GEOLOGY NEWS

Department of Geological Sciences s University of Colorado at Boulder s Spring 2000

The aims of the Advisory Board include fostering closer ties among the Department, alumni, friends, and private industry, and guiding and assisting the Department in improving the quality of education for undergraduate and graduate students in the geological sciences. The board has made the IN THE FIELD program one of its top priorities.

Letter from the Chair

Charles Stern

Welcome to the first geology newsletter of the new millennium. During the last year many good things have happened for the Department. I will mention just a few that you can find out more about, along with other news of the Department, its faculty, students, staff and alumni in this newsletter.

We have added one new faculty member, Greg Asner, a biogeochemist with an interest in the interaction between the atmosphere and soils on the Earth's surface and the role of these interactions in global chemical cycles. We have also nominated Raymond Fletcher, an expert in quantitative methods as they apply to problems in the earth sciences, particularly geomechanics, for the position of Research Professor. Currently we are in the process of conducting a national search for an astrobiologist, and participating with the university museum in a search for a paleontologist, and with INSTAAR in a search for a paleoclimotologist.

We also lost two faculty members. Assistant Professor Julie Cole accepted an offer to join the faculty at the University of Arizona and Research Professor Bruce Trudgill accepted a faculty offer at Imperial College in London, his alma mater.

Bill Atkinson will begin a 3- to 5-year phased retirement plan next year, teaching one semester and being free to do whatever he wants the next. Bill still has 12 graduate students working with him on thesis projects, so I am not sure how much free time he will really have.

Lang Farmer and Bruce Jakosky were promoted last spring to Full Professors. This year we have recommended Assistant Professors Anne Sheehan and Shemin Ge for both tenure and promotion to the rank of Associate Professors, and Associate Professor Dave Budd for promotion to Full Professor. We are hopeful that these recommendations will be approved by the college and university. Thanks to all of you who wrote letters on their behalf.

Paul Weimer, director of EMARC, assumed the role of the Bruce D. Benson Chair of Petroleum Geology, an endowed faculty position. In appreciation of the gift of the endowment that funds this position, and for the support that made our new building a reality, the department nominated Bruce Benson to the University of Colorado Regents for the University Medal of Honor. Bruce was awarded this distinction at the spring commencement.

Alan Lester is now our departmental professional advisor for our undergraduate majors, as well as being an Instructor, and Henrietta Laustsen is also a new full time Instructor for us.

We have added a Systems Administrator, Dan Mitchell, to our staff to help us with our

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Karl Mueller's structural field class, Delicate Arch, Utah. Front row seated, left to right: Mike Carnelli, Heather Lohman, Jessica Darling, Terry Church, Brian Graham. Back row standing, left to right: Jake Cinnamon, Damon Lytle, Ryan Crow, Eric Bartsch, Sean O'Connor, Karl Mueller, Marc Marcoux, Scott Cook, Jessica Kelleher, Eric James.

New advisory board members

Ronald Stokes

Ronald Stokes started at the University of Colorado at Boulder in 1968, with the support of a Boettcher Scholarship. In 1975 he graduated from CU with a degree in EPOB. During his extended undergraduate career, a chance encounter with John Andrew's glacial geology course resulted in a newfound interest in geology. Embarking on this new academic pursuit eventually lead to the receipt of a master's degree in Engineering Geology in 1981. As a grad student he

Ron Stokes ('75, MS '81)

worked most closely with Bill Bradley, Bruce Curtis, and John Warner.

Though planning on a career as a hydrologist, Ron made the grievous mistake of interviewing with oil companies. Being impressed with the high tech toys available, the boom-time environment in the oil patch, and an offer to work in Denver (not to mention salary), he joined Conoco Inc.—fully intending to quit after a few years and either go independent or back into hydrology.

Nineteen years later, having ridden the bronco of industry cycles (holding on with both hands), he is still employed by Conoco. During this sojourn, he lived in Denver, Houston, and now is comfortably rooted in Lafayette, Lousiana. As an exploration geologist/ geophysicist, Ron worked various areas including the Williston, Anadarko, and D-J basins, Central Montana, Texas Panhandle, and Wichita Mountain front. For the last twelve years he has worked the Gulf Coast, South Texas to Florida, Onshore to Deepwater. He is presently the geologist for the Non-Operated properties group.

Ron's interest in CU was rekindled with the advent of EMARC and its Gulf of Mexico Consortia. He has been a Conoco representative for the Consortia for the last six years. In 1999 Ron assumed the role of campus recruiter at CU for Conoco G & G.

Ron and his wife, Lana Czerniakowski have two children, Kayla (11), and Trevor (9). Lana is also a geologist at Conoco. Ron enjoys coaching soccer, canoeing, Mardis Gras, and his yearly backpacking trip in Colorado.

Hassan Amini

Hassan Amini attended the University of Colorado from January 1977 to June 1983. He received his M.S. in Geological Sciences in 1978, and his Ph.D. in 1983. His thesis advisors were Ed Larson and Charles Stern who helped him to tackle the complex

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relationship between the volcanic and fluvial systems in the western Snake River Plain in Idaho. In addition to Ed and Chuck, Hassan was influenced by Bill Braddock, Ted Walker, Bill Bradley, Bill Atkinson, and many others who instructed and guided him through various subjects related to earth sciences. While attending CU, Hassan worked as a research fellow at USGS in Denver where he learned fission track dating from Charles Naeser, and K/Ar dating from John Obradovich. After his graduation, Hassan joined the CU-Denver Department of Geology as an assistant professor where he taught various courses. Also during that period, he instructed CU-Boulder's Summer Field Geology course. In September 1985, he joined the faculty of the Department of Geology of the Purdue School of Sciences at Indianapolis where he taught until 1987. During his academic career, Hassan continued his research collaboration with Ed Larson and Charles Stern, conducting research projects from western U.S. to South American Andes, and Central Anatolia in Turkey.

Despite his love for academia, Hassan made a major career shift in 1987 when he joined the private sector as a consultant working for IT Corporation in Irvine, California. He worked there for six years until he joined his current company McLaren/Hart Environmental in 1992.

Hassan is currently a vice president and the manager of the southern California operations for McLaren/Hart. He leads a team of 25 scientists and engineers who provide environmental consulting services to the commercial and government clients with soil and groundwater investigation and remediation projects. His solid educational background that he gained at CU-Boulder,

Hassan Amini (MS '71, PhD '83)

coupled with his more than 14 years of practical experience, gives him a broad perspective in applying technical, economic, and regulatory considerations for environmental matters.

Hassan has maintained his collaboration with academia. Since moving to southern California in 1987, he has regularly taught courses related to geology and hydrogeology for the California State University campuses in Fullerton and Long Beach and for the University of California, Irvine Extension Program for Environmental Management.

Hassan currently lives in Rancho Santa Margarita (Orange County), California and works in Irvine—about half way between Los Angeles and San Diego where the weather is pleasant all year around. He and his wife Tara are busy raising their son Ali and daughter Yassaman, who attends California State University at Long Beach. They love to hear from all friends who are visiting southern California for business or pleasure.

A global perspective

By Karl Mueller

It seemed appropriate that I spent part of the last year of the millennium helping to create a pair of globes for the Benson Earth Sciences Building. In the early phase of the building plans, our architects proposed rough-hewn granite spheres be placed on a pair of flagstone pedestals that flank the south entrance to the atrium. As the budget was revised to accommodate reality, the spheres were abandoned, but the stone pedestals remained. Once the building was completed, the pedestals appeared as odd-looking posts, waiting for something to cap them. So the Department set out to complete the original vision. However, we felt that rough-hewn stone spheres failed to capture the opportunity to make a strong statement for our discipline, and it was decided to instead create two polished granite globes, and to inscribe one with the modern continental configuration, and the other with a time in the past when the continents looked very different.

When I became interested in the project, artist Chance Anderson was installing other stonework in the building. Giff saw his chance and pounced, asking me to create technical templates of the continental boundaries. Chance and I were given a long leash and simply asked to create something that would be aesthetic, geologically appropriate and within our budget. Little did I know what I was getting into. It started out with a visit to a granite quarry located north of Lyons where we picked out a pair of 2 meter-square blocks, cut from the face of the quarry using only water under very high pressure. The blocks were then shipped to a firm in eastern Canada to be turned into the 34 inch diameter spheres on gigantic lathes. My responsibility was to develop templates for the continents. After defining an appropriate projection, Jon Landau and Freddy Corredor, two structure students, helped me create a pair of templates for the present distribution of the modern continents (the easy part) and another for 120 million years ago (the hard part). Mary Kraus thought the structure group had suddenly changed its research focus and were working to reconstruct early Cretaceous paleogeography. We printed out 1:1 scale paper templates on the structure lab plotter that looked like a pair of gigantic oranges peeled along lines of longitude. Chance then wrapped these around each finished sphere and used a rubber compound to mask the oceans to protect them during the sandblasting process. As he was sandblasting the continents onto the polished spheres, Chance realized the spheres needed steel arcs to make them more recognizable as globes. The finished globes were shipped back to Boulder last fall and Chance and a host of helpers installed the spheres onto the pedestals.

It is a pleasure to walk past the globes every day as the morning sun shines off the polished granite of the oceans. They even develop a northern "icecap" after snowstorms that look like some kind of dire warning for future climate change. The globes should be a strong statement for the Department for decades to come, and remind everyone that we live on a dynamic planet.

From the chair, cont.

growing computer dependence. For the first time in a number of years our front office has remained the same for the entire year. This I attribute to my good sense of humor. Or maybe it is due to their good senses of humor.

We added two alumni to our Advisory Board, Hassan Amini (Ph.D. 1983) and Ron Stokes (M.S. 1981). The Advisory Board, in conjunction with the Department, mailed a brochure to over 2,000 alumni in October soliciting support for the "IN THE FIELD" initiative to create an endowment to support our program of field trips for students. As a result of this effort, we received over $10,000 in gifts for the IN THE FIELD endowment, which currently has grown to over $25,000 with the addition of money from donations made by the faculty for enrichment of our undergraduate program. On behalf of the Department, I want to thank the members of the Advisory Board for their efforts and all those who expressed interest in this program through your donations. We are still a long way from the final goal of $500,000, but enough has come in to begin generating money for field trips this coming year. To help us get closer to the final goal, our alumni and benefactor Bill Hiss has pledged a $25,000 matching grant if we can raise this same amount over the coming year. Please continue to support our field program with a gift to the IN THE FIELD endowment. Any donations we receive this year will be instantaneously doubled thanks to Bill's matching grant.

We continue to fill out the building with geo-art. Two one-ton globes of red Colorado granite have been set up on the south entrance to the building. The globes depict the distribution of the continents today and during the Cretaceous based on a paleo-reconstruction generated by Assistant Professor Karl Mueller. The department takes no responsibility for any errors in this reconstruction. The granite globes were rounded, etched and set up by Chance Anderson, and they look really spectacular. Roy Young, of Boulder's Natures Own, donated four new large rock pieces, including a 4-foot-diameter slice of petrified wood, a fossilized Eocene gar from the Green River formation, an orbicular granite from Australia, and a polished agate hemisphere from Brazil. These are all on display in the main stairwell leading to the second floor. We want to thank Roy for his donations, Karl for his work on the granite globes, and Chance for his efforts in getting all these heavy pieces hung up on display in a secure fashion.

