2008 Newsletter

Department of Earth & Planetary Sciences

University of Tennessee

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Department of Earth and Planetary Sciences
University of Tennessee, Knoxville

Editor: Linda Kah

Cover photo:

Picturesque Demon's Spire in the Ama Drima Range, Tibet. Photo courtesy of Micah Jessup.

Demon's Spire (Demon is 'Dzong' in Tibetan) is a 1-km-tall wall of augen gneiss located on the eastern ridge of the Ama Drime range, Tibet. The Ama Drime range is geologically intriguing, because it is one of the few sections of the Himalayas that strikes north-south. Ongoing research by Micah Jessup, his colleagues, and their students suggest that this range formed in response to orogen-parallel extension, and that exhumation was enhanced by focused erosion of the trans-Himalayan Arun River gorge at the southern end of the range. Micah was able to reach this location during a traverse across the range with the help villagers, nomads and yaks. . . and is one of the few people to reach Demon's Spire since Eric Shipton first reached this location in 1935 as part of an expedition to Mt. Everest. Funding from a National Geographic Research and Exploration grant and UTK will enable Micah and his students to return to Demon's Spire in the spring/summer 2009.

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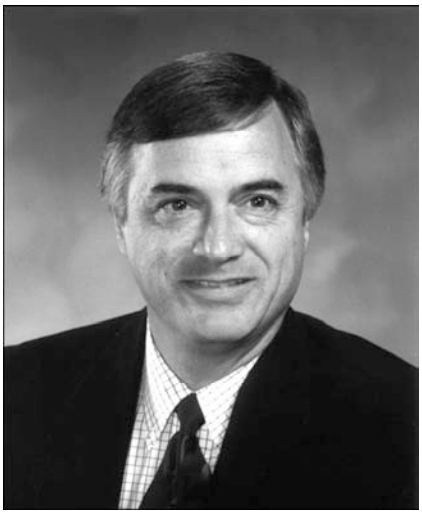
Department Head's Letter – by Hap McSween



Welcome to the latest issue of the Department's Newsletter. We have lots of interesting developments to tell you about.

Our students, both undergraduate and graduate, continue to impress us. Elsewhere in this issue you will read about Awards Day, where their incredible accomplishments are detailed. I doubt that many other geology programs can boast of student productivity this high. Student successes over the past year included 51 presentations at professional meetings, 10 published papers, and 27 competitive awards and scholarships totaling more than $49,000 from professional organizations.

Following Professor Kula Misra's retirement, we ran a search last academic year for a new faculty position and were fortunate to attract **Devon Burr**, a planetary geomorphologist, as our newest assistant professor. Devon is joined at UT by her husband, **Josh Emery**, who has an appointment as a research assistant professor. You can read about Devon and Josh in this issue.

Spurred by the interests of several of our new professors (especially **Micah Jessup** and **Chris Fedo**), we embarked on a renovation and refitting project for the Department's rock prep room. You may remember that laboratory as a dingy cave with ancient saws, discarded rocks, and oil-soaked walls. Using mostly development funds (thanks to our alumni), we spent more than $50,000 on new cabinets, lights, painting, and on acquiring new saws and thin section equipment. This laboratory is used by most of our students at one time or another, and its complete renovation is a major accomplishment. (I wish the rest of our building looked as good.)

We also acquired a new (actually almost new) electron microprobe – the workhorse analytical tool for many of our students and faculty. Our previous Cameca SX-50 probe was 20 years old. **Larry Taylor**, ever the scrounger, learned that a European university was trading in its Cameca SX-100 probe (half the age of ours, but with state-of-the-art technology), and he managed to work a deal allowing us to purchase and refurbish it at a third of the cost of a new model.

The Department's development program has had major successes. We are the beneficiary of a particularly generous bequest from Professor **Larry Taylor** and his wife **Dawn**. This gift will eventually fund a new faculty position. Another very generous donation from alumnus **William Ross** last year now provides significant ample funds for field camp scholarships.

Although we had a very good year, it ended on a sobering note. Tennessee's State revenue is way down, reflecting the current national economic picture, and the University has had to absorb a 5% budget cut for the current academic year (and another impoundment may occur at midyear). There is very little wiggle room in academic budgets, except in personnel, so the effect on the Department was the loss of **Claudia Mora's** open faculty line. With a tenure-track faculty of 16, the loss of any position hurts. The situation for future hires is so cloudy that we can't tell if there might be some hope for getting that position back. Next year's prognosis for State funding is just as dire, so the challenging funding situation for the University may persist. Of course, we are not in this boat alone – universities all over the country are feeling the pinch, some considerably worse than UT.

Finally, our Dean will conduct a search for a Department Head during the current academic year. This will be an internal search, and we expect to have some talented candidates among our faculty. I have been pleased to serve as Interim Head for the last year and will complete this academic year, but it is time that we had new, stable leadership.

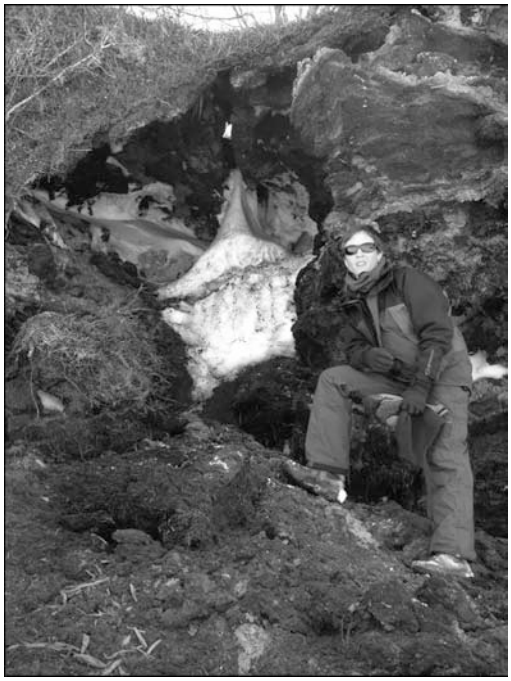
The Department has a newly appointed Alumni Board of Advisors (listed elsewhere in this issue) that will meet in October, and we will be seeking their advice and assistance in meeting the challenging year ahead. As always, your generous contributions to the Department's endowments help cushion our programs during hard times, and we appreciate your continued support, financial and otherwise. Enjoy reading about the Department's successes, and please tell us about yours.

The Department of Earth & Planetary Sciences

Receives its Largest Gift Ever

As part of its University Campaign, the University has announced that Professor Larry Taylor and his wife Dawn have made a very generous bequest to the Department of Earth & Planetary Sciences—it is in fact the largest gift ever received by the Department. The funds will eventually be used to establish a Chair in Planetary Geoscience. Many of our Faculty contribute regularly to various funds that support the Department's academic programs, but Larry and Dawn's support is extraordinary. Department Faculty expressed their appreciation to the Taylor's at a reception in May, when the surprise gift was announced. Larry has had an especially distinguished research career in lunar geology, the petrology of diamonds, and the Earth's mantle, and Dawn is an indispensable partner in managing Larry's research program.

We would like to express our greatest thanks for their continued and generous support.



New faculty Devon Burr (Assistant Professor) and Josh Emery (Research Assistant Professor)

We are delighted to introduce that **Devon Burr** and **Josh Emery**, who joined the Earth & Planetary Sciences faculty in August. In their previous research positions, they enjoyed working with summer students and interns and they are both enthusiastic about to expanding that experience at UT.

Devon: I am a planetary geomorphologist who specializes in understanding landforms derived from fluid flow using a combination of data from spacecraft images augmented with field work on terrestrial analogues. My dissertation focused on young flood channels on Mars and their bedforms, and I used similar bedforms from the Channeled Scablands and Icelandic flood channels to constrain Martian flow conditions. I then became interested in ground ice features, and worked with Canadian and Alaskan colleagues to assess the distribution of pingos on Mars. Current research includes on-going mapping and characterization of sinuous ridges on Mars using terrestrial inverted fluvial channels and glacial eskers as analogues. I also have two new projects that focus on Titan, the surprisingly Earth-like moon of Saturn. One of these projects involves analysis of multiple datasets from the Cassini mission to the Saturnian system to map and characterize fluvial features on Titan's surface. The other entails the refurbishment and use of NASA's planetary aeolian laboratory to determine atmospheric conditions and wind speeds responsible for Titan's vast aeolian dunes. Both of these projects are a significant departure from my normal research fields and approaches, and I am excited to be branching out into these new areas. I look forward to collaborations with my new EPS colleagues and to involving as many undergraduate and graduate students as possible in this work.

Josh: The goal of my research is to understand the formation and evolution of the Solar System and the distribution of organic material. To address these topics, I analyze data from reflection and emission spectroscopy and spectrophotometry of primitive and icy bodies in the near- (0.8 to 5.0 μm) and mid-infrared (5 to 50 μm). The Jupiter Trojan asteroids have been a strong focus of my research because they are a key group for distinguishing several models of Solar System evolution and for understanding the prevalence of organic material. I also regularly observe Kuiper Belt objects, icy satellites, and other asteroid groups (including Vesta-family, near-Earth, and binary asteroids) to understand how their surfaces relate to these topics. The EPS department will provide an exciting opportunity to expand the horizons of some of these research areas, and I eagerly anticipate stimulating discussions and new collaborations with students and researchers alike.

