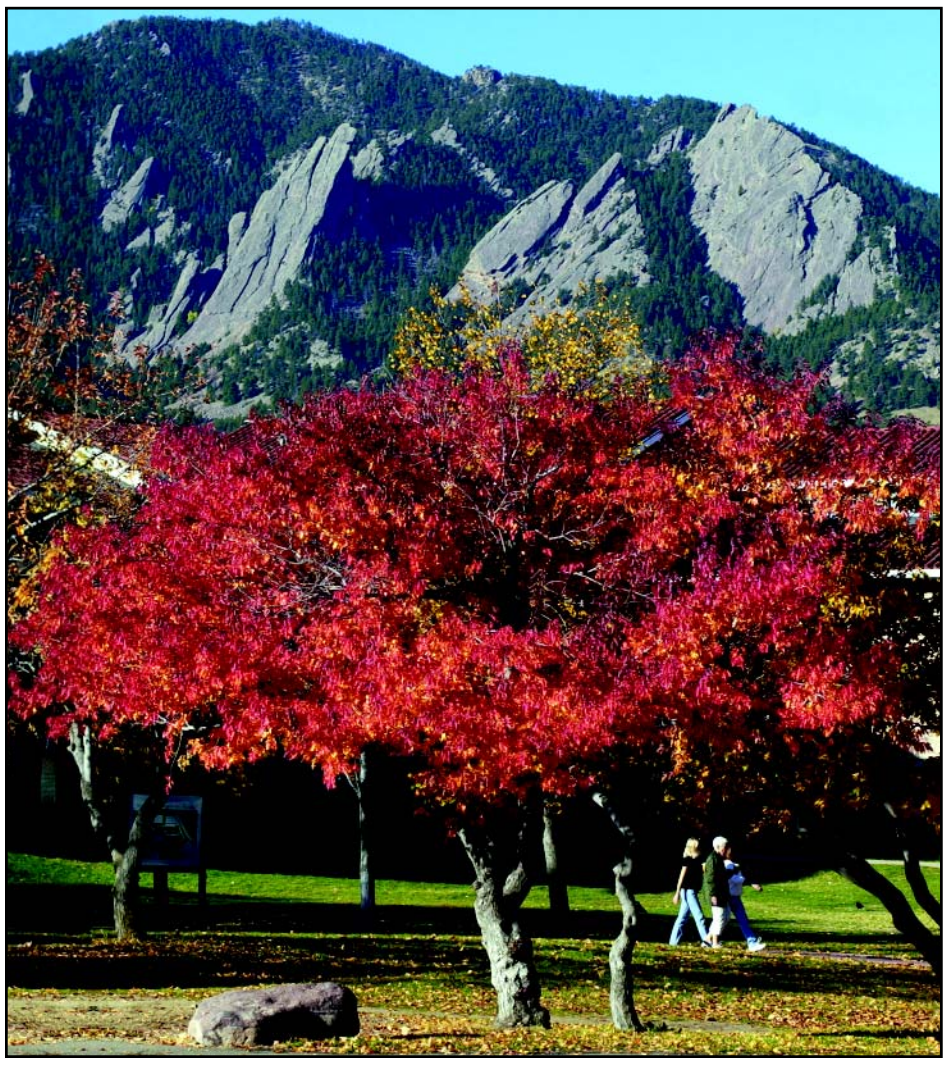
GEOLOGY NEWS

Department of Geological Sciences • University of Colorado at Boulder • Spring 2004



A beautiful fall day on campus in Boulder. Picture by Casey Cass

Letter from the Chair

Mary Kraus

I have had a very busy year as new chair of the Department. As outgoing chair, Chuck Stern provided me with considerable help and guidance in making the transition. Chuck is currently on a well-deserved sabbatical.

Over the past year, the Department has added three new faculty members. Jason Neff is a biogeochemist who was hired jointly with the Environmental Studies Program. Bob Anderson, a process geomorphologist, joined us from the University of California, Santa Cruz, where he was a faculty member for fifteen years. Greg Tucker, a joint hire with CIRES, focuses on geomorphology and landscape evolution. More information on each of these new faculty members is found in the newsletter.

At the end of the spring semester, we will lose one faculty member – Bill Atkinson – to retirement. Bill has been with the Department since 1978. During his years with the Department, Bill has had a major impact on the graduate program, producing nearly fifty MS and PhD students. He will continue his affiliation with the Department as an Emeritus faculty member.

These changes bring our Department to 30 faculty members. A greater number of these (nine) are junior faculty, more than at any time during the last decade. One faculty position – that of Kathryn Nagy, our former aqueous geochemist – remains vacant. We hope to undertake a search in the coming year to fill that position.

Student numbers remain stable with 97 undergraduate majors and 80 graduate students. In addition, the Department has 50 undergraduate minors, a marked increase over the past several years. Twenty-two students graduated with M.S. or Ph.D. degrees during 2003, and 20 students graduated with B.A. degrees.

The Advisory Board has been expanded to fifteen members. New members are Dave Bowen (Ph.D. '02), Tim Garfield (M.S. '90), Dawn Kaback (Ph.D. '77), Barb Mieras (Ph.D. '93), and Gina Tempel (M.S. '81). Former board member, Brent Johnson (M.S. '94), has returned. Matt Silverman (M.S. '83) was elected as the new chair of the Board last October. This newsletter contains an article by Matt that describes recent activities of the Board.

Because state funding continues to decline, it is more critical than ever that the Department try to raise funds to support student programs. One of our top fund raising goals is to increase the number of endowed graduate fellowships we have to support graduate students. Because of the costs involved in providing full time support for a graduate student (stipend plus tuition), an endowment of $500,000 is needed to fully support one student for the academic year.

Through the help of the Advisory Board, the Bruce Curtis Endowed Graduate Fellowship Fund raised sufficient new funds by June 30 of 2003 to enable the Department to receive matching funds of $75,000 through a special grant from Melissa and Anthony Moores to the Graduate School at CU. The Curtis Fund now stands at approximately $240,000. A similar matching opportunity exists this year through the Moores family. If additional new monies of $125,000 can be raised by June 30, 2004, the Department will receive a second match of $75,000. At this time, we are approximately $80,000 short of that goal and in danger of not being able to benefit from those matching funds. The Curtis Endowment remains the top funding priority of the Department.

A second fundraising effort is the In-the-Field Fund. This fund was recently renamed the Bill Braddock In-the-Field Fund to honor Bill Braddock who passed away last year. This endowment provides funding for student field trips, either within academic courses or as special Department events, with the goal of keeping students "in the field." Renaming this fund in his honor reflects the enthusiasm and skills that Bill brought to the study of field geology. The endowment, which was established a few years ago, has now grown to over $100,000; ultimately, $500,000 will be needed to fully fund it.

To emphasize the continued importance of field geology in the Department, the center section of the 2004 Newsletter focuses on student field trips that have been run over the past year. The field trips that are highlighted have focused on carbonate rocks in Colorado, Quaternary deposits in the Nebraska Sandhills, and planetary geology processes in Colorado and Hawaii. These trips were in addition to the various field trips associated with the field modules that make up the required field experience for undergraduate students. This center section also includes descriptions of those field modules and the field activities associated with them.

The last page of this newsletter lists the names of those who have donated to our program over the last calendar year. To all these individuals and corporations I express my thanks on behalf of all the faculty, students, and staff of the department. Please consider making a gift to the department so that our students can have the same quality educational experience today that you had when you were a student. This newsletter includes an envelope for sending a gift to the department and the last page has a form for identifying the fund to which you would like to donate.

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New Faculty

Robert S. Anderson

Bob Anderson, a process geomorphologist, joined the faculty as an associate professor in July, having taught in the Department of Earth Sciences at UC Santa Cruz for 15 years. He is a native of Colorado, grew up in Denver and went to high school in Golden. Although the mountains of Colorado were a constant source of challenge in his youth, it was a January course on volcanoes in his freshman year at Williams College that triggered his interest in geology. He graduated from Williams in 1974, followed by a Masters at Stanford (1977) where he was first introduced to modern process geomorphology. For his Masters thesis he wrote a biography of Clarence E. Dutton, one of the prominent early western US geologists and geomorphologists who worked with John Wesley Powell. After a few years working odd jobs in the west, Bob went to the University of Washington to work with Bernard Hallet, obtaining his Ph.D. in 1986. He focused on eolian (windblown) sediment transport, exploring the detailed physics of saltation, the formation of ripples and dunes, and the erosion caused by windblown particles. After two years as a postdoc at Caltech, where he continued his work on eolian processes, and initiated work on tectonic geomorphology of the California basin and range, he began his teaching at UC Santa Cruz. During his 15 years on the faculty there, he supervised 9 Ph.D.s and 10 Masters students, many of whom are now in faculty posts around the nation. Bob is now serving as the founding editor of a new AGU publication, *Journal of Geophysical Research – Earth Surface*.

At Santa Cruz, Bob turned his focus to larger-scale geomorphic problems, focusing on landscape evolution in the face of both tectonic and climatic influences. He employs three major techniques in his research: real-time monitoring of geomorphic processes, typically using data-logged sensors; numerical modeling of the evolution of landscape elements; and use of cosmogenic radionuclides to establish timing in the landscape. He has worked on topics as diverse as the evolution of marine terraces on actively uplifting coastal margins, monitoring of flash floods in the deserts of Utah, incision of bedrock rivers, including the Indus through the Himalayas in Pakistan, and those draining the western slopes of the Sierras, the origin of paleosols in the loess plateau of China, evolution of the high smooth summit surfaces of the Rockies, and most recently the evolution of glaciated valleys.

He and his wife Suzanne, also a process geomorphologist and a researcher at INSTAAR, are thrilled to be back in Colorado, where there is no poison oak to prevent the cross-country trek, where there is a wealth of researchers actively pursuing surface processes, where there is family nearby, and where it snows. With colleagues both in the Geological Sciences and at INSTAAR, he will continue to pursue the quest toward understanding the physics of landscapes. He is confident that the infusion of new faculty and researchers in surface processes at CU will result in CU being the best place on the North American continent to study surface processes.

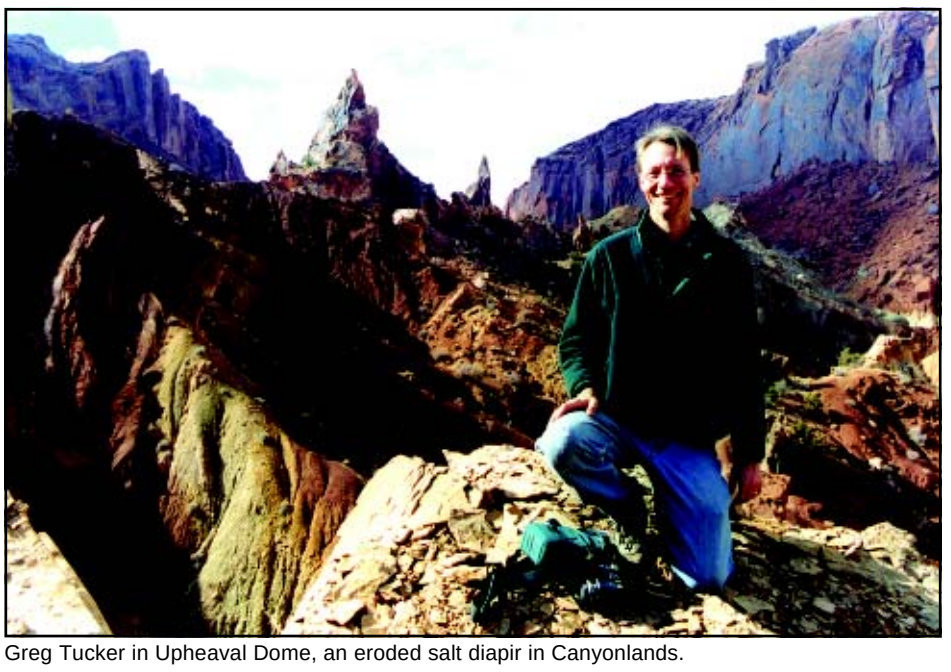
Bob Anderson leading a field trip to the eastern California Basin and Range. View overlooks Panamint Valley, looking north toward Hunter Mountain.

Greg Tucker

Greg joined the department in January, 2004, as an assistant professor with a research focus in geomorphology and landscape evolution. He is also a fellow of CIRES.