The Department hosted this year's annual GSA national meeting in Denver. Faculty members Mary Kraus, David Budd, Lang Farmer, Craig Jones, Alan Lester, Bruce Trudgill, Lisa Barlow, Karl Mueller, and Suzanne Larson all served on the meeting advisory committee in some fashion, and many of our students worked as volunteers. The meeting was a great success, as were our alumni get together in Denver and the Benson Earth Sciences building open house in Boulder.

Bill Hiss continues to grow an endowment for a new faculty chair in our Department. As this endowment grows, Bill has earmarked some of the interest earned to create a new award for our most deserving students, the William L. Hiss Award for Creativity in the Earth Sciences. The award will be given to our top undergraduates who complete honors theses and graduate with honors, and to our graduate students who will present portions of their thesis research at national meetings. Three undergraduates, Jesse Starr, Eric James and Jessica Kelleher, received the first awards at our fall 99 graduation ceremony.

Most significant of all, we continue the academic cycle, graduating 27 undergraduate majors including 6 who earned the distinction of Honors, and awarding 14 M.S. and 10 Ph.D.s during the last year, as well as receiving numerous new undergraduate and graduate students into our ranks.

After last year's newsletter, more than one reader pointed out to me that the current Dali Lama is actually the 14th, not the 13th. That is OK since we also discovered a missing 14th departmental chair, Russell George, who was chair from 1903 through 1933. Thirty years!!! It makes me dizzy just to think about it. I expect I will be chair only half that long. Al Bartlett from the Physics Department was able to provide us with a photograph of George, which will be hung in the Chair's Hall of Fame on the third floor this spring.

Above: Installing the globe—Chance Anderson and Karl Mueller pushing a globe into the right orbit.

Below: The newly installed granite globe and some of the members of the Department Advisory Board including (left to right) Hassan Amini, Matt Silverman, Ron Stokes, Jeff Abbott, Jerry Grocock, Brent Johnson, Marith Reheis, Karl Kellogg, and Chuck Stern.

NEW FACULTY AND STAFF

Greg Asner, Assistant Professor, Biogeochemistry

Greg Asner started the new millennium as an Assistant Professor in the Department of Geological Sciences and in the Environmental Studies Program. His appointment is split equally between the two units. Greg is teaching an advanced biogeochemistry class (GEOL/ENVS 4700-5700) in the spring 2000 semester, and he will teach Introduction to Biogeochemistry (GEOL/ENVS 4160) in the fall semester. His research covers a variety of topics ranging from soil solution chemistry to biogeochemical modeling and remote sensing. Greg is developing an analytical chemistry lab in the Benson Earth Sciences Building to focus on dissolved carbon and nutrient fluxes in soil water, trace gases from soils, and soil spectroscopy. He is also building a high performance computing facility in Benson to support his lab's work on regional biogeochemical modeling and remote sensing.

Greg earned his B.S. degree in Civil and Environmental Engineering from CU in 1991, where he studied radiative transfer, material structural dynamics, and hydrological processes. In 1993, Greg returned to CU for graduate school, where he studied terrestrial biogeochemistry and remote sensing. His master's work focused on the effects of land cover change on soil carbon and nitrogen dynamics in tropical shrubland ecosystems of Hawaii. During his doctoral training, Greg studied the terrestrial carbon cycle of subtropical and tropical savanna ecosystems of South Texas and Brazil, which he continues today.

Much of Greg's Ph.D. dissertation work involved the development of biogeophysical modeling and remote sensing approaches to quantify changes in vegetation and soil properties at landscape and regional levels in savanna ecosystems. He developed hyperspectral remote sensing techniques to estimate land surface properties from aircraft and spacecraft sensors. Hyperspectral instruments collect measurements akin to spectroscopy but from remote platforms. Greg introduced a set of land surface radiative transfer models to simulate the hyperspectral data, then developed inverse modeling techniques to estimate land surface variables from actual data. The methods have proven highly accurate under a variety of environmental conditions, and they serve as input to regional biogeochemical process models. Greg was recently selected as a principal investigator for NASA's Earth Observing-1 satellite, which will be launched into orbit in 2000 to collect the first hyperspectral measurements of the Earth from space.

Greg has also studied changes in carbon and nutrient cycling along land-use gradients in the Central Amazon basin. He and Alan Townsend (INSTAAR) have discovered that, depending on existing soil physical properties such as texture, deforestation has a different effect on rock-derived elemental losses (phosphorus, calcium, magnesium) from soils over time. This finding implicates the role of geological and edaphic precursors as controls over land degradation following forest clearing for agriculture and could play a role in developing predictions of land-use patterns and impacts in humid tropical regions.

Much of Greg's field and remote sensing work on biogeochemical cycles has led to the development of the TerraFlux model, which simulates the flow of energy, water, carbon and nutrients in terrestrial ecosystems. TerraFlux is unique from most other biogeochemical models because it places heavy emphasis on the movement of carbon and nutrients as solute and trace gases in soils, making it suitable for simulating land use scenarios that affect material transfer in soils and plants. Greg sees the model as a means to integrate field and laboratory studies of soil chemistry with remote sensing analyses of vegetation and soil physical properties to better understand the interaction of land use and biogeochemical processes at the regional scale.

Greg Asner

Dan Mitchell

Alan Lester

Dan Mitchell, Computer Systems Administrator

On December 6, 1999 the Department of Geological Sciences hired Dan Mitchell as the new Systems Administrator to help members of the Department with computer-related problems and to provide consultation on hardware, software, networking, and web development. Given the large role that computers play in research, teaching, and communication, having a staff member dedicated to servicing the Department's computing needs has become increasingly important.

Dan comes to us from Omaha, Nebraska where he worked both in the educational and private sectors. Dan studied Biological Sciences at the University of Nebraska and received a Bachelor of Science in Medical Technology from the University of Nebraska Medical Center. While developing molecular biology techniques for identifying bacterial and viral agents he also began to support the Department of Pathology at UNMC with their Macintosh systems. He started his own business called Campus Computing Consultants in which he continued to support the Pathology Department and several other clients in the Omaha area. During that time he developed experience in Windows 95/98/NT, Citrix, networking, web and e-mail servers. He also worked for over two years on a three-tier Client/Server Laboratory Information System at Nebraska Methodist Health Systems in Omaha, NE where he was exposed to some UNIX tasks.

Dan has created a web page where individuals can submit and check on service requests. The address is http://geode/service. Users should also feel free to call or stop by his office.

Dan is now installing a Macintosh work station equipped with scanning, video, and web publishing abilities to assist our grad students and anyone needing access to this type of equipment. The Department also has a fully equipped PC-based teaching classroom, which receives heavy use. There is also a large format color printer and a regular color printer in the System Administrator's office, which can be accessed directly from local computers in the Department.

Alan Lester, Undergraduate Advisor

Dr. Alan Lester was hired in spring 1999 as the Undergraduate Advisor for geology majors. Alan is a familiar face in the Department, having earned his Ph.D. degree under Ed Larson's direction at CU in 1993 and continuing on as a researcher and instructor in the Department since that time. In CU's newly revised advising structure, departmental advisors continue to do career and major advising, but now also monitor how students are progressing through all aspects of their academic programs. In addition to learning a host of rules, regulations, and procedures, Alan managed to meet with most of the Department's 112 majors and approximately 40 minors. In conjunction with Hartmut Spetzler, who continues in his role as Associate Chair for Undergraduate Affairs, and with the geology club, multiple meetings were held to discuss academic requirements and prospects for research, graduate school, and jobs. These gatherings are planned to continue in spring 2000 and will include a job forum sponsored by the Department's advisory board, to occur during their annual meeting in April.

Alan began the year teaching three courses in spring 1999—an honors section of Historical Geology for the Kittredge Honors Program, a general lecture section of Historical Geology, and a senior seminar, Kimberlites and the Continental Lithosphere. The latter, sponsored by UROP (Undergraduate Research Opportunities Program), combined both lecture and laboratory experiences in which students were introduced to current research focusing on Front Range kimberlites.

Also in the spring, Alan applied for and was accepted as CU's representative to Project Kaleidoscope Faculty for the 21st Century. This national organization acts as a forum to discuss how best to teach science and technology at the college level.

During the summer, Alan (and wife Melissa) made time between climbing trips to spend a month with another UROP-sponsored program called SURE, Summer Undergraduate Research Experience, that introduces academically outstanding freshman to scientific research. The geology subgroup worked on a couple of different projects including a geochemical study of a contact aureole (in the Indian Peaks Wilderness) and a magneto-stratigraphy and paleontology project in southwest Wyoming. One of the previous year's SURE participants reported on magnetic susceptibility data at the 1999 Rocky Mountain Regional GSA meeting in Pocatello.

Summer was a preparation time for GSA's 1999 Annual Meeting in Denver. Alan and Bruce Trudgill served as co-chairs of the Field Trip Committee, which involved trip planning, budgeting, and manuscript editing for GSA's first volume of a new field guide series. With help from grad-student Debra Mickelson, and great fall weather, 18 trips went off smoothly.

In the fall, in addition to teaching Intro Field Geology and Natural Catastrophes, Alan began a funded fellowship with CU's Center for Humanities and the Arts. This involved participation in a weekly seminar program and a colloquium series titled Rethinking Time.

FACULTY NEWS

John Andrews

John's highlights for 1999 include a visit back to his alma mater, the University of Nottingham in England, where he received all of his various degrees apart from the M.Sc. The occasion was the 40th year reunion of the class of 1959. In addition, John had worked with one or two "old" friends to convene a meeting of the rugby captains of the 1st XV from that era. The weather was good, and a good collection of friends and former rugby players turned up to regale each other with improbable tries they had all scored—of course by now none of them could really remember whether the truth was being told, nor did they really care.

.John was fortunate to obtain a Faculty Fellowship from the University of Colorado for the AY 99-00. This is allowing much needed time to pursue existing research on high-resolution records of oceanographic change off Iceland and the Labrador Sea. Anne Jennings (Ph.D. 1989) and John had been funded by NSF-Earth System History, to obtain a series of giant piston cores from the Iceland and Greenland margins in the summer of 1999 onboard the French research vessel Marion Dufresne. The University of Colorado was involved in Legs 3 and 4 of this IMAGES (International Marine Past Global Change) cruise with the objectives embodied in its title "North Atlantic high resolution study of the variability of surface and deep water hydrology in relation to local and global climate." A total of seven graduates, staff, and faculty-level individuals from the CU group were on the cruise. Anne Jennings was co-Chief Scientist of Leg 4 where she was joined by Dave Anderson (scientist at NOAA-Boulder), Gita Dunhill (Ph.D. student in our Department), and Nancy Weiner (INSTAAR). On Leg 3 CU was well represented by Mikie Smith and Sarah Principato (Ph.D. students), and former CU students of Drs. Aslaug Geirsdottir (Ph.D. 1989) and Jorunn Hardardottir (Ph.D. 1999). The group obtained 10 piston cores, the longest of which was ca. 40 m in length and others ranged from 17 to 29 m in length. These cores are now stored in Woods Hole where John went in the fall of 1999 to do some initial sampling. The goal is to obtain very high resolution data of changes in oceanography on either side of the main gateway which links the North Atlantic with the Arctic Ocean.

