Researcher Mark Lemmon — Key Player in NASA’s Mars Observatory Mission
Welcome to another issue of GeoConnections from the College of Geosciences. This past year has been filled with exciting advances, discoveries and opportunities throughout the College.

Of significant note is the award of the Integrated Ocean Drilling Program contract to the Joint Oceanographic Institutions/Columbia University/Texas A&M University Alliance. This is a 10-year contract from the National Science Foundation that will bring nearly $0.5 billion to the University over the next 10 years. This program, the largest federally funded research program at Texas A&M, is truly a jewel in the University’s crown. Geoscientists from around the world will come to College Station for pre-cruise planning and post-cruise summaries. Jeff Fox, director of Texas A&M’s efforts in the previous Ocean Drilling Program, will continue to lead this new program.

Last year, to advance the goals of Vision 2020, President Gates committed the University to increase faculty numbers by 447 over the next four years. This represents about a 25 percent increase in the faculty. This initiative will allow the University to further advance strong research programs, improve the faculty-student ratio and offer better educational experiences for all of our students. The College of Geosciences will add 20 new faculty members as part of this initiative. Collectively, the College has chosen to hire faculty in three interdisciplinary thematic areas: climate change; oceans, atmospheres and human health; and environmental and hydrologic sciences. Five new faculty members will join us between October and next January, and additional offers are pending. We will feature these new faculty members in our next issue of GeoConnections.

The University now has a chapter of the academic honor society, Phi Beta Kappa, the nation’s leading advocate for the liberal arts and sciences at the undergraduate level. Our first students were inducted in May. As I was a member during my undergraduate years, it was a true pleasure to be a part of starting this chapter at Texas A&M.

Several administrative changes have taken place, and more are forthcoming. David Prior, our former dean, was appointed permanent provost last April. We congratulate David and are thrilled to have a geoscientist as the chief academic officer of the University. Dick Orville was appointed interim head of the Department of Atmospheric Sciences when Jerry North stepped down last August. Rick Carlson was named head of the Department of Geology and Geophysics, replacing Andy Hajash last year. Chuck Kennicutt has stepped down as director of the Geochemical and Environmental Research Group to assume a new position in the Office of the Vice President for Research this August. Björn Kjerfve will be the new dean of the College of Geosciences effective August 15. Please join me in welcoming him to Texas A&M University.

Our faculty members are making exciting discoveries — the Japanese submarine I-58 that sank the USS Indianapolis — a military disaster, advancing our understanding of the Houston air pollution issue, participating in NASA’s Mars research, providing the U.S. Navy with cutting-edge science to aid in the recovery of the Ehime Maru and publishing in prominent scientific journals including Science and Nature. Our graduate students are being awarded prestigious fellowships from federal agencies. Our new interdisciplinary undergraduate environmental degrees now have more than 50 students. Our class of 2008 is the largest in recent history, at 80, with a significant increase in the number of students from underrepresented groups (14).

The University has made policy changes for admissions, moved support services to the periphery or off campus to make a place on campus for new faculty, identified funding for a new $100 million life sciences building and made many changes in the athletic coaching staff. Geosciences will be gaining space for the Department of Geography in a building adjacent to the Eller Oceanography and Meteorology (O&M) Building and renovations are scheduled for O&M to accommodate the new faculty. Plans also are moving forward for a “clean” lab in Halbouty for advanced geochemical analyses, and installation of the University’s Immersive Visualization Center, to be housed in the Halbouty Building, is progressing.

Tuition will increase for the fall semester, but with it will come more faculty members and an improved educational environment. Funding from the State is limited, so we must rely on gifts for scholarships, fellowships, professorships and endowed chairs. Our former students and friends continue to help with our development activities to bridge the gap for our funding needs.

The Aggie Spirit continues as strong as ever.

I have thoroughly enjoyed the contacts that I have had with many of you — our friends and former students. I encourage you to continue to stay connected with the College and departments. I appreciate you immensely.
Texas A&M University researcher Mark Lemmon has one of the most interesting jobs on the planet — and maybe off it. Lemmon has played a critical role in the recent $820 million Mars observatory missions using the “rover” units that slowly travel across the Martian landscape. The twin rovers, Spirit and Opportunity, located thousands of miles from each other on the red planet, snap photos, take rock and soil samples and provide Earthlings with a view that is literally out of this world.

Lemmon has been one of the key players in Opportunity’s photo mission, helping to run the panoramic camera that has transmitted spectacular pictures of the Martian landscape back to the Jet Propulsion Laboratory in Pasadena, Calif., where he has been stationed for much of the past several months.

Each Martian day, known as a “sol,” presents a truly heavenly experience like none other, Lemmon says.

“We’re learning things we didn’t know before, and we’re getting some images back that are really amazing,” Lemmon says of the project.

One of the mission’s top priorities: to see if there is water on Mars.

“We know that Mars has had some running water on its surface at times, but we do not know if Mars, which is currently cold and very dry, could ever have been warm and wet or if it was ever suitable for life,” Lemmon explains.

Photo source: NASA/JSC.
Geosciences Researcher Has Key Role in NASA Rover Project

“The two rovers have been guided to places where we could learn a great deal about water in Mars’ past.”

The twin rovers carry instruments that allow them to be used as remote-controlled field geologists. These include a microscopic imager, comparable to a geologist’s hand magnifying lens; a rock abrasion tool for grinding fresh surfaces on the rocks; and two instruments for measuring the chemical and mineral properties of the rocks and soil.

One key area that Lemmon has worked on involves cameras to study dust and ice clouds in the Martian atmosphere.

“Dust in the Mars air is interesting for several reasons,” Lemmon notes.

“Despite Mars’ thin atmosphere, which is less than one percent of the pressure at the earth’s surface, there is always dust in the sky. The dust partially obscures the surface from orbiting satellites and shines a rust-colored light onto the surface. Geologists use color to classify their surroundings, so we need to correct images for the red glow of the sky.”

Some of the dust is stirred around by dust devils that are larger than tornadoes on Earth.

“We don’t think these pose a threat due to the thin atmosphere,” Lemmon says.

“But scientists are eager to see the dust devils and their effects up close. In 1997, Mars Pathfinder was not harmed by dust devils, despite several direct hits. If astronauts ever go to Mars, they will find the sticky, magnetic dust gets everywhere.”

Because the two rovers move slowly — literally a few feet an hour — there is plenty of time to take plenty of photos of the Martian terrain. NASA managers say for the mission to be a success, one of the rovers would need to operate on Mars for at least 90 sols, traveling at least 1,000 feet but preferably 2,000 feet or more.

Lemmon says the landing site of Opportunity is almost perfect. “Of all the sites we’ve landed on Mars before, this one is most suited to a rover for driving and the one where you most need a rover to do the right science,” he notes.

One of the many “firsts” learned from the mission: Opportunity discovered an intact rock outcrop on Mars, resembling large chunks of bedrock. It will use its equipment to do an up close and personal study of the rocks before moving slowly in other directions.

“The pictures we’ve received are truly striking. What is surprising is how good the pictures are given how much compression we’re using. The camera is capable of generating far more data than we can return to Earth, so we’ve compressed the images, but they still look good.

“In fact, we’ve been blown away by how good they are.”

Besides operating the cameras on Opportunity — some of them the first 3-D images ever taken on the planet — Lemmon has helped the NASA team to do some atmospheric science tests, such as an imaging survey of the Martian sky.

