



# VU GeoNews 2006

September 2006

## Noteworthy!

- William Siesser retires after 25 years at Vanderbilt
- Undergraduate research thrives with contributions to the Vaughan and Ross Family Scholarships, and with NSF and VU funds
- An international search is underway for a faculty position in *Solid-Earth Dynamics*
- Joint PhD option in *Environmental Science* with Civil and Environmental Engineering is in place and flourishing
- Six new graduate students enroll (Fall 2006), three transition to PhD studies
- EES faculty are fully funded by the National Science Foundation, an unprecedented status

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## “Geology” to “Earth and Environmental Sciences”

We are now the Department of *Earth and Environmental Sciences*, a name change set in motion several years ago following an external review of the Department by a blue-ribbon panel of scholars. This change was in part a reaction to issues — enrollments, visibility, an evolving scope of our science — prompting departments across the nation to change their names, including departments at top-ranked universities such as Stanford, Columbia, Berkeley and Duke. Most importantly, *EES* correctly reflects who we are, where we are aimed, and how we fit within the University. Specifically, our vision starts with the idea that Earth science in the 21<sup>st</sup> century in-

volves engaging a strong, balanced presence both in the past (the interpretation of Earth’s dynamic history) and in the present (understanding the behavior of modern Earth and environmental systems). This view derives from the recognition that, among the natural sciences, ours is the quintessential interdisciplinary science, providing vital perspective on how Earth’s physical and geochemical templates — involving processes whose range of operative timescales is second only to cosmology — simultaneously sustain and threaten life, and influence human interactions with Earth. As Geoff Feiss, geologist and Provost of the College of

William and Mary puts it, we are uniquely positioned to synthesize the languages of chemistry, physics, biology and mathematics into human dimensions. Oh... and we enthusiastically continue to do geology!

*EES* therefore is committed to nurturing student interests spanning traditional and emerging Earth-science fields, emphasizing unifying themes and tools in the study of Earth and environmental dynamics. We are aimed at educating students wherein they gain both essential depth in their studies, and exposure to ideas and skills that facilitate communication across disciplines, such that they are  
(*EES: Continued on page 4*)

## Professor William G. Siesser Retires after 25 Years of Service at Vanderbilt



William G. Siesser, Emeritus Professor of Geology

Professor William G. Siesser retired from the faculty in the summer of 2004 after 25 years of service at Vanderbilt. Siesser is now Emeritus Professor of Geology.

Bill received his BS in Geology from the University of Kansas in 1962. He served as an officer in the U.S. Navy from 1962 to 1965, including a year of onshore duty in tumultuous Saigon in 1964-1965. After the Navy, he en-

tered graduate school at Louisiana State University, receiving the MS in 1967. He mapped a remote area in Guatemala for his MS thesis. He then joined the newly-founded Marine Geology Unit at the University of Cape Town (UCT) in South Africa, receiving his PhD from UCT in 1971.

Professor Siesser served as Project Leader of the Marine  
(*Siesser: Continued on page 3*)

## Letter from the Chair

Dear Alumni and Friends:

As you know, Vanderbilt University continues to rank highly among national universities (e.g. *U.S. News & World Report*). Moreover, Vanderbilt recently moved into the top 25 schools for federal research funding. These items mark a clear trend in the growing stature of the University, reflecting many successes of its faculty, students and alumni. For its part, *EES* has much to be proud of, and ample reasons for anticipating further successes. I outline why below, but first there are several noteworthy items regarding *EES* faculty.

Professor William Siesser retired from the faculty in the summer of 2004 after 25 years of service to Vanderbilt. We extend our sincere appreciation to Bill for his many contributions to the Department and University during this time! Bill and his wife, Lynne, recently returned from their Grand Tour of the world, chronicled at: [www.billandlynne.blogspot.com](http://www.billandlynne.blogspot.com). A tribute to Bill appears on the front page.

We are delighted that Brendan Bream joined the *EES* faculty in the fall of 2004 as a Senior Lecturer. Brendan received his PhD in 2003 from the University of Tennessee, and most recently worked as a geologist with Exxon-Mobil in Houston. Brendan has a leadership role in our introductory undergraduate program. In addition to teaching courses, he is working closely with faculty and teaching assistants in coordinating and developing labo-

ratory courses and field-based teaching activities. Brendan's addition to the *EES* faculty represents the solidification of a strong foundation for providing a world-class introductory program in the Earth and environmental sciences for Vanderbilt students. The article below features Brendan.

We are also delighted that Steven Goodbred joined us last fall (2005). Steven received his PhD in 1999 from the Virginia Institute of Marine Science at the College of William and Mary. His expertise is in sedimentology and Quaternary environments. Steven previously served on the faculty of Stony Brook for six years before coming to Vanderbilt. An article on the facing page features Steven and his work.

