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Contact us:

Geosciences Program
Texas A&M – Kingsville
MSC 175, University Blvd
Kingsville TX, 78363

Phone: 361-593-3110

Fax: 361-593-2183

URL:

http://www.tamuk.edu/arts/ci/physics_geosci/geosci

Editors:

Dr. Thomas McGehee
(kftlm00@tamuk.edu)

Dr. Haibin Su
(haibin.su@tamuk.edu)

Dr. Mark Ford
(mark.ford@tamuk.edu)



Program News

Six Students Graduate in Spring Commencement



Please help us congratulate **Tomisin Alagbe, Adolfo Enciso, Joshua Krnavek, Margarita Willhelm, Audrey Lucio, and Austin Alford** for completing all requirements and graduating in the Spring Commencement.

Tomisin Alagbe completed a Baccalaureate of Sciences in Geology from the Honors College in the Spring

Commencement with a minor in GIS and earned a GIS certificate. He worked on numerous honors projects with Dr. Sanchez including an analysis of the Zagros Mountains (northwest Iran) using remote sensing techniques, analysis of sidewalk cracks by Manning Hall, and investigating dune morphology in the Laguna Madre region of South Texas. These projects were presented at three Javelina Research Symposiums as well as the Geological Society of America (GSA) South-Central Section meeting in San Antonio in 2017. For his final honors project, he analyzed a petroleum reservoir in South Texas using Kingdom Software with Dr. Schneider. Tomisin also had an internship with Anglo-American Coal in South Africa. Tomisin was a valued member of our program as he worked as a Teacher's Assistant for Dr. Ford in Earth Science, and was a long term



writing center tutor for the PAAC.

Tomisin was a well-rounded student and worked as an intramural referee where he won "Official of the Year" in 2016. In 2017, he was crowned TAMUK Homecoming King. He was a member of Society of Exploration Geophysicist (President), American Association of Petroleum Geologists club (Vice-President), Geosciences Club (Treasurer), Order of Omega, Corpus Christi Geological Society (CCGS), Founding Father and Historian / Community Service Chairman of the Delta Chi Fraternity, African Students Association (Vice-President), and National Society of Black Engineers. Tomisin attended field camps at TAMUK in the summer of 2017. He was selected to the Golden Key Honor society. Additionally, he received a GEOINT Assistantship, was a Desk and Derrick Club of Corpus Christi scholarship winner and was a Corpus Christi Geological Society (CCGS) Scholarship winner. Tomisin adds, "You are only in college for so long, do something that is out of your comfort zone, that way you can truly know who you are and what you are capable of" and a quote from Nelson Mandela, "Whatever you do always seems impossible, until it's done."

Adolfo Enciso graduated with a Baccalaureate of Sciences in Geology, Magna Cum Laude, in the Spring Commencement with a minor in Geography and earned a GIS certificate. He worked on numerous research projects with Dr. Ford and Dr. Sanchez and presented these works at multiple local and regional conferences including multiple Javelina Research Symposiums, Gulf Coast Association of Geological Societies (GCAGS) in 2016 and the GSA South-Central Section meeting in San Antonio in 2017. Adolfo, under the guidance of Dr. Sanchez, also was awarded TCUR grant to help in his research. Adolfo was also the Departmental tutor for two years and a valued member of our program as he worked as a Teacher's Assistant for three years and assisted with physical geology, mineralogy, and petrology laboratories.



Adolfo was a well-rounded student. He served on the executive board of both the American Association of Petroleum Geologists club and Geosciences Club and a member of the Corpus Christi Geological Society (CCGS). He is a member of the Order of Omega, a Founding Father and inaugural President of the Delta Chi Fraternity, and was selected for both the Phi Kappa Phi honor society and Golden Key honor societies. Additionally, Adolfo was Desk and Derrick Club of Corpus



Christi scholarship winner and a Corpus Christi Geological Society (CCGS) Scholarship winner (multiple times). He completed his field courses at TAMUK in the 2017 field camps and earned a Javelina Field Geologist with Distinction, our highest award. Adolfo writes, "At my time at Texas A&M University-Kingsville, I was very fortunate to have been a part of a great community that served as the forefront for the success that I attained. When I arrived as a Freshman in college, going into a new environment, I did not know what I was getting myself into. Luckily I was able to establish myself with the help of surrounding colleagues and faculty. Being a geology major, I knew that my classes would be "hands on," but I did not know how involved I was actually going to be! During my rigorous course work I really fell in love with my studies and ultimately made me want to work harder to be successful."

