GEOLOGICAL SCIENCES

ALUMNI NEWSLETTER 2006

From Our Department Chair

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<td>Martin Appold</td>
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<td>Marie-Helene Cormier</td>
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Associate Professors

| Robert L. Bauer         | (University of Minnesota, 1982) | Precambrian geology |
| Cheryl A. Kelley        | (University of North Carolina, 1993) | Aquatic geochemistry |
| Kenneth G. MacLeod      | (University of Washington, 1992) | Paleontology and biogeochemistry |
| Eric A. Sandvol         | (New Mexico State University, 1995) | Seismotectonics |

Professors

| Mian Liu               | (University of Arizona, 1989) | Geophysics |
| Peter I. Nabelek       | (SUNY, Stony Brook, 1983)    | Trace-element geochemistry |
| Kevin L. Shelton       | (Yale University, 1982)      | Economic geology |
| Michael B. Underwood   | (Cornell University, 1983)   | Sedimentology |
| Carol M. Wicks         | (University of Virginia, 1992) | Hydrogeology |

Professors Emeriti

| Raymond L. Ethington   | (University of Iowa, 1958)   | Conodont biostratigraphy |
| Thomas J. Freeman      | (University of Texas, 1962)  | Carbonate petrology |
| Glen R. Himmelberg    | (University of Minnesota, 1965) | Chemical petrology |
| William D. Johns       | (University of Illinois, 1952) | Clay mineralogy |

Staff

| Kristin Bandeko, administrative assistant |
| Marsha Huckabey, administrative associate I |
| Carol Nabelek, research chemist |
| Stephen Stanton, library information specialist II |

On the cover: Early morning January 2006 eruption of Volcan Fuego, Guatemala. Fuego is saluted by the volcanic genie to which it has just given birth. Alan Whittington and his students are studying the volcanology of the region.
From Our Department Chair. . .

This past year has been a time of great accomplishments that can be attributed to the hard work and dedication of our faculty, staff, students and alumni. Highlights of our activities are presented throughout the Newsletter and reflect the spirit and excitement of teaching, learning and discovery that underlie our success.

In academia, there is little that rivals the satisfaction of hiring a new faculty member. Through our recruiting process last year we met a number of bright and enthusiastic young scientists with strong interdisciplinary backgrounds in geology, geophysics and geochemistry. I am pleased to report that Marie-Helene Cormier joined our faculty in September as an assistant professor of marine tectonics. Since 2000, Marie-Helene has coordinated a multi-national research project that addresses Holocene activity along the submerged plate boundary along the North Anatolian Fault beneath the Marmara Sea, northwest Turkey. Her picture and a brief biography can be found later in the Newsletter. The department of Geological Sciences has emphasized the areas of geophysics and active tectonics since the early 1990s. The current group of researchers in these areas is comprised of four faculty members (Profs. Gomez, Liu, Sandvol, and Underwood), and will benefit greatly from the presence of Marie-Helene on our staff. Marie-Helene’s husband, Chris Sorlien, who is a geophysicist-structural geologist, has also joined our staff as an Adjunct Associate Professor.

Last year we were also able to hire Karyn Rogers (PhD, Washington University) as a tenure-track assistant professor in biogeochemistry. She will join our faculty in January 2008, following a postdoctoral fellowship at MIT’s Woods Hole Oceanographic Institute. I will highlight her arrival in next year’s Newsletter.

As you read through the Newsletter you will see that all of our faculty members are involved actively in research and presentations at national and international conferences that bring recognition and prestige to our department. Please join with me in celebrating their notable accomplishments. In particular, I am pleased to announce that Professor Emeritus Ray Ethington, of our department, will receive the 2007 Raymond C. Moore Medal for Paleontology given by SEPM, the Society for Sedimentary Geology. Ray will be honored at the April 2007 President’s Reception and Awards ceremony, during the SEPM Annual Meeting held in Long Beach, Calif. I will highlight this award in the 2007 Newsletter.

We continue to attract talented students at both the master’s and doctoral levels. We have 26 graduate students in residence. This past year they presented 25 papers at national and international conferences, published nine papers, and received eight research grants and fellowships based on proposals that they wrote. Five of our students completed master’s degrees this year: Jennifer Cooper; Jackie Getson; Bridget Hellwig; Ethan Jenzen; and Jason Yuvan. Qingsong Li and Joseph Hill completed their doctoral degrees. We will miss each of those who are leaving.

We are fortunate to have a new group of talented graduate students. Three students joined our department in January 2006. Justin Beasley (BA and BS, Geography and Geology from Southern Illinois University) is studying economic geology applications of Geographical Information Systems with Kevin Shelton. Rani Jaafar (BE, Civil Engineering from Lebanese American University) is working with Paco Gomez, studying plate movement around the Dead Sea fault. Elyn Potter (BA, Environmental Geology from MU) is pursuing carbon isotope studies of hypersaline microbial mats with Cheryl Kelley. Five new students arrived this fall. Hitoshi Banno (BS, University of Arizona, MS, St. Louis University) is starting doctoral study of clay mineralogy in subduction zones with Mike Underwood. Master’s student James Clements (BS, Morehead State University) will study structural geology of Dallas Dome and its interchanges between adjacent Derby and Hudson Domes, Wind River Range, Wyoming, with Bob Bauer. Daniel Perrault (BS, University of Minnesota-Duluth, MS, Vanderbilt University) is beginning doctoral study with Peter Nabelek on petrogenesis of pegmatitic granites in California. Michael Rigby (BS, University of Dayton) will be working on his master’s with Paco Gomez, studying active tectonics in the Middle Atlas Mountains of Morocco. William Romine (BS, Physics and MS, Education from Truman State University) will begin master’s study in geophysics with Eric Sandvol in the Puna Plateau in northern Argentina. In summary, we’re doing
great! However, we would not be able to make competitive offers to attract these quality students without the help of our alumni scholarship funds. Thank you.

Our undergraduate program is growing. The number of majors is approaching 45 students, up from approximately 30 students two years ago. Furthermore, I believe the quality of our majors is improving. As an example, Amanda Lough was one of only ten juniors in the College of Arts and Sciences inducted into Phi Beta Kappa this past semester. The departmental scholarship funds that our alumni have supported are critical in allowing us to attract and retain some of the best students on campus. In addition to our scholarship program, this fall we have instituted a departmental Undergraduate Research Program. The program will be funded from three Opportunities for Excellence in Geology Endowments (the John and Betty Marshall, Walter D. Keller, and Norman E. Smith funds). We plan to fund approximately five undergraduate projects per year that may lead to Senior Theses.

Our alumni also give us reason to celebrate. In last year’s Newsletter I highlighted the establishment of a departmental Wall of Fame that recognizes outstanding achievements of our alumni. This past spring Ed Williamson (MA ’73) received an Arts and Science Distinguished Alumnus Award and joins other notable alumni on the wall. A story about Ed can be found later in the Newsletter.

On behalf of the faculty, students and staff, I want to thank those of you who continue to support our department through your annual gifts. I want to recognize several recent gifts to the department. Edie and Dick Bishop (MA ’69), as part of our overall Geology Student Scholarship Fund (GSSF) campaign, have established four endowed scholarship funds in honor of former geology professors Raymond L. Ethington, Tom Freeman, Glen R. Himmelberg, and George W. Viele. Ruth Davies and the Ed Williamson family have established an endowed scholarship fund in honor of Ruth’s husband, former geology Professor David K. “Dai” Davies. Scott Raymond (BS ’72, MA ’74) established a new scholarship fund in honor of his master’s adviser, Professor Emeritus Bill Johns. We are grateful for these generous gifts and hope that these scholarship funds will encourage former students and friends to make additional contributions in honor of these professors. A detailed story about the Geology Student Scholarship Fund and its recent success can be found later in the Newsletter.

Enjoy the Newsletter and remember to keep us informed of your activities.

Sincerely,

Kevin L. Shelton
Chairman and
E.B. Branson Professor

Impromptu reunion at the Houston AAPG meeting of MU-related faculty and former PhD students who study Carboniferous rocks in Ireland and their associated Zn-Pb ores. From left, Kevin Shelton; Wayne Wright (Texas Bureau of Economic Geology); Jay Gregg (Oklahoma State University); Aaron Johnson (University of Virginia at Wise); Zsolt Nagy (Schlumberger).
Faculty News

**Martin Appold** continued work in three ongoing research projects related to fluid flow and mineralization in sedimentary basins. This summer brought the completion of a three-year numerical modeling project of methane transport and calcite mineralization in the Santa Barbara basin, California. His masters student, Sara Harkins, made lead isotope measurements and fluid inclusion geochemistry measurements of Zn-Pb deposits in the Flinders Ranges of South Australia. A third project aimed at measuring fluid inclusion compositions of Ozark Zn-Pb deposits received a boost with a new grant from the U.S. Geological Survey. Teaching in the past year consisted of Principles of Geology, Hydrogeology, and a new course entitled Groundwater Modeling. The personal highlight of the year was the one-year-old son, Stefan, whom Martin and his wife adopted from an orphanage in St. Petersburg, Russia in September. Stefan has adjusted very well to his new home and brought a great deal of joy to his new family.

**Bob Bauer** continues to serve as the director of the Branson Field Camp in Wyoming and as the department’s Director of Graduate Studies. This past summer, Field Camp included a great group of students from geology departments across the state and the country. The students participated in the second year of their NSF-supported program of advanced projects in field hydrogeology and geophysics, which were assisted by Don Siegel (Syracuse University) and Eric Sandvol (MU). The advanced hydro project included a dye-tracing experiment that timed the underground flow of the Popo Agie River from the disappearance of the river into the “Sink” and its subsequent reemergence at the “Rise” (see details in the Field Camp report). Bob also continues working on problems associated with the formation of spiral inclusion trails in garnet, and spent time at the University of Minnesota earlier this year working on a garnet imaging project with past MS student Eric Goergen (MS ’03). As director of Graduate Studies, Bob is working actively with other faculty members to attract a good crop of new graduate students and to increase the number of PhD students in the department. Bob’s courses last year included Structural Geology, Advanced Structural Geology, and Field Camp. This fall, Bob is teaching Continental Tectonics and is continuing to coordinate the department’s scientific writing program for our BS majors.

**Marie-Helene Cormier** joined the department this fall as an assistant professor in Marine Tectonics. Prior to joining MU, Milene worked as a research scientist at the Lamont-Doherty Earth Observatory in New York. She is enjoying teaching marine geology this fall, is discovering the beautiful campus, friendly town, and nice countryside, and is looking forward to initiating new projects with her colleagues. Her investigations focus mainly on magmatic and tectonic processes at mid-ocean ridges and crustal deformation along the offshore extension of continental transform faults. Recently, she has also investigated gas seeps offshore North Carolina. Another project this summer addresses the impact of climate change and human activity in western Long Island Sound, N.Y. This is an educational project that aims to recruit students from underrepresented groups in the geosciences; nine students from the City University of New York participated in a week-long expedition to Long Island Sound and are now being mentored through data analysis and interpretation by Milene and her colleagues. The week before classes started at MU, Milene co-convened an international workshop in Istanbul on “comparative studies of the North Anatolian Fault (NW Turkey) and the San Andreas Fault (southern California)”. That workshop was co-funded by NSF and the Southern California Earthquake Center, with the objective to help initiate new multinational projects in Turkey and California. Next spring, she will co-lead a month-long expedition to the northern East Pacific Rise and deploy twenty bottom-pressure sensors along the axis of that mid-ocean ridge, a project funded by the NSF-RIDGE program. The sensors will be left on the sea floor for about four years to monitor any vertical motions associated with magma movement (hopefully, they will not be engulfed by lava flows!). She hopes to entice a few students from the department to join the expedition and get hands-on experience with marine investigations. That semester, she will also be teaching “seafloor imaging for geological applications,” and the data collected in relation to the cruise will be integrated in the course curriculum. Milene’s husband, Christopher Sorlien, is a research geologist at the University of California in Santa Barbara. He is an
adjunct associate professor in the department, and he is looking forward to sharing his expertise with students and colleagues. His active research projects involve applying seismic reflection methods to investigate tectonics offshore southern California, Antarctica, and Turkey. Milene and Chris’ daughter, Mariel, is attending Hickman High School; she has been graciously adjusting to her parents’ decision to move halfway across the country for her senior year.

