

2012

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ENGAGED LEARNERS!
Supporting Undergraduate Research

A major focus of ISEM is to provide signature programs to undergraduates not only in Earth sciences and Archaeology, but to students in any major. The goal is to help as many students as possible become comfortable with science and propel them toward productive careers. ISEM is able to do this through its **Jack and Jane Hamilton** Research Assistant program, **Ray Marr** Scholars, and the **Gaffney Family** support for interdisciplinary studies. However, it is important to recognize the support given to students across Dedman College and the University. Of particular importance is the Engaged Learning program, SMU's most elite research opportunity for undergraduates because it is recorded on a student's transcript. Two Engaged Learners are highlighted here.

Senior **Andrew Lin**, shown here examining whale skulls at the Smithsonian Institution, began working in the Shuler Museum labs as a **Hamilton Undergraduate Research Assistant**, then became a Dedman College Hamilton Scholar, a **Marr Scholar**, and is now an Engaged Learner. He is also a President's Scholar. His research project involves the processing of CT images of a 17 million year old beaked whale from the Rift Valley of Kenya. In addition to determining the evolutionary placement of the fossil, Andy can use the geologic position of the whale to determine paleoelevation — beaked whales do not live higher than sea level. As the fossil was found at a much higher elevation, Andy will examine the formation of the African Rift Valley by applying data from the whale to a geophysical model of rift uplift. A double major in Earth Sciences and Pre-Medicine, Andy has already been accepted to medical school.



Kathleen Masterson became an Engaged Learner as an extension of a class project inspired by the annual Earth Sciences field course to the Grand Canyon. Through ISEM board member **Tom Meurer**, Kathleen became an intern with Hunt Consolidated and conducted a GIS survey of Triassic rocks on the Hunt Ranch adjacent to Petrified Forest National Park, Arizona, to determine the amount, quality, and distribution of petrified logs. Kathleen will continue next semester as a **Marr Scholar** and will study the geochemistry of fossil logs and their enclosing sediments to determine ancient climate. An Earth Sciences major, Kathleen plans to attend graduate school and enter the energy industry.

Follow our Engaged Learners at www.smu.edu/EngagedLearning



TURKMENISTAN EVALUATED FOR UNESCO WORLD HERITAGE SITE. The Koytendag area of Turkmenistan, which borders Afghanistan and Tajikistan in central Asia, has a rich cultural heritage, sacred caves (as shown at left), acid-formed caverns similar to Carlsbad (already a World Heritage Site), some of the world's longest dinosaur trackways, and spectacular scenery. In May Louis Jacobs was part of a team to evaluate Koytendag as a UNESCO World Heritage Site. Closer to home, Jacobs serves on the U.S. National Park Service Science Advisory Board, which recommends National Natural Landmarks. SMU students, with the support of **Peter Gaffney and his family**, are working with ISEM and in cooperation with the Dedman College Interdisciplinary Institute to evaluate potential National Natural Landmarks in the Dallas area.

PEROT MUSEUM OF NATURE AND SCIENCE OPENS

The opening of the Perot Museum is a major event not only in Dallas, but across the entire museum world. SMU has been involved with the museum since its very inception in 1936 through Ellis Shuler, a founder not only of the museum that has evolved into the Perot Museum, but also the Department of Geology at SMU that has evolved into the Roy M. Huffington Department of Earth Sciences.

Dr. James E. Brooks has long been a supporter of the museum, having served previously on its board for many years. In the lobby of the museum stands the African dinosaur *Malawisaurus*, excavated in part with funding from CALTEX arranged by ISEM and named by SMU paleontologists.



North Sulphur River Turtles



A number of important fossils have been found in the Metroplex by enthusiasts and have ended up at the Perot Museum, including the marine reptile *Dallasaurus*, named by SMU paleontologist **Mike Polcyn**. Of special interest is a set of 70 million year old sea turtles found by children out with their parents along the North Sulphur River. The turtles were excavated (as shown in the photo) and came to SMU where they were prepared and catalogued. Thanks to the determination and drive of one of the parents, **David Hill**, the turtles found by the children are now on display at the Perot Museum.