After finishing an undergraduate degree at Brown University and spending some time working as a field archaeologist, Greg went on to earn his Ph.D. in Geosciences from Penn State in 1996. He then spent the remains of the 2nd millennium as a Research Associate in the Department of Civil and Environmental Engineering at MIT. In June 2000, he and his family migrated across the Atlantic to England, where Greg spent 3 1/2 years working as a University Lecturer in the School of Geography and the Environment at Oxford University, and as a Tutorial Fellow of Brasenose College.

Greg is delighted to join a vibrant group of scientists at CU interested in Earth-surface and near-surface processes, many of whose research interests overlap with his own. The overarching theme of Greg's research lies in understanding the physical laws and driving forces behind landscape evolution. He and his students and collaborators chase this goal through a combination of modeling, topographic analysis, and fieldwork. One of his main field areas includes the rangelands of southern Colorado, where he and colleagues have been studying dryland channel dynamics. Among other things, living in Boulder means a much easier journey to the field area! On the other hand, he'll be traveling a bit farther to reach the



Greg Tucker in Upheaval Dome, an eroded salt diapir in Canyonlands.

Italian central Apennines, where he and colleagues in the UK are studying how bedrock streams respond to different rates and patterns of active normal faulting. Nonetheless, he considers long-haul flights to Europe are a cheap price to pay for living and working in the spectacular geology of the Front Range, high plains, and Colorado Plateau.

When he's not studying geology, Greg can often be found either trying to play the guitar or running after his two energetic sons, Rees (6) and Kadin (3).

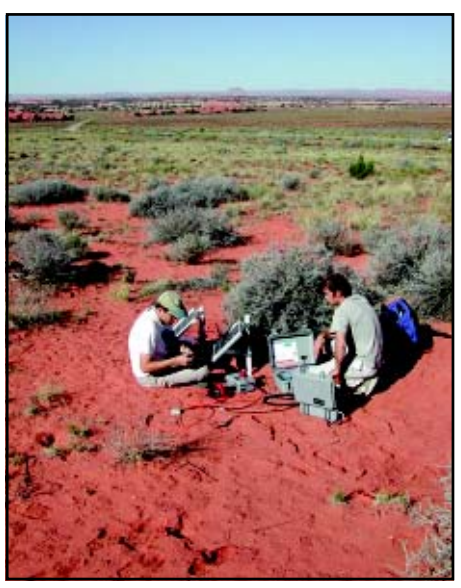
For more information on Greg's research and teaching, please see his web page at http://geode.colorado.edu/~gtucker.

Jason Neff

Jason Neff joined the department in August of 2003 as an Assistant Professor of Biogeochemistry. He is a joint hire with the Environmental Studies Program at CU. Jason is interested in the biogeochemistry of terrestrial ecosystems and his research focuses on how elements such as C, N and P are cycled through soils and lost to the atmosphere or rivers. Jason has projects that range from basic studies of how variation in bedrock and eolian dust geochemistry influences western U.S. ecosystems, to studies of soil carbon cycling in Siberia and Africa.

Jason is a native of Boulder and was an undergraduate at CU finishing his B.A. in 1993. During his undergraduate studies at CU, Jason developed an interest in interdisciplinary research by working in the atmospheric chemistry division of the National Center for Atmospheric Research on trace gas emissions from soils to the atmosphere. Jason carried out his undergraduate honors thesis research as part of the Long-Term Ecological Research Program at the CU Mountain Research Station examining impacts of nitrogen deposition on ecosystems (work that he is continuing at the LTER site now). Following graduation from CU and a brief research project on deforestation with NCAR in Costa Rica, Jason started a Ph.D. with Peter Vitousek at Stanford University. His Ph.D. work focused on dissolved organic element cycling in ecosystems, with a focus on the mineralogical and biotic controls over carbon and nutrient stabilization and loss. This work included field studies of nutrient flux in the Central Amazon in the Tapajos National Forest as well as field and modeling based studies of element cycling in soils.

Following his Ph.D., Jason left the crowded highways of the Bay Area and returned to Colorado to work as a research scientist at the National Resource Ecology Laboratory (NREL) at Colorado State University. For two years at NREL, Jason carried out work on the global cycle of atmospheric organic nitrogen as part of a Scientific Committee on Problems in the Environment (SCOPE) international N cycle evaluation project and began work on northern latitude carbon cycling. After two years at NREL, Jason left to take a Mendenhall postdoctoral position with Rich Reynolds in the Earth Surface Processes Team at the US Geological Survey in Denver Colorado. As a Mendenhall postdoctoral fellow and later as a research scientist in the USGS, Jason began work in Utah examining the impacts of atmospheric dust deposition on nutrient cycling, and how land use change influences the stability and nutrient cycles of desert soils. The deserts of Utah provide a tremendous natural laboratory for examining the links between geology and ecosystems and Jason's work with the USGS accelerated his interest in how variation in geology can influence the structure and function of modern ecosystems. As a new faculty member at CU, Jason is continuing to collaborate with the USGS in Denver while also developing new projects examining similar topics in Colorado. These new projects include a study of how vegetation in the Colorado Rockies is influenced by weathering of nutrients from bedrock, continuing efforts examining land use change impacts in Utah and a new NASA-funded project focused on the carbon balance of African ecosystems. Jason is teaching a new graduate course in Global Biogeochemical Cycles and an introductory global change course in the department. Jason's student, Kim Wickland, was the recipient of the "Friends of the Graduate School Grant", for $1000. Her proposal was titled "Decomposition in wetlands formed by permafrost thaw".



Jason Neff and Daniel Fernandez repair a soil CO_2 monitoring station near Canyonlands National Park in Utah.

W.W. Atkinson, Jr.: Retirement and the year of 2003

It seems that I was sucked into geology from the time I was little. In grade school, I used to gaze across the Rio Grande in Albuquerque at the volcanoes and lava flows of the rift, thinking about how they had formed. Visits to the Museum of Natural History in Denver opened new vistas, and I collected fossils in northern Colorado and minerals in New Mexico. I went crazy over chemistry in high school, doing dangerous experiments in my home lab, but when I started college, more exposure in courses pulled me inexorably into geology. I finished my B.S. in chemistry, but went directly into geology in graduate school. In fact, a combination of the two sciences turned out to be a very useful direction, providing insights into ore deposits not possible otherwise. After graduate school, I spent eleven years with Anaconda, a major copper mining company. They gave me a second education, practically a second Ph.D.. I had participated in a major exploration project that had resulted in the development of a large mine, and had written an extended research paper on the geology that was published in a peer-reviewed journal. Principally, one has to understand the mineral deposits in their context, the total geology of the district in which they occur. The tradition in economic geology has always been toward comprehensive studies, with less value for short papers. I had a clear idea of the type of research needed to understand ore deposits, and was ready to impart this in classes and in directing theses. When *Geotimes* advertised a position teaching economic geology at CU, I was ready, and had just the right combination of qualifications the department was looking for.

In my first few years at CU, our department chair advised me to accept a large number of graduate students. At that time, there was a boom in mineral exploration, and many students wanted to do theses in this field. So I usually had about fifteen students at a time, a disadvantage for accomplishing research, but it made an exciting environment for the students. I emphasized field studies, aided by analytical and petrographic data. My courses emphasized the chemistry of ore deposition, and field trips to see the real thing. We went to many places, from the Stillwater complex in Montana to gold and silver mines in Mexico. Besides the field trips, I usually included field mapping exercises in my ore deposits courses, so that students learned some of the essential skills to make detailed geologic maps. We spent many chilly afternoons in the old Poorman mine just a few miles from Boulder, looking at the intricate geologic history of faulting and mineralization.

In the last few years, after we changed to a system of modules for teaching field geology, I was able to start a class in mineral deposit mapping. Although the majority of the students had not taken the ore deposits course, due to lack of time available in their schedules, they enjoyed the unusual experience and challenge of mapping underground, and making careful geologic observations.

Early in my years at CU, there were consistently 25 or more students in my classes, as job offers were plentiful. In 1983, the bubble burst, and metal prices took a nosedive. *Newsweek* even had a cover announcing "the death of the mining industry!" Students immediately took note, and class sizes dropped to five. But interest in graduate studies continued unabated, the hard-core aficionados willing to take their chances after graduation. Some wound up as teachers, some as financial analysts, but still many found work in the mining industry. Environmental awareness increased about this time, so that many became environmental geologists, cleaning up what had been left by earlier miners. We need a clean environment, but we will not forgo our uses of metals in transportation and energy applications. Fortunately, the mining industry has no choice but to obey environmental regulations, since a metal deposit cannot be moved to a more favorable location. Unfortunately, companies largely stopped exploring within the U.S., drastically reducing jobs for geologists, and directed their efforts to third world countries, where economics outweigh environmental considerations. This situation is changing, and American environmental ideals have begun to influence the third world.

Foreign languages and cultures have always fascinated me, so I was attracted by the possibility of research in Latin America, where many deposits have never been studied scientifically. Don Eicher, our chair when I was hired, graciously flew me to Mexico for one of my first trips to help a student start his thesis at San Francisco del Oro, Chihuahua. Soon after, Anaconda asked me to do research in Chile on a deposit high in the Andes. This resulted in another thesis. Anaconda also asked me to find a student to work in Sonora, Mexico, where Jeff Deen did his Master's thesis near Moctezuma. As many of you know, he died doing exploration in Perú after he had earned his Ph.D. here. The Moctezuma project presented many more opportunities beyond Jeff's thesis, and I started a 20-year long district study, which I still have to finish. Opportunities continued to appear in Mexico, and I had six other students do their thesis work there. Another student worked in Bolivia, and one of the last, in Chile.

Students continued to show an interest in graduate work, and although my classes remained small, I never lacked for applicants to graduate school. The types of theses were quite varied, not only in the commodities studied, from copper to gold, tungsten, silver, titanium and molybdenum, but also ranging in scale from narrow topics within individual deposits to district studies to regional and global studies. The geologic topics also varied, from mineralogy to structure, petrology, geochemistry and isotopic studies. Although I was directing the students, I learned a lot from each one. It was a great pleasure supervising theses.

Financial support for graduate students was always a problem. Mining companies do not generally want to contribute to scientific research for the long term, but primarily to applied studies they can use quickly. However, they are often generous in providing funds for field work and analyses. I have been the principal advisor for 49 students, and the scientific project director for a few more. Of these, about 25 received some financial support from companies, ranging from analytical costs to field and travel expenses, and in a few rare cases, total support including an allowance during course study at the university. Twelve were supported by the USGS and a state survey, a few by scholarships from their native countries, and a number as teaching assistants in our department. One was supported by a NASA grant for regional tectonics.

A Chilean professor, Francisco Hervé, a friend of Chuck Stern's, was here on sabbatical about 1985. After returning to Chile, he invited me to put together a seminar, or short course, on gold geochemistry. I presented the first of these courses in Santiago in 1986, and have continued doing this in Latin America. A major advantage was my knowledge of Spanish, which I had started studying during my research in Chile and Mexico. After that, I found opportunities to present the seminar at universities and to companies, professional associations and government agencies in Mexico at Hermosillo, Guadalajara, Durango, and Mexico City; in Salas, Spain; in Oruro and La Paz, Bolivia; and in Perú. Although the trips were not vacations, they nevertheless were wonderful opportunities to see new places and meet the local geologists. These occasions were some of my most enjoyable professional experiences outside the university, and I hope to do a few more.

So at this juncture, life is about to change for me, no longer teaching classes and supervising theses. However, I want to finish several research projects, and I will be here to help students with theses and projects. I will give my wife and grandchildren more of my time, we plan to go on more trips, and do what we can to stay healthy.

My work here has been a great pleasure, and I have enjoyed knowing all of you, and appreciate your friendship.

Sincerely, Bill

William Atkinson riding off into the “sunset” at Picota Prospect, Peru.

Faculty Activities

William Atkinson

Worth Cotton finished in August, and took a job with Exxon-Mobil. The mining companies were not fast enough to snap him up! Lorna Jaramillo finished in December, and has returned to Puerto Rico, where she is looking for a university level teaching position. Professor Maeng-Eon Park, of Korea, continued his sabbatical here, and collaborated with me on research, accompanying me on two trips to Arizona. He returned to Korea in August. I was invited to present my gold seminar in Perú, to geologists of Minera Yanacocha and at the University of Cajamarca, both at the town of Cajamarca. Finally, I taught my last two classes, the intro to geology, and my favorite, ore deposits.

Craig Jones

Craig Jones' first PhD student made it out into the real world in 2003. Charlie Wilson graduated after defending his thesis on New Zealand and eastern California geophysics. Included in this work are results indicating that the Alpine Fault (Wairau Fault) in New Zealand only penetrates the upper crust as a true fault, spreading out into a zone tens of kilometers wide in the lower crust. He is now ensconced at Stanford as the George A. Thompson post-doctoral scholar, from which position he continues to expand upon his studies to new areas and new topics.

