QUEST

The Texas A&M University System
We have Texas covered.

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Algae for Fuel

AgriLife Research investigates renewable energy potential

BY BLAIR FANNIN

In a College Station laboratory, Dr. Tryon Wickersham opens a white canister and reveals a green powdery substance with a fishy odor.

"Our goal is to be the first to feed it to cattle," says Wickersham, a Texas AgriLife Research animal nutrition scientist, discussing how the dried powder produced from algae could be used as part of a cattle feed supplement.

After drying and extracting the oil from the algae, biofuel producers are left with a high-protein powder that could soon become an ingredient for feeds. With a crude protein content as high as 30 percent, not only does it have the potential to become a valuable supplement for cattle, but also a protein source for shrimp and redfish, which is currently under study. "We're actively determining nutritive value and, more specifically, the concentrations of carbohydrates, amino acids and minerals," Wickersham says.

For beef cattle, there's anticipation that algae co-products could be fed as a protein supplement, for both grazing cattle and in feedlots. "It would definitely give them an alternative source of nitrogen," Wickersham says. "What we are working on now is identifying any components that add value to it. Historically, nitrogen has been one of the primary limiters of agricultural productivity, thus resulting in nitrogen being expensive. Using algae as a source of nitrogen/protein in cattle diets has the potential to reduce the cost of beef cattle production, especially when fed in combination with other feed ingredients that are low in nitrogen/protein. Ultimately, this should translate into reduced production cost and increased efficiency."

This AgriLife Research project is one of several related to algae taking place across the state. "With algae, there's a myriad of potential applications," says Bob Avant, program director for AgriLife Research. "Our research has several projects that could very well lead to some new, cutting-edge developments used in areas that we never thought possible."

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SCALING UP *Researchers in Pecos, Texas, propagate microalgae in laboratory-scale vessels testing various species for high growth and lipid accumulation before scaling up to outdoor raceways.*

SHARK TRACKING *A* National Geographic *crew films Dr. Greg Stunz (left), Laura Bivins and Megan Robillard implanting an acoustic tag into a seven-foot long bull shark to track its movement patterns in the Gulf of Mexico.*

A&M-Corpus Christi professor tracks migration of bull shark

BY STEVEN PASCHAL

On a beautiful October day Dr. Greg Stunz cruises the Padre Island National Seashore in a four-wheel-drive vehicle with two of his graduate students. They stop each time they encounter one of the more than 400 anglers along the 60-mile stretch of beach competing in the annual "Sharkathon" Tournament.

The event is a perfect opportunity for the Texas A&M University-Corpus Christi researcher to tag specimens for his study on the migration of one of the most important predators in the oceans—the dangerous and unpredictable bull shark.

Stunz breaks from chatting with a competitor to take a call on his cell phone. He learns that several miles away a bull shark has taken the bait and a four-man crew has secured it in the wet sand where the tide delivers life-sustaining water. He quickly goes about his work, oblivious to the *National Geographic* film crew documenting his efforts for a future television program.

The scientist inserts an acoustic tag into the shark's abdomen, while another researcher takes a tissue sample, and a third team member records the time, location and size of the shark. The fish is headed back to open water within minutes, unaware that it has just become a swimming transmitter whose movements will be tracked by receivers strategically located at inlets and estuaries along the Texas Gulf Coast.

Stunz, holder of the endowed chair for fisheries and ocean health, and associate professor of marine biology at the university's Harte Research Institute for Gulf of Mexico Studies, is an expert on fish migration. Global and regional trends suggest alarming declines in shark populations due to overfishing. Limited understanding of shark population parameters such as species composition, movement patterns, nursery areas and habitat use can limit recovery. The purpose of his United States Geological Survey-funded project is to assess the ecology of sharks using the National Seashore.

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Forest Service helps predict the unpredictable

BY REBECCA WATTS

Historic levels of dryness have sparked one of the worst wildfire seasons Texas has ever seen. Wildfires have consumed more than 1.9 million acres, destroyed 400 homes and resulted in the deaths of two volunteer firefighters. Forecasters continue to warn of current weather and fuel conditions being ripe for massive and destructive firestorms, which can be forecasted but not stopped under extreme environmental conditions.

"Now that this phenomenon has been recognized and we are able to predict it, we have a responsibility to educate and warn the public," says Tom Spencer, Texas Forest Service predictive services department head.

Texas Forest Service fire officials and National Weather Service fire weather forecasters have launched a website aimed at informing and preparing the public for a firestorm. The site — www.texasfirestorm.org — contains a 12-minute informational video to help the public understand how and why firestorms occur and what they can do to protect and prepare themselves.

Between 2005 and 2010, 10 firestorms were documented. It takes the perfect mix of low relative humidity, strong winds, an abundance of dead grass and other weather factors to produce the Southern Plains Wildfire Outbreak pattern. Conditions are favorable when that pattern develops during the winter and spring in the Southern Plains, an area that spans from eastern New Mexico east to the Dallas-Fort Worth area, and from Kansas south to the Texas Hill County. While three firestorms have been declared this year, Texas responders have been battling other blazes spanning hundreds of thousands of acres and causing similar devastation.

"The threat is still here. We're not out of the woods yet," says Spencer. "We need to continue to get the word out because weather conditions indicate we could be facing this threat for some time."

Texas Forest Service communications manager Linda Moon and communications specialist Holly Huffman contributed to this article.

Frank Cianciolo/McDonald Observatory

CLOSE CALL *The Rockhouse Fire that swept through the Davis Mountains in West Texas meets a burnout operation set by Texas Forest Service and interagency firefighters.*

Notes from the Chancellor

MICHAEL D. MCKINNEY, M.D.

Like most Texans, all of us in higher education are keenly aware of the many demands placed upon the tight state budget and how that might impact us and our mission. As a former legislator, I know that our state lawmakers have an extremely tough job ahead of them and that my job right now is not to make theirs more difficult. So, we will do what we need to do to meet the budget requirements, mindful of the challenges we all face. But be advised, the cuts are painful.

From my perspective as chancellor, I have always found that the best time to make the really tough, hard structural decisions is during times when the budget situation is challenging. It forces us at The Texas A&M University System to look back at our mission and re-examine who we are as a system.

