

Department of Environmental and Geosciences

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Letter from the Chair

-By **Dr. Joe Hill**

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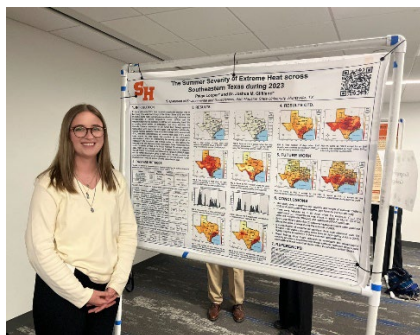
SHSU Environmental
and Geosciences
group

What a great year! This newsletter celebrates remarkable achievements at every level—from student success stories, student-faculty research, alumni reflections, and faculty innovations gaining national recognition. Enjoy!

Our research momentum continues to build. Dr. Renjie Zhou's NSF-supported work exemplifies his cutting-edge karst groundwater research, while Dr. David Moss directs the SHSU Natural History Collections and maintains his prestigious NSF Career Grant. Dr. Ross Guida leads the Gulf Scholars Program, and we're excited about Dr. Yaping Xu and Dr. Josh Gilliland's recent NASA grant with Prairie View A&M and Arizona State University.

Congratulations to Dr. Renjie Zhou on his promotion to Associate Professor with tenure, Ava Fujimoto-Strait on her new appointment as Assistant Professor of Practice, and Kerry Billington expanded her role as both GIS Administrator and GIS Lab Coordinator.

Alumni, please share your news for our upcoming issues! Everyone, please join us for our 5th annual Faculty/Staff, Student, and Alumni Potluck on Saturday, January 31st, 2026, from 11:30 am to 1:30 pm at the University Camp's dining hall and pavilion.



Measuring the Heat: Faculty-Student Research on Texas Weather Extremes

-By **Paige Looper** (Geography major, Business minor, Honors student, and *Weather and Climate* TA)

During the Spring 2025 semester, I had the incredible opportunity to conduct research with **Dr. Josh Gilliland** on the 2023 summer heatwave that impacted Texas. Our research analyzed the severity and duration of this extreme weather event by examining human responses to excess heat, heat stress, and the excess heat factor.

Through this analysis, we determined that between 40 and 60 days from June to August were classified as extreme heatwave days—a staggering finding that highlights the intensity of what Texans endured. As extreme heat events are projected to increase in frequency and severity, the challenges in defining and measuring these events continue to pose significant consequences for public health and safety.

It was truly a privilege to contribute to this important research. Additionally, participating in the **Undergraduate Research Symposium** during the spring semester deepened my understanding of the topic and strengthened my interest in climatology and meteorology. Dr. Gilliland's expertise, dedication, and mentorship made this research experience exceptional!

Recent Graduate Lands Dream Internship at Grand Canyon National Park

-By **Stefano Cavezza** (Environmental Science major)

My name is **Stefano Cavezza**, and I graduated from Sam Houston State University this May with a degree in Environmental Science. I am currently working as an intern at **Grand Canyon National Park**, where

my primary duties focus on vegetation. For those who know me, I never stop talking about plants! Ever since I took an interest in them while working at a nature park, I have sought to turn my passion into a career.

From working at the **SHSU Pineywoods Environmental Research Lab** propagating plants in the greenhouse to restoring biodiversity through field planting, I truly enjoyed getting my hands dirty and working outside. Now, I have the incredible opportunity to do so in one of our country's greatest natural landmarks. I'm propagating plants in the greenhouse and nursery, planting and watering restoration sites, and removing invasive and noxious species—all while overlooking the **Colorado River**. I even got my 3-month internship extended for another 3 months!

My time at SHSU was transformative, and I am thankful for the classes that helped me prepare for the real world. **Ecology** and **Environmental Science** helped me better understand the world around me and the natural processes that have been at work for thousands of years. My **GIS** and **Field Studies** classes prepared me for collecting data and making observations, while my **Geography** classes taught me to work better with people and understand how finite our natural resources really are and why they need protecting for future generations.

Plant Taxonomy was perhaps my favorite class (as everybody probably knows). I learned to stop and observe the most minute flower or dull grass, identify them, and understand the impacts they have on the environment. My classes and professors helped pave the way for me to gain this incredible opportunity, and for that I am extremely grateful.





Finding Her Element: A Transformational Journey Through the Geosciences

-By **Jacqueline Lara** (Geography major with minors in Geology and Environmental Science)

My name is **Jacqueline Lara**, and I'll be graduating in August 2025 with a Bachelor of Science in Geography and double minors in Geology and Environmental Science from Sam Houston State University. When I started at Sam Houston in 2021, I was originally a Criminal Justice major—but one required geology course completely shifted my path.

I was immediately captivated by the subject matter. I scheduled a meeting with **Dr. Renjie Zhou** to explore potential careers in the geosciences, and from there, everything clicked. I found myself surrounded by a department full of passionate professors who truly love what they teach. Switching my major was one of the best decisions I've ever made.

Through my studies, I've had the privilege to travel to incredible places like Hawaii and Arkansas and experience the rich cultural history of Tennessee and Mississippi—including developing an unexpected appreciation for blues music. Some of the professors who made the greatest impact on me were **Dr. John Strait** and Professor **Ava Fujimoto-Strait**. Field trips with Dr. Strait were always filled with excitement, meaningful lessons, and a strong sense of exploration that made learning come alive. Professor Ava has been an incredibly supportive mentor throughout my college journey. Her encouragement, guidance, and unwavering belief in me helped carry me through moments when I doubted myself.

Real-World Experience at Quanta Services

For my final task as an undergraduate student, I had the privilege of completing a summer internship with **Quanta Services**, a leading energy company that oversees more than 200 affiliated firms across North America. I was placed with **Canacre**, one of Quanta's partner

companies specializing in land acquisition, environmental permitting, and project management for utility infrastructure.

As an Environmental Intern, I worked on stormwater inspections and traveled to project sites across Texas and the Midwest to ensure environmental compliance with local, state, and federal regulations. This role gave me hands-on experience in environmental fieldwork and a newfound appreciation for the complex systems behind energy infrastructure in the United States.

The internship allowed me to apply the theoretical knowledge I'd gained in the classroom to real-world challenges. I

learned to navigate regulatory requirements, conduct thorough environmental assessments, and work collaboratively with diverse teams across multiple states. The experience reinforced my passion for environmental science while showing me the practical applications of my geography and geology coursework.

Reflection and Looking Forward

Looking back, this journey has been more than just academic—it's been transformational. I've grown tremendously, both personally and professionally, and discovered a deeper sense of purpose in the work I want to do. The combination of Sam Houston's hands-on approach to learning and the mentorship of dedicated faculty prepared me to excel in a professional environment.

