

Geosciences



DEPARTMENT OF
PHYSICS AND
GEOSCIENCES

Newsletter

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Program News

A Word from the Chairman

As Interim Chairman of the Department of Physics/Geosciences, I would like to take this opportunity to welcome our new geosciences majors and to congratulate our current majors on your progress toward a career in the geosciences. Your accomplishments here at TAMUK have been quite impressive and we are proud to have you as our students. Your hard work has earned our Geosciences Program the reputation of being the most productive per capita of any program anywhere on campus. I look forward to watching you continue to grow in your knowledge and experience as you mature into a truly professional scientist in the fields of geology, geography, and the use of geographic information systems.

Dr. Lionel D. Hewett

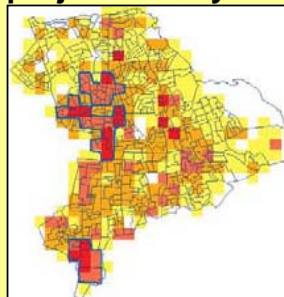


Geosciences Students Win First and Second Place in Undergraduate Research Competition in TAMU Pathway

Seven Texas A&M University-Kingsville Geosciences students presented their research at the Pathways to the Doctorate Symposium on November 8-9 at Texas A&M University-Commerce. Noe Saenz won the first place award in the undergraduate environmental sciences division. Sam Cantu won the second place award in the environmental science division. We are including their abstracts and poster in the next section.



Dr. Yu wins \$24k of University Research Award on crime mapping project for City of Alice, TX



Dr. Jaehyung Yu received \$24,014 as 2008-2009 University Research Award. His research title is "Crime Reduction Approach by GIS based Crime Mapping and Occurrence Analysis for the City of Alice, TX". In this project, Dr. Yu and one undergraduate student will analyze the crime data in GIS environment, and identify the locations of crime hot spots, and their distribution over the time by specific types of crimes. Eventually, this project will provide details of crime distribution and provide the optimal routes for police patrol to minimize crime occurrence.

New Adjunct Faculty Teaches Structural Geology

Mr. Dan Jackson has joined the Geosciences faculty this fall teaching structural geology for the Department. Mr. Jackson holds a lecturer position in the College of Business at TAMUK. Mr. Jackson has degrees from West Texas A&M and TCU with additional graduate studies at the Univ. of Missouri at Columbia. He taught geology at Northeast Louisiana Univ., Monroe, in the 1970s. Among his primary responsibilities there were structural geology and metamorphism. In 1977 he came to Corpus Christi where he worked in Uranium exploration with Intercontinental Energy and as a consultant. In the early 1980s he shifted into oil and gas exploration, working primarily in the middle Texas Gulf Coast. In the spring semester Mr. Jackson will teach a course in petroleum geology.





Program News

Geosciences Adds New Webmaster

Kang taeg hyun is our new webmaster for the Department of Physics and Geosciences. Mr Kang is a first year graduate student in the Department of Computer Science. He has worked in industry as a programmer for 7 years. He has added a number of changes since his arrival this semester. He changed the structure of the website in the first month. He will be adding a database in the coming month

Texas A&I / TAMUK Geosciences Alumnus Gathering held in Houston



Texas A&I and Texas A&M-Kingsville Geosciences alumnus gathered together in Houston on October 4th, 2008. During the gathering, many alumni members enjoyed the meeting with old friends and classmates. Moreover, Dr. John Russell, a former TAIU Geology professor, is remembered as a memoriam. Dr. Thomas McGehee, Dr. Jae Yu, and Dr. John Buckley joined the gathering to represent the TAMUK Geosciences program. Please look at the [New : Alumni meeting - 2008, memoriam Dr. John Russell \(http://physics.tamuk.edu/geosciences/alumni_meeting.htm\)](http://physics.tamuk.edu/geosciences/alumni_meeting.htm) link for pictures of the first Alumnus Gathering last month.