Because this is just such a time, we have re-examined our priorities while addressing budget issues and making strategic realignments. Before the crisis arrived, we at the A&M System had already begun the search for "shared services" to improve the efficiency of operations at the system and at each of the universities and agencies. At this point I have no doubt that we must continue to focus our energies and resources on the following key priorities:

1. **Service to the state of Texas and its 25 million taxpayers.** Service is at the core of who we are as a land-grant system. It is our mandate, as well as our responsibility, to serve the citizens of Texas not only by providing the state with a highly educated workforce through our statewide network of 11 universities, but also through the service and outreach of our seven state agencies and our comprehensive health science center. In fact, the A&M System has a physical presence in 250 of the state's 254 counties and a programmatic presence in every one.
2. **Preparing the next generation of students.** We must increase and properly train the next generation of teachers so that we can enhance the quality of our public education system and the caliber of the next generation of students it produces. The A&M System already graduates the most teachers in the state. We find, train and employ our teachers on behalf of the students, parents and taxpayers of the state and try to serve as a model for both practical and theoretical advances in education for other systems and universities. We are continually determining best practices for the preparation of teachers today and also shaping what will work best as the demographic landscape changes and the school environment evolves. Our goal is simple: to give Texas students the very best education they can receive so that we can prepare them for successful entry into the universities and to develop the next generation of Texas leaders.
3. **Research and discovery.** One of our fundamental missions is to advance knowledge through research and turn discoveries into innovative solutions that improve the lives of Texans, while ultimately solving some of the world's most pressing problems. As a purely pragmatic issue, the A&M System's externally funded research expenditures exceeded $772 million last year, which had a highly significant economic impact on the state. Without this research focus, Texas would find it difficult to continue to attract new business and funding and would eventually lose ground in the increasingly competitive global marketplace. That is totally unacceptable. This institutionalized curiosity on the part of our faculty is the underpinning for all great universities. The teaching and modeling from our faculty prepare the next generation of creative problem solvers.

As I wrote at the outset, there will be no complaining; we'll do what we need to do to make the budget work. But, I also pledge to continue at every opportunity to remind our legislators that the Texas A&M System plays an indispensable role in the economic stability, security, health, safety, competitiveness, and future prosperity of the state of Texas. This is part of the fulfillment of my obligation to the citizens of our great state.

News Briefs

RED DRESS EXHIBIT ON DISPLAY AT GEORGE BUSH PRESIDENTIAL LIBRARY
The Heart Truth Red Dress exhibit will be featured through Aug. 14 at the George Bush Presidential Library and Museum in College Station. The exhibit features red gowns and suits worn by celebrities and America's First Ladies who have joined The Heart Truth campaign to raise awareness of heart disease, the number one killer of women, and offers ways to explore disease topics. Photo: (from left) Former President George H.W. Bush, former First Lady Laura Bush, former First Lady Barbara Bush, and Dr. Nancy W. Dickey, president of the Texas A&M Health Science Center and vice chancellor for health affairs for The Texas A&M University System attended official opening of the exhibit on Oct. 28.

Economic impact of Texas A&M, A&M System in Brazos Valley exceeds $3 billion

The economic impact of members of the Texas A&M System headquartered in Bryan/College Station is estimated to surpass $3.7 billion annually, an increase of more than $213.4 million from 2010. The in-house study, conducted by Texas A&M University's Division of Finance, shows that the A&M System has a direct impact of nearly $1.5 billion on College Station, Bryan and surrounding areas, an increase of more than $85.3 million compared to the previous year.

Texas Forest Service and A&M-Central Texas sign shared services agreement

The Texas Forest Service and Texas A&M University-Central Texas have signed a shared services agreement formally recognizing an active commitment to increasing efficiencies, reducing expenses and building partnerships among members of the A&M System. A&M-Central Texas will provide office space to TFS personnel in exchange for land management on the university's 672 acres. This includes preparing a land management plan with annual updates, placing firebreaks around the perimeter of the property and performing periodic dozer activities.

A&M System recognized for HUB usage

Nine members of the A&M System were among the top 25 Texas agencies for purchasing goods and services from companies certified as Historically Underutilized Businesses in fiscal year 2010, according to the *Fiscal 2010 Annual Report for the Statewide Historically Underutilized Business Program* issued by the state comptroller's office. Texas A&M International University was the top state institution, spending more than $5 million a year, with 64.28 percent of its total eligible expenditures spent with HUB vendors; West Texas A&M University was fourth with 51.79 percent; Texas Transportation Institute was eighth with 38.56 percent; and Prairie View A&M University was 10th with 38.22 percent. The A&M System's HUB numbers were higher than the state average of 15.9 percent, and institutions of higher education's average of 19.27 percent.

Texas Transportation Institute opens new test chamber

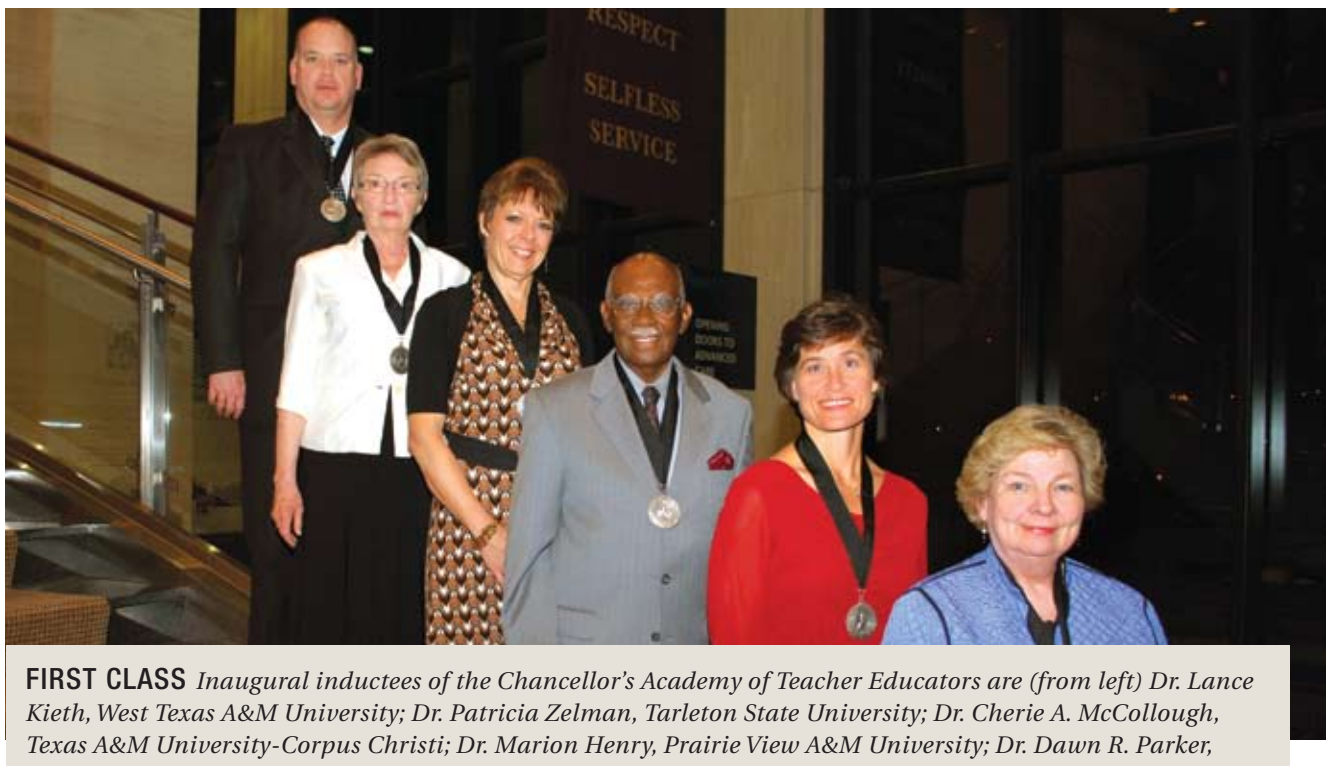
The Texas Transportation Institute has opened the largest drive-in environmentally controlled test chamber in the country. The Environmental and Emissions Research Facility enables researchers to manipulate temperatures, humidity, solar impact, and wind speeds and accommodate 18-wheelers and buses. The EERF significantly expands the Institute's current environmental research, which includes work with recyclable pavements, vegetation management, erosion control, and portable emissions equipment.