I'm proud of the path I've taken and excited to continue building a career that creates a lasting, positive impact. To students considering a similar path: don't be afraid to follow your curiosity, even if it leads you away from your original plan. Sometimes the most unexpected courses can open doors to your true calling.

After completing her internship, Jacqueline was offered an Environmental Scientist position at Canacre. Eat 'em up, KATS!



Senior Spotlight – A Journey Through Geology at SHSU

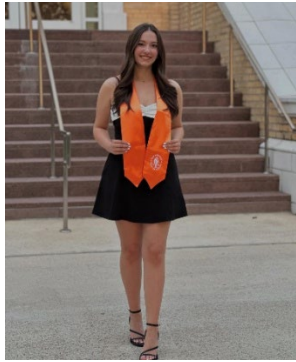
-by **Marissa McMinn** (Geology major, Environmental Science minor, and *Historical Geology* TA)

As I enter my final year as an undergraduate geology student at SHSU, I find myself reflecting on the experiences that have made my time here truly transformative. My journey began during my first semester with *Historical Geology* taught by **Dr. David Moss**—a fascinating course that solidified my decision to pursue geology as my major. The following spring, I was offered the opportunity to become a **Historical Geology TA**, allowing me to connect with fellow students and share my enthusiasm for a subject I'm passionate about.

My second and third years brought advanced geology courses that both challenged and inspired me. The concepts I learned in the classroom came to life during **Field Methods** with **Dr. Joe Hill** and **Dr. David Moss** - my first real exposure to fieldwork. Over the intensive two-week excursion, I gained invaluable hands-on experience that proved crucial to my growth as a geologist. Since then, I've approached each new course with eagerness to absorb every bit of knowledge and skill possible. Whether studying petrography with **Dr. Brian Cooper**, analyzing clay samples with **Dr. Pat Harris**, or constructing stratigraphic columns with **Dr. David Moss**, each experience has taught me something meaningful and directly relevant to my degree. These diverse learning opportunities have shaped my understanding of geology from multiple perspectives.

In Spring 2025, I had the honor of joining **Dr. Moss's NSF CAREER grant research team**, focused on studying the longevity of fossil bivalves. This opportunity immersed me in paleobiology and sclerochronology, significantly expanding both my academic interests and research abilities. Through this project, I've developed essential lab skills including collecting size data on fossil bivalves, embedding specimens, and imaging them to count growth increments. The research has also opened doors to incredible opportunities beyond campus. I traveled to Los Angeles to study specimens at the **Natural History Museum of LA County's Invertebrate Paleontology collection** and will present our findings at the **Fall 2025 GSA Meeting**—experiences I never imagined when I first started this journey.

All of these experiences have thoroughly prepared me for my post-graduation goals, thanks to the hands-on teaching, exceptional research opportunities, and unwavering support from the SHSU Department of Environmental and Geosciences faculty. I'm grateful for a program that has challenged me to grow both as a student and as a future geoscientist.



Senior Spotlight - Finding My Forecast

-By **Ava Herrera** (Geography major, Environmental Science minor, and *Weather and Climate* TA)

As a freshman, I enrolled in classes offered by the **Department of Environmental and Geosciences** simply because the subject matter interested me—I had no clue what I wanted to do with my degree. After a few semesters of getting to know the faculty and taking *Weather and Climate*, I discovered my passion for meteorology.

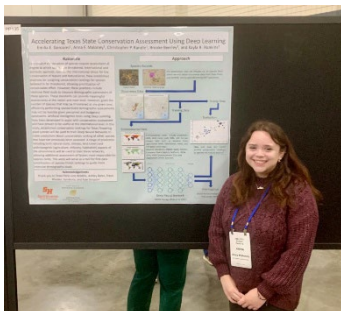
With the guidance of my advisor and mentor, I was able to pivot my Geography degree's focus toward weather forecasting. Soon after, I began working as a **lab teaching assistant for *Weather and Climate***, which taught me skills I use every day in my current career. Through upper-level meteorology classes with **Dr. Josh Gilliland**, I developed essential forecasting skills and learned to understand the 'why' behind the weather we experience. I never thought I'd see the day where I was eager to do homework—until I took his classes!

During the Fall semester of my senior year, I pursued an **internship with KPRC2**. Three times a week, I commuted downtown to learn from the best team of meteorologists in Houston, gaining invaluable real-world experience in broadcast meteorology. Before graduation, I landed my dream job in **Roanoke, Virginia**. A few weeks after earning my Bachelor of Science degree in Geography, I made the 19-hour road trip to Virginia.

I'm currently working as the **weekend morning weather anchor at WDBJ7** and loving every minute of it! **Yes, I do have to wake up at about 1 AM, but it's totally worth it.** The foundation I received at SHSU—from passionate faculty mentorship to hands-on learning opportunities—prepared me perfectly for this exciting career in meteorology.

Field Work, Research, and Discovery: A Senior's Academic Adventure

-By **Anna Maloney** (Geography major, minors in Biology and Environmental Science, and *Geologic Hazards* Lab TA)



As I enter my final semester at Sam Houston State University, I'm grateful for the incredible opportunities and experiences my undergraduate journey has provided. The **field courses** have been transformative -- traveling to the Mississippi Delta, Hawai'i, and Costa Rica has allowed me to engage with different cultures and people while developing both personally and academically. These experiences are unique privileges that Geography majors get to appreciate, and I've seen more of the world than I ever imagined possible when I first chose this major. Beyond travel, I've developed valuable technical skills through **GIS** coursework and classes like **Geomorphology**. As a **lab teaching assistant for *Environmental and Geologic Hazards***, I've gained confidence in communication and discovered a passion for helping students understand geology and our natural world.

My research experiences have been equally rewarding. Working in **Dr. Diane Neudorf's ornithology lab at PERL** has taught me bird banding, mist netting, and point counts while observing songbird development from egg to fledgling—though I'll admit it's been a wonderful excuse to spend time outdoors multiple times a week. I've presented this research at the **Texas Academy of Science** for two consecutive years and at **Texas A&M's Ecology Integration Symposium**. Collaborating with **Dr. Amber Ulseth** provided another opportunity to work at PERL and in local streams while developing laboratory skills. My research with **Dr. Chris Randle** has shown me how to apply geographical and geological knowledge to plant species conservation through partnerships with the **Botanical Research Institute of Texas** and **Texas Parks and Wildlife**. This work led to presentations at the **American Southeastern Biologists meeting** in South Carolina and the **Texas Plant Conservation Conference** at Lady Bird Johnson Wildflower Center. I'm also grateful to **Dr. David Moss** for allowing me to assist at our **Sam Houston State Natural History Collections** and to biology graduate student **Erica Hagmeyer** for including me in her fish assemblage research along Harmon Creek. I never pass up an opportunity to work in creeks!