Bill Atkinson

1999 was another busy year: three of Bill's students graduated with M.S. degrees (Armando Zaragoza, Peter Hanke, and Becky Sauer), and two others (Alex Iriondo, Lupe Espinoza) defended their Ph.D. theses. Armando deserves an award for persistence. Peñoles, the largest mining company in Mexico, funded him for discovering the

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Faculty news, cont.

faulted-off half of an important gold-silver orebody in the state of Chihuahua. After three semesters of classes here, his boss made him return to Mexico before writing his thesis. He returned, but his boss refused to assign him work. So Armando wrote his thesis. After more difficulties, Armando resigned and worked as a consultant for two years. He finished his thesis, graduated in December, and was vindicated when the vice-president of the company rehired him as his personal assistant. Peter Hanke had a somewhat easier time with a field thesis on a small, rich gold deposit in Bolivia at 14,000 feet. He and Sara Martinez had to take part in the annual sacrifice of a white llama to the spirit of the mine, carried out by the local miners. Becky Sauer stayed in the U.S. for her thesis, but had enough of her own difficulties. She started a thesis on zircon dating of mineralizing intrusions near Santa Fe, New Mexico, but the zircons were all inherited from Precambrian rocks. So she had to do it all over again with Ar/Ar dating.

Two undergraduates, Stephanie Campbell and Chris Ebright, helped Bill with research during the summer, making thin sections and x-raying rocks from Mexico. They all went to Mexico for field work, but due to a drought, there was no water in the local plumbing. The temperatures were excessive (>110°(F), so they headed for Arizona, where they visited Lorna Jaramillo, who was starting her Ph.D. thesis with the USGS in Tucson, then returned home.

Other students progress toward their degrees, including Paul Boni (likely to win the Dave Schroeder graduate student longevity award), Erin Marsh, Abbas Sharaky and Sara Martinez. Two new graduate students in economic geology were admitted last fall, Eric Anderson and Worth Cotton. Worth figured he didn't suffer enough doing his M.S. at CU, and has come back for more.

Bill got support for research from Luismin, a silver and gold mining company in Mexico that decided to get into the car parts business. But they still do mining, and Bill visited their operations in Durango, where they produce more gold than any other mine in Mexico. They agreed to support a student for a thesis, Stephen Redak, one of our CU graduates, now at Colorado School of Mines. Bill also started research on a porphyry copper-gold deposit near Guanajuato. Lots of miscellaneous activities: Bill taught underground mine mapping, intro geology, ore deposits, and geochemistry of hydrothermal ore deposits. In the spring, he took part in the internal review for the museum departments. In the summer, he reviewed the 100 abstracts sent in for the Society of Economic Geologists meeting at the fall GSA and organized the program, with the help of two other reviewers.

Lisa Barlow

Lisa Barlow is teaching geology courses in the Baker Residential Academic Program (formerly at Williams Village). The Instructor position allows her flexibility to hang out with her 3 year old son, Zebediah. Lisa served as Education Chair for the GSA annual meeting in Denver this year, and saw many old friends from the Cretaceous Attack Team and INSTAAR. A British documentary about the loss of the Norse Greenland Settlements, including an interview with Lisa, was televised this year. She served as mentor for one of the Department's top graduating seniors, Winston Seiler, in his receipt of the Jacob Van Ek Award. This was a special highlight because Winston began his geology career as a freshman in Lisa's class.

Roger Bilham

Bilham's students Samson Tesfaye, Lowell Whiteside, Frederick Blume and Paul Vincent completed their Ph.D.s in 1999.

In 1999/2000 Roger Bilham and his students completed analyses of several GPS arrays installed earlier in the decade by former graduate students. The result is several new estimates for plate motions in Africa, the Caribbean, and Tibet. The African rift is slowly opening at 4.5 ± 1 mm/yr in Ethiopia in agreement with velocities inferred from geological rates. The Caribbean Plate moves west at 22 ± 2 mm/year relative to Venezuela, almost twice as fast as predicted from global plate motions, but similar to some estimates based on Caribbean seismicity. The velocity across the Altyn Tagh fault is approximately half the rate estimated from geological estimates, suggesting that Tibet's eastward motion is less than hitherto believed.

Freddy Blume's Nepal studies provided the GPS basis for the National Geographic Society new height estimate for Mt. Everest. The new height is associated with uncertainties (largely caused by the geoid) of ±2 m, which when taken into account results in a height estimate that is little different from traditional height for Mt. Everest. Becky Bendick received a prize for her splendid AGU presentation of her work on the Altyn Tagh fault and visited Venezuela to help process the new GPS data obtained recently there.

Roger Bilham collaborated with Geoff King and his colleagues (L'institute de Physique de Globe) to install a new GPS array across the Africa/Arabian Plate Boundary in Lebanon, and with Omar Perez (Simon Bolivar University, Caracas) to remeasure the Caribbean/South-American Plate boundary with GPS in Venezuela. Later in the year he installed a 500m-long tiltmeter in the Guerrero seismic gap in Mexico with Vladimir Kostoglodov (UNAM, Mexico Ciy). He also joined British Engineering and Red Cross teams in the damaged areas of the Izmit and Duzce (Turkey) earthquakes, and in the Chichi (Taiwan) earthquake. For the first half of his sabbatical year he worked in the Bodlian Library in Oxford where he undertook archival studies of great earthquakes in India. December found him rummaging in former colonial libraries in Wellington, Christchurch, and Dunedin, and preparing for new GPS/gravity measurements of the southern Alps in collaborative studies with MIT and the Institute for Geological and Nuclear Sciences in Wellington.

Roger was honored to receive both a Faculty Fellowship and a Guggenheim Foundation Fellowship for the period 1999-2000.

Jack Edwards

Jack Edwards continues to serve as an Instructor for the Department. During the fall, he taught a course on World Energy and Resources. In January, he gave one of the invited talks in San Diego at the AAPG Hedberg Conference on Future Petroleum Provinces of the World. Jack updated his paper on the prediction of non-renewable resources. He has continued to serve on several M.S. and Ph.D. committees.

Bruce Jakosky

Prof. Bruce Jakosky has been making the circuit recently speaking about the potential for life to exist on Mars, elsewhere in our solar system, or on planets around other stars. Although this has become a hot topic only since the announcement a few years ago of the discovery of possible fossil evidence for life in a meteorite from Mars, the scientific underpinnings have been developed over a period of several decades. Jakosky's research centers on understanding the climate evolution of Mars, the history of volatiles at the surface and in the crust, and the potential for life to exist there. He has been using data from the Mars Global Surveyor spacecraft to determine what constraints on the habitability of Mars might be found; these focus on the availability of liquid water and of chemical energy that could support metabolism.

With the high visibility of this issue, he has been called on to give talks around the country. He has given technical talks at NASA's Jet Propulsion Laboratory, the California Institute of Technology, Harvard University, Cornell University, and UCLA, among others, and has given public talks in Boston, South Dakota, Birmingham, Omaha, Denver, Hawaii, and Boulder. He has also done numerous interviews with both local and national media.

Craig Jones

This past year allowed Craig the opportunity to learn of all the other advances in the geological sciences as he was technical program chair for the national GSA meeting (with Lang Farmer). After a few thousand e-mails and considerable communing with the GSA web site, the technical program did indeed come together.

Research into the origins of the mountains in the western U.S. continues. Graduate student Charlie Wilson is working with Craig to try to manage tens of gigabytes of seismograms coming from a collection of short-period seismic arrays in the vicinity of the Coso Geothermal Area. The goal is to understand the origin of the geothermal area within the regional tectonics. Our occasional forays to move dozens of seismometers have also included others in the Department such as Hersh Gilbert and Seth Mueller. A broader synthesis of the history of the Basin and Range was written with Leslie Sonder of Dartmouth College and published in Reviews of Earth and Planetary Science; considerable amounts of the research for that article accompanied instruction of a seminar course on the Basin and Range a year ago.

Early in the year Craig joined the rotation of GEOL 1020 (Historical Geology) instructors and in the fall taught a new class on techniques in tectonics as applied to the history of the western U.S. He is now assembling field locales in the southwest for a field module to run over spring break 2000.

Mary Kraus

The clastic sedimentology group welcomed one new student, Erich Heydweiller, this year. Erich has a B.A. in geology from Carleton College and previous field experience in Eocene rocks of Wyoming. Erich will be working in the Bighorn Basin for his M.S. thesis research. Tim Farnham continues to work with both Mary and Kirk Johnson from the Denver Museum of Natural History on a paleosol study in the Denver Basin. Tim is focusing on a strongly developed paleosol that is situated at approximately the Paleocene – Eocene boundary. Tim will be analyzing the paleoenvironmental significance of the paleosol, which forms a significant aquiclude in the Denver Basin. Debra Mickelson continues to work on her M.S. project, which focuses on the sedimentology and particularly the dinosaur footprints in part of the Morrison Formation.

Erich Heydweiller, Andy Pulham (EMARC sedimentologist), undergraduate student Carlos Perez, and Mary spent parts of June and July in the Bighorn Basin. They undertook fieldwork on a NSF-funded study of Eocene fluvial rocks. The focus of this research is to field test recent computer simulations of alluvial architecture, which is the three-dimensional arrangement of channel sandstones and associated floodplain mudstones. For a change they had excellent weather, which helped them complete a successful field season. Andy and Mary presented results at the October GSA meeting in Denver and will also present at the April AAPG meeting.

Mason Dykstra, who worked on the Bighorn Basin project, successfully defended his M.S. thesis in May. He moved to Houston where he is working with Anadarko. Andres Aslan (Ph.D. 1994) started a new tenure-track position at Mesa State in Grand Junction. Mihaela Ryer (Ph.D. 1998) continues to work for Marathon Oil in Houston.

Along with David Budd, Mary acted as general co-chair of the GSA Annual Meeting in December this past October. Attendance was very high and the meeting was successful. Mary is now looking forward to becoming the new co-editor (also with David Budd) of the Journal of Sedimentary Research. They assume the editorship in May of this year.

Giff Miller

Giff was on sabbatical in Australia for the 98-99 AY, based in Canberra at the ANU's Research School of Earth Sciences. But he managed to spend seven months in the field, on two very long field expeditions and a number of shorter trips. With colleague John Magee, they collected emu eggshell from dune fields on Kangaroo Island, where a separate subspecies became extinct shortly after Europeans arrived. They also carried out two highly successful expeditions to remote territory northwest of Lake Eyre, the terminal playa of a $1.3° 10^6$ km^2 interior basin in central Australia. A separate trip to dune systems bordering a series of playa lakes on the lower Darling River was especially successful, with abundant eggshell, megafauna and human artifacts. It was also memorable because the small eight-room inn built in the 1850s where they stayed caught fire in the middle of the night and burned to the ground. Giff was the first to smell the smoke and started to wake the rest of the guests, when he realized all those hard-collected samples were at risk. Once the samples were rescued, the rest of the guests were awoken and everyone escaped without incident.