“These images will primarily be used to measure the atmospheric dust, but we may detect water ice clouds,” Lemmon says.

“These images could tell us a lot. The dust amounts have been a lot more than in previous missions, and as some of the dust storms dissipate, we can get some really clear images of the Martian sky.”

Like a horoscope reading, Mars may be in Lemmon’s personal orbit for years to come.

He has been tapped to work on another Mars mission planned for 2007 called Phoenix. He is helping to map out details of the Phoenix project, which will involve a variety of scientific projects.

“All of this has been a great challenge and a learning experience for me,” Lemmon says of his NASA work. “But more than anything, it’s been really fun.”

For additional information, contact Dr. Mark Lemmon at lemm@tamu.edu.
It was an epiphany, of sorts, in the midst of Houston traffic.

Dr. John Jacob was searching for the perfect catch phrase to build an anti-pollution campaign around. The problem was that the phrase had to refer to run-off water pollution.

It also had to make sense in Spanish.

“Somehow, no la riegues just popped into my head,” says Jacob, environmental quality specialist with the Texas Sea Grant College Program’s Marine Advisory Service.

No la riegues (ree-egg’-ehs) is a common term in Mexico and Central America — one Jacob learned during the 10 years of his youth that he lived in Guatemala. Literally translated, the phrase means, “don’t spill it,” or “don’t water it.”

But in colloquial use, it is a way of saying, “don’t mess up,” says Jacob. “You see, if you spilled something, then you messed up. No la riegues is a caution not to mess up. It is a phrase ready made for this campaign. I don’t know why no one else picked up on it before now.”

From that one simple idea, Jacob crafted a proposal for a Spanish language anti-pollution campaign that garnered an $80,000 grant from the Texas General Land Office that has funded two video public service announcements (PSAs), two radio PSAs and designs for billboards and print ads.

Anti-pollution campaigns are nothing new — “Don’t Mess with Texas” is probably the best known. Jacob’s approach is unusual because it targets Hispanics, a group that has historically been underserved by English-only or poorly translated advertising campaigns.

No la riegues’ message is rooted in the successful “Water Smart” campaign, a joint project of the Texas Commission on Environmental Quality and the Texas Water Development Board aimed at raising the public’s awareness of water supply issues and promoting efficient water use and water conservation habits.

Ironically, Water Smart began in the Lower Rio Grande Valley, where more than 85 percent of the population is Hispanic. The severe drought of the 1990s spawned the program in response to dwindling water supplies that threatened the Valley’s economy and quality of life. Water Smart programs have since spread to the major metropolitan areas of Houston, Dallas and Fort Worth, where they play well to largely English-speaking populations.

The state’s Spanish-speaking population is no less willing to help improve water quality, says Jacob, but the message gets lost in the translation — literally.

“A lot of people think you can translate stuff literally, but that doesn’t work,” he says with the confidence of experience. “In advertising you think of a catch phrase and it is usually a play on words. Well, that play on words is specific to that language.”

Change the language and you change the meaning.

For example, a group promoting the advantages of eating pork bought billboard space around Houston to spread the message in English and Spanish that “Pork is good.”

“Well, they translated ‘Pork is good’ literally and it came out ‘El coche es bueno,’” recalls Jacob as he starts to grin. “There are two problems with that. Coche is also a word for car, so you couldn’t immediately figure out what these guys were talking about. The other problem is that coche more literally translates into pig, so the message came out, ‘The pig is good.’

“I looked at the billboard and thought, ‘What pig are we talking about?’” Jacob says, now laughing a bit.

His empathy for the Hispanic culture was born in the hallways of the Guatemalan school he attended while his father served in the United States Foreign Service there. “My parents decided to put me in the local school instead of the American school,” remembers Jacob. “It was one of the best things they ever did for me. The only English class I took was English as a Second Language, so for a few months I did quite well.

“If I had gone to the American school, I would have learned Spanish and been fluent, but I would not have been bilingual,” says Jacob, who also characterizes himself as bicultural.

He describes the difference between being fluent and bilingual as the fluidity of thought. Fluency is the ability to converse well in a given language. Being bilingual brings with it the capacity to think in terms of puns and plays on words, he says.

Jacob first took his ecological message to the Hispanic mass media about three years ago, with an hour-long call-in program on a Spanish language radio station...
in Houston. Scores of listeners sought environmentally sound lawn and

   garden advice from the man they knew as Dr. Jacobo (Ha-co-bo).

   He is taking some of the same messages — improving water
quality, decreasing runoff pollution and overall water conservation — to a wider audience through no la riegues. In the first of the two
video PSAs, a distinguished-looking, middle-aged Hispanic man
with robust moustache strolls up to a young Hispanic man who has
just finished changing the oil in his car and is about to dump the
old oil into a storm sewer.

   “No la riegues,” says the older gentleman — the campaign’s
spokesman Don Aguas, or Mr. Water.

   “Do you want that oil on your fish?” he asks in Spanish.

   In the second PSA, Don Aguas gently scolds a woman for over-
watering and using too much fertilizer on her lawn.

   Don Aguas himself is a product of Jacob’s bicultural mindset.
Despite suggestions to put a youthful face on the campaign, Jacob
sought a mature spokesman to carry his message — someone with
semi-macho appeal but who was softened with age.

   “The Hispanic community is not as generationally polarized as
the Anglo community,” Jacob believes. “They tend to look up to
people who are a little older, whereas Anglo folks might ask, ‘What
is that old guy trying to tell us?’”

   Don Aguas’ name is another play on words — one he uses in
the PSAs. The first word he speaks in each PSA is aguas, “which is
‘water,’ but Latinos also understand it to mean ‘watch out!’ saying
in essence that something big is coming,” explains Jacob.

   He found the perfect Don Aguas through Interlex Latino, the
San Antonio-based advertising agency that developed the cam-
paign’s audio/visual and print materials. Jacob characterizes Interlex
Latino as a young firm that went well beyond what most other
advertising agencies would normally do for the $80,000 that was
available.

   With multi-media materials in hand, Jacob hopes something
big is coming for the campaign itself. “Now we’re at the point
where we’re trying to figure out how to make this thing catch fire.

   “The problem with a campaign like this is trying to sell it. The
difficulty we’re having is selling it to people who make the deci-
sions. A lot of the people who make the decisions are English
speakers, and they have no idea of the need for a campaign like
this in Spanish.”

   Several Spanish language radio stations in the Houston area
have bought into the campaign and are willing to run the PSAs,
but they plan to do so during the low-listener late night and early
morning hours.

   “The goal is not to have these PSAs as fillers, because the sta-
tions will air them and forget about them,” says Jacob. “We want
someone to take hold of the idea and say, ‘Yeah, this is a good
campaign.’

   “We foresee that you could have a series of messages based
around no la riegues. We think that it could be as cool as ‘Don’t
Mess with Texas’ with the right amount of money put into it,”
believes Jacob.

   “No la riegues can really take off because Latinos say the
phrase now. If it becomes branded, then even when they are kid-
ning around they will know where the phrase came from, just like
some people kid around now with ‘Don’t mess with Texas.’ The
phrase becomes part of the lexicon.

   Making No la Riegues part of Latino pop culture will not be
easy. “With environmental messages in general, we don’t put big
bucks into advertising, except for the Don’t Mess With Texas
campaign. There they showed that there were some paybacks.
We could put millions of bucks into advertising, except for the Don’t Mess With Texas
campaign. There they showed that there were some paybacks.
We could put millions of bucks into it because we could save mil-
lions of bucks on pollution cleanup. But water quality is not the
type of thing that people make a creative campaign out of.