He continues, "Having undertaken these experiences opened up many doors and opportunities throughout my four years of college. I truly believe that every individual I was associated with through college had an impact of the person I have become and the success that followed me. I could not be more grateful for the faculty that surrounded me through college that not only pushed me to be better, but also helped me through the treacherous times. Overall knowing I went to Texas A&M University-Kingsville and graduated with a Bachelor of Science degree in Geology has been the best thing that could have happened to me."



Joshua Krnavek graduated with a Baccalaureate of Sciences in Geology in the Spring Commencement with a minor in GIS and earned a GIS certificate. Josh worked on a field mapping and structural geology research project in the Christmas Mountains with Dr. Sanchez. He presented at multiple Javelina Research Symposiums, the GSA national conference in Seattle, WA in 2017 and at the Christmas Mountains Symposium (May, 2018) in Terlingua, TX. He has also been invited to present his research to the Society of Independent Professional Earth Scientists (SIPES) in Corpus Christi in the fall and he would like to publish a paper on his findings. Josh was also a member of American Association of Petroleum Geologists club (President) and Geosciences Club and a member of the Corpus Christi Geological Society (CCGS). He is a Founding Father of the Delta Chi

Fraternity. Josh was also a Desk and Derrick Club of Corpus Christi scholarship winner and a Corpus Christi Geological Society (CCGS) Scholarship winner. He worked as a Teacher's Assistant in our program for 2 years.

Josh has an internship over the summer which might lead to a permanent position and he would like to continue his studies in graduate school after getting some experience in the petroleum industry. Josh add, "I want to thank my parents for being my main support and my professors for helping me gain knowledge that I have in my studies. Leaving school is going to be bitter and sweet, but I'm excited what the future will hold and will never forget the memories I had at Texas A&M-Kingsville.



Margarita Willhelm graduated with a Baccalaureate of Sciences in Geology and Concentration in Geosciences, Cum Laude, in the Spring Commencement with a minor in GIS. She transferred from Del Mar College with an Associates in Geographical Information Systems, Summa Cum Laude, in 2015. Margarita was a teaching assistant for GIS and Remote Sensing classes under Dr. Su and Dr. Sanchez. She plans to continue graduate studies in geospatial studies and has applied to a number of graduate schools. While at TAMUK, she received the Military Veterans Scholarship Program from the American Association of Petroleum Geologists (AAPG) and the GEOINT Assistantship in 2017. In the Spring semester, she worked on a research project in microclimates with Dr. Hedquist.



Audrey



Austin

Audrey Lucio graduated with a Baccalaureate of Sciences degree in Geology in the Spring Commencement with a minor in GIS and earned a GIS certificate. She completed her field courses at TAMUK in the 2017 field camps and earned a Javelina Field Geologist award. Even before she graduated, Audrey began working part time for NYE Exploration & Production in Corpus Christi and she will further her career as a Geotech/Geologist at NYE Exploration & Production.

Austin Alford graduated with a Baccalaureate of Sciences degree in Geology in the Spring Commencement with a minor in GIS. He attended field camps at TAMUK in the summer of 2017 and is currently working for Gisler Brothers Logging in South Texas, a job he began during his final semester.

Refurbished Labeling on Geosciences Hall Displays

When, in 2009, Mark Sharrow, an undergraduate student, typed the labels for the geological specimens and printed them on a earth-toned card stock, they added a finishing touch to the Geology Department's handsome display cases. As with rocks however, time had "eroded" those original labels so they had become difficult to read.