*EES* is growing! We are currently amidst an international search for a new faculty member in the general area of Solid-Earth Dynamics. This area represents a need for expertise in our pedagogical missions at both undergraduate and graduate levels, and a discipline in which opportunities exist for research on important, emerging topics. We are, moreover, aiming for an individual whose interests and expertise will enhance those of current faculty and students.

Our growth is directly related to the current, broader vision and goal of the University — to significantly strengthen its graduate programs and enhance the quality of graduate education at Vander-

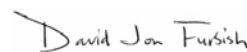
bilt. Toward this end the commitment of new faculty positions to the department comes both with high expectations and with recognition of success. For example, all *EES* permanent faculty are funded by the National Science Foundation, providing research support for both graduate and undergraduate students. This is an impressive statistic by all standards.

An exciting, recent development is our new PhD option in Environmental Science, jointly administered with Civil and Environmental Engineering. This one-of-a-kind alliance in the nation is aimed at excellence in research and graduate education centered Earth's surface and subsurface systems involving the intersection of engineering and geological timescales. We currently have seven PhD students in this option, and our first PhD student, Simon Mudd, graduated last spring.

Finally, we are renovating our teaching laboratories! As described on page 7, these will be state-of-the-art facilities for our introductory courses.

We appreciate your responses to our *Request for News* in our 2003 newsletter! We have reproduced parts of these responses on page 5. We hope to hear from you again!

With best wishes,



David Jon Furbish

## Brendan Bream Joins *EES* Faculty

We are pleased that Dr. Brendan Bream joined the Department in the fall of 2004 as a Senior Lecturer. Brendan was most recently employed by ExxonMobil (Houston), primarily working on West African projects, and has also worked for an environmental firm in East Tennessee.

Brendan received his PhD from the University of Tennessee under the supervision of Vanderbilt alum Robert D. Hatcher, Jr. (Calvin Miller served on Brendan's committee as an adjunct faculty). Brendan continues to collaborate with a number of Vanderbilt



alums on southern Appalachian research (C. Carrigan, S. Meschter, R. Mapes, C. Thomas).

Brendan's research is concerned with the structural and tectonic evolution of the southern Appalachians, focusing on the provenance of Late Proterozoic to early Paleozoic meta-sedimentary sequences in the Blue Ridge and Inner Piedmont. His work has involved detailed geologic mapping in the Inner Piedmont of North Carolina.

Brendan, his wife Katy, his three-year old daughter Ollie, his two cats and his

two Weimaraners are pleased to be back in Tennessee, and look forward to rediscovering all of their hobbies, which include pretty much anything outside.

Brendan has focused on introductory courses and labs. Significant changes include relocation of the labs (page 7) and field trips to Dunbar Cave, the Narrows of the Harpeth and the Vulcan Parson's Quarry. Brendan also taught Rock Mechanics and Structural Geology last Spring. He is participating in the new Vanderbilt Visions program as an instructor, serving as a pre-major advisor, and will be offering a Maymester "Geology of National Parks" field course in 2007.

# Students Walk, New Graduates Arrive

*Note: Recently completed thesis and dissertation titles are being compiled on the EES website ([www.vanderbilt.edu/ees/](http://www.vanderbilt.edu/ees/)).*

## Degrees Completed

**BA/BS, 2004:** Miriam Borosund, Brian Harper, Sarah Snyder, Thomas Steinwinder; **2005:** John Dick, Benjamin Iobst, Elizabeth Endler, Katherine Hamner, Ben George, Kelsey Bitting; **2006:**

Kirsten Hodge, Mark Kirkland, Jared Kocurek, Gregory Rhodes

**MS, 2004:** Lisa Berrios, Brett Beaulieu, Stephen Lehner; **2005:** Pete Berquist, Heather Bleick, Chris Koteas, Lichun Zhang; **2006:** Barry Walker, Vena Jones, Nichole Knapprath, Scott Crombie, Christopher Fisher, Lily Lowery, Daniel Perrault, Brooke Traynham

**PhD, 2006:** Simon Marius Mudd

## Current graduate students

**MS:** Tenley Banik, Roberta Challener, Elise Childs, Aaron Covey, Benjamin Iobst, Russell Pate, Maria Ruiz

**PhD:** Susan Howell, Steve Lehner, Lily Lowery, Timothy Peters, Kimberly Rogers, Brooke Traynham, Beth Weinman

# Steven Goodbred Joins EES Faculty

Steven Goodbred joined *EES* in the fall of 2005. He received his PhD in 1999 from the Virginia Institute of Marine Science at the College of William and Mary, and served for six years on the faculty at the University of Stony Brook before coming to Vanderbilt.