Six Inducted into Chancellor's Academy of Teacher Educators

The Texas A&M University System recently announced the creation of the Chancellor's Academy of Teacher Educators to recognize individuals who have made significant contributions to teacher education and to highlight the role of the A&M System in producing K-12 teachers for Texas. The inaugural inductees were recognized during the Chancellor's Century Council's annual meeting in April.

Academy members each received a $1,000 stipend, commemorative medallion and certificate. The first class of the Chancellor's Academy of Teacher Educators was selected by an A&M System committee; future classes will be selected by Academy members. University faculty, staff and students may nominate any full-time faculty member who has had a significant impact in the preparation of teachers.

"Teachers have shaped the past and now shape the entire future of our state and our nation" says Michael D. McKinney, chancellor of the A&M System. "The Texas A&M System is dedicated to producing outstanding teachers who will stay in this honorable field of endeavor. This initial class of inductees into the Academy all share a devotion to the teaching profession and a commitment to today's students and tomorrow's leaders."



FIRST CLASS *Inaugural inductees of the Chancellor's Academy of Teacher Educators are (from left) Dr. Lance Kieth, West Texas A&M University; Dr. Patricia Zelman, Tarleton State University; Dr. Cherie A. McCollough, Texas A&M University-Corpus Christi; Dr. Marion Henry, Prairie View A&M University; Dr. Dawn R. Parker, Texas A&M University; and Dr. Jauquita A. Cranfill Hargus, Texas A&M University-Texarkana.*

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Research, Academia and Experience

Rescue and Recovery in Japan Highlights A&M System Collaboration

BY REBECCA WATTS

When a 9.0 magnitude earthquake hit Japan on March 11, over 30 researchers from six Japanese universities could do nothing but watch from College Station as the ensuing tsunami engulfed their homes. The resulting tsunami has caused more than 14,500 deaths, and more than 10,000 people remain missing. In addition, damage caused by the earthquake and tsunami resulted in severe leaks from three nuclear reactors, which has caused global radiation panic.

The Japanese researchers were eager to return and offer the assistance of their recently tested rescue robots. They had spent two days in Texas Engineering Extension Service's Disaster City® testing and training the latest in robot concepts and technology in cooperation with Texas A&M University's Center for Robot-Assisted Rescue and Recovery. Dr. Robin Murphy, one of the nation's leading experts in rescue robotics and Raytheon professor at Texas A&M, said robots could play a critical role in rescue and recovery operations in Japan.

Murphy, director of the Center, arrived in Japan on April 3 to provide guidance and assistance in using robots for recovery efforts. CRASAR is a crisis response center and research organization at Texas A&M that directs and stimulates robotic technologies and research for humanitarian aid and serves existing rescue organizations, such as the International Rescue Systems Institute in Japan. Through the program Roboticists Without Borders, the Center offers the newest technologies from universities, industry and private individuals at no cost for insertion into natural and man-made disasters.

"We send out only proven devices, ones that we've seen work at Disaster City® or during building demolitions. We try to match the best robots with the needs, then monitor the performance which helps better catalog what's working, and what's not working – what needs to be done in training, to the interface, to the platform, etc.," Murphy says. "The real goal is to have these robots adopted by responders and then we can start working on improving them."

TEEX works with Murphy and other experts from around the world to evaluate, improve and refine robot technologies and concepts by providing the nation's top experts in urban rescue and recovery, and the use of Disaster City®, a 52-acre training field that includes full-scale replicas of the types of collapses and rubble caused by the earthquake and tsunami in Japan.

EXPLORING DISASTER *The KOHGA3 robot is equipped with three CDC cameras, a thermal camera, laser scanner, LED light, altitude sensor, gas sensor and one-meter long robotic arm. The International Rescue Systems Institute is using KOHGA3 to explore damaged structures in the aftermath of the earthquake and tsunami.*

"It's not just having the rubble and these high-fidelity collapses," Murphy says. "It's also having the responders. They are so much better than the average responder because they do so much work for the U.S. Department of Homeland Security. They are very adept at evaluating technology and also very gentle about giving feedback."

Murphy said it was through the partnership with TEEX that rescue robots have been effectively evaluated for disaster situations and in some cases sent back to the drawing board. TEEX houses Texas Task Force 1, the state's primary urban search and rescue team under the direction of the Governor's Division of Emergency Management. The team's experience in matters of life and death has been honed by leading all search and rescue efforts for state. The collaboration between Texas A&M, the Texas Engineering Experiment Station and TEEX offers a setting for training that Bob McKee, director of TEEX Disaster Preparedness and Response, chief of Texas Task Force 1 and director of Texas Emergency Support Function-9, says can't be found anywhere else.

"Because we collaborate, we offer a unique set – academia, research and practical – that makes Disaster City® and The Texas A&M University System the leader in search and rescue training," says McKee.

REBECCA WATTS *is a communications specialist for The Texas A&M University System Office of Communications.*

Palo Duro Research Facility Increases Lab Space at WTAMU

BY RANA MCDONALD

The stark white walls, high ceilings and cement floors may fit the mold of a typical research lab, but the 20-foot contraption that sits just off center of the large open room is a far cry from the usual lab paraphernalia. The apparatus made of sheet metal, wood and Plexiglas is connected in an assortment of shapes and sizes, and could easily pass for a play tunnel at the local park or fast food restaurant. But it is actually a wind tunnel and a key component in air-quality research at West Texas A&M University.

The tunnel wouldn't fit in many of the research labs at WTAMU, but thanks to a recent $1.5 million grant from the U.S. Department of Commerce's Economic Development Administration, the university was able to turn the former Palo Duro Hospital into a research facility. The grant funds were matched by the university, and the newly renovated building is now home to the University Research Alliance offices, the Alternative Energy Institute and several spacious research labs.