Departmental Administration

We would like to welcome Marie Ballew as our new administrative assistant. Marie joined our front office staff in early June—taking advantage of the summer lull to become familiar with the many duties for which our staff is responsible. Marie's former military career gave her the opportunity to live in several states, but she relocated back to her home state of Tennessee about 5 years ago. Prior to joining UT, she served as an environmental health and safety specialist. Marie has a strong love for all animals, and has three miniature pincers and two parrots.

Welcome to Our New Graduate Class!

Our new graduate students. Back row (from left to right): Miles Henderson, Eric Hogan, Phillip Derryberry, Andrew Moore; Front row (from left to right): Sarah Cadieux, Elizabeth Lee, Jackie Langille, Megan Ennis.

We would like to officially welcome all of our new graduate students:

Name:	From:	Advisor:
(1) Sarah Beth Cadieux	Mount Holyoke College	Linda Kah (Sed-Strat-Geochem)
(2) Phillip Derryberry	Tennessee Tech University	Bob Hatcher (Structure-Tectonics)
(3) Megan Ennis	Morehead State University	Hap McSween (Planetary)
(4) Miles Henderson	University of Georgia	Linda Kah (Sed-Strat-Geochem)
(5) Eric Hogan	University of Georgia	Chris Fedo (Sed-Strat)
(6) Jackie Langille	Central Washington University	Micah Jessup (Structure-Tectonics)
(7) Beth Lavoie	Georgia State	Larry McKay (Hydrogeology)
(8) Elizabeth Lee	Sewanee College	Micah Jessup (Structure-Tectonics)
(9) Andrew Moore	Western Carolina University	Ed Perfect (Hydrogeology)

The Citadel Distinguished Alumnus Award

Hap McSween received the *2008 Distinguished Alumnus Award* from his undergraduate alma mater, The Citadel. The award was presented to Hap by Charles Groetsch, Dean of the Citadel's School of Science and Mathematics. Hap was honored for his contributions to planetary science and exploration. This marks the first time The Citadel has presented such an award.

Micah Jessup on the Discovery Channel

Micah Jessup has skills beyond that of the ordinary faculty! He was asked by the Discovery Channel to climb Castleton Tower in Moab, Utah, for the series *Fearless Planet*. After flying to the base of the tower via helicopter, he spent time climbing and discussing geology with a professional climber. The goal of the *Fearless Planet* series is to introduce fundamental geologic concepts using spectacular examples. In this program, they discussed the uplift of the Colorado Plateau and the incision of the Colorado River to form the Grand Canyon. What a great experience!!

Chancellor's Award for Excellence in Teaching

Colin Sumrall received a *2008 Chancellor's Award for Excellence in Teaching*. Colin was nominated for this competitive award for his consistently excellent teaching evaluations, and the award citation explicitly stated that the award committee argued over who would get to attend his "Age of the Dinosaurs" course.

Geophysical Society Early Career Award

Greg Baker received the inaugural *Environmental and Engineering Geophysical Society Early Career Award*. This competitive award recognizes Greg's numerous achievements in environmental geophysics, including his use of time-lapse seismic refraction tomography (TLSRT) and ground penetrating radar (GPR).

Faculty Research Awards

We are always excited when our faculty are awarded special recognition from their peers, but we are equally excited when recognition of our faculty's excellence comes in the form of research funding. Procuring research funding is an integral part of our academic mission, and these awards ensure the continuation of our research goals. At a time when many funding agencies can support less than 10-20% of submitted proposals, our department's success in attaining research funding is a clear sign of the strength of our faculty commitment.

This year, the Department of Earth & Planetary Sciences secured 20 new research awards that represent the efforts of 15 faculty members, totaling more than $1,500,000 in external funding for research. These funds make a great addition to the funds available from continuing research grants, which represent a portion of the nearly $1,300,000 that UT faculty were awarded in State and Federal grants and contracts in 2007.

New Awards for 2008

Greg Baker – ORNL
Multiscale investigations of the rates and mechanisms of targeted immobilization and natural attenuation

Mike Clark –TN Dept of Education
First Tennessee TennMaps Earth and environmental sciences partnership

Joshua Emery – NASA
Near-Infrared sprectroscopy and photometry of primitive asteroids

Micah Jessup – National Geographic Society
Exhumation of the Ama Drime Massif, Tibet

Bob Hatcher – USGS
Conversion of detailed geologic maps to ArcMap-compatible geospatial databases

Linda Kah – NSF
Behavior of marine sulfate in the Early Paleozoic: extending the trace sulfate proxy

Linda Kah – NSF and National Geographic Society
Laterally extensive breccias in the Mesoproterozoic Atar Group, Mauritania: Tsunami deposition resulting from a marine extraterrestrial impact?

Linda Kah – American Chemical Society
Ocean circulation, nutrient cycling, and the S-isotope composition of Early Paleozoic marine systems

Larry McKay – Penn State University subcontract
Development of a critical zone observatory at the Shale Hills Site in Pennsylvania

Larry McKay – TetraTech/Army contract
Bench-scale remediation studies for Volunteer Army Ammunition Plant

Hap McSween – NASA
Meteorite petrogenesis

Jeff Moersch –NASA
Spectral mapping and thermophysical characterization of the martian surface with the Mars Odyssey THEMIS experiment

Jeff Moersch –NASA
Thermal infrared imaging on terrestrial analogs for Martian sedimentary features

Claudia Mora – NSF
Climate dynamics and environmental history in the northeast Caribbean

Claudia Mora & Hap McSween – ORNL
Chemical behavior in solid-fluid systems

Ed Perfect – ORNL
Quantification of hydrological, geochemical, and mineralogical processes governing the fate and transport of uranium over multiple scales at the Hanford Site, WA

Colin Sumrall & Mike McKinney – NSF
An investigation of peramorphosis in isorophinid edrioasteriod echinoderms

Larry Taylor – NASA
Evolution of planetary crusts and mantles: The Moon and Mars

Larry Taylor – NASA
Lunar aerosol dust toxicology advisory group: Lunar dust characterization

Congratulations to all!

Earth Science Fair Excites Students' Interest in Geology

Reprinted from the Knoxville News Sentinel, Friday, January 18, 2008

By Gerhard Schneibel
Special Publications correspondent

Attending an Earth Science Fair is a fun way to learn outside the classroom, says William Coe, a Greenway Middle School eighth-grader. "I learned about lights and lasers and stuff, volcanoes, and natural hazards like landslides and sinkholes," he said at the fair. "I learned that there is oil and natural gas in Tennessee. I didn't know that." Students like William from middle and high schools across East Tennessee took part in the fair, which gave them the opportunity to learn about earth sciences firsthand.

The fair is hosted by the Department of Earth and Planetary Sciences in the College of Arts and Sciences under the direction of **Bill Deane**. "This is the seventh year that the department has hosted the Earth Science Fair and the second time that I have coordinated the activities," Deane says. "By drawing on the expertise of our faculty and students, we can provide a rich and diverse introduction to science. The best part is how much fun it is to interact with the visiting students and teachers."

Mark Young, a science teacher at Greenway Middle School in Knoxville, says his students enjoyed seeing concepts they had studied come to life in the form of experiments and demonstrations. "The kids really enjoy it," says Young, who adds that the UT Earth and Planetary Sciences faculty members and students provide engaging activities at the fair that promote learning.

But just helping students learn about earth sciences through hands-on activities is not the only goal of the fair. Participants also have a chance to talk with top scientists and graduate students in the field, stimulating their interest in the sciences.

Deane's interim department head, **Dr. Harry "Hap" McSween**, says that the fair is one of the ways UT makes a real difference in the community. "We're excited about the opportunity to reach students and get them interested in earth and planetary sciences." Other events at the fair, held in October as part of National Earth Science Week, were designed to demonstrate topics including astrobiology, archeology, impact craters, and the physics of magnetism.

This year, nearly 700 students applied to participate, more than could be accommodated. "We've been hosting the fair for seven years, but it has really kind of mushroomed in the last few years," McSween says, adding that he hopes more resources will be available in the future, so that everyone who wants to participate in the fair can attend.

Several other departments in the College of Arts and Sciences join the Earth and Planetary Sciences faculty to make the fair a success. Non-university partners include the American Institute of Professional Geologists, and the East Tennessee Geological Society. "The fair simply would not be possible without the support of other UT units and a number of individual volunteers and community organizations," Deane says. "They contribute both funding and staff assistance and make the event a success."

Along with piquing students' interest in earth sciences, the fair equips teachers to share knowledge in their classrooms. Earth sciences were only recently added to the state curriculum, so many teachers never studied the topic in school.

"Even if you didn't have it in school, you still have to teach it," explains Andrea Talley, a teacher at Greeneville Middle School in Greeneville, Tenn. Talley and her colleague, Heather Goegemann, were able to use a teacher's in-service day to attend the fair. Goegemann says the fair is a great way for teachers to supplement their lesson plans with new activities. "It's a great program to update teachers about the earth sciences."