Student News

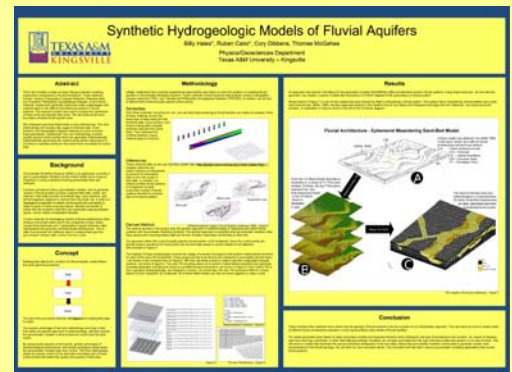
Four Research Teams Presented their Posters in Pathways Research Competition

Synthetic Hydrogeologic Models of Fluvial Aquifers

Billy Hales, Ruben Cano, and Cory Dibbens

There are a limited number of ways that groundwater modeling researchers characterize a fluvial architecture. These methods include: Horizon Triangulated Irregular Networks, Borehole data, and Transition Probability Geostatistical Software. In all of these methods, researchers generate solids that relate morphologies and material types to the different architectures present in fluvial systems. This research project was used to explore the usefulness of these tools and develop new tools. The new tools would more accurately simulate fluvial aquifer units. The research team developed new tools that involve a new methodology. This new

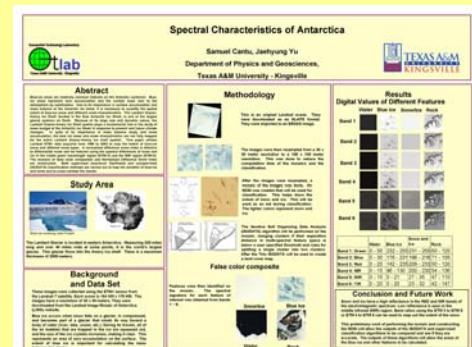
methodology still includes the usage of borehole data, cross sections, and triangulated irregular networks as input to evolve these geometries. Additionally, this new methodology involves equally-spaced control points which are generated mathematically. Mathematically generating the control points allows researchers to command a specified precision that would more accurately fit source data.



Spectral Characteristics of Antarctica

Samuel Cantu

The Lambert Glacier in Antarctica is the largest glacier in the world. Blue ice areas are important in studying the mass balance of a glacier. Despite its importance in mass balance study, many of the blue ice areas in the Lambert Glacier have not been mapped out. The purpose of this project is to map out these areas by using supervised and unsupervised classification methods on satellite images. The preliminary work has been done in processing the raw images. This includes importing the raw NLAPS data and mosaicing the images together. The classification process can now be started.



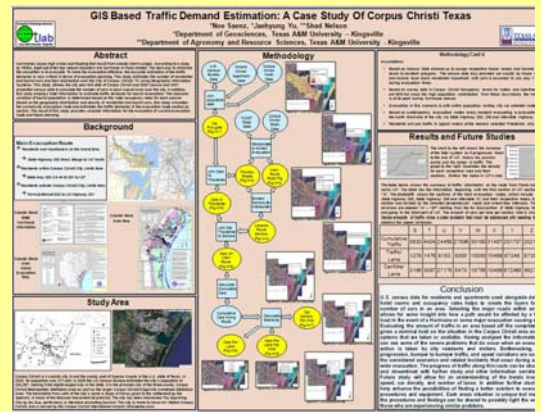


GIS Based Traffic Demand Estimation

Noe Saenz

Evacuation procedures can be the difference between survival and disaster. The more efficient procedures become will effectively increase the success rate for evacuees. One problem with evacuation is the capacity of roads to accommodate the evacuees not being sufficient. The purpose of this project is to be able to provide a method to acquire real-time traffic information for cities and states that will allow them to predict the traffic demand for an area. Then effectively disseminate information on the best routes to take for evacuees. Using data from various sources such as the U.S. Census Bureau and the Texas Department of Transportation vital statistics can be extrapolated and analyzed for evacuation

purposes. Once completed this method can be a basis or procedure for nearly any type of traffic situation.

