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## Program News

### Congratulations, Bachelor of Science Graduates!



The Department would like to congratulate the following students for their successful completion of the Bachelor of Science degree in Geology. We wish you a bright future!

*August 2020 Graduates:*

**Andrew Edlin, Seth Escobar**

*December 2020 Graduates:*

**Shae Diehl, Christiano Irving, Taylor Palmer,  
Francisco Rios, and Kendra Tyler**



**Andrew Edlin** successfully completed the Bachelor of Science degree in Geology with a minor in GIS. He was an avid promoter of the Geology Club and served as president while at TAMUK. Andrew also led many outreach activities in the department, including local recruiting at Del Mar College in Corpus Christi, demonstrations during Earth Science Day and College Day Out. He had a successful field season during Spring Break 2020 in west Texas and the Big Bend area in the Field Methods course and then went on to participate in Wichita State University's virtual field camp. Andrew was also a teaching assistant for GIS courses in the department and regularly mentored new students in various courses.



Raised in Wagoner, Oklahoma, **Shae Diehl** joined the US Navy and spent her entire enlistment in Sasebo, Japan. Shae completed a BSc in Geology with a concentration in Geophysics and a minor in Math. She is the Student Veterans of America TAMUK president and a member of the SALUTE National Honor Society for Veterans. Shae is also the Texas A&M University System Student Veteran Excellence award winner. Upon completion of her BSc degree, she plans to apply to Penn State to pursue a Master's degree.



**Christiano Irving** completed a Bachelor of Science in Geology with a minor in Mathematics. He obtained an Associate of Science degree from Del Mar College in Corpus Christi, TX. While at TAMUK Christiano assisted with outreach activities through the Geology Club. He held Teaching Assistant positions for hydrogeology (2020), earth science (2019) and sedimentology and stratigraphy laboratories (2019). Additionally, he served as field trip student coordinator in 2018 and assisted faculty with field gear organization and maintenance, as well as with mentoring in the field. Christiano received various awards while at TAMUK, most notably the Corpus Christi Geological Society Scholarship (2020) and made the Dean's List in 2019. He completed field camp (virtual) at Indiana University-Bloomington (Judson Mead Geologic Field Station). Christiano Irving is TAMUK's Department of Physics & Geosciences Javelina Field Geologist Award recipient for 2020. This award recognizes outstanding leadership and skills in field geology.



During his time at TAMUK **Francisco Rios** has helped tremendously with outreach activities by joining faculty in local recruiting events. He held the social media specialist position and took charge to exchange a few tweets with the community. Francisco, or Frankie, as everyone called him, was a very active Geology Club member and was ready to make appearances at outreach events. Frankie successfully completed field work in the Field Methods course over spring break 2020. He also led workshops on jewelry making and sold minerals at the Geology Club booth at various events.



**Kendra Tyler** graduated with a Bachelor of Science in Geology with a minor in Business Administration. She is a member of the American Association of Petroleum Geologists (AAPG), Geological Society of America (GSA), and Corpus Christi Geological Society (CCGS). She obtained an Associate degree from Del Mar College in Corpus Christi, TX, in 2017, before joining TAMUK. Having a wealth of experience from local internships (Viking Geology Consulting, LLC, and Bergsma Consulting), Kendra served as teaching assistant in the winter 2018 geotechnical training course. Kendra successfully completed fieldwork in west Texas/Big Bend region in the spring 2020.

### Congratulations, Master of Science in Petrophysics Graduates!

The Department of Physics & Geosciences is pleased to graduate the first cohort of students in the Master of Petrophysics program. Five students successfully defended their Master’s thesis in the summer 2020: **Toluwalope A. Bamisile, Monica Estrada, Erin Matthys, Howard R. August Palacios, and Ajibola O. Samo**. Their thesis’s titles are:

Toluwalope A. Bamisile – “Seismic Structure and Gas Hydrate Studies on the Southern Cascadia Margin Using Waveform Tomography”

Monica Estrada - “Correlating Porosity, Water Saturation and Hydrocarbon Saturation Characteristics of Miocene Formation Reservoirs from Seismic and Well Log Data in the Main Pass Protraction Area, Gulf of Mexico”

Erin Matthys - “Integrated Reservoir Analysis of the Oligocene, Frio Formation 10-A Reservoir Sand at Rita Field, Kenedy County, Texas”