Cory Anderson observes his sample of "water bears" in the astrobiology and extremeophiles lab as Jacob Uphoff looks on (Photo credit: Jeremiah Harris)

Bill Deane, Mike Clark, and Mike Gibson posing with teachers of the Summer 2008 TENNMAPS program

Mike Gibson talking teachers through an exercise on mobility and motion using dinosaur trackways

Improving Schools by Teaching Teachers

TENNMAPS for the Future, First Tennessee Field Service Center's federal and state partnership with the Department of Earth & Planetary Sciences, is a three-year project that serves school districts in ten upper east Tennessee counties, each among the poorest in the nation. Few teachers in this region have had any training in the earth and planetary sciences, yet must teach these subjects in their schools. A critical need for teacher training was addressed by intensive two-week workshop on earth and environmental science for 48 of these teachers. The TennMaps project is directed by **Mike Clark** and **Bill Deane** at the University of Tennessee. Also involved in the project are **Colin Sumrall** and UT-Martin faculty **Michael Gibson (Ph.D., 1988)**.

UT professors Ken Orvis and Sally Horn (back, center) posing with students and teachers involved in GK-12

Teachers Betsy Tillett and Victoria Headrick discuss tree ring analysis with Sarah Cadieux and Rene Lewis

Improving Schools by Direct Graduate Student Involvement

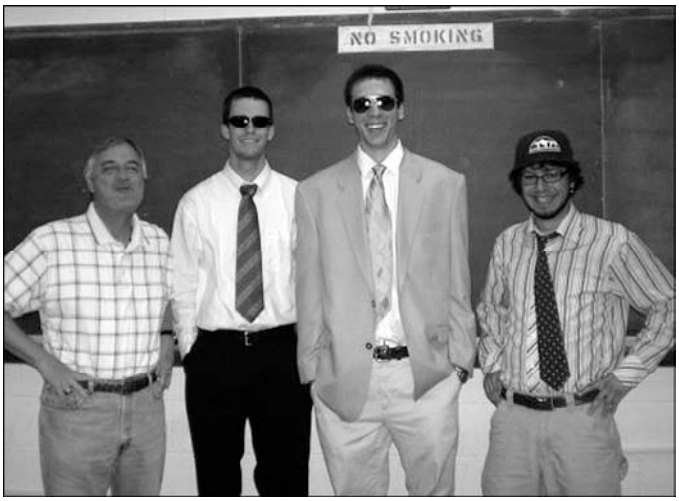
2008 marks the final year of a 3-year project aimed at enriching earth science in rural Tennessee middle schools through research-based activities on climate and environmental history. The project, headed by UT Geographers Sally Horn and Ken Orvis, also involves Geology faculty **Linda Kah** and **Colin Sumrall** (and formerly **Claudia Mora**). Funding for this project from the National Science Foundation allows UT to place 10 graduate students per year into classrooms, where they aid in the development and integration of hands-on activities in the classroom. Graduate students from Earth & Planetary Sciences involved in the project include: **Sarah Cadieux, Geoff Gilleaudeau**, **Emily Goodman (B.S. 2005, M.S. 2007), Whitney Kocis**, **Daniel Lewis**, **Bryan Schultz (M.S. 2005)**, and **Rene Shroat-Lewis**.

A Word from the UT Geoclub President

To put it simply, the students of the Department of Earth & Planetary Sciences rock! This year, our students have brought in over $49,000 of external funding, were authors of several publications, and presented their work at numerous scientific conferences, both domestically and abroad. It was, of course, sad to see those who graduated leave, but the addition of new graduate students and undergraduate majors will be, as always, an exciting change. We are all so proud of the recent graduates that have gone on to pursue degrees or post-docs here at UT or elsewhere, and those that have found jobs in both academia and industry.

GeoClub was very busy this semester. As usual, Spaghetti Supper was a hit! This year was a bit different, with the majority of the evening being spent watching the best skits from previous years. Great food, great memories, great company, and a whole lot of laughs resulted in the evening being a huge success! Over spring break, GeoClub ran a 4-day trip to Washington, D.C., where students had the opportunity to get a behind-the-scenes tour of the geologic collections at the Smithsonian Institution. The students also enjoyed all of the other museums, monuments, and history that Washington, D.C., has to offer. GeoClub was also able to organize the design and purchasing of department tee shirts, something that has not been done for many years. Over 50 shirts were purchased, so if you live around Knoxville, I'm sure you'll end up seeing someone wearing one. The GeoClub still maintains a department website, so feel free to check out what we are up to at http://web.utk.edu/~geoclub/default.html.

At Awards Day this year, the students recognized Rhiannon Mayne as the graduating doctoral student with the most professional promise and David Finkelstein as the best teacher. Congratulations to both! Rhiannon has since left UT for a post-doctoral position at the Smithsonian, and Dave is working hard to get all of our department's isotopic and organic analysis labs up and running in peak form. GeoClub was also able to award four students with field camp scholarships of $200 each. Also recognized at awards day were all of the students that had volunteered this year teaching local 3rd, 4th, 5th, and 6th graders all about the wonderful world of geology at the McClung Museum. It was amazing and inspiring to see the number of students willing to volunteer some of their precious free time to help with community outreach. All in all, it was a great year. Stay tuned to see what we are up to in the future!



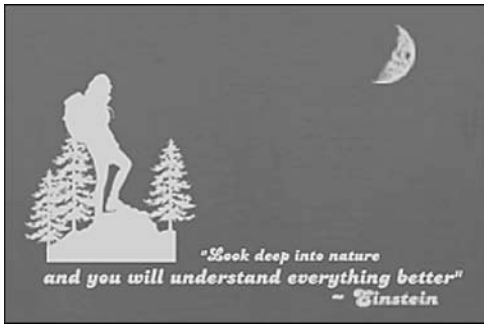
Undergraduate petrology students Andy Foy, Nicholas Costello, and Adrian Thompson take advantage of a "dressed down" Hap McSween on the last day of class

Outgoing Geoclub Officers

President: Melissa Hage
Vice President: Mike DeAngelis
Sectretary/Treasurer: Christina Viviano
GSS Representative: Andrew Beck
Undergrad President: Steven Jaret
Undergraduate Vice President: Stephanie Nicoll

Incoming Geoclub Officers

President: Christina Viviano
Vice President: Peter Knappet
Sectretary/Treasurer: David Gaines
GSS Representative: Daniel Lewis
Undergraduate President: Morgan Braxtin-Sears
Undergraduate Vice President: John Roelofs



Departmental T-shirt (back)

The Success of our Students

We pride ourselves on the quality of our students at all educational levels. In recent years, we have seen the effects of our departmental efforts in the number of undergraduate students continuing their geological education in graduate school, in the number of M.S. students that either choose to pursue Ph.D. degrees or to enter directly into a wide range of geological jobs in industry, and in the number of graduate students who show themselves to be competitive in attaining faculty positions. It is a true mark of our students' excellence to see our students succeed—we congratulate each and every one of you!

Recent Students/Postdocs in Academic Positions

Amelia Robinson (M.S., 2002)
Ph.D. 2007 – University of California, Davis
Assistant Professor, University of Arkansas

Valerie Reynolds (Ph.D., 2003)
Assistant Professor, Colby College

Chris Whisner (Ph.D., 2005)
Visiting Assistant Professor, Bloomsburg State University

Keith Milam (Ph.D., 2007)
Assistant Professor, Ohio University

Tasha Dunn (Ph.D., 2008)
Visiting Assistant Professor, Illinois State University

Jen Whisner (ABD, 2008)
Visiting Lecturer, Bloomsburg State University

Jen Piatek (postdoc, 2007)
Assistant professor, Central Connecticut State

Nick Lang (postdoc, 2008)
Assistant Professor, Mercyhurst College

2007-2008 Undergraduate Degrees Awarded

Steven Brellethin (2007)
Grant Mincy (2007)
Brooke Perini (2007)
Shane Geaslin (2008)
Patricia Lee Goad (2008)
Stephanie Nicoll (2008)
Megan Smith (2008)
Tyke Swisher (2008)

2007-2008 Graduate Degrees Awarded

Keith Milam (Ph.D., 2007) Accuracy of plagioclase compositions from laboratory and Mars spacecraft thermal emission spectra (McSween, Moersh)

Jeff Nettles (Ph.D., 2007) Petrology of chondrule precursors and sorting of particles in ordinary chondrites (McSween)

Livio Tornabene (Ph.D., 2007) Remote sensing of impact crater-exposed subsurface lithologies and Martian rayed crater systems (McSween, Moersh)

Alyssa Bell (M.S., 2007) Factors influencing persistence of fecal *Bacteroides* in stream water (McKay)

Matt Gatewood (M.S., 2007) Tectonics of the northeastern Inner Piedmont, northwestern NC, from detailed geologic mapping, geochronologic, geochemical, and petrologic studies with structural analyses of ductile fault zones (Hatcher)

Emily Goodman (M.S., 2007) Laboratory precipitation and geochemical investigation of unstable $CaCO_3$ polymorphs: Implications for the origin of Precambrian "molar-tooth" microspar (Kah)

Laura Taylor (M.S., 2007) Mechanisms of organic matter preservation in continental margin sediments from the Gulf of Maine (Perfect)

Tasha Dunn (Ph.D., 2008) Identification of terrestrial alkalic rocks using thermal emission spectroscopy : Applications to martian remote sensing (McSween)

Rhiannon Mayne (Ph.D., 2008) Investigating the petrogenesis of the basaltic crust of asteroid 4 Vesta: A combined petrologic-spectral study of the unbrecciated eucrites (McSween)

Tabby Cavendish (M.S., 2008) Amino acid analysis of marine sediments, Hauraki Gulf, New Zealand (Kah)

Kevin Burns (M.S., 2008) Ground penetrating radar investigations on the relationship between horizontal sub-wavelength 'thin-layer' bedrock fractures and reflection amplitudes (Baker)

Mike Mellin (M.S., 2008) Major and trace element chemistry of minerals in lithologies A & B in Martian meteorite EETA 79001: petrogenesis revisited (Taylor)

Ben Norton (M.S., 2008) Volumetric proportion analyses of carbonaceous chondrites: Implications for accretion and compositional diversity (McSween)

Don Stahr (M.S., 2008) Tectonometamorphic evolution of the eastern Blue Ridge: Differentiating multiple Paleozoic orogenic pulses in the Glenville and Big Ridge quadrangles, SW North Carolina (Hatcher)

The Success of Our Students

Our students' success is also revealed in the large number of presentations given at professional meetings, and in the increasing number of peer-reviewed publications. Congratulations to all of you!