   “Our environmental messages now tend to be staid. We want
to give people the full load, we want them to eat the steak din-
er, so our brochures and other materials tend to be long and
dry,” Jacob grumbles a bit.

   “The people attracted to that type of approach are the true
believers in the message. I’m preaching to the choir, I’m not get-
ing people to attend church who have not been coming
before,” he says as his smile broadens.

   “With this message of no la riegues, I’m looking to fill the
pews.”

   For more information about the campaign, go to http://nolariegues.com.
Are the deep waters of the oceans quiet and tranquil? You might think so, but the ocean environment has always had an abundance of natural noises, such as the sounds generated by waves, earthquakes and sea creatures, but humans also add sounds. During the last few decades, human activity in the sea has increased. One such activity stems from our nation's increased need for oil and gas resources as exploration and production work moves further into the deep waters of areas like the Gulf of Mexico — home to many marine mammals, including the sperm whale (*Physeter macrocephalus*).

The sperm whale, the largest of the toothed whales, uses sound to learn about the environment and communicate, navigate and forage. Sperm whales, like other toothed whales, use echolocation to locate objects (such as prey) and to orient themselves in the vast ocean realm. The whale produces a series of loud clicks that travel through the water and bounce off objects. The reflected sound bounces back to the whale, which interprets the echo. Water is an ideal medium for the transmission of sound. Since the speed of sound in water is about five times faster than it is in air, whales can tell how far away the object is by measuring the time it takes for the echo to return to them. Because the sperm whale uses sound so extensively, understanding the impact of underwater noise from man-made sources is necessary to effectively study this species.

There is little information on exactly how noisy their environment has become from increased human activity. Texas A&M researchers Douglas Biggs, Ann Jochens, Bernd Würsig and Nathalie Jaquet, along with researchers from Oregon State University, Woods Hole Oceanographic Institution, University of Durham, University of Colorado, Scripps Institution of Oceanography and Ecologic have teamed with the U.S. Minerals Management Service for the Sperm Whale Seismic Study (SWSS). “Humans add sounds in many forms — the many noises of our recreational, fishing, transportation, research, and military vessels, to name a few,” explains Texas A&M’s Ann Jochens, a physical oceanographer who also serves as program manager of SWSS. “SWSS will advance our knowledge of the ‘normal’ behavior of sperm whales in the northern Gulf of Mexico, characterize their habitat use, and evaluate possible changes in behavior when subjected to man-made noise.”

Scientists from Texas A&M University and the University of Colorado are merging biological and physical oceanography along with satellite remote sensing data to describe the oceanographic habitat used by the sperm whale in the northern Gulf of Mexico. “The whales are not uniformly or randomly distributed, but rather they seem to be most abundant where there are good food supplies of deepwater squid,” reports Doug Biggs, professor in the Department of Oceanography at Texas A&M and head of the habitat characterization component for SWSS. “The squid, in turn, seem to be concentrated in upwelling and other high-nutrient areas, which we can see from satellites as areas of high surface chlorophyll and/or low sea surface height.”

Four components will be combined to establish the normal behavior of sperm whales in the Gulf. Satellite-tracked tags (S-tags) follow the large-scale movements of the whales from several months up to a year to identify behaviors, seasonal habitats and associations with oceanographic features (habitat characterization and Oregon State University). Visual and acoustical observations of whale groups, including their movements and group social interactions, will be examined over several weeks (TAMU-Galveston and Ecologic). The relationship of the Gulf population to populations in the Caribbean Sea, Atlantic and Mediterranean Sea regions will be evaluated through collecting and analyzing skin samples. Social structure and biological relationships of groups and sub-groups in the Gulf will be determined genetically (University of Durham). Listening arrays will track vertical movements of whales by the sounds the whales emit (Scripps Institution of Oceanography).

Woods Hole Oceanographic Institution scientists have attached digital-recording tags (D-tags) for up to 12 hours to determine short-term animal movements and swimming behavior and to record the associated acoustical environment, including sounds the whale makes and hears. They
also have conducted controlled-exposure experiments to evaluate behaviors before, during and after exposures to controlled, non-harmful levels of man-made noise.

Additional resources, mainly in the form of contributed vessel time and/or equipment, are being provided by the National Science Foundation, Office of Naval Research and the Industry Research Funders Coalition, which consists of the International Association of Geophysical Contractors (IAGC) and several exploration and production companies.

Sperm whales are vulnerable to any number of activities that cause disturbances in their habitat. Yet most people rarely get to see sperm whales because they spend most of their lives in deep waters, often far from shore, where they dive, on average, 40 minutes of every hour to feed. Through programs like SWSS, we will be able to build upon our limited understanding of ocean noise in deep water and its impact on the creatures that call this environment home.

For additional information about this article, contact Dr. Doug Biggs at dbiggs@ocean.tamu.edu or Dr. Ann Jochens at ajochens@tamu.edu.

Sperm Whale Facts

- **Life span**: 50-70 years
- **Adult size**: males about 60 feet (18.3 meters) weigh up to 45 tons  
  females approximately 43 feet (13.1 meters)
- **Head**: about one-fourth to one-third of its body
- **Brain**: largest of any creature on Earth, can weigh around 20 pounds (9 kg)
- **Physical features**: dark grey in color  
  hump instead of dorsal fin  
  usually display their tail flukes when they dive  
  single, S-shaped blowhole located far forward and to the left of head  
  produces a distinctive angled spout or blow
- **Social characteristics**: highly social creatures  
  live in groups of up to 50 members  
  group of around 10-20 individuals is the basic social unit, consisting mainly of mature females with their calves  
  group composition varies depending on purpose  
  Young males leave to join a pod of medium-sized bachelors and as they get older, males prefer to be alone
- **Reproduction**: females carry their young for 14-16 months and give birth every three to five years  
  calves are about 13 feet (4m) long and weigh about a ton (1,000 kg) at birth. Mating begins at about 20 years old
“If you build it, they will come.” That’s the mantra of a group of Texas A&M University faculty, researchers and administrators who are ushering state-of-the-art visualization technology to Aggieland — along with the endless research and teaching potential that comes with it.

The Immersive Visualization Center (IVC), a cutting-edge teaching and research facility that will be housed in the Michel T. Halbouty Geosciences Building, is nearing completion. Project leaders say the center will offer unparalleled research opportunity and look forward to when it goes online later this year.

“The Office of the Vice President for Research was excited to help fund this $1 million project and is proud that Texas A&M can now offer the most advanced technology for immersive 3-D visualization,” says Richard Ewing, vice president for research at Texas A&M.

The Institute for Scientific Computation is managing the IVC project, which will cross several academic disciplines. Faculty, though, say the IVC will be an especially important research tool for geologists and geophysicists. It looks like a lot of fun, too. “It’s like the ultimate video game,” says Andrew Hajash, professor of geology and geophysics.

But the IVC will do work far more important than video games, he says: “It allows 3-D immersion in any type of data, along with real-time manipulation capabilities.” Powered by eight-processor Silicon Graphics supercomputers and laser-precise rear-projection equipment, the IVC will allow researchers to surround themselves — along with students, colleagues and grant reviewers — with the complex data sets that drive their research.

**Among the Best**

Visualization technology has made rapid progress in recent years as its relative cost has come down, but implementation generally remains exclusive to government, major corporations and top research organizations.