In June, CU graduate student Sean Pack and geophysical lab colleague Marilyn Fogel joined the field party at Lake Gregory in the Kimberley District. The lake occupies a closed basin and is currently the tiny relict of a system that was ten times larger in the Late Quaternary. Their field work was designed to evaluate when the lake was full, and how vegetation responded during lake-full (strong monsoon) conditions. The team also recovered a 10-m-core from Wolfe Creek Crater, a large impact crater that contains one of the most complete records of sediment infill in semi-arid Australia.

. . . all the news

Thanks to all those who sent us your news. We love to hear from all of you. We prepare our annual Geology News in the beginning of January, and would like to include any significant professional or personal information you may wish to share with us. Please send your news to:

Geology News Editor
Department of Geological Sciences
University of Colorado at Boulder
Boulder, CO 80309-0399

Co-editors
Shemin Ge and
Anne Sheehan

Structural geology field trip to Needles, Utah.

It is easy to wish a sabbatical would last forever, but reality always intrudes. Giff returned to Boulder in mid-August, and the life of a regular faculty member. Two new state-of-the-art amino acid analyzers recently installed in his lab are processing samples at a steady rate. Evaluating these results, teaching global change courses, and organizing an international meeting on sea ice in the climate system to be held in Iceland this June keep him busy.

Karl Mueller

Assistant Professor Karl Mueller continued to play in various sandboxes in 1999 under the guise of active tectonics research. Two of his graduate students, Jocasta Champion and Jon Landau, completed their degrees and have since begun employment with local companies. Jocasta and Karl's work in New Madrid was recently published in Science in association with a CU alum, Peggy Guccione, a past Birkeland Ph.D. Alex Tate joined the structure and active tectonics group last fall and is pursuing work in New Madrid to define the magnitude of past earthquakes in that region. Karl worked as a mentor with undergrad Grant Kier on mechanisms of regional uplift in southern California and Baja with the SURF program, departmental mentor program and Southern California Earthquake Center summer intern program. On the international front, Karl enjoyed a field trip through the Spanish Pyrenees where participants examined complexly deformed fold and thrust systems. Another excursion included a six-day trip for his graduate neotectonics class that traversed the eastern California shear zone along the Garlock Fault, Death Valley, Fish Lake Valley, Walker Lake and back through Long Valley Caldera and Owens Valley. He also led weekend trips for undergraduate field and structure classes along the Front Range, the Medicine Bow Mountains of Wyoming, the Roaring Fork Valley near Carbondale, and Canyonlands and Arches near Moab, Utah. The last Moab trip included a wild jeep excursion into the Needles area that had everyone shaking their head in wonder, both for the well exposed fault systems and improbable "roads." In the service realm, Karl worked as a co-chair of student assistants with Suzanne Larsen at the National GSA meeting held in Denver. Fondly remembered as five days in hell, Karl and Suzanne are now better acquainted with the inner workings of slide projectors than they ever envisioned possible. Karl also worked with Chance Anderson, our departmental sculptor, to help create the two large granite globes now installed at the south side of the Benson Building. On the personal front, Karl continues to enjoy riding a road bike along the Front Range, usually behind older and much faster faculty members. He is also enjoying a long-overdue renaissance in climbing and its positive influence on his daily outlook.

Kathy Nagy

Associate Professor Kathy Nagy spent fall 1999 in her "research semester" and is currently teaching a graduate class in aqueous geochemistry, in addition to sharing the undergraduate geochemistry class with Lang Farmer. She has three new research projects: two from the U. S. Department of Energy and one from the National Science Foundation. The projects are providing funds to equip her laboratory with a particle surface-area analyzer and a Silicon Graphics computer with state-of-the-art molecular modeling software.

Dr. Barry Bickmore from Virginia Polytechnic Institute and Dr. Michel Schlegel from the University of Grenoble joined Kathy's group this spring. Barry is an expert in using atomic force microscopy (AFM) to understand clay reactivity. He will be investigating reactions between fluids representing leaking radioactive waste tanks and vadose zone sediments of the DOE facility in Hanford, Washington. Undergraduate Chris Weaver will assist Barry. Michel, whose expertise is in applying X-ray absorption spectroscopy to mineral sorption and growth reactions, will be investigating clay nucleation and growth using experiments, AFM, and synchrotron radiation analyses, the latter at the Advanced Photo Source synchrotron at Argonne National Laboratory. Brad Wakoff is finishing his master's research on synthesizing solids in the Hanford waste tanks and investigating how rhenium (an analogue for technetium, the most dangerous radionuclide in the tanks) partitions between the solids and fluids. Jake Waples is continuing his work on the dissolution and formation rates of cinnabar in the presence of dissolved organic matter, with the goal of understanding mercury mobility in the environment. New graduate student Terry Church is studying lithium exchange reactions in clay minerals in order to assess effects on isotopic fractionation of this element as an indicator of global weathering. Kathy will hire a new graduate student to investigate the kinetics of kaolinite formation, in part to understand better how past climate change is recorded in paleosols.

Kathy had a busy year for traveling, beginning in March with invitations to workshops on "Near-Equilibrium Processes in Geochemistry" and "Mineral Surface Science" in Germany and a visit to the Environmental Geochemistry Group of the LGIT-IRIGM in Grenoble. Other trips included an invited presentation at a Gordon Conference on "Rock Deformation," the Geology Department seminar at the University of Washington, and a seminar to the Geologic Division of the USGS in Denver. Kathy also participated in a NSF workshop "Directions and Priorities in Low-Temperature Geochemistry for the Year 2000 and the Next Decade."

Anne Sheehan

Anne Sheehan kept busy this year with the NSF-funded Continental Dynamics of the Rocky Mountains (CDROM) project. The project includes seismic refraction, reflection, and passive source seismology across major geologic boundaries in the Rocky Mountains in order to better understand the continental evolution in this region. Sheehan is co-PI on the passive source seismology part of the experiment, which includes a 50-station deployment of earthquake seismometers in Wyoming, Colorado, and New Mexico from April 1999 to May 2000. CU participants in the seismic project include Sheehan, Research Associate Ken Dueker, graduate students Lynda Lastowka, Hersh Gilbert, and Otina Fox, and undergraduates Jason DenOtter, Damon Lytle, and Scott Pollack. Lang Farmer and his research group are involved with a xenolith study, which is also part of this experiment. In September, Sheehan's Field Geophysics class visited the CDROM vibroseis trucks in Southern Wyoming. The class was very impressed with the scale of the experiment (a 25-km line of geophones and reflections from the Moho!) relative to the hammer seismics we typically perform in class. Riding in the vibroseis trucks was also a big hit.

Otina Fox, Lynda Lastowka, and Roy Johnson inspect seismic field records on a Field Geophysics course field trip to CDROM Vibroseis experiment, southern Wyoming.

James Syvitski

Professor Syvitski leads CU's stratigraphic modeling effort and had another successful and busy year that included some changes in staff. Post-doctoral scientist Dr. David Bahr departed for industry after having great success in developing a 3-D process-based stratigraphic model that will be used to examine how continental margins develop. Post-doctoral scientist Dr. Scott Peckham completed his contract work for Raytheon having developed algorithms for the future NPOES satellite system, wherein satellite images will be analyzed to provide estimates of littoral sediment transport. Ph.D. student Mark Morehead successfully defended his thesis and with Professor Syvitski was awarded the Best Paper Award by the International Association of Mathematical Geology for their sediment plume paper published in Computers and Geosciences. Ph.D. student Damian O'Grady continues to work on his thesis on the morphology of continental margins and has completed three papers to date. Visiting scientists incude Faisal Butt from U. Oslo, Norway, Irina Overeem from Delft Technical University, Netherlands, Mike Steckler from LDEO, Lincoln Pratson from Duke University, and Homa Lee from the USGS Menlo Park office in California. Engineering physicist Eric Hutton continues to lead the modeling effort of the "Delta Force" that operates INSTAAR's Geophysical Modeling and Oceans Laboratories in association with an academic consortium involving ONR, NSF, petroleum and aerospace industrial support. The group continues to develop computer simulation models for the study of basin stratigraphy, seafloor characteristics, river, and ocean current dynamics. Topics emphasized this year include river hydrology, turbidity currents, debris flows, compaction, sea level fluctuations, abrupt climate changes, and littoral sediment transport. Of the 30 presentations in 16 locations, the following noteworthy addresses were provided in 1999: (1) Open science forum of the IGBP Land Ocean Interaction in the Coastal Zone meeting in Bahia Blanca, Argentina and another in Kyoto, Japan; (2) Euro-STRATAFORM meetings in Washington, D.C. and Paris, France; (3) NSF-sponsored MARGINS meeting near Seattle, Washington; (4) NSF-sponsored workshop on Arctic Ocean modeling, in Monterey, CA; (5) NSF-sponsored workshop on industry participation in the Ocean Drilling Program, in Houston, TX, and the ODP-COMPLEX meeting in Vancouver, B.C.; (6) ONR-STRATAFORM meetings in Boulder, Monterey and Minnesota; (7) 29th Arctic Workshop, Seattle, WA; and (8) TOS-sponsored extreme ocean events conference, Reno, NV. Additionally Professor Syvitski stepped up his involvement in consulting for the U.S. Navy on geoclutter and mine-burial issues, helping develop research programs. Professor Syvitski continues as editor of the international journal Arctic, Antarctic and Alpine Research, Associate Editor of Oceanography and Editorial Board member of Marine Geology.

Paul Weimer

Paul Weimer co-taught Petroleum Geology of Turbidite Systems with Roger Slatt (CSM) during the fall semester. They took a five day field trip to southern Wyoming where they studied the Lewis shale, a "deepwater" turbidite system that is currently a major exploration play. The class project involved studying the Dad sandstone. The class stopped by Paul's great grandfather's homestead from the early 20th century in Dad, Wyoming.

Paul served as the Oral Session Chairman at the AAPG International Meeting in Birmingham, England in September 1999. He also chaired two sessions on the stratigraphic prediction in turbidite systems with Mike Bowman (BP-Amoco). He co-taught a two day short course (with Roger Slatt) on the Petroleum Geology of Turbidite Systems. Afterwards, he visited Edinburgh and finally saw Hutton's unconformity. He is currently finishing a book, written with Roger Slatt (CSM), titled Petroleum Geology of Turbidite Systems that will be published on CD-ROM by the AAPG later this year.