Student Peer-Reviewed Publications

Our graduate students (and recent graduates) have authored, or coauthored, more than 10 peer-reviewed publications this year—a superb achievement!

Heather Byars (M.S. student)
Matt Chojnacki (Ph.D. student)
Mike DeAngelis (Ph.D. student)
Troy Dexter (M.S., 2006)
Tasha Dunn (Ph.D., 2008)
William Gilliam (M.S. student)
Craig Hardgrove (Ph.D. student)
Peter Knappet (Ph.D. student)
Lizzie Johnson (M.S. student)
Whitney Kocis (Ph.D. student)
Daniel Lewis (Ph.D. student)
Arthur Merschat (Ph.D. student)
Keith Milam (Ph.D., 2007)
Darren Schnare (M.S., 2006)
Bryan Schultz (M.S. ,2005)

Student Presentations

Our students have also made 51 presentations at regional, national, and international meetings. We would like to thank our alumni for support which helped to fund travel for conference attendance.

Andrew Beck (Ph.D. student); Terry Brown (M.S. student); Heather Byars (M.S. student); Shawna Cyphers (M.S. student); Michael DeAngelis (Ph.D. student); Jessica Dunaway (M.S. student); Tasha Dunn (Ph.D., 2008); Geoff Gilleaudeau (Ph.D. student); William Gilliam (M.S. student); Craig Hardgrove (Ph.D. student); Steven Jaret (B.S. student); Lizzy Johnson (M.S. student); Peter Knappet (Ph.D. student); Whitney Kocis (Ph.D. student); Tairone Leao (Ph.D. student); Daniel Lewis (Ph.D. student); Rhiannon Mayne (Ph.D., 2008); Ian McGlynn (Ph.D. student); Mike Mellin (M.S., 2008); Arthur Merschat (Ph.D. student); Darren Schnare (M.S., 2006); Brian Schultz (M.S., 2005); Rene Shroat-Lewis (Ph.D. student); Donald Stahr (M.S., 2008); Kevin Thaissen (M.S. student); Cara Thompson (Ph.D. student); Mary Varnell (M.S. student), Christina Viviano (M.S. student).

Student Research Awards – Graduates

The department would also like to recognize our students' outstanding efforts this year in writing and being awarded a total of nearly $49,000 in external funding! Our students' success in attaining external funding is a testament to the geoscience communities interest in the high-quality of research that is being performed by our students.

Andrew Beck: UT Graduate Student Senate Travel Award, METSOC Travel Award

Tabbatha Cavendish: National Park Service Fellow

Michael DeAngeles: Mayo Educational Foundation

Tasha Dunn: Lunar and Planetary Institute Career Development Award, Mayo Educational Foundation METSOC Travel Award, Sigma Xi Research Grant

David Gaines: ExxonMobil research grant

Geoff Gillaudeau: SEPM Weimer Student Research Grant, GSA Research Grant, AAPG Student Research Award, Evolving Earth Foundation, Barringer Family Fund for Meteorite Impact Research, GSA Sedimentary Geology Division award for Outstanding Research

Melissa Hage: GSA Research Grant, Institute of Lake Superior Geology Award, American Philosophical Society Astrobiology Award, UT Graduate Student Senate Travel Award

Whitney Kocis: UT Institute for Secure and Sustainable Environment

Daniel Lewis: GSA Research Grant

Rhiannon Mayne: METSOC Travel Award

Ian McGlynn: GSA Research Grant

Arthur Merschat: USGS, GSA Travel Award

Cara Thompson: SEPM Gerald Friedman Student Research Grant

Student Research Awards – Undergraduates

Finally, let us not forget the wonderful achievements of our undergraduate students, who have been both active in research and successful in securing external awards for their efforts.

Steven Jaret: GSA Research Grant, Chancellor's Honors Program Research Grant

Stephanie Nicoll: UT Award for Natural Sciences Division of the Exhibition for Undergraduate Research

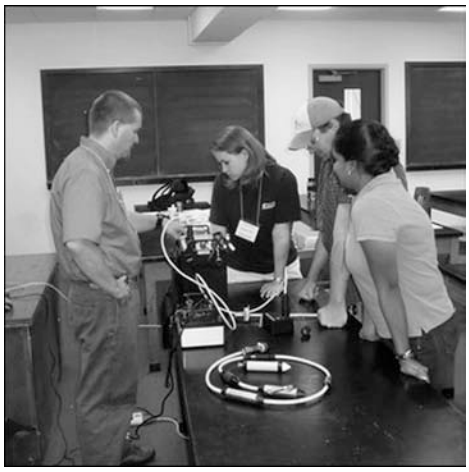
TINGS: An innovative interface between the Earth & Planetary Sciences Department and Industry

2008 marked the second year in which the Tennessee Intensive Near-surface Geophysics Study (aka TINGS) program conducted a three-week intensive course aimed at providing students and workers in industry an opportunity to get their hands on numerous state-of-the-art geophysical tools and to interact with instructors from eight different industry partners.

This innovative program, headed by **Greg Baker**, is described as "A near-surface geophysics field camp for geophysicists and non-geophysicists alike, providing participants exposure to a unique array of industry and academic instructors covering a wide variety of techniques." The course covers the hands-on aspects of survey design, data acquisition, data processing and data interpretation for a variety of geophysical techniques and although the course itself is focused on environmental problems, the skill sets that are employed are widely applicable to broader geophysical questions.

Hardware industry partners include: Advanced Geosciences, Inc., (electrical resistivity/IP), Geometrics (seismic, magnetics, capacitively-coupled resistivity), Geonics (ground conductivity, electromagnetics), PELA (spontaneous potential), and Sensors & Software (ground-penetrating radar). Software industry partners include: Advanced Geosciences, Inc., (resistivity inversion), Geosoft (Oasis Montaj spatial data display), Kansas Geological Survey (MASW surface wave analysis), and Parallel Geoscience Corp. (seismic reflection processing).

Funding for the TINGS project was provided by the University of Tennessee, the Department of Earth & Planetary Sciences, and the Society of Exploration Geophysicists (SEG).



Awards Day 2008

Hap McSween with our undergraduate (left) and graduate (right) award winners. Thanks to the generous support from our alumni and friends, the Knoxville Gem & Mineral Society, and the Planetary Geosciences Institute, we were able to provide $22,900 in monetary support for our students!

Undergraduate Awards

Outstanding Senior Award: Joshua Roberts

Coffee Cup Award for highest GPA: Andy Foy

Alumni Undergraduate promise Awards: Greg Archer, Adam Backus, Morgan Braxton-Sears, Kelli Harrelson, James Pratt, David Reeves, Adrian Thompson, Emily Worsham

Walls Award for outstanding performance in introductory geology courses: James Carrasco, Sarah Closser, Ty Conner, Jamie Kovarik, Linda Marston, Noah McDougal

Knoxville Gem & Mineral Society Awards: Andy Foy, Darrin Brager, Tyler Roy

Planetary Geoscience Institute Summer Internship: Steven Jaret (Shock features from the Tenoumer impact crater, Mauritania)

Kopp Undergraduate Research Scholarships: Stephanie Nicoll (Metamorphism of pelitic schists), John Roelofs (Turkey Creek wetlands), Megan Smith (Microstructural analysis of the Ama Drime detachment, Tibet), Chris Ware (Microporosity and particle size)

Ross Field Camp Scholarships: Morgan Braxton-Sears, Stephanie Nicoll, John Roelofs, Joshua Roberts, Megan Smith, Tyke Swisher, Chris Ware

Geoclub Field Camp Scholarships: Morgan Braxton-Sears, Megan Smith

Knoxvile Gem & Mineral Society Field Camp Award: Morgan Braxton-Sears, Chris Ware

Graduate Awards

Gordon Award for Professional Promise: Rhiannon Mayne

Coffee Cup Award for highest GPA: Tairone Leao

Best Student Research Presentation: Mary Varnell, Richard Donat (honorable mention), Peter Knappet (honorable mention)

Knoxville Gem & Mineral Society Graduate Scholarships: Mary Varnell, Ian McGlynn

Excellence in Teaching by a Graduate Teaching Assistant: Michael DeAngelis, Whitney Kocis

Excellence in Outreach and Departmental Service: Tasha Dunn, Rhiannon Mayne

Alumni Award for Professional Promise in a Geologic Discipline: Michael DeAngelis, Melissa Hage, Craig Hargrove, Peter Knappet, Arthur Merschat, Christina Viviano

Planetary Geoscience Institute Awards: Tasha Dunn, Ian McGlynn, Kevin Thaissen, Darren Schnare

Swingle Fellowships for Geologic Field Work: Mary Varnell, Heather Byars

Geoclub Field Camp Scholarships for Graduate Students: Geoff Gilleaudeau, Matt Chojnacki

Byerly Field Camp Scholarships: Geoff Gilleaudeau, Sarah Richards

Congratulations to all of our award winners!