Craig's other student, Joya Tetreault, survived more field and lab work this year, not to mention her comprehensive exam. She and undergraduate Byron Boyle and Craig toured the San Rafael Swell and the Grand Hogback in search of paleomagnetically stable rocks that might show whether the underlying faults slipped with a component of strike-slip motion. After this, Byron headed to Albuquerque to enjoy the scenic youth hostel and UNM paleomagnetics lab while Joya and Craig and undergrad Max Knop headed west to try their luck in the oil fields of California. Here they sampled late Cenozoic rocks in the hopes of finding rotated sediments; after a few days in the sweltering

Faculty Activities continued....

heat, Craig left and Mariela Salas, a SMART program student from University of Puerto Rico, Mayaguez, joined Joya and Max in dodging the sulfurous fumes of the Coalinga oil field and collecting samples from "rocks" frequently considered dirt. Joya and Mariela then trekked to the paleomag lab at Caltech, so our group occupied two of the paleomagnetic magnetometers in the western US simultaneously. For those keeping track, Joya has now sampled four such labs, making her a true connoisseur of SQUIDs, spinners, and Pomeroy drills. Early results from the Colorado Plateau do show that some rotations have occurred on the Grand Hogback monocline; Joya is returning to Caltech to finish off the California samples this spring.

Gifford Miller

In July, Gifford Miller and Ph.D. students Jessica Black and Yarrow Axford collected lake sediment cores from Iceland, with the goal of reconstructing high-resolution records of changes in North Atlantic ocean/atmosphere circulation patterns over the past 10,000 years. Using the NSF-GLAD200 coring rig and ODP hydraulic piston coring technology, they recovered long continuous sediment cores from three Icelandic lakes with support from the US and Icelandic science foundations. The primary focus of the Colorado team, and the thesis area of Jessica, was Hvitarvatn, a glacier-dominated lacustrine system lying below Langjökull, the second largest ice cap on Iceland. One of our goals was to determine if Langjökull ever disappeared in the current interglacial by studying the physical sedimentology and diatom floras preserved in the lake. Four sites were cored, each with offset parallel cores, to ensure a continuous record was obtained. Sedimentation rates are high; 15 to 50 m of sediment has accumulated throughout the lake, in water depths up to 80 m. Radiocarbon dates on the basal sediment confirm our expectations that the lake has been present continuously for the past 10,000 years. Additional coring is planned for late winter 2004 in smaller lakes on north Iceland by Yarrow and Alaskan colleagues. Icelandic students working with former CU grad Áslaug Geirsdóttir (Univ. Iceland) will study sediment cores from the other two lakes.

In May, Giff, Ph.D. candidate Jason Briner, and former Colorado grad Thom Davis (Bentley College) returned to the Clyde River area of northeastern Baffin Island. Traveling over snow south of Clyde, they were able to visit remote sites to test their evolving ideas of the glacial history of the Eastern Canadian Arctic and the spatial patterns of glacial erosion by the former Laurentide Ice Sheet. At the other coast even very low elevation summits exhibit ancient rock weathering features but are dotted with fresh-looking erratics, suggesting LGM ice reached the coast, but was erosive only at low elevations and in the main troughs. Ongoing cosmogenic exposure dating will provide the essential time constraints to interpret these records.

Two students, Jason Briner (Ph.D., Baffin Island) and Steve DeVogel (MSc, Australia), successfully defended their theses in the spring, and Roy Coulthard (MSc, Baffin Island), who defended last December, is now working on his Ph.D. at Edmonton.

Stephen Mojzsis

The Mojzsis group has been active this past year in new field programs, laboratory expansion and new students joining the team. We were pleased to welcome Nicole Cates as a new Ph.D. student. Nicole comes with a Master's already in hand from the lab of Calvin Miller at Vanderbilt. She joins a long line of collaborators with Stephen Mojzsis who hail from Canada (including graduate student Dominic Papineau). We are fortunate to have Heather Sickels and Dustin Trail, both CU undergraduates, working in the Astrobiology Materials Research Laboratory this past year (see: http://isotope.colorado.edu to learn more about us). Both will be starting new careers as graduate students in Fall 2004. The recent 5-year grant renewal of the NASA Astrobiology Center at CU (with Prof. Bruce Jakosky as Principal Investigator and Stephen as Co-I), makes us excited about the growth potential of early Earth studies in the department.

Field research in 2002-2003 was diverse and far-ranging in Finland, Wyoming, South Africa and Western Australia. In June 2003 we began the first phase of a newly funded NASA Exobiology Program Mission to Really Early Earth with an extended field program in the ancient terrain of Western Australia. The oldest Australian rocks provide a sample of the first 10% of Earth history (the so-called Hadean Eon) when the establishment of habitable environments as well as the origin of life itself likely occurred. The Hadean is equivalent in length of time to the whole of the Phanerozoic! We are now exploring how the chemistry of rare Hadean-age zircons challenges the traditional view that continental formation and development of a hydrosphere were frustrated by meteorite bombardments and basaltic igneous activity until ~4.0 Ga. The latest results of this project are now in manuscript form submitted for publication to Nature with colleagues from the UK, and Australia.

The principal research project of Ph.D. graduate student Dominic Papineau has been to examine ammonium concentrations in phyllosilicates evaluated by Fourier-Transform Infrared Microspectroscopy and δ15N values measured by laser mass spectrometry. The aim is to test the feasibility for ammonium (NH_4^+) in biotite to record biogeochemical information in Precambrian schists and carbonates. We now understand (thanks to colleagues like Prof. Norm Pace in MCDB) that molecular phylogenetic studies in the Bacterial and Archeal domains indicate that nitrogen fixation and ammonium assimilation may have been a metabolic feature of the earliest organisms. Micas from 1.90–2.09 Ga metasediments from Finland and from 1.025-1.500 Ga biotite schists from the Moine Succession in northwestern Scotland have high concentrations of structural ammonium (expressed as $[NH_4^+]_{biotite}$) suggestive of a biological origin for the nitrogen. Nitrogen isotopic signature in these micas are consistent with biological nitrogen fixation and denitrification at time of sedimentation. Evidence for denitrification in the Mesoproterozoic agrees with geological evidence for abundant free oxygen in the atmosphere facilitating the stability of marine nitrate. Indeed, sequences of early Archean (ca. 3.8 Ga) garnet-mica schists from West Greenland contain biotite rich in NH_4^+ (between 465 and 855 ppm) and isotopic signatures that could point to an early evolution of ammonium assimilation and/or nitrogen fixation. Dominic has just submitted the results of his work for publication in the journal, *Chemical Geology.*

We have started a new project exploring the rate, duration and magnitude of the switchover from an essentially anoxic (pO_2<10-5 present atmospheric level; PAL) to oxygen-rich (>0.1% PAL) atmosphere between ~2.4 and 1.9 Ga using the mass-independent behavior of sulfur isotopes. This pivotal era in Earth history is termed the "Great Oxidation Event". What were the biogeochemical mechanisms for its advent? How did life respond to such a marked rise in free O_2? This led to the rise of a biosphere dominated by aerobic multicellular life; life with cells like ours. High-resolution multiple sulfur isotope measurements have been made of sulfides from the Paleo- to Mesoproterozoic of Finnish Lapland and southern Wyoming; a new multiple sulfur isotope technique has been developed specifically for this study and was recently published in the journal, *Geochimica et Cosmochimica Acta.*

New laboratory and field research directions in 2004 will take us back to the Arctic to explore the geology, age and origin of pre-3700 Ma supracrustals in coastal southern West Greenland. This work comprises the Ph.D. project of Nicole Cates and will undertake detailed field mapping and geochemical analyses, including $\delta^{18}O$ and $\Delta^{33}S$ measurements guided by the field relations and zircon geochronology, of several metamorphosed volcano sedimentary successions in the early Archean terrane south of Nuuk, Greenland. Stay tuned!

Peter Molnar

Peter Molnar turned 60 in August. A few days before, a bunch of friends got together to celebrate, present new research results, and reminisce about days together in Afghanistan, Tajikistan, India, China, and Utah, among others. On the day itself, Peter climbed Long's Peak with his son.

Matthew Pranter

During the past year, Matt Pranter has been working on research involving petrophysical heterogeneity within dolomites using outcrop data (with David Budd) and more recently on fluvial deposits of the Upper Cretaceous Williams Fork Formation in western Colorado. The Williams

Prof. Steve Mojzsis (right), graduate student Dominic Papineau (center) and Dr. Andrey Bekker (Harvard) sampling Paleoproterozoic sediments in the Medicine Bow Mtns, southern Wyoming (October 2003).

Gifford Miller surveys the landscape from the 800 m asl summit of an island on eastern Baffin Island in mid-May 2003.

Karl Mueller, undergrads Kirk Morris, Ryan Tolene looking into Upheaval Dome, an eroded salt diapir in Canyonlands.

Fork research addresses the distribution, connectivity, and internal heterogeneity of these and similar deposits. It involves the collection of field data, including LIDAR (Light Detection And Ranging) data. The LIDAR data provide high-resolution digital elevation models and intensity images of the outcrop faces. LIDAR images and photomosaics will be used to define fluvial architectural elements and bounding surfaces, extract detailed dimensional data for sandstone bodies, such as channel width and height (for use in reservoir modeling), evaluate sandstone/sand-body connectivity, and describe the internal architecture of fluvial deposits.

Matt currently has two Masters students, Amanda Ellison and Marielis Vargas, who are working on different aspects of reservoir geology involving the Williams Fork Formation. Amanda's research involves outcrop modeling of point-bar deposits using lidar data (see previous paragraph), and Marielis is working on the stratigraphic and structural characterization and modeling of similar deposits at Rulison Field in the Piceance Basin. Amanda and Matt presented some of the research results at the annual GSA conference in Seattle. In addition, Colette Hirstius graduated in December 2003 with her Masters degree and is a petroleum geologist with Shell in New Orleans. Colette's research investigated the spatial variability of petrophysical properties in dolomites (Madison Formation, Wyoming), and she also presented her research last year at GSA in Seattle.

Matt continues to be active in AAPG and served as an Associate Editor for the Bulletin and is a member of the Distinguished Lecture Committee.

Anne Sheehan

During summer 2003, Professor Anne Sheehan's research group hosted two visiting scientists from Nepal, Mr. Sudhir Rajaure and Mr. Som Sapkota. The visit was funded by a National Science Foundation International Supplement to Sheehan and Bilham's NSF grant for Himalayan seismic studies. Many members of Sheehan's group pitched in to help with the training, including Gaspar Monsalve, Frederick Blume, Tom de la Torre, Oliver Boyd, and Vera Schulte-Pelkum. The training covered material ranging from introductory to advanced seismology, computer operating systems to advanced seismic analysis applications, and many trips to the Taj restaurant for good Nepali food. The Nepali researchers were given a laptop computer with seismic analysis software, which they now use in Nepal to better study and understand earthquake hazards in their country. Monsalve and de la Torre plan a follow up visit to Nepal later this year to continue the collaboration.

Professor Anne Sheehan (center) with Nepali scientists Sudhir Rajaure (right) and Som Sapkota (left) checking out glacial geomorphology after the IRIS Seismology meeting at Yosemite National Park, California.