Steven's interests are centered on sedimentology and Quaternary environments. His work is aimed at understanding sediment dispersal, strata formation, and system development along continental margins, particularly within rivers, deltas and wetlands. A cur-



rent focus of his research is the response of South Asia's large fluvial delta systems to orbital-scale climate changes, as well as how such responses are manifested in the stratigraphic record. Steven is also co-leader of the IGCP Project "Deltas in the Monsoon Asia-Pacific Region (DeltaMAP)" which is aimed at synthesizing research across traditional terrestrial, coastal and marine boundaries. Steven's work is supported in part by a five-year CAREER grant from the National Science Foundation. The CAREER grants are highly competi-

tive, and represent one of the highest honors that the National Science Foundation, on behalf of the scientific community, bestows on early-career faculty.

Steven is currently teaching our undergraduate courses in oceanography and sedimentology, and advanced courses in sedimentology and Quaternary systems. More about Steven's current activities appears on page 6.

After work, Steven and his wife, Catherine, try to keep up with their three children: 7-year old Cailyn and 5-year old twins Brendan and Matthew. And, having these new sets of sharp, youthful eyes, Steven hopes to get the kids hooked on his favorite pastime — bird watching ("although playing in the dirt would be fine, too").

*(Siesser: Continued from page 1)*

Geology Unit from 1972 to 1975, and as Senior Research Officer at UCT until 1978. During his years on the faculty at UCT, he spent one year as visiting research fellow at Cambridge University, and six months as visiting research fellow at the University of Melbourne. His research during his 12 years in Africa produced many papers dealing with a variety of sedimentologic, stratigraphic and paleoceanographic topics. He co-authored the first book summarizing the Mesozoic and Tertiary geology of southern Africa, as well as the first geological map of the ocean floor off southern Africa. Professor Siesser advised two Doctoral and one Master's theses at UCT.

Professor Siesser came to Vanderbilt in 1979. He served as Chair of the Depart-

ment of Geology from 1982 to 1985 and as Secretary of the A & S Faculty. He was a Freshmen/Pre-major adviser for undergraduates for 14 years, and supervised 11 Master's theses. Professor Siesser's first major research project after coming to Vanderbilt was revision of the bio- and chronostratigraphy of Tertiary rock units in the central Gulf Coast region. He continued his geological oceanographic work

by participating in six international oceanographic sea-floor coring expeditions. He produced many research papers dealing with the stratigraphy, paleoceanography and paleoclimatology of the Atlantic, Pacific and Indian Oceans, and the

Mediterranean Sea. Other research efforts dealt with the evolution, taxonomy and biostratigraphy of fossil calcareous nanoplankton. In 1994, Professor Siesser co-edited *Coccolithophores*, considered a

*"We are grateful to Bill and Lynne for graciously opening their home to members of the Vanderbilt community for many years."*

Richard McCarty, Dean  
Arts & Science

milestone in calcareous nanoplankton studies. This book has become a key reference in the field. At its bi-annual meeting in 2002, the International Nannoplankton Association (INA) recognized Professor Siesser's work

as Bibliographer with the award of a plaque. The INA also dedicated a volume of the *Journal of Nannoplankton Research* to Professor Siesser and two colleagues for their long service to the Association.

# Faculty Activities

**Len Alberstadt** has been busy writing two books. One (in preparation) is about science and geology, and is aimed at the “layman.” It is a non-technical presentation describing the origins of geology’s fundamental principles beginning with Steno and the scientific revolution of the 16<sup>th</sup> and 17<sup>th</sup> centuries and ending with the discovery of radioactivity and how that knowledge came to be used to date rocks at the beginning of the 20<sup>th</sup> century. The book is aimed at showing the critical steps of discovery and how and why geologists came to reason about Earth’s history and processes.

Len’s other book was recently published and is titled *The Dragons of St. George*. It is a fictional story that revolves around a young woman who is trying to forge an academic career in the topsyturvy environment of a major university but gets caught up in a world of scientific and international espionage that leads to a turbulent series of events and relationships that turn her life upside down. *Dragons of St. George* can be obtained from RedLine Books through: <http://bardyoung.com/>, or by contacting Len directly.

