

# Advancing Excellence

**No. 15 | Spring 2017**

Update from the Development & Alumni Office  
at The University of Texas at Austin's  
Jackson School of Geosciences

# DEAR JACKSON SCHOOL FRIENDS,



You may notice this issue of Advancing Excellence looks different from previous versions.

We have redesigned the publication to better highlight the generosity of our donors, and show the real-world impact philanthropy has on students and research at the Jackson School of Geosciences.

Philanthropy comes in all shapes and sizes, from established endowments, to sustained giving, to volunteering time, expertise and resources. This issue shows how gifts of all kinds are being put to good use.

We hear from researchers in their own words how our endowment-supported Rapid Response Program studied the geological impact of Hurricane Ike and Superstorm Sandy—collecting information that can help us learn how to prepare for such powerful natural disasters. And researcher Todd Caldwell describes how the TxSON and SMAP program is measuring soil moisture from the ground and space to get a clearer picture of the state's water resources.

Fieldwork is vital to help students experience what a career in geoscience entails. Professor Bayani Cardenas personally thanks alumnus Pat

Goodson for mentoring students in the Hydrogeology Field Camp. We are also grateful for our corporate donors who have sponsored many wide-reaching initiatives that support research and students. This includes Chevron, whose generosity will allow us to continue to bring students to the field, a foundational and critical part of the world-class geoscience education we offer students.

While we are encouraging others to give to the Jackson School, it's imperative to recognize those who already have. We've inducted two new members into our Hall of Distinction, and honored many other individuals at our annual Evening of Thanks.

I hope you enjoy learning about how your donations are supporting excellence at the Jackson School of Geosciences. Through the contributions of many, we will continue our tradition of cutting-edge research and world-class education.

A handwritten signature in black ink that reads "Sharon Mosher". The signature is fluid and cursive.

Sharon Mosher, Dean

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Advancing Excellence is a collaborative publication spearheaded by the Jackson School of Geosciences Development & Alumni Office, with assistance from the JSG Office of Communications, Bureau of Economic Geology, Department of Geological Sciences and Institute for Geophysics. Publication designed by Laura Martin.



**ON THE COVER** Jackson School of Geosciences students in the field in Newfoundland.

# RAPIDLY RESPONDING TO GEO-HAZARD EVENTS

## A Continuing Jackson School Initiative

By James A. Austin, Jr., Senior Research Scientist/Associate Director, International Relations, UTIG

John A. Goff, Senior Research Scientist, UTIG

In 2013, with the enthusiastic support of Jackson School of Geosciences leadership, James Austin established the Rapid Response Endowed Fund. Its expressed purpose is to support research and education related to geohazards around the globe. The fund may be used to mobilize research scientists, faculty, staff, students and equipment to the location where natural hazards such as volcanic eruptions, hurricanes, earthquakes or tsunamis occurred.

Natural hazards are not always in the news—thank heavens! They take place only intermittently, but when they occur, JSG investigators must be ready to measure ephemeral properties of these often cataclysmic events, both to understand them better and to prepare humanity for the next one. Existing Rapid Response (RR) initiatives over the past decade, involving examinations of large hurricanes and major earthquakes, are already showing that investigating such hazards quickly can help society plan for future mitigation.

UTIG investigators and their students have thus far studied the impacts of two major hurricanes impacting the United States: Ike, which struck the Gulf Coast near Galveston/the Bolivar Peninsula in 2008, and Superstorm Sandy, which devastated parts of the New York metropolitan area in 2012.

Hurricane Ike was a huge, Category 4

(130-156 mph) cyclone that hit the Texas coast in September 2008. Ike is now recognized as the third most damaging storm in U.S. history, trailing only Katrina (2005) and Sandy (2012). Within about a month of its impact, and despite both political and natural obstacles created by the destruction of adjacent Texas coastal communities, John Goff led a small team from UTIG to assess the geological changes wrought by the storm in the economically vital Houston Ship Channel. UTIG maintains a suite of portable geophysical tools, like multibeam sonar (which measures the seafloor) and CHIRP (which images the shallow subsurface), that can be deployed from small vessels in inland waters adversely affected by storms like Ike. The team found that coarse-grained sediments in the channel and environs had been moved, and sediments had been moved offshore. Why are these results important?

Because such loss of sediment out to sea could adversely affect barrier island stability and the health of Texas' bays in the face of rising sea level. And because maintaining such well-traveled waterways in a navigable state is both expensive and time consuming, UTIG research helped Texas authorities understand the geological state of play soon after the passage of Ike, so that they could respond appropriately.