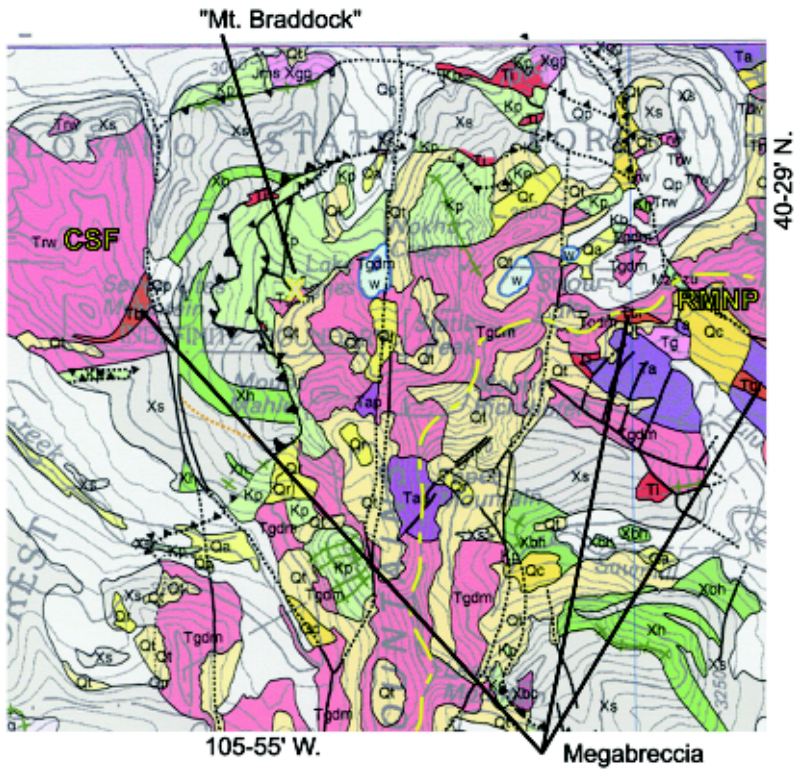
Victoria Rystrom completed her Master's Degree on an aeromagnetic and gravity study of the Tucson Basin, and is now busily employed in environmental geophysical consulting. Research Associate Dr. Frederick Blume accepted a position at UNAVCO, Inc., and works with western United States geodetic networks and Earthscope. New graduate student Greg Bensen is working on a geologic information technology project (GEON) and on a project funded by the USGS Earthquake Hazards Reduction program. CU undergraduates contributing to research efforts in Sheehan's group this year include Jake Walter, Max Knop, Danny Brothers, and Jennifer Clifford.

Dena Smith

Dena Smith and her students continued their research on fossil insects and plants from western North America this summer. They collected over 1000 fossil insects (in only one week!) from the 14Ma Stewart Valley deposit in western Nevada. Insects are preserved in exquisite detail in a very fine-grained paper-shale.

This summer, Dena was fortunate to have an excellent team of students working with her. Amanda Cook (MS student, Geological Sciences) worked on re-housing and organizing the fossil insect and plant holotypes and worked to finish her thesis on the fossilization of beetles. Matt Westerby (Geology undergraduate) received mentorship funds to work with Dena to create a digital database of fossils in our collection. Vanessa Rosario Lopez, (SMART Program Intern from Puerto Rico) worked on the curation of the Stewart Valley material and completed a project on plant-insect interactions. Janice Forbis (EPOB undergraduate) worked with Dena to complete her honors thesis on how sampling strategies impact paleoenvironmental estimates in fossil plant assemblages.

"In The Field"



New Ideas from the Never Summers

The northern end of the Never Summer Mountains is a meeting place for two new ideas. One is geological in nature, the other humanitarian.

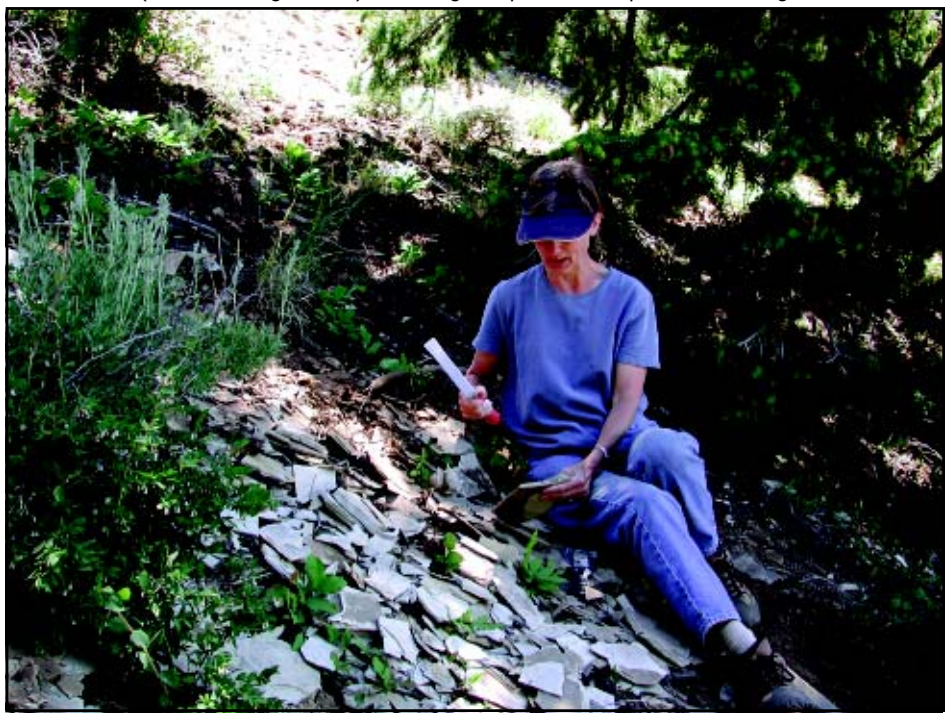
Ed Larson has begun a field-lab study of the Tertiary volcanic rocks in and around the northwestern part of Rocky Mountain National Park. From the work so far, he believes a caldera existed when the younger volcanics erupted, 28-29 million years ago. Others have wondered about a caldera, but lack of any remaining topographic form has kept the idea in doubt. Ed says the different volcanic facies, along with certain structural elements, indicate the presence of a caldera and enable him to roughly define part of its boundary. He calls it the "Braddock caldera", in honor of his colleague who was so important in deciphering the geologic history of that area. It's an informal name because it is not based on any existing named feature.

In the meantime, the Bill Braddock Memorial Committee has been working on ways to honor Bill. One plan was to identify a worthy unnamed topographic feature in the Front Range, such as a peak or a view-point, and get approval for using his name. Early checking indicated the likelihood of adding a new name inside the national park or wilderness areas was asymptotic to impossible. That put most of the great topography out of reach. Discouraged, the committee turned to other ideas.

Ed Larson resuscitated the plan by pointing out an unnamed 11,800-foot peak at the northern end of the Never Summer Mountains – within the area covered by the beautiful Braddock-Cole geologic map, but outside the park and wilderness boundaries. It shows on the accompanying figure, which is a piece of the geologic map. It can also be seen on the Mt. Ricthofen quad., a half-mile west of Lake Agnes.

In the minds of the committee members, that peak is "Mt. Braddock." And they have initiated action to make the name official. Which brings us back to Ed's new idea. According to him, the peak lies within and near the western margin of the caldera. If it acquires Bill's name, Ed will have what he needs to remove the quotation marks from his "Braddock caldera."

Janice Forbis (EPOB undergraduate) collecting sample of fossil plant assemblages.



"In The Field" ...continued.

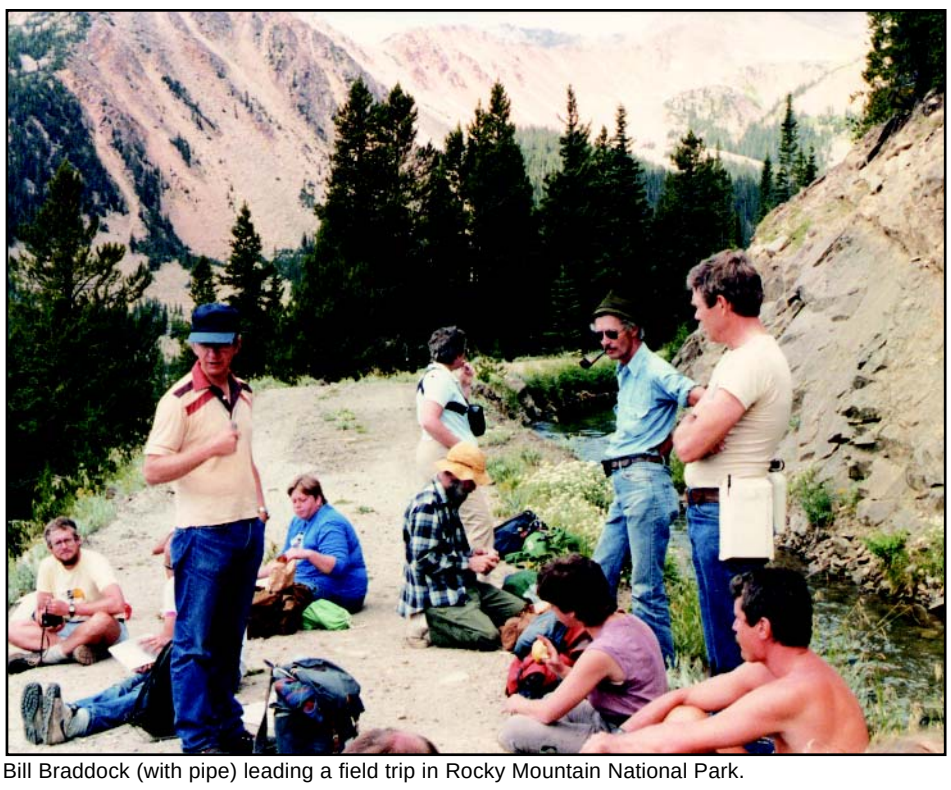
William Braddock Epitomized The Art And Science Of Field Geology

Most of you are aware of the passing in January, 2003 of Professor Emeritus William A. Braddock, consummate field geologist and mentor of an entire generation of CU geology students in field and structural geology.

To many of us, Bill epitomized the art and science of field geology in its most intense sense. Not one to girdle the globe in search of exotic locales and modish issues, he spent most of his career working in the northern Front Range of Colorado and adjacent Wyoming, seeking to unravel the Gordian knot of Proterozoic to Laramide events right in Boulder's backyard.

Bill's enthusiasm and his caring and objective style played an influential role in the lives and careers of >70 students on whose M.S. and Ph.D. theses committees he directed or sat, and in the careers of hundreds of geology majors who took his undergraduate field and structure courses. But Bill's enduring contribution to the general public lies in the numerous maps he published, most notably the geologic map of Rocky Mountain National Park (USGS Map I-1973), co-authored with former Ph.D. student Jim Cole and now in its second printing (see "New Ideas from the Never Summers," this newsletter).

In order to recognize the lasting value of Bill Braddock's contributions in field geology, the Department and the Department's Advisory Board have suggested, and the C.U. Foundation recently approved, the re-naming of the "Geology In the Field Endowment" to the "Bill Braddock Geology in the Field Endowment." This endowment provides funding for Departmentally-organized field trips, either within academic courses or as special Department events, with the goal of keeping students "in the field." The endowment, which was established a few years ago, has now grown to over $100,000; ultimately, $500,000 will be needed to fully fund it. A donation form is available on page 12.

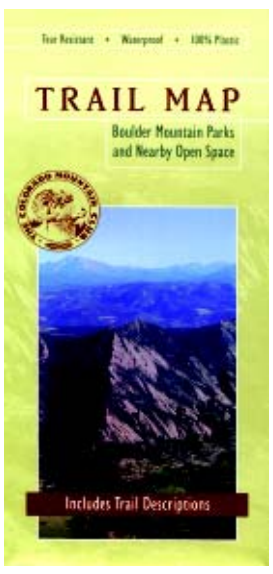


Bill Braddock (with pipe) leading a field trip in Rocky Mountain National Park.

New Colorado Mountain Club Trail Map

by Pete Birkeland

Several members of the Department helped produce the new Colorado Mountain Club hiking trail map of the mountains just west of Broadway. The CMC has updated the map several times, and it has been well received. This time, however, it was decided to bring out a full-color edition. Pete Birkeland was on the map committee. This was potentially dangerous because map-making now is computer intensive, and Pete's computer skills are inversely proportional to the days he spends on skis. Pete had three main roles. One, he hiked many of the trails to determine their accuracy. Two, he enlisted the help of John Roesink, a graduate student working with Paul Weimer. John was the secret computer weapon as he was able to bring together all kinds of materials—topography, roads, boundaries, shaded relief, etc. Third, Pete recalled some great photographs that Don Eicher had taken while flying above the area. One such photograph graces the cover of the map. The map is now available at many Boulder outdoors and map stores, and your purchase helps you from getting lost as well as helps with the club's finances.

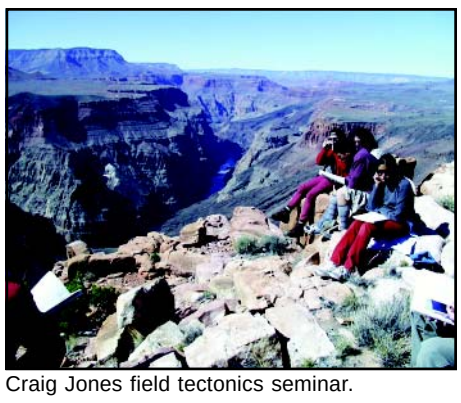


Field Geology Program is a Success!

by William Atkinson and Craig Jones

Our field geology program has been highly successful since we started the present system of "modules", in which we teach several specialties as separate short courses. Last year, these included an intro course, which all geology majors must take, and courses in igneous & metamorphic rocks, geophysics, environmental geochemistry, and a special course, Field Geology of Colorado.