ROOM TO STUDY *DeOtte uses a velocimeter to measure wind speed in the lab's wind tunnel.*

Dr. Robert DeOtte, professor of engineering, recently moved into one of the labs at the Palo Duro Research Facility. It offers him more than enough room to set up the cumbersome wind tunnel for research on dispersed aerosols and particles to improve rural air quality.

"The wind tunnel was donated to us by Los Alamos National Labs," says DeOtte. "It's been boxed in pieces here and there, so it's nice to have the space to put it together and working. The tunnel runs at wind speeds of 24 kilometers per hour. The Environmental Protection Agency sets the standards for these with configurations for more urban areas. I want to double that to 48 to 50 kilometers per hour for wind speeds that are more common to our area."

The apparatus—an aerodynamic particle sizer, global sizing velocimeter, vibrating orifice aerosol generator, towers, and meteorological instruments—will measure velocity fields, particle and droplet sizes, and aid in DeOtte's research to seek solutions for environmental problems associated with production agriculture. When DeOtte, who works in collaboration with researchers at Texas AgriLife Research, gets those configurations whirring to Panhandle-like wind speeds, the wind tunnel will work in tandem with $470,000 worth of data acquisition and analysis equipment funded by a National Science Foundation grant.

"The EPA and USDA are increasingly interested in rural air quality, not so much because it creates significant health issues that we might relate to smokestack industries, but because some enterprises can generate dust or odors that may constitute a nuisance, or because of a perceived potential to impact climate. Our research focuses on ways to improve rural air quality and, when necessary, improve it in a way that's not cumbersome to the ag industry," says DeOtte.

The Palo Duro Research Facility is helping make that research less cumbersome for DeOtte. His new lab covers 1,600 square feet of space—enough for the wind tunnel and measurement instruments, as well as ample room for the additional pieces of equipment he needs for other research interests. Plus, the former hospital building has plenty of additional space for future research and office facilities.

"Opening this facility greatly expands our capacity to conduct research," says Dr. James Hallmark, provost and vice president for academic affairs. "Research conducted here will have direct applications and impact our region's health and economy."

RANA MCDONALD *is a communications specialist for West Texas A&M University.*

Research Briefs

Dr. Tracy Hammond, assistant professor in the Texas A&M University Department of Computer Science and Engineering, received a 2010 Defense Advanced Research Projects Agency Information Processing Techniques Office grant for $147,733 to design a remote system to assist in the rapid reassembly and reorganization of assault forces on the ground after airborne deployment. The IPTO funds innovative research in advanced information science, technology and systems that will have direct impact on current and future national security needs.

Dr. Magesh Thiyagarajan, director of the Plasma Engineering Research Lab and an assistant professor of engineering in the College of Science and Technology at Texas A&M University-Corpus Christi, has received a $700,000 research grant from the U.S. Department of Defense to establish a state-of-the-art Plasma Engineering Research Laboratory facility. The award from the Army Medical Research and Material Command-Telemedicine and Advanced Technology Research Center allows the PERL, which is part of the university's mechanical engineering program, to carry out atmospheric pressure "cold plasma" based biomedical engineering research for combat care medical treatment applications.

Dr. Stephen Safe, distinguished professor of toxicology at the Texas A&M College of Veterinary Medicine & Biomedical Sciences and the Institute for Biotechnology at the Texas A&M Health Science Center, along with Dr. Mandip Sachdeva, professor of pharmaceutical sciences with the Florida A&M University College of Pharmacy, has received a grant from the Department of Defense – Army Breast Cancer Research Program for their project entitled "The Role of Novel Substituted Diindolylmethane Analogues in the Treatment of Triple – Negative and ErbB2 – Positive Breast Cancer," which will be funded at $1.4 million over four years.

Texas A&M University-Kingsville was awarded a $1.5 million grant by the Texas Commission on Environmental Quality and Environmental Protection Agency to fund environmental engineering projects aimed at reducing water pollution in the lower Rio Grande Valley. Funded projects include construction of rainwater collection systems for irrigation and septic purposes, and the creation of artificial wetlands. The Lower Rio Grande Valley Stormwater Taskforce, an organization of 15 cities and towns in the Valley, will manage the projects with the university.

Texas A&M is one of five collaborating institutions awarded an $18 million National Institutes of Health grant for research aimed at developing nanotechnology-based therapies and diagnostics tools for treating heart and lung diseases. The "Integrated Nanosystems for Diagnosis and Therapy Award" is one of four Programs of Excellence in Nanotechnology funded by the National Heart, Lung and Blood Institute. The award will support five years of nanoparticle-focused research.

Recent Appointments

KENT KELSO was named vice president for student engagement and success at Texas A&M University-Texarkana by The Texas A&M University System Board of Regents in February. Kelso will be responsible for the development and management of services, programs and activities designed to enhance student engagement and success including student life, enrollment management, counseling, student retention services, and first-year experience services and programs.

RODNEY MCCLENDON was appointed vice president of administration at Texas A&M University by the Board of Regents in February. McClendon previously served as acting president of Texas A&M University at Galveston and senior vice president for operations at the University of North Texas. McClendon will oversee facilities services and operations, transportation services, university police, and risk and compliance. He holds a Bachelor of Business Administration from Morehouse College; a Ph.D. in agricultural leadership, education and communications from Texas A&M; and Doctor of Jurisprudence degree from Emory University School of Law.

ROBERT SMITH III was appointed vice president at Texas A&M and president/chief executive officer at Texas A&M University at Galveston by the Board of Regents in February. Smith previously oversaw Houston operations as senior vice president of the Federal Reserve Bank of Dallas. He has nearly 35 years of service in the U.S. Navy. Smith holds a Bachelor of Science degree in agricultural economics from Texas A&M and is a graduate of the School of Banking of the South at Louisiana State University. He also attended the John F. Kennedy School of Government at Harvard University, completing studies in national and international security. He has an extensive record of service to Texas A&M and its Galveston campus and currently serves as chairman of the President's Council of Advisors and is a member of the advisory board for the Department of Finance.

WILLIE F. TROTTY was appointed vice president for research and development and dean of the graduate school at Prairie View A&M University by the Board of Regents in September 2010. The appointment is a return to the position Trotty left in 1998 to serve as vice president for research and development. Under his tenure, the graduate school experienced noted growth in graduate enrollment and helped secure major funding for several of the university's research interests.