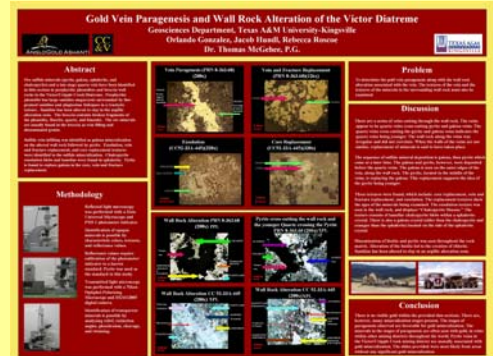


Gold Vein Paragenesis and Wall Rock Alteration of the Victor Diatreme

Orlando Gonzalez, Jacob Hundl, and Rebecca Roscoe

Ore petrology mineralization studies are important in the delineation of ore grade deposits. Thin-section studies of the ore textures, paragenesis, and wall-rock alteration provides the mining geologist with key indicators to locate the gold mineralizing event in the host rocks. The team identified ore sulfide (pyrite, galena, sphalerite, and chalcopyrite) minerals and a late stage quartz vein in thin-section in porphyritic phonolites and breccia wall rocks in the Cripple Creek/Victor Diatreme. Porphyritic phonolite has large sanadine megacrysts surrounded by fine-grained sanadine and plagioclase

feldspars in a trachytic texture. Sanadine has been altered to clay in the argillic alteration zone. The breccia contains broken fragments of the phonolite, fluorite, quartz, and limonite. The ore minerals are usually found in the breccia as vein filling and disseminated grains. Sulfide vein infilling was identified as galena mineralization on the altered wall rock followed by pyrite. Exsolution, core replacement, and vein and fracture replacement textures were identified in the sulfide mineralization. Chalcopyrite exsolution blebs and lamellae were found in sphalerite. Pyrite is found to replace galena in the in the core, vein and fracture replacement.



Introducing Our Undergraduate Research Team Members

This is our second year with our research team. Sam Cantu, Octavio Flores, Billy Hales, Orlando Gonzalez, and Noe Saenz are still part of the team. We have added Cory Dibbens, Jacob Hundl, Rebecca Roscoe, Jonas Ball, Ruben Cano, Alexis Fuentes, and Adam Pasciak this year.



Samuel Cantu is a senior-status geology major who is one year away from graduation. He has been a research assistant for Dr. Yu since 2006. He has also worked for the US Forest service as a cartographic technician during a summer 2008 internship. Research projects include: GIS-based campus safety analysis, land use/land cover and socio-economic impacts of NAFTA on South Texas, mass balance of the Lambert Glacier in Antarctica, and GIS-based flood analysis. He also helps Dr. Yu and Dr. McGehee establish GIS programs at area high schools and community colleges. Sam received University recognition as a Who's Who on University campuses for his high academic achievements.



Octavio Flores is a sophomore-status geology major who is also a research assistant for Dr. Yu. He has been working for him since the fall of 2007. The project he has been working on is a 3-D GIS Model and animation for Texas A&M Kingsville using the programs Google Earth and Google Sketchup. There are currently 22, 3-D versions of the campus completed by him, Sam, Billy, and Noe.



Billy Hales is a senior-status geology major who is one semester from graduation. Mr. Hales has been a research assistant for Dr. McGehee and Dr. Yu for the past 3 years. He brings strong computer, geology, and quantitative skills to each research project he pursues. Major projects include: development of a geologic characterization of the Yuma Proving Grounds, development of a protocol to use CALINE4 CO dispersion model with Geographic Information Systems, development of a 3D model for Texas A&M – Kingsville, and development of a method to accurately characterize hydrogeologic models of fluvial aquifers.



Orlando Gonzalez is a senior status major who is 1.5 years from graduation. Orlando, Rebecca Roscoe, and Jacob Hundl worked on the Gold Vein Paragenesis and Wall Rock Alteration of the Victor Diatreme for the past three months. Orlando focused on transmitted light studies of the wall rock alteration.



Rebecca Roscoe is a senior status geology major who is one year from graduating. Rebecca Roscoe, Jacob Hundl, and Orlando Gonzalez are researching Gold Vein Paragenesis and Wall Rock Alteration of the Victor Diatreme. Rebecca focused on the ore textures and paragenesis of the ore deposit.



Jacob Hundl is a senior status geology major who is one year from graduating. Jacob Hundl, Rebecca Roscoe, and Orlando Gonzalez are researching Gold Vein Paragenesis and Wall Rock Alteration of the Victor Diatreme. Jacob Hundl focused on the instrumental methods using reflected and transmitted light techniques.