UT Around the World

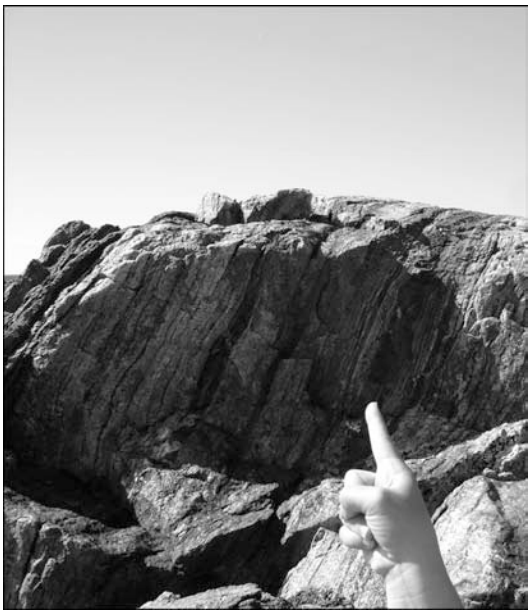
In 2008, the University of Tennessee embarked on a "Ready for the World" campaign to increase cultural diversity and awareness on campus, and to enhance international opportunities for students. Because our department has a long history of international research, we thought it would be fun to highlight some of these activities. In this inaugural newsletter segment, "UT Around the World", we will look at the international activities of current faculty, postdocs, graduate and undergraduate students, and alumni. We would like to encourage alumni to contribute pictures and stories of their own international activities for future newsletters.

Greg Baker enjoying the sites and sounds of Tierra del Fuego

Greg Baker has been busy in 2008. With colleagues from Lehigh and Slippery Rock universities, he examined "Darwin's Boulders" of Tierra del Fuego, concluding that they represent remnants of superglacial rockslides originating in the high Chilean Cordillera. Later in 2008, Greg visited China, where he used his geophysical skills to search for archeological outposts near Xi'an—home of the famous Qin Dynasty terra cotta warriors.

Linda Kah with a local farmer while in the field this summer in Hubei Province, China

Linda Kah spent several weeks this summer in China, working on Ordovician strata with scientists from the Nanjing Institute of Geology & Paleontology (Chinese Academy of Sciences). Ordovician strata of central China contains the global stratotypes for both the Middle Ordovician and the Hirnantian and are well characterized paleobiologically. Linda will be examining the C-S-O isotopic chemistry of the section in order to constrain geochemical change that may have influenced biological diversification during the Ordovician radiation.

Melissa Hage enjoying the fun and sun of Greenland

Ph.D. student **Melissa Hage** spent this summer in Greenland, collecting samples for her dissertation research on the chemical composition and alteration of banded iron formations (BIFs). She spent considerable time on Akilia Island, the location of some of the Earth's most controversial rocks. Isotopically light C-isotopes in purported BIFs have been argued as representing Earth's oldest life, yet initial geochemical analysis would suggest that the rocks may represent metasomatized ultramafic rocks, rather than BIFs deposited in Earth surface environments.


Peter Knappet getting attention from local people during field work in Bangladesh

Ph.D. student **Peter Knappet** has logged quite a few miles in 2008, traveling twice (in January, and again in June) to Bangladesh, where he has been examining hydrologic pathways and the transport of viruses through near-surface aquifers. In Blangladesh, extreme wet and dry seasons may exacerbate health conditions caused by household latrines that frequently empty near or directly into private water supplies. Ultimately, Peter's research on pathogen transport will provide critical data for improving water supplies worldwide.


Cara Thompson taking notes in Argentina and enjoying the company of her field mates

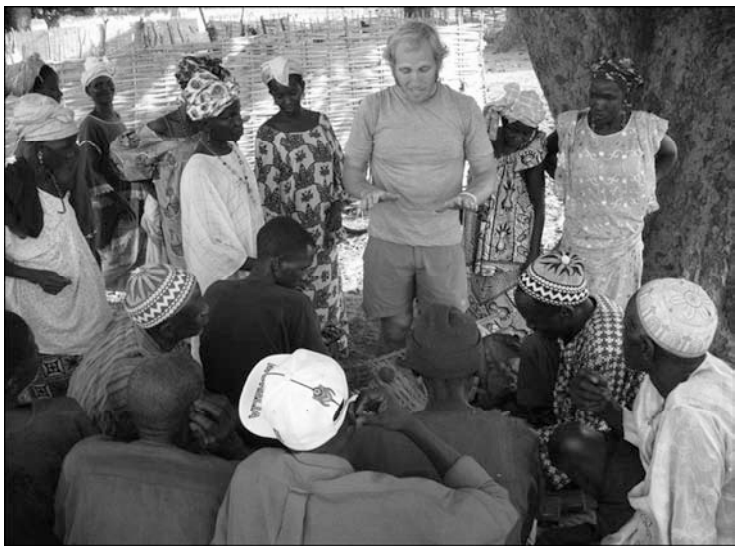
Ph.D. student **Cara Thompson** spent June 2008 on her second field season in the Precordillera of Argentina. Cara has been investigating the carbon and sulfur isotopic evolution of marine systems during the Ordovician, and is trying to determine what role changes in ocean circulation may have played in the biochemical evolution of the oceans during the transition from Ordovician greenhouse to icehouse conditions. She also got to share some of the great scenery of the Precordillera with field assistant and fellow Ph.D. student **Geoff Gilleaudeau**, new UT postdoc **Fernando Gomez**, and Dr. Ricardo Astini (University of Cordoba, Argentina).


Fernando Gomez showing off the beauty of his native Argentina

Fernando Gomez joins UT this fall as a new postdoc, where he will be working with **Linda Kah** on the geochemical evolution of alkaline lakes and fabric development of modern mineralizing stromatolites in the high Andes of Argentina. Fernando's research at UT is supported by a combination of funds from NSF, UT Professional Development funds, and the NASA Planetary Biology Internship program. Welcome to the program!

Current B.S. student **Tyler Roy** took time off during the summer to spend some time abroad. Any excuse to play with rocks and dirt appears to work for a geologist – Tyler and his girlfriend flew to Lima, Peru, to work with a crew of anthropologists from UT. After taking in a few sites in Lima, they flew north to the city of Trujillo, visited a Moche temple, and learned more about the upcoming expedition to explore an archeological site near the town of Santa Rita, in the Chao valley. Tyler says "the site was awesome—it is on the edge of a heavily eroded alluvial fan. . .and has few plants to hinder examining the local geology!"

Kirsten Oswald (B.S., 2005) has spent her time since graduating from UT working in Panama for the Peace Corps. She is now about finished with her tour of duty, and has found the experience very rewarding. Her primary responsibility has been the construction of an irrigation system for the town's tomato crop (desperately needed for the crops to survive the dry season), but she has also enjoyed the many other tasks she has taken on – teaching English and environmental education in the local elementary, starting a school vegetable garden, and working on local reforestation. As she finishes up, she is getting ready to apply to grad programs.



Adam Johnson (B.S., 2006) is also enjoying a stint in the Peace Corps. For the last two years, Adam has been calling Senegal his home and has been learning how to balance politics, poverty, and the heat and humidity of the African summers. Adam's primary responsibility in Senegal has been in helping local farmers establish farming techniques that will result in greater environmental protection and greater crop yield. In his spare time, he has been trying to set up a women's group in the local village, working with villagers on AIDS awareness, and visiting with other Peace Corps volunteers. Adam will be back in Knoxville this fall, and is considering grad programs.

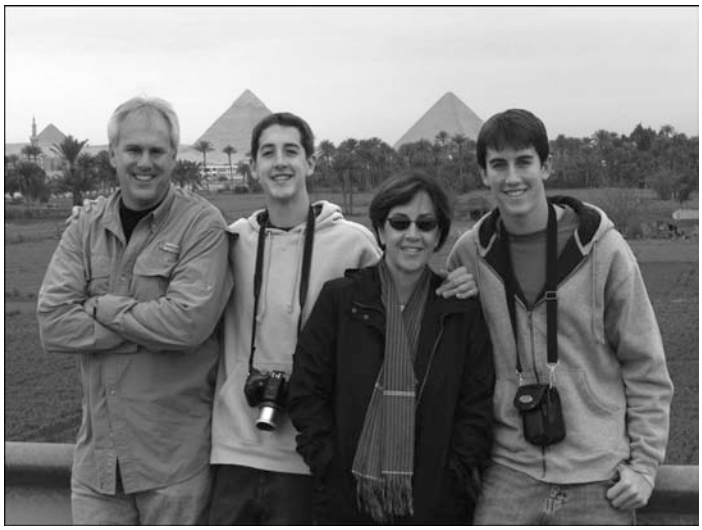
UT Alumni Living and Working Abroad…

Greetings from Saudi Arabia!