Ray Ethington reports that he successfully but lethargically passed his 77th birthday in Dr. Keller’s former first-floor office, which he now occupies. While not achieving Dr. Keller’s perfected state of clutter, he aspires to at least approach it and believes he already is well past the halfway mark. Work on a catalog of the conodont collection is proceeding fitfully, about as well as progress on several manuscripts dealing with conodonts from the United States and Scotland. Fortunately a good deal of the “leg work” on those projects has been done or is being handled by colleagues John Repetski, Jim Miller, and Oliver Lehnert (in Germany) so that he, like the former occupant of the office, can think about how to proceed (some would call it napping).

Tom Freeman retired for the third time last December when he said ‘adios’ to his Geology of Our National Parks (honors) course, so, for the first time in memory, he has been allowed to look forward to attending an entire GSA meeting this fall. In the area of teaching, he does still find time for his several lectures on environmental geology in MU’s Lifelong Learning program. In the classroom, Tom still uses overhead transparencies version 1.0, but he has used PowerPoint set to music at recent Hot Springs high school class reunions. He reports that PP with Diana Washington is much smoother than his sight-and-sound shows of the 1970s. Tom rolled out his 4th edition of Geoscience Laboratory in time for the current fall semester. New material in this edition includes Hurricane Katrina, the Sumatra tsunami, and an entire stand-alone exercise on geologic time—Tom’s frontal assault on advocates of ‘intelligent design.’ Working on behalf of our MU Retiree Association, which includes doing its newsletter, continues to occupy a gob of Tom’s time, but he loves the comradery.

Son Rob continues as CEO with Tradewind Energy in Overland Park, Kan., while son Tom continues as a spill-buster, chasing coastal oil spills wherever they occur. Peggy continues to enjoy watercolor, gardening, and travel. Trips this fall include Philadelphia history and scenic South Carolina.

Paco Gomez had another busy, but enjoyable, year. In addition to courses on introductory geology and surficial processes, he taught an Honors College course about earthquakes, society, and history. His ongoing studies of earthquakes and active tectonics involved field work in Morocco and the Middle East, including establishing a new GPS survey network along the southern Dead Sea fault in Jordan and a reconnaissance field trip to assess coastal uplift in Oman. Other field work focused on paleoseismic trench investigations in Lebanon and Syria, as well as neotectonic mapping in northern Morocco. Graduate student Deepak Manjunath has continued his thesis research using satellite radar imagery to measure small deformations of the earth’s crust in the Chilean forearc of South America. The past year also saw the addition of a post-doctoral associate and two more graduate students to the active tectonics research group. Dr. Tony Nemer joined the research group in February and is assisting with research projects in Lebanon and Morocco. Rani Jaafar is a new graduate student who is using GPS to make high precision measurements of fault movements in Lebanon. Mike Rigby is beginning his master’s thesis research on neotectonic geomorphology in northern Morocco.

Cheryl Kelley returns to the classroom after her 2005-06 research leave and enjoys the contact with students that teaching affords. This semester she is teaching the Earth Systems and Global Change class and Environmental Geology. In January 2006, Cheryl welcomed new master’s student Elyn Potter to her lab. Cheryl is very pleased to have Elyn, who was one of our top BA students, work with her. Elyn is studying the hypersaline microbial mats from the salterns of Guerrero Negro, Baja California. She has already gotten her toes wet in the field and is busy analyzing the data that she collected. In the spring, we said good-bye to Damon Bassett, who had been the full-time technician in the Biogeochemistry Isotope Laboratory.
Damon and his family moved back to the Springfield, Mo., area to be closer to their extended family. In his place, Scott Lepley, one of Ken MacLeod’s doctoral students, will be working part-time in the lab to help keep things going on a day-to-day basis.

**Mian Liu** has had a productive year on research leave, spending much of the past summer in China. He and Eric Sandvol have been collaborating with Chinese colleagues on intraplate tectonics and earthquakes in North China. Their pilot study has caught much attention from news media, because this year is the 30th anniversary of the deadly 1976 Tangshan earthquake that killed 250,000 people, and because the Chinese government is launching a number of heavily funded initiatives to study earthquakes in North China. Mian also organized a successful international workshop on building cyber infrastructure in geosciences in Beijing, jointly sponsored by the United States and Chinese National Science Foundations. The workshop was attended by 30 international experts including a 16-member delegation from the US. Mian has been appointed by the Chinese Ministry of Education as a Chang-Jiang Guest Professor, a prestigious title in China. He has been working with his students and associates on mountain building and active tectonics all over the world. Qingsong (Pine) Li successfully finished his PhD at MU and is now a postdoctoral fellow at NASA’s Lunar and Planetary Institute in Houston. Gang Luo is developing three-dimensional models for relating short-term deformation and earthquakes in the Andes to long-term Andean mountain building. Dr. Youqing (Richard) Yang has been working on a number of projects, including a study of plate convergence in western Indonesia and the Timor region. Shimin Wang’s paper with Mian on hotspots was highlighted in both *Geology* and the *Natural History Magazine*. This fall, Dr. Huai Zhang returned to MU to work with Mian and other faculty members on parallel computing, and a new postdoctoral fellow, Dr. Hui Wang, has joined the group.

**Ken MacLeod** was on research leave last year and spent enjoyable time in Vancouver, Canada, as well as Columbia working on new projects related to the Cretaceous black shales. Alvaro Jimenez (postdoctoral scholar) arrived from Bilbao, Spain, in January and is working with Ken, PhD student Carolina Isaza-Londoño and Drs. Steve Calvert (UBC) and Ellen Martin (UF) on trying to estimate benthic paleoceanographic conditions and subsurface circulation patterns throughout the Late Cretaceous North Atlantic. Deeper in time, Ken continues his work on conodont paleobiology and paleoceanography with PhD student Damon Bassett, Ray Ethington and colleagues from several other universities. On the young side of the Cretaceous, undergraduate major Rebecca Dodds completed an independent project on Eocene/Oligocene planktic foraminifera and the greenhouse/icehouse transition that will be presented at this year’s GSA annual meeting. Finally, representing the top of the column, Scott Lepley joined the paleobiology/paleoceanography with PhD student Damon Bassett, Ray Ethington and colleagues from several other universities. On the young side of the Cretaceous, undergraduate major Rebecca Dodds completed an independent project on Eocene/Oligocene planktic foraminifera and the greenhouse/icehouse transition that will be presented at this year’s GSA annual meeting. Finally, representing the top of the column, Scott Lepley joined the paleobiology/paleoceanography with PhD student Damon Bassett, Ray Ethington and colleagues from several other universities. On the young side of the Cretaceous, undergraduate major Rebecca Dodds completed an independent project on Eocene/Oligocene planktic foraminifera and the greenhouse/icehouse transition that will be presented at this year’s GSA annual meeting. Finally, representing the top of the column, Scott Lepley joined the paleobiology/paleoceanography with PhD student Damon Bassett, Ray Ethington and colleagues from several other universities. On the young side of the Cretaceous, undergraduate major Rebecca Dodds completed an independent project on Eocene/Oligocene planktic foraminifera and the greenhouse/icehouse transition that will be presented at this year’s GSA annual meeting. Finally, representing the top of the column, Scott Lepley joined the paleobiology/paleoceanography with PhD student Damon Bassett, Ray Ethington and colleagues from several other universities.
Eric Sandvol is pleased to report that he successfully deployed a small seismic array in southwestern Turkey this summer with the help of colleagues at Bogazici and Suleyman Demirel Universities in Turkey. Senior Amanda Lough helped with the deployment of the array and has begun work on analyzing the existing seismic data in the region. Eric is also beginning preparations for a very large collaborative seismic experiment (ASCENT) that will cover much of the central and northern Tibetan plateau. Also, Mian Liu and Eric Sandvol have continued to work with their Chinese colleagues to deploy seismic stations along the edges of the Ordos plateau in northern China. Eric was fortunate to receive a National Science Foundation grant to study the seismic structure of the Puna plateau in the central Andes. He and his colleagues should begin deployment of approximately 70 seismic stations in November of 2007. This project will address fundamental questions on the processes that form, modify and destroy continental lithosphere. PhD student Xueyang Bao has made good progress in his efforts to measure seismic attenuation of the crust in the Middle East. PhD student Qie Zhang has continued his work on developing a robust three-dimensional seismic velocity model of the New Madrid Seismic Zone and will travel to Tibet to help deploy the ASCENT array. New MS student Will Romine joined the seismology group this semester and will begin work on our projects in the Ordos and Puna plateaus.

Mitch Schulte’s second year at Mizzou began in much the same way as the first—at sea for the first three weeks of class! This time around, he was able to give the first lecture of the semester before heading to Astoria, Ore., to board the ship, the R/V Atlantis (Drs. Appold, Gomez and Shelton graciously stepped in to lecture in his absence). On the ship, he served as a part of the science party for Cruise AT 15-9 to the Endeavour Segment of the Juan de Fuca Mid-Ocean Ridge. He got to dive to a depth of 2280 meters to the sea floor to study the hydrothermal vents of the Mothra vent field during DSV Alvin dive 4233. During the dive, he assisted in recovering some long-term experiments that had been deployed the previous year and in making some geologic observations of basalt flows and extinct sulfide fields along and across the ridge axis. When he wasn’t in the sub, Mitch collected vent fluids to analyze for the presence of organic sulfur compounds, which he predicts should be present, to evaluate the role the sulfur plays in the organic geochemistry of hydrothermal systems. Last December, Mitch had a very busy American Geophysical Union Fall meeting in San Francisco, where he co-convened two special sessions, presented a poster about the potential for generation of organic compounds on possible hydrothermal systems on Europa (one of Jupiter’s moons) and delivered an invited talk on the implications of serpentinitization for life on the early Earth and Mars. The talk was based on work that resulted in a paper published in the April 2006 issue of the journal Astrobiology.