Howard R. August Palacios (PhD student now at University of Texas at Austin) - “3D Seismic Characterization and Prospect Assessment of the Upper Miocene Interval, Virgo Block, Offshore Louisiana, Gulf of Mexico”

Ajibola O. Samo (PhD student now at the University of Houston)- “Reservoir Characterization of the Volve Field, North Sea using Rock Physics Modeling”

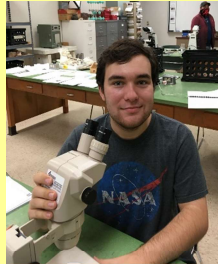
Congratulations, Petrophysics Masters graduates! We wish you well in your future endeavors!

### Welcome New Undergraduate Students!

We welcome **Tahiry Andriamiharisoa, Winston Broussard, Benjamin Chapa, Tony Cortez, Lorna Craft, Ronald Depalma, and Marco Polo Leza** to the Physics & Geosciences Department.



Tahiry



Winston



Tony



Lorna



Marco

**Tahiry Andriamiharisoa** graduated in the spring 2020 from Lone Star-Montgomery College in Houston, TX, with an Associate of Science degree. Tahiry transferred to TAMUK in the Fall 2020 and is working on her Bachelor of Science in Geology with a concentration in Geosciences. When asked why she joined Geology, she replied, “I love exploring natural areas and all about geosciences!”

**Winston Broussard** graduated from Blinn College-Brenham campus in the spring 2020 and joined the department as a Geology major. Winston will be working towards a Math minor and a GIS certificate.

**Benjamin Chapa** joins us as a Geology major with a Geoscience concentration and Physics minor.

**Tony Cortez** joins us from Richmond, TX, where he attended George Bush High School. Tony participated in Junior Varsity Baseball and cross-country. He was also part of the Debate Club, AVID (Advanced Via Individual Determination - a college prep club), and TAFE (Texas Association For future Educators). Tony enjoys reading, video gaming, and watching political news media. He is majoring in Geology with a concentration in Geosciences and a minor in Political Science. Tony aspires to become a hydrologist or an environmental engineer.

**Lorna Craft** graduated from Alvin Community College in the spring 2020. She joins us as a Geology major. Lorna will be working towards obtaining GIS and Business minors.

**Ronald Depalma** joins us an internal transfer from Natural Gas Engineering. Ronald is working towards a Bachelor of Science degree in Geology with a concentration in Geophysics.

**Marco Polo Leza** is a transfer student from Lone Star College-Montgomery campus. He joins us as a Geology major. Marco will also focus on obtaining minor in GIS.





## Welcome New Petrophysics M.S. Students!

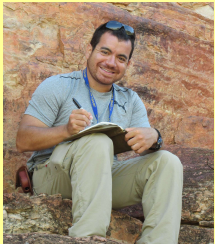
**Elora Afrin, Felipe Alarcon-Canto, William Cathey, Edson Estrada, Hailey Smith, and Jenny Pinilla** will be working in various projects to fulfill the Master of Science in Petrophysics degree.



Elora

**Elora Afrin** was born in Khulna, Bangladesh. As a child, Elora was fascinated with Physics and avidly read books written by physicists. Captivated by their dedication and contribution to humanity, Elora was motivated to follow a science career. Elora has visited mountains, waterfalls, oceans, deserts at home and abroad with friends and family, taken part in different adventurous activities and tracked hills several times. These activities enhanced her interest in the origin of rocks, their properties and overall love for geology. Elora majored in Physics at Khulna University to accomplish her childhood dream. She enjoys different indoor and outdoor games and sports. Among her hobbies, she enjoys traveling, fishing, gardening and reading. Elora also enjoys volunteering in efforts to fight hunger and teach children. Elora currently attends classes in our Petrophysics Program from Bangladesh. She is enjoying her learning

experience and the support she receives from faculty – she would like to say to them, “Thank you very much.” Elora is a student member of the Corpus Christy Geological Society (CCGS), Society of Exploration Geophysics (SEG), and The Society for Collegiate Leadership & Achievement (SCLA). Her ultimate goal is to earn a Ph.D.



Felipe

**Felipe Alarcon-Canto** graduated from TAMUK with a Bachelor of Science in Geology. He participated in undergraduate research projects across disciplines including structural geology, field methods, and engineering. He joined the Petrophysics Program in Fall 2020 to further his skills as a geoscientist.

