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Program News

Two Geology Majors Graduated in the Fall Semester

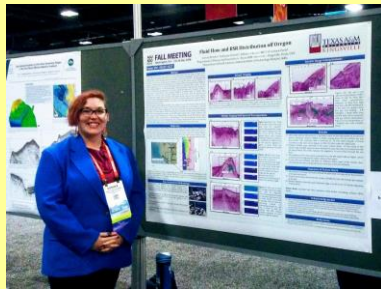


Tessa Casanova and **Jeremy Evans** graduated in the TAMUK Fall 2018 Commencement. We appreciate the level of dedication and effort given by these majors as both performed very well in our program and have bright futures as geoscientists. Great job Tessa and Jeremy!

Tessa Casanova graduated with a BS degree in Geology and a minor in Chemistry, with high honors (magna cum laude). She was a transfer student from Del Mar Community College. She also received the GIS certification in spring 2018 after completing Advanced Remote Sensing.

Jeremy Evans graduated with BS degree in Geology and a minor in Business Administration. He was a post baccalaureate student that earned his first degree from Texas A&M University – Galveston. Before graduating, he secured a job with Texegy in Corpus Christi.

Lenora Perkins Wins Award at Pathways and Goes to AGU to Present her Research



Geophysics major, Lenora Perkins, presented her research results along with Dr. Yelisetti at the American Geophysical Union Fall meeting in Washington, DC in December 2018.

“Lenora Perkins, Subbarao Yelisetti, Dibakar Ghosal, and RR1718 Science Party, Fluid Flow and BSR Distribution off Oregon, American Geophysical Union Fall meeting, Abstract # OS51F-1370, 10th – 14th December, Washington, DC”.

Lenora also own the best presentation award in the Physical Sciences category at the Pathways conference at West Texas A&M University in Fall, 2018.

GEOINT Assistantships Awarded to Three Undergraduates

As part of the National Geospatial-Intelligence Agency grant Drs. Su and Hedquist received in the 2015, the Geosciences program awarded three GEOINT assistantships in December 2018. Assistantships awardees included **Allison S. Mrotek** (Geology major), John E. Herschberger (Range & Wildlife Management major) and Joshua P. Vasquez (Range Wildlife & Management major). Each selected student receives \$2,000 and is committed to earn a minor in GIS. Congratulations to these student awardees!

TAMUK Students Attended Four Fieldtrips in the Fall, 2018



On September 29th (Saturday) fourteen students and Drs. McGehee and Ford visited multiple sites in south Texas to study modern fluvial, deltaic, lagoonal, and barrier island depositional environments in the Nueces County Area. We made multiple stops starting in Hazel Bazemore Park and then exploring Padre Island National Seashore Park. The objective of this part of the fieldtrip was to observe modern sedimentation processes that produce sedimentary rocks. We then traveled to the Freer, Texas area to observe Cenozoic sedimentary rock formations and paleo coastal plain fluvial systems.

On October 11th – 13th (Thursday-Saturday) Drs. McGehee and Ford and eleven students from the Sedimentology and Stratigraphy class traveled to Central Texas to study Paleozoic and Mesozoic

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sedimentary rocks. We were invited to Tim Cockshutt's property near Hye, Texas to look at the Cambrian sedimentation history of the area. We measured a stratigraphic section across the property and looked at the sedimentation and diagenetic histories of his property. We also examined the sedimentary rock record near Flat Creek on Fitzhugh Road to understand how geologist determined the stratigraphy of the Cretaceous Trinity Group and discussed sedimentary environments.

On November 10th (Saturday), twelve students as well as Drs. McGehee and Ford traveled to the 65th Annual HGMS Houston Gem and Mineral Societies Gem, Jewelry, Mineral, and Fossil show in Humble, Texas. At the show, mineralogy student could observe key minerals and localities where specimens are collected and got a chance to hone their mineral identification skills. One of the most exciting things for students is when they find minerals that have been mislabeled or misidentified, sometimes resulting in bargain prices. The silent auctions and "grab bags" were also big hits with the students this year.

On November 15th – 17th (Thursday-Saturday) thirteen students joined Drs. Ford and Schneider on a trip to the Badu Hill pegmatite near Lake Buchanan in central Texas. We were joined by quite an assortment of interested parties including Dr. Cathy Downs (TAMUK English professor), Michael Hess (engineer), John Buckley (retired TAMUK Geoscience professor) along with our host, Frank Roberts. In addition to examining the mineralogy and petrogenesis of the pegmatite, students participated in a pace and compass exercise, measured the thickness of some Cretaceous units at the John S. Buckley Geosciences Field Station, and learned how to stay warm on a chilly night. Students recorded field notes, produced a finished mineralogical maps of the pit walls of the old mine and wrote a report on their findings. For many students, this is their first time using data they collected to write a final report.