When Cathy Downs, Professor of English at TAMUK and her husband, Michael Hess, a retired architect, took their first geology course, they enjoyed the experience of learning so much that they looked for a way to "give back" to the Geology Program for the knowledge they received. They approached members of the Department and asked if they re-print the display cabinet labels. This summer, the new labels will enable viewers to identify the specimen labels with their former clarity.



Texas Higher Education Board Approved Master in Petrophysics at TAMU-K

It's official! The Texas Higher Education Coordinating Board has approved the Master of Sciences in Petrophysics degree for TAMU-K. We were first encouraged to develop this degree for the Oil and Gas industry over 5 years ago. This is a process that requires campus approval, system approvals, and State of Texas approval. We are thankful to all involved to help us organize and build this for the future. This is a multidisciplinary degree that includes course work from Natural Gas Engineering and Geosciences. We are just beginning to advertise this unique degree, with no other similar degrees in the United States. We will be formalizing this advertisement during the beginning of the summer.

Geosciences Program Completes 5 Field Trips



Dr. Sanchez and 11 students traveled to Inks Lake State Park and Marble Falls April 5-7 to study the structural geology of that area. Students mapped contacts between different metamorphic rock units on a topographic base map. They sketched field relationships and annotated these, so they could use these in a report. They also documented cross-cutting relationships on their map and in their notebook. Their mapping technique instructions was to do a closed loop/pace and compass traverse. They had to follow the down-plunge or down-dip direction of foliation and focus on encountering contacts between contrasting lithologies.

On April 11, Dr. Mark Ford led six students taking Petrology to Ingleside on the Bay to examine the different types of granite that make up the seawall. Students discovered and documented more than 15 different textural features and determined if they were primary or secondary textures. The students also described the mineralogy of the multiple different types of granite used in the seawall and documented their work in both field notebooks and a final report.

On April 14, Dr. Thomas McGehee and Richard Parker led 29 students taking Physical Geology and Historical Geology classes to the Houston Museum of Natural Sciences to study the professional exhibits and complete a scavenger hunt exercise. The Cullen Hall of Gems and Minerals and the Lester and Sue Smith Gem Vault keys into the Physical Geology class study of mineralogy. The Weiss Energy Hall keys into modern technologies in acquiring energy resources. The Morian Hall of Paleontology keys into both Physical and Historical Geology.

On April 19-21, Drs. Brent Hedquist and Haibin Su with geologists (Dr. Thomas McGehee, Richard Parker, and Jim Chute) led 15 students taking Field Methods and Cartography on a fieldtrip to study the unconformity contact between Paleozoic and Cretaceous rocks on the Cypress Mill property. Four teams were organized by the faculty to discover contact boundaries using pace and compass techniques. At each location the team was required to study the differences in the surrounding rock types and make detailed notes and sketches on what was seen. The following day students mapped the unconformity contacts.

On April 26-28, Dr. Brian Smith, Brian Hunt, Ron Fieseler, and Dr. Thomas McGehee led 11 students in the Hydrogeology class to the Barton Springs Edwards Aquifer Conservation District (BSEACD) to study how hydrogeologists manage this portion of the Edwards Aquifer and Trinity Aquifer. Ron Fieseler and students logged a well, brought the data back to the lab and interpreted the log. He had two other logs they used to correlate the geology across a broad area. We discovered a fault between the two of the wells, which was cool.

2018 Javelina Student Championship Week



On Wednesday, April 18 four students from our program were honored as all stars for student research and creative activity. We have a picture of the group including **Adolfo Enciso**, **Joshua Krnavek**, and **Lenora Perkins**. Some of the accomplishments of Josh and Adolfo are detailed above as they graduated in May while Lenora's achievements have filled the pages of recent newsletters, as exemplified in our Feb, 2018 newsletter: http://www.tamuk.edu/artsci/physics_geosci/geosci/newsletter/geo_newsletter18_Feb.pdf

CCGS Scholarships Award for Spring



The Corpus Christi Geological Society (CCGS) awarded six scholarships to TAMUK geology majors this Spring. **Tomisin Alagbe**, **Tessa Casanova**, **Jesus Lemus**, **Adolfo Enciso**, **Joshua Krnavek**, and **Lenora Perkins**, were awarded scholarship support this Spring. Congratulations students!