He was also very pleased to be invited to speak to the biochemistry department on campus last April about geochemical controls on microbial processes in extreme environments. Mitch also recruited his first graduate student last spring, Steven Pagan, who is working on measurements of heat capacities of aqueous organic compounds at elevated temperatures with our newly acquired differential scanning calorimeter. Steven will be using these measurements to incorporate organic compounds into reactive transport models of groundwater systems to determine the fate of contaminants for his master’s thesis. Mitch has submitted a research grant proposal to the Petroleum Research Fund of the American Chemical Society to help fund Steven’s studies. An undergraduate geology major, Rachel Barker, will be doing her senior thesis under Mitch’s supervision on modeling the organic geochemistry of possible hydrothermal systems on Europa, one of Jupiter’s moons, which has a 100-km thick ocean beneath its ~20-km thick outer ice shell. On a more personal note, Mitch is very proud to announce that his wife, Dr. Karyn Rogers, completed her doctoral studies in the Department of Earth and Planetary Sciences at Washington University in St. Louis in August. She is now at Woods Hole Oceanographic Institution as a Postdoctoral Fellow, and Mitch is looking forward to having a place on Cape Cod to escape next summer’s Missouri heat! He’s even more excited that Karyn will join him on the faculty at Mizzou come January 2008. This year Mitch is teaching Principles of Geology in the Fall 2006 semester and will be offering a graduate level class in advanced geo-microbiology, along with his second go around of Historical Geology, in the Winter 2007 term.
Kevin Shelton completed a busy second year as department chair. Master’s student Jason Yu- van completed his studies of high-grade tungsten vein deposits in Canada and started work with the Stillwater Mining Company in Montana. As a welcome break from administrative duties, Kevin traveled in early August with undergraduate Ashley Ripple to Yellowknife, Northwest Territories, Canada, where Ashley is studying the complex fluid history of the Proterozoic age West Bay Fault for a senior thesis project. On the home front, Ben returned to Duke University for his sophomore year as an electrical/computer engineering major. This past summer Ben was an intern at Emerson Electric and took full advantage of the Blues scene in St. Louis. Emily, 14, started ninth grade and is looking forward to getting her driver learner’s permit in June. Kevin is especially thrilled at the prospect of a new teenage driver in the family.

Mike Underwood has been spending an ever-increasing amount of time preparing for the Nankai Trough Seismogenic Zone Experiment. His responsibilities include core member of the Project Management Team, Specialty Coordinator for lithostratigraphy and petrology, and invited Co-Chief Scientist for one of the Stage 1 expeditions. He and former post-doc Glenn Spinelli have been modeling diagenetic reaction progress at several of the proposed drilling sites in advance of the first NanTroSEIZE expedition, which is scheduled to sail in September 2007. This September, Mike was one of only six U.S. scientists invited by JAMSTEC to participate in the shakedown cruise of the new Japanese drilling vessel, Chikyu. He also served another year as Co-Chair for the Science Steering and Evaluation Panel of the IODP. When on campus, Mike taught Environmental Geology, Sedimentology, and Tectonics & Sedimentation. Highlights of family life include granddaughter Alicia and occasional excursions to “the other office” in Angel Fire, New Mexico.

Alan Whittington co-taught a new upper level /grad class in Solar System Science in the Fall, with his wife Angela Speck (MU Physics and Astronomy), as well as Principles of Geology in the auditorium. The silicate melts group temporarily reached 11 members, six grads, two undergrads and two visiting students from the University of Hannover, Germany. Alan and students Geoffroy Avard and Bridget Hellwig went back to Guatemala in January to do more fieldwork on the active volcanic dome of Santiaguito. They also took in Fuego and Pacaya, the other active volcanoes nearby, and collected pumice from the spectacular Lake Atitlan, an old caldera. In the Winter semester, Alan led the Igneous-Metamorphic Petrology trip to southeast Missouri, again joined by a group from the University of Arkansas, and Development Board member Cheryl Seeger, who gave a fascinating account of the newly exposed geology around Taum Sauk, following the spectacular dam failure of December 2005. Alan also taught a new graduate class on Silicate Glasses, Liquids and Magmas. In the summer, Alan took advantage of the Unklesbay travel fund to explore the geology of northern California, taking in faults in the Bay Area, granites in Yosemite, rhyolite domes around Mono Lake, basalt flows at Lava Beds National Monument, and the caldera at Crater Lake National Park. Angela and two-year-old Xander were field assistants.

Carol Wicks taught Environmental Geology and Geology of Missouri State Parks this past year, both of which were held in Keller Auditorium. Carol also taught an Applied Numerical Methods class for graduate students. Carol was elected Fellow in the Geological Society of America. Ethan Jenzen presented his Masters project in May 2006. Ethan used the heat-pulse method to determine the rate of infiltration of water through a sediment-choked losing stream reach. Ethan is now working in his home state of Minnesota. Master’s student Mary Schubert is completing her course work and will start on her project this coming semester. Carol’s research efforts continue to focus on two aspects of processes in karstic basins: wavelet analyses of time series data and scour disturbances and habitat destruction. This academic year Carol is on Research Leave and will be visiting the Karst Research Institute in Slovenia, the Geophysical Fluid Dynamics Laboratory at Florida State, and the Edwards Aquifer Authority in San Antonio along with giving talks at Nebraska and Illinois State.
### Active Research Grants

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<th>Grant Source</th>
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<td>Air Force Research Lab</td>
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Master’s student Sara Harkins at the Linda MVT prospect in the Flinders Ranges, South Australia. She and Martin Appold are pursuing fluid inclusion and lead isotope studies of non-sulfide zinc-lead deposits of the region.
This fall, our department hosted a Brazilian undergraduate student Rafael Rubo from the State University of Campinas. Rafael is our fourth Brazilian student in the last eighteen months to take advantage of MU’s exchange program in Geology and Civil Engineering.

Marie-Helene Cormier joined our faculty as an assistant professor in September 2006. Milene completed her PhD at the University of California—Santa Barbara in 1994. A geophysicist by training, Marie-Helene was a postdoctoral fellow from 1994-96 and since 1996 was a Research Scientist at Columbia University’s Lamont-Doherty Earth Observatory. She has a long-standing research interest in the study of mid-ocean ridges, employing multi-beam bathymetry, side-scan sonars and magnetic and gravity data to document their changing geometry and investigate possible driving mechanisms. She has extensive sea-going experience, having participated in 12 expeditions, including eight as co-chief scientist. Since 2000, Marie-Helene has coordinated a multi-national research project that addresses Holocene activity along the submerged plate boundary along the North Anatolian Fault beneath the Marmara Sea, northwest Turkey.
Visiting Faculty

Associate Professor Huai Zhang of the School of Earth Sciences, Graduate University of the Chinese Academy of Sciences is visiting our department from September 2006 until March 2007. His expertise is in Computational Geodynamics, especially large-scale simulation of active tectonic problems and seismic wave propagation and tsunami hazards. He has developed novel algorithms and software technologies for parallel computing that are integral to the research being conducted by many of our faculty members in geophysics and tectonics. We are pleased to have him as a frequent visitor.

Postdoctoral Fellows

This year we are pleased to have three postdoctoral fellows in the Department, from left Álvaro Jiménez Berrocoso, Tony Nemer and Hui Wang. Álvaro’s research with Ken MacLeod is focused on understanding diagenetic patterns and geochemical signals in Cenomanian-Santonian black shales of Demerara Rise (ODP Leg 207, western tropical N Atlantic). Tony is working with Paco Gomez on the active tectonics and assessment of earthquake potential in the Middle East (Dead Sea Transform Fault) and Northwest Africa (Morocco). Hui is modeling the San Andreas fault with Mian Liu.
Exciting News from Our Tectonics-Geophysics Group

Here are recent news releases from the MU News Bureau regarding research being conducted by the tectonics-geophysics group in our department. These high-profile projects are bringing national and international attention to our program.

MU Geoscience Research Team to Drill into Earthquake Zone Below Ocean

Columbia, Mo.—A multi-year joint project among American, Japanese and other international scientists has the goal of putting instruments at depths below the ocean’s floor where earthquakes happen, leading to a better understanding of the deadly quakes. The project’s first step began earlier this month with a shakedown cruise of Japan’s state-of-the-art deep sea drilling ship named Chikyu. University of Missouri-Columbia geologist Michael Underwood is one of a handful of American scientists who will participate in the shakedown cruise.

The project, Nankai Trough (NanTroSEIZE), is a multidisciplinary study of tectonic plate—the large plates that make up Earth’s rigid outer shell—in southwest Japan, a region that experiences generated tsunamis. According to is the first scientific ocean drilling that makes it possible to drill up to Scientists plan to use the ship to zone where earthquakes are measured activity over time. Previously, the seismogenic zone was too deep.

“Chikyu is one of the modern technological marvels. Based on the expenditures and goals of this project, it’s comparable to sending a spaceship to the moon. The project’s ultimate goal of putting instruments at the depths where earthquakes are actually occurring will allow us to gather new types of data and information, which will help us understand the earthquakes happening there and in other places around the world,” said Underwood, who is specialty coordinator, a member of the project management team and one of 10 co-chief scientists for NanTroSEIZE’s initial stage of five expeditions.

The shakedown cruise, which began Aug. 6 and is expected to conclude in mid-October, marks the first step toward NanTroSEIZE’s goals. During the cruise, the crew will conduct a test drilling to a depth of 2,200 meters at a site east of Japan’s Shimokita Peninsula. Underwood will participate in the shakedown cruise Sept. 9-15. NanTroSEIZE is expected to begin its first research stage in fall 2007. Multiple expeditions and stages are scheduled and will involve hundreds of scientists, engineers and assistants. NanTroSEIZE is an Integrated Ocean Drilling Program (IODP) project. U.S. participants during the shakedown are supported by Joint Oceanographic Institutions (JOI) and will operate in cooperation with the Center for Deep Earth Exploration (CDEX), a part of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC).
Study Shows Motion of Earth’s Plates Consistent for 40 Million Years
Researchers also found that hotspots are moving in the opposite direction of plates

COLUMBIA, Mo. – A recent study at the University of Missouri-Columbia may impact the way scientists look at history. The study, which examined the relationship between plate tectonics (movement of the broken pieces of Earth’s rigid outer shell) and hotspots (areas of sustained volcanism) provided evidence that the motion of Earth’s plates has remained the same for the past 40 million years. Previously, scientists had proof from only the past 3 million years.

“This means that now we have enough confidence to say that 40 million years ago, the plates were moving in approximately the same way they are today,” said Mian Liu, MU professor of geological sciences in the College of Arts and Science. “Direct evidence for constructing a plate motion model is available only for the past 3 million years. Our study allows us to extend the history of plate motions with greater certainty.”

Liu and Shimin Wang, MU postdoctoral fellow in geological sciences, tested a hypothesis developed by geophysicist William Jason Morgan in the early 1970s. Morgan theorized that there had been no major reorganization of plates in the past 40 million years and that hotspots remained fixed relative to each other. Morgan’s propositions have become two main pillars for modern research of plate tectonics. Wang and Liu’s findings support Morgan’s assumption about plate reorganization but reject his proposition that hotspots are fixed.

“Our findings give us a better idea of what happened in the past,” Liu said. “This information is useful to geologists as well as researchers in many other fields, from climate change to animal migration, because all of these things are affected by how the configuration of Earth’s surface has changed in the past due to continued plate motion.”

For the past 30 years, hotspots were assumed to be fixed, which allowed scientists to use them as reference points for measuring absolute plate motion, the motion of plates relative to Earth’s deep interior. However, this convenient reference framework has been shaken by increasing recent evidence pointing to the possibility that hotspots are moving. Liu and Wang’s findings confirm that hotspots are not fixed, but also show that hotspots can continue to serve as a useful framework for absolute plate motion because they move in a consistent and predictable way.

“Statistical compatibility tests show that hotspots have moved, but their movement has not been arbitrary. They move in a special way: opposite to plate motion. That means that scientists can continue to use hotspots as reference points, although we must now think of them in a different way,” Wang said. “The surface of our earth moves in a simple and beautiful way. Our research answers some confusing questions and clarifies the relationship between plate tectonics and hotspots. This sets up the main framework for plate tectonics and enables us to better reconstruct the Earth’s changing surface.”

Wang and Liu’s study was published in the June issue of the journal Geology.
Hydrothermal vent in the Faulty Towers structure of the Mothra Hydrothermal Vent Field, Endeavour Segment, Juan de Fuca Ridge taken on Alvin Dive 4233, August 29, 2006, at 2,280 meters depth by Mitch Schulte.