As I prepare for the next chapter, I'm excited about the future and deeply thankful for the exceptional professors and fellow students who have shaped my experience. These years have been incredibly formative for my career and love for both the Earth and Biological Sciences.

Senior Spotlight – Amber to the 2nd Degree

-By **Amber Hrynczyszyn** (Environmental Science major [2025] and Music major [2011])



My adventure, that is my second adventure, at SHSU started in Fall of 2020. I could not have chosen a better time to go back to school: COVID was in full swing creating panic, fear, and major disruptions to all aspects of our lives, and I had a full-time job in Houston. Classes were moved almost exclusively online or converted to disjunct hybrid situations. And I grossly underestimated the intensity of 100-level classes. As an already degreed person, I made the misguided assumption that classes intended for students fresh out of high school were no match for a fully-fledged adult. Boy howdy, was I wrong. Mountains of flashcards and late-night study sessions quickly became my norm. After the initial adjustment to life as a student again, the online/hybrid experience actually worked to my advantage, allowing me to work as an interior landscaper with minimal interference and complete most of my schoolwork at night and on the weekends.

The guidance I received from my advisors made all the difference in my SHSU experience. **Dr. Ross Guida** and **Ava Fujimoto-Strait** helped me select classes that not only fulfilled requirements but also genuinely interested me and supported my future career goals. Ava introduced me to field courses where I had the opportunity to travel to both Costa Rica and Hawaii. While I was solely focused on checking all the boxes to get my degree, their guidance helped me discover classes that would truly shape my academic journey. My favorite class throughout this degree was **Entomology** with **Dr. Sibyl Bucheli**. When I first got the idea to go back to school, I thought I wanted to be a botanist, but after many hours playing in my garden, I realized I'm even more curious about the critters in and around the plants. Day 1 of entomology and I was hooked—I knew I wanted to be an entomologist. My last full semester brought another turning point in **Evolution** with **Dr. Jerry Cook**, where I was given the opportunity to work in his lab, helping to identify an undescribed species of *Strepsiptera*—probably the most exciting thing I've worked on my entire undergraduate career.

As I anticipate graduation, I still haven't fully digested that this **5-year journey** is coming to an end. Because of work responsibilities, I was only able to take 2 classes per semester, and in 2022, a heart condition requiring surgery forced me to take a year off from SHSU. **While I have questioned my commitment to this journey many times, I am grateful that I saw it through to the end.** I could not have accomplished this without my amazing husband Michael and my wonderful bonus daughter, my incredible professors and advisors at SHSU, and my unbelievably understanding employer. I am planning on taking a year or two "off" and then hope to pursue graduate work at Rice University.



Mentoring Tomorrow's Geoscientists: Dr. Cooper's and Dr. Harris' Critical Minerals Research with Undergraduate Students

-By **Dr. Pat Harris**

It all started with looking for gold in a hydrothermal deposit in central Arkansas. Undergraduate student, **Kristen DeBone**, was initially tasked with finding small concentrations of gold in the V-Intrusive near Magnet Cove. She did not find the gold, but she did discover high concentrations of **Rare Earth Elements (REEs)**, which have been labeled as critical minerals by the US government. REEs are considered critical because they are ubiquitous in modern technology (including military equipment) and China controls over 90% of the REE market.

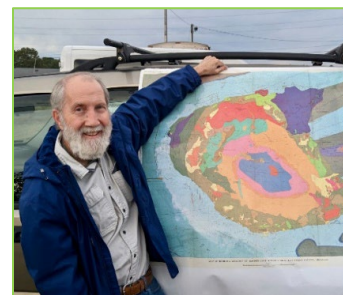
This discovery led us to investigate where and how REEs become concentrated in rocks. A little research showed that REEs are typically enriched in carbonatites and alkaline igneous rocks. The central Arkansas bauxite deposits are weathering products of alkaline igneous rocks, so we recruited **Kenny Edge** (Fall 2017) to investigate an abandoned bauxite mine to determine if REEs were concentrated in the nepheline syenite (an alkaline igneous rock) and subsequently enriched in its weathering products. Kenny did find REEs in both the syenite and weathering products, which he presented at **GSA** in Fall 2018.

We were unable to quantify the REEs with Kenny's work, so **Danny Schmidt** began a literature review in spring 2019 to identify methods for REE quantification. **Jonathan Adams** joined the project (2020-2021) to concentrate the REEs so we could obtain more quantitative data to estimate potential reserves. Jonathan made several attempts to develop a technique for quantifying REEs using the ICP-OES equipment available at SHSU, but was unsuccessful.

David Bickham was the next student (2022-2024) to attempt REE quantification, this time using new XRF equipment at SHSU. He worked closely with Shimadzu to develop a method for REE quantification, but was also unsuccessful. **Juliet Taylor** (2023) prepared samples for clay mineral analysis of the bauxite weathering profile. **Marcos Jimenez** and **Julia Rufener** (2024) were the final two students to make

significant contributions to the REE research. Marcos conducted mineral size fractionation and clay mineral analysis, while Julia hand-separated different mineral grains for detailed analysis of authigenic and detrital phases in the bauxite weathering profile.

The most noteworthy outcome of this research is that seven of the undergraduate students who participated in this research went on to earn fully funded MS and/or PhD degrees in the geosciences.



Third Recipient of the Chuck Caughey Scholarship Announced



Mian Sterling, a first-generation Chinese-American college student, has been selected as the **third recipient** of the **Chuck Caughey Geoscience Endowed Scholarship**. Sterling, who is pursuing a Bachelor of Science in Geology with a minor in Environmental Science, began her college career at Lone Star College before transferring to Sam Houston State University.


Sterling has harbored a passion for geology since childhood and describes herself as someone who strives to learn and thrive on experiences that deepen her understanding of the Earth. When she received the news of her scholarship selection, she said she "almost thought I was dreaming."

Beyond the financial support, Sterling is particularly grateful for the mentorship opportunity with Mr. Chuck Caughey himself. She describes him as "such a caring and wonderful mentor" and looks forward to sharing her future experiences with him as she continues her geological studies with classes such as *Geochemistry* and *Stratigraphy & Sedimentation*.