KARAN L. WATSON was named provost and vice president for academic affairs at Texas A&M by the Board of Regents in March. Watson, who also holds the title of Regents Professor in the Department of Electrical and Computer Engineering, has held increasingly responsible leadership positions at Texas A&M since joining the faculty in 1983. She served as vice provost for strategic initiatives from 2008 until 2009, and dean of faculties and associate provost from 2002 until 2009. Before assuming the position of dean of faculties and associate provost, Watson served as associate dean for graduate studies in Texas A&M's Dwight Look College of Engineering. She earned her bachelor's, master's and Ph.D. in electrical engineering from Texas Tech University.

Board of Regents recognizes outstanding faculty and staff

The Texas A&M University System Board of Regents recently honored 18 professors and administrators within the Texas A&M System with the designation of Regents Professor or Regents Fellow for 2009-2010. This year's recipients of the Regents Professor Award are Dr. Mauro E. Castro, Texas A&M University-Kingsville; Dr. Fred T. Davies Jr., Texas A&M University and Texas AgriLife Research; Dr. Randall W. Davis, Texas A&M University at Galveston; Dr. Robert J. Hinton, Texas A&M Health Science Center; Dr. Robb Jackson, Texas A&M University-Corpus Christi; Dr. Arvind Mahajan, Texas A&M; Dr. Edgar J. Manton, Texas A&M University-Commerce; Dr. Kenneth R. McLeroy, TAMHSC; Dr. Darlene A. Pulliam, West Texas A&M University; Dr. J. N. Reddy, Texas A&M and Texas Engineering Experiment Station; and Dr. Mark H. Weichold, Texas A&M. Recipients of the Regents Fellow Service Awards are Anthony Alotto, Texas Engineering Extension Service; Leslie W. Bunte Jr., TEEX; Dr. Robert S. Chapkin, AgriLife Research; Gary D. Clayton, Texas AgriLife Extension Service; Dr. Travis D. Miller, AgriLife Extension; Dr. Edward J. Seymour, Texas Transportation Institute; and Thomas E. Spencer, Texas Forest Service. Front row (from left): Regent Morris E. Foster, Regent Judy Morgan, Clayton, Mahajan, Castro, Chancellor Michael D. McKinney, Regent Elaine Mendoza and Regent James P. Wilson. Second row: Pulliam, Davies, Reddy, Manton, and Hinton. Third row: Spencer, Seymour, Miller, Chapkin, Alotto, and Davis. Back row: Regent Richard A. Box, Regent John White, Student Regent Cresencio Davila, Regent Jim Schwertner, Regent Phil Adams, and Regent Cliff Thomas. Not pictured: Jackson, McLeroy, Weichold, and Bunte.

Sukesh Aghara

PVAMU Seeks Role in Energy Landscape

BY CHRISTI LANDRY

In March 2009, expectant father Dr. Sukesh Aghara filled the long hours waiting on his son's arrival preparing a research proposal.

"I was in the hospital room working on this proposal," says Aghara, an assistant engineering professor at Prairie View A&M University.

Six days after his son was born, Aghara submitted the proposal to the National Science Foundation for the creation of a Center for Research Excellence in Science and Technology at PVAMU. A year later, he found out his efforts had earned a $5 million grant for the establishment of the Center for Energy and Environmental Sustainability.

The newly formed Center will focus on energy research in biofuels, wind energy, and energy and the environment. "The energy in your home comes from different sources," Aghara says. "CEES is hoping to change the sources to more sustainable and environmentally friendly resources. We're hoping it will have an impact environmentally, economically and through homeland security."

Research at the Center will address technological problems associated with the optimal conversion of biomass into biofuels and wind into wind energy. Researchers also will tackle problems associated with biofuel production yields, wind turbine designs and advanced nuclear reactors.

The creation of CEES at PVAMU has presented a valuable opportunity to enhance the academic endeavors of students in the College of Engineering by creating a research community centered on energy engineering. Aghara would like to see the number of students in science, technology, engineering, and mathematic fields rise, especially in underrepresented groups.

"We want to do things to get students engaged and trained, and develop skills to get jobs of the future," Aghara says. He has worked to secured collaborations with other institutions and research centers, including Texas Tech University. With the NSF grant bolstering the Center, he hopes to solidify PVAMU's role at the energy research table.

"There are very large energy research institutes who have $5 million or more per year that they spend on research," Aghara says. "We can't compete with that in those regards. But having a prestigious grant like this funded by the National Science Foundation certainly gives us some ability to show that we can participate in some good quality energy research."

CHRISTI LANDRY *is a public relations specialist for Prairie View A&M University.*

ENERGIZING RESEARCH *Aghara, who will oversee the establishment of the Center for Energy and Environmental Sustainability, works in his laboratory with a liquid separation column used in nuclear fuel cycle research.*

HANDS-ON TRAINING *Texas Forensic Science Academy students (from left) Leslie McCauley, Brian Johns and Celestina Rossi delicately excavate buried skeletal remains as they hover over a field evidence lab.*

TEEX and Tarleton partnership improves forensic training

BY HEIDI HARD

On a wintry December day, Texas Forensic Science Academy students attending a skeletal death investigation class don protective booties and gloves to begin processing two death investigation scenes. The scenarios are staged, but the subjects being investigated are actual remains privately donated to the Forensic Anthropology Center at the Texas State University Body Farm in San Marcos.

The sites, one protected by a tent containing buried skeletal remains left underground for three years, and the other, an open site containing remains decomposed above ground before being buried, serve as the student's field evidence lab for the week. Orange twine stretched in a grid pattern over each site provides a reference for photography and evidence removal. Each five-member team is required to remove all skeletal remains through proper excavation and documentation.

"There is a lot of evidence within the skeletal features alone and you need to preserve it, not jeopardize it," says Kyra Stull, coordinator of the Forensic Anthropology Center.

The Texas Forensic Science Academy was formed to provide quality standardized training in crime scene investigation, evidence collection and preservation, and analysis and courtroom testimony. This innovative program helps to improve the training of crime scene investigators in Texas and provides an opportunity for forensics personnel to earn a bachelor's degree in criminal justice administration.

Established by the Texas Engineering Extension Service in 2007, TFSA curriculum was developed by experts within The Texas A&M University System and reflects cutting-edge technologies coupled with established best practices and current field methodologies. Members of the A&M System are cooperating in an effort to improve the criminal justice system. An articulation agreement between TEEX and Tarleton State University offers college credit for courses completed through TFSA.

"This landmark agreement is beneficial to the university, TEEX and the state of Texas," says Tarleton president F. Dominic Dottavio. "Tarleton is proud to work with TEEX to continue its tradition of producing highly qualified and highly trained criminal justice students."

Law enforcement personnel can complete one or two classes to develop new skills, or earn one of several TFSA certificates. Each certificate ensures the holder has the experience necessary to properly collect and preserve evidence at a scene and present that evidence in a court of law.

"The agreement with Tarleton helps to move Texas closer to establishing formalized training standards for forensic technicians and investigators, with the ultimate goal of providing better justice through better science for all," says Tom Shehan, TEEX public safety and security director.

