



Faculty News

Inside This Issue:

Faculty News

.....	1
Dr. Norwine	1
Dr. McGehee	1
Dr. Yu	1
Dr. Buckley	2

Student News

.....	2
Research	2
Scholarship	2
Internship	2

Geosciences Club News

.....	3
President's Letter ...	3

Field Trip

.....	4
-------	---

Alumnus Report

.....	5
-------	---

Contact us / Editors

.....	6
-------	---



Dr. Jim Norwine is selected for next year's faculty lecturer. Dr. Nowine has presented his research paper "Contemporary College Student Values: A Geosophical Exploration" at the annual conference of Association of American Geographers in San Francisco, CA. Dr. Nowine comes back in town in June, and he will continue his research and book writing on climate of South Texas during summer.



Dr. Thomas McGehee is assembling a team of current undergraduates with GIS experience to participate in the Geologic Characterization and Groundwater Modeling team next year.



Dr. Jaehyung Yu has won the grant of \$139,758.00 from National Geospatial Intelligence Agency for two years. The title of his proposal is "The Vertical Integration of Geospatial Intelligence for South Texas", and this project will help high schools and community colleges to launch GIS classes and provide \$2000.00 scholarship for two minority students who commit to be the Geosciences or Geology major at TAMUK.

Dr. Yu presented his research paper "GIS-based flood and storm surge damage assessment of Corpus Christi, TX" at the 2007 Annual meeting of the Association of American Geographers, San Francisco, CA. Dr. Yu will participate in the STEP program May-mester from May, 14th to 25th. Dr. Yu will host two community college students and teach and supervise them to develop 3D campus model and animation for our beautiful TAMUK campus. During summer, Dr. Yu will teach two summer courses, and he and his research tem of three undergraduate majors, Sam Cantu, Billy Hales, and Noe Saenz, will work on GIS research projects. Their research will be focused on natural hazard management, urbanization and environmental change, and 3D GIS and animations.

To be continued on Page 2



Faculty News



Dr. John Buckley has been working steadily on his Plesiosaur fossil. However, due to the extremely fragmented nature of the specimen, work has been progressing slowly. The purchase by the Physics and Geosciences Department of a compressor has allowed the use of an Air Scribe(tm). This tool is a miniature jackhammer that facilitates the more rapid removal of the matrix encasing the bone. The snout of the animal has been located along with the left jaw articulation. The presence of teeth in the snout area slows the work down because the Air Scribe cannot be used near teeth. Any inadvertent contact between the tool and

a tooth will shatter the tooth. Hopefully the snout will be completely isolated this next year allowing at least a partial reconstruction of part of the skull. Plesiosaur skulls were thin walled and very fragile. This individual suffered severe postmortem crushing, which converted much of the skull to something like a 10,000 piece jigsaw puzzle without a box top and with several pieces missing.

Dr. Jaehyung Yu, Dr. Tom McGehee and Jacob Hundl (a geology major) presented the Integration of GIS in the TAMUK Geosciences Curriculum at San Jacinto College Central Campus and Alvin Community College. Dora Devery (Professor, Alvin Community College) and Terry Sheehy (Professor, San Jacinto College Central Campus) have fine programs in their community colleges and are supplying us with excellent students.

Student News

Student Research

Monitoring Land-use/Land-cover change of South Texas during post-NAFTA years using Remote Sensing and GIS techniques: a Case Study of Weslaco, TX

*Samuel Cantu, *Jaehyung Yu, *Marshall Saenz, and **Venkatesh Uddameri
Department of Geosciences, Texas A&M University - Kingsville
Department of Environmental Engineering, Texas A&M University - Kingsville

Abstract
Since the North American Free Trade Agreement (NAFTA) in 1994, it has been clear that NAFTA has had a profound effect on the economies as well as the physical environment. South Texas, due to its geographic characteristics sharing the border between the United States and Mexico, is one of the most highly impacted areas. This study investigates the land use/land cover change of Weslaco, TX from 1994 to 2004 using satellite remote sensing data. Weslaco, TX is a small border city with population of 16,120 in 2000 located at 21 miles Southwest of Houston. Digital Urban Ortho Imagery (DUO) images are utilized for Land-use/Land-cover classification. This study identifies the change of land use/land cover change in Commercial/Industrial, some farms, residential, agriculture and vegetation for a year during post-NAFTA period. The result indicates that urbanization in the city and the adjacent area increased 25.0% of land use/cover in commercial and residential, and nearly the agricultural lands in the area due to the urbanization during period of 10 years.