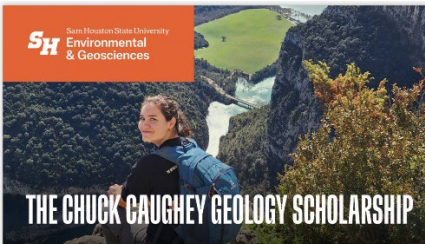
Department Scholarships

Each year, our department is honored to award scholarships to students who demonstrate exceptional academic excellence and dedication. We are deeply grateful to our generous alumni and donors, whose support enabled us to award scholarships to the deserving students listed below. Many scholarships are endowments, creating a lasting legacy of support for future students.

Environmental Science	Jonathan Gibbs	\$1,000	G. Scott and Mary S. McCarley Env. Sci
	William Marsh	\$1,000	G. Scott and Mary S. McCarley Env. Sci
	Mallory Davy	\$1,900	Patrick Neal Bryant Memorial Fund
	Emily Hayde	\$1,900	Patrick Neal Bryant Memorial Fund
	Sophia Stacey	\$1,900	Patrick Neal Bryant Memorial Fund
	Katy Harris	\$1,900	Patrick Neal Bryant Memorial Fund
	Tyra Callahan	\$1,900	Patrick Neal Bryant Memorial Fund
Geography	Austin McWhorter	\$1,000	Robert and Mabel Richardson
	Paige Looper	\$1,000	Robert and Mabel Richardson
	Brianna Castro	\$1,000	Robert and Mabel Richardson
	Juan Bush	\$1,000	Robert and Mabel Richardson
Geology	Caeli Richard	\$750	Baldwin Field Camp
	Marissa McMinn	\$1,000	Geology Endowment
	Caeli Richard	\$1,000	Geology Endowment
	Anna Williford	\$750	Geology Endowment
	Skylin Bromonsky	\$500	Geology Endowment
	Benjamin Willetts	\$500	Geology Endowment
	Jaris Salazar	\$500	Geology Endowment
	Sarah Cunningham	\$500	Geology Endowment
	Shadye Forrest	\$500	Geology Endowment
	Mariana Oyervides Salas	\$500	Geology Endowment



Sam Houston State University
Environmental & Geosciences




THE CHUCK CAUGHEY GEOLOGY SCHOLARSHIP

The Chuck Caughey Geology Scholarship is intended for students transferring from a community college to complete a BS in geology. A 3.0 GPA is required to apply, and candidates must enroll at SHSU to major in Geology. The scholarship is awarded every year. Application deadline is February 15. Scholarship pays tuition, fees, books, and room and board for two years.

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LET'S SEE YOU SUCCEED.

Scan for more information about the Chuck Caughey Scholarship.





How You Can Help: To support our scholarship fund, scan the QR code to visit the SHSU Giving website. Select "College of Science & Engineering Technology" under "Gift Designation" and include one of our scholarship funds in the area of support box.

Congratulations to our GRADUATES!!!

(Fall 2024, Spring 2025, and Summer 2025)



Notes from the Field...



-By **Ciara Carnes** (Geology major; Geography minor; and *Physical Geology* TA)

Field experiences have been my hands-down favorite part of my time at Sam Houston State University. I had no idea what to expect when I came to a new school with no friends—I chose SHSU simply because the professors were kind enough to sit down and chat with me (and happened to mention a certain field course to Hawai'i). But despite the unknown and the idea of being on my lonesome, the field courses and trips I've been on have completely changed my life.

To start, I met my best friend/partner in crime/tentmate for life on my very first trip with the department after my then-TA for *Physical Geology* convinced me to put my name on the **Arkansas** list. Once we met in the van, I knew it was going to be a good trip, even if we did half freeze to death because we were sharing a ten-person tent between four people. We have now gone on that trip twice and plan to go again this fall—and have shared a tent ever since.

The rest of my friends in the department I gained from trauma bonding in the New Mexico desert during **Field Methods**. Nothing makes a friendship stronger than sleeping on gravel and failing assignments! And while that may be a bit of an exaggeration (since we all had loads of fun too), it really was the bond forged by the difficulty of the situation that keeps us all in touch to this day. We still talk, hang out, and go on trips together—all because we just happened to be in the same course at the same time.

I've been to a lot of places I had never been to before and some I had never dreamed of visiting because of the department. I got to see the **Pyrenees Mountains in Northern Spain**, the **Ouachita Mountains in Arkansas**, **dinosaur bones in New Mexico**, **bats in caves in Boerne**, **Beale Street in Memphis**, and the good old-fashioned backwoods in **Mississippi**. I've found friends among my peers and professors while learning not only things pertaining to my degree, but also about the world, life, and myself.

You learn how to be exhausted, peaceful, excited, nervous, stupid, smart, angry, and somehow the happiest you feel like you'll ever be all within 30 minutes on one of these field experiences. My most cherished memories of college are from these experiences, and I cannot wait to make more.



Summer Internship with the SOIL-COP Project at Texas A&M in College Station, TX

-By **Silvana Ribeiro** (Environmental Science major)



This summer, I interned with the **Texas A&M Soil and Crop Sciences department**, working with doctoral candidate **S'vani Campos** and undergraduate **Cassedy Bastilla** from **SHSU's Plant and Soil Science program**. Our team investigated how red imported fire ants' bioturbation affects soil carbon, nutrient dynamics, and water cycling—addressing how invasive species impact ecosystem processes.

Our fieldwork included collecting soil samples from fire ant mounds, gathering soil erosion data, and conducting water infiltration tests. We monitored infiltration rates in real-time and observed rainfall-induced erosion effects on different soil conditions.

The **Texas A&M SOIL-COP program** taught me about the entire research process and helped me realize graduate school might be my path. Through conversations with researchers, I gained invaluable insights into academic research. I'll present my findings at the SOIL-COP Zoom meeting and at SHSU's Undergraduate Research Symposium in Spring 2026.

This transformative experience immersed me in academic research. The welcoming lab staff made me feel like a valued community member, and I'm grateful to **Dr. Shyam S. Nair**, **Dr. Felipe Aburto**, and other program members for selecting me. Working with S'vani and Cassedy was exceptional—I believe I made lifelong friends despite the hot Texas summer and countless fire ant bites.

More Than Spanish: Learning Tico Life Through Cultural Immersion

-By **Peter Bouldin** (Geography major and Environmental Studies minor)

I had the privilege of attending the **2025 Study Abroad trip to Costa Rica** with **Professor Rosti Vana** and 8 other students. Living in **Santa Ana**, we spent June studying Spanish through classroom learning, dancing and cooking classes, activities, and tours—providing full immersion in Costa Rican culture. We also had two free weekends to explore the country's incredible beaches, rainforests, and cities.