Alan Whittington, and graduate students Mike O’Malley, Bridget Hellwig and Geoffroy Avard preparing to ascend Santiago dome in Guatemala. The ascent was made at night to allow observation of incandescent lava flows. They played Frisbee on top of the dome to warm up afterwards.

These peaks in the Kunlun-Shan in northern Tibet are just over 6000 meters high. This photo from Eric Sandvol shows one of the potential station locations for a very large collaborative seismic experiment (ASCENT) that will cover much of the central and northern Tibetan plateau and is taken from one of the field headquarters for the experiment.
Paco Gomez, postdoc Tony Nemer and a field assistant from the American University of Beirut setting up a neotectonic GPS survey of the Yammouneh fault in the Bekaa Valley of Lebanon.

Mitch Schulte proudly displays his Missouri Tigers shirt while on board the R/V Atlantis after his most recent Alvin dive.

Cheryl Kelley, Mary Hogan and Brad Bebout (both from NASA Ames) collecting sediment cores from Baja California. Cheryl and master’s student Elyn Potter are studying microbial mats in these hypersaline environments.
PHOTO GALLERY

FIELD TRIPS

Reflection seismology in action at Dry Lake near field camp. Eric Sandvol demonstrates the proper technique of generating seismic waves with a shotgun shell. Master’s student Chris Brocka protects his ear while undergraduates John Krueger (MU) and Danielle Robinson (Missouri State University) look on from a safe distance.

Geology Development Board member Cheryl Seeger (Missouri Geological Survey) engages MU and Arkansas students in a debate about the origin of the Pilot Knob iron ores on Alan Whittington’s Igneous and Metamorphic Petrology field trip.

Undergraduate Ashley Ripple provides the scale for Archean pillow basalts at the Giant gold mine, Yellowknife, NWT, Canada. Note the proper use of safety clothing!
Visiting Speakers

A rich and varied program of visiting speakers was funded by our Williamson Family Endowment Fund. Last year’s Williamson Family Colloquia included:

Harold Behrens, Institut fur Mineralogie, Hannover
The contribution of laboratory experiments to understanding volcanic processes: A case study on Unzen Volcano, Japan.

Del Bohnenstiehl, Lamont-Doherty Earth Observatory (Columbia University)
Marine tectonic studies using passive underwater acoustics.

Elizabeth Catlos, Oklahoma State University
From mineral grain to mountain range: Perspectives on the evolution of the Himalayas.

Ibrahim Cemin, Oklahoma State University
Post-collisional extensional tectonics and exhumation of the Menderes Massif in the western Anatolia extended terrane, Turkey.

James A. Conder, Washington University
The viability of three simultaneous melting mechanisms at volcanic arcs.

Marie-Helene Cormier, Lamont-Doherty Earth Observatory (Columbia University)
Quantifying Holocene activity along submerged plate boundaries: Examples from the North Anatolian fault and the East Pacific Rise.

Nicholas W. Hayman, Duke University
Drilling and diving into fault systems of the oceanic crust.

Achim Herrmann, Arizona State University
The late Ordovician ocean-climate system: Geochemical and numerical model constraints.

G. Randy Keller, University of Texas, El Paso
A geophysical overview of continental rifts.

Ted Labotka, University of Tennessee
Fluid-mineral reactions: A laboratory field trip.

David Leach, U.S. Geological Survey (Denver)
The distribution of SEDEX Pb-Zn deposits in passive continental margins.

Sven Morgan, Central Michigan University
Plug-flow roll-over of magma sheets and fast emplacement of the trachyte mesa laccolith, Utah.

Jill Pasteris, Washington University
Bioapatite: Tiny mineral with a huge appetite.

Karyn Rogers, Washington University
The microbe/energy interface: Lessons from a shallow marine hydrothermal system.

Donald Siegel, Syracuse University
The origin of the Saratoga Springs: Health, history and maybe some horses.

William Woessner, University of Montana
The occurrence, transport and fate of viruses and pharmaceuticals in groundwater impacted by septic system effluent: The hydrogeologists and human health.
Tracing the Sinks at Camp Branson

This summer’s field camp session included one of our more unique projects in years—dye tracing the waters of the Popo Agie River from their disappearance down the Sinks to their reappearance at the Rise (more details below). The experiment was part of our second year of expanded and advanced projects in hydrogeology and geophysics, which was made possible by a grant from the National Science Foundation. Of course, the camp also included many of the tried and true mapping projects (Dallas and Derby Domes) and soft-rock and hard-rocks projects that would be familiar to many of the camp’s alumni. But we feel very good about our program of expanding students’ instructional options while still providing them with a broad and solid foundation of field geology experiences.

Our student group this year included 16 students from 10 schools, seven from Missouri schools: MU, Missouri State, CMSU and NWMS, and nine from other states (New York, Massachusetts, South Carolina, Michigan and Maryland). Schools represented included Columbia University, Clemson, University of Maryland, Syracuse, Tufts, and Wayne State. Half of the students (see photo) received partial scholarships to attend the course from funds donated to field camp scholarship funds by many department alumni.

Many of the students came to Camp Branson specifically to participate in our advanced projects options, and our curriculum revisions over the past few years have set the stage for these new options. For many years, the fifth week of camp has been devoted to hydrogeology projects, shallow geophysics projects, and surficial geology mapping in the Red Canyon area on Nature Conservancy property.

During this period, the area has been very well instrumented for instruction with over 40 Geoprobe wells, several mini-piezometers, and a Parshall Flume. This year during this fifth week, students installed several more Geoprobe wells and piezometers, monitored water table elevations, mapped the water table, tested aquifer properties, determined groundwater flow direction and velocity, analyzed water samples for basic geochemistry, evaluated surface-ground water interaction, and measured stream discharge using a variety of techniques. These studies were integrated with shallow seismic refraction projects in an effort to correlate shallow stratigraphic layers with groundwater results from the Geoprobe wells.

During the sixth week of camp, students now have three project options: advanced projects in hydrogeology, geophysics, or hard-rock structural analysis. During the past two years, students were about evenly divided among the three options. The advanced geophysics projects taught the students to use our new 32-channel seismic data acquisition system and laptop computers to collect and analyze seismic reflections generated by a shotgun powder charge. They designed appropriate data acquisition plans, learned to use a time-term inversion scheme to improve their data models, learned to use basic refraction tomography, and to image the tight synclines that occur along the margin of Dallas and Derby Domes.

Students who selected the advanced hydrogeology project used the tools developed in the first week to address several real-world problems, including assessing contamination from a local landfill, developing a complete water budget for a lake, and running a dye-tracing test in Sinks Canyon. About half way down the canyon from Camp Branson, the entire Popo Agie River descends into a large, limestone cave at the “Sinks.” The photo shows where bright red Rhodamine dye (obviously not red in the photo)
is being poured into the river just above the Sinks cave. The exact pathway through the subsurface from the Sinks is unknown, but the stream water returns to the surface about 400 meters downstream at a large, spring-fed pool called the “Rise.” The results of the test indicate that dye added at the Sinks took over two hours and five minutes to reach the Rise via some uncertain circuitous route.

The new projects were again run by a dedicated group of faculty members. Eric and Christine Sandvol guided the students through seismic studies across the project area, and Dennis Dahms (University of Northern Iowa) ran a terrace mapping project where the students map a sequence of Pleistocene to Holocene stream terraces in Red Canyon. Don Siegel (Syracuse) and Laura Lautz (SUNY Environmental Sciences and Forestry) headed up the hydrogeology projects, and Nate Kranes (Syracuse) ran the Geoprobe system to install new wells.

Other faculty and instructors this year included Linda Ivany (Syracuse) who covered the sedimentation-stratigraphy projects analyzing sedimentary facies and sedimentary structures. Bob Bauer and Joe Reese (Edinboro University) covered the structural-mapping projects on Dallas and Derby Domes and were assisted by TAs Angie Van Boening and Chris Brocka, both MU graduate students. Bob ran the hard-rock mapping projects in the South Pass area. Mark Anders (Columbia University) and Dennis Dahms returned to run the four-day trip through northwestern Wyoming and adjacent areas. Mark provided his expertise on the Snake River Plain, the Yellowstone hot spot and the Heart Mountain detachment, and Dennis presented stops on the Pleistocene glacial history of the region and the Yellowstone thermal areas and their associated geomicrobiology. Angie Van Boening served as the logistical coordinator for the trip along with Chris Brocka.

Joe Albin, a Philosophy and Religious Studies student at MU, served as this year’s cook and dessert specialist (very popular with the students). Chris Brocka did double duty this summer, serving both as a TA and as the camp caretaker. He was a great asset in both jobs. Both Angie and Chris also did a great job as TAs. This was Angie’s third summer as a TA and Chris’s second. We’ll be happy to see them both finish their master’s degrees this fall but sad not to have their expertise for another year.

Thanks to all of the faculty, staff, and alumni contributions that help Camp Branson continue to flourish.

Scholarship recipients: Front row: Phung Pham (Clemson), Courtney Kohlhoff (Wayne State), Maura Allaire (Tufts) and Danielle Robinson (Missouri State University). Back row: Jeff Steadman (CMSU), Noah Ferree (CMSU), John Snyder (Columbia University) and Cody Schalue (CMSU).
New Undergraduate Research Program

This fall we began a departmental Undergraduate Research Program. The program will be funded from three Opportunities for Excellence in Geology Endowments (the John and Betty Marshall, Walter D. Keller and Norman E. Smith funds). We plan to fund approximately five undergraduate projects per year at approximately $3,000 each that may lead to Senior Theses.

The intent of the program is to provide funds to enable undergraduates to conduct meaningful field- and laboratory-based research as part of their MU education. There are a number of benefits to such a program:

(1) It encourages and rewards research starting early in our students’ careers.

(2) It is a great recruiting tool to attract students to our program.

(3) Our students will be more competitive and better prepared for graduate school and the work force.

(4) The program increases our department’s visibility on campus and beyond.

(5) Integrating meaningful research into our undergraduate curriculum allows us to create a unique role relative to other state-funded universities in Missouri.

The first two students to be funded through this program are Nick Barber and Ashley Ripple. Nick is studying the effects of fluorine on viscosity of silicic and dacitic magmas with Alan Whittington. Ashley is investing the complex fluid history of a major Proterozoic fault in the Northwest Territories of Canada with Kevin Shelton. We are extremely grateful to the donors to the Opportunities for Excellence in Geology Endowments who have provided research opportunities for these students.

Undergraduate Nick Barber begins his first glass melting experiments to document the effect of fluorine on viscosity.
Undergraduate Degrees

Bachelor of Arts
Elyn G. Potter

Bachelor of Science
Frederick A. Davis
Rebecca Dodds
Eric P. Livingston
Geoffrey A. Rigsby

Senior Thesis
Frederick A. Davis
Experimental determination of the rates of quartz dissolution in basaltic liquids of different initial silica saturation.
Adviser: Alan Whittington

Phi Beta Kappa
Amanda Lough was one of only ten juniors in the College of Arts and Science picked for Phi Beta Kappa. Congratulations Amanda!!