Superstorm Sandy hit New York and New Jersey in October 2012, causing



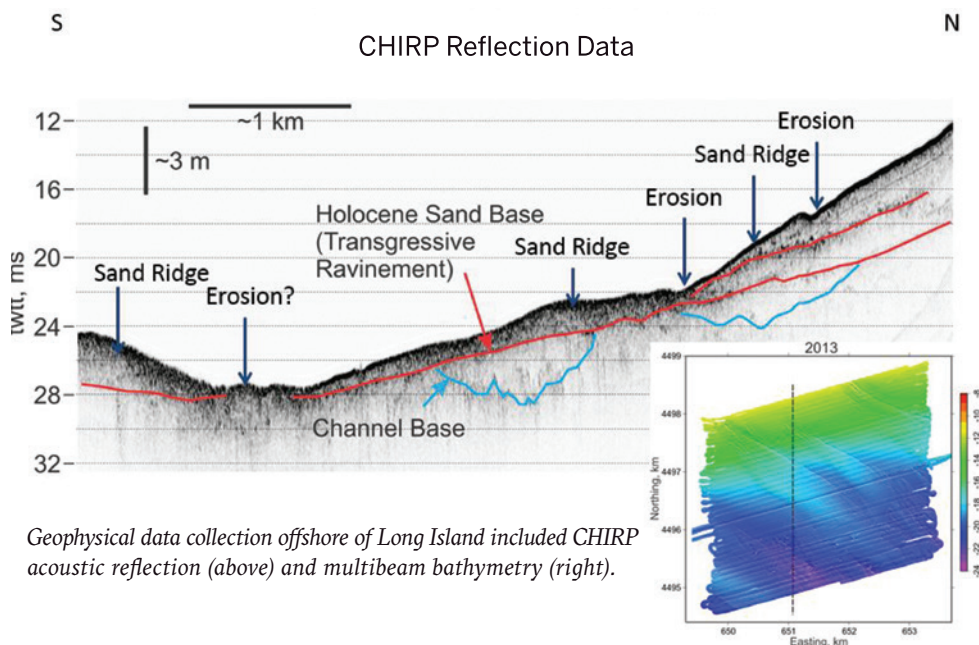
Student Cassie Brown (left) along with Jamie Austin (right) and Beth Christensen (center, Adelphi University) prepare to haul in a sediment grab sample aboard the SUNY/Stonybrook research vessel Seawolf. Photo: John Goff

enormous damage to New York City and environs, including the southwest coast of Long Island. At the invitation of local universities, in January 2013 Goff and Austin led a UTIG team to collect a suite of seafloor and shallow subsurface images of the Long Island shoreface. A major result, reported on by Chris Joyce of NPR, was that the shallow slope offshore of Long Island was less affected than expected because it was effectively armored by a complex of sand waves.

Investigations post-Ike and post-Sandy were effective primarily because they took place soon after passage of both storms. These RR investigations have other benefits:

- Teach staff and students alike about what needs to be studied and why in the aftermath of such cataclysms;
- Make the affected public more aware of the human face of science, along with its applicability and relevance to helping our species cope with natural disasters; and
- Garner positive publicity for JSG, from the media, local officials and the person in the street.

We hope that this short reminder will achieve the goal expressed above of reminding our JSG friends that Rapid Response is a crucial part of the JSG in the 21st century, and that the need to support this endowment continues.



Geophysical data collection offshore of Long Island included CHIRP acoustic reflection (above) and multibeam bathymetry (right).



## MONITORING SOIL MOISTURE FROM SPACE

Jackson School Plays  
Crucial Role in NASA Mission

By **Todd Caldwell**,  
*Research Associate, BEG*

Soil moisture is a key variable of the climate system, coupling the terrestrial energy and water cycles to the atmosphere. Good soil moisture data improves our weather forecasts, drought and flood mitigation efforts, and is the under-appreciated component of our water resources in Texas. Soil moisture is challenging to measure because both the soil type and amount of rain vary considerably across the landscape. New tools are opening doors to utilize soil moisture at local, regional, and global scales.

On January 31, 2015, the National Aeronautics and Space Administration (NASA) launched the Soil Moisture Active Passive (SMAP) satellite to provide global mapping of high-resolution soil moisture every two to three days using an active radar system and a passive radiometer system. Orbiting at 685 km, a rotating, 6-meter diameter antenna captures 1,000-kilometer swaths of the Earth's brightness temperature, a value that's determined by the intensity of microwaves emitted by the surface of the planet. The brightness temperature data is translated into soil moisture readings that give water content and determine whether it's frozen or in liquid form at 3, 9, and 36km grids across the globe.

After an initialization period, SMAP began data collection in April of 2015. Unfortunately, a hardware failure corrupted the "active" radar system on July 7, 2015, which operated by sending a sonar-like signal toward the Earth's surface. The passive radiometer, which reads the natural microwaves being reflected off the Earth, is still going strong and producing data at unprecedented quality with the first official data release occurring on April 30, 2016. The details can be found in the data release report (Jackson et al., 2016) and other manuscripts which we were honored to be included.