HEIDI HARD *is a communications specialist for the Texas Engineering Extension Service.*

TAMUG Ocean and Coastal Studies Building

On Nov. 11, 2010, Texas A&M University at Galveston dedicated its largest construction project ever, the Ocean and Coastal Studies Building. The 104,000-square-foot facility houses state-of-the-art classrooms, labs and offices, plus a lecture theater and a unique Sea Life Center. The Center will enable researchers to bring in marine life directly from the Gulf of Mexico for immediate testing and analysis.

The new science building will bring together many of the region's top marine biologists and marine scientists under one roof says Brad McGonagle, assistant vice president of administration. "It will be the centerpiece of our main campus and I know visitors will be very impressed," he says. "I don't think you can find a better marine science facility in this part of the country."

Staff Spotlight

DR. JOANN CANALES, associate dean of graduate studies at Texas A&M University-Corpus Christi, has been appointed to a six-year term as secretary of the board of directors of the American Association of Hispanics in Higher Education. Canales has more than 25 years of experience working with school districts, regional entities, state departments and state, national and international organizations. The organization is a national, educational non-profit organization dedicated to improving the quality of higher education with a focus on developing Latino faculty and senior administrators. The organization also serves as a leading research and advocacy group for Hispanic higher education issues.

DR. MARVIN W. ROWE, professor of chemistry at Texas A&M University at Qatar, has been honored by *Archaeology* magazine in its "Top 10 Discoveries of 2010" for his development of a new radiocarbon dating technique that doesn't require damage to artifacts. Rowe developed a highly sensitive dating method using accelerator mass spectrometry that provides accurate radiocarbon dates with as little as 0.05 milligrams of carbon—equivalent in weight to about 50 specks of dust.

DR. JACKIE RUDD, project leader of Texas AgriLife Research's hard-winter wheat breeding program for the High Plains and Rolling Plains of Texas, was named the 2010 Texas Wheat Man of the Year by the Texas Wheat Producers Board and Association. Rudd was recognized for leading the way in the development of new, better-performing wheat varieties, including the TAM 112, and for being instrumental in identifying genes of insect and disease resistance.

DR. JAIRO SINOVA, professor of physics at Texas A&M, has been elected a 2010 Fellow of the American Physical Society. Sinova was cited "for contributions to the understanding of spin-transport in magnetic systems, particularly the spin-Hall effects." His research, which is funded by the Office of Naval Research, the National Science Foundation, the Research Corporation, the State of Texas' Norman Hackermann Advanced Research Program and the Nanoelectronics Research Initiative, has been published extensively in top peer-reviewed journals such as *Science*, *Nature Physics* and *Physical Review Letters,* and highlighted in *Physics Today.*

STEFANIE WITTENBACH, university librarian of Texas A&M University-San Antonio, has received the "I Love My Librarian!" award presented by the American Library Association, Carnegie Corporation of New York and *The New York Times*. The award, given to only 10 librarians out of 1,400 nominees, includes a $5,000 cash prize and a plaque for the library. Wittenbach is one of only three higher education librarians selected this year.

DR. GEORGE C. WRIGHT, president of Prairie View A&M University, recently received the Educational Leadership Award from the Thurgood Marshall College Fund for his contributions and achievements in the educational area. Wright is the author of three books on race relations and numerous scholarly publications, and been the recipient of several fellowships, grants and awards.

Shark Research

Continued from Page 1

CATCH AND RELEASE *Angler Bob Underbrink releases a bull shark after it is tagged.*

"Sharks are an integral part of our ecological system because they are apex predators that keep everything below them in balance," says Stunz.

For example, when there are not enough sharks to keep the stingray population in check, these cousins of the shark play havoc on the shellfish population, threatening the economic stability of the shellfish industry in many areas.

"Because they are at the top of the food chain, nature didn't need them to reproduce early in life nor in large numbers. So the female gives birth to between two and eight pups, which are very slow to become reproductively mature," Stunz says. "Unfortunately, nature didn't figure man's efficiency at removing fish from the ocean into the equation."

Some species, like the bull shark, are not on the decline, but are tagged to study their migration patterns. The methods for tagging the sharks vary greatly from passive tags that offer anglers a reward for contacting the Institute if they catch a tagged shark, to acoustic tags implanted in the abdomen. The latest tracking tool is a pop-up archival tag that operates through the Argos Satellite Network. The tag sends information on the shark's location, depth and the water temperature for up to one year after the shark's release. However, each tag costs $5,000, which limits the number of sharks that can be monitored by this method.

Stunz also is studying methods for improving red snapper populations and using acoustic telemetry to determine the migration patterns of spotted sea trout, both of which are important to the sports-fishing industry that pumps almost $2 billion into the Texas coastal economy each year. The information gathered from these studies is supplied to state and national agencies that make regulations to ensure sustainable fisheries for a wide range of natural resources, including those in the Gulf of Mexico.

"Sometimes fish are removed so rapidly that they aren't allowed to be replenished," Stunz says. "We want to prevent that from happening. The loss of apex predators and other fish can have cascading impacts throughout our marine ecosystem. Everything is linked. You can't remove one piece of the ecosystem because you often see unintended consequences."

STEVEN PASCHAL *is news-editorial manager for Texas A&M University-Corpus Christi.*

Renewable Energy

Continued from Page 1

For example, Texas A&M University's Agricultural and Food Policy Center's models for analyzing the costs of production for algae farms show that using current technology in algae farming is not profitable.

"However, with technology being developed by the AgriLife algae researchers and the NAABB research team the total cost of production for algae oil will likely be in the range of $3.70 to $4.75 per gallon," says Dr. James Richardson, AgriLife Research economist and co-director of the Agricultural and Food Policy Center. "A key factor in reducing the cost of algae oil to an affordable level will be the byproducts – lipid extracted algae and high valued oils. The value of animal feeds and human food supplements will reduce the cost of algae oil to the range of $1.60 to $2.30 per gallon. With this range of costs we could expect to see biodiesel costs in the range of $2.20 to $2.90 per gallon."

The agency's algae work began over three years ago, receiving more than $4 million from the Texas Emerging Technology Fund. That has evolved into a collaboration with the National Alliance for Advanced Biofuels and Bioproducts led by the Donald Danforth Plant Science Center.

"This is a very exciting aspect of our research and it could lead to other developments, particularly with work done at Texas A&M at Galveston," says Shay Simpson, associate program director.

There, Dr. Antonietta Quigg is collecting and isolating algal strains, optimizing them for growth. Her work is to research the best strains of algae that could be incorporated into a marine production scenario. In Lubbock, Dr. Mark Burow leads a similar effort at the AgriLife Research center. The algal strains his team is developing fit in an arid production scenario.