Paul is organizing the December 2000 GCSSEPM Research Conference on "Deep-Water Reservoirs of the World" (www.gcssepm.org) with Roger Slatt, Arnold Bouma, Jim Coleman, Hans Nelson, David Lawrence, and Mike Styzen. Paul spent the past year as the vice chairman for the AAPG Distinguished Lecturer Committee, helping establish the joint AAPG-SEG Distinguished Lecture Program (first year was Alistair Brown), and reorganized the International Lecture Program. In April, Paul will speak at the large "Bert Fest" at Rice University, i.e. Bert Bally's retirement party. Paul chaired a session on the Petroleum Systems of the Gulf of Mexico at AAPG in New Orleans in April, and serves on the SEPM Twenhofel Award Selection committee. In July, the 31st International Geological Congress will be held in Rio de Janeiro, where Paul will serve as a co-convenor (with Cesar Cainelli, Petrobras) of the session "Seismic Stratigraphy of Deep-Water Environments." Afterwards, Paul will also attend a three-day conference on deep-water fields of the world sponsored by Petrobras. Paul also serve as a Councilor for the Colorado Scientific Society and as an Associate Editor for the AAPG Bulletin and for GeoMarine Letters.

Paul Weimer's stratigraphy class in Dad, Wyoming—homestead of Paul's great grandfather circa 1902.

IN THE FIELD

Help us reach our goal!

The Advisory Board is conducting a grass-roots fund-raising campaign among our alumni to generate an endowment in support of departmental field trips, a major but costly component of the educational program for geology students past and present. The board mailed a brochure concerning this initiative to all our alumni in October and the response has been encouraging. Over $10,000 was raised as a result of this solicitation, and the members of the board would like to express their appreciation to all those who have supported this initiative.

In support of this fund-raising effort, the department merged an endowment generated by faculty donations for the enrichment of undergraduate education into the IN THE FIELD endowment, which now contains over $25,000. This is still a long way from the ultimate $500,000 goal for the IN THE FIELD endowment, but is a benchmark in that this account will begin supporting field trips next year.

William L. Hiss has generously pledged a $25,000 matching grant for all new donations made to the IN THE FIELD endowment this year. This is a great incentive for us in reaching our final goal. For all of you who have fond memories of departmental field trips, please consider making a donation to the IN THE FIELD account by checking this box on the donation contribution form in the newsletter. Thanks.

Giff Miller's field trip at Lake Dorothy near Arapahoe Pass, Indian Peaks, Colorado. Noah Daniels, Sean Pack, Gita Dunhill. Photo by Brad Wakoff.

Hydrogeology field class measuring groundwater levels in Boulder. Front: Jacob Lorenz, Matthew Braback, Jordan Holtz, Nick Pietsch. Back: Heather Lohman, Luanna Sago, John Marler.

Contribution Form

I/we wish to contribute to the IN THE FIELD program of the Department of Geological Sciences. Check one of the following boxes.

Enclosed is a check for $_____.

I/we pledge to make an annual contribution of $_____ for _____ years.

Name(s) _____

Address _____

Please make check payable to: The Department of Geological Sciences, University of Colorado at Boulder and mail it with this form to the Department of Geological Sciences, University of Colorado, Boulder, CO 80309-0399.

Degrees awarded

B.A. Geology Majors

Spring 1999

Terry Church	Darin Findley	Brian Graham	Seth Mueller
Ryan Crow	Tad Frizzell	Michael Liguori	Winston Seiler
Michael Duffy	Alicia Genth	Marc Marcoux	Ryan Skorecki

Summer 1999

Scott Cook	Shaman Houpt	Heather Lohman	Andrew O Reilly

Fall 1999

Jessica Darling	Rae Lynn Hateley	Michael Kelly	Luanna Sago
Christopher Ebright	Eric James	Damon Lytle	Jesse Starr
Jesse Hanna	Jessica Kelleher	Rose Manzo	

B.A. Geology Majors Graduating with Honors 1999

Scott Cook - Cum Laude Advisor: Anne Sheehan
"Seismic Images of Archean/Proterozoic Differences across the Cheyenne Suture"

Ryan Crow - Magna Cum Laude Advisor: Paul Weimer
"Stratigraphic and Structural Analyses of Surficial Sediments, Upper Continental Slope (north central Green Canyon), Northern Gulf of Mexico"

Eric James - Cum Laude Advisor: John Andrews
"Sediment Analysis in Reykjafjardarall Trough, Northern Iceland"

Jessica Kelleher - Summa Cum Laude Advisor: Jim White
"Indian Ocean Decadal Variablity Recorded in a Coral from Mafia, Tanzania: An Absence of El Niño"

Winston Seiler - Suma Cum Laude Advisor: Charles Stern
"Petrology of Lamprophyric Dikes and Sills in the Spanish Peaks Region, South-central Colorado"

Jesse Starr - Magna Cum Laude Advisor: Alexandra Skewes
"Fluid Inclusion Study of a Cu Breccia Pipe, El Teniente Mine, Central Chile"

M.S. Candidates Graduating with Degrees

Spring 1999

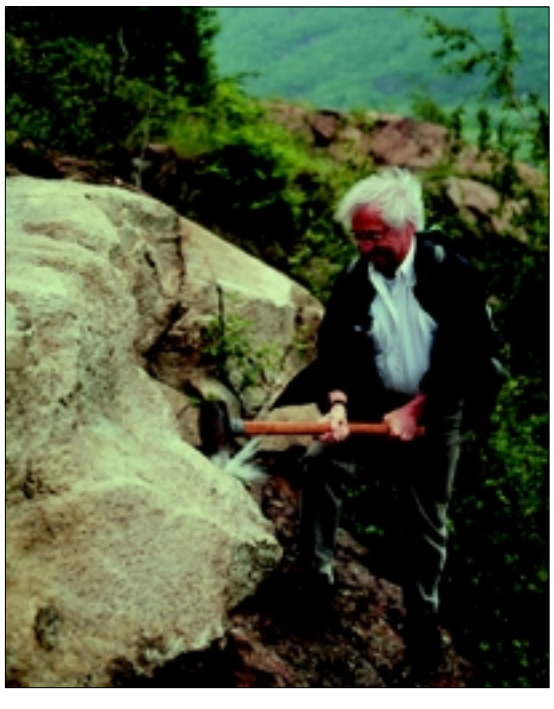
David Kinner	Ge	Hydrology of Tropical Catchments with Variable Togography and Land Use: An Application of TOPMODEL
Pete McIntosh	Goetz	Multi-Year Scene Calibration of Landsat TM

Summer 1999

Erik Bartsch	Trudgill	Evolution and Structural Interaction of End-member, Salt-related Fault Systems: Northern South Timbalier Area, Offshore Louisiana
Mason Dykstra	Kraus	Fluvial Architecture in the Lower Eocene Willwood Formation, Northwestern Wyoming as an Indicator of Avulsion Style
Ernie Joynt	Miller	Assessment of Baffin Island Lake Diatoms as Proxies for Climate Change in the Eastern Canadian Arctic

Fall 1999

Will Brunner	Spetzler	A Physicochemical Model of Contact Angle Hysteresis: Implications for Seismic Wave Attenuation in the Vadose Zone
Jocasta Champion	Mueller	Structural and Geomorphic Analysis of the Lake County Uplift, New Madrid Seismic Zone, Tennessee
Freddy Corredor	Mueller	Three-Dimensional Geometry and Kinematics of the Samore Thrust Front, and Evolution of the Northern Eastern Cordillera Fold Belt, Colombia
Peter Hanke	Atkinson	The Kory Mina deposit: A Shear Zone-hosted Gold Deposit in the Eastern Cordilleva of the Bolivian Andes
Jonathan Landau	Mueller	The Structural and Geomorphic Development of the Active White Wolf and Los Lobos Folds, Southern San Joaquin Valley, CA
Becky Sauer	Atkinson	Petrochemistry and Geochronology of Plutons Relative to Tectonics in the San Pedro-Ortiz Porphyry Belt, New Mexico
Nubia Santiago	Weimer	Reservoir Characterization of the Paleocene-Eocene Marginal Marine Deposits in the El Furrial-Boqueron Trend, Northern Part of Eastern Venezuela Basin, Venezuela
Frank Urban	Cole	Multiple Modes of Tropical Pacific Climate Variability Recorded in the d180 of Corals from the Gilbert Islands, Kiribati, West Central Pacific
Armando Zaragoza	Atkinson	Use of Landsat Thematic Mapper Imagery to Identify Targets for Mineral Exploration in the Pinos Altos-Moris Area, Chihuahua, Mexico



Joe Smyth studying eclogites in Aosta Valley, Italy.

Ph.D. Candidates Graduating with Degrees

Spring 1999

Jorunn Hardardittor	Andrews	Late Weichselian and Holocene Environmental History of South Iceland as Interpreted from Studies of Lacustrine and Terrestrial Sediments
Mark Morehead	Syvitski	Sediment Supply to the Ocean: Temporal and Spatial Variability of Rivers and Plumes
Samson Tesfaye	Bilham	The Afar Rift: The Western Afar Passive Margin, Relay and Accommodation Zones, and Migration of the Triple Junction

Summer 1999

Freddy Blume	Bilham	Determination of Source Parameters of the Great 1934 Nepal Earthquake Using Historic and Modern Geodesy
Kathy Licht	Andrews	Investigations into the Late Quaternary History of the Ross Sea, Antarctica
Hernan Santos	Budd	Stratigraphy and Depositional History of the Upper Cretaceous Strata in the Cabo Rojo-San German Structural Block, Southwestern Puerto Rico
Lowell Whiteside	Bilham	Short-term Variations in Seismic Risk

Fall 1999

Frederick Blume	Bilham	Determination of Source Parameters of the Great 1934 Nepal Earthquake Using Historic and Modern Geodesy
Sue Cannon	Birkeland	Debris-Flow Response of Watersheds Recently Burned by Wildfire
Mike Kaplan	Miller	The Last Glaciation of the Cumberland Sound Region, Baffin Island, Canada, Based on Glacial Geology, Cosmogenic Dating, and Numerical Modeling

Spring graduation: Chereé Stover, David Kinner (MS), Shemin Ge

Happy Bachelors and Bachelorettes at the spring graduation: Marc Marcoux, Jessica Kelleher, Ryan Crow, Winston Seiler, Dierck Kersten, Heather Lohman, Jordan Holtz, Seth Mueller, Jesse Starr, and Terry Church.

