



Inside This Issue:

Program News ...1

Photo Gallery ... 4

Contact us / Editors
..... 1

Program News

National Earth Science Week Celebrated at TAMUK



The Geosciences Program hosted our annual Earth Science Week activities October 12-16. There was an event every day (highlighted below) and activities were well attended, supported, and led by our student majors and faculty.

On **Monday** evening, we hosted a Geosciences Program Open House, with GIS, Mineralogy, Petrology and Field Geology demonstrations, and Petrophysics and Drill Core exhibits. Seven faculty and many geoscience students played host to over 40 visitors to our department.

On **Tuesday**, John Metz, National Weather Service Meteorologist, gave a talk on “The use of Geospatial Technologies in Weather Forecasting and Severe Weather Warnings,” which had over 50 people in attendance. The Geoscience Club provided refreshments.

On **Wednesday**, **Blanca Garza** and **Scott Fenner** accompanied Dr. Sanchez to Harrel Elementary School to engage 3rd graders in earth science activities. **Blanca** led a demonstration on a subset of minerals highlighting their use in every-day life. The students passed around samples of graphite, talc, halite, fluorite, and hematite. **Scott** led an activity on fossils and discussed their mode of preservation and brought a few specimens to pass around the classroom, including a *T. rex* maxilla cast. Dr. Sanchez discussed pollution and led a demonstration on various types of water pollution using household items to show differences in density and prolongation of pollutants in the environment. The 3rd graders were intrigued and asked excellent questions. They gave the Geosciences Department a “thank you” letter that can be viewed in “The Cave” in Hill Hall. Thanks to Dr. Buckley for lending us the *T. rex* maxilla from his collection and to Dr. Ford for letting us borrow a sample of specular hematite.

The **Thursday** evening program included excellent, well attended and well received talks by our very own Drs. Sanchez and Ford. We packed the room with over 60 people in attendance!

Dr. Veronica Sanchez’s talk was titled, “What does an active orogeny look like? Insights from mapping, geochronology and geophysics of the Himalayas.” Dr. Sanchez highlighted results from on-going investigations focused on mapping active deformation in the Tibetan Plateau. Tying with the theme of “Visualizing Earth Systems,” Dr. Sanchez emphasized the significance of first-order observations in conducting field work which usually results in more questions than answers.

Dr. Mark Ford’s talk was titled, “Newberry Volcano: The Largest Active Volcano in the Continental United States.” Dr. Ford began his talk with a survey of volcanic provinces of the United States and provided a discussion on basic volcanology before focusing on Newberry Volcano from central Oregon. While many people know about the Hawaiian volcanoes and Yellowstone “supervolcano”, few are familiar with Newberry Volcano. With the last major Yellowstone eruption happening 640,000 years ago, Newberry Volcano has produced more eruptive products than of any other volcano in the continental US, totaling approximately 1,000 cubic kilometers, over the last ½ million years. The last eruption at Newberry Volcano, which produced the Big Obsidian Flow, was only 1,300 years ago and there is an active hydrothermal system on the mountain. Currently TAMUK does not offer a volcanology class and talks like this one are a great way to expose students to other disciplines within the geosciences.

Finally on **Friday** afternoon, Dr. Ford and some members of the Geosciences Club including **Gregory Darlington**, **Josh Krnavek** and **Jacob Byerly** led a campus cleanup activity. 17 student volunteers collected trash from around campus. Some students even came back later in the semester and volunteered to do it again!

We received a half page of coverage in The South Texan newspaper which can be viewed here: <http://www.southtexannews.com/tag/earth-science-week/>. We extend a big thank you to our student clubs that helped make Earth Science Week a tremendous success!