Meanwhile, at the AgriLife Research station at Pecos, the heart of algae production for the research lies in "raceways." The pilot-scale ponds encompass about 1/16th of an acre. Paddle wheels stir more than 6,000 gallons of algae.

The Pecos station is best suited for algae production research, Simpson says. "Pecos has extreme temperatures and brackish water," she says. "Algae thrives on brackish water. Lou Brown and Jola Brown (research assistants at the Pecos AgriLife Research station) are looking at the Pecos ground waters and how recycling the water would affect concentrations of nutrients in the algae and consequently the co-products."

"If we can crack the code or find the right species or growth conditions, the production systems would take off," Simpson says.

She adds that the whole algae project wouldn't be feasible without the potential for the development of many co-products. "We have six different objectives we are working on with over 30 research investigators involved," Simpson says. "Those are biology, cultivation, harvesting, conversion, co-products, and sustainability."

The most cumbersome part of algae production is monitoring the ponds, Simpson says. That's where one aspect of the research program is looking into engineering a monitoring device led by Dr. Alex Thomasson. His optical electronic-sensor automatically measures algae growth rather than samples having to be collected and taken to a laboratory for processing.

The optical sensor can monitor several strains of algae once calibrated and can be a timely measurement, particularly during times of volatile commodity prices, Simpson says.

"When gasoline prices are rising very sharply or during times of high feed costs, Alex can use this technology on the best selected five or 10 species of algae in developing instrumentation," Simpson says. "We can find out lipid content, nutrients and other variables in a rapid manner."

Meanwhile, back at the College Station laboratory, Wickersham speaks with optimism on his aspect of the project. He says researchers also hope to find a method to use the algae co-product as a source of nitrogen to be applied on rangeland, led by Dr. Jamie Foster at the Beeville AgriLife Research station.

"There's still a lot of work to be done, but there's a lot of potential here that could benefit agriculture," Wickersham says.

Editor's note: AgriLife Research acknowledges funding of the algae work by the U.S. Department of Energy under contract DE-EE0003046 awarded to the National Alliance for Advanced Biofuels and Bioproducts.

BLAIR FANNIN *is editor, media relations for Texas A&M AgriLife Communications.*

For more information about the agency's algae research program, visit:
http://agrilife.org/algaeforfuel/

Project Military Friendly Connects with Listserv

BY ROD DAVIS

With increased communications cited as one of the goals for improving support for Texas veteran-students in a September report from the State Auditor's Office, a new Listserv created by The Texas A&M University System's Project Military Friendly is reaching out not only to its own members, but to veterans offices in other systems, universities, agencies, and even other states. As of April 2011, a total of 139 subscribers had joined the ever-expanding group.

Postings range from the very detail oriented—"What's the best time to contact the VA office in Muskogee?" "Right at 8 a.m. when they open."—to thoughtful exchanges on psychological and health assistance to sharing of articles, videos, news updates, and observations. Since many of the veterans coordinators are veterans, the conversations are always direct, practical and insightful. And it's not just the coordinators—the Listserv also reaches system and statewide officials at all levels.

A typical topic is how to help veteran-students take full advantage of the new GI Bill, and for Texans, how to use the Hazlewood Act exemptions. Each veterans coordinator, dealing with issues ranging from the nuances of a Ch. 33 application to extension of benefits to dependents, can always find someone on the Listserv to provide the best answers.

In January, the Listserv was employed to help convey information assisting the system's universities in participating in the new Leadership Scholar Program implemented by the United States Marine Corps, which pre-screens and fully qualifies Marines leaving active duty for preferred or guaranteed acceptance into the university of their choice. With all 11 universities now engaged, the A&M System has one of the highest number of participants in the program.

A systemwide Listserv was one of the top requests at the A&M System military-friendly symposium in San Antonio last July, and was created shortly thereafter. As Project Military Friendly, launched in 2008, expands into Phase III this year, the Listserv will play an increasingly vital role in rapid sharing of information, and the improvement of support and services for veterans throughout the state.

ROD DAVIS *is veterans coordinator for the A&M System and associate vice president of marketing and communications for Tarleton State University.*

PROUDLY SERVING *United States Army Capt. Beau Robinson, a 2007 graduate of Tarleton State University, was commissioned after his graduation and participation in the ROTC program. He trained in aviation at Fort Rucker, Ala., and is now stationed at Fort Carson, Colo., where he is an Apache helicopter pilot.*

WASTE-FUEL *Students from Booker T. Washington High School and the High School for Engineering Professions in Houston who are converting cafeteria waste into fuels using the "MixAlco" technology pose with Holtzapple (second from right) and Le (far right) in front of a washing machine they converted into a centrifuge.*

Texas A&M researcher inspires high school students

BY TIM SCHNETTLER

As Texas A&M University chemical engineering professor Dr. Mark Holtzapple was making a presentation during the 2009 teacher's summit, one hand in the back of the room kept shooting up. The hand belonged to Nghia Le, an engineering teacher at Booker T. Washington High School/High School for Engineering Professions.

Le was fascinated with Holtzapple's presentation on the star rotor engine and wondered if there was a way the project could be attempted by students in his alternative energy program.

"Out of the 200 teachers that were in the audience, he was the one that showed a lot of interest and enthusiasm," Holtzapple says. "He shoots for the moon. One of his goals is to have a student rocket actually orbit the earth. That shows the heights that he is willing to dream."

Although appreciative of Le's enthusiasm for the star rotor engine, Holtzapple was quick to temper it, pointing out that it probably was not the best for the high school classroom.

There was, however, another project of Holtzapple's he thought could be beneficial to the students in Le's class: his MixAlco project, which converts municipal solid waste, sewage, forest products, and non-edible energy crops into chemicals and alcohols that be turned into gasoline and fuel.

That meeting almost two years ago has developed into a mentorship between Holtzapple, Le and the students in the alternative energy program.

"He is a great mentor for me and for my students," Le says. "For my students, I could not find a better mentor. We call him and he has time to answer questions for my students. A lot of times university professors are not very readily accessible, but he is."

The students recently revealed to Holtzapple, and to more than 50 people in attendance for their presentation, that they successfully made gasoline from waste taken from their high school cafeteria. It was an achievement not lost on Holtzapple.

"Actually, it makes a tear come to my eye," he says. "To take waste materials and turn it into gasoline has been my career objective. And now to see high school students doing that is fantastic."

The amount of gasoline the students made was minimal, but that did not temper the enthusiasm of those involved with the project. "If high school students can turn waste material into gasoline, why can't adults do it?" Holtzapple says.