Graduate Awards for Spring 1999

AWARD	RECIPIENTS
RMAG	Julie Caldero-Baird
AWG	Sunny Klaber – M.S. Kathy Licht – Ph.D.
Bruce Curtis Fund	Peter Hanke, Chris Morton
W. O. Thompson Award	Hersh Gilbert, Lynda Lastowka
Waldrop Memorial Scholarship	Mark Moorehead, Sean Pack
Longley, Wahlstrom, Warner Memorial Scholarship	Alex Iriondo, Jon Landau, Abbas Sharaky
Jeffrey Deen Memorial Scholarship	Sara Martinez
Grad Fellowship in Geological Sciences	
Texaco Scholarship	Hernan Santos, Becky Bendick, Kathy Licht, Mikie Smith, Sunny Klaber, Gretchen Bolchert, Chereé Stover

Undergraduate Awards for Spring 1999

AWARD	RECIPIENTS
Estwing	Tiffany Yesavage
T. Keith Marks Scholarship	Ryan Crow, Joseph A. Eichenauer, Jessica Rossi
RMAG pick	Elizabeth Ramsey
Johnston Memorial Scholarship	Winston Seiler
Bass Award	Elizabeth Ramsey
J Tour Scholarship	Terry Church
AWG	Jessica Kelleher

Undergraduate Awards for Fall 1999

AWARD	RECIPIENTS
William L. Hiss Award for Creativity in the Earth Sciences	Jessica Kelleher, Jesse Starr, Eric James

Flight over the Front Range

By Ryan Skoreki and Jesse Starr

We took off from Jefferson County Airport on a brisk September morning in a large and comfortable twin-engine plane. Four undergraduates (Jessica Kelleher, Angela Meyers, Ryan Skorecki and Jesse Starr), two graduate students (John Marler and Jacob Waples), alumnus Bill Hiss and his wife Gabriele and Emeritus Professor Ed Larson crowded into the aircraft. Waving excited goodbyes to Eileen Gordon, from the alumni association, we banked south and began our flight along the Front Range. To the left we could see the Denver basin stretching to the east and our imaginations filled with images of an Inland Sea. To the right the Flatirons and the Dakota Hogbacks elicited some gasps. Professor Ed Larson composed a handout describing points of geological interest along our route he also narrated the trip as we flew over those spots we have all frequently trudged over. Just north of Colorado Springs, the plane turned to the west and we left the sedimentary plains in exchange for the Precambrian granites. Off to our left we could see a snowcapped Pike's Peak and its expansive tuff. Heading north along the Mosquito Range toward Dillon, John Marler had a thrill looking out over his field area in South Park. Numerous 14ers were visible including Quandary Peak, Mt. Elbert, and other Sawatch Range peaks. Even in the early autumn a light dusting of fresh snow reminded us of the extremes of Colorado's unpredictable climate. Once over Dillon Reservoir, we turned back to the east to head home over the Gore range. We crossed back over the Continental Divide through the Indian Peaks Wilderness, just south of Long's Peak and Rocky Mountain National Park. Then we were treated to a great view of the Flatirons and our city below, as we flew back to Jefferson County Airport to complete our loop through the Rockies. Many of us had been on field trips all over the Front Range. We are well acquainted with the geology of our area. We can recite the local stratigraphy and recount the events of volcanism and mountain building. For each of us flying over the Front Range brought a new perspective to the academic knowledge we brought with us and rekindled our appreciation of the glorious beauty of Colorado.

Above: Bill (PhD '75) and Gabriele Hiss, Ed Larson (PhD '65), Jessica Kelleher, Angela Meyers, Ryan Skoreki, Jesse Starr, John Marler, and Jacob Waples waiting to take off.

Below: View of Boulder from the airborne field trip.

DEPARTMENT NEWS

CU Geology in the news

Boulder Daily Camera, July 18, 1999, ". . . One Giant Leap for Mankind." **Prof. Bruce Jakosky** wrote a guest editorial for the Daily Camera, which appeared two days before the 30th anniversary of the Apollo 11 landing on the Moon. He described how the space program has been providing fundamental scientific results about our solar system and the rest of the universe, with an emphasis on exploration.

The Denver Post, April 12, 1999, "Satellites may prevent another dust bowl." **Prof. Alex Goetz** of the Department of Geological Sciences and Director, Center for Study of the Earth from Space (CSES), describes how Landsat satellite data is being used to monitor drought conditions in the High Plains. This data set will be enhanced by the recent launch of the Landsat 7 satellite.

NBC Nightly News television interview for "In Depth" which appeared on November 12, 1999, after the M7.1 Ducze earthquake in Turkey. Interview with **Prof. Karl Mueller** discussed the significance of results published in a science paper and its implications for future earthquakes in the New Madrid seismic zone. The interview was focused on what we might expect in the future given the Late Holocene geologic record from the past.

Chicago Tribune, "New Madrid Fault Poses Severe Threat, Report Says," appeared November 5, 1999. Article reiterated results of article by **Prof. Karl Mueller** appearing in Science on November 5, 1999, that defined fault slip rates in the New Madrid seismic zone and its implications for the risk of future earthquakes in the American midcontinent. Results of research suggested a higher frequency and/or magnitude of earthquakes in this region than a report previously published in Science based on geodetic measurements. News reports in the Boulder Daily Camera and many other newspapers resulted from this Science article.

"Humans blamed for demise of animals down under," Denver Post, January 8, 1999. An article by **Prof. Giff Miller** and colleagues in the journal Science reports that age dating and chemical analysis of fossilized egg shells from Australia suggest that megafauna exinctions in Australia were caused by early humans. Articles reporting this research were also published in the Rocky Mountain News, The Brisbane (Australia) Courier Mail, and The Australian newspapers.

"Piecing Together North America," ABCNews.com, August 12, 1999 (http://abcnews.go.com/sections/science/DyeHard/dye990811.html). **Prof. Lang Farmer** and **Prof. Anne Sheehan** are among nineteen geologists participating in a program to investigate the complex dynamic processes that made North America the continent it is today. The project, called Continental Dynamics–Rocky Mountain Project (CDROM), is funded mainly by a $2.7 million grant from the National Science Foundation. This interdisciplinary project includes structural geology, geochemistry, geomorphology, and geophysics. The seismic component of the experiment includes refraction, reflection, and passive source (earthquake) seismology. Sheehan is coordinating the passive source experiment along with CU and University of Oregon colleagues. Farmer is coordinating chemical studies of the fragments of the lowermost crust along the Wyoming-Colorado border. He is testing the possibility that the lower crust may have been the original source of Colorado gold deposits. Besides increasing knowledge of how the Rockies were formed, the study aims to get a better understanding of earthquake hazards and of where ore, oil and aquifers are located. The CDROM project has attracted extensive media coverage in addition to the ABCNews.com piece, including a Colorado Public Radio Morning Edition segment on October 1, 1999, articles in local Colorado papers, and an article on NationalGeographic.com.

"End of an Ice Age, Onset of a Cold Spell," National Geographic, February 2000. **Don Barber**, Ph.D. at the CU-Boulder Geological Sciences Department, published an article in the journal, Nature. The study by University of Colorado and Canadian researchers examines evidence of a huge flood in the Hudson Bay region of Quebec and Ontario. The flood scenario demonstrates how global warming can, paradoxically, trigger a global freeze, and do it in a matter of decades.

The Jerry Crail Johnson Earth Sciences and Map Library

By Suzanne T. Larsen, Librarian

The "new millennium." I guess we are all as tired of that phrase as we are of "Y2K." At any rate, we survived it in the Earth Sciences Library without a hitch, didn't even stockpile water and food! However, a milestone like this does present a good opportunity to think of where we have been and where we are going. The where we have been is pretty easy, but in the world of libraries, the where we are going may require a crystal ball.

The advent of the WWW has opened up a whole new world for libraries. At CU-Boulder we are dedicated to creating a seamless Web-based information resource we call Chinook (you can view Chinook at http://libraries.colorado.edu). It pulls together the traditional library catalog, access to electronic bibliographic databases, access to full text journals, self-initiated interlibrary loans, access to resources at other libraries and access to information through the Web. And all this is delivered to the professor's or student's desktop on campus or even at home. In this way, the library is becoming the doorway to information, both within its walls and beyond.

A good example of access to web resources from Chinook is our Map Library's web page. It has been designed to organize web-based map resources in a logical and usable manner. It points to material in our collection as well as to resources held elsewhere. It can be accessed directly at www. libraries.colorado.edu/ps/map/frontpage.htm. Check out the great "virtual tour" on the page to see photos of the Jerry Crail Johnson Earth Sciences and Map Library inside and out!

However, with all these visions of immediate electronic access, the library still remains, and will remain for the foreseeable future, firmly planted in a paper world. Most older material will never be digitized because the focus must be on getting the current material in digital format. So those of us who work in libraries will continue to look to future enhancements that will give our users access to ever more expanding avenues of information as well as guide them to the traditional sources in traditional formats. It is a daunting task that has become all the more formidable with the added responsibility of helping the user sort through the myriad of sources and make responsible decisions on the validity and appropriate nature of the information they find. This is especially true of the undergraduate student. In many cases the difficulty is finding too much information and not being able to adequately evaluate it for its usefulness.

We have had several changes in personnel in the Earth Sciences library over the last year. Terrie O'Neal and I remain the last of those working in the library who were with it in its old location. We have a new Library Technician II, Ronn McConnell, who splits his time between the Earth Sciences circulation area and the Map Library. In the Map Library, Naomi Heiser continues as the Library Technician III and our new Map Librarian is Beth Filar. Beth began her position in August 1999. She has a geography degree from Johns Hopkins and a library degree from the University of Maryland.

EMARC

Colleen Velie celebrated her tenth anniversary as the administrative assistant for EMARC, the longest serving person in the Center. She continues to ride roughshod over the herd of uncontrollable students, researchers, and professors. How she maintains her sanity is still a mystery to everyone.

David Knapp, the systems administrator, completed his seventh year of employment. He continues to suffer the slings and arrows of outrageous cyber requests from the staff, and performs admirably keeping the entire program going forward. Both of them are vital, on a daily basis, to the success that the Center has achieved.

Andy Pulham is now in his fifth year of directing the EMARC reservoir program. The current reservoir project will be completed this year and has now grown to include over 10 individual subsurface and outcrop studies. NSF funded research with Professor Mary Kraus on fluvial strata of the Big Horn Basin in Wyoming continues to mature and a third field trip is planned for this coming summer. Andy continues to develop uses of desktop applications for the group and he is now teaching short courses to the local Denver geoscience community on PowerPoint presentations. Andy's expertise is also being used for development of new presentation sessions at future AAPG and SEPM meetings. The reservoir research continues to take Andy to Europe, South America, Canada and various points across the USA.

Bruce Trudgill resigned as an associate research professor effective January 1, 2000 to join the staff at Imperial College in London as a lecturer (UK equivalent to an assistant professor). Bruce taught a course in advanced structural geology during the fall 1999 that had 26 graduate and undergraduate students. Bruce will be teaching structural geology, basin analysis, and 3-D seismic interpretation at Imperial. He will continue to work with the EMARC group in the next Gulf of Mexico consortium (see below).

In spite of the dramatic shifts in the petroleum industry in late 1998 and early 1999, the applied research programs have managed to weather the storm, and stay afloat. In May 1999, the final meeting in the three-year Gulf of Mexico consortium was convened in Boulder. Eighty people attended. Following **Andy Pulham's** lead, all research results were delivered via a hyperlinked CD-ROM in pdf. This allows all of our sponsors to load the results on their internal intranets, so that anyone within the company can access our research results. Significant effort was made this past summer and fall to archive all of the Gulf of Mexico research results from the past 10 years. The updated Gulf of Mexico research CD-ROM was issued in February. This format for delivering research results has been extremely well received by all of our supporters.

The third-year results of the Reservoir Consortium were presented by **Andy Pulham, George Pemberton**, and others on January 20 and 21, 2000. Nine companies support this consortium which focuses on the key controls on reservoir performance in marginal marine reservoirs. Year Four will complete this current project, and it is hoped to add some deep-water reservoir research during next year.