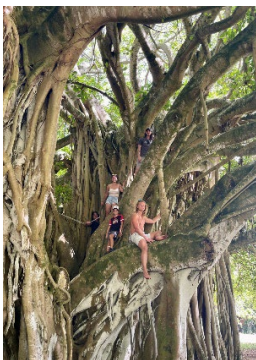
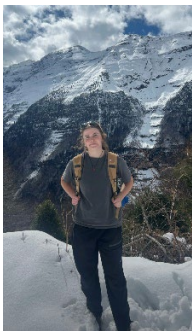
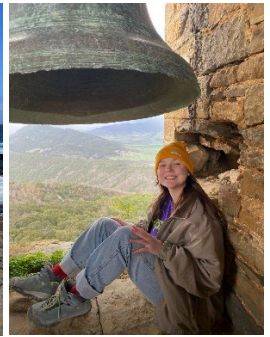
The highlight was staying with my host family. My roommate and I truly connected with our family, experiencing Costa Rica through their eyes. Through shared meals and meaningful conversations, I learned what it means to be a Tico, discovering cultural aspects that might have otherwise remained hidden. My Spanish skills improved, along with my ability to connect with new people and opportunities.

This has been one of the best learning experiences of my Sam Houston academic career, especially as a geographer. Exploring Costa Rica's diverse landscapes and understanding how culture shapes place gave me invaluable geographic perspective. I'd highly recommend anyone interested go and discover what *Pura Vida* truly means.



Learning Through the Soles of Our Shoes

Our dedicated faculty go above and beyond to provide invaluable hands-on experiences for our Geography, Geology, and Environmental Science majors. Leading field trips ranging from one day to several weeks, often on their personal time and resources, these educators ensure our students gain practical skills crucial to their disciplines. These excursions create collective memories that last a lifetime. **We extend our heartfelt gratitude to both the faculty for their commitment and the students for their enthusiastic participation.** The accompanying photos from the past year highlight the diverse courses and experiences offered through our department.





SHSU Becomes Part of the National Academies' Gulf Scholars Program

-By **Dr. Ross Guida**

Sam Houston State University, in partnership with Lone Star College (LSC), has been awarded a **5-year, \$599,996 grant** from the **National Academies of Sciences, Engineering, and Medicine (NAS)** through its **Gulf Research Program**. The Fall 2024 award will establish a **Gulf Scholars Program** for undergraduate students at both institutions.

As part of the program, a new **Gulf Studies certificate** has been approved, featuring three courses: *Gulf Seminar*, *Gulf Field Course*, and *Internship*. Student enrollment will begin in January 2026.

Addressing Regional Challenges: The Gulf Scholars Program aims to provide students with place-based training to tackle what NAS calls "wicked problems" facing the region—complex challenges related to community health, environmental resilience, and energy development and safety.

Students will complete a **Gulf Impact Project**, conducting research and working directly with **Southeast Texas** communities to develop approaches for addressing local and regional issues. Beginning in 2026, annual cohorts of 12 students will be selected through 2029, with participants eligible for **\$3,000 stipends** upon completion of program requirements.

Interdisciplinary Leadership: The program is led by **Project Director Ross Guida** (Environmental and Geosciences), alongside Co-Directors **Lee Miller** (Sociology and SHSU Center for Community Engagement Director) and **Jason Enia** (Political Science). The SHSU and LSC steering committee includes **Janella Baxter** (Philosophy), **Ava Fujimoto-Strait** (Environmental and Geosciences), **Taylor Morrison** (SHSU Center for Community

Engagement), **April O'Brien** (English), **Reg Pecen** (Engineering Technology), **Trish Ramsay** (Art), and **Jamie Stoops** (History).



To learn more about the Gulf Scholars Program and/or to apply to the first cohort, please scan this QR code.

Dr. David Moss Named New Director of Natural History Collections



In Spring 2025, Geology Professor **Dr. David Moss** was named the new **Director of the Sam Houston State University Natural History Collections (NHC)**. Dr. Moss oversees the three-story research facility that houses

countless specimens, archives, and libraries. The collections support teaching and research endeavors of faculty and students in the College of Science and Engineering Technology (COSET). In addition, the NHC employs students (e.g., **Meredith Coffey**, an Environmental Science major) and trains them in natural history curation.

Under Dr. Moss's leadership, the NHC will continue serving as a collaborative hub for scientific discovery at SHSU.





Welcome Postdoctoral Researcher – Dr. Shravya Srivastava

Dr. Shravya Srivastava's path to paleontology began when she discovered beautiful fossils at the University of Tübingen's Natural History Museum in Germany. This sparked a passion that led to prestigious research opportunities, including a **Satyendra Nath Bose Indo-US fellowship** at **University of California - Riverside**.

She recently completed her Ph.D. in Professor Nigel Hughes' trilobite lab at UCR, investigating evolutionary innovations in late Cambrian marine environments and trilobite phylogenetic relationships. Her research has resulted in two publications in the ***Journal of Paleontology***.

In Dr. Moss' lab, Dr. Srivastava will study glycymerid bivalves—remarkable organisms that can live for hundreds of years. By examining both modern specimens and million-year-old fossils alongside climate data, her research aims to understand what drives exceptional longevity in certain species. She's also excited to share paleontological knowledge with K-12 students across Texas.

NSF-CAREER Grant Update

-By **Dr. David Moss**

Work on my NSF CAREER grant began in July 2024 and has supported three geology student researchers over the past year: **Skylin Bromonsky**, **Marissia McMinn**, and **Annie Williford**. All three students are exploring the fascinating world of bivalve lifespans, growth rates, and taxonomy. While Annie had to step away for the summer to attend field camp, Skylin and Marissia continued their research throughout the summer months.

This summer included an exciting research trip to California, where we visited the **Los Angeles County Museum Invertebrate Paleontology Collections (LACMIP)**—one of the largest invertebrate fossil collections in the United States with over 7 million specimens. During our visit, we measured morphological parameters to collect data for a project examining body size increases over the Cretaceous period and selected specimens to borrow for further analysis. These specimens should arrive soon and will be sectioned to reveal growth increments for study. While in Los Angeles, we also took the opportunity to visit the **La Brea Tar Pits Museum** and other local sights.



Grant funds enabled the purchase of a **MicroMill2**, a significant addition to our laboratory capabilities. Later this year, lab group members will use this precision instrument to sample carbonate powder from bivalve shells for oxygen isotope analysis. This MicroMill2 opens doors to exciting new research projects in the future.