In 2003, **Craig Jones** taught two field classes, the Field Tectonics Seminar, held during Spring Break, and Field Geophysics.



Craig Jones field tectonics seminar.

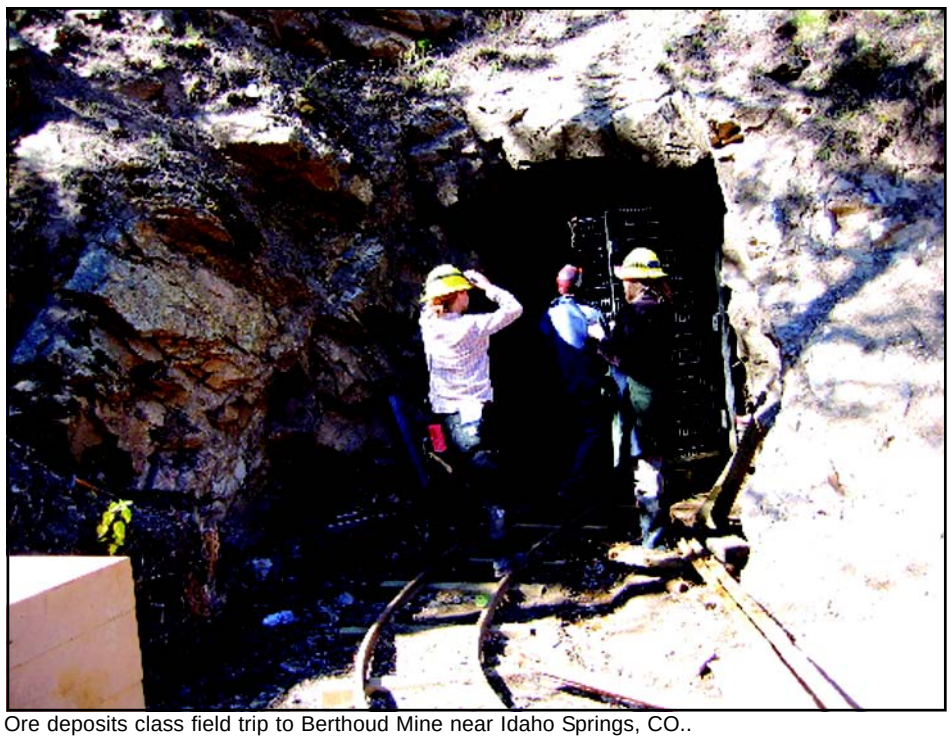
The Field Tectonics seminar consisted of a ten-day trip, across the Colorado Plateau to southern California and back. The ten student participants each wrote two articles for a guidebook, describing features to be visited, with an annotated bibliography for each article. At each stop, the author of an article made a presentation, explaining the notable geology of the area on the outcrop. The list and variety of topics was dazzling: Florissant fossils, Meteor Crater, the Garlock fault, Death Valley, Muddy Mountains thrust, the Grand Canyon, the Sevier fault and monoclinal folding on the Colorado Plateau, and many others. At the end of the trip, the participants had a handy reference to the areas they have seen. They camped out all the way, with many of the usual field trip mishaps. As soon as the raging spring blizzard let up, they were off for Florissant National Monument, where they found they had left their permits for national parks and monuments behind. Fortunately, they could be faxed from Boulder. Then, the first evening, they found their cooking gear wasn't with them, and had to find a Walmart in Alamosa for replacements. A snowstorm on Cumbres Pass turned to a whiteout, and they got to their campground at 11 that night. They had many flat tires due to sharp rocks, and while they were getting some replaced, the tire dealer pointed out that one vehicle had tires that were "nearly bald!" They had to call the university transportation center to get replacements authorized. This course would be a good core course for graduate students, in which they could explore the evolution of scientific thinking in many disciplines, suggested by points on the field trip, while they get to know each other and the faculty.

The Field Geophysics course is designed to introduce the use of geophysical instruments, data collection in the field, and writing reports on their surveys. They went out once a week to Caribou, near Nederland, and ran surveys using a number of methods. The Caribou area is an excellent site for geophysical studies. There is an area of Holocene fill for seismic refraction and resistivity, an enormous magnetic anomaly, a bedrock gravity anomaly, and the old Caribou cemetery, where ground-penetrating radar can find old graves. It is also the site of many silver-bearing veins mined in the 1800s, and unmined gold-bearing veins being explored at present. Craig gives a series of lectures on the practical aspects of each method before going to the field, and the data gathered from one field trip are analyzed at the next class meeting. The techniques studied are those used in resource exploration, environmental studies, engineering and archaeology.

Chuck Stern taught Geology 4711 - Field Geology of Volcanic and Metamorphic Rocks. This course emphasizes field trips to nearby localities to look at the many igneous and metamorphic rocks in the Front Range near Boulder, and to discuss their roles in the formation of the Rocky Mountains. Chuck presents each class member with a thick, bound packet of articles on the localities and pertinent geology of the Front Range and the Rio Grande Rift. Half-day trips include the Valmont dike, Flagstaff sill, Green Mountain kimberlite, Table Mountain basalts and Coors beer factory, Sugarloaf and Bryan Mountain stocks, the Boulder Creek and Silver Plume granites, and metamorphic rocks in the Big Thompson Canyon. There are also two 4-day weekend field trips to southern Colorado and New Mexico to see rocks associated with the formation of the Rio Grande Rift Valley, including the Raton-Clayton and Taos volcanic fields, Spanish Peaks dike complex, Valles Caldera and associated hot springs, and the Harding pegmatite. If the weather is good, this class sometimes takes a weekend trip to the Laramie anorthosite and Sybil pit titaniferous magnetite mine in Wyoming. Students read scholarly level papers describing the local geology, and each student presents a written and oral report on one rock unit seen during the field trips, describing its petrology, putting it in proper chronological and geological context, and discussing its origin. They also prepare and write a report on a thin section, and take a quiz. The course is quite popular due the time spent in the field and the long trips.

Alan Lester taught two field

Alan Lester teaches a field geology course in a "nice lecture hall."



Ore deposits class field trip to Berthoud Mine near Idaho Springs, CO..

courses, GEOL 2700, Introduction to Field Geology during the fall semester, and GEOL 4700, Field Geology of Colorado for three weeks during the Maymester.

The intro course gives the students their first exposure to rocks and structures. This eye-opening class is really about how to record data in the field, find your position and record observations on a map. They learn to use the Brunton compass, to recognize and describe rock types, folds and faults, to measure and describe stratigraphic sections, and to create geologic maps. They worked at Red Rocks Park, Flagstaff Mountain, an area near NCAR, Eldorado Canyon, and Rabbit Mountain. For each project, they prepared a carefully drafted final report, with maps and field notes. A point of Alan's inspiration is from the Reverend John Walker, who taught the first systematic course in geology at the University of Edinburgh (1781 to 1803), and who had this to say to his students –

"The way to knowledge of natural history is to go to the fields, the mountains, the oceans, and observe, collect, identify, experiment and study." Two hundred years later there's still much to be said for his approach!

The Field Geology of Colorado course acquaints students with details of real geology –it confronts students with the problem that geology is not as neat and tidy as presented in textbooks, but something we have to interpret and organize as models. What we learn in class is only an approximation of reality. In the field, we are faced with the basics of science, i.e., how to interpret the chaos of nature. Alan shows the students that they can figure out geology in the field themselves. The class emphasizes easily performed field observations to interpret and determine the geological history of the areas visited. Four projects included detailed mapping and measuring of stratigraphic sections. From their maps, students constructed cross sections and interpreted the structural elements and relative timing. Areas and topics studied included Front Range Precambrian geology, Colorado National Monument, a large stratigraphic column at Mack, Colo., the Florissant and Cripple Creek area, Cañon City strat column, glacial geology and a Geologic Time Line for Colorado. Alan gave the students data and information not available in the field. No students were lost, and Alan was impressed with the seriousness of the students.

Resurrection Vein in the Berthoud Mine sampled by the Ore Deposits class.

Visit us on line at:

www.colorado.edu/geolsci

Although **John Drexler** cancelled his course in Environmental Field Geology last fall, he is offering it this semester, and it deserves to be mentioned briefly as an important part of our program.

The class consists of a series of field trips, in which students learn about soil profiles and their contamination by heavy metals, acid mine drainage, contamination of surface water by municipal and industrial sources, aqueous geochemistry, microbiological contamination and related topics. They learn how to understand field situations in order to work out strategies and techniques for collecting samples for environmental studies. Eighty percent of their analyses are done by the students in the field with a portable spectrophotometer and other instruments. Analyses include pH, Eh, conductivity, alkalinity, dissolved oxygen, nitrate, phosphate, ferric and ferrous iron,copper, etc. John also instructs them on the EPA regulations. Areas of study include the Leadville Superfund site, Boulder Creek from its headwaters near Eldora to the east side of Boulder, the Argo Tunnel in Idaho Springs, and its water treatment facility. Almost all lectures are given in the field as the problems are confronted. This is information and material with which we should all be more familiar.

GEOL 5420 (Quaternary Records and Clocks) 3-day field trip to the Nebraska Sandhills, October 2003.

by Gifford Miller

Only a half-day's drive from Boulder lie the Nebraska Sandhills, the largest sand sea in the Western Hemisphere, and one of the least known natural wonders of the U.S. Occupying most of northern Nebraska, the sand dunes of the Sandhills are presently stabilized by perennial grasses and are managed as rangeland for cattle and bison. Until a decade ago, the prevailing paradigm was that the Sandhills were last mobilized during the dry, cold, last glacial maximum and had been relatively stable throughout the Holocene. But more recent studies have shown that regional drought occurred intermittently during much of the Holocene, and that persistent drought episodes led to loss of vegetation and large-scale dune reactivation. Episodes of eolian activity caused large sand accumulations to occur in stream valleys, effectively damming drainages and creating extensive lakes throughout the dune field. Under greenhouse warming scenarios, effective moisture is predicted to decrease over much of the High Plains, and this may lead to increased eolian reactivation, with potentially large economic and societal impacts.

The Sandhills offer an exceptional archive of lacustrine and eolian stratigraphy that records the evolution of the modern landscape. Giff Miller and assorted colleagues and graduate students have been utilizing the records preserved in Sandhills lakes and eolian deposits to reconstruct the timing and magnitude of droughts during the past 2000 years, to gain a better perspective on the range of natural climate variability. In October 2003, Giff took his GEOL 5420 class on a 3-day excursion to visit one of the key study sites in the Sandhills, with support from the Department's Field Trip Fund. The goals were to initially look first-hand at some of the evidence for widespread dune reactivation that occurred as recently as 200 years ago, then to spend a day and a half undertaking original research for a class project. The class benefited from the generosity of Stan Huffman, a local rancher, who allowed us to stay in one of his bunkhouses. We worked primarily on a little lake known as The Puckett, which our earlier work had suggested was the residual remnant of a once much larger lake created by a dune dam more than 5000 years ago.

The class was divided into four teams, and charged with 1) surveying in a long-profile of the valley over about a 3 km stretch including two lakes separated by a dune-dam, 2) recovering a sediment core from the center of the lake, 3) augering outside the current lake boundaries to look for buried lacustrine sediment from a time when the lake was young, and 4) placing an auger hole through the dune dam separating The Puckett from Round Lake up-valley from it. Overall, most field objectives were met, although the central basin coring program struggled when the battery powering the electric motor on our raft shorted out and created a hole in the raft. Such are the trials of fieldwork.

The class used the observations from the fieldwork, supplemented by some analytical work on the cores back in the lab and the data of our previous efforts to develop a synthesis of the sequence of events that created the modern landscape. From this group effort, each class member had to write a proposal on what should be done next to further constrain the drought history of the region.

This was the second time Giff has taken his 5420 class to the Sandhills, but the first time there was a class project involved. The challenge to the students included how to utilize the diverse talents and backgrounds of their research group to integrate their own observations and that of previous researchers into a single coherent geological history, and then to decide on the most promising new line of research to refine and test the hypotheses that they derived in their report.

Students from Giff Miller's GEOL 5420 class assess a short core recovered from Puckett Lake. From left to right: Lawrence Garcia, Tracy Hall, Val Bakeman, Susan Buckingham, Giff Miller, Steve DeVogel.

Geophysics graduate student Than Putzig contemplates comparisons between the Great Sand Dunes of southern Colorado and their larger brethren on the surface of Mars.