ISEM welcomes postdoctoral fellow **Dr. Scott Myers**. Scott, an SMU alum, is famous for using clay minerals and stable isotopes of ancient soils to determine past climates and estimate productivity in long extinct ecosystems. A member of the 2012 Projecto PaleoAngola expedition, Scott has also named a pterosaur from the Metroplex area and is working with dinosaurs from Lake Lewisville discovered by fossil enthusiast Dan Bidleman (shown at his discovery site on the shore of the lake). Scott is working with students, with the web presence, and with the logistics of Projecto PaleoAngola fossil shipments, as well as continuing his research. He is shown here being interviewed by Channel 4 newscaster Richard Ray about Dan's finds.



PROJECTO PALEOANGOLA



Louis Jacobs (left) met with Mrs. Agostinha da Silva Lemos Newton (Director for International Relations of Fundação Vida, the Life Foundation of Angola), Mrs. Tinelly Barros (LS Holdings, Luanda), and John Bredar (Senior Executive Producer, National Geographic Specials) in Heroy Hall to discuss future directions for Projecto PaleoAngola. The icon of modern Earth Sciences is the puzzle-like fit of South America and Africa. The separation of the continents and the establishment of the South Atlantic have had profound consequences for the modern world in terms of energy reserves and food production. Projecto PaleoAngola is a multifaceted project focusing on the opening of the South Atlantic Ocean and its effect on life through time. Angola is the only country that

preserves the rocks and fossils that allow the study of this chapter of Earth history in such detail. Joining Projecto PaleoAngola for the first time in the

2012 season were David Evans (Yale) and Johanna Salminen (University of Helsinki, Finland), both researching paleomagnetism, chronology, and the assembly of Africa, Tyrone Rooney (left, Michigan State), a volcanologist, Scott Myers (SMU), geochemistry and paleoclimate, and student Ana Marques (right, Methodist University of Angola).



ON THE WEB!
blog.smu.edu/research

Projects supported by ISEM have been featured prominently on the Research page of SMU's website, on You-tube, and have circulated widely. Visit these links to learn more.

*National Geographic:
New Coelacanth Species
Discovered in Texas*



*Frontburner: Texas'
Bone Wars Studied
by SMU Professor*



*Tiny Teeth Discovered
From Inner Mongolia:
New Species of Today's
Birch Mouse*



[www.nationalgeographic.com/
explorers/bios/loius-jacobs](http://www.nationalgeographic.com/explorers/bios/loius-jacobs)

www.PaleoAngola.org

[vertpaleo.org/The-Society/
We-Are-SVP.aspx](http://vertpaleo.org/The-Society/We-Are-SVP.aspx)

STARKEY A. WILSON (1929-2012)

Starkey Wilson was an alumnus of the SMU Department of Geology, a lifelong supporter of the University, and in later years, of ISEM. Starkey's sense of humor and his joy of life colored everything he did and contributed significantly to the activities he touched. His skill in conceiving and planning excursions, his dynamic presence, and his humor were instrumental in the success of four ISEM excursions. From Southeast Alaska to the North Slope to the Aleutian Islands, and then to Iceland and Yellowstone, Starkey's knowledge of the geography, the geological settings, and the energy significance of those locales were instrumental in making these trips unique and highly enjoyable. For him there was one theme: producing the next generation of affordable energy and for that he was committed to developing geothermal resources, a field in which SMU excels.



Starkey Wilson on the 2006 ISEM Excursion to Iceland, pushing apart the American and European plates at the summit of the Mid-Atlantic Ridge.

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Louis Jacobs

Ray H. Marr

Scott and Andrea Wendorf



CAST 2012

On November 8-10 the Conference for the Advancement of Science Teaching was held in Corpus Christi. Continuing its participation in CAST, ISEM education specialist **Diana Vineyard** (shown below with stacked fossil sea turtles from the North Sulphur River) presented a very well-received teacher workshop called One Hundred Million Years of Sea Turtles in Texas. At the Conference, **Louis Jacobs** was awarded the prestigious Skoog Cup (left) for "outstanding contributions to the advancement of science teaching." Earlier this year he was a keynote speaker at the International Geological Congress held in Brisbane, Australia, where he spoke on the paleoenvironmental and evolutionary effects of northward drifting continents through geologic time.



Dr. Kimball Banks has been appointed Research Fellow of ISEM. Kimball is an expert on the archaeology of Egypt and co-Director of the American contingent of the Combined Prehistoric Expedition founded by **Fred Wendorf**. Kimball received his Ph.D. from SMU in 1983. ISEM is pleased to welcome Kimball and to help continue at SMU the research agenda established by Dr. Wendorf.



"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."

Dr. Louis L. Jacobs, President