**John Ayers** and MS student Miranda Loflin, using a combination of laboratory and field-based studies, recently realized that the mineral monazite can be used not only to identify hydrothermal alteration events, but also to date the events and potentially identify the source of the alter-

ing fluids. Miranda now works as an environmental consultant for Unimin Corp. in Brentwood, TN. MS student Scott Crombie completed in August his thesis work on alteration related to the ore deposits in the Searchlight mining district. MS student Lichun Zhang completed some important laboratory measurements on the aqueous solubility and trace element partitioning of the mineral zircon before starting a job in a cancer research lab at Duke University in 2005. John presented a synthesis based on the results of these studies in a keynote address at the Geochemical Society’s Goldschmidt conference in Melbourne and a talk at the Australian National University in August. John hired his first post-doctoral student Yan Luo (a former student of his Chinese colleague Shan Gao) in May, and in August his first PhD student, Tim Peters from Great Britain, began his studies. Yan has become instrumental in improving use of the laser ablation ICPMS for sensitive analytical measurements. Finally, two local high school students, Kathleen Goetz and Jason Cox, have worked with John to make significant contributions in the laboratory. John remains Director of Graduate Studies, but hopes to take a sabbatical next year.

**Brendan Bream** has spent a substantial amount of time creating new and exciting introductory field and lab experiences for EES. Perhaps the most significant change to these courses is their new Spring 2007 location (see page 7). Brendan’s most recent research spin-off involves new whole-rock Pb isotopic analyses of metasedimentary samples from the southern Appalachian crystalline core. He is co-author on two recently submitted papers: a newly compiled tectonic map of the Appalachians with his PhD and MS advisor (and VU alum) Robert D. Hatcher, Jr. and another addressing the timing and geochemistry of the Zirconia pegmatite district in North Carolina. A paper focused on Acadian plutonism with former Calvin Miller MS student Russ Mapes is also in the works. Ongoing research and collaboration with the North Carolina Geological Survey takes Brendan back to the Blue Ridge of North Carolina when time permits. Finally, Brendan is continuing geochronologic work on 2.5 billion year-old central In-

dian craton granites near Malanjkhand with collaborators at the Indian Institute of Technology—Kharagpur.

**David Furbish** continues to manage a crazy schedule as chair of *EES* while teaching and pursuing research. In addition to his courses on transport processes in Earth and environmental systems, fluid mechanics and geomorphology, David recently led a large undergraduate Humanities course, “*New Global Crisis: Earth’s Energy and Water Resources in the 21st Century*,” which was an eye-opener for all participants in view of current geopolitical events and pending changes in global energy availability.

David continues his research on hill-slope dynamics, most recently involving high-speed imaging of sediment grain motions during rainsplash transport, in collaboration with BA students Katherine Hamner and Miriam Borosund. He recently began a major campaign of field research with PhD student Susan Howell and Research Associate Simon Mudd, aimed at predicting responses of coastal North Carolina salt marshes to tidal forcing and sea-level rise. In addition, David is working with MS student Ben Iobst and PhD student Brooke Traynham on coupled physical-biological processes in aquatic systems.

**Jonathan Gilligan** is continuing his work on religion and environment: last March he helped organize a summit of Nashville Christian pastors and concerned laity at Vanderbilt to discuss religion and the environment as seen from the pulpit. This meeting was a big success and in response there are plans for a larger September follow-up meeting on *Christianity and the Environment*.

Jonathan spent much of the summer organizing the new *Transdisciplinary Initiative on Environmental Systems*, which will build interdisciplinary interaction between students and faculty in environmental science, environmental engineering, the social sciences and the humanities. The highlight will be a graduate seminar (spring 2007) on the Yucca Mountain nuclear waste repository. This seminar will look at Yucca Mountain from many perspectives, including geological considerations of deep time, engi-

(Faculty: Continued on page 6)

(EES: Continued from page 1)

poised to excel in a diversity of life opportunities in all sectors of society. Moreover, this vision permeates all aspects of how we do business, from recruiting new faculty, to the design and revision of courses and curriculum, to our mentoring of students at all levels.

We were featured at the 2004 National Geological Society of America meeting in Denver as a department that changed our name for the right reasons. Perhaps not surprisingly, we were invited – as one of the nation’s exemplary geoscience programs – to participate in an NSF sponsored workshop on building strong geoscience programs for the future. We encourage you to view our contributions to this workshop at: <http://serc.carleton.edu/departments/workshop/participants.html>.

# Alumni News (perhaps dated by a year or so!)

**Special Note: Robert D. Hatcher Jr.** (BA 61, MS 62) Awarded the 2006 GSA Penrose Medal and the 2006 AGI Campbell Medal.

**1940-49 Herman W. Ferguson** (MS 40) Retired from US Steel in 1982. Currently involved with abstracting and transcribing early records from Mecklenburg County, NC.