Scholarships

Richard G. Boyd Scholar
Chris Burrows

Edmond & Mary Raymond Scholar
Amanda Lough

Pearl T. Sando Scholars
Miriam Galenas
Katherine Pecsok
Amy Morrissey
Ashley Ripple

Fred Strothmann Scholars
Rachel L. Barker
Sarah Grant
Joseph Hahn
Joseph Lutes
Jennifer Perfatek
Jake Schell

Field Course Scholars
Maura Allaire
Noah Ferree
Courtney Kohloff
Phung Pham
Danielle Robinson
Cody Schalue
John Schneider
Jeff Steadman

Thanksgiving celebration in the department. Cheryl Kelley and Damon Bassett are in front of the line, followed by Cathy Zumsteg, Nandini Basu and Bill and Carla Johns. Peter Nabelek and Bob Bauer enjoy conversation while they await the fine food.
Graduate Degrees

Master of Science

Jennifer Cooper
Igneous intrusions and thermal evolution in the Raton Basin, CO-NM: Contact metamorphism and coal-bed methane generation.
Adviser: Alan Whittington

Bridget Hellwig
The viscosity of dacitic liquids measured at conditions relevant to explosive arc volcanism: Determining the influence of temperature, silicate composition, and dissolved volatile content.
Adviser: Alan Whittington

Jacqueline Getson
Effect of plagioclase crystallization on liquid and magma viscosity in the anorthite-diopside-fors terite-quartz system.
Adviser: Alan Whittington

Ethan Jenzen
Rate of recharge through losing stream reaches.
Adviser: Carol Wicks

Jason Yuvan
Fluid inclusion and oxygen isotope studies of high-grade quartz-scheelite veins, Cantung mine, North-west Territories, Canada: Products of a late-stage magmatic-hydrothermal event.
Adviser: Kevin Shelton

Doctor of Philosophy

Joseph Hill
Structural geology and tectonics of the Paleoproterozoic rocks of the Mount Rushmore Quadrangle, Black Hills, South Dakota.
Adviser: Peter Nabelek

Qingsong Li
Fault evolution and earthquakes.
Adviser: Mian Liu

Scholarships

John F. Burst Scholar
Jennifer Maloney

Graduate School Fellows
Daniel Perrault
Michael Rigby

Walter D. Keller Scholars
Hitoshi Banno
Sara Harkins
Carolina Isaza
Jennifer Maloney
Steven Pagan
Michael Rigby
Angela Van Boening

Dan E. McMillen Scholars
Deepak Manjunath
Elyn Potter

Fred H. Strothmann Scholars
Justin Beasley
Christopher Brocka
James Clements
Daniel Perrault
Elyn Potter

W.A. Tarr Scholars
Geoffroy Avard
Jennifer Maloney
Amanda Lough receives the inaugural Geology Development Board Outstanding Undergraduate Award from Board Chair Ed Williamson. Amanda was one of ten juniors in the College of A&S inducted into Phi Beta Kappa this past semester.

Jennifer Cooper receives the 2005-06 Superior Graduate Achievement Award from Bob Bauer.

Chris Brocka receives the 2005-06 James H. Stitt Graduate Teaching Award from Bob Bauer.
Student Publications and Abstracts


Davis, F., Cooper, J.R., Whittington, A., Fleming, T., and Marshak, S., 2005. Xenocryst dissolution in continental basalts: Experimentally determined rates and textural comparison with field examples from Colorado and Antarctica: GSA Fall Meeting, Salt Lake City.


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**Student Grants and Awards**

**American Geophysical Union Outstanding Student Paper**

Jackie Getson

**Geological Society of America Research Grant (Outstanding Merit)**

Damon Bassett

**Society of Economic Geologists Student Research Grant**

Sarah Harkins

**James H. Stitt Graduate Teaching Award**

Chris Brocka

**Superior Graduate Student Award**

Jennifer Cooper

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**Congratulations!**
Investments in the Future

The Department of Geological Sciences gratefully acknowledges the financial support of alumni and friends who promote the recognition, welfare and progress of the Department of Geological Sciences and the University of Missouri-Columbia. Donors whose cumulative gifts to MU, including corporate matching contributions, total $25,000 cash or pledge or $50,000 or more deferred are recognized through the University of Missouri-Columbia’s Jefferson Club.

![Snow at Camp Lander (before it was Camp Branson) on June 14, 1945. Photo taken by Betsy Page McRae (MU ’48).]

**Ambassadors**
Mr. and Mrs. Norman F. Jeffries

**Very Distinguished Fellows**
Drs. Alice M. and John F. Blount
Dr. and Mrs. Tom Freeman Jr.
Mrs. Hugh M. Looney
Mr. John H. Marshall Jr.
Dr. and Mrs. Herman Ponder

**Distinguished Fellows**
Mr. and Mrs. Richard G. Boyd
Mr. Stephan M.L. Eisner
Mr. Donald S. Garvin
Mr. B. Ray Holifield
Mrs. Wallace B. Howe
Mr. and Mrs. Ed A. Williamson

**Fellows**
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Michael W. Quearry
Mr. and Mrs. Robert L. Rayl
Mrs. James F. Westcott

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Dr. and Mrs. Richard Bishop
Dr. and Mrs. John F. Burst
Mr. and Mrs. Paul E. Gerdemann
Mr. and Mrs. John J. Heberger Jr.
Mr. and Mrs. Harold E. Johnson III
Mr. and Mrs. Andy Kemmer
Ms. Amy C. (Patterson) King
Mr. and Mrs. Ernie Knirk
Mr. Andrew Kugler Jr.
Ms. Jane Espy Meyer
Mr. and Mrs. Robert C. Miles
Mr. Gary C. Mitchell
Mr. and Mrs. M. Clay Parsons
Mr. and Mrs. David Rapp
Mr. Scott H. Raymond
Mr. and Mrs. Robert K. Sylvester
Dr. and Mrs. M. Ray Thomasson
Mrs. Keith Tuthill
Mr. and Mrs. Tom Ware
DEVELOPMENT ACTIVITIES

CONTRIBUTIONS

2005–06 Contributors
(through Aug. 31, 2006)

Henry W. Allen    Amy C. King    Gene & Thelma Schmidt
Deborah Bergfeld  David T. King Jr.  Raymond H. Schneider
John L. Berkley   Larry M. Knox   Eugene S. Schweig III
Ray H. Bezoni     Tillie Looney   Marjorie C. Smith
Cecil W. Blank    Olav Malvik    Walter Staley Jr.
James H. Brown Jr. Joan S. McDougal Craig A. Stewart
Jack D. Burgess   Robert C. Miles  David J. Steyaert
Wayne F. Canis    Jim P. Miller   Richard A. Tudor
Robert E. Carver  Gary C. Mitchell Rex Waid
Christopher N. Clark  George E. Moore Jr.  Kay N. Werner
James W. Danser   Dennis Murphy    Ed Williamson
George H. Davis    Susan C. Murphy Katherine Wright
J. Donald Duello   William J. Neal    Donald W. Zalusky
Grace J. Elder     John L. Nold     Matched Gifts:
John G. Elliott    Grace E. Palmer Trust
Stephan Eisner     David M. Patrick
Thomas J. Freeman Jr.  Jack J. Pennington
Alice C. Fuerst   Dorothy Peters      Anadarko Petroleum Corp.
Donald S. Garvin  Grace Phillips      ChevronTexaco
John H. Gatchell  Stephen & Alice Phillips  Chevron USA, Inc.
Richard J. Gentile Mrs. W. Shirlen Phillips  Dominion Foundation
William M. Hoag    Gerald M. Ragan    ExxonMobil Foundation
Richard D. Hoare  David Rapp         Kerr-McGee Foundation
Guy Horton        Scott H. Raymond    Marathon Oil
Janine Hron       Linda Roser         Phillips Petroleum
Hal & Ruth Johnson Thomas D. Rush      Shelter Insurance Foundation

Special Thanks

Our Department of Geological Sciences gratefully acknowledges the establishment of 11 new endowment funds from our alumni. These are:

Dr. David K. Davies Memorial Scholarship in Geological Sciences
Dr. Raymond L. Ethington Student Scholarship Fund
Professor Tom Freeman Geology Student Scholarship Fund
Glen R. Himmelberg Geology Student Scholarship Fund
William D. Johns Geology Student Scholarship Fund
Larry M. and Sherilyn S. Knox Geology Student Scholarship Fund
Robert C. and Lisa Miles Geology Student Scholarship Fund
Mitchell Family Endowment for Camp Branson
Scott Raymond Endowment for Outstanding Achievement
David J. and Jennie F. Steyaert Geology Student Scholarship Fund
Dr. George W. Viele Student Scholarship Fund
Endowed Scholarship Funds

William Burrows Allen Field Camp Scholarship
Mr. & Mrs. Richard G. Boyd Endowment Fund
John F. Burst Graduate Fellowship in Industrial Minerals
Richard P. Frey Memorial Paleontology Fund
Donald S. Garvin Geology Field Camp Scholarship
Leonard D. Harris Scholarship
Wallace B. Howe Fellowship in Geology
Clayton H. Johnson Memorial Scholarship Fund
Hal and Ruth Johnson Fellowship Fund
Walter D. Keller Scholarship Fund
Maurice G. Mehl Memorial Scholarship in Field Geology
James G. Mitchell Memorial Fund in Geology
Ernest J. Palmer Memorial Scholarship
Mrs. Pat Scholarship for Geology Students
Raymond E. Peck Undergraduate Scholarship
Raymond E. Peck Graduate Fellowship
Edmond A. & Mary L. Raymond Scholarship
Carl B. Rexroad Geological Sciences Endowment Fund
Pearl Todd Sando Geology Scholarship Endowment Fund
James H. Stitt Memorial Scholarship Fund
Fred Strothmann Perpetual Geology Scholarship
W.A. Tarr Scholarship
Dr. M. Ray Thomasson Graduate Fellowship Fund
George W. Viele Memorial Geology Field Camp Scholarship Fund

Unrestricted Endowment Funds

Lily Marie Carter Endowed Geology Fund
Geology Endowment Fund
Walter D. Keller Opportunities for Excellence Endowment in the Geological Sciences
John & Betty Marshall Opportunities for Excellence Endowment in Geology
Gene & Thelma Schmidt Geology Endowment
Norman E. Smith Opportunities for Excellence in the Department of Geological Sciences
John M. Ware Memorial Geology Endowment
Williamson Family Geology Endowment

Other Endowed Funds

E.B. Branson Professorship
R.E. Peck Professorship
A.G. Unklesbay Travel Award

Bequests

Blount Opportunities for Excellence in the Department of Geological Sciences
Cache Creek Exploration Co. Scholarship Fund
Norman & Shirley Jeffries Graduate Fellowship
Robert W. Quearry Scholarship Fund
Carl R. Swartzlow Memorial Geological Sciences Endowment Fund

Charitable Remainder Trusts

John & Betty Marshall Opportunities for Excellence in the Geological Sciences
Jack & Mildred Schindler Geological Sciences Endowment Fund
The Geology Student Scholarship Fund

On June 1, 2005, the Geology Development Board and the Department of Geological Sciences initiated a campaign to establish the Geology Student Scholarship Fund (GSSF).

Help Us to Shape the Future: Our Department has a tradition of commitment to excellent training of students in the geological sciences. Caring faculty mentors in the classroom, the laboratory and the field have shaped our students’ lives. To continue this legacy, we ask you to share in establishing a permanently endowed fund to provide scholarships to undergraduate and graduate students.

To Attract the Finest Students: The Department seeks private gifts to raise $1 million for an endowed Geology Student Scholarship Fund to help attract the finest students. Our immediate need is scholarships for graduate students. Annually, 5 percent of the fund will be distributed to enhance stipends for students. For example, a $1 million fund will provide ten scholarships at $5,000 per student to supplement current graduate stipends.

To Compete with Peer Institutions: A department’s ability to offer competitive graduate financial support directly influences the quality of its graduate program. As a result of declining state support in recent years, the level of graduate student financial support the Department is able to offer is not on a par with competitor universities. For example, stipends for master’s and doctoral students are $3,000 to $6,000 higher per year per student at schools such as Kansas, Illinois and Indiana than at MU. This discrepancy is causing the Department to lose prospective graduate students. The Geology Student Scholarship Fund will significantly affect our ability to attract top students. We expect increases in the number and quality of our applicants, and an improved chance of getting our best applicants to come to MU.