For Texas A&M, the IVC will be a breakthrough, boosting the University to an elite perch among some of the world’s most advanced laboratories. The U.S. Navy is using similar technology in its Center for Concept Visualization, an analysis and design facility at the Naval Surface Warfare Center Carderock Division in Bethesda, Md. And Boeing has deployed visualization technology to the brain trusts charged with designing new jetliners, streamlining development while bringing more people to the process.

As for universities, though, A&M may be a step ahead of everybody else. “We believe this to be the first rear-projected semi-rigid curved screen in academe,” says Steve Johnson, senior systems analyst in the Department of Mathematics and project director for the IVC. “It’s really a cutting-edge technology.”

“Rear-projected” is key for the IVC because researchers will be able to interact with data more closely while allowing an audience to watch. In conventional front-projected visualization labs, the presenter would cast a shadow on the screen and partially block the view.

The IVC will be flexible enough to adapt to almost any faculty need. Johnson says his own research problems aren’t unlike those of faculty from across campus: “The data sets are large and complex, such that you can’t get a good representation using traditional techniques.”

The IVC will be the answer for Johnson’s and countless other research projects. By rendering data in three — and sometimes
Researchers at Texas A&M

by Brady Creel

four — dimensions, researchers will be able to walk through their data sets, exploring in a way not possible without visualization equipment. Special goggles and corollary sound will enhance perception of the data. The system hosts discipline-specific software along with visualization engines to serve a wide array of purposes.

A New Way of Teaching

The IVC computers can be used to illustrate complex research problems, but they also can be used to teach. “A picture is worth a thousand words,” Hajash says, and the IVC will conceptualize ideas that often are too difficult or abstract to teach without the use of images.

The IVC is being built with seating for about 25, meaning labs can be taught there. The facility also is a venue for seminars, colloquia and grant proposal presentations. Rick Carlson, Regents Professor and department head of geology and geophysics, said students will benefit not only from the learning that happens in the IVC but also from being exposed to equipment used in industry.

Worth the Wait

Discussion about creating a visualization center surfaced several years ago when BP and Arco merged and sought to donate redundant visualization equipment to a university. Texas A&M formed a committee and submitted a bid proposal but eventually lost to the University of Colorado at Boulder. “We had all these people working together already, and we decided it was important,” Hajash says, so the committee, chaired by Luc Ikelle, professor of geology and geophysics, began exploring other options for obtaining equipment to outfit a visualization center.

The committee submitted a proposal to the University, citing benefits the visualization center could bring to A&M. The University responded favorably to the committee’s proposal, pledging one-time infrastructure funding for the center. The committee secured an agreement from Landmark Graphics for donated software — a $250,000 windfall for the project. The search for hardware, however, yielded nothing within the committee’s budget.

The committee pressed forward and reached a deal with SEOS, a Britain-based global supplier of immersive visualization and simulation products. “After some bargaining, one of the companies, SEOS, finally accepted and decided that it would use what it called its ‘marketing initiative’ to support the project,” Ikelle says. “We were very lucky as well that this company was the one we liked most.”

SEOS liked Texas A&M, too, says Martin Howe, the company’s vice president of visualization. “Once we have devised a new solution that we believe would benefit the market, we are keen to show it to prospective customers,” he says. “That’s what happened with Texas A&M, and once they had seen it and we had witnessed their positive reaction, we knew that we needed to jump all the hurdles to make this project a reality.”

SEOS is outfitting two other sites with the same new technology as A&M: England’s University of Surrey and Khafji, a joint venture between Saudi Aramco and the Kuwait Oil Company. “Real innovation can be established only when it’s in the hands of the user, so we are delighted by the very fast uptake of these systems,” Howe says. “Texas A&M is right at the center of one of our key markets, and many other customers are watching with interest to see how the system enhances the Texas A&M supercomputing facility.”

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Sailing for two months aboard a 470 foot-long scientific drillship with 12-hour work shifts — this is an IODP expedition. Sixty-five crew members, and around 50 scientific participants, which includes computer specialists, lab technicians and engineers and as many as 30 scientists from all over the world conduct basic research into the history of the ocean basins and the overall nature of the crust beneath the seafloor.

The ocean floor — an enormous surface that makes up more than three-fourths of our planet — is teeming with information about Earth’s past, present and future. Over the last 40 years, ocean drilling program scientists have recovered more than 35,000 cores from the undersea crust in an effort to collect this information.

In October 2003, the Integrated Ocean Drilling Program (IODP) began its international research program that will build upon the legacies of the Deep Sea Drilling Project (1968-1983) and the Ocean Drilling Program (1983-2003).

IODP is funded by the U.S. National Science Foundation; Japan’s Ministry of Education, Culture, Sports, Science and Technology; and the European Consortium for Ocean Research Drilling.

An alliance of the Joint Oceanographic Institutions (JOI) Inc., Texas A&M University and the Lamont-Doherty Earth Observatory of Columbia University will operate a scientific drillship as part of the IODP. These institutions will be responsible for program management; planning for scientific services and drillship operations; drilling, coring and logging of seafloor sediments and crustal rock; collecting, analyzing, storing, curating and disseminating data, samples and results; and scientific publications, education and outreach for a riserless vessel.

“IODP is the largest earth-science research project on this planet and also the largest research contract in Texas A&M University’s history,” states Jeff Fox, director of the Integrated Ocean Drilling Program at Texas A&M. The Ocean Drilling Program (ODP) operated just one vessel. IODP will be a multi-platform program based on two ships — a $500 million riser vessel, Chikyu, contributed by Japan and a riserless ship provided by the United States. The European Consortium for Ocean Research Drilling will provide mission-specific platforms (for example, shallow water drilling or ice-covered regions).

The JOIDES Resolution, a one-of-a-kind research vessel, consists of two-person and four-person rooms, two movie rooms, a meeting room, a gym and 12 laboratories. The ship was built in 1978 in Halifax, Nova Scotia. In 1984, ODP converted it into a floating scientific research center. A fortified hull allows it to drill in high-latitude icy seas. The heart of this floating scientific research center features seven stories of laboratory facilities. The ship dedicates more than 12,000 square feet of space to scientific laboratories and equipment. The Science Lounge is one of the few places on the ship where scientists and crew can get together to relax, discuss events or watch a movie on the large-screen TV.

IODP used the JOIDES Resolution for the first expedition this summer to the Juan de Fuca Ridge in the northeast Pacific Ocean, where they are investigating the microbiology and hydrogeology beneath the seafloor off the coast of Oregon, Washington and British Columbia. During the fall and winter, the JOIDES Resolution will move to the North Atlantic near the Azores, Greenland and Iceland.

The JOIDES Resolution, used for nearly 20 years by the Ocean Drilling Program, will be used in the new program for one to two years, and then an enhanced vessel capable of achieving the long-range science and engineering goals of IODP will be used.

Mitch Malone, supervisor of science support for IODP, oversees staff scientist teams during expeditions. According to Malone, a sedimentary geochemist, “IODP expeditions [called legs under ODP] are among the most intense educational experiences I’ve ever had — every cruise provides a rich learning experience.”

Each expedition is planned from a scientific proposal submitted by a scientist from one of the member countries — the United States, Europe or Japan. At the beginning of an expedition, scientists come together, negotiate and divide the work into teams. “You meet people from other cultures and make great friends that you usually stay in touch with,” says Malone.