The Jackson School of Geosciences plays a particular and unique role in the SMAP mission. On ground calibration and validation (Cal/Val) is critical to develop the algorithms needed to calculate soil moisture from satellite observations of



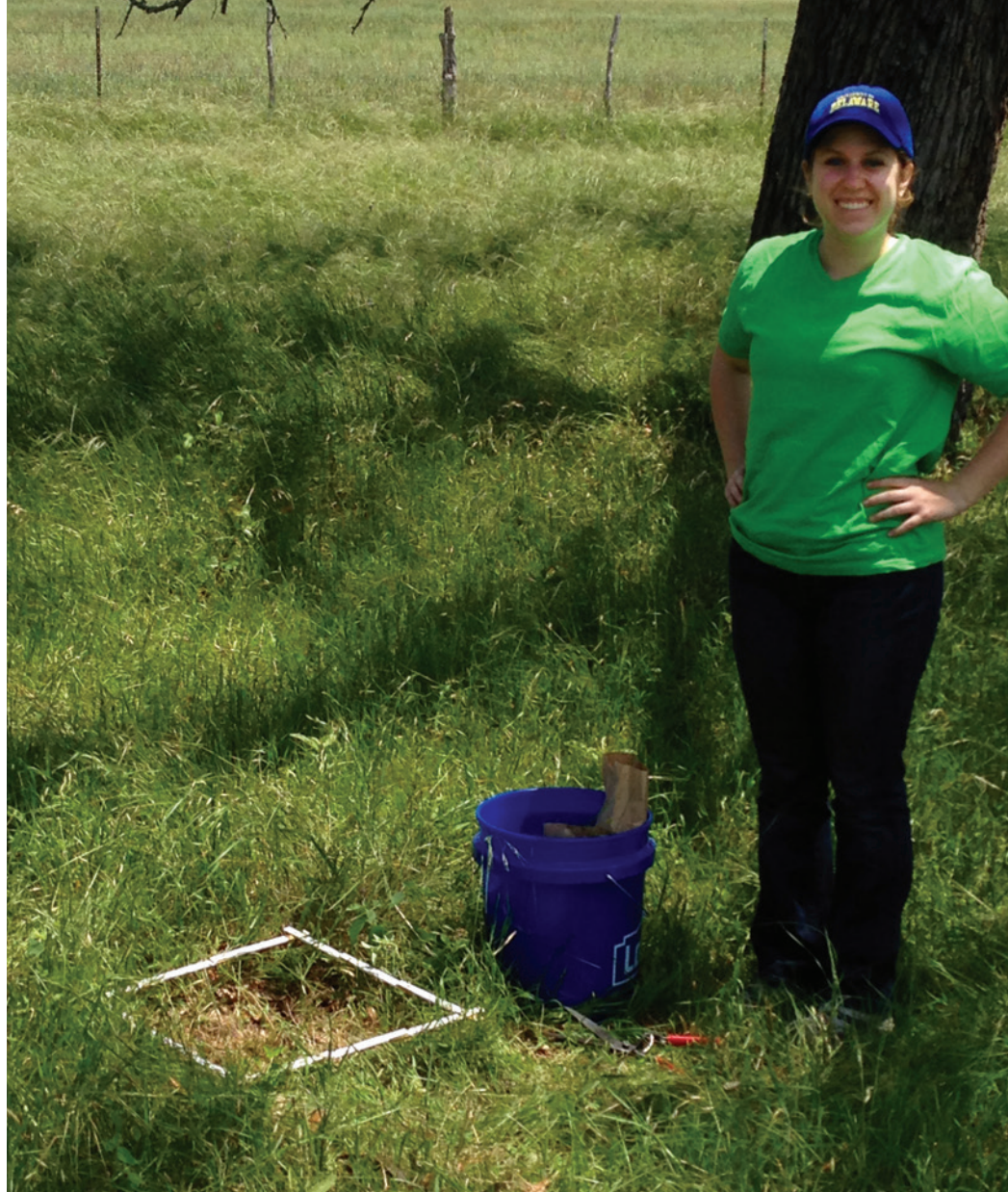
brightness temperature. Furthermore, the mission requirement is an unbiased accuracy level of 4 percent when compared against soil moisture data collected at Core Validation Sites (CVS). We began building a CVS near Fredericksburg, Texas, to meet NASA needs which requires dense soil moisture monitoring. We built the Texas Soil Observation Network or TxSON, an intensively-monitored 36 km grid (1300 km<sup>2</sup>) along the Pedernales River. The objective of TxSON was to establish soil moisture averages for different areas at nested spatial scales to aid both SMAP Cal/Val and also validation of land surface models developed by JSG faculty.

We began installation in September 2014 and completed 41 soil moisture monitoring stations in time for SMAP's launch. Now, TxSON produces a textbook response to SMAP's passive readings with very high correlation between ground and satellite measurements (Chan et al., 2016). TxSON serves as one of 13 official CVS worldwide, but the networks has also grown beyond the Edwards Plateau. We have added three soil moisture and eddy covariance stations over the Edwards Aquifer which quantify recharge. We have partnered with the Texas Parks and Wildlife Department to monitor soil and groundwater levels along areas of the upper Brazos River where an aggressive saltcedar abatement program will begin this fall. Lastly, through a generous contributions from the G.R. White Foundation and the Dixon Foundation, we are instrumenting the areas near Brady, Texas, where the rangelands of Edwards Plateau and Llano Uplift transition into the rolling plains and semi-arid western edge of Texas in Marfa.