Methodology

- Socio-economic Change
 - 2000 and 2000 Census Data Comparison
 - Reference Base State of Texas, Mexico
 - Geographic Information, Database, and GIS
 - 2000 Census
 - 2000 Census population, urban, rural, foreign, and employ rate.
- Land Use - Land Cover Change
 - Supervised Classification
 - Five Classes: grassland, crop land, residential, industrial/commercial, and water body
 - Global Digital Urban Ortho Imagery (DUO) Imagery in 1994 and 2004
 - Global Mercator and UTM Coordinate

Socio-economic Change
 Total Population of Weslaco (Comparison: San Jacinto and the State of Texas between 1990 and 2000)

Year	Weslaco	San Jacinto	Texas
1990	~10,000	~100,000	~10,000,000
2000	~16,120	~150,000	~12,000,000

Land Use - Land Cover Change
 Change of Land Use/Land Cover between 1994 and 2004

Year	Grassland	Crop Land	Residential	Industrial/Commercial	Water Body
1994	~45%	~35%	~10%	~5%	~5%
2004	~35%	~25%	~25%	~10%	~5%

Study Area
 Map showing the location of Weslaco, TX in the Rio Grande Valley region of South Texas, near the border with Mexico.

Samuel Cantu presented his poster session entitled “Monitoring Land-use/Land Cover change of South Texas during Post-NAFTA years using Remote Sensing and GIS Techniques: a case study of Weslaco, TX” at the 2007 Annual Meeting at the Association of American Geographers, San Francisco CA on April 20. Sam said that he really didn’t realize how much work was involved in doing the research and preparing for the presentation. However, the feedback on his presentation made it more than worth the efforts.

Scholarship Awards

Joshua Dye was awarded the STMSSC geology scholarship of \$800 for the Fall, 2007 semester.

Student Internships

Matt Walker will be working as a geospatial technician to map the trails of public lands.

Jacob Hundl and **Jonas Ball** will be working with geologists at Mestena uranium near Rachal, Tx. They will be working with geologist Neal Kunkel (TAMUK, 2004) and geologist Adrian Garcia (TAMUK, 1987).



Student News

Student Internships

Paul Amason has been working at Welhausen Well Field Operating Company as an intern. He has been working for this company for the past 5 years.

Orlando Gonzalez will be working with Dr. Tom McGehee and Shad Nelson on the Development of a Groundwater Model of the Bed 1 & 2 Red Mud Impoundments at Copano Bay, Texas.

Noe Saenz will be working with Drs. Jae Yu, Tom McGehee, and Shad Nelson to Determine the Routes of Evacuation during Flooding in the Corpus Christi, Texas Area using a GIS.

Samuel Cantu is working with the CREST program to on a GIS research project under Dr. Yu's supervision.

Joshua Dye will be working with AEC as a GIS specialist. Eugene Everett (TAMUK education department, 1995) will be working in the field with geologist Jon Pollock (TAMUK, 2005) at UEC.

Billy Hales will be working with Dr. Yu. He will also be working with the Art Department to develop a pamphlet of the hall display of rocks, minerals, and fossils for the Geosciences Program.

Geosciences Club News

New Officers were elected for the Fall, 2007 – Spring, 2008 academic year.

President – Jacob Hundl

Vice President – Marshall Saenz

Secretary – Rebecca Roscoe

Treasurer – Jonas Ball

Historian – Benjamin Wright

Presidents' Letter

In the upcoming year, there will be many opportunities for the growth of the Geosciences Club at Texas A&M-Kingsville, both in service to our university and the communities around us. As the Geosciences Club President, I will try to facilitate such endeavors and lead the club to increased recognition as leaders in our discipline.

One of the primary elements of my agenda is increased participation with external professional organizations, such as the Corpus Christi Geological Society, the Gulf Coast Association of Geological Societies, and the Society for Mining, Metallurgy and Exploration. Volunteering our services with symposiums, conferences, and educational activities will be of great value. Collaborating with professional societies can only improve our organization as a whole, and strengthen our knowledge and skills as future geoscientists. Those who came before us have gone into the field, and attained much familiarity with topics not necessarily instructed in a university setting. Contacting and increasing our involvement with our alumni will create more potential for growth amongst our members.

A tremendous success for the Geosciences Club this past year has been the showing of informational movies on campus, as a service for the enrichment of our community. It is my hope to increase the number of movies shown for the 2007-2008 year. The large numbers of attendees we have seen in the past not only makes our presence on campus known, it provides an excellent forum for recruitment. Previously, recruitment was taking place primarily on campus. Recently, however, I assisted Dr. McGehee and Dr. Yu to participate in recruitment at junior colleges in the southern Houston area, and I will encourage our members to follow suit recruiting abroad in Texas.