Ruben Cano is a senior-status geology major who is one year from graduation. Mr. Cano has been a research assistant and Teaching assistant for Dr. McGehee for the past year and a half. Ruben has been working with Billy Hales, Dr. McGehee and Cory Dibbens to develop a method to accurately characterize hydrogeologic models of fluvial aquifers. Ruben worked with Bob Magee and the Department of the Navy specifically NAVFAC Atlantic in Norfolk, Virginia this past summer. He developed solid block models of the geology at contamination sites using Groundwater Modeling System geologic characterization tools.



Cory Dibbens is a transfer student from Texas A&M – Corpus Christi. Cory is currently a senior awaiting graduation in the Summer of 2009. Cory is working with Billy Hales, Ruben Cano, and Dr. McGehee to develop a method to accurately characterize hydrogeologic models of fluvial aquifers.



Adam Pasciak is a Junior-status geology major who is two years from graduation. Adam is working with Octavio Flores to develop a 3-D GIS Model and animation for Texas A&M Kingsville using the programs Google Earth and Google Sketchup.



Jonas Ball is a senior geology major who is one year from graduation. Jonas is working with Dr. Yu on a crime reduction approach by making a GIS mapping analysis for city of Alice, Texas using their historic crime data.



Noe Saenz is a senior-status geology major who is one year from graduation. Noe has been a research assistant with Dr. Yu for the past 2 years. Major projects include working with peers, Sam, Billy, and Octavio, on the 3-D GIS Models of the campus and current GIS traffic estimation project. Noe is also a Ronald E. McNair scholar and participated in the summer 2008 internship research with the program. He was selected by our Department to receive research funding on the USDA/CSREES Project # 2006-38422-17080.



Jorge (Alex) Fuentes is a graduating senior with his major in geology. Alex has been working on a senior research project with Dr. John Buckley preparing part of the skull of a plesiosaur that Dr. Buckley collected in Austin in the spring of 1990. The skull is very badly fragmented making the preparation challenging at best. Alex has managed to clean out and make sense of the left jaw articulation. We hope to free the bone from the jacket and start reassembling this area prior to his graduation in December. Alex received University recognition as a Who's Who on University campuses for his work in the ROTC and other campus activities.

Alumnus Report



Mr. Richard Parker holds a Bachelor of Arts Degree in Geology from Texas A&I University (Kingsville TX) 1974 Graduate and has the distinction of being the First Geology Graduate at University, and also earned a Master of Science Degree in Geology from Texas A&M University-Kingsville in 2000. His thesis is entitled "The Lower Cretaceous Buda Limestone in Gonzales County, Texas and it's Potential as a Fractured Carbonate Hydrocarbon Reservoir." Richard M. Parker is a Senior Geologist / Operations Specialist at Swift Energy. Richard reports to Mr. John Branca, Vice President of Exploration & Development since his hire date in November of 2007.