We are thankful to all of our sponsors including the Jackson School of Geosciences Foundation, the NASA Jet Propulsion Laboratory, the Edwards Aquifer Authority, Texas Parks and Wildlife Department, and the Nature Conservancy. We are also thankful to the over 20 different landowners that have granted us access to their land.

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*Top Left: GEO 391 class measuring soil infiltration capacity across TxSON. Bottom Left: BEG Associate Director Michael Young (left) and JSG PhD student Chuck Abolt using a portable soil moisture sensor around a permanent soil moisture monitoring station. Top Right: Chelsea Halley (M.S. '16) making measurements of the vegetation water content around a permanent soil moisture monitoring site. Bottom Right: Evapotranspiration is continuously measured at Camp Bullis near San Antonio to determine plant water use and aquifer recharge.*



## HALL OF DISTINCTION INDUCTS TWO NEW MEMBERS

Joseph Hoover Mackin  
and Edgar W. Owen

By **Georgia Sanders**, *Development Specialist*

The Evening of Thanks recognizes new members of giving societies as well as introducing new inductees to the Jackson School's Hall of Distinction. Membership is reserved for individuals who have made exceptional contributions to the field of geosciences, in industry, government or academia, and have a strong connection to the Jackson School. The hall was founded in 1980 and currently has 36 members, including this year's new inductees.

In 2017, the Jackson School inducted two new members into this prestigious group.

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### Joseph Hoover Mackin

Joseph Hoover Mackin was a distinguished scientist who worked in geomorphology, engineering geology, structural geology, and the mission to land a man on the moon. He was regarded as one of the foremost geologists in the country and was a member of the National Academy of Sciences. A world-class geologist, he taught for 28 years at the University of Washington. In 1961 Mackin was recruited by the Department of Geological Sciences at UT-Austin to hold the William Stamps Farish Professorship (later Chair). Professor Mackin supervised four Master's students and five Ph.D. students during his all-too-short time as a faculty member in the Department. He died in 1968 at the age of 62.

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### Edgar W. Owen

Ed Owen worked in the oil industry for many years, including as chief geologist to Lew Wentz, a major Texas oil finder. Owen enlisted in the US Army Air Corps in 1941 and served in New Guinea and Australia in the photographic intelligence division. Attaining the rank of Lieutenant Colonel, he was awarded four campaign ribbons, five battle stars, a distinguished unit citation, and the Legion of Merit. Owen was a Lecturer in the Department of Geological Sciences from 1952-1976, where he moderated tech sessions, helped organize a history of geology course, participated in graduate seminars, counseled students about working in the petroleum industry, and served on the Advisory Council. He refused a salary from UT-Austin during his entire tenure. The history of geology course material he developed in the Department was later published by AAPG as "Trek of the Oil Finders" and has become a classic reference.



*Frank (M.A. '75) and Diann Cornish.*



*Ken Neavel (B.S. '82) and Dean Sharon Mosher.*

"We in part celebrate the financial gifts that make it possible for students like myself to whole-heartedly pursue our academic studies and extracurricular opportunities, but just as importantly, we celebrate your continued presence, year in and year out. Individual financial contributions as well as contributions to the remarkable culture of service are noticed and appreciated, and we — as undergraduates — only hope that we can emulate the example you have set for us going forward."

**Natalie Raia (B.S. '16)**

*James (B.S. '08) and Ana Pape (B.S. '08).*



## NEW FACES JOIN GIVING SOCIETIES

### Inductees Honored at Evening of Thanks

By Georgia Sanders, *Development Specialist*

Since its inception, the Jackson School of Geosciences has pushed the boundaries of geosciences education. At the annual Evening of Thanks, new members were welcomed into the school's giving societies. These generous philanthropists help build upon the legacy left by Jack and Katie Jackson and enable future generations of geoscientists to push boundaries—from the core to the cosmos.

In 2017, nine new members were welcomed into the Hill Society (recognizing those who have contributed a total of \$10,000 or more over the years), two new members in the Barrow Founders Circle (recognizing those who have given cumulative gifts of \$100,000), and two new members in the Katie Society (recognizing those who have given cumulative gifts of \$500,000 or more). Among those honored were friends who have been longtime supporters through annual gifts, those who have established scholarships, and those who have included the school in their estate plans.

Every gift matters and changes the lives of our students.



Ben and Debbie Hooper (B.S. '80), and Dean Sharon Mosher.



Pat Dickerson, Mark Helper and Juli Hennings.