**William Cathey** joined our MS Petrophysics program in Fall 2020 after spending nearly three decades in petroleum industry working as an Exploration Geologist in various roles in Shell Oil Co., Conoco, Occidental Chemical (Oxy Petroleum), Exxon Minerals and DOE among others. Prior to joining TAMUK, he previously earned BS and MS degrees in Geology from University of Tennessee-Knoxville.

**Edson Estrada** joined our MS Petrophysics program in Fall 2020 after completing his BS Physics degree from our department. Edson is currently working full time while taking Petrophysics classes remotely.



Hailey

**Hailey Smith** received a Bachelor of Science in Geology from Texas A&M University-Corpus Christi in 2017. Originally from Washington State, where she also attended junior college, Hailey has lived in south Texas for ~9 years. Hailey worked as a mudlogger on a drilling rig in the Permian Basin after receiving her BSc degree. In January of 2018, she joined Halliburton as a hydraulic fracturing engineer and gained experience working with the Eagle Ford and the Permian Basin. “I have nothing but great things to say about my experience,” is what Hailey shares about her time there. After having her first child, Hailey needed to make a hard “life” decision: return to work in the field or go back to school. Hailey has joined the Department as a graduate student pursuing a MSc in Petrophysics. She also holds a Teaching Assistant position in the department. Despite challenges in her professional, educational and personal life, Hailey is looking forward to working on campus and collaborating with students and faculty. “I hope to find the delicate balance between work, school, and home life easier to manage as time marches on, but keeping an attitude of gratitude will always keep me walking tall with my head held high.” Hailey Smith.



Jenny

**Jenny Pinilla** is a petroleum engineer and forms part of the predominantly male-dominated oil and gas industry. She was born on a farm in a small town in Colombia during Guerrilla’s time. She is the first child of wonderful and working parents and has two enterprising sisters. Jenny brags about being the best at school and being passionate about music, math, physics, and chemistry. Naturally, she found Petroleum Engineering the perfect combination of these. She chose this profession despite it being a historically “male” career. Jenny left her family at 16 years old to study at Universidad Industrial de Santander, where she graduated *Cum Laude*. After almost 10 years of industry experience, Jenny can firmly state that to improve the exploitation of hydrocarbons, we must improve knowledge, technology, and innovation. She

suggests this can be achieved by adding more “specialist” human talent to develop scientific methods to increase efficiency, thus decreasing the environmental and social impact. Most importantly, diversity plays a significant role as well. “Companies with more diverse boards perform better financially, are more creative, make better decisions, boost productivity levels and unlock efficiencies,” she states. Furthermore, in a historically male industry, “we need to decrease the gender gap; women can bring different leadership skills, behaviors, and thought.” Jenny is passionate to start “the change.” She joined the Petrophysics Masters Program at TAMUK to acquire the tools to solve problems, increase knowledge on the physical and chemical processing of hydrocarbons, and overall boost her professional career. Jenny’s goal is to become a female technical leader that inspires more women to be part of this industry. “Let us make it better together. We need hydrocarbons,” Jenny states, “but with more science, sensibility, and empathy.”



### Christiano Irving is the 2020 Javelina Field Geologist Award Recipient



For his outstanding skills and leadership in the field, Christiano Irving received the **2020 Javelina Field Geologist Award**. Typically, this award is given to students who not only participate in most of the 3-day weekend and longer field trips offered in a semester, but also deliver quality geologic maps and field reports for required field trips. Traditionally, we also nominate students based on field camp performance and skills during their last summer prior to graduation. In addition to delivering outstanding work, which showcases their field geology skills, they are also great mentors and leaders to new students.

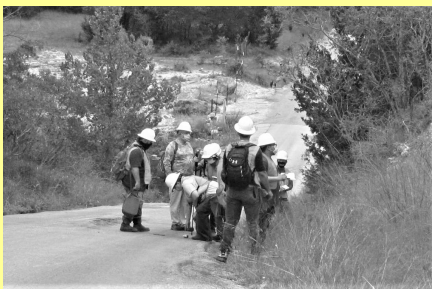
### Christiano Irving Receives the Departmental Summer Field Camp Scholarship

Congratulations to the Summer 2020 Field Camp Scholarship recipient **Christiano Irving**. Christiano attended the Indiana University's virtual geology field camp this past summer.