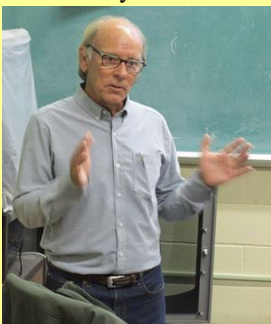
Geosciences Program Hosts Multiple Invited Speakers



Randy Bissell

The TAMUK Geosciences program, along with student clubs including the Geosciences Club and AAPG student chapter, hosted four invited speakers this fall. The Department and our students are grateful to these presenters and their support of our Program.

Randy Bissell (Headington Energy Partners, Corpus Christi and adjunct geology professor at TAMU – Corpus Christi) gave a talk titled "*Evolving Models for Eocene Deepwater Channel Complexes and Fan Systems, Scotland District, Barbados*" on September 11th. He detailed the complex geologic origin of the Caribbean island and how studying its surface geology can help petroleum geologists better understand deep water systems, especially stacked sequences of Bouma-classified turbidites. Mr. Bissell is well known in south Teas for his volunteerism, especially through the Corpus Christi Geological Society (CCGS), often leading field trips and furthering geoscience education outside of the classroom.



Patrick Nye

Patrick Nye (Nye Exploration & Production and Nye Renewables, Corpus Christi) gave a talk titled "*Building on Successes & Failures: The Life as an Independent*" on October 15th. He relayed some great stories of successes and failures over the past 35 years, detailed what it takes to make it in the petroleum world and explained how failures can serve as learning experiences. He also entertained students at a "meet and greet" with sodas and pizza before the talk and showed of some tremendous pictures of his fishing expeditions. The talk was the kick-off to our annual Earth Science Week events (detailed below) and was covered in The South Texan: <http://thesouthtexan.com/index.php/2018/10/25/tamuk-celebrates-6th-earth-science-week/>

Dr. Mark T. Ford (Department of Physics and Geoscience at TAMUK) gave a public lecture as part of the Earth Sciences Week event titled "*An Update and Review of the Exciting 2018 Hawaiian Volcanic Eruptions*" on Oct 18th. More than 45 people attended to see a review of the fissure eruptions that routinely made the nightly news over the summer and resurfaced parts of the Big Island. A display of various volcanic rock types was also available for the attendees to examine. Afterwards, interested parties watched drone footage of some of the eruptions.



Mohammed Ahmed

Dr. Mohammed Ahmed (Department of Physical and Environmental Sciences at TAMU – Corpus Christi) gave a talk titled "*GRACE data: A tool for sustainable management of the Nubian aquifer's water resources*" on Nov 28th. His talk focused on the nature of factors controlling terrestrial water availability, role of various structural elements (e.g., faults, shear zones) on groundwater accumulation and flow, and multidisciplinary methods developed to understand and characterize the Nubian aquifer's water resources.



Mark T. Ford



National Earth Sciences Week Celebrated at TAMUK



The Geosciences Program hosted our 6th annual Earth Science Week activities from October 15th – 19th. There were events every day (highlighted below) and activities were well attended, supported, and led by our student majors and faculty.

On **Monday** evening, guest speaker Patrick Nye gave an invited talk (detailed above) on the life of an independent oilman. On **Tuesday**, we held our Geoscience Program Open House. We had GIS, Mineralogy, Petrology, Field Geology, Sedimentology and Petroleum Geology/3-D Seismic Exploration exhibits hosted by five faculty and many geoscience students and approximately 30 people visited the department. On **Wednesday**, Dr. McGehee and students **Diego Flores, Francisco Rios** and **Travis Burford** hosted nine local boy scouts and helped them to earn their geology merit badges. All the boys left with rocks, minerals and fossils including Oregon beach agates, pyrite and fossils from central Texas. At the same time, Dr.

Ford entertained seven cub scouts (many were younger siblings of the boy scouts) with neat rocks and colorful minerals. Despite poor weather, about 45 people attended Dr. Ford's public lecture on Hawaiian volcanism on **Thursday**, which was detailed above. Finally, on **Friday**, Dr. Hedquist led a small group of students around campus to pick up trash as part of a campus clean-up activity. We extend a big "thank you" to our students and the Geosciences and AAPG Clubs for their help in producing another great and successful Earth Sciences Week at TAMUK.

Our Department Hosted Earth and Space Science Evening

It was a semester full of speakers and events for our program and on September 11th, Drs. Ford and Schneider hosted about 25 students while we watched two movies, one on the deepest places on Earth (the geology of the Marianas Trench) and one on Krakatau, a crowd favorite. Unfortunately, the weather prevented us from using telescopes and subdued attendance. A second planned Earth and Space Science Evening was also canceled due to the weather but we hope to run at least two of these events in the spring. A special thanks to Professor Nelson (Physics) for helping to plan these events, which are open to the public.

Geosciences Club Participates in College Night Out

On September 25th, students from the TAMUK Geosciences and AAPG Clubs and Geophysical Society (student chapter of the Society of Exploration Geophysics) set up booths at the annual Arts & Sciences College Night Out event. Dr. Ford also participated in this fun event that is designed to introduce new students to different opportunities and clubs within the college.