## JSG ALUMNA PENS CHILDREN'S BOOK WITH A STEM FOCUS

### "MD and Finn Go Camping!" Combines Passion for Writing and Science in One

By Kristen Tucek, *Assistant Director of Alumni Relations*



Rania Eldam

Rania Eldam (B.S. '13) is an author by nature, but she accidentally discovered a love for geology while taking the Age of Dinosaurs course at The University of Texas at Austin. She has combined these two passions while also promoting STEM (science, technology, engineering, and math) education through an engaging children's book series.

"I designed MD and Finn as characters to get young kids (particularly young girls) interested in adventures with critical thinking-based problems and solutions. This duo is meant to encourage children to ask more questions about the way that the world works and what they can do to contribute to it. I want to create a world where girls are not afraid of asking too many questions, of going on too many adventures, and learning too many things. I want to live in a world where any child can see a problem, or a question, and figure out how to answer it in a way that makes our Earth a better place to live," says Rania.

"MD and Finn Go Camping!" is a delightful book, and it received rave reviews from my daughters, ages eight and four. We are eagerly awaiting the arrival of the second book in the series, "MD and Finn: Solar Power!" Learn more and purchase a copy for the children in your lives at [www.mdandfinn.com](http://www.mdandfinn.com).



*Top Left: Edouard Cohen (B.S. '16), Phoebe Ly (B.S. '16), and Nicole Pham (B.S. '16) proudly walked the stage to celebrate earning their degrees in geophysics.*

*Top Right: Susan Raia, mother of Natalie Raia (B.S. '16) proudly poses for a photo with her daughter and Dean Sharon Mosher following Natalie's speech thanking donors for their support at the Scholars' Luncheon.*

*Middle: Doug Brown (B.S. '84), Sam Moore (Director of Outreach and Diversity at the Jackson School), Claudia Hackbarth (Shell representative on the Advisory Council), and Tom Burke (B.S. '49 and member of the Advisory Council) enjoyed lunching with current students Chloe Bell and Allison Berti at the annual Scholars' Luncheon.*

*Bottom Left: Tom (M.A. '87) and Rosie Layman (B.S. '85) show their Longhorn pride at the annual Tailgate Party.*

*Bottom Right: Jess Hust (Undergraduate Academic Advisor 3rd from right) helped Jackie Fu, Rachel Ruthven, Susannah Morey, Rosie Fryer, Michelle Ferley, Claire Andrews and Jennifer Beam get ready to accept their bachelors degrees at the May 2016 commencement ceremony.*







Top: Kristopher Darnell, Matthew Hiatt (MSE '13, Ph.D '16), Jasmine Mason, Max Daniller-Varghese, Miguel Cisneros and Colin McNeece represent the University of Texas at the annual meeting of the American Geophysical Union this past December in San Francisco, California.

Middle: Seniors Kristin Sambell, Zehao Xue, Allison Berti, and Maria Reistroffer enjoy their last JSG Tailgate as undergraduates.

Bottom: Leah Carter (University Affairs Recruiter Landmark Software & Services) and Yomi Olufowoshe (B.A. '12) enjoy networking with the Jackson School community at the Annual Tailgate.



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# CORPORATE PHILANTHROPY

## Helping Our Students Achieve Their Dreams

By **Marcela DeFaria**, *Assistant Director of Corporate & Foundation Relations*

Our mission at the Jackson School of Geosciences is to educate the next generation of geoscience leaders to help tackle some of the world's most pressing issues through work in academia and industry. With the help of our corporate sponsors and friends, the Jackson School provides unique, life-changing opportunities for our students and equips them with the knowledge and real-world experience needed to succeed in the evolving field of geosciences.

This past year, corporations supported a variety of initiatives that touched the lives of hundreds of Jackson School students. Corporate backing helped

provide scholarships, fellowships, research opportunities and lab renovations. Corporate donations also supported the Holland Family Student Center, the Career Center, outreach initiatives, campus events, and student organizations.

The Marine Geology & Geophysics Field Course is a great example of the impact of corporate giving. Taught by a seasoned team of researchers and led by UTIG Research Professor Sean Gulick, the class allowed students to participate in a three-week field trip that provided them with practical experience. Students used state-of-the-art equipment in the field and collected and interpreted data in a real-world setting.

"The Marine Geology and Geophysics Field Camp is one of the most valuable courses that the Jackson School of Geosciences offers," said graduate student Bud Davis (Ph.D. '17). "The course offers the hands-on experience of a scientific research cruise along with the detailed instructor oversight of a superb graduate level course. The opportunity to acquire such practical skills in geophysical survey methods, processing, and interpretation is absolutely wonderful. I thoroughly enjoyed my experience and my only regret is that I can't take it again."

Corporate philanthropy also included active volunteer work by employees throughout the year.

Laura Zahm and Eric Radjef (both of Statoil) participated in the Earth Science Career Day and gave a presentation to Austin area K-12 students entitled "Life as an Exploration Geologist." John Reistroffer (ExxonMobil) gave a presentation on basin analysis and modeling as part of the AAPG Longhorn student chapter's series of technical talks.