Richard works on South Texas Development of AWP, SUN/TSH, Briscoe Ranch, and Las Tiendas Fields. Richard also works on the Austin Chalk Development in Brookeland Field in Newton County, TX and in Master's Creek Field in Vernon and Rapides PH's. in Louisiana. Richard is a Professional Geoscientist registered with the Texas Board of Professional Geoscientists. Mr. Parker was most recently employed by Subsurface Consultants & Associates (SCA) as a Geo-Steering Consultant, while also working as an Adjunct Professor of Geology at San Jacinto College. Mr. Parker has had a long career in the Oil Business in South Texas. Richard started with Core Laboratories Inc. in 1975 after graduating from Texas A&I University. He worked as a Core Analyst and developed methods for Core Fracture Analysis in the Austin Chalk and Buda Plays of south and central Texas. In 1978 Richard moved to Tyler, Tx. as Assistant Lab Manager for Core Labs, continuing his work on Fracture Analysis in the Cretaceous Carbonate Trends of Texas. In 1980 Mr. Parker went to work for Border Exploration as a Development/Exploitation Geologist working primarily on South Texas Fields in the Frio, Vicksburg, Wilcox and Austin Chalk. Richard was also the well-site logging Geologist for Coastal. In 1983 Mr. Parker went to work for Luker Energy an Independent Operator working Development and Exploration Geology in every major trend in South Texas, including the very early development of AWP Field. In 1986 Mr. Parker became an Independent Consulting Geologist in Corpus Christi working for many Independents in every major play in south and central Texas. In 1989 Richard was hired back at Coastal Oil & Gas as a full-time consultant to help get them into the Austin Chalk Horizontal play in Pearsall and Giddings Fields. The Austin Chalk Horizontal play was very successful for Coastal. Richard also worked on the Development of Bob West and Jeffress Fields and served as the well-site logging consultant for many years for Coastal. In 1997 Richard was hired back as an employee by Coastal Oil & Gas to work upper Texas Gulf Coast Development from the Houston office. After several years in Development, Richard was assigned to the Geological Operations Group at Coastal in 1999 and was in charge of all of the Logging Operations of 48+ rigs in the Rocky Mts., Oklahoma, west Texas, north Louisiana, and south and central Texas until 2006. Richard also continued his work on Fractured carbonate trends. Mr. Parker has many years of experience as a Professor of Geology both at Bee County College and at San Jacinto College Central in Pasadena. Mr. Parker is an accomplished Artist, Astronomer, Archaeologist, Teacher, and Builder. Richard continues as a builder, electrician, and plumber for Builders Without Borders of Texas and the Mission Team at First Methodist Church in Pearland. Richard's wife Robin is also a member of the Mission Team and has a Sewing Ministry with a group in Mexico that is amazing. Richard is a member of the AAPG, AAPG-DEG, CCGS, SPWLA, TCCTA, HAS, and Planetary Society. Richard married Robin Wohlgemuth of Premont, Tx. and they have one son Michael Paul. Richard and Robin live in Brookside Village, Tx on two acres full of trees and have a large red barn.

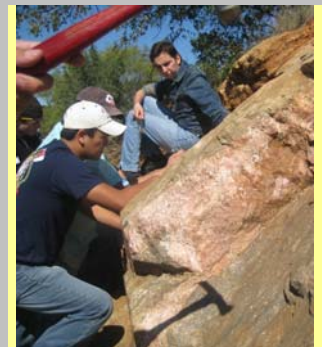


Manny Gonzalez was born and raised in Kingsville, Texas and lived not far from the university. He graduated from H.M. King High School in 1976 where everyone knew him as "Memo." He attended Texas A&I University and graduated in the Fall of 1982 with a BS in Geology and a minor in Mathematics and where he met his wife of 26 years, Lucy Gonzalez, also a Texas A&I Alum. They now have two wonderful daughters, Lucy Ann and Suzy, both attending college. Manny began his career in 1983 working for the Texas General Land Office, the state agency that manages all state lands and its natural resources. After 13 years, he took employment in the oil & gas refinery and petrochemical industry providing environmental and industrial services. These opportunities lead him to many domestic and international assignments nurturing his career in the management of environmental, remediation and the business development of substantial projects. In

addition, he gained the skills to manage personnel and the acumen for value creation and profitability in the projects or companies he has managed. Currently, he is the president and CEO of US Liquids of LA, L.P., the leader in the management and recycling of oil and gas exploration and production waste with operations on the Louisiana and Texas gulf coast regions, along with operations in northern Louisiana and south Texas. His favorite things to do include: riding his Harley, sporting clays, picking on his guitars and spending time with his family.

Rick Burrell graduated from Texas A&M-Kingsville in 1994 with a B.S. in Geology, and received his Geology M.S. degree from Texas A&M in College Station in 1997. He joined Harza Engineering Company in Chicago Illinois upon graduation, and spent approximately 1.5 years as a site geologist assigned to Chicago's Tunnel and Reservoir Plan. In 1998, Rick accepted a position at Fugro GeoServices Inc., in Houston, Texas. At Fugro, he performed marine geohazards assessments for deepwater wells, pipelines, and development/production facilities in the Gulf of Mexico and internationally. Since 2006, Rick has been a Senior Geologist with ExxonMobil Exploration Company's Operations Geology Core Group in Houston. He and his wife Jeny were married in 2002 and have a two year old daughter.

Photo Gallery (Geosciences Field Trip - Central Texas, Fall, 2008)



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