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

In October, Dr. Ford traveled to Warton Junior College in Richland, Wharton Junior College in Sugarland and Alvin Junior College where he met with physical geology classes and prospective transfer students. He also talked with multiple geoscience professors at the junior colleges and transfer advisors. Dr. Schneider also made recruitment visits to Texas State Jr. College (Uvalde), Eagle Pass High School and joined Dr. Hedquist to present at a STEAM outreach event at H.M. King High School in Kingsville.

The Year in Review: Geosciences Publications Over the Past 12 Months

Names in **bold** indicate undergraduate authors, underline indicate alumni.

Refereed journal articles:

- Beck, R., Xu, M., Zhan, S., Johansen, R., Liu, H., Tong, S., . . . , Su, H., . . . Huang, Y. Comparison of satellite reflectance algorithms for estimating turbidity and cyanobacterial concentrations in productive freshwaters using hyperspectral aircraft imagery and dense coincident surface observations. *Journal of Great Lakes Research*. doi: <https://doi.org/10.1016/j.jglr.2018.09.001>
- Johansen, R., Beck, R., Nowosad, J., Nietch, C., Xu, M., Shu, S., . . . Su, H. Evaluating the portability of satellite derived chlorophyll-a algorithms for temperate inland lakes using airborne hyperspectral imagery and dense surface observations. *Harmful algae*, 76, 35-46. doi: <https://doi.org/10.1016/j.hal.2018.05.001>
- Liu, H., Su, H., & Wang, J. Bathymetry retrieval from optical images with spatially distributed support vector machines AU - Wang, Lei. *GIScience & Remote Sensing*, 1-15. doi: 10.1080/15481603.2018.1538620
- Liu, S., Wang, L., Liu, H., Su, H., Li, X., & Zheng, W. Deriving Bathymetry From Optical Images With a Localized Neural Network Algorithm. *IEEE Transactions on Geoscience and Remote Sensing*, 56(9), 5334-5342. doi: 10.1109/tgrs.2018.2814012



Smith, L.M., T.J. Cowles, R.D. Vaillancourt, and S. Yelisetti; Introduction to the special issue on the Ocean Observatories Initiative, *Oceanography*, 31(1):12–15, <https://doi.org/10.5670/oceanog.2018.104>.

Subedi, M.R., W. Xi, C. Edgar, S. Rideout-Hanzak, and B.C. Hedquist, Assessment of Geostatistical Methods for Spatiotemporal Analysis of Drought Patterns in East Texas, USA, *Spatial Information Research*, 27:11, <https://doi.org/10.1007/s41324-018-0216-9>.

Meeting and conference abstracts:

Hedquist, Brent C.*, Gerardo A. Bezanilla-Enriquez, and Mukti R. Subedi, 2018, Using Geospatial Tools for Documentation and Preservation of Historical Structures and in Undergraduate Experiential Learning at Rancho La Union, Zapata County, Texas. Annual Meeting of the American Association of Geographers (AAG), New Orleans, LA, April 2018.

Hedquist, Brent C.*, **Margarita Wilhelm**, 2018, The effect of tree canopies and building orientation on the urban microclimate of a residential neighborhood in Corpus Christi, Texas. International Conference for Urban Climate (ICUC-10), New York, NY, August 2018.

Perkins, Lenora P.*, Robert V. Schneider, **Margarita Wilhelm**, **Ivan Villarreal**, 2018, Seismic imaging of the Catahoula Ash near Rio Grande City, Texas, Geological Society of America South-Central section.

Perkins, Lenora *, Subbarao Yelisetti, Dibakar Ghosal, and RR1718 Science Party, 2018, Fluid flow and BSR distribution off Oregon, Abstract # OS51F-1370 presented at 2018 Fall Meeting, AGU, Washington, DC, 10-14 Dec.

Perkins, Lenora * and Subbarao Yelisetti, 2018, Seismic studies on the Cascadia margin using tomography, The 7th Annual Undergraduate Research Symposium and Graduate Schools Expo, University of West Alabama, Livingston, AL, 6th Mar. 2018.

Schneider, Robert*, **Lenora Perkins**, **Margarita Wilhelm** and **Ivan Villarreal**, 2018, Observations of anomalous seismic p-wave velocities in Catahoula-aged ash, south Texas, *Transactions, Gulf Coast Association of Geological Societies*, vol. 68.

Schneider, Robert V.*, Subbarao Yelisetti, Thomas McGehee, 2018, Initiation of a new geophysics program in south Texas, Geological Society of America South-Central section, March 2018.

Su, Haibin and Brent Hedquist, Developing Pathways to GEOINT for Underrepresented South Texas Students, 2018 Annual Intelligence Community Academic Research Symposium (ICARS), Washington DC, September 25-27, 2018.

Su, Haibin, Incorporating Spatial Information for Bathymetry Mapping with Multispectral Imagery -Comparison between Regression Kriging and Co-kriging Methods, The 2018 Annual Meeting of The Association of American Geographers, New Orleans, LA, April 10 - April 14, 2018.

Galleries