Geophysics Concentration Joins the Geosciences Program Coming in the Fall

We have now added Geophysics to our choices of career paths students may pursue. The Geophysics faculty welcomed Lenora Perkins as our first undergraduate major last Fall.

Dr. Keller Presents the 14th Annual Olan Kruse Lecture



Dr. G. Randy Keller presented the 14th Annual Olan Kruse Lecture on Wednesday, April 4, 2018. He spoke on *The Geologic Structure and Tectonic History of the Gulf Coast Region: Open Questions, Impact on Natural Resources, and Potential Hazards*.

The Gulf Coast region, extending from Louisiana, across Texas, and to northern Mexico, has experienced a far more complex geologic evolution than today's topography would suggest. Over the years, Dr. Keller, students, and colleagues have worked in many areas of this region employing the integration of geological, geophysical, and industry data (drilling data, some seismic reflection images, geological mapping, etc.) They have also collected and compiled extensive gravity, magnetic and some deep seismic data for the region. Together, these data reveal a more complex structure and evolution than is often believed. These results have some potential implications for natural resource exploration and

exploitation, as well as, geologic hazards.

Dr. G. Randy Keller is a Professor Emeritus in the School of Geology and Geophysics at the University of Oklahoma and former Director of the Oklahoma Geological Survey. Now that he is retired, he does a modest amount of consulting primarily representing Seismik s.r.o. His research interests stress the geological applications of geophysics and span a variety of techniques at a variety of scales. He, his students, and colleagues have conducted many studies of the structure and evolution of the lithosphere using gravity, magnetic, remote sensing, and seismic measurements integrated with geological data, often as part of large international cooperative efforts. He also employs highly integrated approaches to study the structure and evolution of basins. His recent research focuses on the structure and tectonic evolution of southern North America, China, and Central Europe, as well as, issues associated with induced seismicity and cost-effective approaches for avoiding seismic hazards. Professor Keller has published 292 scientific papers and book chapters. He has co-edited four books. He regularly makes presentations at scientific meetings and to university and industrial research groups. In addition, he has helped organize numerous large geophysical research efforts around world and has obtained over \$28,000,000 in funding from sources including NSF, NASA, DoE, U. S. Geological Survey, Department of Defense, and industry. He also has directed 35 Doctoral dissertations and 74 Master's theses and has mentored and advised many undergraduate students and visiting scholars. What a great pleasure it was to have Dr. Keller on campus and have our students meet with him.

“Collegiate Month” Posters and Presentations by Local Colleges and Universities

We had a great TAMUK Geosciences turnout on March 21, 2018 at the Corpus Christi Geological Society yearly Collegiate Month Luncheon. Forty–eight professionals (including ten alumni) and 15 geology students from TAMUK, TAMUCC, and Del Mar College attended. Josh Kravek (*Structural Analysis of the Christmas Mountains*) and Adolfo Enciso (*Tectonic Geomorphology Analysis of South-Central Tibet Rifts Using Remote Sensing and Geographical Information Systems Hydrotool Methods*) gave oral presentations. Dr. Veronica Sanchez talked about how the combined research efforts of her undergraduate research team and their discoveries in the Christmas Mountains. Dr. Subbarao Yelisetti announced the approvals from the Texas Higher Education Coordinating Board to offer a MS degree in Petrophysics for the Fall semester. Dr. Schneider presented our program curriculum development and announced the three pillar Geosciences Programs in Geology, Geophysics and Geoinformatics. We also had seven poster presentations (see below, italics = alumni) at this meeting.

