and faculty, including Drs.

Ford, McGehee, Buckley, Su, and Mr. Jackson were able to participate in one field trip to Central Texas in April. Students were able to learn about orienteering using aerial photos and pace and compass as well as geologic field mapping. Additional topics included strike and dip measurements, recognition of fossils and rock descriptions. We would like to thank Mike Maples for his use of the Cypress Mill Ranch for this exercise.

Two New Faculty are Joining Geosciences in the Fall Semester

Dr. Veronica Sanchez, a Structural Geologist from Houston Texas area, and Dr. Subbarao Yeliseti, a Geophysicist from Victoria, British Colombia, Canada will be joining our department. They will be further featured in our fall newsletter. Welcome Drs. Sanchez and Yeliseti!

Drs. Hedquist and Su Present Research Papers at AAG in Chicago

Drs. Hedquist and Su both presented research papers in April 2015 at the annual Association of American Geographers (AAG) meeting in Chicago, Illinois. Dr. Hedquist's talk was titled, "Remote Sensing Image-Based Analysis of the Relationship Between the Urban Heat Island and Recent Land Use/Cover Change in San Antonio, Texas. Dr. Su's Talk was titled, "Improving Bathymetry Mapping with Multispectral Imagery using Collocated Cokriging Interpolation Method."

Dr. Ford is an Invited Speaker at the Eagle Ford Symposium

Dr. Ford was an invited speaker at the 1st Annual "Student Driven" Eagle Ford Center for Research Symposium for Oil and Gas in Kingsville on April 23, 2015. His talk was co-authored by one of our students, Matt Dabney, and titled "Lithogeochemistry Using a Portable X-Ray Fluorescence (pXRF) Spectrometer and Preliminary Results From the Eagle Ford Shale."

Drs. Ford and Hedquist Receive College of Arts and Sciences Faculty Awards



Drs. Ford and Hedquist both received faculty awards on April 30, 2015 from the College of Arts and Sciences. Dr. Ford received the Dean's Award for Outstanding Teaching. Dr. Hedquist received the Olan Kruse Science Faculty Award for teaching and research excellence. Congratulations to our fine faculty!

Bree Gonzalez Continues High School Program (Upward Bound) With Students this Summer



Professor Bree Gonzales spent her early summer months instructing local high school students participating in the University-sponsored program Upward Bound Math & Science. This is her third summer doing this and it is great for getting students excited about STEM-related programs and makes science learning fun. Students took on various projects including, determining if they can outrun dinosaurs, studying rivers using an indoor stream table, and presented their findings to parents and university officials at a research symposium.

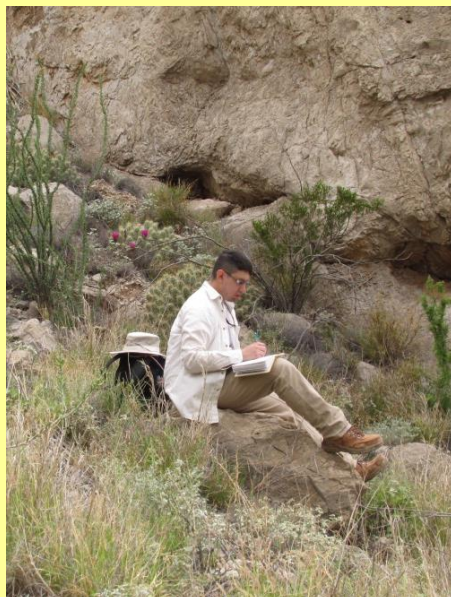
Drs. Su & Hedquist Promote Geospatial Technology at High Schools



With the support of National Geospatial-Intelligence Agency grant, Drs. Su & Hedquist visited Alice High School and Falfurrias High School and gave presentations on geospatial technology to increase the awareness of geospatial technology for high-school students as well as general public. The presentation covers basic concepts, techniques, real-world application examples, and career opportunities for geospatial technologies. More school visits and presentations are planned in the fall and next spring.



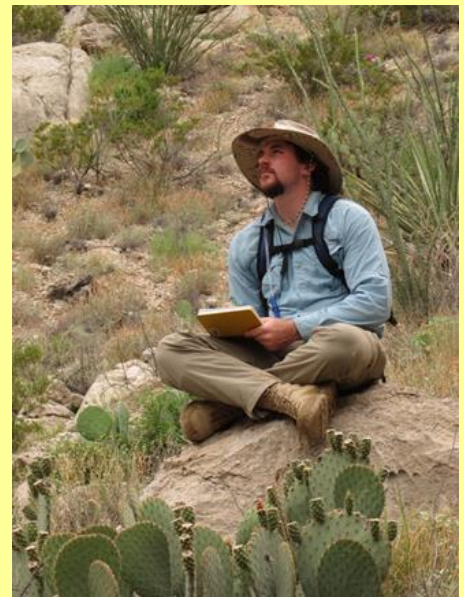
Photo Gallery: Summer Field Camp



Mark Alaniz



Karen Linares



Alexander Johnston



Photo Gallery: Field Trips & GIS Certificates Award Ceremony