With the ongoing involvement of dedicated corporate volunteers such as these, our students have access to a great network of veteran geologists whose experience and insight enhance the education they receive at the Jackson School.

We are grateful to our corporate partners for their continued support of our school and students.

To learn more about supporting the Jackson School Geosciences, please contact Marcela DeFaria at [mdefaria@jsg.utexas.edu](mailto:mdefaria@jsg.utexas.edu) or (512) 232-8085.



*Marine Geology & Geophysics Field Course students and leaders.*

# SUCCESS FOR STUDENTS RAISING STUDENTS

## GeoFORCE Endowment Fully Funded Thanks to Fundraising Efforts

By **Kristen Tucek**, *Assistant Director of Alumni Relations*

Bringing students together throughout their campus experience creates a bond that can last a lifetime, especially when they are working towards a greater good. Students Raising Students is an effort led by the Graduate Student Executive Committee with a goal of unifying all Jackson School students through mentoring, outreach, and philanthropy.

Since 2012, GeoFORCE has been their beneficiary of choice. They have spent the past 5 years giving time, energy, and donations to support the creation of an endowment supporting the program. Over \$26,000 was raised through small gifts and fundraising events. What's more, recent alumni continued to support the campaign after graduation.

We are excited to announce that the endowment is now fully funded! Thanks to the hard work and generosity of these students and alumni, the Students Raising Students endowment will live in perpetuity to continue to support GeoFORCE. It is their hope that with continued contributions, their impact on the program will only grow more with each passing year.

# CHEVRON HELPS NEXT GENERATION OF GEOSCIENTISTS LEARN IN THE FIELD

## Donation Supports Domestic and International Field Trips

By Anton Caputo, *Director of Communications*

Crawling over outcrops in the hot sun or beating rain might not be for everyone, but for Jackson School students it's a fundamental part of their education. From their first field method course to the intensive GEO 660 field camp—and a host of potential field experiences in between—these trips are where all the classwork comes together and geoscientists are made.

"It's an essential part of the education," said Department of Geological Sciences Chair Charles Kerans. "For me, it's a critical role to take people out so they learn what the real world looks like as opposed to what the student finds in a text book."

That's why it's so important that Chevron has donated \$350,000 to the University of Texas at Austin Jackson School of Geosciences to sponsor the field trip portions of several geology courses offered to undergraduate and graduate students. The company's donation will support domestic and international field trips from the 2016-17 academic year through the 2018-19 academic year. This year, these trips include an honors trip to Hawaii with professors Mark Cloos and Jamie Barnes, a graduate trip to the Guadalupe Mountains' Delaware Basin with Kerans and Professor Bill Fisher, and a trip to the Andes with professors Brian Horton and Ron Steel.

The job of understanding what's going

on in the earth below your feet is not an easy one. It requires a knowledge of scale that can range from sand grains to mountain ranges and the ability to interpret how geologic processes have shaped the landscape over millions and even billions of years, said Kerans. Without such knowledge, accurately studying the subsurface through data from well logs or seismic information is impossible.

"Being out in the field you get an immediate visual image of the structure and shape of the feature you're trying to predict," Kerans said. "It's really the only way to get an accurate result in terms of interpreting the subsurface environment."

While other earth science programs have scaled back field offerings, the Jackson School has ramped up, expanding courses in hydrogeology and marine geosciences, thanks to the financial support of Jackson School alumni and friends, like Chevron.

Recent field experiences include a trip to Oklahoma in November 2016 where Professor Cloos led 40 students through the Arbuckle and Ouachita mountains. The three-day journey "through time" included dozens of stops at world-class outcrops where students could practice their skills under the tutelage of Cloos, who acted as guide, professor and coach.

"Get some experience noticing stuff – make a discovery," was a refrain students often heard from Cloos during the trip.

"Make the outcrop talk to you by making observations; collect another piece in the puzzle of what happened here."

Emily Peacock was among the students who took the voluntary excursion. As a senior, she's had multiple experiences in the field, but said she always jumps at the opportunity for more.

"This trip was totally optional, but I marked it on my calendar from day one," she said. "You can sit at a computer all you want and look at pictures from this area, but until you can go out there and see it, and physically touch it, you don't really have an understanding of what you're doing."

Peacock is still working on her post-graduation plans, but her goal is to be a field geophysicist. She vividly remembers her first time in the field during her field methods course when Distinguished Senior Lecturer Mark Helper explained that these initial experiences would form the basis for everything she would learn over her career. Her experiences since then have convinced her that it is true. She has been able to build upon that initial knowledge block by block to improve her understanding of the world.

"I love going out in the field. There really is no substitute for it," Peacock said. "The more you're in the field, the more places you go in the world, the more you have the beautiful big picture of what happened throughout the Earth's history."