- **Lenora Perkins**, (supervisor: Dr. Yelisetti)- *Seismic Studies on the Cascadia Margin Using Tomography*
- **Lenora Perkins**, (supervisor: Dr. Sanchez) - *Migration Rates and Storm Impacts on Dunes in Southeast Texas, Landward Side of the Laguna Madre*
- **Lauren Hall**, (supervisor: Dr. Sanchez) - *A Pleistocene Rancholabrean Large Mammalian Fauna from the Aransas River, San Patricio, Texas*
- **Lauren Hall**, (supervisor: Dr. Sanchez) - *Compass Comparison in the Field*
- **Alicia Molina**, (supervisor: Dr. Sanchez) - *Microstructural Analyses and Lithologic Interpretation of Footwall and Hanging Wall Rocks of the Southern Lopukangri Rift, Tibet*
- **Ivan Villarreal**, (supervisor: Dr. Sanchez) - *Geometry and Structural Analysis of Salt Dome Complexes in NE Mexico and the Zagros Mountains*
- **Monica Estrada**, (supervisor: Dr. McGehee) - *Post-Mineralization of Limestones in the Hye, Texas area shows Diagenesis of the Cap Mountain Formation.*



11th Annual Javelina Research Symposium



The Geosciences Program was well represented at the 11th Annual Javelina Research Symposium. Six undergraduate geology majors presented posters at the symposium. **Alicia Jimenez** won the third place award for her poster – way to go Alicia!

- **Tomisin Alagbe** (supervisor Dr. Robert Schneider) presented a poster entitled “*An Integrated Geological and Geophysical Investigation of a Petroleum-Rich Reservoir, South Texas.*”
- **Lauren Hall** (Supervisor Dr. Veronica Sanchez) presented a poster entitled “*Structure Contours of the Lopukangri Rift Bounding Fault to Visualize Geometry.*”
- **Alicia Jimenez** (Supervisor Dr. Veronica Sanchez) presented a poster entitled “*Microstructural Analysis and Lithologic Interpretation of Footwall and Hanging Wall Rocks of the Southern Lopukangri Rift, Tibet.*” Alicia Jimenez won third place at the Javelina Symposium for her poster and presentation.
- **Josh Krnavek** (Supervisor Dr. Veronica Sanchez) presented a poster entitled “*Field analysis in the Christmas Mountains, west Texas*”
- **Lenora Perkins** (Supervisor Dr. Subbarao Yeliseti) presented a poster entitled “*Seismic Studies on the Cascadia Margin using Tomography.*”
- **Ivan Villarreal** (Supervisor Dr. Veronica Sanchez) presented a poster entitled “*Geometry and structural analysis of salt dome complexes in NE Mexico and the Zagros Mts.*”

Student Presentation May 8th to the Phi Kappa Phi Honor Society

As a result of winning third place at the Javelina Symposium **Alicia Jimenez** (Supervisor Dr. Veronica Sanchez) was invited to present her poster entitled “*Microstructural Analysis and Lithologic Interpretation of Footwall and Hanging Wall Rocks of the Southern Lopukangri Rift, Tibet*” at the TAMUK Chapter of Phi Kappa Phi.

Eight TAMUK Students Earn 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 10, 2018. These students did a great job in their presentations illustrating high quality work. Geosciences majors receiving the Certificate included **Tomisin Alagbe**, **Tessa Casanova**, **Adolfo Enciso**, **Lauren Hall**, **Joshua Krnavek**, and **Audrey Lucio**. The recipients from other departments over the campus included Jonah E. Trevino and Gerardo A. Bezanilla.

GEOINT Assistantships Awarded to Six Undergraduates

As part of the National Geospatial-Intelligence Agency grant Drs. Su and Hedquist received in the 2015, the Geosciences program awarded six GEOINT assistantships this May. Assistantships awardees included **Lauren Hall** (Geology major), **Cody Goll** (Geology major), **Rikki Ponce** (Geology major), **Andrew Edlin** (Geology major), **Diego Flores** (Geology major) and **Hunter Carroll** (Range Wildlife Management and Geology dual major). Each selected student receives \$2,000 and is committed to earn a minor in GIS. Congratulations to these student awardees!