To Partner with the MU College of Arts and Science: In tandem with our Geology Student Scholarship Fund campaign, the College of Arts and Science has committed to significantly increase the level of our graduate teaching stipends. Through this partnership, gifts to the fund will greatly affect our ability to attract quality students as well as reward the accomplishments of current graduate students. For 2006-2007, we received a 6% increase in our TA stipends. We typically receive 2%, so the initiation of our GSSF campaign has already resulted in an extra 4% in our TA budget.

How You Can Help: Alumni and friends of the Department are uniquely positioned to help an already strong department. The members of the Geology Development Board have pledged lead gifts to the fund. Now we ask for your help. Please join in strengthening the future of the Department through a gift to the Geology Student Scholarship Fund.

• Gifts of all amounts will help make a difference in the lives of our students.
• Gifts of $25,000 or more will allow donors to name individual scholarships within the fund in honor of a mentor, family member or geology friend.
• Gifts of $100,000 will produce a $5,000 scholarship for a new graduate student each year.

Assist the Next Generation:
“Our Department has an excellent graduate student body that is doing top-notch research comparable to that at leading universities across the nation with whom we compete for quality students. Enhancement of student stipends will make us a more attractive choice for our best graduate student applicants. As you know, life as a graduate student is not easy. We have to teach, take classes and conduct research while living on a tight budget. In partnership with the Department, the College of Arts and Science has also begun to raise the level of support for current graduate students. We are very thankful for your support of this campaign and its impact on our own and future students’ educational experiences.”
— Carolina Isaza-Londoño
MS 2004 and current PhD student
Geology Student Scholarship Fund Campaign Success

Fund Tops $200,000 Level

Our new Geology Student Scholarship Fund (GSSF) topped the $200,000 level in early July! As you may recall, our goal is to raise one million dollars to provide ten $5,000 scholarships annually to help attract top graduate students. Attaining the $200,000 level has allowed us to award the second $5,000 scholarship from the fund.

Six New Funds Named for Former Professors

Six new funds were created this year under the umbrella of the GSSF fund.

Edie and Dick Bishop (MA ’69), as part of our overall Geology Student Scholarship Fund (GSSF) campaign, have established four endowed scholarship funds in honor of former geology professors Raymond L. Ethington, Tom Freeman, Glen R. Himmelberg, and George W. Viele.

Ruth Davies and the Ed Williamson (MA ’73) family established an endowed scholarship fund in honor of Ruth’s husband, former geology Professor David K. “Dai” Davies.

Scott Raymond (BS ’72, MA ’74) established a new scholarship fund in honor of his master’s adviser Professor Emeritus Bill Johns.

We are grateful for these generous gifts and hope that these scholarship funds will encourage former students and friends to make additional contributions in honor of these professors.

Inaugural Dr. M. Ray Thomasson Graduate Scholarship Awarded

Xueyang Bao was awarded the first Dr. M. Ray Thomasson graduate scholarship. Bao is working with Eric Sandvol on a doctoral project measuring crustal attenuation in the Middle East. Their studies will characterize motion of the crust during formation of mountain belts and will help to better discriminate between earthquakes and explosion events.
We have awarded the second Geology Student Scholarship Fund scholarship to new doctoral student Hitoshi Banno. Hitoshi comes to us following bachelor’s and master’s studies at the University of Arizona and St. Louis University. He will be working with Mike Underwood on the Nankai Trough Seismogenic Experiment. Plans are advancing to complete four IODP drilling expeditions during Stage 1 of NanTroSEIZE, which should begin in 2007. NanTroSEIZE will be the first project to utilize the new Japanese drilling vessel Chikyu. Hitoshi’s responsibility will be to determine the role of clay minerals on stability of the subduction zone fault, through determination of clay mineralogy and geochemistry during clay diagenesis. The overall goal is to determine how variations in sediment input to the subduction zone affect the physical behavior of the plate-boundary fault at seismogenic depths.

Seadrill technicians assembling riser pipe (21-inch inside diameter) on the rig floor of DV Chikyu during the Shimokita shakedown cruise. Riser-drilling capability of the vessel is 2,500 meters maximum water depth. Maximum length of the drill string is 10,000 meters.
Geology Development Board
Membership, 2006

Ed Williamson, Chair
BP Amoco (retired)
Houston

David Fulton, Vice Chair
MWH Americas Inc.
Broomfield, Colo.

Geoffroy Avard
University of Missouri-Columbia

Mary S. Clark
Department of Natural Resources
Jefferson City, Mo.

B. Ray Holifield
Holifield Co. Inc.
Giddings, Texas

Carolina Isaza
University of Missouri-Columbia

Harold E. Johnson III
U.S. Geological Survey
Columbia, Mo.

Ernest P. Knirk
Dominion Exploration & Production
Calgary, Canada

Larry M. Knox
Dominion Exploration & Production
Houston

Marshall Energetics Inc.
Plano, Texas

Wes McCall
Geoprobe Systems
Salina, Kan.

Gary Mitchell
Infinity Energy Resources Inc.
Denver, Colo.

Michael W. Quearry
Chevron
Houston

Scott Raymond
Marathon Oil Co. (retired)
Littleton, Colo.

Gene Schmidt
Consulting geologist
Tulsa, Okla.

Cheryl Seeger
Department of Natural Resources
Rolla, Mo.

Walter G. Staley Jr.
A.P. Green Refractories (retired)
Mexico, Mo.

David J. Steyaert
Impact Energy Resources
Denver, Colo.

Scott Raymond and MU Chancellor Brady Deaton at the 2006 A&S Mosaics Society dinner. Scott recently endowed a scholarship fund in honor of his graduate adviser, Bill Johns.
From Our Geology Development Board Chair …

The Geology Development Board is a group of people who support the interests of the Department of Geological Sciences. A major focus—although not the only one—of the Geology Development Board in the year just past has been on the Geology Student Scholarship Fund. As mentioned elsewhere in the Newsletter, the GSSF continues to grow and is making a significant positive impact in the Department of Geological Sciences. This year the department awarded a second new $5000 scholarship. I am confident that we will continue to increase the number of GSSF scholarships in future years.

Of particular note are several new scholarship funds named for former Mizzou geology faculty members. These funds are especially appropriate vehicles for someone to “give back” to the department, in the name of a former professor who perhaps had a major impact on one’s education and experience at Mizzou.

I offer a heartfelt “thank you!” to all of you who have contributed to these efforts or are considering doing so in the future. Also, I will take this opportunity to recognize and thank my fellow development board members, all of who have worked in support of the department and who have made their own personal contributions.

We also note that the 100th anniversary of Camp Branson is approaching in a few years (2010). We on the board will be spending a significant amount of our meeting time in the future on considerations of how to help maintain Camp Branson as one of the nation’s premier geological field camps.

Anyone with questions or suggestions about the board’s activities should feel free to contact me at any time.

All the best.

Sincerely,

Ed Williamson
Chairman

A&S Dean Mike O’Brien and Glen Himmelberg (behind the flowers) enjoy dinner at the Sheltons’ house before the Geology Development Board’s spring meeting. Clockwise from Glen are Gloria Smith, Jess and Alma Marshall, Mike Underwood, Mitch Schulte and Martin Appold.
Kevin Shelton presents Ed Williamson with a plaque honoring his years of service as chair of the Geology Development Board. Ed has agreed to serve another 2-year term as chair.

Kevin Shelton presents Dave Fulton with a plaque honoring his years of service as Vice Chair of the Geology Development Board.

Mitch Schulte, Ed Williamson, Hal Johnson and Karyn Rogers enjoy beverages and conversation at the fall Development Board dinner at the Sheltons’ house.
Eddie A. Williamson, MA ’73 Geological Sciences, received a 2006 Arts and Science Distinguished Alumni Award this past semester, following a reception in the department and a dinner with the College of Arts and Science. Ed has been a devoted friend of the department and the award is well deserved. The following is the text that was provided at the award ceremony.

With a new master’s degree in hand and a Mizzou biology alumna as his bride, Eddie Williamson left campus to take a position with Amoco as a petroleum geologist. Within three years, he was supervising a team exploring for natural gas in West Texas and New Mexico. Because of his success in finding and developing new reserves, he continued to advance in the company’s management and became a certified petroleum geologist. Among the positions he held were chief geologist for the New Orleans region, division exploration manager for offshore Louisiana and manager of exploration operations for Amoco U.S.

In 1991, Williamson became a vice president and leader of exploration and production business units in such areas as the European North Sea, western Canada and the U.S. Gulf Coast. During those years, he also served in the Division of Professional Affairs of the American Association of Petroleum Geologists and became a member of the geology foundation board at the University of Texas at Austin, where he had received a bachelor’s degree.

Since 1987, Williamson has been a member of Mizzou’s Geology Development Board and has served several terms as chair or vice chair. He is the current chair. For the past 20 years, that committed group of alumni has provided essential extra funding for the department and its nationally recognized field camp in Lander, Wyo. Most recently, Williamson initiated a campaign to raise a $1 million endowment for fellowships. The first $5,000 scholarship funded through the campaign was awarded in fall 2005.

Eddie and Connie Knotts Williamson have been married for 32 years. They have two children and one grandchild.
Alumni News

Kathleen Abel (MA ’78) resides in St. Paul, Minn.

Neil J. Babb (FC ’04) writes, “After obtaining my bachelor of science in geology from Wayne State University in 2005, I headed west. I stopped in Nevada and took a look, and continued on to Arizona where I’ve been for a little over a year. I’m very appreciative of everyone involved with Camp Branson. Regards to all!”

Doug Babcock (FC ’78, BA ’79) writes that he is still plugging away as a part-time trucking company president and a full-time cowboy wannabe. Doug writes, “Hello to the old gang.”

Bret S. Beall (FC ’81, BS ’82) writes, “You can take the boy out of paleo, but you can’t take the paleo out of the boy. I’m always introduced as ‘former paleontologist, blah, blah, blah’ whenever I give presentations/lectures/demos for my company, www-god-dess.com. It’s been great hearing from former fellow students and colleagues from the department and field prison, I mean, field camp. Keep those calls and e-mails comin’!”

Charles Beierle (FC ’62, BA ’64, MS ’77) is enjoying retirement and doing his research work in GeoScience Visualization with TerraSPARK (formerly the BP Visualization Center at the University of Colorado in Boulder).

Bill Berthold (FC ’84, BS ’85) is President of Fron tenac Engineering in St. Louis.

Greg Brennecka (FC ’03, BS ’03) writes that he finished his master’s degree at Oregon State University in 2006 in ore geology and geochemistry. Greg is currently working on a doctoral degree in nuclear chemistry at the University of Rochester.

William C. Bridges (FC ’55, BA ’56, MA ’58) writes, “I’m still on the right side of the grass.”

Jamie Cachine (MS ’05) writes, “I’ve been working as a geologist for a global environmental firm. I work in the Federal Services Group, which means I work on contracts that we have with the Federal Government. I’ve been doing a lot of work at Vandenberg Air Force Base doing soil logging, well installation, groundwater and soil remediation and drilling operations.”

Randy Cox (PhD ’95) writes, “Angie and I are hardcore Memphians by this point. We have three cats and two dogs. I am doing work about colian dunes in the mid-continent now.”

John R. Crocker (FC ’50, BA ’50) writes, “The Dallas area is still a wonderful retirement area. We have just returned from the month of January in the Antarctic (quite a geological eye opener). It was inspiring.”