The election held recently also was a moment in history for the club. The vote on the creation of the new cabinet position of Historian passed, in order to chronicle our exploits and field trips. There is also renovation planned for the rock shop attached to the Conner Museum, which provides an excellent source of funding for events such as Fall Festival and Spring Fling.

To be continued on Page 4



We are looking forward to an exciting year of growth, exploration, and adventure for the Geosciences Club. I would like to thank our members, advisors, and professionals in the field, without them, none of our objectives would be possible.

Jacob Hundl, President

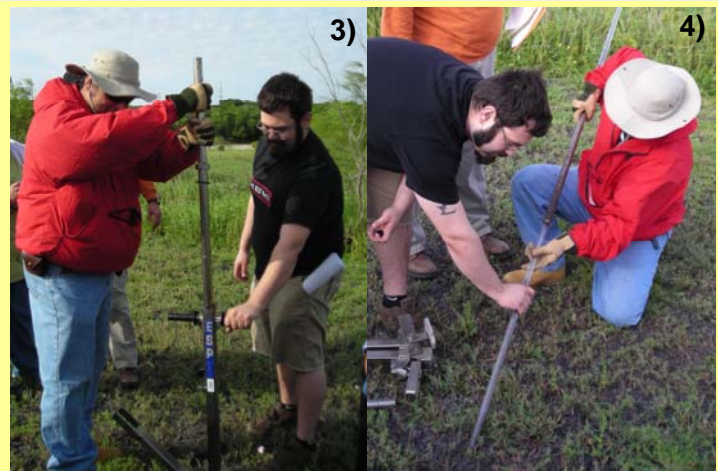
(Jacob graduated from Alvin Community College in Alvin, TX near the southwestern edge of Houston)

Geosciences Field Trip



Environmental Geology Field Trip on 4-17-2007

Dr. McGehee, Dr. Yu and Dr. Bian have lead 12 students from physical geology, sedimentology and stratigraphy, Geographic Information system, and Field Mapping and Global Positioning (fig. 1). Students have visited Calallen (fig. 2, 3, and 4), Corpus Christi downtown (fig. 5), and Padre Island (fig 6). Students learned river (fluvial) and coastal process and their environmental aspect regarding natural hazards. GIS and Field Mapping students collected the details of sample and stop information in GPS and GIS environments (fig. 2 & 5) and stratigraphy students learned and demonstrated hand drilling for soil sample core (fig. 3 & 4).





Alumnus Report

We would like to keep up with our alumnus during their walk through their professional careers. TAMUK geosciences program has had over 300 graduates with either a Baccalaureate or a Masters Degree. If you send us an email with your current bio-sketch we would like you to come to TAMUK, meet our faculty and students, and present a talk.

Ms. Maria Jaramillo is the newest (TAMUK BS geology, Cum Laude, 2007) graduate from our program with a double degree in Geology and English. Born in Corpus Christi, TX, Maria V. Jaramillo has attended Texas A&M University-Kingsville since the fall semester of 2000. A double major in geology and English, Maria has served as a laboratory assistant for several courses including Physical Geology, Earth Science, and Nature of the Earth & Universe as well as Mineralogy since Fall 2002. She has enjoyed working with several departments on campus, most recently the College of Arts & Sciences Dean's Office. She will graduate with Cum Laude Honors on May 11, 2007 with a Bachelor of Arts degree. Maria has accepted a full-time position with the University. She can be reached at ksmvj00@tamuk.edu.

Susan Cabello

Susan Cabello (TAMUK BS geology Summa cum laude, 2005) is a high school teacher working at J. W. Nixon High School, teaching Biology to ninth grade students. She is a Geology Adjunct at Laredo Community College teaching an Earth Science Lab, and is also working for NASA Education and Outreach on a part-time basis. She applied and is accepted to attend the International Space University located in France. She is waiting for a fellowship to sponsor her so that she may attend full time and receive my Master's in Science in Space Sciences.

During her undergraduate years at TAMUK, she applied and was accepted as the first student from TAMUK to attend the NASA Academy in the summer of 2004. She brought back to TAMUK her research experience in a professional poster session when she assisted Dr. Herbert Frey at Goddard Space Flight Center, Maryland in locating and identifying over one thousand buried craters in the Mars Utopia Planitia Basin. She graduated Summa cum laude from Texas A&M @ Kingsville on May 2005 with a Bachelor's in Science in Geology and a minor in Biology.