We're thrilled to announce that **Dr. Shravya Srivastava** joined the lab in August as a **Postdoctoral Researcher**. Dr. Srivastava recently completed her Ph.D. at the **University of California at Riverside**, where her dissertation was titled "Morphological Variation Among Nearshore Late Cambrian Trilobites and their Sequence Stratigraphic Context in the northern Upper Mississippi Valley." She brings extensive expertise in phylogenetic analysis and will be invaluable in sorting out relationships among our many "amoeboid shaped objects" (clams)! The entire lab group is attending **GSA in San Antonio** this October, where we hope to reconnect with alumni and present our ongoing research. Skylin and Marissa will post their posters of the group's research.



Dr. Renjie Zhou Receives NSF Grant to Study Karst Groundwater Resources



Dr. Renjie Zhou has been awarded a \$180K **National Science Foundation** grant to investigate environmental impacts on karst groundwater resources using deep learning approaches. This research addresses a critical issue affecting millions of people worldwide, as karst aquifers—formed in limestone and other soluble rock formations—supply drinking water to approximately 25% of the global population and 40% of groundwater used for drinking in the United States. Karst aquifers present unique challenges for water resource management due to their complex networks of fractures, conduits, caves, and sinkholes, which create highly variable hydraulic properties and make their responses to environmental changes difficult to predict.

Dr. Zhou's project aims to bridge this knowledge gap by combining extensive meteorological and hydrological data with artificial intelligence models to analyze future impacts on these vital water resources. The research findings will provide valuable insights for policymakers and stakeholders in water resource management, supporting informed decision-making in environmental conservation and public policy. Undergraduate students **Laura Phillips** (Environmental Science major with minors in Geography and Geology) and **Mariana Oyervides Salas** (Geology major with a minor in Environmental Science) are participating in this important research, gaining experience in both hydrogeology and advanced computational methods.

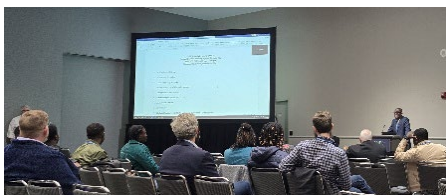
Dr. Josh Gilliland Expands Atmospheric Sciences Courses and Research



Dr. Josh Gilliland has strengthened our department's atmospheric sciences offerings by developing two new courses: **Weather Forecasting (GEOG 3344)** and **Tropical Climatology (GEOG 3346)**. These courses provide students with practical skills for careers in weather forecasting and climate analysis. Beyond the classroom, Dr. Gilliland serves as faculty sponsor for the **WXKats** weather club, mentoring students interested in atmospheric science careers.

Dr. Gilliland presented his research on Equivalent Potential Temperature at both the 49th Annual National Weather Conference in Dallas and the 105th Annual American Meteorological Society conference in New Orleans. This work earned him an **SHSU ORSP New Faculty Grant** to submit his findings to a high-impact journal. Additionally, his wind research paper analyzing upper tropospheric trends for Brazil from 1980 to 2022 was accepted for publication in *MDPI Meteorology*'s September 2025 issue. Dr. Gilliland also serves as co-investigator on **Dr. Yaping Xu**'s recently funded **\$1.2**

million NASA grant focused on climate resilience in agriculture (more on this in our next newsletter!).



Dr. Samuel Adu-Prah the current **President of the African Specialty Group** of the **American Association of Geographers (ASG-AAG)** led a business meeting at the 2025 American Association of Geographers held in Detroit Michigan on March 24-28, 2025.



From Field Course to Research: SHSU Team Deepens Community Engagement in Hawai'i

Building on the momentum of the ***Hawai'i Field Course***, a faculty-student research team recently completed an interdisciplinary research project in Hawaii's culturally significant Waipi'o Valley—one of Hawai'i's most sacred and visually stunning landscapes. With funding from the **Office of Research and Sponsored Program's Interdisciplinary grant**, this initiative integrated perspectives from cultural geography, geology, biogeography, tourism studies, and geospatial analysis.

Led by Principal Investigator **Ava Fujimoto-Strait** and Co-Principal Investigators **Dr. Velvet Nelson**, **Dr. Pat Harris**, and **Dr. John Strait**, along with Texas A&M collaborator **Dr. Leila Character**, the undergraduate student research team included **Paige Looper**, **Amber Hryncyszyn**, **Jenna Brue**, and **Jonathan Gibbs**.

Waipio Valley Road—the steepest road in the United States and the only valley access point—has experienced limited access due to safety concerns, creating complex issues for residents, taro farmers, and the tourism economy. Working with community partner *Pōhāhā I Ka Lani*, students investigated slope stability using drone data and soil sampling, analyzed traditional taro cultivation practices, examined tourism impacts, and studied invasive species management.

The fieldwork presented unexpected challenges that became powerful learning opportunities. **Amber Hryncyszyn** reflected on discovering that "invasive plants are so pervasive in Hawaii that removing them could do more harm than leaving them," while learning that "field research requires perseverance, flexibility, and creativity." **Jonathan Gibbs** appreciated the cultural connections and learned that "in the field, things won't always go as planned." For **Paige Looper**, conversations with community members "broadened my perspective" and revealed how "the connection to one's history and culture makes facing challenges deeply meaningful."

This preliminary phase established crucial groundwork for future studies while demonstrating how environmental and cultural landscapes create interconnected systems, positioning the team to pursue larger external funding opportunities.



Alumni Careers and Reflections

We love hearing from our alumni! Please feel free to send us an email at: geosciences@shsu.edu or join our LinkedIn (SHSU Environmental and Geosciences group) to update us on where you are and the amazing things you are doing! We are creating a bulletin board in our hallway as well - to feature all our alumni. We also love visitors! 😊



A Solid SHSU Foundation Drives Graduate Success

-By **Adrian Parada** (Environmental Science Alumnus with minors in Geology and Geographical Spatial Science '24)



My time as a student in the Department of Environmental and Geosciences uniquely prepared me to succeed post-graduation. I am currently a **first-year PhD student at Texas Tech University** in the **Department of Plant and Soil Science**, conducting research in **pedology**. My work involves quantifying and relating soil structure across the United States, which means lots of fieldwork.

While there has been a learning curve regarding the planning and conducting of fieldwork, SHSU gave me a great foundation to build from. Courses like **Dr. Joe Hill** and **Dr. David Moss' Field Methods** conditioned me to keep my data organized, stay on schedule, and be as efficient as possible. Along with sampling and fieldwork, it's also very important that I understand the broader scale environment around the areas I'm sampling. Upper-level courses such as **Dr. Ross Guida's Geomorphology** and **Hydrology**, and **Dr. David Moss' Sedimentation and Stratigraphy** prepared me for the complex way of thinking that I've found myself utilizing in my work.