Jessica Cundiff (FC ’98) is a curatorial assistant with the Museum of Comparative Zoology in Cambridge, Mass.

Christopher J. Daus (FC ’82, BS ’83) reports that he was recently named manager of the construction law practice group of the St. Louis law firm of Greensfelder, Hemker and Gale, P.C. Chris and his wife, Chery, live in Wildwood, Mo., with sons Matthew (10) and Jonathan (7).

Ansley Davies (FC ’94) is an art instructor in the Altadena, Calif., area.

George H. Davis (FC ’86, MS ’89) writes, “A good year for me. I presented two papers at Underground Construction Technology in Atlanta and taught two schools there with the Center for Underground Infrastructure Research and Education from Michigan State University. I am working to disperse knowledge of underground utility installation by horizontal boring to all of MoDot, and led a field trip on a joint AIPG/AEG Missouri meeting in Columbia on ‘trenchless technology’ in May.”

Robert Diem (FC ’51, BA ’52, MA ’53) reports that he and Anne recently attended a reunion of 1956-63 Venezuelan Atlantic folks in Texas. Bob and Anne reside in Bella Vista, Ariz.

Dana V. Downs-Heimes (MS ’86) reports that she is living in the shadow of Mt. Humphries in Flagstaff, Ariz. Dana writes, “We’ve had lots of rain this summer, which put a little dent in our 11-year drought. Prayin’ for lots of snow this winter!”

Jessie B. Ellis (PhD ’59) continues to enjoy southern California and its geologic diversity.
Evard Ellison (FC ’47, BS ’48, MA ’49) resides in Houston.

Juliana Waring Fahy (MA ’71) is still working west slope Colorado Cretaceous sediments and is enjoying it!

Daniel Ferber (MA ’79) writes, “I am still working as a child psychiatrist in several clinics in rural Oregon and Washington. One clinic is near Fossil, Ore., so I get to see great sections of volcanic rock and Bretz Flood sediments. Living in the Columbia River Gorge is great—lots of great hiking and fishing. Hello to all my old cronies from Mizzou.”

Lee Florea (MS ’98) completed his doctoral defense at the University of South Florida and has been hired by the U.S. Geological Survey as a Mendenhall Postdoctoral Fellow. Lee is working at the Ft. Lauderdale Integrated Science Center on hydrologic research pertaining to the Biscayne and Floridan aquifers.

John H. Gatchell (FC ’45, BA ’46, MA ’48) writes that he is still scrambling to keep the U.S. in crude and natural gas!

Richard J. Gentile (FC ’56, BA ’56, MA ’58) is retired and writes that he is doing things he like to do when he wants to do them!! Richard enjoys geologic mapping in western Missouri and taking classes to the Badlands, S.D., to hunt vertebrate fossils for the Geosciences Museum collection.

Craig Glassinger (FC ’69, BS ’70, MA ’72) writes, “By the reading of the 2006 Newsletter Stone Energy Corporation will most likely be merged into another company ending my 14 years at Stone. The energy business is constantly bringing new beginnings.”

Barry Goldstein (MA ’77) writes that he is still healthy and happy in Australia. Barry writes, “I have taken on the role of Australia’s representative for geothermal energy to the IEA(OECD). Hot rocks have high potential in Oz. Best wishes to all. Will be pleased to see any Mizzou’ers down under. Cheers!”

Eric Grabowski (FC ’00, BS ’00) writes that he continues to participate in monthly oceanographic cruises for the Hawaii Ocean Time Series, where he is a research oceanographer at the University of Hawaii.

Andrew Gunn (FC ’72, BS ’76) resides in Chattanooga, Tenn.

Stanley E. Harris, Jr. (Visiting Faculty ’49) writes that he likes to lead field trips, walk in the woods and garden. Stanley appreciates the time spent at MU, especially the field trips and the experience teaching.

John B. Hendren (MA ’57) writes, “After all these years it’s good to know Camp Branson is still going strong as is the Geology department at MU. Thank you all!”

F.D. (Bud) Holland Jr. (MA ’50) writes, “Many people may know that since the untimely death of Jim Parks, my 1940s classmate and field partner at the University of Kansas, on January 29, 2005, I have taken over the reworking from the copy editor of the manuscript of his book on the life of our advisor at KU, Doc Laudon. Hurrah! It will be published by the University of Wisconsin-Madison, and should be available at the GSA meeting in Philadelphia this fall. Look for Bushels of Fossils, The Influential Life of Lowell Robert Laudon (1905-93)-Teacher, Geologist, Paleontologist and Mentor in Philly. In addition, I’ve been working much of the time on Cretaceous shark teeth from North Dakota.”

William C. (Bill) Hood (BA ’59) write that he and Sandy still keep busy as volunteers for the National Park Service, creating interactive exhibits called Electronic Rangers for Visitor Centers.

W. Franklin Hooper (MA ’59) resides in Conroe, Texas.

Art Kasey (Graduate Student ’65-’70) is starting his 36th year of teaching Earth-Geoscience and Geology at Fox High School in Arnold, Mo. Art writes, “I will always be grateful to Dr. Walter Keller and Dr. Clayton Johnson for their support and leading me into this career of teaching to high school teens. Following AGI’s goals of earth science instruction for grades K-12, our school now requires all 9th grade students to take Earth Science or Honors Earth-Physical.”
Robert M. Kick (FC ’77, BS ’78) writes, “Hello to all. I continue my environmental work, but dream of those good ol’ days in the oil patch as oil prices rise. I’m office manager for Forrester’s Springfield, Mo., office. Wife Beth, daughter Laura (16) and son Daniel (13) are all well. Best to you!”

David T. King, Jr. (PhD ’80) writes that he and Lucille continue to do research on impact structures and impact stratigraphy. Hello to all old friends from my time at MU (1976 to 1980)!”

Romaine L. Kupfer (FC ’48, MA ’49) reports a quiet year in Powell, Wyo., although keeping busy with her family and their activities!

Hal Levin (FC ’50, BA ’51, MA ’52) retired in 2004 but stays busy writing and revising texts.

Stuart Maier (FC ’76, BS ’76) writes, “C’mon grads! Big $$ in the Energy Sector!”

Patrick McClung (FC ’93, BS ’94) manages his time between eight companies, whitewater kayaking, karate, and his wife and new daughter. Patrick writes, “Still waiting on verification, but of course I believe our daughter is the cutest and brightest, just like every other dad.”

Kirk McDonald (FC ’83, MS ’86) has a new daughter, Carly Renee, born December 29, 2005. Kirk writes, “We now have two girls. Rachel turned two in November. Business is going well as we enter our fifth year.”

Tim McHargue (FC ’70, BS ’71, MA ’74) writes that he is still coordinating research on turbidite reservoirs for Chevron. Tim writes, “Larger company, more staff, bigger budget, lots more work. Times are good. I am also on two doctoral committees at Stanford and three master’s committees at the Colorado School of Mines with some teaching on the side. Having fun!”

Jeff McManus (MA ’70) writes, “I just figured it out. Retirement = kids out of college. Only six years to go. Hi to everyone. All is going well!”

Todd McMenamy (FC ’95, BS ’95) is a science teacher at Helias High School in Jefferson City, Mo.

Kirk McQuillan (FC ’75, BS ’76, MA ’79) writes that he is enjoying his new job doing geological evaluations, drilling permits, and related tasks for the State Oil and Gas Board. Kirk writes, “We’re associated with the Geological Survey of Alabama, located on the University of Alabama campus, and share a fantastic geological library. All of this provides endless opportunities to explore and learn more about the diverse geology of the state and southeast region. It’s great.”

Arthur B. Merkle (PhD ’67) is still teaching earth science and physical science at Okaloosa-Walton College.

Jane Espy Meyer (BA ’41, MA ’45) reports a move from Jefferson City, Mo., to a senior retirement community in Columbia, Mo.

John C. Miller (FC ’65, MA ’68) writes, “Most of the time Mary and I wander about in our travel trailer … birding, astronomy and geologic travel. Retirement is wonderful, but we keep busy. I spent a good bit of time translating Spanish to English for a website for the El Cielo Biosphere Reserve in Tamaulipas, Mexico. We spent two weeks in Panama in early 2006 birding and visiting old friends where I used to work as a groundwater geologist (my first job after MU). We are still in Tampa, Fla., and would be glad for old friends to pass through.”

Joseph G. Minke (PhD ’69) writes, “I am still dealing with the natural resources of Park County, Colorado and helping to educate the public through the staging of the South Park Symposium. Playing tennis and enjoying the opera. Helping with the local historical archives.”

Gary C. Mitchell (FC ’67, BS ’70, MA ’71) reports a new company, new challenges and hopefully (according to Gary!) new reserves. Gary writes, “Hope to see you all here, there or anywhere!”

George E. Moore Jr. (FC ’35, BA ’36, MA ’38) reports that he is staying fairly active and celebrated his 93rd birthday in January.

Thomas R. Moore (MA ’81) is developing coalbed methane reserves from tight, thin Appalachian Basin coals by drilling multi-lateral horizontal wells. Tom writes, “High prices and proximity to market makes it worthwhile. Muffie’s back to teaching;
son Duane graduated from OSU with a bachelor’s degree in aeronautical engineering; daughter Aileen is at Emporia State in art history.”

Russ Murphy (MS ’86) writes, “By the time this newsletter is published Kerr-McGee may no longer exist. Hopefully we will be in the employ of Anadarko. Times are currently robust here in Houston, so not much worry over job opportunities. All the best to Wes McCall, John Rockhold and Kevin Shelton.”

William J. Neal (MA ’64, PhD ’68) reports that he and Mary are enjoying retirement, and he continues to do a bit of coastal geology. He writes, “Watch for our next book, Atlantic Beaches Underfoot, Mountain Press, in 2007.”

Dennis R. Ojakangas (FC ’57, MA ’59) writes, “Busily retired for the past 15 years. Where does the time go? Active with family, church, golfing, cooking, gardening, etc….”

Dave Palmer (FC ’77) is a project geologist with Delta Environmental Consultants, Inc., in St. Charles, Mo.

David Parrish (FC ’66, BS ’66, MA ’69) is the owner/operator of Center Line Consulting in Rapid City, S.D.

Dustin N. Pearce (FC ’99) is a science teacher in Perryville, Mo. Dustin writes, “My class load includes Physics and Advanced Placement Environmental Science. I’m enjoying my career, planning on getting engaged during the summer and traveling to Alaska.”

Patrick Perfetta (FC ’97, MS ’98) writes, “Hi to all. I’m currently working on several fields on the North Slope and enjoying all the great things Alaska has to offer. If you are ever up this way let me know!”

Mark E. Petersen (FC ’74, MA ’77) has completed 29 years with Marathon, and says he’s on track to make 30!

Steve Phillips (FC ’78, BS ’79, MA ’81) writes, “And so begins our ‘empty nest’ phase, and it is even better than we were led to expect! At work the demand for reservoir studies never stops. At home the lure of too many neglected hobbies provides some balance.”

Melissa Pratt Bautz (FC ’95, MS ’99) is celebrating her 7th year living in Lander, Wyo., where she is a mine inspector for the Wyoming Department of Environmental Quality.” Melissa writes, “It’s still fun to make maps! My husband, Greg, and I look after our girls, Jenny and Theresa, and get in fishing and hunting whenever possible.” Melissa boasts five bagpipe students while she is back in the competition scene this year. She is planning to compete in Kansas City in January 2007!