ASTR/GEOL 5800 "In The Dunes"

by Robert Pappalardo

The graduate-level class ASTR/GEOL 5800, Planetary Surfaces and Interiors, has geologically-based emphasis. This past fall's class included a two-day field trip to southern Colorado to examine earthly analogs to each of the four major classes of geological process on the planets: tectonism (Rio Grande Rift), volcanism (Spanish Peaks), gradation (Great Sand Dunes and rock glaciers of Mount Mestas), and impact cratering (K/T boundary near Trinidad).

We began our journey by taking our two vans with 15 students up to Leadville, where the Rio Grande Rift begins its opening toward the south. As we drove the widening rift southward, we stopped to examine the effects of hydrothermal activity at the Chalk Cliffs along its western edge. We were awed by the individual fault line scarps bounding the Sangre de Cristo Mountains and the open expanse of the downtilted San Luis valley. The Rio Grande rift is a beautiful analog to large rift zones on Mars, Venus, and several of the icy outer planet satellites.

A brief and perplexing stop at the UFO Watchtower in Hooper gave us an appreciation for an eclectic side of planetary science not covered in class. Then it was on to the Great Sand Dunes, where we could climb barchan and star dunes analogous to those which blow across the surface of Mars. We camped the night beside the dunes, then the next morning we headed eastward. We detoured to Old La Veta Pass where we had an excellent view of the rock glaciers of Mount Mestas, sluggishly advancing ice-cored flows that are analogous to those hypothesized on Mars.

We continued toward the Spanish Peaks, where we hammered on syenite porphyry dike swarms, which radiate from the two intrusive mountains. Analogous dike swarms are inferred by the surface expression of fracture swarms on Venus and Mars. Our view of the Spanish Peaks themselves was thwarted by drizzle and dense fog, and a drive up toward Cordova Pass still did not reveal them.

We continued downsection through the strata of the Raton Basin to our last and most exciting stop, the Madrid East exposure of the Cretaceous/Tertiary boundary near Cokedale, west of Trinidad. Here we could examine the 2 cm thick layer--rich in clays, iridium, and soot--that represents one of the important moments in our planet's history, when 65 million years ago an asteroid slammed into a carbonate platform that would become Yucatan Peninsula, temporarily ravaging our planet's climate, and changing the direction of life's evolution on Earth. The K/T ejecta provided us a peek into impact cratering, the process which dominates early planetary evolution, but which is largely hidden on our planet. With our tour of planetary analog processes complete, our convoy of vans made a beeline north, and back to Boulder.

Planetary Geology Field Geology Trip to Hawaii

by Bruce Jakosky

Bruce Jakosky and Bob Pappalardo led their two planetary geology graduate classes on a week-long field trip to the Big Island of Hawaii in Fall '03 in order to investigate planetary geology processes first hand. The two classes were Planetary Surfaces and Interiors (Bob) and Seminar on Mars Life, Climate, and Geology (Bruce). Twenty people went on the trip.

Hawaii is an ideal place to examine some of the processes that are relevant to other planets. Of particular interest is the active volcanism on the flanks of Kilauea volcano. Not only is it a great chance to see molten lava close up--we were close enough to poke it with a stick, literally--but it's a chance to see volcanic features of a style that is very similar to that which occurs on Mars and elsewhere.

Highlights of the trip included the active lava flows, the 30-year-old satellitic shield volcano Mauna Ulu on the flanks of Kilauea, a recent (two-hundred-year-old) lava tube that shows all of its original morphology, the recent lava flows on the southeast portion of the island, drainage features that are similar to sapping valleys that occur on Mars (at both the meter scale in volcanic ash deposits and at the 100-m scale at the headwaters of Waipio Valley), sulfur deposits on the floor of Kilauea caldera, and the green sand beach at the southernmost tip of the island.

The trip was capped by in situ study of fluid transport of granular materials in a pelagic environment. We came home with as many people as we had when we left, nobody was seriously injured, and a good time was had by all!

Ruby-Horsethief Field Trip, May, 2003

by Joseph Smyth

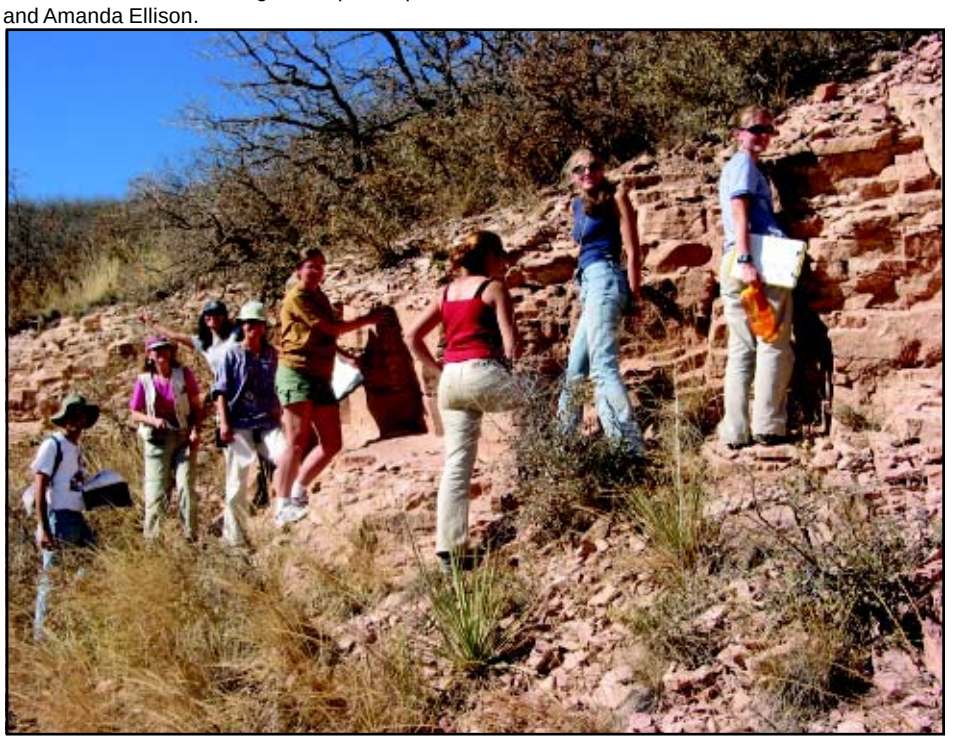
Students enjoying camp at Black Rocks.

As an optional supplement to a Maymester field course in May, 2003, twelve students participated in a three day field excursion through Ruby and Horsethief Canyons on the Colorado River, west of Grand Junction. The trip was led by Prof. Joseph Smyth. The first day included a three hour hike up Rattlesnake Canyon to observe the Pre Cambrian exposures on the northern edge of the Uncompaghre Plateau, and the folded sediments above the bounding fault. The first night campsite was at Cottonwood Camp about a mile below Rattlesnake Canyon. The second day we hiked through the base of the sedimentary action at the mouth of Mee Canyon and camped at Black Rocks to see the PreCambrian intrusive rocks. Take out on the last day was at Westwater Ranger Station.

Carbonate Sedimentary Environments Field Trip

In the Fall 2003, David Budd and Matt Pranter co-taught the graduate-level Carbonate Sedimentary Environments course. The course covered a range of topics in carbonate geology from carbonate grains and facies to cycles and sequences. In addition to lectures and lab exercises that evaluated carbonate hand samples and cores, the class took a field trip to the Colorado Springs area to take in some fresh air and get close to the rocks in the field. Exposures of the Lower Ordovician Manitou Formation were visited to examine well-developed, upward-shoaling carbonate cycles in the lower Manitou and sponge-bearing and stromatolitic facies of the upper Manitou.

Graduate students pictured on the upper Manitou include (from left to right) Jorge Diaz, Mary Ellen Benson, Marielis Vargas, Raquel Cepeda, Melissa Fallin, Donna Beares, Suellen Melzer, and Amanda Ellison.



Student News

Students Helping Students

by Arwin Vidal

2004 was the inauguration of the Graduate-Undergraduate Mentorship Program (GUMP). GUMP is made up of graduate and undergraduate students in the department. We are committed to undergraduate success both at the university and career levels. Interested undergraduates can choose a graduate mentor to advise them in school and career-related matters. Whether the undergrad is having a crisis in picking a career or just needs a show of support, graduate mentors are here to help! We are planning a Career Workshop, to be held in the Fall of 2004, where we will help undergraduates understand what it takes to get a job after graduation. Faculty and grad students will share their tips on job searching, resume building, interviewing techniques, etc. Also in the works is an Internship Intensive, aimed at getting undergraduates into great summer internship/research programs! You can find out more about GUMP at our website:

http://ucsub.colorado.edu/~vidala/gump

AAPG Student Chapter at CU

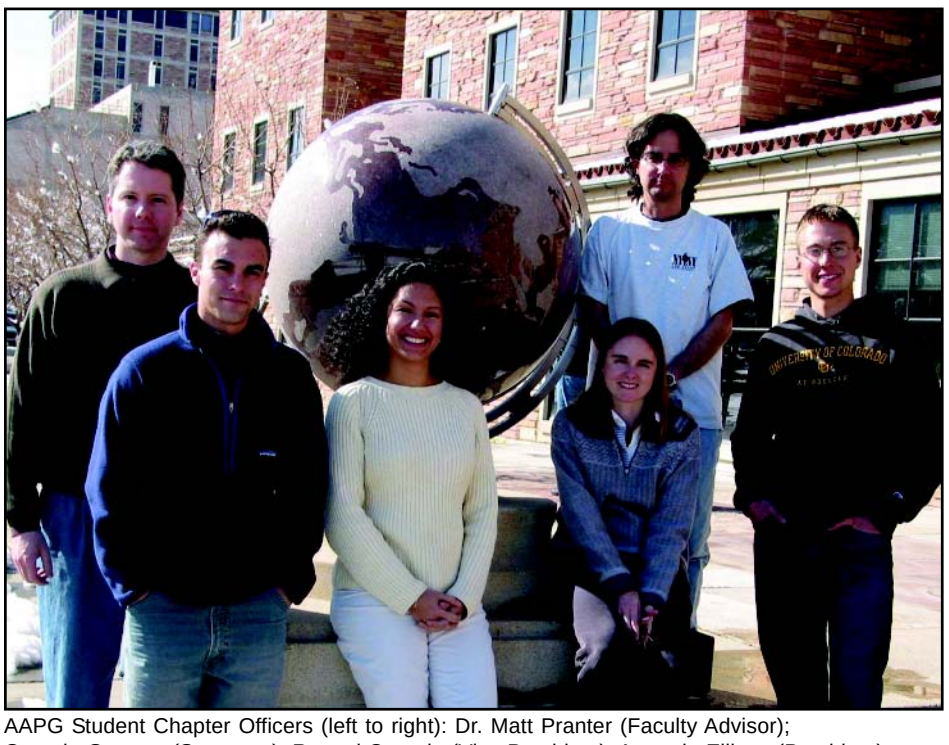
Recently, the American Association of Petroleum Geologists (AAPG) Student Chapter became an affiliate group to the University of Colorado! Through this affiliation, the University will provide support for events like conventions, field trips, and the "Visiting Geologist" program (through AAPG), which will allow professional geologists to visit and give presentations related to petroleum geology and geophysics.

In May 2003, several members of the student chapter attended the AAPG annual convention in Salt Lake City, Utah. The students attended numerous technical sessions, learned about current research, and also used their networking skills. The club plans to attend the 2004 annual AAPG Convention in April in Dallas, Texas. Several of the chapter members will be giving presentations and posters at the 2004 conference.

Chapter members, Raquel Cepeda and Greg Robinson, and undergraduate student Allison Forrest volunteered at Sunset Middle School in Longmont to lecture on the rock cycle to the seventh grade class. This activity was coordinated by CU Professor Sandra Laursen.

The chapter was pleased to have former AAPG President, M. Ray Thomasson, as a guest speaker at one of the chapter meetings. Dr. Thomasson gave a presentation and led a discussion on opportunities in the petroleum industry and through AAPG. Last year, the University of Colorado was tied for first place internationally (with Colorado School of Mines) for number of AAPG Grants-in-Aid awarded to a university (CU and CSM each received 5 AAPG research grants).

Current officers of the chapter include President Amanda Ellison, Vice President Raquel Cepeda, Secretary/Treasurer Quentin German, Social Coordinator Tom de la Torre, and Dr. Matthew Pranter as Faculty Advisor. The chapter invites geology students to join and attend meetings and activities. Alumni or others that are interested in contributing time to make presentations, lead field trips, or for other activities, please contact the chapter president at Amanda.Ellison@colorado.edu. You can also visit us at http://geode.colorado.edu/~aapgweb/ for current news and activities.