### Undergraduate Teaching Assistants – Fall 2020

We greatly appreciate the assistance from our senior students in the classroom and laboratories, as well as in departmental outreach activities this Fall semester. **Tahiry Andriamiharisoa** was our Physical Geology Tutor; **Francisco Rios** assisted with social media and outreach, and **Christiano Irving** helped with upper division labs and other departmental needs. Thank you TAs for your help in laboratories and department outreach activities!

### Stratigraphy and Sedimentology Field Trip to Central Texas, October 2020



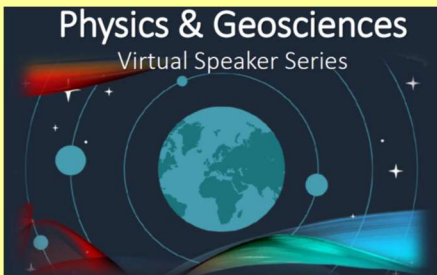
The Sedimentology and Stratigraphy class embarked on a three-day excursion on October 8 -10, 2020, to the Texas Hill Country to learn about the exposed sedimentary formations of Central Texas. Dr. Robert Schneider and Professor Richard Parker accompanied eight students to the John Buckley Field Station near Round Mountain, Texas, where geology students have made basecamp for many years.

On the first day, the students reviewed and prepared for their first exposure to field methods as new “geologists”. On Friday after getting an early start, the group drove about 20 miles to the field exercise area near a tributary of the Pedernales River, parked vehicles and hiked down a steep hill to Flat Creek. Dr. Thomas McGehee, retired

TAMUK geology professor, gave them a briefing about the exercise, and pointed out what to look for as they surveyed the outcrops of rocks that layered the steep inclined hill. The students measured a section of lower to upper Cretaceous rocks by applying traditional field methods. They collected an abundance of data, including careful observations of the outcrop and fossil assemblages. Back at camp, they worked late into the night to finalize reports.

The group also visited outcrops in Johnston City and the Blanco-Pedernales Groundwater Conservation District (GCD) office. Mr. Ron Fieseler, General Manager and Geologist with the Blanco-Pedernales GCD, facilitated a tour and provided examples of the Paleozoic rocks the students would encounter for a second field exercise. Also joining the group were Mr. James Chude, long-time friend of the Department, and Dr. John Buckley, retired TAMUK geology professor, who were more than happy to assist the students in the field.

### Fall 2020 Kicks Off with Virtual Speaker Series



The **Physics and Geosciences Virtual Speaker Series** kicked off the season with a ZOOM presentation on November 12, 2020, by department friend and Corpus Christi Geological Society officer **Randy Bissell**. The event was well attended by students, faculty, staff, and guests from the community. The presentation highlighted the multidisciplinary efforts that are applied to understand the evolution of the lower Nueces River Valley. Randy presented plenty of opportunities for students to join in these efforts by getting involved with fieldwork, outcrop and remote-sensing analyses in the Nueces Delta Preserve.

The **Virtual Speaker Series** will continue in the Spring 2021 semester. Contact the Department of Physics and Geosciences at TAMU-K for more information: [TAMUK.PhysicsandGeosciences@tamuk.edu](mailto:TAMUK.PhysicsandGeosciences@tamuk.edu)



**Randy Bissell** is Geoscience Advisor at Headington Energy Partners, LLC, in Corpus Christi, and adjunct professor at Texas A&M University-Corpus Christi. He received a Bachelor of Science degree from the University of Southern Mississippi (1982) and a Master of Science from Oklahoma State University (1984). He is a Texas Master Naturalist in the South Texas Chapter. He has a wide range of experience having worked for the USGS as a hydrologist technician while in college and as a paleontologist's field assistant for the Mississippi Geological Survey. His work has focused on understanding sandstone depositional environments by utilizing various tools: direct outcrop observations, core, well log, and 3D seismic data.