Norma Casteneda

Norma Casteneda (TAMUK- BS geology, 1985; MS geology 1990) is the Contact Handled (CH) Transuranic Waste Certification Manager for the DOE Carlsbad Field Office. As a senior Physical Scientist, I manage the contractor by reviewing the shipping site waste stream profiles, procedures, plans, and manuals to determine that the DOE generator sites around the complex are in compliance with WIPP Waste Analysis Plan and Waste Acceptance Criteria with a focus on Contact Handled TRU waste certification. I interface regularly with generator site representatives to inform, identify, and resolve issues related to waste certification for TRU waste disposal at WIPP (Waste Isolation Pilot Plant). I conduct site visits at the other DOE waste generator sites to determine their compliance with our waste permit, identify issues and concerns, review procedures and plans, and evaluate the effectiveness of waste activities.

I completed Environmental Restoration Program activities, the removal of 13 underground utility systems, and physical completion of DOE's Rocky Flats Site near Golden, Colorado in December 2005. I was at the Rocky Flats Project Office for 16 years until site closure in December 2005. I transferred to the Carlsbad Field Office in May 2006. I received a certification as a Project Management Professional (PMP) from the Project Management Institute in March 2005, and I earned an MBA from the University of Colorado in December 2001. I am a member of the Association for Women Geoscientists (AWG) and I am a member of the American Association of University Women (AAUW) New Mexico Chapter.

Contact: U.S. Department of Energy, CBFO / Carlsbad Field Office / P.O. Box 3090 / Carlsbad, New Mexico 88221 Norma.castaneda@wipp.ws

**Adrian Garcia**

Adrian Garcia (TAMUK-BS, 1985) is a senior geologist working for Mesteña Uranium near Rachal, TX. He supervises project geological personnel in the exploration and production of Insitu Uranium Mining. He has worked for as a geologist for Uranium Resources, Inc.(1987-1998), State-wide geologist for Omega Environmental (1998-1999), International geologist for ARCADIS (1999-2004), and at Mesteña Uranium since 2004. He can be reached at AGarcia@mestena uranium.com.

Jason Bundick

Jason Bundick (TAMUK BS geology, 2005) is working as a district engineer for Frac Tech Service in Bryan Texas. He is managing mud-logging and fracturing of petroleum reservoirs for Frac Tech field operations. He can be reached at jbundick@fractech.net.

Rafael Casanova

Rafael Casanova received his Bachelor of Science degree in Geology from Texas A&I University, Kingsville, in May 1982. He has been working with the U.S. Environmental Protection Agency (EPA) as a Geologist/Environmental Scientist since 1990. He has worked as the EPA's Project Manager for the U.S. Department of Energy's Waste Isolation Pilot Plant in New Mexico, which consists of waste disposal rooms mined 2,150 feet underground in a 2,000-foot thick salt bed formation for the permanent (greater than 10,000 years) land disposal of transuranic radioactive waste left from the research and production of nuclear weapons. He currently works as a Superfund Remedial Project Manager performing environmental investigations of abandoned and uncontrolled contaminated sites to determine the nature and extent of contamination for all media, and to select and implement a final remedy which is protective of human health and the environment. He is a registered Professional Geoscientist in the State of Texas. He can be reached by e-mail at casanova.rafael@epa.gov.

Rojelio Medina

Rojelio Medina graduated in May 2005 with a Bachelor of Science in Geology, and since then, have been employed by Halliburton Energy Services in Alice, TX. Within Halliburton, he assumed the title of Technical Professional for the Wireline Logging product service line. Since he earned that title, he has worked for major oil and gas producers mainly in South Texas and extending out to West and East Texas and even parts of Louisiana. He manages an Open Hole Logging truck and started by supplying these producers with formations properties such as formation resistivity, density and neutron porosity measurements, and gamma ray and spontaneous potential measurements all by wireline-conveyed telemetry tools. Since then, he has been trained on running imaging tools such as Halliburton's Magnetic Resonance Image Log* or MRIL* and their Extended Range Micro Image* or XRMi* tool. For the summer of 2007, he is applying for advancement to a Senior Technical Professional by giving a presentation on the "Geology of South Texas", which specifically involves a few formations that we commonly see in South Texas and the sand-shale laminations we see in these formations. This will be presented to a board of Halliburton management that will approve his advancement. He can be reached at rojelio.medina@halliburton.com.

Tina Utley

Tina Utley (formerly Tina Rodriguez TAMUK-BS geology, 2005) is currently working as Project Geologist at Uranium Resources Inc. Her job duties include exploration mapping and managing installation of production wells. She can be reached at tinacrodriguez@hotmail.com.

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