Contact us:

Geosciences Program
Texas A&M – Kingsville
MSC 175, University Blvd
Kingsville TX, 78363

Phone: 361-593-3110

Fax: 361-593-2183

URL:

geosciences.tamuk.edu

Editors:

Dr. Thomas McGehee
(kftlm00@tamuk.edu)

Dr. Haibin Su
(haibin.su@tamuk.edu)

Dr. Mark Ford
(mark.ford@tamuk.edu)





Geosciences Students Attended Three Fieldtrips



Drs. Thomas McGehee, John Buckley, Veronica Sanchez, and Mark Ford led a fieldtrip (Oct 1, 2, and 3) for 36 geology majors to study “Sedimentology and Paleontology of Cretaceous Rocks in Central Texas” for the GEOL 4420 Paleontology and GEOL 3431 Sedimentology and Stratigraphy classes. The Jackson School of Geosciences provided tours through the vertebrate and non-vertebrate laboratories. Students measured the gait of a dinosaur track in San Gabriel River bed near Leander, TX. Also, students measured a 3400 ft. section north of Flat Creek along Fitzhugh Road and developed a cross-sectional profile with the data.

Drs. Thomas McGehee, Veronica Sanchez, and Brent Hedquist led a fieldtrip (Oct 8, 9, and 10) for 18 geology majors to Central Texas to study “Folded Paleozoic Rocks near Hye Texas: Evidence of Plate Tectonics?” for the GEOL 3421 Geomorphology and GEOL 3431 Sedimentology and Stratigraphy classes. Our students developed an early Paleozoic (Cambrian-Ordovician) rock collection on a tour and examined outcrops in the Pedernales River area near Hye Texas. We estimated the amounts of Mesozoic, Paleozoic and Precambrian rock eroded off of Llano/Central Texas area as a result of the dynamic uplift.

Dr. Thomas McGehee provided a tour of the Houston Museum of Natural Sciences Saturday, November 14th for 47 students in the Physical Geology classes. This included the world class exhibits Wiess Energy Hall, Cullen Hall of Gems and Minerals, and Moran Paleontology Hall.

South Texas Geology Fieldtrip

Vernon Kramer (Del Mar College) has developed new fieldtrips to Duval County for his geology majors to study South Texas Geology. Mr. Kramer and Dr. McGehee went to the Freer area to look at 25 outcrops in the Tertiary Chattian to Messinian age (Oligocene to Miocene Epoch) Catahoula, Lagarto, and Goliad Formations. Mr. Kramer has used several field guides to construct an 8 hour fieldtrip route for sampling the variability of these formations in outcrops around Duval County.

Student Honors College Projects in Geosciences



Iain

Iain Macey has been working this semester on the “Lithostratigraphy and Groundwater Potential of the Fredericksburg, Texas area.” This study includes description and analysis of 300 feet of core, correlation of local geophysical well logs, interpretation of a 3-dimensional lithostratigraphic model, and prediction of groundwater potential for the Fredericksburg area. Iain and Dr. Thomas McGehee traveled to Fredericksburg, Texas to meet with Jim Chude and Paul Tybor (Manager, Hill Country Underground Water Conservation District) to discuss Mr. Macey’s Honors College project. Mr. Tybor provided the core, local well logs, 3-dimensional model and considerable professional time and expertise on this effort.

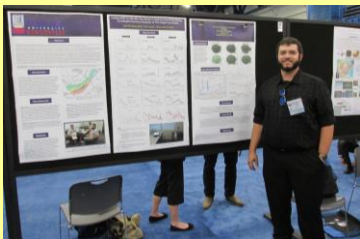


Monica

Sarah

Monica Estrada and **Sarah Dillon** are working on the “Lithostratigraphy and Groundwater Potential of the Hye, Texas area.” This study includes thin-section analyses of surface rock samples and mudloggers rock chips from a local well, correlation of local geophysical well logs, and interpretation of a 3-dimensional lithostratigraphic model, and prediction of groundwater potential for the Hye area. **Monica** and **Sarah** are preparing an abstract and publication on this research project.

Students and Faculty Attend Conferences



John Dabney

Drs. Thomas McGehee, Mark Ford, and **John Dabney** (2015) traveled to Houston to judge presentations and present research at the 65th Annual Gulf Coast Association of Geological Societies Convention (GCAGS) in Houston, Texas. Dr. Ford and John Dabney presented two research posters from work accomplished by Dr. Mark Ford and 4 undergraduate students. Drs. McGehee and Ford were judges at multiple poster and oral presentations.