Apart from the courses available within the department, I've also heavily benefited from the experiences the department offers its students. **Multiple field and research experiences**, and the **opportunity to TA for introductory labs**, set me up to succeed in my graduate program by providing me with a background in these areas that students coming from other institutions haven't had the chance to receive. I am very grateful to have been a student in the Department of Environmental and Geosciences and will continue to draw from my time here as I progress further in my career.

From Student to Industry Leader

-By **Andrew Matej** (Geography alumnus '16)

My journey at SHSU began when a friend in the oil and gas industry suggested I pursue **Geographic Information Systems (GIS)** training to meet the growing demand for qualified professionals. This advice led me to transfer from a local community college to SHSU, trading a 10-minute commute for an hour-and-a-half drive twice weekly, a commitment that would prove invaluable.

During my time at SHSU, I immersed myself in every geospatial science class I could fit into my schedule while building lasting relationships with fellow students and professors. I was working in the records department of a large oil and gas company when the industry downturn hit, forcing me to adapt quickly. My final semester became a balancing act between working for the SHSU Forensics Department and driving for Uber to make ends meet.

The industry hadn't recovered by my graduation, so I followed my professor's advice to pursue graduate school at the **University of North Carolina at Greensboro**. After completing my **Master of Arts in Applied Science** and returning to Houston in 2019, I found an industry ready for fresh talent.

My career path led me from night shifts at **CenterPoint Energy** locating safety control valves to **NuGen Automation**, where I discovered the fascinating world of *Integrity Management*, the vital work of tracking pipeline installations and maintenance across America. When my manager approached me about starting his own company, the timing seemed fortuitous. I later learned I would have been laid off the following week due to a company merger.

As Department Manager at **Norman Global**, I faced an immediate challenge: filling six open positions. Here, I encountered firsthand the same shortage my friend had warned me about years earlier—too few formally trained *Geospatial Sciences* professionals. After a year of persistence, I convinced our biggest client to take a chance on recent college graduates.

This decision has transformed our company. The **three SHSU Geography graduates** I hired have become central to our operations, bringing not only fresh energy but also expertise in the latest software versions and cutting-edge geospatial analysis techniques that proved invaluable during our system migration. Their hands-on training with industry-standard GIS software and real-world problem-solving skills allowed them to contribute immediately—something that impressed our clients and set them apart from other candidates.

The success of these initial hires has enabled us to continue recruiting from SHSU, with **three more graduates** joining us recently and

quickly impressing our clients with their readiness to contribute. Today, **nearly half of Norman Global's 23-person team consists of SHSU Geography graduates, and their practical, hands-on training has been instrumental in establishing our reputation in the industry.**

What makes SHSU Geography graduates particularly valuable is their ability to bridge the gap between academic theory and real-world application. They arrive with experience in the same software we use daily and critical thinking skills to tackle complex geospatial challenges from day one.

Advice for current students: *Focus on mastering the software tools and seek out internships or practical projects.* The industry needs professionals who can hit the ground running, and SHSU's hands-on approach gives you exactly that advantage.

Thank you to **Dr. John and Ava Strait, Dr. Don Albert, Dr. Mark Leipnik**, and everyone at SHSU for helping me reach the point where I can give back to my alma mater. Your commitment to providing practical skills continues to produce the best candidates in today's job market.





Down to the Crossroads: Finding My Path in the Delta

-by **Dr. Mandy Truman** (Geography alumna with a minor in Geology '19)

At 27 years old, I was a single mother working as a hairdresser when I decided to return to school after nearly a decade out of the classroom. Though I enjoyed my career, I felt I had never truly challenged myself academically and often wondered what I could have achieved if I dedicated myself to school. I started with an associate's degree in science from **Lone Star College**, thinking I might pursue geology. While researching bachelor's programs, I found the geography program at Sam Houston State University. I called the number on the department website, expecting a student worker to answer. **Dr. John Strait** answered the phone himself. After a short conversation, he offered to meet me at Lone Star College in The Woodlands to discuss the geography program.

Discovering Place-Based Learning

After transferring to Sam Houston State University, I took *Weather and Climate* as one of my first classes and loved it. I would become a **lab instructor** and teach the lab portion of the course, providing me with my first teaching experience. Although I was focused on physical and environmental geography, I decided to participate in Dr. Strait's **Cultural Field Studies Course on the Mississippi Delta**. I expected to learn some geography and visit Graceland but did not expect a truly transformative experience.

I took in every aspect of the week-long trip: the long van ride from Huntsville to Memphis, the conversations among students, the food we enjoyed, the people we met, the landscapes we saw, the music we heard, and the geography we learned. We stayed up late sharing stories and woke up early for full days, exhausted but energized from the night before. I loved every moment of it. I realized the true significance of place-based learning. I understood that what we were experiencing could not have occurred within the confines of a classroom.

One unforgettable moment was our evening stop at **Stovall Farm**, where the blues legend **Muddy Waters** lived as a sharecropper. We gathered around the historical marker where Muddy's cabin once stood. As the sun set over the cotton field, the sky continuously changed colors. Dr. Strait spoke about the larger meaning of Muddy's life while "Mannish Boy" played in the background from a small speaker he kept with him. Being in the place where Muddy Waters lived and made music, with the sun setting over the nearby cotton field, created a sense of cosmic energy that is difficult to describe but must be felt in this place.

Before we left the Delta, we stopped at the **Delta Center for Culture and Learning** at **Delta State University**. There, **Lee Aylward** welcomed us with pins that read "I love the Mississippi Delta." She spoke about the Center's efforts to

preserve and share the region's heritage through place-based learning, workshops, and tours. I remember thinking that working at the Delta Center—immersed in Delta culture and contributing to preserving such a unique area—would be a dream job.

Following My Passion

The Delta region deeply inspired me, particularly the stories of Black Power, community, resistance, and the celebration of African American culture and traditions. I was profoundly moved by the connections between the physical landscape, the history of power relations, and the Black people who fought for freedom and shaped such a rich culture. The narratives of resistance and the courageous individuals who took on leadership roles during the **Civil Rights Movement** deeply impacted me. I was intrigued by how the culture of resilience resonated through the blues music of the Delta. These connections ultimately motivated my academic shift toward cultural geography.

I realized I wasn't finished with my education or exploring the geography of the Delta and wanted to continue my studies. I applied for the master's program and an assistantship position in the **Geography and Environmental Studies Department** at **Texas State University**. After being accepted, I met my advisor, **Dr. Eric Sarmiento**. We not only shared similar academic interests, but he was also a musician, which added a unique perspective to my research into Delta blues.