**1950-59 Samuel H. Norris** (BA 50) Awarded 2003 Lifetime Achievement Award, Kentucky Section of AIPG, for outstanding contributions to the profession and service to KY's oil and gas industry. Retired in 2004 after serving 32 years as city councilman for Glasgow, KY. **Landon C. Taylor** (BA 52) Semi-retired with occasional consulting for geotechnical companies; 7 children; 4 step-children; 24 grandchildren; 28 great-grandchildren; 1 great, great-grandchild. **Tom Oden** (MS 58) Moved to Amelia Island, FL in 1994; 3 children and 4 grandchildren.

**1960-69 Carl K. Seyfert Jr.** (BA 60) Retired from teaching geology at Buffalo State College, presently owner of small wholesale business run out of his home, "Seyfert's Minerals & Fossils." **Art Kasey** (BA 62) Starting 34th year of teaching Earth Science at Fox High School in Arnold, MO where he has taught over 8,000 students. Has received multiple national, state, and local teaching awards and retirement is nowhere in sight... still LOVES the challenge. **Larry E. Matthews** (BA 68, MS 71) "Lord of the Springs," I have been compiling an inventory of Tennessee springs. "Springs of Middle Tennessee" was published in 1997 and "Springs of East Tennessee" was published in 2003. Work on "Springs of West Tennessee" is underway.

**1970-79 William R. Meaney** (BA 70) I am still the exploration manager (and only geologist) for Anderson Oil & Gas, Shreveport, LA (13+ years). Sandee and I are proud new grandparents to David William Meaney, Jr. **Larry Knox** (BA 72) Geologist at Dominion Exploration and Production, Houston, TX working on coalbed methane and fractured shales. Son recently graduated from Purdue and is teaching in Fort Bend County, daughter graduated from Texas A&M and

plans on attending Veterinary School. Recently cut back on running after back surgery and is now cycling regularly. **Pamela Bloss Zohar** (BA 74) US Project geologist for Barrick Gold Corporation and recently co-authored papers on Screamer zone of the Betze-Pose deposit in NV. **Joan Mahery Vogt** (BS 77) Employed as a real estate paralegal in Asheville, NC; husband, David, is employed at the Grove Park Inn. Recently became involved with Full Moon Farm, Inc. Wolf Dog Rescue & Sanctuary as the secretary.

**1980-89 Richard Levine** (BA 81) Recently started working for TIAA-CREF and does investment counseling for professors including some present and past VU employees. Has three children — 13, 12 and 10. **David J. Kronman** (MS 82) Has worked in petroleum industry since graduating from VU and done substantial international work including several years on Nigerian projects. Living in Houston, TX and currently working on lower Mesozoic lake deposits in NW China. **Nancy Smathers Hutton** (BS 84) Teaching college Earth Science in St. Augustine, FL at Flagler College. Geologist husband, Skip, and I have two boys, Daniel (6) and John (8). **Scott D. Aiken** (BS 85) Lt. Colonel and serving as operations officer with First Marine Corps Recruiting District, NY. Recently returned from two anti-terrorism missions in Cuba and East Africa. **Bruce Taylor** (BS 86) Senior Consultant for BP on the West Coast. Married to Tracey Lyana in 2004 and the couple has 3 children: Devin (12), Jake (9) and Carley (6).

**1990-99 Sheryl Woomer Rogers** (BS 93) Executive Director of Vanderbilt Alumni Relations after 4 years with a Nashville PR firm and 3 years with an engineering firm. Married to **Todd Rogers** (BS 90) and still enjoys traveling and singing in VU Community Chorus. **Matthew Schmidt** (BS 93) Working on PhD at UC-Davis; research involves the reconstruction of glacial-interglacial changes in North Atlantic surface salinity; recently went skiing in France for Christmas and to Ireland for New Year's. **Hyen Sung** (BS 93) Senior Attorney for Office of Legal Affairs at Georgia Tech and was married to Mark Nelson in 2001. In 2003,

the Sung family welcomed their first son, Samuel Nelson. **Gary Wolf** (MS 94) Graduated from St. John's Law School in 2002 and is currently employed as Deputy Attorney General focused on environmental enforcement for New Jersey Division of Law. Moved to Yardley, PA with wife of seven years, Marelle, and adopted two ex-racing Greyhounds, Homer and Jasmine. **Jay Yeiser** (BS 95) Data Integration Manager for Phoebe Putney Memorial Hospital, GA. **Jon Zisser** (BA 97) Assistant Public Defender in Jacksonville, FL after attending Vermont Law School. I love my job and hope to return to environmental policy in the future. **Lisa Merman Bender** (BS 97) Completed MS in Marine Science at USF; founded Signify, LLC, a company that sells organic shirts, and was recently married to a NJ professional firefighter. **Melinda Rogers Mann** (BS 97) Pursuing PhD in Leadership Policy & Organization through Vanderbilt's Peabody College and working on research concerning students' thoughts and actions in response to perceived faculty misconduct. **Rob** (BS 97) and **Robyn Gerth** (BS 98) **Schapiro** are both employed as geologists with ExxonMobil Exploration. Robyn recently acquired a trained hearing dog, Megan, who goes to work everyday and tolerates as much geology as is possible. **John Granville** (BS 98) Completed PhD in Geophysics/Seismology at the Lamont-Doherty Earth Observatory of Columbia University and was engaged to Evanthia Mantzavinos.