John E. Repetski (FC ’69, MA ’73, PhD ’75) writes, “The Repetskis are still holding the fort in northern Virginia/USGS. Rocco’s halfway through MIT (Mizzou-East, but with WAY-higher tuition), so maybe a rocket scientist in the family someday. Matt and Trey are both in high school, both hooked on computers (hey, whatever happened to the punchcards?). Everybody runs faster than me now. Donna says hi to all the Friday evening gang. I’m working on oil and gas assessments, karst terrain mapping (yes, they still need conodonts to tell the rocks apart), and anything else that calls for Paleozoic stratigraphy; even some projects with the IUP crowd (Loch, Taylor, Brezinski). Saw a Cardinals game in their new stadium this summer, and they won; good thing they didn’t play the Pirates more often, however. Cheers to all!”

Carl B. Rexroad (FC ’48, BA ’49, MA ’50) writes that work is routine, but did attend conodont meetings in England in July and a field trip in Ireland.

Paul Richmond (FC ’85, BS ’85) writes, “We are still living in Iowa. Our daughter has graduated from high school and is attending college in Iowa. Our son is in high school and has Mizzou on his college list. How time flies….. Hello to the class of 1985!”

Geoffrey Rigsby (FC ’05, BS ’05) is a geologist with Vibra-Tech Engineers in Florissant, Mo.

Joseph Satterfield (MA ’82) is with the physics department at Angelo State University in San Angelo, Texas.

Gene W. Schmidt (FC ’53, BA ’55) is staying very busy with consulting on forensics of petroleum
hydrocarbons. Gene writes, “Enjoying working with the MU geology development board. Have a new peer review paper on age dating petroleum releases using biodegradation.”

**Dietmar Schumacher** (PhD ’72) sends greetings from northern New Mexico. Dietmar recently joined Terralliance Technologies, a California-based E&P company, as the senior director of geophysics. Dietmar writes, “And to think it all started with a conodont thesis!”

**Eugene (Buddy) Schweig** (FC ’74, BS ’75) reports that this past year has been dominated by being part of the USGS Science Strategy Team, looking at directions for the Survey over the next 10 years. Buddy writes, “My wife and I are celebrating our 25-year anniversary with a trip to Italy. Two kids in college and one to go!”

**John Stewart** (MS ’84) is a senior geologist with Trigon Engineering Consultants in Greensboro, N.C.

**M. Ray Thomasson** (FC ’50, BA ’52, MA ’53) writes, “Thomasson Partner Associates Inc. continues to be very busy. We have active projects in Idaho, Montana, Utah and many smaller areas. Completing wells in Nevada, North Dakota, Alabama and Utah. The game is still a lot of fun!”

**Nick Thompson** (BS ’01) completed his master’s degree at the University of Utah-Reno in 2005. He recently began doctoral work at Bournemouth University in South England this fall.

**Aaron Tillman** (FC ’92) writes, “Greetings to the Summer ’92 field camp crew in Lander. I’m enjoying my 10th year of teaching junior high science.”

**Sarah Toure Korose** (FC ’97) is a geologist with URS Corporation in Sacramento, Calif.

**James Tyrer** (FC ’57, BA ’58) resides in Grain Valley, Mo.

**Jerry D. Vineyard** (FC ’57, BA ’58, MA ’63) serves on the board of the foundation that owns/manages Pioneer Forest, a 160,000-acre working forest in the Missouri Ozarks. Jerry chairs the Grants Commission that uses part of the forest earnings to fund projects that benefit Ozark natural and cultural resources.

**Robert “Bud” Weiser** (FC ’57, BA ’58, MA ’60) writes, “We presently live on beautiful Lake Norman near Mooresville, N.C. Our two sons, two daughters and three grandsons live near by. I finally retired 100% last year and enjoy our lake and Blue Ridge mountain homes. I have written over 800 pages of my memoirs (retired from Mobil and traveled all 50 states and 49 countries) with hundreds of added photos and am a Stage 4 prostate cancer survivor (7-1/2 years) acting as a PC mentor for our county and many throughout the USA.”

**James H. Williams** (FC ’50, BA ’51, MA ’52) writes that he is engaged in a mix of farming, geology and flying including some civil air patrol. James writes, “Returned to old haunts, the Missouri Legislature, with efforts to support the state geological survey and geology, in general. The last few years have been politically difficult times for sciences including federal and state science agencies, the universities and primary and secondary school systems.”

**Philip A. Williams** (MA ’41) resides in Freeport, Texas.

**Tom Zychinski** (FC ’86, BS ’86) is an environmental manager with Burns & McDonnell in Fenton, Mo.

Faces from the past: from left, Emmet Herbst, Hal Levin and James Williams, summer 1950 at Camp Branson. These students arrived a week before camp opened to help install a waste line for the toilets. That’s real work!
In Memoriam

David K. (Dai) Davies (Professor of Geology at MU from 1970-77) died August 3, 2006, in Houston after a long struggle with pancreatic cancer. Dai was born October 10, 1940, and grew up in Barry, Wales, on the shores of the Bristol Channel. He was the first member of his family to attend university, graduating from the University of Wales, Swansea, in 1962, magna cum laude with a degree in geology. Upon obtaining a Fulbright Scholarship he traveled to the United States in 1963 and completed his master’s degree with sedimentologist Dr. John Ferm at Louisiana State University. This started him down the path of research in sedimentary geology that spanned his long career. Dai returned to Great Britain in 1964 to continue his education, completing his Ph.D. in Geology under the mentoring of Dr. Gilbert Kelling at Swansea in 1966. In 1964 Dai married his childhood sweetheart, Ruth Gilbertson. With the couple’s entire possessions in a single chest, the couple set off on the Queen Mary to the United States, where he had accepted his first professorship at Texas A&M University in College Station, Texas. Dai thrived there, forming a life-long bond with both the university and College Station community. In 1968 he was named Assistant to the Dean of Geosciences. In 1970, Dai accepted the position of Professor of Geology at the University of Missouri-Columbia. He continued his teaching and research through 1977 when he accepted the post of Chairman of the Geosciences Department at Texas Tech University. One of Dai’s proudest legacies is the many students he instructed who pursued successful careers in the oil and gas industry as well as in academia. He was the adviser and mentor of 4 doctoral and 40 master’s degree students during his time in academia. In 1980, he established a Houston-based consulting firm, David K. Davies and Associates. Dai received numerous awards, including the A.I. Leversen Award of the AAPG in 1980. In 1983 he was named a Distinguished Lecturer for the Society of Petroleum Engineers. He was a prodigious writer, publishing more than 175 scientific papers, including some of the fundamental work in depositional facies analysis, sandstone diagenesis, formation damage and reservoir characterization. In 1991, Dai was awarded a DSc from the University of Wales for his contributions to the field of geology. Along with his wife Ruth, he was a CanCare volunteer, visiting cancer patients in The Methodist Hospital in Houston as they made their cancer journeys. In 2003 he received the prestigious Betty Jean Goss Arnold Recognition Award for CanCare volunteer of the year. He is survived by his wife, Ruth, and son, Mark of Kingwood; son John, and his wife Cindi of Houston, as well as three grandchildren Erika, Ryan and Elizabeth; brother in-law, Paul Gilbertson of Wales; sister in-law, Mary Alford of Houston; Nancy Gilbertson of England as well as nieces, Catherine and Sarah of Wales and Beverly, Elizabeth and Christine of Houston, and Richard Vessell of Kingwood. Ruth Davies and Ed Williamson (MA ‘74) have established an endowed scholarship fund in the Department of Geological Sciences at MU in honor of Professor David K. “Dai” Davies.

Friedrick K. Leonhard (FC ’79, BS ’80) of Columbia, Mo., died December 10, 2005, at the age of 51. Friedrick was born June 29, 1954, in Hanau, Germany. He earned a bachelor of science degree in geology and a bachelor of arts degree in anthropology from MU. He worked in his family’s business, Tannenbaum Ceramics, until his death.

Marshall (Iggie) Shurnas (FC ’44, BA ’45, MA ’49) died August 17, 2006 within days of his wife, Lauretta, at the Bluffs care facility in Columbia, Mo. Iggie was born in St. Louis on April Fool’s Day in 1922. He graduated from Central High School in 1940 and attended MU until 1942, at which time he enlisted in the U.S. Army, where he served with MU buddies in a field artillery unit. While a sophomore at MU in 1941-42 he was one of five all-conference MU football players that included Bob Steuber (back), Bert Ekem (end), Ed Hodges (tackle), and Mike Fitzgerald (guard). That MU team played legendary Fordham University
in the rain at the Sugar Bowl of 1942, where the Tigers lost 0 to 2. Iggy played two years as a wide receiver for the Cleveland Browns and Buffalo Bills until an injury ended his football career. He soon returned to MU, where he completed his master’s degree under the tutelage of the late Maurice G. Mehl. Iggy and his first wife, Pat, whom he married in 1948, had three children: Elizabeth (Libby), Paul, Patrick; fourteen grandchildren; and four great-grandchildren. From the time he left MU, Iggy worked for Mobil Oil Company in their coal and oil shale division. Iggy often attended MU alumni get-togethers at GSA and AAPG meetings in the 1950s and ‘60s. We miss him.

Robert M. Siebert (BS ’68, MA ’70, PhD ’74), 59, passed away on March 14, 2006, in Ponca City, Okla.

James Taylor (BA ’49, MA ’50) died in February 2005.

A.G. “Unk” Unklesbay (Former Faculty), 93, of Columbia passed away Sunday, March 12, 2006. Dr. Unklesbay was born Feb. 11, 1914, in Byesville, Ohio, the son of Howard and Madeline Unklesbay. He grew up in Byesville, graduated from Byesville High School in 1930 and received a bachelor’s degree in geology from Marietta College in Marietta, Ohio, in 1938. He attended the University of Iowa, where he was awarded a master’s degree in 1940 and a doctorate in 1942. Dr. Unklesbay married Wanda Strauch of Byesville in 1940. During World War II, he worked with the U.S. Geological Survey in the strategic minerals branch and later the Iowa Geological Survey. After teaching at Colgate University, he moved to Columbia and was employed as professor of geology at the University of Missouri from 1947 to 1966, serving as chairman of the geology department from 1959 to 1966. He was named vice president for administration of the University of Missouri system in 1966 and served in this position until his retirement from the university in 1979. Dr. Unklesbay held the position of executive director of the American Geological Institute in Washington, D.C., from 1979 to 1984. Upon retiring for the second time, he returned to Columbia, where he continued to work with the geology department. Dr. Unklesbay was active in the community. He served on the Columbia Public Schools board from 1954 to 1970 and was a member of Kiwanis. Included in the many honors he received are an honorary doctor of science degree granted by Marietta College, Distinguished Service Award by the American Geological Institute, Distinguished Alumnus Award by the University of Iowa and the naming of the A.G. Unklesbay Geological Sciences Library on the Columbia campus. Survivors include his children, Kenneth and wife Nan Unklesbay of Columbia, Marjorie Unklesbay of Indianapolis, Carolyn and husband Joseph Lambert of State College, Pa., Allen and wife Lisa Unklesbay of Leawood, Kan.; and eight grandchildren. A.G. Unklesbay was preceded in death by his parents; sister Martha; brothers Paul and Ray; Wanda, his wife of 31 years who died in 1971; and Mary Wheeler Mhyre, his wife of seven years. “Unk” will be missed by all those whose lives he touched. Memorial contributions are suggested to the A.G. Unklesbay Memorial Scholarship Fund, Department of Geological Sciences, University of Missouri-Columbia.
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Mitch Schulte (front row, second from left) and his Historical Geology class on a field trip to the Pinnacles in April 2005 (photo by Tom Freeman).

The Geology Club concession stand at the October 21, 2006 MU football game. MU won 41-21 to move to 7-1 on the season!!