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ISEM NEWS provides a summary of the latest research projects, current events, and contributions to science. The generous support of our donors makes possible programs for students and faculty.



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ISEM ESTABLISHES THE JAMES E. BROOKS AWARDS FOR FACULTY AND STUDENTS



Dr. James E. Brooks, President of ISEM from 1981 to 1996, has been Chair of the Geology Department, Dean of the Faculties of Humanities and Sciences, Provost and Vice-President for Academic Affairs, and President *ad interim* of SMU. The Ph.D. program in Geological Sciences was established under his chairmanship as the faculty grew from five to twelve members. He has always been a champion of quality education for students. His door is always open for undergraduate and graduate students and for faculty to take advantage of his calm and positive conversation, his humor, and his guidance.

For these reasons and many more, the ISEM Board of Trustees announces the establishment of awards for faculty, graduate and undergraduate students names in

honor of Dr. Brooks. The inaugural \$5000 **James E. Brooks Faculty Awardee** is **Professor Kacy Hollenback**, an anthropologically trained archaeologist who investigates the long-term legacies of disaster. She is currently completing a book titled *We Once Were A Numerous People: Long-Term Legacies of Disaster on the Northern Plains*, which focuses on indigenous communities after the smallpox epidemics of the eighteenth and nineteenth centuries. This research seeks to understand the social and cultural implications of the loss of skilled knowledge holders for contemporary indigenous communities. Dr. Hollenback actively engages undergraduate and graduate students in her research.

Kacy Hollenback



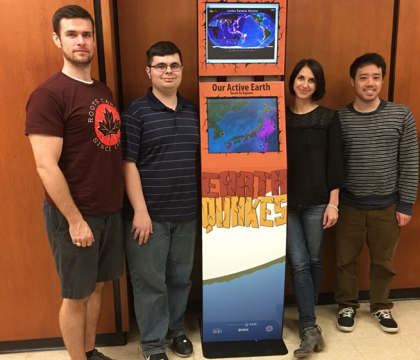
DOWNEY FAMILY AWARD FOR FACULTY EXCELLENCE

Geophysics professor **Matthew Hornbach** is the recipient of the 2017 **Downey Family Award for Faculty Excellence**. His research includes heat flow and seismic analysis in the Beaufort Sea off the North Slope of Alaska funded by the Department of Energy, and thermal conductivity studies of the Denver and Appalachian Basins funded by industry. Matt serves on the U.S. Department of Energy's Methane Hydrates Advisory Board and the National Science Foundation's Scientific Ocean Drilling Advisory Committee. He heavily involves undergraduate and graduate students in his research. The \$5000 Downey Award was established by **Marea and Marlan Downey** and has been awarded to 13 SMU professors since its inception in 2004.

ISEM and SMU lost a truly great friend when Marlan Downey passed away on May 29th. Marlan was an ISEM Trustee from 1992 to 2009, and he was one of the organizers and a major participant in the ISEM Game Creek Ranch Energy Roundtables held annually for the past 13 years, the most recent of which convened earlier this summer.

Matthew Hornbach





As outreach associated with the study of induced seismicity in North Texas by Earth Sciences Professors **Heather DeShon, Brian Stump, Matt Hornbach, Beatrice Magnani** and their team, ISEM funded an Active Earth Display hosting educational content on earthquakes, including real-time global seismicity. The display is shown at left in the lobby of Heroy Hall with new Society of Exploration Geophysicists student members **Travis Eckert, Louis Quinones, Elizabeth Layton, and Kevin Kwong.**

Archaeology graduate student **Abigail Fisher** won the student paper competition at the Plains Anthropology Conference in October for her study of stable isotopes in dogs from High Plains archaeological sites. Because these dogs ate food scraps, garbage, and human waste, their isotopic signatures through time provide proxies for human diet, improving resolution of the origin of agriculture in the High Plains. Abigail was invited to publish her results in the *Plains Anthropologist*.