**2000-06 Stacie Dunkle** (BS 00) Completed MS at Virginia Tech, is working on MHP/DVM at Tufts University, and has begun a new research project involving antibiotic resistance in the environment and wildlife. Recently moved to Massachusetts with Rob Lawson and visited new family in China. **Vanessa DeSha** (BS 00) Promoted to US Navy Lieutenant in May 04. Currently working as an ocean environment advisor to the fleet anti-submarine warfare command. Purchased first home and will be traveling to Rome with my mother for two weeks. **Allison Holmes** (BA 03) Working at an environmental education center near Aspen, Colorado.

# Simon Mudd: Scholar, Athlete, Artist, 1st PhD

Simon Mudd ran fast — very fast — at Berkeley. As a student scholar-athlete, Simon competed for four years with the best collegiate track stars in the Pac 10 Conference and nation. Tall and slender — yet solid — Simon has the classic build of a speedy distance runner. His specialties were the 1500 and 5000 meter runs, although he also competed on the cross-country team at Berkeley.

Simon pursued his BA in the Department of Earth and Planetary Science, achieving a stellar academic record while pursuing his college athletic career. Upon graduating from Berkeley in 1999, Simon enrolled at the University of California, Santa Barbara, where he studied with Thomas Dunne, a member of the National Academy of Science, pursuing an MS in Geological Sciences.

Simon's thesis work was focused on the physics of flash floods; it combined theoretical and computational work with field measurements of flood conditions near the

Los Alamos National Laboratory, New Mexico, following the catastrophic forest fires that swept this area in 2000. His thesis work demonstrated that flood-wave behavior is strongly influenced by infiltration of water into the channel bed and banks as the flood moves downstream.

Simon headed east (and south) for his further studies. He enrolled at the Florida State University in 2002, where he began his PhD work focused on the geomorphic evolution of soil-mantled hillslopes as influenced by biological and geochemical processes. Simon also began collaborating with Sergio Fagherazzi (Florida State) and James Morris (South Carolina) in developing a state-of-the-art model for the coupled hydrodynamic-biological evolution of plant-community structure in coastal marshes in response to tidal fluctuations



and sedimentation. Simon transferred to Vanderbilt in 2003 as the first student to enroll in the joint EES-Engineering PhD program in Environmental Science. He completed his PhD this past spring and is currently a Research Associate in EES.

Simon grew up in Riverside, California, where he developed an interest in hydrological processes as a youngster by watching the small floods that developed in his back yard and neighborhood following storms. Simon also developed a delightfully entertaining knack for mimicking foreign accents, perhaps stimulated by growing up with parents from England and Germany. Simon spends part of his time away from his research painting, using a bright palette of primary colors to depict arid landscapes. (see [http://sitemason.vanderbilt.edu/site/iagyrK/simons\\_paintings](http://sitemason.vanderbilt.edu/site/iagyrK/simons_paintings)).

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neering considerations of effective system performance, and legal, psychological, political and ethical perspectives.

**S**teven Goodbred, after moving to Vanderbilt in 2005, has enjoyed a great year in EES. Members of his immediate research group include PhD students Beth Weinman and Kimberly Rogers, as well as new MS student, Russell Pate. Steven's group has had a busy year with trips to Bangladesh, Vietnam, Brunei, China and India. As part of Beth's work on the control of geomorphology on the patterning of arsenic in shallow groundwater, she spent five weeks interning at India's Physical Research Laboratory to learn luminescence dating techniques. She will be applying this chronological tool to understanding the nature of aquifer development in fluvial-deltaic settings, and how it may influence groundwater geochemistry. Kimberly's PhD work on coastal sediment dynamics took the group on a three-week cruise off the Ganges river-mouth in Bangladesh. There, Edgetech chirp sonar was used to map the distribution of fluid muds formed from the billion tons of sediment discharged by this 15-km-wide, monsoon-swollen river. We are very

pleased to analyze our samples in a new state-of-the-art Sedimentology lab, which includes a Geotek multi-sensor core logger, a Malvern laser-diffraction particle-size analyzer and two soon-to-arrive Ortec germanium gamma spectrometers.