NGA Funded Fieldtrip to Texas State University, San Marcos



With the support of the grant from NGA, Drs. Su & Hedquist arrange a visit with a graduate program in GIS within Texas for our GIS Minor students that are receiving the Geospatial Intelligence (GEOINT) assistantships from the grant each year. For 2018, Department of Geography at Texas State University - San Marcos was visited on Fri., March 23. Six GIS Minor students met and interacted with GIS faculty and students in the department, as well as toured their facilities and program. We also participated in the 13th Annual Texas Geography Student Research Symposium that was hosted by Department of Geography at Texas State University on the day we visited the school. **Lenora Perkins** participated in the undergraduate poster competition and won the first place - way to go Lenora! The meetings and discussions helped our students get more information about their GIS graduate program, such as financial support and admission criteria.



Brent Hedquist Granted Tenure and Promotion and Accepted Department Chair Position

Please join me in congratulating Associate Professor Brent Hedquist. He received word in May from our President that he was promoted to Associate Professor and granted tenure which will go into effect September 1st. He also accepted Department of Physics and Geosciences Chair position and will begin service as Department Chair on June 1st. Dr. Hedquist previously served as Acting Chair in the summer during the past several years in the department.

Brent Hedquist and Haibin Su Presented Papers at AAG

Drs. Hedquist and Su presented research at the American Association of Geographers (AAG) annual meeting in New Orleans, Louisiana the week of April 10-14th. Dr. Hedquist's poster title was, "Using Geospatial Tools for Documentation and Preservation of Historical Structures and in Undergraduate Experiential Learning at Rancho La Union, Zapata County, Texas." Dr. Su's paper title was, "Incorporating Spatial Information for Bathymetry Mapping with Multispectral Imagery - Comparison between Regression Kriging and Co-kriging Methods."

Dr. Su Published Two Articles in International Peer-Reviewed Journals

Dr. Su had two co-authored journal articles accepted for publication. The first one is in *IEEE Transactions on Geoscience and Remote Sensing*, a high impact journal in Remote Sensing. The article is entitled, "Deriving Bathymetry From Optical Images With a Localized Neural Network Algorithm" and can be found at: <http://doi.org/10.1109/TGRS.2018.2814012>. The second one will be published in *Harmful Algae* in June 2018, entitled, "Evaluating the portability of satellite derived chlorophyll-a algorithms for temperate inland lakes using airborne hyperspectral imagery and dense surface observations". The article can be found at: <http://doi.org/10.1016/j.hal.2018.05.001>.

Peter Luthiger Presents at TAMUK on Local Uranium Resources

Peter Luthiger, President of the South Texas Minerals Section of the Society for Mining, Metallurgy & Exploration (SME) presented to about 15 students and four faculty on the "Successful Completion of Groundwater Restoration of TCEQ Permitted Production Area PAA -1 at Energy Fuels Alta Mesa Operation, Brooks County, Texas." Mr. Luthiger is also the Director of Texas Operations for Energy Fuels Resources (USA) Inc. A number of students chatted with Mr. Luthiger after the presentation and meeting and asked about careers in mineral exploration. The local SME chapter usually has two meetings per year on the TAMUK campus, including one where students present current research.

John Metz Presentation



John Metz, the Warning Coordinator Meteorologist for the National Weather Service in Corpus Christi, presented to students and faculty in the department on March 6th, 2018. His talk was well received and titled, "Hurricane Harvey's Impact in the Coastal Bend-What Happened?"

TAMUK Representation at GSA Meeting Little Rock Arkansas Section

Veronica Sanchez, Robert Schneider, and Lenora Perkins present research at the Geological Society of America (GSA) South-Central Section meeting in Little Rock, Arkansas.

Faculty Make Multiple Recruiting Visits to Area High Schools and Junior Colleges

The faculty have been busy spreading the word about the great Geosciences Program at TAMUK and carriers in the geosciences. Over the past few months, Drs. Ford, Hedquist, McGehee, and Schneider have visited many schools including Ben Bolt HS, Palacios HS, Falfurrias HS, Robstown HS, Mary Carroll HS (Corpus Christi), Moody HS (Corpus Christi), Miller HS (Corpus Christi), Veterans Memorial HS (Corpus Christi), Del Mar College, Lone Star College and Wharton Community College.



Galleries