Graduate and undergraduate students may apply for an expedition, depending on their scientific expertise. Oceanography graduate student Debora Berti, from San Marino (a small country that is bordered on all sides by Italy), encouraged by her advisor, Oceanography Professor Bill Bryant, submitted an application that was accepted, and she sailed on ODP’s fall 2003 leg. Photos above show Berti working in the labs and with members of the expedition.

As a master’s student studying sediment physical properties and clay mineralogy, she says it was a fantastic experience — extremely challenging. Berti, who received her master’s in oceanography in December 2003 from Texas A&M, is working on her doctorate at A&M in permeability of marine sediments. She will base a large part of her work on samples that were brought back from the expedition.

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“I had a terrific experience as a member of the science party of ODP Leg 207. It helped me grow as a scientist and gain confidence in my capabilities. I learned a great deal and enjoyed working with scientists with different backgrounds and experiences. Now I’m excited to use the samples and data in my research.”

An additional component of IODP at Texas A&M will be the Ocean Drilling and Sustainable Earth Science program (ODASES), a research/education focused program that will specifically relate to IODP and will combine the traditional academic role of the University with the scientific objectives of IODP research. New faculty will be hired to explore ODASES science themes including the deep biosphere, alternative energy, climate change and dynamics of active margins, and they are indicative of the University’s strong dedication to education through research.

Partnerships among faculty, research scientists and students will encompass the Colleges of Geosciences, Science, Engineering and Education, in addition to two major research centers. Visiting scientists from all over the world will contribute to research education in the participating colleges and units. IODP staff scientists will rotate into the College’s academic programs and bring cutting-edge research into the classroom. The College of Geosciences will lead and direct the program. Graduate and undergraduate students will be an integral part of the program, and strong linkages between IODP research and education will be established and nurtured.

IODP’s Teacher at Sea program will provide teachers with an opportunity to participate in seagoing research experiences as they work side-by-side with scientists. They will use current approaches to solve scientific problems of global interest and gain first-hand knowledge of the results of seagoing scientific expeditions. Curriculum materials will be developed from these scientific results and shared with classrooms across the country.

What has changed over time in the deep ocean and beneath the ocean floor? The ocean drilling programs led to insights about climate change, microbes, gas hydrates and natural hazards and also revealed much about Earth’s history. “The record of the earth’s history is written in the sediments of the sea floor more than in any other place on our planet,” Fox says. Ocean drilling also can reveal clues to disastrous events that shaped the earth. “An asteroid impact 65 million years ago is recorded on the sea floor — something that eliminated 75 percent of the flora and fauna on the planet, including dinosaurs,” Fox says.

With the new technology provided by the two ships, enhanced shore-based facilities and planned additional platforms, IODP will provide new and extensive opportunities for discovering how our planet works. Over the 10-year life of the program, IODP will generate scientific data that will offer new insight into the structure and form of oceanic crust, mantle dynamics, earthquake genesis, environmental change over time and the nature of life in extreme environments.

These significant results will be shared with the scientific and educational community, government and industry, policy makers and the taxpayers who support this

Meet the College of Geosciences’ director of development —

**Greg Willems ’88**

The College of Geosciences’ director of development, Greg Willems, has been with the College since December of 2002. Before joining the College, he held executive positions with two local companies — CIC Agency Inc., a nationwide healthcare financial services company and Willems Construction Inc., a state-wide residential and commercial contracting firm. Willems is a 1988 graduate of Texas A&M University with a bachelor’s degree in business administration-management.

During his short time with the College, he has had the opportunity to meet with many of our former students. Willems notes that the College has a reputation in the corporate world for producing graduates that are successful in career development, team interaction and service. He also has observed that the College’s small class sizes have promoted strong relationships between students and faculty members and produced former students with pride and a keen interest in the continued success of the College. Willems says, “The biggest problem we face is that most of our former students are not aware of the College’s needs and how to get involved. We need to do a better job of sharing our current successes and challenges. Our former students are in the best position to help us stay connected with industry and to develop opportunities for our students.”

He and his wife, Kama, have three children — Kendall (10), Haadley (6) and Keely (3). According to Willems, “The most rewarding part of this job over the last year has been helping our former students reconnect with the College. I find that each time I visit with a former student to share the realities that challenge this College and to ask for help, they respond.”
What does a rockhound grow up to be? A vice president in the nation’s third largest integrated energy company, of course!

Everyone knows that kids of all ages love rocks, but this particular kid began rock collecting as a young boy and decided to make his life’s passion his life’s work. James D. McColgin ’73, vice president of exploration and business development for Houston-based ConocoPhillips, entered a National Science Foundation (NSF) summer program held at Texas A&M University during his junior year in high school. It was during this program that the boy from Indiana who was in love with geology found out what geophysics was all about. “At that time only two programs in geology were offered in this country — Pittsburgh and Texas A&M,” says McColgin. Through McColgin’s summer NSF program he garnered a four-year scholarship to Texas A&M. During this time he excelled in his studies and in his senior year received the Outstanding Student Award given in recognition of scholarship and leadership.

McColgin went through the Texas A&M recruiting center as graduation approached and interviewed with 12 companies. He received 11 offers. In 1973, McColgin chose Conoco to begin an illustrious career. He based this choice on the people he met in the company. In 1981 he was named chief geophysicist for Conoco Norway Inc., headquartered in Stavanger. In 1984 he returned to the U.S. as exploration manager for the Rocky Mountain Region based in Denver. Since that time McColgin has been headquartered in Houston, Calgary and Jakarta. In 2000 he became president, exploration production-Africa, Asia Pacific and Middle East (AAME), based in Houston. After the merger with Phillips in September 2001, he became president, U.S. lower 48 and Latin America, and in May 2003, he took on his current responsibilities as vice president, exploration and business development.

Although McColgin, his wife, Elizabeth, and four children have moved 16 times and lived outside of the country four times, he says, “We have been truly blessed and are very fortunate to have had the opportunity to form friendships around the world.” McColgin, who has worked the geology of six of the seven continents, especially enjoyed his stint in Asia — Jakarta/Indonesia.

People often ask if it is still viable to pursue a career in the oil industry. McColgin recalls his first geology professor at Texas A&M, Fred Smith, who told the class that his friends challenged him on his decision to join a major oil company right out of college. They were sure the oil industry was nearing its end. That advice back in 1926 was far from correct. The demand for energy and the importance of oil and gas for the world’s economy has grown tremendously since that time. McColgin says, “ConocoPhillips is still looking for people who have a real interest in geology — what happened in a basin and why.”

ConocoPhillips is an active recruiter at Texas A&M for both geologists and geophysicists and uses its summer intern program to give students a chance to get to know the company and to obtain first-hand information about a career in the oil and gas industry.
Installing the IVC equipment was a feat unto itself, and planning for the process required some creative thinking and out-of-the-box engineering — literally. The IVC’s 25-foot screen was built and shipped in one piece so there would be no seams in the display — a feature critical for high-quality visualization. That presented a challenge in College Station, though, because there was no way to maneuver such a large object through the hallways of the Halbouty Building.

Planners initially proposed to insert the screen onto the second floor of the Halbouty Building by removing the glass on the northwest side of the building’s new wing. That plan was nixed, however, when they realized the screen could not turn the corners to fit in its new home.

Then the team came up with another idea: Knock a hole through the building’s outside brick wall of the second-floor room reserved for the IVC. They did, and the center is being built around the massive screen. Renovations of the Halbouty Building will cost about $110,000 — a small price to pay for such remarkable technology.