Steven claims that "The year has involved great teaching experiences at Vanderbilt, and keeping up with projects in the lab. It is always fun to spin up ideas for new research proposals. In particular, it is exciting to work with my new department colleagues in creating integrated, cross-cutting research ideas that contribute to our ongoing growth."

**C**alvin Miller spent last year living volcanically! One can safely speculate that there is no more pleasurable way for a geoscientist to spend time than traveling among active volcanoes in exotic and beautiful places. Calvin had the good fortune to have done just that over the past year while on leave. He visited about 25 volcanoes in Alaska, New Zealand, Antarctica, Ecuador, Iceland, Oregon and Washington. More than just a junketing adventure (though it was certainly that), this experience promises to enrich both teaching and research. A goal of Calvin's was to develop a First-year

(Freshman) seminar on volcanoes and their impact on both Earth and humanity; last year provided the opportunity.

Lily Lowery Claiborne, who just completed her MS and is now Calvin's first PhD student, accompanied him first to the Valley of Ten Thousand Smokes in Alaska and more recently to Mount St. Helens. They are beginning a project in which they will attempt to understand the plumbing of St. Helens by studying the chronological and environmental record preserved within erupted zircon. With Chris Fisher, they had the exciting experience of finding zircon in a 5-month-old dacite erupted in December 2005. Calvin and his students are collaborating with David Furbish on field and fluid transport studies of magma, and on the use of zircon and other accessory minerals as time and environment monitors. They are working in southern Nevada, the Appalachians (where Chris Fisher and Pete Berquist have demonstrated that the ancient crust there is exotic), and are now delving into active volcanoes. And, by combining their perspectives, John Ayers and Calvin have made Vanderbilt a hotbed for investigating accessory minerals in under-

*(Faculty: Continued on page 7)*

# Renovation of Teaching Laboratories

Departmental space previously utilized for storage of rock and mineral collections is currently being renovated into state-of-the-art teaching laboratories for our introductory courses — all designed by EES faculty (<http://sitemason.vanderbilt.edu/ees/NewIntroLab>). These labs will feature 12-foot ceilings over hardwood floors and



lovely, refinished hardwood tables and chairs, highlighting to our students the importance of recycling Earth materials. The entrance hallway will be floored with fossiliferous

Cumberland Plateau sandstone. One hallway wall will feature spectacular Earth imagery; the opposite wall will feature new rock, mineral and fossil displays.

EES is particularly grateful to **Alma Hale Paty** (BS 82), who identified and inventoried collection items, and helped place them in locations where their newfound accessibility to the larger scientific and educational community will be of tremendous benefit. Alma's commitment and passion for this project was truly special.

Select rock, mineral, and fossil specimens are now located at the Pink Palace Museum in Memphis, the MTSU Mineral, Gem & Fossil Museum, and the University of Kentucky Center for Ap-

plied Energy Research. Books and journals were donated through the AAPG Publication Pipeline and several cabinets were donated to the Vanderbilt Art Department.



A highlight of this process involved a *Rock and Mineral Giveaway* to middle and high-school science teachers in surrounding Tennessee counties. Their enthusiasm in acquiring rock and mineral collections for use in their Earth science classes was inspiring!

(Faculty: Continued from page 6)  
standing Earth processes.

**Molly Miller** is enthused about returning to teaching and participating in departmental activities after a terrific two semester leave — her first year not teaching since 1977! Geo-related experiences in Alaska, Argentina and Oregon produced fodder and photos for Geology 101. In December both Millers enjoyed a week on the South Island of New Zealand before Molly headed off for field work in the Allan Hills of Antarctica. It was a productive field season that answered many questions, including a few about Permian vertebrates (probably there weren't any in Antarctica), and the Permian-Triassic boundary (time of rapid climate change at polar latitude). The field party was dropped off by helicopter and transportation was almost entirely by foot, so Molly was thrilled by the outstanding performance of her recently replaced knee, and sees the knee-producing company as a potential funding source.

Nichole Knepprath finished her MS thesis in May and an expanded version of her work on a spectacular Permian polar forest in Antarctica is in review. Brooke Traynham has used her SCUBA expertise to study the distribution and burrowing habits of a mayfly in Kentucky Lake, using facilities at the Hancock Biological Station (HBS); she and David Furbish have elucidated how burrow size and shape maximizes water flow. Molly and David White, Director of HBS, are col-

laborated on benthic lake animals and are developing more projects linking modern processes to the ancient record. Molly is working on the NSF funded ANDRILL project to clarify the Cenozoic history of Antarctica, and Maria Ruiz is studying the taphonomy and distribution of ophiuroids (brittle stars) in cores from the Antarctica continental shelf.