Earth Sciences graduate student **Kate Andrzejewsk**, shown at left, is researching Cretaceous paleoenvironments using paleosols and fossils from north-central Texas and southern Oklahoma. She presented her results on paleosol clay mineralogy at the Geological Society of America in October and introduced a new dinosaur at the Society of Vertebrate Paleontology Annual Meeting in August.

Dr. Tekie Tesfamichael is a postdoc in Professor **Bonnie Jacobs's** lab. He is continuing his Ph.D. research (recently published in *Geology*) involving the quantification of surface features in fossil leaves from Ethiopia to determine past atmospheric CO₂ levels and their effects on temperature. Dr. Tesfamichael is shown at left collecting 22 million year old fossil leaves from Mush Valley.



Graduate student **Julia McIntosh**, left, and her advisor Professor **Neil Tabor**, right, are in Antarctica as part of a team studying environmental changes recorded in rocks surrounding the Permian-Triassic boundary, the time of the largest mass extinction in Earth history, some 250 million years ago when Antarctica was part of Pangaea. ISEM provided a satellite phone to facilitate communication from their remote camp at Graphite Peak.



“ In my opinion, the most creative research at a university is done by the most energetic investigators, by which I mean students. Those are who we can support best.

Louis L. Jacobs, President ”



Shuler Museum Research Assistants (l to r): Yasmin Jackson, Zach Leitzel, Tania Doblado Speck

Marr Scholars Featured at Annual Celebration

ISEM Marr Scholars were honored along with Dedman College Hamilton Scholars on March 21st in the annual celebration of undergraduate research showcasing the amazing accomplishments of these gifted students.

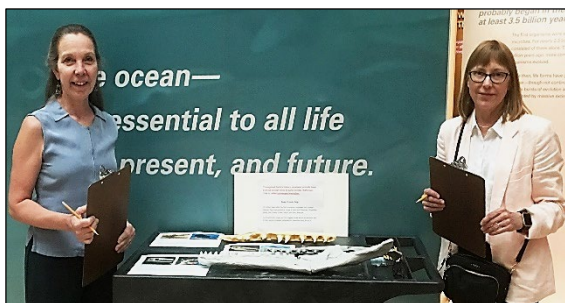


Marr Scholars Jennifer Welch, Harrison Schumann, and Evan Snyder are shown with Dr. Ray H. Marr (center) and their advisors.

SAVE THE DATE:

SEA MONSTERS UNEARTHED OPENS AT SMITHSONIAN IN ONE YEAR

The Smithsonian Institution and ISEM-produced exhibit, **Sea Monsters Unearthed**, will open in November 2018 at the Smithsonian's National Museum of Natural History, on the National Mall, in Washington, DC. The exhibit focuses on **Projecto PaleoAngola**, a paleontological and geological investigation of the fossils and rocks resulting from the opening and growth of the South Atlantic Ocean from 132 to 6 million years ago. The project, centered at SMU, began in 2005, three years after Angola signed a peace treaty that put an end to strife. Since the first fossils from Angola arrived at SMU, 137 undergraduate students have worked on them in the lab and three SMU students have earned their Ph.D.s based on PaleoAngola research.



Jill Johnson, Project Manager, and Diana Vineyard, ISEM, conduct floor tests for **Sea Monsters Unearthed** at the Smithsonian.

The work of all these students is a big reason this project has a place at the Smithsonian. In addition to these students, ISEM has an excellent team of volunteers from the **Dallas Paleontological Society**. Support for field and laboratory work has come from three **National Geographic Society** grants, a two-year **Petroleum Research Fund** grant, private companies and industry in Angola, and from the ISEM family of supporters. ISEM Trustee Karen Carr is providing all artwork and animation. **Ray H. Marr** is helping in many ways including student support and video production. Very welcome support has come from the **La Vida Foundation** of Angola, the **Hamilton Family Fund** of the Communities Foundation of Texas, the **Zilina Trust** of England, and