Dave Cantrell (M.S., 1982) and **Christian Heine (M.S., 1982)** are two UT grads who have made their way to a place that is in many ways—geographically, climatically, even geologically—pretty much the opposite side of the world. Both are living in Saudi Arabia and work as petroleum geologists for Aramco, the national oil company of Saudi Arabia. Dave and his family have been in Saudi Arabia now for 11 years, and Christian and his family for 18 years—yet both continue to find their careers both challenging and rewarding. Don't feel any pressure, but they are responsible for managing the largest oil fields and reserves base in the world, so the work they do impacts not only Saudi Arabia, but the global economy as well. With gas prices this year. . .don't we know it! Dave's work is focused on reservoir characterization and geological modeling of large carbonate reservoirs (including the Ghawar field, the largest in the world), and Christian turned from his UT paleontology training to become an expert on eolian reservoirs. Dave and Christian sent a slew of beautiful pictures from their personal and professional travels around the "Magic Kingdom", and we only wish we could publish them all!

Camping on an emergent salt dome

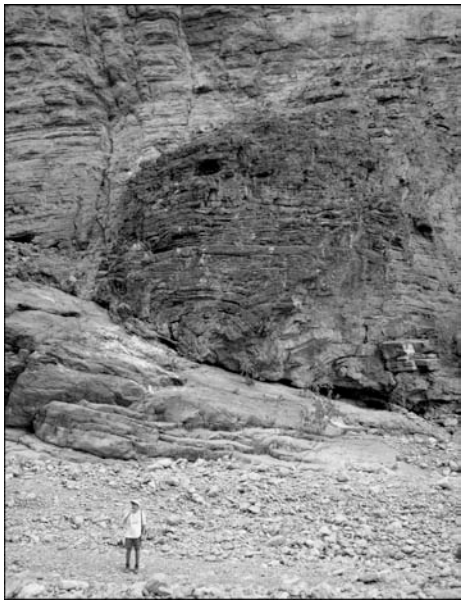
Dave Cantrell and his family at home in Saudi Arabia



Christian Heine and his family on vacation in Egypt

Beautiful dunes of the Saudi desert

Eolian cross bedding



Dave looking for a fault in Oman

Petrified wood

Christian at Shark Bay, western Australia – Go Vols!

After Retirement – The Life, Times, and Travel of Don Byerly

My "retirement" was officially launched in 2001 as a more or less clean break from the department. I wanted the opportunity to do things that the constraints of a fixed schedule at the university would not allow, like getting caught-up on fiction and non-fiction reading that had been shelved in favor of professional literature and allowing Sue and I to travel anywhere desired, at any time we wanted. So, over these past years I have been reading, gardening, fishing, traveling, and even doing a little consulting. One of the best discoveries Sue and I have made is traveling with Elderhostel programs—we love them! We have gone on at least 14 trips with the program so far, and we keep planning more. Look below for some pictures of our many travels. There is, however, one pre-retirement activity that remains a constant in my life: my involvement with pre-collegiate teachers in the organization I founded some 18 years ago, Tennessee Earth Science Teachers.

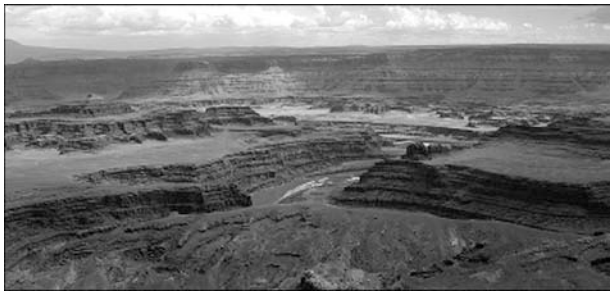
Baja California del Sur, Mexico

Arenal Volcano, Costa Rica

Fingal's Cave, Scotland

James Hutton's famous view at Siccar Point

The beautiful Lake Powell



Goosenecks of the Colorado River

Making Science the Word on the Street

Josh Chamot (M.S., 2000)

As UT alumni, when we left the university we knew we were heading into the world with a solid toolkit of skills that would help us make an impact in our fields. One critical skill, emphasized more at UT than at many other universities, was the ability to communicate. We were trained to recognize the importance of sharing our findings and the need to ensure that audiences, whomever they may be, could truly grasp the consequences of our research.

I have been fortunate to carry this message every day in my career as a science writer, but all of us can enhance our impact by using our science and communication skill sets to bring new knowledge—and old—to the public.

It is a critically important time to educate the public about your research. In the past decade, the landscape for communicating science has drastically evolved. Driven by the explosion of resources on the Internet, all media outlets are in a flux—reshuffling how people get their information, and with mixed effects. New sources devoted to science content are exponentially increasing access to knowledge and research results, yet the spread of misinformation abounds, both unintentional and deliberate.

By the time I left UT, many in the public, the news media, the government, and even the research community had become more interested in finding data that could back up their opinions than in developing opinions based on accumulated data.

Nearly a decade later, this trend may be starting to reverse, but the legacy of misinformation and poor decision making highlights the importance of not only gathering knowledge through science, but effectively communicating that knowledge to a broad audience.

In my work as a media officer at the National Science Foundation, I devote my time to those efforts. I regularly collaborate with researchers to translate their most recent results into just about any medium that can carry their findings to an audience that grows hungrier every day for science content.

Ten years ago when I arrived at UT as a M.S. candidate, I was in the unusual situation of knowing what I wanted to do when I graduated, and the even more unusual situation of knowing that it would probably not be geoscience.

Because of the early tilt to science writing, I was given guidance and opportunities from my mentors from day one. No fewer than half a dozen professors in the Earth & Planetary Sciences Department opened doors for me across campus and across the country, enabling me to hone my science writing skills. As critically, I received encouragement from all of them, and it continues to this day.

As a result, I have been able to navigate across all disciplines of science and engineering to share research results from my vantage at NSF. To meet the growing demand for science news, our agency and others have expanded communications from standard press releases and feature stories to products that were out of reach just a decade ago.

Because of the tools provided by the Internet, our office can now produce radio segments that also air as podcasts, footage for webcasts, and as video news releases for television that get visited months or years after their first airing. Materials develop legs on the Web in ways they never have before. One illustration of an extrasolar planet even ended up as a desktop "wallpaper" (the illustrator found it, ironically, while looking for a background for his new phone).

As traditional media such as newspapers and broadcast television programs lose ground to the Internet, many are adapting by incorporating ever more content on their websites, while new public and private content providers are rushing to offer their share. Because the Internet is so expansive, and the audience so vast, NSF has been lucky to reach millions of viewers who only a few years ago would never have heard of the agency.

The result of these changes is a wealth of science information, all of which ultimately originates with individuals. Where science communication goes from here is entirely up to the scientists.

Research can at times move forward in a relative vacuum, but our nation cannot. Students, of all ages, need to know of scientific discoveries or the motivation of an entire generation may wane. Politicians need to know of scientific discoveries to better frame policies grounded in hard data. Members of the public at large, particularly in disaster-prone regions, need to know of science discoveries new and old, because their lives may depend on whether or not they decide to follow their instincts or your findings.

I chose science writing as a career to help researchers get good information to people who need it. I encourage each of you to reach out to your university media offices, your funding agencies, and especially the public to help guide the evolution of science literacy in the United States.

As a scientist in the age of the Internet, a unique opportunity to educate beyond your classrooms and offices now lies before you, and those of us in science communications are waiting to help.

Views expressed in this article are the personal views of the author and do not necessarily represent the views of the U.S. National Science Foundation.

From Oil to Academia

Shan Shamugam (Ph.D., 1978)

I am currently in my second career as an Adjunct Professor of Sedimentology at the University of Texas–Arlington. My long path to this point began in India in 1944. I emigrated to the U.S. in 1970, and became a naturalized U.S. citizen in 1990. My career began with degrees from Annamalai University in southern India (B.Sc., 1965, Geology and Chemistry), the Indian Institute of Technology (M.Sc., 1968, Geology), Ohio University (M.S., 1972, Geology), and finally at the University of Tennessee (Ph.D., 1978, Geology; under supervision of Ken Walker). I then joined Mobil Research and Development Corporation as a Research Geologist, and retired from Mobil (now ExxonMobil) as a Geological Scientist in 2000.

My passion is the rocks. I have been fortunately to have described (from 1965 to 2008) over 10,000 m of rocks worldwide, which include conventional cores from 32 deep-water sandstone petroleum reservoirs. My passion for geology has led me to organize deep-water sandstone workshops for: the UK Department of Trade and Industry (DTI) in Scotland; Petrobras, Mobil, and Unocal in Brazil; Oil and Natural Gas Corporation (ONGC) in India; and Reliance Industries in India. I have also been fortunate to have conducted field studies of coal deposits in Australia; coniferous rain forests of New Zealand; limestone karst in Guilin, China; fluvial deposits of India; tsunami-related coastal deposits in Tamil Nadu, India; shallow-marine deposits in Qassim, Saudi Arabia; and estuarine deposits in the Oriente Basin, Ecuador. This wonderful career has led to the publication, since 1970, of 325 publications on a wide range of topics, including 2 books and 125 peer-reviewed articles.