**Kinzly Moore** had a successful summer of teaching oceanography to a diverse group of non-science majors, then immersed himself in preparing for the academic year. After posting extensive course notes for historical geology last fall, he's discovered the utility of that approach and is planning to post similar material for other courses. The aim is to free students from note taking, allowing them (theoretically) to become more actively involved in classroom discussion. A byproduct of this process is a set of cogently organized notes that could metamorphose into a book!

As part of course-preparation, Kinzly has spent considerable time seeking out newly created road cuts and "undiscovered" outcrops in the Nashville vicinity with an eye to reducing driving distance to sections that illustrate typical features of Central Basin stratigraphy. As roadways become more crowded and fuel more expensive, finding suitable teaching sections that are close, quiet, and safe has become increasingly difficult. Cuts along 1840, a quarry at the newly opened Hidden Lake State Park,

and several excellent exposures within a few miles of campus are being investigated for use in historical geology and other courses.

**Art Reesman** reports that he continues to thoroughly enjoy his retirement, and that he is in good health. Art periodically visits the Department when he comes to Nashville, and this invariably means that our day is delightfully punctuated by our sharing anecdotes and a few laughs with Art.

**Kaye Savage** filled the past year with research travel — to the Advanced Photon Source at Argonne National Laboratories (Chicago), and to the Stanford Synchrotron Radiation Laboratory. At the Advanced Photon Source, PhD student Beth Weinman, a collaborating student from Auburn University, and Kaye studied how mercury interacts with sulfide minerals. The purpose is to evaluate the minerals as potential reactive barriers to trap migrating mercury at contaminated sites. Beth and Kaye performed real-time X-ray diffraction during transport experiments, observing the transport of colloidal particles through quartz and calcite sands in tiny tubes. They are learning how adsorbed anions like arsenate and phosphate affect the interactions between the colloids and the larger mineral grains. In June, PhD student Steve Lehner came to SSRL, where he and Kaye studied pyrite samples that Steve synthesized with minor element impurities. They used X-ray techniques to in-

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*The erosional work of humans now surpasses, by far, all geomorphic work performed by Earth's glaciers, hillslope processes, and sediment transport by rivers.*

**In Memoriam.** It is with deep sadness that we inform the Vanderbilt geocommunity of the death of John Milleman (BS 1998). John and his wife, Katherine Finn Milleman, died in an auto accident on Sept. 2, on their way to visit their families in Iowa to celebrate their first wedding anniversary. John had completed his MD at the University of Iowa in 2002 and was in residency at Texas A&M. John gravitated to the Geology Department in his Junior year and quickly became a vital member of our community. He was a great student who excelled in the research lab as well as the classroom – his work resulted in a co-authored paper in *American Mineralogist* with his advisor, John Ayers. We especially remember John for his character: he was very serious and reliable and had a great work ethic, and he was also uniquely kind, thoughtful, funny, and cheerful (and his athleticism for once gave our intramural teams some credibility!). He raised the spirits of all around him. John will be greatly missed by his friends/faculty/colleagues here in Geology/Earth & Environmental Sciences!

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investigate how impurities are distributed in the pyrite. Steve is using this pyrite to study how impurities affect its oxidation.

Closer to home, Kaye and her students are continuing their studies of nutrient transport in carbonate rock watersheds. Vena Jones just completed her MS in this area and is now developing a water quality management curriculum aimed at officials in local government agencies, with the Cumberland River Compact. Kaye continues to serve on their Water Quality Advisory Committee and is looking forward to more collaborative efforts to understand controls on water quality in the southeast region.

**Bill Siesser** recently returned from a year of traveling overseas. He and his wife Lynne recorded some of their travel experiences on their blog: [www.billandlynnne.blogspot.com](http://www.billandlynnne.blogspot.com).

Bill is now back in the department, and is currently working on the Calcareous Nannoplankton chapter for an upcoming Micropaleontology textbook, which will be published by Columbia University Press.

**Dick Stearns** is enjoying retirement and claims to be working little.

“Such work as I do is in two phases: First, what I call the “Geology of History” linking geology to human activities up to the American Civil War. This information is used primarily for a Maymester class, in such subjects as trade routes, pioneer settlement, technology using minerals and rocks, and military campaigns. Second, James Corgan (Emeritus Professor of Geology, Austin-Peay State University) and I are reviewing geology textbooks used in American Secondary Schools during the nineteenth century (intelligent design is there in spades!). Our manuscript is in review for the *Journal of Geological Education*.”

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