TIM SCHNETTLER *is coordinator, media communications for Texas A&M Engineering.*

For a video from the event, visit:
www.youtube.com/watch?v=0mcc-R-eUu8

Young Inspiration BY BOB BRUGGEMAN

Marcie Tiraphatna appears to be a typical 10-year old. She likes to play the piano and read. She enjoys school and dreams of becoming a math professor. But Marcie is not surrounded by fifth graders as she studies her favorite subject; she is surrounded by students at Texas A&M University-Texarkana.

Marcie enrolled in fall 2010 as the youngest student at A&M-Texarkana and began working on her undergraduate degree in mathematics. She plans to pursue a master's degree and possibly a doctoral degree after graduation. Marcie says she is mindful of the effect her age has on fellow students – she notices the whispers when she answers a question in class – but she doesn't let it distract her because she enjoys being a student at A&M-Texarkana.

"I really like the friendliness of the faculty and staff," Marcie says. "I like the nice new campus, the student activities that are available and the large library."

Marcie's father, Jittakorn, has stressed to all his children the importance of education and taught all of them the importance of obedience in learning. Prior to enrolling at A&M-Texarkana, Marcie attended Southern Arkansas University and Cossatot Community College, where her 15-year-old sister Chendara earned an associate degree. When she is not in class, Marcie spends time helping out at her father's convenience store.

BOB BRUGGEMAN *is communications manager at Texas A&M University-Texarkana.*

New Regents Appointed

Three new regents have been appointed to The Texas A&M University System Board of Regents. Judy Morgan of Texarkana, Cliff Thomas of Victoria and Elaine Mendoza of San Antonio were appointed to the Board of Regents in February by Gov. Rick Perry. Their terms expire Feb. 1, 2017.

Richard A. Box was elected chairman of the board at the March Board of Regents meeting. Phil Adams was elected vice chairman.

Morgan is owner and president of Jack B. Kelley Enterprises Inc. She also is president of the Women for Texas A&M University-Texarkana Board and a member of the U.S. Compressed Gas Association. She received her bachelor's degree from the University of Houston and her Master of Business Administration from A&M-Texarkana.

Thomas is owner and CEO of Thomas Petroleum LLC, C.L. Thomas Inc. and Speedy Stop Food Stores. The Corpus Christi businessman is a member of the Texas Petroleum Marketers and Convenience Store Association and the National Association of Convenience Stores. He received his bachelor's degree from Texas A&M University.

Mendoza is founder, president and CEO of Conceptual MindWorks Inc. She is a member of the P16Plus Council of Greater Bexar County, board member of Generation Texas San Antonio and member and past vice chair of the San Antonio Greater Chamber of Commerce. She received her bachelor's degree from Texas A&M.

John D. White of Houston was appointed to the Board of Regents by Gov. Perry in January. He previously served on the A&M System's board from 2003-09. He was elected chairman from 2005-07 and served as vice chairman from 2007-09. His term will expire Feb. 1, 2015.

Fernando Trevino Jr. of Brownsville has been appointed new student regent. Trevino is currently working toward a bachelor's degree in political science at Texas A&M and a master's degree in public service and administration from the George Bush School of Government and Public Service.

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Astronaut Richard Linnehan a Key Leader for Texas A&M System's New Initiatives in Space Science, Policy and Education

REACHING FOR THE STARS *Linnehan is a veteran of four space flights aboard shuttles Columbia and Endeavour, and has spent a total of 58 days in space.*

BY REBECCA WATTS

Rick Linnehan

Astronaut Rick Linnehan's multiple space missions have given him a global perspective. He understands the value of space exploration and that further advances are possible only through multinational cooperation and education.

His passion and perspective will lead The Texas A&M University System's Space Science, Policy and Education program in an assignment through a partnership with NASA designed to reinvigorate and pioneer research critical to space discovery and exploration. The temporary directorship furthers the A&M System's mission to develop and implement space science initiatives in policy, technology and education.

"I am honored to be part of the A&M System team and look forward to establishing and contributing to broad-based initiatives in science education, biomedical research and technology development which will benefit the citizens of Texas and our national space program," Linnehan says.

Linnehan is a veteran of four space flights aboard shuttles Columbia and Endeavour for a total 58 days in space and 42 EVA (spacewalk) hours. That experience and Linnehan's veterinary background provide unique educational and policy perspectives that will aid in the development and implementation of primary, secondary and university-level space science curricula, including the creation of a space policy section at Texas A&M University's George Bush School of Government and Public Service. Linnehan also will work with researchers throughout the A&M System to advance aerospace engineering, physics, space performance, flight, and biological countermeasures.

Rebecca Watts is a communications specialist for The Texas A&M University System Office of Communications.

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'Miracles Still Happen,' Says Aggie Who Led Chilean Mine Rescue

BY GREG E. HALL

When I first heard that the rescue of the 33 trapped Chilean miners would take four months, I kept thinking how I'd feel if my son or brother were down there. I thought there must be some way to get to them faster.

While designing my plan, I learned that Center Rock Inc. in Pennsylvania was trying to sell its cluster hammer to the Chilean government to drill a large escape shaft, but no one would listen to them. I asked Center Rock to send me technical information on the hammer, and after studying its design I knew it was the final piece of the puzzle needed to perfect my plan.

My company has a solid, 25-year relationship with the Chilean mine ministers, so they were readily available to discuss our plan. Although 80 percent of the experts laughed, the 20 percent who believed in us were the ones who really mattered. The Chilean government did accept our proposal, naming it Plan B. (The prolonged Plan A, an elevator shaft, was being drilled simultaneously.)

Plan B was a joint effort involving many companies, technical experts and advanced drilling equipment. One company even flew in its best driller from Afghanistan. One of my companies, DSI American Manufacturing, coordinated the transport of drilling equipment to the job site. Through its humanitarian program, UPS flew the cluster hammer and related gear from Pennsylvania to Santiago, where it was met by the Chilean Air Force and flown the remaining 500 miles directly to the site.

The cluster hammer creates much less vibration than the large 600-pound piston-type air hammer typically used to drill large bore holes. Still, the possibility of another rock slide led to many sleepless nights. I wasn't too worried about the miners fitting into the rescue capsule. I'm a big guy, about 6-7, and I knew that somehow I'd get myself into it if I were down there.

I turned out to be wrong about our proposed timetable of six weeks. By working 24/7, we managed to reach the 33 miners in 33 days. I was on-site for the final eight days and 250 meters (more than 800 feet) of drilling. When the last miner was out, I tried to fight off tears because I knew everybody would rib me mercilessly on future drill sites. But eventually I lost that battle and cried out of thankfulness and relief that those 33 men were finally reunited with their families.

Reprinted from Spirit *magazine, Texas A&M Foundation.*

HELPING HAND *Texas A&M University former student Greg E. Hall '82 gives a hopeful gig 'em at the site of the Chilean mine collapse. Hall is one of the designers of "Plan B" that aided in rescuing 33 miners who had been trapped for over a month.*