After the screen and its projectors are in place, they must be calibrated. The three projectors and the mirrors used to distribute their images must be aligned precisely. “One of the difficult challenges is minimizing the effect of seeing three different images,” Johnson says.

That done, the exploring will begin.

For additional information on the Immersive Visualization Center, please contact Steve Johnson at steve@isc.tamu.edu.

Brady Creel is an Information Representative with the Department of Geology and Geophysics in the College of Geosciences at Texas A&M University.
R. Ken Williams ’45 and his wife, Jane, were honored at a luncheon in October 2003, for their generous gift to establish the Jane and R. Ken Williams ’45 Chair in Ocean Drilling Science, Technology and Education. The couple, enthusiastic about the University’s commitment to providing leadership in ocean drilling science and education, was presented with a Boston Rocking chair embossed with their chair’s name and the Texas A&M seal. As longtime supporters of Texas A&M University, the Williamses have funded four President’s Endowed Scholarships.

William Sager, professor and geological oceanography academic advisor, is the inaugural holder of the Jane and R. Ken Williams ’45 Chair in Ocean Drilling Science, Technology and Education. He earned his doctorate in marine geophysics from the University of Hawaii in 1983. Sager has written 75 peer-reviewed articles and participated in 36 research cruises, including six ODP cruises — serving as co-chief scientist during two. His research interests include plate tectonics, tectonic reference frames, paleomagnetism and environmental magnetism, magnetostratigraphy and the magnetic polarity reversal time scale, Pleistocene-Holocene sea level variations, high-resolution geophysical methods and magnetic and gravity field interpretation.

Harold J. Haynes ’46 and his wife, Reta, have such a strong dedication to education that they stipulated that their $1 million gift and the $1 million matching gift establish two endowed chairs in the College of Geosciences, initially in the departments of atmospheric sciences and geography. The College held an appreciation dinner to honor the couple and present them with Boston Rocking chairs embossed with their chair names and the Texas A&M University seal.

Gerald R. North, inaugural holder of the Harold J. Haynes ’46 Chair in Geosciences, is former head of the Department of Atmospheric Sciences. He received his doctorate in physics from the University of Wisconsin in 1966 and came to Texas A&M University in 1986 as a distinguished professor of meteorology and oceanography. North has made significant contributions to the study of past and future climate change through the formulation and solution of original mathematical models, provided leadership in the analysis of global observing systems and played key roles in the understanding of the global distribution of moisture and temperature.

Daniel Sui, inaugural holder of the Reta Haynes Chair in Geosciences, received his doctorate in geography from the University of Georgia in 1993. He has published more than 60 scientific and scholarly articles in various books and journals. Since he has been at Texas A&M, Sui has secured national, international and local funding totaling more than $1.5 million. His primary research interests are the integration of spatial analysis and modeling with GIS for socioeconomic and environmental applications, theoretical issues in geographic information sciences, urban geography, information ecology and emerging geographies of the information society.
Björn Kjerfve [Shaer-ve'], director of the Marine Science Program at the University of South Carolina, has been appointed as the dean of Texas A&M University’s College of Geosciences, effective Aug. 15.

Kjerfve’s appointment follows an extensive search that considered candidates from leading geoscience programs in the United States.

In making the appointment, Texas A&M Executive Vice President and Provost David Prior said, “We are very pleased indeed to welcome Dr. Kjerfve to this important leadership position in the College of Geosciences. He brings a wealth of experience in research, teaching and administration and is a recognized leader in coastal oceanography research, with extensive international experience and connections with leading national and international agencies and institutions.”

Kjerfve’s research has focused on linking physical processes to ecology in a variety of coastal environments, principally in South America, the Caribbean and the southeastern United States. He is widely recognized for his leadership of interdisciplinary and multi-institutional coastal research projects in these areas, as well as in Southeast Asia.

Commenting on the appointment, Texas A&M President Robert M. Gates said, “I am very pleased that Dr. Kjerfve has accepted our invitation to become Dean of Geosciences. I am confident he will provide strong leadership for the College and also be a welcome addition to the Council of Deans. At the same time, we are deeply indebted to Dr. Mary Jo Richardson, who has done an outstanding job as interim dean for the past two years.”

As dean of the College of Geosciences, Dr. Kjerfve will provide leadership to the strong research and teaching programs involving the disciplines of atmospheric science, oceanography, geology and geophysics, and geography. In addition, he will oversee Texas A&M’s participation in the Integrated Ocean Drilling Program, the Texas Sea Grant College Program and the Geochemical and Environmental Research Group.
Texas A&M University’s Brown Foundation-Earl Rudder Memorial Outstanding Student Award — the highest honor bestowed upon a graduating senior — was presented to Roger Travis Herzog of San Antonio during spring commencement ceremonies. The award was presented by Texas A&M President Robert Gates.

Herzog graduated with a bachelor’s degree in meteorology while maintaining a perfect 4.0 grade-point average. In addition to having been a Lechner Scholar and a University Scholar, Herzog’s many other honors include being named the Phi Kappa Phi “Outstanding Junior” for his college and induction into Phi Beta Kappa.

“He is graduating today with foundation and university honors and a bachelor’s degree in a curriculum in which he already has extensive hands-on experience, both as an undergraduate researcher in the Office of the State Climatologist and as a weatherman for one of our local TV stations,” Gates said in announcing the award.

Since last August, he has worked full-time for KBTX-TV as the morning weatherman and attended school full-time. During this time, Herzog was definitely on a different time schedule than the rest of the world. He would wake up at 3 a.m. to arrive at work by 4 a.m. After he finished the morning show at Channel 3, he would attend classes until noon, return to the station for the noon report and sometimes attend classes during the afternoon. This schedule involved going to bed around 7 p.m., which caused him to miss out on a lot of the typical social activities that college seniors take part in, but Herzog says, “It was a sacrifice I was willing to make for the opportunity it afforded me.”

As a broadcast meteorologist, Herzog says, “You have to know what you are talking about. Everyone knows the stereotype that ‘the weatherman is always wrong,’ and we work really hard to prove that isn’t true.”

Herzog loves his job because, “I have a huge passion for weather, a passion for people and my job combines the best of both worlds. It allows me to connect with people and have a positive impact in their lives. It is important for viewers to be able to trust us and our reports, especially in severe weather situations.”

After the first Outstanding Student Award was announced, Herzog thought his chance had passed until Dr. Gates announced that there would be two recipients this year. “When he called my name, I couldn’t believe it,” Herzog says. “It is very humbling to be recognized with such a huge honor.”

Herzog says he had a very positive experience in the Department of Atmospheric Sciences and the College of Geosciences. He described the department as very tight-knit, understanding, supportive and accommodating. “All the encouragement was a positive factor in my success as a student and in my career as a meteorologist,” he says.

Since graduation, Herzog, who recently became engaged, continues to work as a weatherman for KBTX-3 in Bryan/College Station.
While the old adage says you shouldn’t cry over spilled milk, spilled oil might be worth shouting about — especially in Texas. A team of Texas A&M University researchers has developed and continues to refine a system of buoys in the Gulf of Mexico that can accurately predict the movement of oil spills, which can present Texas-sized problems to the state’s coastline both environmentally and economically. The buoys can even be used to locate ship passengers who have been lost overboard and two years ago were instrumental in helping to retrieve the *Ehime Maru*, a Japanese vessel that was accidentally sunk by a U.S. submarine practicing quick-surfacing drills off the coast of Hawaii.