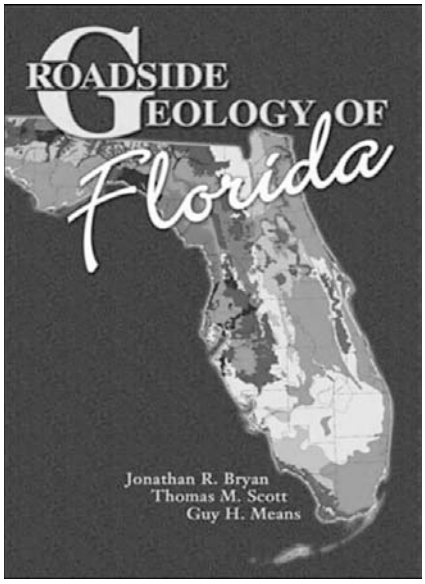
In recent years, and especially since the 2004 Indian Ocean tsunami, my research has focused on petroleum reservoir potential of deep-water sands triggered by cyclones and tsunamis. I have been honored to have received the 1995 best paper award from the Nigerian Association of Petroleum Explorationists for my paper 'Deepwater Exploration: Conceptual Models and their Uncertainties', and my paper 'High-density turbidity currents: are they sandy debris flows?' published in the Journal of Sedimentary Research in 1996, has achieved the status of the single most cited paper published in three world-renowned periodicals—Journal of Sedimentary Research, Sedimentology, and Sedimentary Geology—during the survey period of 1996-2003. In addition to my busy research schedule, my wife Jean (a native of Knoxville) and I also dedicate considerable time to our other passion—an involvement in the feeding and clothing of poor school children in southern India, a task that we have undertaken every year since 1998.

GSA Symposium Honors Craig Oyen

Craig Oyen was honored at a Symposium in his name at the 2008 Southeastern GSA meeting in Charlotte, North Carolina. The Symposium was chaired by his two former advisors, Doug Jones (University of Florida) and Michael McKinney (University of Tennessee). The contributed papers focused on Southeastern paleontology, especially echinoderms. Among the many contributors were Craig's former classmates and friends at UT, **Dan Frederick (Ph.D., 1994)**, **Jon Bryan (Ph.D., 1991)**, **Michael Gibson (Ph.D., 1988)**, and UT paleontologist **Colin Sumrall**.

Craig died unexpectedly in Arizona on September 5, 2005. Born in Williston, North Dakota, June 27, 1963, he earned his B.S. at North Dakota State University, continued with graduate studies at the University of Tennessee, and completed his Ph.D. in Geology at the University of Florida. Following three years on the faculty of Georgia Southern University, in 1998 he joined the faculty of Shippensburg University in Pennsylvania where he was an assistant professor in the Geography and Earth Science Department. At the time of his death, he was on sabbatical from Shippensburg and working with the National Park Service in Grand Canyon National Park.

Craig was a very popular professor and was just beginning a productive career in paleontology and education. He will be greatly missed by many people.



Jonathan Bryan (Ph.D., 1991) has just had a book—Roadside Geology of Florida—published by Mountain Press. The book is part of the Roadside series, which has been very popular over the years. Jon tells us that he has always been very proud of the accomplishments of our UT alumni, and is pleased to count himself in that pool with this contribution. Look for Jon at the 2008 GSA meeting in Houston, where he will be having a book signing!

Stephanie Drumheller (B.S., 2005) is continuing towards her Ph.D. in vertebrate paleontology at the University of Iowa. Several times a year, her research brings her through Knoxville. She has been working to understand bite marks and bone pathologies of large vertebrates. Her research has led to fun experiences in experimental design. . .like collecting pig carcasses to toss, temporarily, into alligator-infested swamps of South Florida. The fun part is retrieving the bones for analysis!

Emily Goodman (B.S., 2005; M.S., 2007) and her family, Jason and Maddie, are readily adjusting to life in Houston. Emily began her new hire rotations with ExxonMobil in August 2007 and Jason is taking advantage of Emily's salary to pursue his own graduate studies.

Patricia Hall (B.S., 2003) has finished her M.S. in vertebrate paleontology at Northern Arizona University, and then spent some time at Uppsala University in Sweden. She has slowly been switching her field to microbiology (immunology/infectionous diseases) and would love to find a job with the CDC.

Bosiljka Glumac (Ph.D., 1997) and **Tony Caldanaro (M.S., 1994)** are keeping busy with their family and geological careers. Bosiljka is currently an Associate Professor at Smith College and recently took on the additional task of Department Head. She is also keeping very active with students and her research, and recommended a recent research student, Sarah Cadieux, to our graduate program. Thanks Bosiljka, and good luck!

Meg Howard (M.S., 2006) and **Quintin Overocker (M.S., 2005)** have just purchased a new house in the wilds of Montana. They are very excited about their new abode—a log cabin on a 90-acre horse ranch in a box canyon. Meg recently received her licensure as a Professional Geologist, and continues as a Project Scientist for Tetra Tech. Jealous of Meg, who gets to work above ground, Quintin continues his work as a geologist for Stillwater Mining Company. They spend their free time fishing and enjoying the outdoor life with their dogs, Josy and Cody.

Melissa Lenczewski (Ph.D., 2001) continues her busy career at Northern Illinois University, where

regularly associated with fellow faculty **Mark Fischer (M.S., 1989)**. NIU's entire department was greatly shaken this year by a highly publicized school shooting, which took place in one of their gen-ed geology courses. Melissa, Mark, and the rest of NIU remain in our thoughts and prayers.

Keith Milam (Ph.D., 2007) and his wife Kerry would like to announce the birth of their son, John Aubrey Milam, on Tuesday, June 24, at 3:15 am in Athens, Ohio. Siblings Zac and Emily are excited to have a little brother, and the addition is sure to keep Keith hopping as he works towards tenure!

Grant Mincy (B.S., 2007) has been keeping us informed of his very busy year since graduating from UT. He has been working with the Washington Conservation Corps on a series of projects which have included mapping stream drainage patterns on Mt. Ranier, invasive plant removal, and being farmed out this summer to Iowa, where he helped with flood response. In Grant's copious free time, he has also received his credentials as a wild-land fire fighter, and is now considering a move back to east Tennessee to try to start a 501c grass-roots Americorps project in the Smoky Mountains. Grant keeps up with several of his school mates and tells us that **Julie Mathis (B.S., 2006)** is currently in Nebraska doing field work for her M.S. at Florida State Univeristy, that **Amanda Reynolds (B.S., 2006)** is enjoying her M.S. work at Auburn, that **Doug Smith (B.S., 2005)** is in Washington, D.C. doing environmental consulting, and that **Christina Brown (B.S., 2005)** had been preparing to move to Colorado to work in the petroleum industry.

Patrick Mulligan (M.S., 1987) has been working to establish research and student internship opportunities for UT students with his employer, Quantum Environmental & Engineering. Patrick did his thesis research in clay mineralogy with Otto Kopp, and tells us that he very much appreciates the breadth of knowledge and flexibility of thought that his UT education provided.

Gary Ottinger (M.S., 1999) dropped us a line to let us know that he, his wife Angela, and his daughter Brenli, are relocating to Abu Dhabi for a three year assignment with ExxonMobil. Gary is currently working on carbonates (Walker would be proud!) and has been focusing on Middle Eastern carbonate reservoirs for the last several years. His upcoming assignment will be production-scale work on one the largest oil fields in the world! Gary says: "I've been fortunate to stay in the carbonate realm of petroleum geology and have thoroughly enjoyed it. If anyone finds their way to Abu Dhabi and needs a place to stay, be sure to contact us at (uae.vols@yahoo.com)."

Brooke Perini (B.S., 2007) is currently working on her M.S. in near-surface seismology at he University of Kansas, and will soon be joined in Kansas by **Shane Geaslin (B.S., 2008)**. Brooke recently enjoyed being on the "winning side" of two national championships, with both the KU Jayhawks (Men's NCAA Champions) and the Lady Vols (Women's NCAA Champions). Go Vol-Hawks!?

Tracy Pollock (nee Campbell; B.S., 2003) and **Mark Pollock (M.S., 2003)** are back in Knoxville. Tracy is completing her M.S. in Geography at UT and Mark is working with AMEC. This year, they have been fortunately enough to travel to Italy, and spent time touring Rome, Florence, and Mt. Vesuvius (which they summitted), and the Island of Capris.

Steve Welch (M.S., 2005) has returned to ExxonMobil in Houston after a short leave of absence to support his wife Amy's active career in criminal forensics investigation. Steve laughs that, in his new hire rotations, e always seems to be following in the footsteps of **Joel Luckow (M.S., 2003)**. . .most recently working exploration in the deep-water Gulf of Mexico. Now that Amy has relocated to Houston, they are enjoying time and with each other and their dogs.

Karen Stockstill (Ph.D., 2005) and **Josh Cahill (M.S., 2004)** are proud to announce that they are expecting a future geologist and Hawaiian scuba diver. Many UT friends are keeping a close eye on the little one's progress through Karen's blog.