*Mark Cloos teaching geology in the field.*



*Neeraja Setlur (left) and Emily Peacock making field observations.*



# A CHAMPION FOR HYDRO FIELD CAMP

Pat Goodson (B.A. '84)

By **Bayani Cardenas**, *Professor*

**Belle German**, *Executive Director for Development & Alumni Relations*

Pat Goodson (B.A. '84) and his wife Jill Harding (B.S. '84) both graduated during a downturn in the energy industry. Their careers took unique paths that encompassed their passion for the geosciences. Jill entered the workforce as a public school teacher for the Austin Independent School District where she has taught a number of different science courses. Pat has a highly successful career with his own business, Geoprojects International. Together, Pat and Jill, each in their own way have dedicated themselves to science education. They are passionate about water and serve on a number of boards. Pat is quick to point out that "Texas is experiencing a water crisis and despite record rainfall this year, water remains a critical resource because it can't be replenished fast enough to meet growing demands."

For several years, Pat has given his time, knowledge, and critical support for the Hydrogeology Field Camp which is a capstone course and graduation requirement for Hydrogeology-focused geology majors and Geosystems Engineering and Hydrogeology (GEH) majors. We are most grateful for Pat's generosity. When asked about his motivation for giving back to the Jackson School of Geosciences, Pat commented "it is my hope that other JSG alums will recognize the importance of water as a critical global resource for all living things."

During three rainy days in May 2016, Pat assisted with Hydro Field Camp at the Hornsby Bend site of the Austin Water Utility Center for Environmental Research. After a safety briefing including cautionary tales about rattlesnakes, water moccasins and tarantulas, Hydro Field Camp began with eager students at dawn during which they learned about well drilling and installation, well pump tests and analysis, safety around drill rigs, and writing reports. Teaching assistants Matt Kaufman, Mike O'Connor, Jeff Watson, Peter Carlson, and guest lecturer



*Pat Goodson speaking with Hydro Field Camp students.*

Eric Gultinan, all PhD candidates, also participated with the camp. Students benefited from the knowledge and practical experience shared by Pat, who explained the importance of careful observation stating "in the field, drillers are working fast and it's important to have a good relationship with a driller because this will be the key to your success."

With the sound of drilling in the background, students learned firsthand about water well construction by observing the installation of a 2-inch diameter monitoring well with a total depth of 60 feet. Sediment samples were taken every five feet to observe alluvium in relation to the Lower Colorado River. Upon reaching the Taylor Clay, the Cretaceous bedrock underlying the Quaternary alluvium, there was a discussion about its age and topography.

Nearby, an existing water well was tested with electric sounders to measure the water level. The static water level was 44 feet below ground. The pH and salinity of the water was tested and then it was tasted, which proved to be refreshing.

Despite the lack of creature comforts, students were in their element. The engaging conversations, careful entries in field notebooks, and camaraderie among student teams was enlightening and inspiring.

Hydro Field Camp results in unique teaching and research experiences and the

formation of life-long friendships. Amidst discussions about hydrologic flow and transport processes, there were interesting detailed discussions about the development of solutions to environmental and societal water issues. Students expressed different opinions and were intrigued by cross disciplinary ideas from their fellow students who had different educational backgrounds and research interests. This resulted in discussions about the use of various field observations and techniques and combining them with mathematical modeling. All this, which happened on the first three days of camp, was a great introduction for the remaining two weeks of camp which took place in the Valles Caldera National Preserve in the Jemez Mountains of northern New Mexico.

In separate discussions among faculty, concern was expressed about long-term funding for Hydro Field Camp because a grant from the National Science Foundation which partly supports studies at the site ends this year. All are in agreement that there is an urgent need for an endowment to secure long-term funding for hydro fellowships and education activities such as field camps. As a result, the Hydro faculty and JSG's Development and Alumni Relations team are working on raising funds for an endowment. If you would like to know more about Hydro Field Camp, please contact us.



*Top: Students conducting well tests; Bottom Left: Teaching assistants and students discussing well testing; Bottom Right: Students measuring well depth.*



# UNDERGRADUATE EXTERNSHIP PROGRAM

## Students Explore Career Paths with Company Visits

By Jennifer Jordan, Career Services Program Coordinator

The Geosciences Externship Program offers an opportunity for undergraduate students to engage in career exploration. Jackson School of Geosciences (JSG) alumni, friends and interested companies host student externs for a day of shadowing and networking during an academic break. Externships can be hosted in any major city in Texas. Students spend a day with their company host learning about the workplace and career paths during an academic break.

The externship program receives 100% positive reviews from students who said they would participate a second time or recommend the activity to a friend. It is the most powerful career exploration tool a career center could offer to their student population, and we would like to offer more opportunities for involvement in the future.

### STUDENT DEMOGRAPHICS

While this program is open to all JSG undergraduate students, it is primarily marketed to freshmen and sophomores. The Geosciences Career Center will work with you to identify the majors and level of student that would benefit most from your externship. You will receive a list of registered students at least one week prior to the externship with their major, year in school and contact information.