Norman Guinasso Jr., who serves as project manager of the Texas Automated Buoy System (TABS), part of the College of Geosciences’ Geochemical and Environmental Research Group (GERG) at Texas A&M, says the buoy system has already saved Texas taxpayers hundreds of thousands of dollars and has served as a model for other universities that are developing similar buoys to detect pollution such as oil spills. “This is the only buoy system of its kind in the Gulf of Mexico and one of the few of its kind in the world,” Guinasso says of the TABS project. “The instruments on each buoy can tell us precise information about ocean currents, wind speed, water temperature and other data that allows us to accurately predict where a spill is headed and when it will present a problem to the coastline.”

Each buoy is capable of relaying that information to a network of satellites orbiting the Earth, and that information in turn is transferred to GERG’s headquarters in College Station, located about 150 miles from the Texas coast. Information is received by GERG’s computers every few hours, 24 hours a day, Guinasso explains, allowing researchers and government agencies to accurately project where a spill is headed.

In all, nine buoys are used in the TABS project, stretching from near Sabine Pass on the upper Texas coast down to the Mexico border near Brownsville, an area about 400 miles in length and reaching 100 miles off the coast. The TABS project is coordinated by the Texas General Land Office, which funds much of the $1 million-plus buoy system, and by oil companies who operate in the Gulf of Mexico. Buoys range in size from torpedo-shaped 8-foot-long cylinders to circular-shaped ones, each floating on the water’s surface. Buoys range in price from about $30,000 to $200,000 depending on the size of the buoy and the sensors installed on the buoy. A 2-cent-per-barrel tax on all oil transported in Texas waters helps support most of the costs, Guinasso says.

The TABS project was put to the test in 1996 shortly after the first buoys were positioned in the Gulf of Mexico. In March of that year, the Buffalo Barge 292 started spilling oil into the Houston Ship Channel, and the sludge was quickly blown out to sea by a strong cold front that had moved in from the north. First reports indicated that the oil spill was headed toward a sensitive marine sanctuary at Sabine Pass. But within hours, TABS showed the opposite was true — the spill was headed south down the Texas coast, saving at least $250,000 in cleanup costs. “But the important thing is that state officials realized the true value of these buoys,” Guinasso says. “We saved the time and effort of mounting a response in areas where it wasn’t needed.”

The buoys are silent sentinels standing watch over the Flower Garden Banks National Marine Sanctuary, the region’s only coral reef located about 90 miles south of Galveston. They provide data that can help predict the movement of oil on the water’s surface. All oil companies operating within 40 miles of the Flower Garden Banks are required by law to protect it, Guinasso notes, “so our buoys are something they very much need and want.”

When the nuclear submarine *USS Greeneville* collided with the *Ehime Maru* on Feb. 9, 2001, nine Japanese crew members were killed, and the ship sank in 2,000 feet of water. The Navy developed plans to raise the sunken ship off the sea bottom and transport it to shallower waters, making recovery operations feasible. But the Navy needed Texas A&M University’s help. “They wanted to borrow two of the buoys to provide oceanographic data to aid the retrieval purposes, particularly to measure currents, winds and other data,” he recalls.

“We received permission from the Texas General Land Office to loan buoys to the U.S. Navy for this operation. We then were able to install two buoys, one-third of the way around the world on short notice, and the buoys provided necessary data to help make the recovery mission a success. It’s just one example of how valuable and important these buoys can be. They serve the State of Texas very well.”

For additional information on the Texas Automated Buoy System, contact Norman Guinasso at norman@gerg.tamu.edu.
During July of last year, more than 20 middle school and high school educators from across the nation attended a unique workshop at Texas A&M University — GEOEarthKAM. This National Geographic Society Education Foundation funded project trained participants to conduct an ISSEarthKAM mission with their students by leading them through the process. Using the International Space Station (ISS), these educators learned how to conduct an ISS EarthKAM mission — to target specific geographic locations using the special camera located on the ISS, which is about 150 miles above the Earth.

“Our goal was to teach these master geography educators how to take digital images, then have them go back to their schools and use this knowledge as part of their geography and science classes,” says Sarah Bednarz, associate professor of geography at Texas A&M and project coordinator. “Participants observed Earth from space, looked at live weather images and geographic sites and learned how to analyze these images and explain them. It was a unique 8-day workshop.”

The teachers, who instruct grades 5-12, received specialized training in geography, remote sensing, environmental science and inquiry-based learning. They also took a complete set of curriculum materials back to their respective classrooms, plus a $300 grant to disseminate information about the GEOEarthKAM project.

Using the Web, students requested images based on their classroom investigations. They controlled, via Internet connections, a high-resolution digital camera operating on the ISS Destiny science module. Using the images, students learned first-hand about volcanoes, river and lake systems, earthquake fault lines and humankind’s impact on various Earth surfaces.

The ISS EarthKAM has flown on space shuttle flights and was created in 1994 by Sally Ride, America’s first woman astronaut. Since then, more than 10,000 digital images of Earth have been taken by students.

National initiatives to change the nature of geography and science education to emphasize the inquiry process and to capitalize on the Internet and visualization technology create a demand for programs like this that assist educators in developing these skills.

GEOEarthKAM builds on the existing National Geographic Society model of empowering educators by involving teachers and their students directly in a hands-on program.

Bednarz, whose research interests include enhancing geographic geography education in elementary, secondary and post-secondary settings, maintains that workshops like GEOEarthKAM will develop teachers who can disseminate inquiry-based, remote sensing environmental geography that will excite students about geography, spatial technologies and the world.

For additional information on the GeoEarthKAM project, please contact Dr. Sarah Bednarz at s-bednarz@tamu.edu.
James R. Jackson ’36 retired in 1982 from Exxon Co. USA, where he worked as a geologist. Jackson has three grandchildren who attend Texas A&M. He lives in Houston, Texas.

C.A. (Andy) Hinton ’44 owns Hinton Production in Mount Pleasant, Texas. His grandson is a petroleum engineering major at Texas A&M. Hinton is an Aggie football fan.

Robert J. Gowdy ’48 is retired and now trades commodities. He lives in San Antonio, Texas.

Michael L. Hart ’50 is employed by JMK Petroleum Corp. and has an interest in over 350 oil properties in 22 states. His son, Glenn, is the CEO of Larado Energy in Houston, Texas. Hart has two grandchildren who attend Texas A&M, and he has attended every Texas A&M football game for the last 20 years. He lives in Dallas, Texas.

Bobby C. Jones ’52 retired as chief geophysicist in 1992 from Marathon Oil Co. He has served as president of the Geophysical Society of Houston, president of the Alaska Geological Society and president of the Geophysical Society of Alaska. Jones lives in Dallas, Texas.

Thomas P. Toudouze ’55 is president of Alamo Tubular Supply, LLC, in San Antonio, Texas. He has sold steel pipe to the oil and gas industry for most of his life and continues to invest in oil ventures. Over the last 18 years, he had one or more children attending Texas A&M: Paul ’81, Denny ’83, Pamela ’84, Kenneth ’86, Craig ’88, Toby ’94 and Timothy ’99.

William C. Elsik ’57 is a retired geologist-palynologist from Exxon Co. USA. He now consults with students at Texas A&M, the University of Texas and the University of Wyoming. Elsik and his wife, Mary Lynn, enjoy the country life in Snook, Texas.