Our third deep-Gulf of Mexico consortium is being kicked off in early 2000. For this new consortium, we will be working in Mississippi Canyon and Atwater Valley, one of the hottest areas in the Gulf in terms of exploration and development. Last summer, BP-Amoco announced a billion-barrel discovery (Crazy Horse) in the area that we will be studying. We are expecting the same group of 22 oil companies to continue to support us, plus several more companies which hold leases in the area. We continue to enjoy great support from several data and software supporters: Badley and Associates, Geographix, Landmark Graphics, Midland Valley, PaleoData, Inc., Platte River and Associates, Paradigm Geophysical, and Western Geophysical. This year we have started a new working relationship with GeoMark, a petroleum geochemistry group in Houston that will help our understanding of the petroleum systems considerably.

Check out our updated web site at:
emarc.colorado.edu

Colleen Velie and David Knapp

Astrobiology Center

The Department of Geological Sciences is one of the departments and institutes participating in the campus-wide effort in Astrobiology. The field of astrobiology is focussed on trying to understand the nature of life on Earth and its distribution in the universe. The campus effort includes faculty and graduate students in geological sciences, molecular biology, evolutionary biology, astrophysics and planetary science, atmospheric science, and philosophy. It is funded by NASA, as one of the 11 initial members of its national Astrobiology Institute, and is led by Professor Bruce Jakosky in geological sciences.

This past year was the first complete year of the CU program. The initial focus has been on getting the research program into operation, with focussed research efforts through each of the participating departments. In addition, a graduate certificate program is being implemented, and an undergraduate non-majors course in extraterrestrial life is offered.

Geological Sciences is currently recruiting for a new faculty member to participate in the astrobiology effort. Despite the "astro" in the name, the intent is to hire somebody who is interested in the geological record of life on Earth. The possible areas of interest are the fossil record of ancient life on Earth (either in the Archaean or the Proterozoic), more modern geological environments that might be relevant to understanding the origin or early evolution of life, or geomicrobiology and life in extreme environments, again focusing on the general aspects of the history of life. If the search is successful, the new faculty member should be in residence in the Benson building by September 2000.

As part of the effort to bring together the wide variety of people interested in life who come from all parts of campus, the astrobiology program has been running a monthly seminar series. Such distinguished luminaries as David Des Marais (from NASA/Ames Research Center) and Mitchell Sogin (from the Marine Biology Laboratory) have visited campus this year. As part of the education and outreach program, we have also sponsored a public forum on the Mars Polar Lander. The forum attracted over 400 people to learn about Mars and the connection to the Earth; unfortunately, the spacecraft did not fare as well, and was not heard from following its descent to the surface.

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FRONT OFFICE NEWS

The front office remains the "meeting/greeting" place, and operations center in the Department. Our staff of four put in many hours to meet the needs of Geological Sciences faculty and students in a friendly and timely manner. We would also be glad to assist alumni and friends of geological sciences with questions they have regarding the Department, faculty, former faculty, students, and staff.

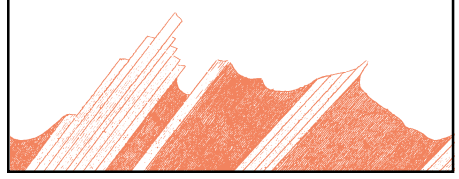
The office staff have survived and are learning to use and live with a new PeopleSoft Financial System being used over all University of Colorado campuses which was put into operation on July 1, 1999. A second phase of conversion to PeopleSoft will take place July 1, 2000, as we begin using the new Human Resources and Payroll system.

We are fortunate to have had minimal turnover in our office personnel during the last year. Joyce Bograd continues as our receptionist, answering phones, greeting and assisting students and visitors to the Department, performing departmental academic scheduling plus a myriad of other duties necessary for the smooth operation of the Department. Joyce carries out her duties efficiently and with enthusiasm. Ya-Wen Zhang is becoming proficient in the responsibilities of Departmental accounting, assisting with ordering equipment, teaching and technical supplies, and grant account management. We welcomed a new student assistant, Amy Snee, at the beginning of the fall '99 semester. She carries out her assignments with initiative and accuracy, and is a pleasant and welcome addition to the front office. Kathy Freeman continues to assist the graduate students with information and paperwork necessary from application to graduation, which she accomplishes with aplomb, patience and congeniality. Beth Hanson continues as lead administrative officer, office supervisor, and assistant to the Chair managing a smooth and efficient front office operation in order for the daily multitude of large and small tasks to be accomplished.

The departmental office can be contacted at:
Phone: 303-492-8141
Fax: 303-492-2606
E-mail: geolinfo@colorado.edu

Visit the Geology Department Web Site!

www.colorado.edu/GeolSci



Department Hosts 1999 GSA national meeting

The Department hosted the 1999 Annual GSA meeting, held during the last week of October. The meeting, which was held at the Denver Convention Center, was well attended with over 6,300 registrants. Over a five-day period, nearly 2,900 posters and oral presentations filled 218 technical sessions and symposia. Twenty-one field trips that highlighted the geology of Colorado preceded and followed the technical sessions. In addition to the technical program, business meetings and social functions kept participants busy. The Department hosted two functions for alumni and friends of the Department. The first, which was held in Denver during Alumni Night, attracted many recent and older alums.

The second social function was held in the new building, where participants were bused from Denver for a tour of the facility, and had an opportunity to chat with acquaintances and meet students.

The local committee for the meeting included:

General Co-Chairs—David Budd and Mary Kraus
Technical Program Co-Chairs—Craig Jones and Lang Farmer
Field Trip Co-Chairs—Alan Lester and Bruce Trudgill
Student Assistants Co-Chairs—Suzanne Larsen and Karl Mueller
Education Chair—Lisa Barlow

Robert DeConto (MS '93, PhD '96) and Bill Hay at the GSA alumni get together.

STUDENT NEWS

Geology Club updates

Nick Pietsch, the current geology club president, and a few undergraduates helped organize this fun-loving group. Jordan Holtz, Mathew Brabek, and Dierk Kirsten are among the few that lend a hand. This organization is based in the student lounge in the basement of the Benson Earth Sciences Building. This room gives all undergrad geology students a place to study, shoot the breeze, eat food, and discuss which faculty members fall into the "favorites" category. Last summer Paul Boni and Nick set up two beautiful mineral cases that now house the student mineral collection. Take the chance to come down for a look. Last semester the geology club met four times and ate lots of Black Jack pizza. At the first meeting they had an astounding 32 people show up. This gave the students ample opportunity to catch up on each other's summer activities.

In October, Mathew Brabek led a caving trip to the Fairy Caves in Glenwood Springs. Twelve geo-club members joined him in spelunking and had a great time. On their way out of Glenwood Springs they soaked their aching muscles in some of the nearby hot springs. In late November the geology club was honored to have Hartmut Spetzler and Alan Lester speak about research opportunities for undergrads. This informative meeting discussed the Undergraduate Research Opportunities Program (UROP), the mentoring program, and receiving employment from faculty (to add one more thing to that important resume). Finally, early in December, Karl Kellog of the USGS came and spoke with the geo-club about what he does as a professional geologist. He also showed some beautiful slides of Antarctica that any geologist would have appreciated. Mr. Kellog lets the club know when job opportunities open up and that information is relayed to all of the students. So far there have been two job openings.

This semester they hope to get out a little more to do some mineral hunting and camping. Snow caving was scheduled for the first weekend in February, along with a sand dune excursion this spring. Hopefully a tour of the Sweet Home Mine in Alma will work out, and everyone should attend the 2nd Annual Geology Department potluck/softball extravaganza.

1999-2000 undergraduate mentoring program

MENTOR	MENTOREE	PROPOSAL TITLE
John Andrews	Eric B. James	Analysis of Sediment Cores from the Northern Continenatal Shelf of Iceland
Bill Atkinson	Chris Ebright	Vertical Zonation of a Fossil Hot Spring–Hydrothermal System at Moctezuma, Sonora, Mexico
Bill Atkinson	Stephanie Campbell	Correlation of the Volcanic Section at Moctezuma, Sonora, Mexico
David Budd	Mike Tanner	Aquifer Characterization of Middle Eocene Carbonates of the Floridan Aquifer
Tim Farnham	Adam Soldinger	Denver Basin Paleosols
Ray Fletcher	Angela Myers	Stratigraphic Flow Disturbance in Ice Cores
Mike Kaplan	Dierck Kersten	Glacial History of Northern Cumberland Peninsula, Baffin Island, Canada
Mary Kraus	Carlos Perez	Reservoir Characterization of Fluvial Channel Sandstones
Karl Mueller	Grant Kier	Mapping and Modeling of the San Joaquin Hills Blind Thrust
Paul Murphey	Ali Jaffri	Collection and Curations of Bridger Formation Fossils
Tas Pfeffer	Elliott Larson	Glacial Geology Field Work at Terentier Lake near Columbia Glacier, Alaska
Peter Robinson	Carrie Tyler	A Testing of Evolutionary Change: Microsyopidate in Northeast Wyoming.
Anne Sheehan	Jason DenOtter	Crust and Mantle Imaging Beneath the Rocky Mountains
Anne Sheehan	Damon Lytle	Passive Seismic Experiment, Wyoming, Utah, and Colorado
Alex Skewes	Jesse R. Starr	Fluid Inclusion Study of a Cu Breccia Pipe, Central Chile
Hartmut Spetzler	Nicholas Pietsch	Effects of Pore Geometry and Contaminationants on the Seismic Wave Attenuation in Partially Saturated Rocks
Alex Wolfe	Ian Bevan	Environmental Changes of the Last 90,000 Years on Eastern Baffin Island

Steve Jacobsen

Graduate student and alumnus Steve Jacobsen and his wife, Vickie, spent their first year of marriage in Bayreuth, Germany. Steve worked at the Bayerisches Geoinstitut on several aspects of high pressure research and development including synthesis, X-ray diffraction, and ultrasonics in the diamond anvil pressure cell. Steve and his advisors Hartmut Spetzler and Joseph Smyth have developed a new high-frequency "earthquake maker" which they are using to experimentally measure P- and S-wave travel times through potential mantle minerals. These data are used in the construction of mineralogical models of Earth's deep interior. Vickie, a graduate student in Urban and Regional Planning at CU-Denver spent much of the year learning German and attending classes in the department of Urban Geography at the Universität Bayreuth. Steve and Vickie spent all of their free time travelling through Germany and also to France, Italy, Poland, Czech Republic and Slovakia.