The research for my master's thesis developed during the later stages of the COVID pandemic. I decided to examine how the pandemic affected blues musicians in the Mississippi Delta. I spent two weeks in the Delta interviewing musicians, business owners, community members, and city officials to gain a deeper understanding of the city's challenges during this time, and how people from different socioeconomic backgrounds were impacted disproportionately. Dr. Strait served as an external member on my thesis committee.

Doctoral Research and Fellowships

This experience intensified my desire to keep studying the Delta. I applied for the **doctoral program** at Texas State University to continue working with Dr. Sarmiento. To support my dissertation research, I was awarded the **Study the South fellowship** from the **University of Mississippi** and a fellowship from the **Society of Women Geographers**. These fellowships funded a three-month stay in the Delta during the summer of 2024.

My research focused on the development of tourism in Clarksdale, Mississippi. I explored the history of the New World District, historically the Black part of town, during the era of segregation. This district played a crucial role in the development and evolution of blues music and was central to the city's civil rights history. While downtown Clarksdale has thrived and grown due to the rise of blues tourism, the New World District has been left to deteriorate. I conducted over 55 interviews and collected oral histories from individuals who remembered when the New World District was "the place to be." My time in the Delta highlighted the power of lived experiences and community memory.

Everything Falls Into Place

Events in our lives often align, leading to things falling into place as they are meant to. While writing my dissertation, I learned that the Director of the Delta Center for Culture and Learning was leaving for a new position, and Delta State University would soon be searching for a new director. I decided to apply, and during my interview, I was asked about my experience in Dr. John Strait's geography course. I knew the hiring committee viewed that experience as valuable for the position. I was offered the role as the new Director.

Within one month, I defended my dissertation, graduated with a Ph.D. in Geography, packed up my house in San Marcos with my daughter and our pets, moved to **Cleveland, Mississippi**, and began my career as the new **Director of the Delta Center for Culture and Learning**—just two days after arriving.

It has been a whirlwind filled with excitement, uncertainty, stress, and joy. Although I started my academic journey with no real plan, I allowed my path to be shaped by the experiences I encountered, the people who impacted me, the content I was learning, and the opportunities that presented themselves—leading me to exactly where I was meant to be.

Finding Purpose Through Second Chances

-By **Paige Kempker** (Environmental Science alumna '22)



I graduated high school in 2015 in the top quarter of my class—an overextended student athlete who played school and club volleyball, took all AP and honors courses, worked after school and weekends, and somehow maintained a vibrant social life. By graduation, I was completely burnt out.

The pressure to decide your life's path after high school felt overwhelming. Away from the support system that had always pushed me to excel, I found myself facing new temptations and personal challenges. The combination of burnout and these pressures led me to give up on school entirely. I stopped attending classes and focused on working to earn money for fun. This seemed fine until a couple of years passed and I had to face the consequence of failing out of college. Having that conversation with my parents was one of the hardest moments of my life, and their disappointment is something I'll never forget. Looking back, I wish I'd had the courage to speak up after my first year to say I needed a break. But the damage was done, and I knew this was my last chance to make things right. My parents'

forgiveness and support during this difficult time meant everything—I wasn't going to fail them again.

I went to the SHSU campus and spoke with the Associate Dean of the College of Science and Engineering Technology about what it would take to raise my GPA for enrollment eligibility. After completing a semester at Lone Star Community College, I enrolled in Spring 2021 as an **Environmental Science** major.

Initially, I approached school with the mindset of simply finishing to close this draining chapter of my life. I felt woefully unqualified for several courses, but Professor **Ava Fujimoto-Strait's Environmental Geography** class was different, it was one I always looked forward to. Since childhood, I'd been fascinated by science and nature, and this course reignited that passion. In such a competitive academic world, it's easy to feel like a failure after hitting such a massive bump. It's easy to believe there's no coming back, that you'll never achieve greatness. But when I met Professor Ava as my advisor, I encountered someone who knew my academic history but still saw potential in me—something I never thought I'd experience outside of my family. To my amazement, she asked me to be her **Weather and Climate Lab Teaching Assistant** and invited me to enroll in her **Hawaii Field Course** the following semester.

From that moment, my outlook on life and school transformed completely. Being a TA gave me purpose beyond myself, opened countless doors, and introduced me to an incredible group of people I'm still friends with today. The **Hawaii Field Course** was life-changing—filled with education and some of my greatest memories at SHSU. I also met my boyfriend **Justin Arroyos**, an Environmental Geography major, that semester, and we've been together ever since.

I began excelling in classes I never would have dreamed of succeeding in and graduated with a near-perfect SHSU GPA in Spring 2022. I went on to **Western Colorado University** for graduate school, earning a 4.0 in their **Master's program in Environmental Management**, while Justin remained at SHSU as a Graduate Assistant in the Graduate GIS program. The long distance was challenging but necessary for us to achieve our personal goals—we're better and happier for it. We're now planning our future together, and I can't wait to see what's in store.

Today, I work in **Public Water Supply** for the **Texas Commission on Environmental Quality (TCEQ)** alongside at least six other SHSU alumni—a place in life I couldn't have dreamed of when I was at my lowest point.

For students facing challenges: *Don't ever give up on yourself.* There's always another opportunity to seize—you just have to be willing to put yourself out there. If you have the chance to be part of the Department of Environmental and Geosciences at SHSU, **get to know your professors!** They possess vast knowledge in their specialties and are incredible people who truly care about their students' success and well-being. SHSU is one big happy family, and I'm so grateful to have been part of it. Sometimes the most winding paths lead to the most meaningful destinations.

Upcoming Events in the Department

Texas Hydro-Geo Workshop

From **October 17-19, 2025**, **Dr. Ross Guida** will again be taking students to the **Texas Hydro-Geo Workshop** (<https://hydrogeoworkshop.org/>) hosted at the *Cave Without a Name* in Boerne, Texas. Participating students will have a chance to network with graduate schools and employers and will experience a wide variety of hands-on modules on groundwater, surface water, karst, geomorphology, drilling, water quality, ecology, and more. If interested, please see Dr. Guida or Dr. Zhou.



5th Annual Faculty, Student, and Alumni Potluck - Saturday, January 31, 2026 (11:30 am-1:30 pm) at the University Camp (2245 FM 980, Huntsville 77320)

We cordially invite you and your family to reconnect with classmates and faculty. We will have Bennie J's BBQ and other side dishes available. Feel free to bring an appetizer, side dish, or dessert to share. If possible, please RSVP by 1/15/26 via email (geosciences@shsu.edu) and let us know your name and how many are attending, so we can plan food and drinks accordingly. We have both the outdoor pavilion and the dining hall reserved.



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