A number of our recent alumni were present at the conference including Matt Cowen, Lisa McLaughlin, Justin Mauck, Brent Winborne, Tyler Quade, and Tim Scott. It was great to see all of these alumni at the conference. **Matt Cowen** is the Chief Field Geologist for Terrain Solutions, an environmental firm. **Lisa McLaughlin** is working for Anadarko Petroleum and is a graduate student at Texas A&M University-College Station studying sedimentology. **Justin Mauck** is working at the Bureau of



Economic Geology and is a graduate student at The University of Texas studying sedimentology. **Brent Winborne** is working for Nye Exploration (NYEXP). **Tyler Quade** is working for the Gisler Brothers Mudlogging Company and is a graduate student at UT San Antonio. **Tim Scott** is working as a Wellsite Geo-scientist for Weatherford International.

Dr. John Buckley attended the Society of Vertebrate Paleontology Meetings held in Dallas the middle of October. He went on the field trip looking at lower and mid Cretaceous trackways and related sites in the Dallas Fort Worth area the day before the meetings and then spent the next few days attending talks and making new contacts in the community. He was accompanied by Ms. **Lauren Hall**, a freshman student in the Geology Program, who is studying paleontology. She made several valuable contacts and may be applying to the GeoCorps Program with the Geological Society of America so that she can work at either Dinosaur National Monument or Badlands National Monument with their paleontologists. She may also apply to spend a second summer with the staff at the Tyrell Museum in Drumheller, Canada which has probably the best dinosaur collection in the world.

Dr. Brent Hedquist presented a research paper at the joint meeting of the Southwest Association of American Geographers (SWAAG) and Applied Geography in San Antonio on November 5th. His talk was titled, "New Findings from a Multi-decadal International Study on Undergraduate Student Environmental World Views and Values." This paper extends research that dates back 25 years to earlier studies begun by Emeritus Professor Dr. Jim Norwine while he was at TAMU-K.

Dr. Veronica Sanchez presented an invited seminar at the Department of Earth and Atmospheric Sciences at the University of Houston on November 13th. She focused on her previous research and hot new ideas about the evolution of the Himalaya-Tibet orogenic system. In particular, she focused on the manifestation of extension during orogenesis by presenting previous field work along the Karakoram fault in western Tibet, and on the Lopukangri rift in southern Tibet. She highlighted the concept of convergent "orogenic evolution" (e.g. Jamieson and Beaumont, 2013) which takes us through an orogen's life cycle, in which extension becomes a phase promoted by asthenospheric (and/or surface) processes. The deep structure of the orogen as viewed in gravity data and in seismic anisotropy clearly helps us understand the evolution of long-term surface structure. We can, for example, view a very dynamic Indian lithosphere (Zhou & Murphy, 2005; Chen et al., 2015) that rips apart promoting upwelling that reaches the Tibetan crust. In recent work by Shin et al, 2009, we learned that the Moho possesses an undulated topography. Exciting stuff! But the questions remain: to what extent is the deep structure related to shallow structure, and during what time frame?

Fall 2015 Geosciences Undergraduate Teaching Assistants

The Geosciences Program greatly appreciates Mark Alaniz, Jacob Byerly, Sarah Dillon, Adolfo Enciso, Monica Estrada, Scott Fenner, Blanca Garza, Kelsey Robinette, Jonathan Tuck, Mukti Subedi and Jonathan Thomas for working as our teaching assistants. Thank you all for your personal sacrifices, time and effort to help our program. Great job!

Mark Alaniz worked as a teaching assistant with Dr. Sanchez in our Introductory GIS Laboratory.

Jacob Byerly worked as a teaching assistant with Dr. Mark Ford in Mineralogy Lab and Dr. Su in Remote Sensing Laboratory.

Scott Fenner worked as a teaching assistant with Dr. Sanchez in Sedimentology and Stratigraphy Laboratory. Scott also taught Physical Geology Laboratory with Dr. Torrez.

Sarah Dillon worked as a teaching assistant in Geomorphology Laboratory (Dr. Sanchez), Nature of the Earth and Universe Laboratory (Professor Jackson), and as a grader.