Herbert (Bernie) Tiedemann (M.S., 1956) writes that UT had a profound influence on his life, providing him with an educational and intellectual background with which he was able to successfully negotiate a career of geology-associated work with thirteen different employers in 11 cities and nine states over a period of 49 years. He notes that his years at UT were particularly delightful, especially because "I married one of my Geology Lab students—the best thing that ever happened to me." He also says: "The Geologic setting of Tennessee was ideal for one who loved mapping, and the opportunities I experienced working with the UT faculty, with the Tennessee Division of Geology, and for Vanderbilt University mapping a meteor impact structure in Middle Tennessee led to seven years of satellite photography work with NASA, a year working for retired astronaut Wally Schirra, and later, nine years of worldwide remote sensing exploration with Phillips Petroleum."

Syreeta Vaughn (nee Dickerson; M.S., 2005) and her husband, Clarence, have been living in Powell, TN, while Syreeta works in waste management at the Y-12 complex in Oak Ridge. Syreeta has been taking a variety of upper-level calculus courses in preparation for starting doctoral work in Environmental Engineering at UT this fall.

Richy Ward (B.S., 2001) contacted the department in search of geode hunting sites in Tennessee. It is always nice to see passion for geology in our alums!

Larry McKay has also met numerous alumni on his worldwide tour as a ***GSA Birdsall-Dreiss Distingueshed Lecturer***. He tells us that:

Skip Barton (B.S., 1994) works for Tetra Tech, and has been collaborating with Larry McKay on the environmental remediation of a former Army munitions plant near Chattanooga, which has substantial chemical and biological contamination.

Yasmine Neely, who attended UT in the 1980's is working as an reseach and development engineer at Cordis Corporation in Warren, New Jersey.

George Harlow (M.S., 1987) and **Trisha Johnson (M.S., 2005)** live and work in VA. George works for the USGS on water resource and water quality problems in the Richmond area; Trisha is working for Virginia Department of Environmental Quality.

Karen Thorbjornsen (M.S., 1995) is currently working with Shaw Environmental in Knoxville, TN, focusing on toxic metals in soils, and teaching short courses on distinguishing anthropogenic from naturally occurring concentrations.

Thank you for all of your support!

Alumni donations to the Department of Earth & Planetary Sciences are invaluable. As always, your generous support has allowed us to provide continued support for students in the form of student scholarships and awards, support for field excursions, funding for sample analysis, and travel to professional meetings. In this section, we would like to highlight some of the ways in which your support has directly affected the quality of education that we can provide to our students. Some examples of recent activity made possible through the support of our UT alumni and friends:

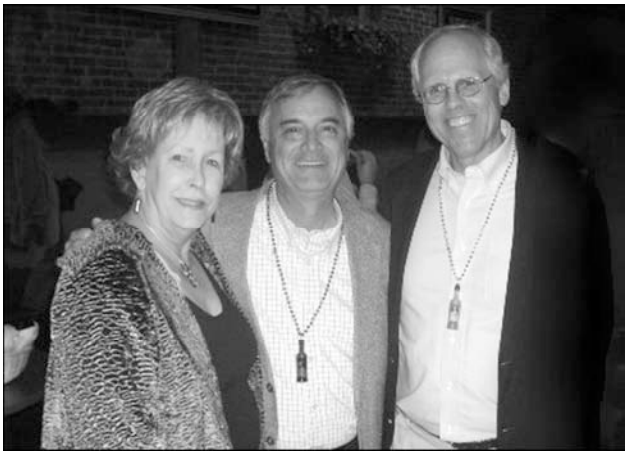
Named Professorships

Our Department contains several named professorships. In addition to two *Jones Professorships* (held by **Larry McKay** and **David Finkelstein**) and our *Jones-Bibee Professorship* (held by **Greg Baker**), we also have a longstanding *Carden Professorship* and we now add a *Kenneth Walker Professorship*. Each of these professorships provides modest funds to the holder each year, to be spent for the enhancement of their careers. Commonly funds are used for pilot projects, for student support, or for updating of analytical equipment.

The *Carden Professorship* represents a bequest many years ago of the proceeds of the Carden oil well in Louisiana. The *Carden Professorship* was originally held by Ken Walker, and held most recently by Claudia Mora. As of Fall, 2008, we are pleased to present **Chris Fedo** with the *Carden Professorship*.

The *Walker Professorship* is sourced by donations from Kenneth Walker's students. Ken graduated more students than any other faculty member in the department. His former students work around the globe and support the Department generously. We are pleased to name **Linda Kah** as the *Walker Professor*.

Enhancement of Student Activities



Hap McSween with Klepser Lecturer Dr. Jeff Taylor (Univ. Hawaii) and **Bobbie Klepser**. The Klepser seminar series helps us expose our students to top research in a variety of geologic disciplines.

Generous support from the **Otto Kopp family** has allowed us to provide additional support for the independent research efforts of our undergraduates. In 2008, we presented the inaugural Kopp awards.

Enhancement of Student Activities

In addition using alumni support to help send our students to conferences and scientific workshops, we also send a team of undergraduates every year to *GEOCONCLAVE*. . .an intrastate weekend of camping, collegiate competition (geode bowling, hammer toss), and fun! And this year, for the first time since it's inception in 1984, the UT Vol team won the *GEOCONCLAVE* title!!! We know our students are the best in the state, but they seem to spend their time enjoying the collegiality rather than getting stressed about the competition…good for them!

2008 GEOCONCLAVE team, consisting of John Roelofs (top row), graduate mentor Geoff Gilleaudeau and, from left to right, Steven Jaret, Kelli Harrelson, Morgan Braxton-Sears, Beth Storey, and Greg Carlson. Look at that form as Morgan tosses the Estwing!

Rock Room Renovations

Students Morgan Braxton-Sears, Melissa Hage, and Stephanie Nicoll getting down and dirty in the rock room

A gutted rock room, highlighting the long-term decline of this critical departmental facility

Sadly, over the years our rock room had fallen into decline. In 2007-2008, largely funded by alumni donations, we began a complete overhaul of the facility. The process started with our students completely gutting the room. Aaahhh, to watch students with sledgehammers! We then worked on infrastructure repair—new electricity, plumbing, sealing the floor, and installing new cabinetry. We then worked to repair a few of the larger tub saws and purchased several new rock saws, new rock chippers, and a new hydraulic rock crusher. The new and improved facility will be officially opened in a departmental dedication ceremony in fall, 2008.

UT Capital Campaign and Department Development Priorities

In recognition of the importance of alumni donations to the health of a University, the University of Tennessee recently launched a new Capital Campaign – see http://development.tennessee.edu/. As part of this University level campaign, each department has also re-evaluated priorities for alumni support. We are very proud of the support that our Alumni have given to the Department of Earth & Planetary Sciences over the years and, in these times of decreased state appropriations, we are increasingly grateful for your continued support.

We are also very happy to announce our alumni traditionally have been very supportive of student scholarships and field camp scholarships, and our funding for these opportunities is in a good position at present. With recent and continuing budgetary cuts, however, we are currently seeing weaknesses in other areas of funding.

For instance, we never know from month to month and year to year, what crisis may arise in State funding, or what unique opportunity to better the department might present itself. The ability to cope with surprises, whether good or bad, adds stability to the academic program, adds value to the students' experience, and adds flexibility when the department must evolve in response to changes in the field. ***Unrestricted Endowments*** allow us to support such activities as departmental field trips, student travel for research and presentation of research results, recruitment of new graduate students, activities to promote interaction with alumni. Unrestricted endowment funds also support office and laboratory renovations for new faculty, and some of our critical departmental outreach activities, such as Earth Science Day. Earth Science Day continues to be one of the most effective outreach activities hosted by UT, and in past years, we have received significant support from the College of Arts & Sciences. Unfortunately, with diminishing state funding, College support for Earth Science Day will be discontinued after this year. We sincerely hope that you can help us in assuring this activity's future!

Other development priorities include ***Laboratory Operations Support*** and ***Building Renovation Support***. Our research laboratories contain equipment with substantial operation and maintenance costs. We would like to "name" laboratories for donors who contribute to their operations costs. Support could come in the form of direct gifts or endowments. Laboratories that need such support include both research facilities (electron microprobe lab, mass spectrometer lab, X-ray lab) and teaching laboratories used exclusively by students (microscope lab, computer lab). We also need to consider our Department itself. Our building was constructed in 1929 and has never been fully renovated. We have a modern, successful, vibrant department housed in an ancient and substandard building. A state-of-the-art building will help us attract the best graduate students and faculty who have not had time to appreciate our building's modest charms.

Finally, unrestricted funds that support faculty research, in the form of ***Faculty Research Fellowships***, greatly increase both faculty and student productivity. These funds are commonly used as money for new grant proposals, can be used to support travel for field work, to utilize analytical equipment at other universities, or to present the results of their research at conferences. These fellowships are named for the donors, and do not supplement faculty salaries, although they can be used for the salaries of postdocs, technicians, or students who assist the faculty in research projects. They are a great way to help EPS retain our best faculty and to support their research efforts.

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Please contact any members of our Alumni Advisory Board with questions or ideas for development activities.

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Thank you for your continued support!

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