AAPG Student Chapter Officers (left to right): Dr. Matt Pranter (Faculty Advisor); Quentin German (Secretary); Raquel Cepeda (Vice President); Amanda Ellison (President); Tom de la Torre (Social Coordinator); Tim Smith (Treasurer).

Department Focus On Undergrads

by Henrietta Laustsen

Back in the 1980s, when I was an undergraduate in the Department of Geological Sciences, it was not unusual for us to complain that there was too much emphasis on research at CU, and not enough on teaching, especially teaching undergrads. In the university, that complaint is still not uncommon, but I hear it only rarely from students in our department.

Over the years, our department has introduced changes specifically designed to enhance the undergraduate experience. We now have two full-time faculty members whose sole focus is on our undergraduates. Alan Lester is our undergrad advisor, and he also teaches popular courses, such as Natural Disasters. Alan has received several awards for teaching. I teach four undergraduate courses per semester, two of which focus on Geographic Information Science (GIS), which is a highly marketable skill for a student with a Bachelor's Degree. In addition, Alan and I both were students in this department, so we have that shared perspective with our students.

Because of Alan, majors are usually able to obtain academic advice very quickly, as opposed to a wait of up to two weeks in some departments.

Many other faculty in our department actively work with undergrads through such programs as the department's Mentor Program, and research opportunities such as UROP and SURF through Arts and Sciences. They do this in addition to their regular teaching duties. For example, Steve Mojzsis is currently mentoring one student, and supervising the UROP project of another.

Karl Mueller has been supervising Ryan Tolene, who describes his project as follows:

"Over the last year, I have used a geology department mentorship (in spring 2003), an internship at the Southern California Earthquake Center (SCEC) (in the summer), and a UROP standard grant (in the fall semester) to work on different parts of the same project. For my project, I've been looking for spatial and temporal triggering relationships for major strike-slip faults in southern California (i.e. interaction between the Eastern California Shear Zone, San Andreas, San Jacinto, and Elsinore faults). To do this, I've collected all published and many unpublished paleoseismic records for these faults and then made 2D and 3D event plots from these records. From the event plots I have examined possible triggering relationships between the faults."

Anne Sheehan and Craig Jones have supervised students doing such projects as stratigraphy and paleomagnetics along the San Andreas Fault in California, earthquake seismic data analysis, paleomagnetics in the Colorado Plateau, analysis of earthquake seismic data from a recent experiment in Nepal and Tibet, and analysis of local earthquake seismic data from New Zealand to determine crustal thickness.

Alan Lester estimates that about 30-40% of our majors are actively engaged with faculty, institute scientists or USGS personnel in various research projects.

Our department provides undergraduate students with not only a faculty with deep commitment to teaching, but also opportunities to participate in world-class research. I have watched for the past twenty years as the commitment to undergraduate education has steadily grown. Students tell me they feel the difference Geology makes!

What's New in the Jerry Crail Johnson Earth Sciences and Map Library!

by Suzanne T. Larsen

The Library now has a full sized cast of a Stegosaurus, the state fossil of Colorado, mounted on the west wall of the first floor. The fossil was found in 1992 near Cañon City, Colorado. The full story of her (it is thought she is a she because of her bone structure) excavation, which included a lift by helicopter, can be found at http://www.dinosaurdepot.com/spike_p1.htm. The cast was created at the Denver Museum of Nature and Science by Ken Carpenter (Ph.D, 1996 CU-Boulder), his staff, and volunteers. The fossil remains at the DMNS, in storage, and one other cast is at Dinosaur Depot in Cañon City.

The 16' x 9' cast arrived in May but did not make it onto the wall until mid-August. Hanging the cast proved more of a challenge than first thought. It is made out of a polyester resin, making it light-weight, however the CU fire marshal deemed it too flammable to be in a building without being treated with flame retardant. With that completed the cast was ready for display. Although not heavy, the size and shape of the cast made putting it on a wall difficult. At one point it seemed that it might have been easier dealing with a LIVE stegosaurus!

The task finally accomplished, the cast has been admired by all who come into the library and helps to exhibit one more facet of the fascinating world of the geosciences.

We have also just finished a digitization project to scan a part of a collection of historic aerial photographs that we inherited from the CU Geography Department. The project was funded through the Colorado Digitization Program using Institution of Museum and Library Services (IMLS) funds. The site consists of almost 2000 scanned images that can be accessed through the Web. The collection is searchable through a graphic interface or by keyword. It is only the beginning of a long term project since the entire collection is in excess of 20,000 photographs. We hope to secure funding to continue the project in the future. Please take a look: http://www-libraries.colorado.edu/aerialphotos/home.asp

As always, when you are visiting Boulder, please stop in for a look around.

Geology Club 2003

by Ben Lowry, Geology Club President

Geology Club had a great 2003. The biggest trip was down Ruby-Horsethief canyon on the Colorado with Professor Joseph Smyth and CU alumna Tamsin McCormick. This trip was an optional add-on to the Maymester course involving the geologic mapping of Colorado National Monument. We spent the first night camped in the monocline of the Uncompahgre uplift, hiked up Rattlesnake Canyon the next day, and camped the last night down in the phenocryst-laden Black Rocks (Precambrian basement rock).

It's official, geology undergrads are smarter than physics Ph.D. students… at least in terms of trivial knowledge. Trivia Bowl Team "Coprolites Happened" went to the first round playoffs for the CU trivia bowl, beating out, among others, a team of six physics Ph.D. students. Teammates Michael Graham, Guy Henry, Ben Lowry, Stephanie Reininger, Jessie Richter-Foley took their knowledge of everything about nothing to the best of their abilities, plus we were the only ones who dressed up! Much of the team's success was attributed to the diet of Coffee and Donuts. These two food items comprised the fundraising efforts of the geology club during the fall semester. Fundraisers could be found basking in the morning sun hawking these goods to anyone who would buy them.

Caving Adventures also top the list of Geology Club events in 2003. A small expeditionary crew of Geology Clubbers made the front page of the *Rocky Mountain Caving* newsletter because of their outing to Cave Creek Caverns, a cave at an altitude of 10,000 feet, outside the town of Fairplay, Colorado. The small group received accolades from the caving community by getting the first pictures of a recently installed culvert, a necessary device for the continually buried entrance of Cave Creek Caverns. This cave is known for the "big room," widely accepted as being the biggest room in any known Colorado cave.

Degrees awarded

B.A. Geology Majors

Brian Bencivengo
Byron Boyle
Brian Clarke
Quinn Collins
Monica Gelsinger
Jennifer Hurley
Brody Johnson
Justin Kan
Noah Keeney
Daniel Krasnow
Erik Oerter
Ursula Quillmann
Matthew Reynolds
Greg Robertson
Abdul Wahab Mohammed-Sadeqi
Kenneth Takagi
Melissa Tefft
Jeremy Tyson

M.S. Candidates Graduating with Degrees

	Advisor	Thesis Title
Eric Anderson	Atkinson	The geology and geochemistry of the Mammoth Breccia Pipe, Copper Creek, AZ
Marco Arreguin-Lopez	Weimer	Sequence stratigraphy of Miocene-Pliocene sediments, and 3-D interpretation of the deepwater turbidite systems of the Cocuite and Playuela field, Veracruz basin, Mexico
Amanda Cook	Smith	Testing the physical robustness of beetle cuticle to predict preservation potential
Roy Coulthard	Miller	Glacial and sea level history of the Aston Lowlands, Baffin island, Eastern Canadian Arctic
Stephen DeVogel	Miller	Reconstructing the Australian Paleo-Monsoon using GIS and the Racernization of Amino Acids in Charophyte Oogonia
Alwin Djamaoeddin	Weimer	Sedimentology, sequence stratigraphy and reservoir geology of Bangko and upper Menggala (lower Miocene) sandstones, Petani Field, Central Sumatra Basin, Indonesia
Colette Hirstius	Pranter	Multiple Scales of Lateral Petrophysical Heterogeneity within Dolomite Lithofacies as Determined from Outcrop Analogs: Implications for 3-D Reservoir Modeling
Todd Lapinski	Weimer	3-D Stratigraphic and Structural Evolution of the Thunder Horse Mini-Basin, Mississippi Canyon, Northern Deep Gulf of Mexico
Lauren Powell	Mueller	Feedback Between Erosion and Fault Reactivation In the Puli Basin: Hsuehshan Belt of Central Taiwan
Susan Riggins	Kraus	Effects of Terrestrial Weathering During the Paleocene Eocene Thermal Maximum on Alluvial Paleosols from Polecat Bench, Wyoming
Vicki Rystrom	Sheehan	Structure of the Tucson Basin, Arizona from aeromagnetic and gravity data
Ryan Sincavage	Weimer	Sequence stratigraphy of Upper Miocene to Pleistocene sediments of southwestern Mississippi Canyon and northwestern Atwater Valley, northern Gulf of Mexico

Ph.D. Candidates Graduating with Degrees

Jason Briner	Miller	The Last Glaciation of the Clyde Region, Northeastern Baffin Island, Arctic Canada: Cosmogenic Isotope Constraints on Laurentide Ice Sheet Dynamics and Chronology
Worth Cotton	Atkinson	Near infrared and XRD quantification of porphyry copper alteration at Cerro Colorado and Spence, Chile
Paula Cutillo	Ge	Fluid Flow and Coupled Processes at Active Margins: Case Studies for Barbados and Costa Rica Subduction Zones
Jennifer Heldmann	Jakosky	An Investigation of Recent Water in the Cold Climates of Earth and Mars
Lorna Jaramillo Nieves	Atkinson	Remote sensing evaluation of regional chemistry and element dispersion of porphyry copper deposits in the Silver Bell Mountains, Arizona
David Kinner	Syvitski	Multi-Scale Estimation of Erosion and Deposition in the Mississippi River Basin
Roberta Martin	Asner	Effects of Woody Encroachment on Savanna Nitrogen Dynamics: Combining Biogeochemistry and Remote Sensing
Sarah Principato	Andrews	The Late Quaternary history of the northeastern Vestfirdir Peninsula, Iceland
Charles Wilson	Jones	Constraining lithospheric Deformation Mechanisms Using Teleseismic Conversions

2003-2004 Undergraduate Mentoring Program

MENTOREE	MENTOR	PROPOSAL TITLE
Jacob Bauer	Tom Marchitto	Millennial-scale changes in the ENSO system since the Last Glacial Maximum.
Byron Boyle	Joya Tetreault	Paleomagnetic analysis of obliquely convergent folds: a new approach to the monoclines of the Colorado Plateau.
Tara Chesley	Greta Bjork Kristjansdottir	Work in the INSTAAR sedimentology-, micropaleo- and core processing labs.
Brian Clarke	William Manley	Integrating field spectrometer readings with Landsat 7 Thematic Mapper images to locate archaeological sites in the cryosphere.
Michael Farrauto	Henrietta Laustsen	Research includes discovering new geological application in a GIS, use of remotely sensed imagery in a GIS, and education through the use of a GIS.
Adam Huttenlocker	Melissa Fallin	Assisting in the analysis of Lower Cretaceous paleosols in Northeastern Bighorn Basin, Wyoming.
Ali Jaffri	Paul C. Murphey	Plio-Peistocene lithostratigraphy & mammalian biostratigraphy of the Potohar Plateau research in Pakistan.
Max Knop	Anne Sheehan	Analysis of Napalese earthquake date to determine P & S wave arrival times.
Kirk Morris	Colette Hirstius	Assessing lateral variability of petrophysical properties within dolomite lithfacies, Madison Formation, Wyoming.
Jill Pursley	Hartmut Spetzler	Changes in the wet tab during microemulsion-induced oil-mobilization: Measuring contact angle hysteresis.
Ursala Quillmann	John Andrews	
Jesse Richter-Foley	Donna Beares	Intensive field study of the Madison Formation at Lysite Mountain in central Wyoming.
Tim Smith	Matthew Pranter	Reservoir modeling of the Williams Fork Formation - Coal Canyon, Colorado.
Ryan M. Tolene	David Budd	Changes in the wettability of Oil-contaminated minerals during microemulsion-induced oil-mobilization: Measuring contact angle hysteresis.
Ryan M. Tolene	Karl Mueller	Coulomb stress transfer from Paleoseismic Histories: Interaction between the Eastern California Shear Zone, San Adreas, San Jacinto, and Elsinore Faults.
Anna Wagner	Gifford Miller	Investigating the Holocene Thermal Maximum in Iceland.
Jacob Walter	Anne Sheehan	Seismogram analysis from seismic experiment in Nepal and Tibet.
Matthew Westerby	Dena M. Smith	To make an online, searchable catalog with digital images of CU Museum fossil specimens.