### STUDENTS PARTICIPATE TO:

- Explore career options and evaluate their level of interest in various industries, work environments and career paths.
- Experience the real life application of their coursework.
- Begin building a professional network.

### PROGRAM BENEFITS

As a host, you have the opportunity to:

- Make a meaningful contribution to students' career development.
- Share your career path and advice for students on gaining the necessary skills and experiences to be successful in the future.
- Build relationships with current students and stay connected to the Jackson School.
- Increase awareness of your company within the Jackson School community.

If you are interested in participating as a company host please contact Jennifer Jordan, Career Services Program Coordinator, at [jjordan@jsg.utexas.edu](mailto:jjordan@jsg.utexas.edu) or call (512) 232-0893.

Winter Break 2017: 41 students

## EXTERNSHIP STATISTICS

Spring Break 2017: 15 students



The Jackson School of Geosciences would like to thank the following companies for participating in the 2017 externship program:

**BHP Billiton | Capitol Energy | ConocoPhillips | LCRA  
Marathon Oil | Peregrine Oil | Premier Oilfield Laboratories  
Roxanna Oil | Texas Water Development Board**

# ALUMNI CREATE NEW ENDOWMENTS TO SERVE GRADUATE STUDENTS

## Endowments Support Multidisciplinary Program and Field Experiences

**Belle German**, *Executive Director for Development & Alumni Relations*

**E**lliott (M.A. Geology '82) and Terry Miller Pew (B.A. Education '79) established an endowment to offer funding for graduate students in the Jackson School of Geosciences Energy and Earth Resources (EER) Graduate Program. The program lets students pursue interdisciplinary studies in the areas of geosciences, engineering, management, finance, economics, law, and policy to be applied broadly for geological and geophysics research.

After a long and successful career in the industry, Elliott retired in 2010 as Chief Operating Officer of Common Resources, LLC, and currently serves on a public oil and gas board in Houston and another in Canada. He said his professional experience has shown him the need for geoscientists and energy professionals to learn a wide variety of skills, and convinced him that the EER Graduate Program will help students excel in industry, government and beyond.

Elliott started his career in a strictly technical role, but with time and increasing responsibility had to gain expertise in engineering, business and policy areas. Through the course of his career, he realized that many of the people he admires most in the energy industry—including individuals serving in technical, middle, and upper management positions and on boards—took a similar path. Their careers often started with a solid technical background, but were augmented with skills in business, finance, capital markets, and policy. These professionals with multi-disciplinary experience and knowledge became the leaders of the energy industry because they understood how financial performance is driven by operating results (and vice versa), and how sound policy leads to long term sustainability and success.

Currently, professionals often have to pick up the additional skills and expertise on the job, but Elliott believes that the EER Graduate Program can help begin this process while future geoscientists and energy industry leaders are still at school.

EER's Director, Richard Chuchla emphatically agreed.

"Energy and resource challenges are

inherently multidisciplinary. That is the premise on which this program is based. I believe it will better prepare the next generation of leaders for these complex and rapidly evolving challenges," he said. "This donation is doubly gratifying. First, it is an endorsement of the program concept from Elliott who dealt with these complex issues as a successful executive in the energy business. Secondly, Elliott and Terry's donation for EER scholarships will go a long way toward our continuing efforts to attract the best students and offer a top-tier program combining geosciences, engineering, management, finance, economics, law, and policy."



*Elliott and Terry Miller Pew*

**M**ark W. (M.A. Geology '82) and Janice Alsop Ver Hoeve (M.A. Geology '82) recently established a graduate endowment for students to conduct geological and geophysics field research.

Mark and Janice have had successful careers in the energy sector. Mark got his undergraduate degree from the University of Wisconsin Madison and Janice received an undergraduate degree from Duke University and a Master of Business degree from Rice University. While graduate students at The University of Texas at Austin, Mark and Janice met and built a life together.

Now residing in Denver, Mark and Janice are active in their community and maintain strong contacts with the Jackson School of Geosciences. Mark and Janice have served

on the Friends and Alumni Network Board and are committed volunteers. They are also big Longhorns fans and leaders among the Rocky Mountain Chapter of Texas Exes.

Their decision to donate funds for graduate field research came from their close lifelong friendships with their graduate advisors, Earl McBride and Al Scott. The knowledge that field research is a costly but critical endeavor added to their conviction to create this much needed endowment. Their decision to pay it forward will result in a reliable source of funding for graduate students who will conduct vital field research throughout the world.

Dean Sharon Mosher expressed her appreciation to Mark and Janice for recognizing that the Jackson School's research encompasses all parts of the Earth's dynamic system.

"Mark and Janice's investment directly supports our teaching and research mission at the Jackson School," Mosher said. "We are tremendously grateful for the generous endowment, which will serve the needs of graduate students conducting research in some of the most scientifically significant areas in the world. Field research is vital for learning more about the challenges we will need to address in the present and the future, and it is a critical component for educating the next generation of leaders in the geosciences."



*Mark and Janice Ver Hoeve*

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