Frank E. Larkin ’57 retired from Exxon in 1992 after more than 34 years with the company. He served as district geologist for California from 1976 to 1980 and for Midland, Texas, from 1980 to 1983. From 1983 to 1992 he served as the division-supervising geologist for the southeast division in New Orleans, La. Larkin retired from consulting in 1996 and now lives in New Orleans.

George J. Carson ’58 is an oil and gas attorney in San Antonio, Texas. His three children, Tom, Penelope and Philip, all graduated from Texas A&M.

Harold W. Hartel ’61 is a retired meteorologist with the U.S. Air Force. He and his wife, Kathleen, celebrated their 54th anniversary in 2003. They live in Weed, Calif.

Robert L. Molinar ’68 is an oceanographer with the National Oceanic and Atmospheric Administration. He was elected a Fellow of AAAS and received the NOAA’s Administrator Award. Molinar lives in Miami, Fl.

JAMES MICHAEL (Mike) LOONEY ’69 is chief of meteorological services for the 14-state National Weather Service central region. He has almost 35 years of federal service with both the National Weather Service and the U.S. Navy. Looney and his wife, Jayne, have one son, Josh, and live in Overland Park, Kan.

David J. Wright ’70 is retired and lives in Albany, Ore. He has two children and five grandchildren.

Brian K. Powers ’76 owns Perimeter Resource Co. Inc., which handles small oil and gas operations. He also does occasional geologic consulting. Powers and his wife, Dawn, have two children, Sawyer and Brett. The family lives in Midland, Texas.

Talty Robinson ’78 is a massage therapist in Jemez Springs, N.M. Robinson was a geological assistant for 10 years in Midland, Texas, and also owned a health food store in Ruidoso, N.M.

William Young ’78 has been a meteorologist with Planalytics since 1990. He was a meteorologist in the U.S. Air Force from 1970 to 1990, which included work with the Space Shuttle Program from 1978 to 1981. Young lives in Palm Desert, Calif.
JOHN CHARLES WELCH '78 is a project manager for Westport Technology Center International. He has worked in the oil business for 18 years, concentrating on core analysis, formation damage, gas hydrates, conformance and CT scanning. He enjoys working with Linux, collecting Jeeps and cattle ranching. Welch lives in Crockett, Texas.

DANIEL ISENHOWER '78 is an attorney with the environmental and administrative group of Jenkins & Gilchrist of Austin, Texas. He and his wife, Barbara Gaidusek '79, have two children, Eric and Elin. The family lives in Round Rock, Texas.

MICKEY Lee '80 is in charge of sales for a division of Universal Weather and Aviation, where he has worked for 15 years. He and his wife, Machele, have two children and live in Katy, Texas.

N. R. (Bob) STEWART '81 is the current manager of the South America Regional Group for Exxon Mobil Exploration Co. He is active in campus recruiting at the University of North Carolina, Duke University, Montgomery State University and the University of Montana. Stewart, his wife, and two daughters live in Montgomer y, Texas.

JAY STOCKTON '82 is a senior forecaster with the National Weather Service in Medford, Ore. He is married with two children, Richard and Renée.

JEFF BICKERSTAFF '91 is an urban planner with Wilbur Smith Associates, Dallas, Texas. He received his master's degree in urban planning from Texas A&M in 1994. Bickerstaff and his wife, Leslie, have one daughter, Emily. The family lives in Sachse, Texas.

DANA BLUME '91 is the environmental affairs compliance coordinator for the Port of Houston Authority. She lives in Houston, Texas.

MATTHEW LEWIS KIMMEL '92 served three years in the U.S. Army. He is currently a captain in the Texas Army National Guard. In 2001, Kimmel received a master's degree in applied geography from the University of North Texas. He now works as an environmental regulatory project manager for the U.S. Army Corps of Engineers. Kimmel and his wife, Torri '93, have five children: Emily, Isaac, Nicholas, Alexander and Maximilian. The family lives in Corpus Christi, Texas.

THERESA BARCAK '92 and her husband, Ronnie '92, have four children: Rebecca, Rachel, Joshua and Sarah. They live in Santa Fe, Texas.

KECIA HELD '92 is a project manager for Data Systems and Solutions. She lives in Houston, Texas.

ROBERT E. MASON '92 is employed in the maritime industry by G&H Towing Co. He is the commanding officer of NR USS Oriole, a mine hunter in Ingleside, Texas. Mason has two sons and lives in League City, Texas.

GINA WALTERSCHEID LANE '93 is an urban transportation planner in North Carolina. She has two daughters and is married to an active duty special forces engineer on a combat dive team.

FELICE (Rivera) BARLETT '93 is an urban planner for the North Central Texas Council of Governments. She works as a program analyst for the AirCheck Texas Repair and Replacement Program as well as the DFW Clean Cities program, and she does public outreach for air quality issues. Barlett and her husband, Jon, live in Euless, Texas.
SARA (Cox) WARDLE ’93 is an exploration analyst for Stroud Oil Properties in Fort Worth, Texas. She lives with her husband and son, Connor, in Keller, Texas.

JOHN D. ALBERTSON ’93 is the assistant manager for Grand West Outfitters in Colorado Springs, Colo. He has logged more than 10,000 miles of river trips since his graduation. Albertson has also kayaked the Grand Canyon three times.

LAYNE KASPAR ’93 works in mergers and acquisitions for Kasper and Associates in Fort Worth, Texas. Kasper lives in Aledo, Texas.

SUZANNE MECHLER HEWITT ’94 is a homemaker and mother of two daughters. She lives with her family in Arlington, Texas.

WILL MANNING ’94 is a physical scientist with the U.S. Army Research, Development and Engineering Command in Fort Belvoir, Va. He and his wife, Kristina ’96, have two daughters, Kayla and Amy. The family lives in Fredericksburg, Va.

RICHARD DOUCETTE ’94 is a groundwater specialist and hazardous waste permit writer for the Virginia Department of Environmental Quality. He lives in Richmond, Va.

KRISTI (Reed) DEAN ’94 is a medical transcriptionist for MedQuest. She and her husband have one daughter, and they live in Nassau, N.Y.

MARVIN H. (Trey) FLETCHER III ’95 is an urban planner for the city of College Station. He is a member of the American Institute of Certified Planners and a Certified Floodplain Manager. He and his wife, Becky, have a daughter, Megan. They live in College Station, Texas.

GRETCHEL KREIDLER ’95 works as a funeral director in her family’s business. She is the fifth generation to carry on the tradition of the 91-year-old Kreidler Funeral Home Inc. in McAllen, Texas.

DORRI A. BREHER ’96 is a meteorologist with Universal Weather and Aviation Inc. She also is a past secretary of the Houston chapter of the American Meteorological Society. She is a current member of AMS and the National Weather Association. Breher lives in Houston, Texas.

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KRISTI (Reed) DEAN ’94 is a medical transcriptionist for MedQuest. She and her husband have one daughter, and they live in Nassau, N.Y.

MARVIN H. (Trey) FLETCHER III ’95 is an urban planner for the city of College Station. He is a member of the American Institute of Certified Planners and a Certified Floodplain Manager. He and his wife, Becky, have a daughter, Megan. They live in College Station, Texas.

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ROB QUARLES ’01 is a field scientist with ARCADIS in Houston, Texas. His responsibilities include wetland delineations, remediation activities, soil and water sampling and design work using AutoCAD and Microstation.

WOODROW W. KELLOGG III ’01 is a merchandiser with Jack Hilliard Distribution in Bryan, Texas.
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