**December Invited Speaker: Dr. Lisa Tauxe presents "Hunting the Magnetic Field Through Ocean Drilling"**



**Dr. Lisa Tauxe** is Distinguished Professor of Geophysics at the Scripps Institution of Oceanography, University of California, San Diego. She received her PhD from Columbia University and participated in her first expedition (Leg 73) while a graduate student. She has sailed on five expeditions (Legs 73, 108 and Expeditions 318, 355 and 382). Dr. Tauxe's talk entitled "Hunting the Magnetic Field Through Ocean Drilling" enlightened students, faculty, and other guests from the community over a ZOOM seminar on December 1, 2020. After giving an overview of the history of drilling programs, which had origins with the advent of the Deep Sea Drilling Project (DSDP) in 1968, she discussed the efforts of the current International

Ocean Discovery Program (IODP). Dr. Tauxe followed with an interesting account of how she collects paleomagnetic data from all over the globe's oceans. She shared results from her most recent IODP Expedition 382 to the "Iceberg Alley" in the Scotia Sea and previous expeditions. Her fascination with conducting geo-science was amazing. We thank Dr. Tauxe for her presentation and for providing important information to students on how to get involved with the IODP expeditions and for communicating the thrill of doing science at sea.

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**Drs. Hedquist and Su Receive Grant Award from the National Geographic Society**

On September 25th, Drs. Hedquist and Su, along with Co-PI Dr. Gina Reyna-Garza in the Department of Teacher and Bilingual Education, received the great news that they were awarded \$35,428 from the National Geographic Society and the Texas Higher Education Coordinating Board (THECB) for the project titled, "Social Studies Scholars Initiative-S3 Initiative." The one-year project will better prepare pre-service educators in South Texas in the area of social studies, specifically in Geography, while addressing the teacher shortage that exists within the state of Texas for highly qualified bilingual teachers. Students selected for the project will be trained through content found on National Geographic's education web portal and enroll in a summer section of World Geography on TAMUK's campus in 2021 to better prepare for their state teaching certification exam, TEXES. Congrats!

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**Dr. Hedquist Publishes Paper in Leading Remote Sensing Journal**

Dr. Hedquist co-authored a paper entitled, "A Pilot Study to Estimate Forage Mass from Unmanned Aerial Vehicles in a Semi-Arid Rangeland." It is published in a special issue of the leading journal *Remote Sensing*. The paper was a collaboration with faculty and graduate student colleagues from the Caesar Kleberg Wildlife Research Institute at TAMU-K. The research highlights a newer technique of estimating biomass in foraging areas via UAV/drones.

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**Dr. Subbarao Yeliseti Publishes Research in Geosphere**

Dr. Yeliseti co-authored a research paper entitled "2012 Haida Gwaii Mw 7.8 Earthquake – Seismic velocity structure of the Queen Charlotte Terrace region from wide-angle seismic refraction tomography," in the journal *Geosphere*. The article touches on the utility of these tomography techniques to understand the velocity structure for this region. The new seismic refraction data acquired off Haida Gwaii indicate high-velocity material in the shallow Terrace that may suggest fractured oceanic crustal material. Transpressive deformation of the Pacific Plate may explain these observations.

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**Faculty Publications (\*student; faculty name in bold)**

M. Estrada\*, **S. Yeliseti**, **V. Sanchez**, "Correlating Porosity, water saturation and hydrocarbon saturation characteristics of Miocene Formation reservoirs from well log data in the Main Pass protraction area, Gulf of Mexico" in *SEG Technical Program Expanded Abstracts 2020*, Society of Exploration Geophysicists, PP 1077-1081 DOI: 10.1190/segam2020-3428220.1

DiMaggio, A. M., Perotto-Baldivieso, H. L., Ortega-S., J. A., Walther, C., Labrador-Rodriguez, K. N., Page, M. T., de la Luz Martinez, J., Rideout-Hanzak, S., **Hedquist**, **B. C.**, and Wester, D. B., 2020, "A Pilot Study to Estimate Forage Mass from Unmanned Aerial Vehicles in a Semi-Arid Rangeland," *Remote Sensing*, v. 12, issue 15, <https://doi.org/10.3390/rs12152431>

M. Riedel, **S. Yeliseti**, C. Papenberg, K. M. M. Rohr, M. M. Côté, G. D. Spence, R. D. Hyndman, T. James, 2020, "2012 Haida Gwaii Mw 7.8 Earthquake – Seismic velocity structure of the Queen Charlotte Terrace region from wide-angle seismic refraction tomography," *Geosphere*, DOI:10.1130/GES02258.1.

**S. Yeliseti**, D. Ghosal, **V. Sanchez**, "Seismic structure and gas hydrate studies on the southern Cascadia margin using multichannel seismic data," *AGU Fall Meeting*, San Francisco, CA, 1st-17th December 2020