Undergraduate Awards for Spring 2003

AWARD	RECIPIENTS
AWG	Jennifer Hurley
Estwing	Brian Toney
Elaine Bass-Parkinson	Briana Agar
Johnston Memorial Scholarship	Adam Armour, Brian Clarke, Will Gardner
RMAG pick	Ben Lowry
T. Keith Marks Scholarship	Caleb Schiff, Alice Kaminski
Hiss Creativity Award-honors	Matt Reynolds

Graduate Awards for Spring 2003

AWARD	RECIPIENTS
Association of Women Geoscientists (AWG)	Colette Hirstius, Amanda Cook
Bruce Curtis Fund	David Pyles, Lauren Powell, Gaspar Monsalve
Longley, Wahlstrom, Warner	April Kinchloe, Donna Beares
RMAG Graduate Award	Joya Tetreault
W. O. Thompson Award	Gita Dunhill, Roy Coulthard, Kristina Yelinek
Waldrop Memorial Scholarship	Jason Briner, Tom de la Torre, Eric Cannon, Stephanie Gaswirth

Department of Geological Sciences Front Office News

by Beth Hanson

The front office remains the "meeting/greeting" place, and operations center in the Department. Our dedicated staff of four continue their task of endeavoring to meet the administrative needs of Geological Sciences Faculty and Students in an efficient, friendly, and timely manner. We also look forward to assisting Alumni and Friends of Geological Sciences to find answers to appropriate questions they have regarding the Department, faculty, former faculty, students, and staff.

We are fortunate to have had no turnover, or layoffs, in our office personnel during the last year. Currently the staff continues with Lisa Massengill as front office first contact, Joanne Brunetti , as our departmental accounting tech, Marge Atkinson, as our graduate program assistant and Beth Hanson as lead administrative officer, office supervisor, and assistant to the Chair.

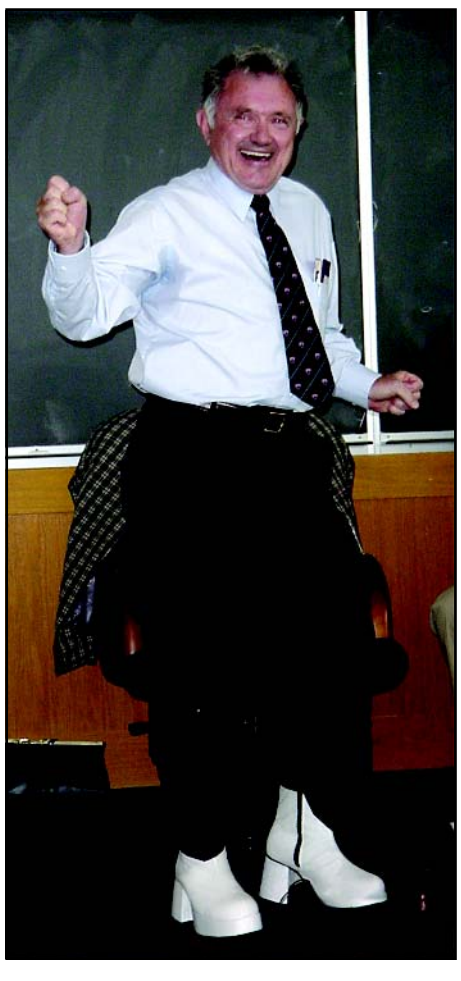
The Department of Geological Sciences Front Office Staff.
Left to Right: Beth Hanson, Joanne Brunetti, Lisa Massengill, Marge Atkinson.

Department Receives Prestigious Department of Education Award

by Anne Sheehan

The CU Department of Geological Sciences was recently selected for a prestigious Department of Education Graduate Assistance in Areas of National Need (GAANN) Grant. The purpose of the GAANN program is to support high quality domestic students through the Ph.D. degree in areas deemed to be areas of national need. Geological Sciences has been designated by the Department of Education as one of these areas. The national need for geological scientists encompasses many areas, ranging from natural hazards to resource extraction to the environment. The GAANN Award acknowledges the excellence of the CU Geological Sciences education and research program and successful track record with recruiting and retention of Ph.D. students. Professors Anne Sheehan and Lang Farmer are co-PI's on the GAANN grant, which brings in over $600K into the department over the next 3-4 years for GAANN graduate Ph.D. fellowships.

John Andrews and Harmut Spetzler discuss future plans at their retirement party in 2003.



Right: John Andrews shows off his new shoes at the retirement party in 2003. Dr. Andrews now appears in 3 shows a day in Vegas!

Alumni News

Claire Bates Davidson
MA 1949, CU Boulder
USGS – Retired

Claire and members of her family visited her daughter and husband Joseph De Thomas, USA ambassador, Tallinn, Estonia. They celebrated the summer solstice and Estonian independence day at the ambassador's palatial residence overlooking the Gulf of Finland. It was a grand celebration followed by the Marines presentation of colors, national anthems, picnic and dancing along with 500 guests. Estonia is an economic miracle having pulled out of the wreckage of Soviet occupation in 1991. Their Tarter University is 4 years older than Harvard.

Warren Yeend
B. S. Washington State – 1958
M.S. University of Colroado – 1961
Ph.D. University of Wisconsin – 1965
Retired

Hiking, bookbinding and gardening continue to occupy much of Warren's time. His week-long trips this year included: Yosemite Valley with his senior hiking group; Eastern Utah Canyonlands with a hiking Elderhostel; and Santa Barbara County Coastwalk.

He also continues in his water conservation efforts, believing that every drop of water that reaches one's property would ideally be captured and not lost as runoff down a storm drain.

Dr. Gordon N. McCurry
Ph.D. University of Colorado – 2000

Dr. McCurry received a $5000 award from CDM for the best paper published in a non-peer-reviewed journal. Published in the Proceedings of the American Water Resources Association Groundwater/Surface Water Interactions Specialty Conference in July 2002, "Water Management in Prior Appropriation States under Changing Hydrologic Conditions" described his research developing a model to determine stream diversions under a water rights priority system. McCurry conducted the research and coauthored the paper with Dr. Kenneth M. Strzepek, Associate Professor of Water Resources Engineering at the University of Colorado. McCurry's paper was selected from more than 100 technical papers published by CDM employees over the last year. McCurry is a principal hydrogeologist with CDM. CDM is a full-service, global consulting, engineering, construction, and operations firm helping public and private clients improve the environment and infrastructure.

OBITUARIES

W. Warren Longley

W. Warren Longley of Boulder died of natural causes on Tuesday, June 24, 2003, in Louisville. He was 94.

Born in Paradise, Nova Scotia, on April 8, 1909, he was the son of Harold Longley and Mable Longley. He married Anita Sallen in 1935 in Paradise, Nova Scotia. They divorced. He married Betty Jean Johns in 1957 in Denver.

Dr. Longley received a B.S. in geology from Acadia University, Acadia, Nova Scotia, and a doctorate from the University of Minnesota. Dr. Longley taught at Dartmouth College from 1935 to 1940 and at the University of Colorado Boulder from 1940 to 1977. He was named professor emeritus of geology at CU.

Dr. Longley was a member of Sigma Xi and numerous professional societies, and was listed in Who's Who in the West, in American Men of Science and in Who's Who in Colorado. His family remembers him as a wonderful husband, father and teacher, who accomplished many things and touched many lives.

Contributions may be made to the University of Colorado Foundation, Warren Longley Memorial Fund, in care of the Department of Geological Sciences, 399 UCB, Boulder, CO 80309.

Gerald R. Grocock

Gerald R. Grocock of Evergreen, Colorado died of natural causes on March 28th, 2003. Jerry earned a B.S. from the University of Washington in Seattle where he grew up, he made Colorado his home, coming to Boulder as a graduate student to earn a M. S. in geology in 1975. He began his career with Atlantic Richfield Company in 1975 and moved to Ocean Energy in 1984, remaining there and advancing to becoming Vice President of Exploration through March 2001. From March 2001 Jerry was Vice President of Exploration/Exploitation for Ensign Oil & Gas, Inc. in Denver. He was a Certified Petroleum Geologist, he was a member of geological societies in many states, and a member of the American Association of Petroleum Geologists.

One of Jerry's passions was the Geology Department at the University of Colorado where from 1997 to the present he served as a Board Member of the Advisory Board. Jerry devoted many hours to the Board and to fundraising for graduate student fellowships, in particular, for the Bruce Curtis Graduate Fellowship Endowment to support geology graduate students at CU.

Jerry was an avid skier and hiker. Jerry had a life-long love of exploring mountains and glaciers in Alaska, the Pacific Northwest and Colorado, as well as the desert land of the American Southwest.

He is survived by his wife, Carolyn, and their two children, Jaime, of Seattle, WA and Matthew who attends Fort Lewis College in Durango. Other survivors include his sisters Carol Fielding and Joanne Lonay Chapa, of Mercer Island, Washington and their families.

We need your help!
Please Contribute to the Bruce Curtis Endowment.
We are trying to reach our goal in 2004
but we cannot do it without your continued support!
Please consider what you might give.

Donor Honor Roll, 2003

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Anna Stafford
Andrew Stein
Robert Steinbach
George Stone
Frederic Tietz
David Uhlir
University of New Mexico
Dederick Ward
Sandra Werren
Westport Oil and Gas Company
William York-Feirn
Anna Wells Zakroff
C. Zietz

Roberta Martin, Jason Briner, Hartmut Spetzler, Sarah Principato, and John Andrews pose after the department graduation ceremony in Spring, 2003.

Notes From The Advisory Board

by Matt Silverman
Chair, Advisory Board

Unless you've been confined in a remote sheep camp up in the San Juan Mountains for the past year, you have read about the problems facing the University of Colorado. The scandal surrounding the football team and the fuss about CU's #1 party school ranking are only the best-publicized examples. Less lurid, but probably more important, was the Governor's veto of a 2003 bill that would have granted CU a small measure of the financial flexibility that it desperately needs.

We all know that there is much more to CU than recruiting parties and regents' meetings. It's mostly about bright, engaged students and distinguished, committed scholars working together in the classrooms and labs, in the libraries and in the field. Nowhere on campus is this truer than in the Department of Geological Sciences.

The Department's Advisory Board is charged with helping wherever we can to improve the student experience and enhance teaching and research capabilities in geology. Heeding the political axiom "if you don't like the news, make some of your own," the Board has taken on a number of projects. Here's a sample:

Three years ago, Board members initiated a campaign to raise $400,000 to endow a graduate student fellowship named for Professor Emeritus Bruce Curtis. Over $250,000 has been raised, and we hope to have the balance in hand by the end of 2004. A matching grant that expires in June makes NOW the time for geology alumni to contribute generously to this fund.

Recognizing that the state's support for CU has fallen to less than 10% of the University's budget, the Board is engaged in two additional fundraising efforts. The recently renamed William A. Braddock – In the Field initiative is designed to support student field trips. Alums and others have taken this fund about ¼ of the way to its $500,000 goal, and meeting this target will be our key priority for 2005. Beyond that, a Board-led campaign to help upgrade the computing facilities at the Department is in the works.

The Board has initiated a two-day field trip for all new graduate students. Designed to introduce students from around the world to each other and to the geology of the Front Range, the first annual trip will be held this August. In addition, several Board members have participated this year in Career Night activities for undergraduates, giving these brand new geologists a sense of the careers that await them.

Faculty members and students meet with us at our biannual meetings to provide mutual sounding boards. This forum enables old grads from the Board to advise the faculty and students about the academic training that employers of the new grads are looking for. It also gives us a firsthand opportunity to learn what the Department's needs and strengths are, so that we can focus our efforts, too.

Finally, the Board helps the Department and its alums stay in touch. With this in mind, CU Geology Alumni groups are being planned in Denver, Houston and Los Angeles. The first meeting of this type brought an enthusiastic crowd to a cocktail reception in downtown Denver in November. Please e-mail me at: silvermanmr@yahoo.com if you would like to become involved in your local group, or have any comments/questions about the Advisory Board's activities.

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***Please mail all donations to:** Department of Geological Sciences
University of Colorado at Boulder
399 UCB
Boulder, CO 80309

All Gifts are Tax Deductible

Alumni - The Department of Geological Sciences has set up an alumni web site for you to help keep in touch with your friends from CU Geological Sciences. Best of all..... It's Free!
Just go to http://www.colorado.edu/geolsci/alumni/ and enter your information.
You can also now send us your Alumni News through this web site.