Blanca Garza worked as a teaching assistant with Dr. Mark Ford in Mineralogy Lab and Professor John Joseph Nelson in Introductory GIS Laboratory.

Kelsey Robinette worked as a teaching assistant in Physical Geology Laboratory with Dr. Torrez.

Adolfo Enciso worked as a teaching assistant for Physical Geology Laboratory and Earth Sciences Laboratory with Dr. Torrez.

Jonathan Thomas worked as a teaching assistant for Physical Geology Laboratory and Earth Sciences Laboratory with Dr. Torrez.

Monica Estrada was a teaching assistant for Physical Geology Laboratory with Dr. Buckley in Calallen, TX.

Jonathan Tuck worked as a teaching assistant with Professor John Joseph Nelson in our Introductory GIS Laboratory.

Mukti Ram Subedi (Master's student in Biology) is a Graduate Teaching Assistant in the Geospatial Research Laboratory and assisted Dr. Sanchez in Introductory GIS Laboratory.



Mark

Jacob

Scott

Blanca

Kelsey

Adolfo

Jonathan Thomas

Jonathan Tuck



Dr. Su Publishes his Research on Peer-reviewed Journal

Dr. Su's research paper was published in October, 2015 on journal *IEEE Geoscience and Remote Sensing Letters* (impact factor=2.095) with the title of "Prediction of Water Depth from Multi-Spectral Satellite Imagery - The Regression Kriging Alternative. The paper can be found at: <http://dx.doi.org/10.1109/LGRS.2015.2489678>.

The Year in Review: Geosciences Publications Over the Past 12 Months

Names in **bold** indicate and undergraduate author:

John M. Dabney, Mark T. Ford, **David Wood**, and **Jake Ewing**, 2015, Litho geochemistry Using a Portable X-Ray Fluorescence (pXRF) Spectrometer and Preliminary Results From the Eagle Ford Shale; TAMUK "Student Driven" Research Symposium for Oil and Gas Operations TAMUK Center for Applied Research and Entrepreneurship, Kingsville, Texas, Thursday, April 23, 2015.

John M. Dabney, Mark T. Ford, **David Wood**, and **Jake Ewing**, 2015, Using pXRF to Identify Pay Zones in Hydrocarbon-Rich Shales: A Litho geochemical Analysis of The Eagle Ford Shale; Gulf Coast Association of Geological Societies (GCAGS) Transactions, v. 65, p. 591.

Sarah E. Beers and Mark T. Ford, 2015, Evidence of Precambrian Organic-rich Shales in a Granitic Pegmatite, Llano County, Texas; Gulf Coast Association of Geological Societies (GCAGS) Transactions, v. 65, p. 553.

Mark T. Ford and Thomas L. McGehee, 2014, Writing Intensive Undergraduate Field Camp and Education: Expanding the Classroom and Preparing Students for the Workforce; American Geophysical Union (AGU), San Francisco, Calif., December 15-19, Abstract ED 13E-05.

Mark T. Ford and Thomas L. McGehee, 2014, Increasing the Overall Quality and the Number of Women and Hispanic Geoscientists for the Workforce: Rebuilding an Undergraduate Program; American Geophysical Union (AGU), San Francisco, Calif., December 15-19, Abstract ED 43A-3460.

Brent C. Hedquist, Haibin Su, **Daniella Herrera**, and **Jacob Byerly**, 2015, Remote Sensing Image-Based Analysis of the Relationship Between the Urban Heat Island and Recent Land Use/Cover Change in San Antonio, Texas; Association of American Geographers (AAG), Chicago, Illinois, April 24, 2015.

Haibin Su, 2015, Improving Bathymetry Mapping with Multispectral Imagery Using Collocated Cokriging Interpolation Method; The 2015 Annual Meeting of The Association of American Geographers, Chicago, IL, April 19 - 25, 2015.

Haibin Su, Brent C. Hedquist, 2015, Developing Pathways to Geospatial Intelligence (GEOINT) for Underrepresented South Texas Students; 2015 IC Academic Research Symposium, Washington, DC, September 15-17, 2015.

Fall Field Trip Galleries





Fall Field Trip Galleries