The Saurus Institute of Dallas. After two years, design has just passed the 65% stage, a major landmark in exhibit production. The core design team includes a Smithsonian project manager, writer, designer, educator, and an experiential technologist and exhibition designer. The ISEM core includes **Louis Jacobs**, **Mike Polcyn**, **Karen Carr**, **Diana Vineyard**, and **Myria Perez**, a fourth year undergraduate serving as an **Engaged Learning** intern on this project. The Smithsonian team has visited SMU, the SMU team goes to the Smithsonian for discussions and floor testing of concepts, and the group meets weekly for a two-hour conference call. Students are involved every step of the way, including **Ana Soraya Marques**, an Angolan student originally from the Methodist University in Luanda, who has been working with Projecto PaleoAngola for four years and recently came to SMU to work with other students in the lab.

REPUBLIC OF ANGOLA 42nd INDEPENDENCE CELEBRATION

Louis Jacobs, shown here with the **Honorable Júlia de A.C. Machado**, was guest speaker at a reception for the 42nd Independence Celebration of the Republic of Angola held at the Consulate-General of Angola in Houston on November 9.



MORE SMU AT THE SMITHSONIAN

Professor *emeritus* **Mike Holdaway**, an expert on the metamorphic rocks of New England and Professor of Geology from 1962 to 2000, is the star of a long running geological "cooking" video in the U.S. National Museum of Natural History Hall of Geology, Gems, and Minerals. As the "Geological Gourmet", Holdaway uses cooking analogies to explain the effect of heat and pressure on rocks.



WELCOME NEW BOARD MEMBERS!



Anthony Aramoonie started out as a pre-med major at SMU where, he says, a highlight of his undergraduate experience was working in the field and paleontology labs. Now he is the Division Chief of Liver Transplant Anesthesia and a member of the trauma staff at Methodist Dallas Medical Center, as well as a partner at the A.C.D. Division of US Anesthesia Partners. He also participates in residency instruction, especially in cardiovascular anesthesiology and echocardiography, at Southwestern Medical School. A family man, his personal time is happily devoted to his wife Nicole, his daughter Alexa Valentina, and his son Dominic Anthony.



New Mexico artist **Karen Carr** is an important part of the team producing the **Sea Monsters Unearthed** exhibit. As a student she received a prestigious Ford Foundation scholarship in recognition of her illustration and life-drawing skills. Karen's work has been displayed at the Smithsonian Institution, the Perot Museum of Nature and Science, the Audubon Institute, the Field Museum, the Royal Tyrrell Museum of Paleontology, and in publications including *Science*, *Nature*, and *Scientific American*. She has authored or illustrated more than a half-dozen recent books for young readers published by HarperCollins, Random House, Barnes & Noble, and Scholastic Press. Karen has made the research of SMU students and faculty accessible to a much broader audience by providing illustrations that bring their work to life, as can be seen on the SMU Research Blog [blog.smu.edu]. She is extremely generous in providing all artwork and animation to **Sea Monsters Unearthed** at no cost to ISEM or the exhibit. Thank you, Karen!



John Jackson is a geologist, an artist, an author, and a teacher. He lives in a volcanic crater in Queensland, Australia, where he is known as "The Rock Doctor." John has been a senior executive with Shell, Santos, and several other international companies. His fascination with painting what lies beneath us began years ago when he was working in South Africa, Uganda and Mali. He told the people stories about the rocks that provided their jobs and supported their families through colorful paintings on large panels of cloth. Since then he has presented his paintings, together with their stories, in Africa, Portugal, United Kingdom, Canada, the United States, and throughout Australia. He is currently painting the opening of the South Atlantic Ocean in five panels as a gift to Angola.

SMU Research Blog



A new giant bird-like dinosaur discovered in China has been named for SMU paleontologist, Dr. **Louis L. Jacobs**, *Corythoraptor jacobsi*, by lead researcher **Junchang Lü '04** and colleagues **Yuong-Nam Lee '95** and **Yoshitsugu Kobayashi '04**, former graduate students of Dr. Jacobs [blog.smu.edu].

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