Emeritus profs news

The retired faculty have been a busy crew. **Bruce Curtis** escapes the coldest month here (not this year, however) to bask in the sun on the southeast U.S.A. coast. **Ted and Barbara Walker** continue to downhill ski a lot, they biked around Denmark last summer (Ted about bikes his age squared (in miles) each year), and Ted is on the computer a lot. **Bill Bradley** is our other techie, and he is helping to get his magnificent teaching slides onto CDs so all can use them. **Ed Larson** is still hitting the downhill slopes with Eric Miller (late '60s alum), he takes at least one river trip a year, and recently cruised the Caribbean to check out some of the volcanos with other volcanologists. **Pete and Sue Birkeland** returned to Norway last winter for more cross-country skiing (the 3rd edition of the soils book must be selling!), he was involved with the GSA convention (talk and field trip with alums Penny Patterson and Ralph Shroba), and he and Sue never miss the Ancient Skiers (Seattle group) convention at Sun Valley. **Jim Munoz** will soon move to Helena, Montana, to live in his new house and pursue his photography interests in his beautiful new studio.

Donald D. Runnells retired as professor and chair of the Department at CU in 1993. Don taught in the Department for 24 years, including courses in geochemistry, ore deposits, computer modeling, petrology, and introductory geology. After leaving CU, Don and his wife Erika moved to Fort Collins, where he became president of a small engineering and environmental consulting firm, Shepherd Miller, Inc. Don has now partially retired from that firm, but continues to serve as a technical consultant and part-time employee. During 1999 he and Erika visited eastern and southern Germany, northern Italy, and Austria. Later in the year Don and his daughter Suzanne returned to Europe and, in the company of a small group of World War II veterans of the 28th infantry division, visited the battlefields of the Hurtgen Forest and the Battle of the Bulge in Luxembourg, Belgium, and Germany. Don reports that it was a profoundly emotional experience to be in the presence of the men who fought and survived some of the most terrible battles of that great war. In 2000 Don and Erika plan to return and spend some more time in the lovely Erzgebirge Mountains of the former East Germany, including visits to some more of the many historic mines that have been preserved and are open to tourists.

Colloquium speakers, 1999

John Wahr, CU Physics
Time-variable Gravity from NASA's GRACE Satellite Mission: What Will It Tell Us about the Earth and Its Fluid Envelope?

John Whitney, USGS Denver
Late Quaternary Deformation on the Ganges-Brahmaputra-Meghna Delta Bangladesh

Jack Farmer, Arizona State University
The Fossil Record of Hydrothermal Environments: Constraints on the Evolution of Thermophilic Ecosystems

Peter Molnar, MIT & CIRES Visiting Fellow
Role of Mantle Lithosphere beneath Continents as Seen with a Perspective from New Zealand

Sam Trumbull and **Brian Tucker**, Geohazard International
Development and Applications of an Earthquake Disaster Risk Index

David James, Department of Terrestrial Magnetism, Carnegie Institution of Washington
Anatomy of a Craton: Early Results from the Southern Africa Seismic Experiment

Brian Toon, Dept. of Atmospheric and Oceanic Sciences, University of Colorado
Clouds and Climate Evolution on the Earth

Hartmut Spetzler, CIRES & Geol. Sciences, CU-Boulder
Can We Detect Contaminants in Groundwater Using Seismic Methods?

Laural Goodwin, New Mexico Tech
Fluid/Fault Interactions in Poorly Lithified Sediments

Richard Gordon, Rice University
The Plate Tectonic Approximation: Plate Nonrigidity and Diffuse Plate Boundaries

David Des Marais, NASA/Ames Research Center
Long-term Evolution of Earth's Biogeochemical Carbon Cycle

Julian Sacks, CU INSTAAR
Abrupt Century-scale Climate Change Recorded in Subtropical North Atlantic Sediment Measured with Organic Biomarker Compounds

Steve Ingebristen, USGS - Menlo Park
The Permeability of the Continental Crust

John R. Underhill, Edinburgh (AAPG Dist. Lec)
Role of Propagating Normal Faults in Controlling Sequence Variability and Sediment Dispersal in Rift Systems

Donald C. Barber, CU – Geological Sciences
Did Catastrophic Meltwater Discharge Global Cooling 8,200 Years Ago?

Emily CoBabe, University of Massachusettes
Molecular Paleontology: Using Lipis to Explore Fossil Diets

Fred Luiszer, CU – Geological Sciences
Speleogenesis of Cave of the Winds, Manitou Springs, Colorado

Sidney Hemming, Columbia University
Isotopic Provenance Studies of Ice Rafted Detrius in Late Quaternary Sediments of the North Atlantic Ocean

Margaret J. Guccione, University of Arkansas
Life on the Mississippi: Meander Belts

Joseph R. Smyth, CU – Geological Sciences
Mineralogy of the Transition Zone: Water and the Fate of Subducted Slabs

Joseph R. Smyth, **Steven D. Jacobsen**, and **Hartmut Spetzler**, CU – Geological Sciences
Progress in High Pressure Mineral Physics: Boulder to Bayreuth

Alistair R. Brown, AAPG-SEG Distinguished Lecturer
Let the Data Speak to You: or How to Improve Your 3-D Seismic Interpretation

Craig Bina, Northwestern University
Phase Relations and Buoyancy Force in Subducting Lithosphere

Jonathan Caine, USGS Denver
Fault Zone Architecture and Permeability Structure

Gifford H. Miller, CU – Boulder, INSTAAR
Pleistocene Extinctions and the Australian Monsoon: Testing the Hypothesis of a Human Impact

Ray Fletcher, CU – Geological Sciences
Structural Geology on Ice: Ice Wedge Polygons and Folding in Polar Ice Sheets

Carol Finn (PhD '88), Scott Minor (MS '86), and Joe Rosenbaum (PhD '80) at the GSA alumni reception.

Kathy Nagy, Giff Miller ('70, PhD '75), and Eugene Shear ('48, MS '51) at the Department open house during GSA.

Own a Piece of Department History

For many years, the Department required that master's and Ph.D. candidates turn in a departmental copy of their thesis. This was in addition to the graduate school copy that becomes the library copy and an archival copy. Departmental copies are no longer required and we no longer have room to store these extra copies. We would like to offer them to alumni for the cost of shipping and handling ($25). An additional donation to the Library would be gratefully accepted, should anyone wish to do so.

Not every thesis is represented, since copies needed to replace any missing from the Library's circulating collection have been taken off the list and sometimes the Departmental copy was not submitted. Some copies may not have complete plates since they have been used to fill in for those missing from circulating copies.

You may view the list of the available theses on the departmental web page, www.colorado.edu/GeolSci and find order information there.

Own a piece of your own history!

Alumni career network for CU geology graduates

The Department's Advisory Board is soliciting expressions of interest in an Alumni Career Network program for recent grads and others who may benefit from it.

The board is looking for volunteers (the old grads) to provide advice, support, and encouragement from experienced geologists (or mentors) to students, recent grads, unemployed, and/or underemployed geologists (or protégés).

Many professional organizations (including AAPG, whose cooperation is appreciated) have formed similar mentoring programs.

The board envisions that some of the goals of CU's program should be to

- Give young geologists an opportunity to interact with experienced geologists and vice versa
- Counsel displaced, underemployed, and inexperienced geologists in career opportunities and development

Both face-to-face networking and telephone or web-based e-mentoring are envisioned. This is in addition to the Department's established program for mentoring students.

Mentors need only be experienced in geology, willing to initiate contact with the protégé, able to suggest discussion topics, and responsive to the protégé's questions.

Protégés are expected to let the mentor know what they hope to gain from the relationship, to reciprocate professionally when possible, and to treat the mentor as such, not as a job source.

Matches will made based on geographical proximity, employment with the same company, similar interests, educational fields, etc.

Anyone interested in this program (as a mentor or protégé, or for more information) is urged to write to the board via Matt Silverman at msilver@csn.net, or contact the department directly.

NEWS OF ALUMNI

Vic Baker
('71 Ph.D.)

Vic is currently Regents Professor and Head, Department of Hydrology and Water Resources, University of Arizona. In 1999, Vic was named an Honorary Fellow in the European Union of Geosciences. He was the Wreford Watson Lecturer at the University of Edinburgh, Scotland, and the Caswell Silver Distinguished Lecturer, University of New Mexico. He is immediate Past President of The Geological Society of America. Vic reports that his eldest son, Trent was married on 5/29/99 to Dawn Lowmar. Vic's wife Pauline continues as a studio art specialist in the Tucson schools and as a college instructor for Prescott College and Central Arizona College.

Claire Bates Davidson
('49 M.S.)

Clair credits CU with preparing and encouraging her to take the 1948 USGS Civil Service Exam which she passed and entered a lifelong association and career with USGS as a geologist. She retired in 1995 after almost 50 years with U.S.G.S.

Placido Dos Santos
('81 B.A.)

Placido is working for the State of Arizona's Environmental Agency as their border manager. He heads a team responsible for the U.S.-Mexico trans-boundary environmental issues involving air and water quality, and hazardous waste. Placido was recently appointed to serve on a committee that advises the President and Congress about environmental and sustainable development issues on the border. Placido and his wife, Betty, are avid scuba divers who enjoy exotic destinations like Fiji, Burma, and Thailand, but get most of their "bottom time" in Mexico's Sea of Cortez.

Bruce Alan Geller
('93 Ph.D.)

Bruce continues his mineralogic consulting. He states some of his more interesting projects are on fossilized dragonflies, gemstone studies on turquoise, metavarislite and foitite, and decorative stone projects in Brazil and Quebec. He has developed good sources for quality gem tanzanites. He sends congratulations to the Department for their involvement in the Colorado Scientific Society "student paper night" competition.

Charles G. (Gil) Mull
('57 B.S., '60 M.S.)

Charles has spent 35 years working with the National Petroleum Reserve in Alaska and adjacent foothills belt on basin evolution and hydro carbon potential of the Brooks Range and North Slope of Northern Alaska. He is looking forward, after the 1999 Alaska field season, to returning to his first love, which is the Colorado Plateau. He is looking forward to leaving the –42° F temperatures of Fairbanks behind.

William (Bill) D. Siapno
('53 M.S.)

Bill still works as a geological consultant and enjoys life in southwest Colorado. He only takes on jobs that are interesting to him and enjoys skiing, flying, bike riding, and a bit of fishing. He has known this part of the world since first graduating from CU in 1953 while working for AEC in Grand Junction. He was working with the Airborne Exploration Section and saw much of the western U.S. This was the beginning of remote sensing. After the uranium boom played out, he worked in lunar geology during the Apollo Program for North American Aviation in Southern California. Later he joined a small affiliate of Tenneco, US Steel, Sun Oil, Union Mniere of Belgium, and Samim of Italy exploring both Atlantic and Pacific oceans for manganese nodules. Lunar studies and deep ocean exploration utilized remote sensing. He feels privileged for the years spent in Boulder and appreciates every opportunity to visit.

Ed Larson (PhD '65) and Jack Edwards at the Department holiday party.

OBITUARIES

David Martin Seaman
('34 M.S.)

David Martin Seaman of Norway, Maine and Grand Junction, Colorado, died September 13, 1999. He received his master's degree in geology from the University of Colorado in 1934. He was Associate Curator of the Mineralogical Museum at Harvard University, Associate Curator at the Carnegie Mineralogical Museum at the Museum of Natural History, Associate Curator of Mineralogy at the American Museum of Natural History, Curator of the Minerals Museum of Western Colorado, and Curator of the Minerals Delta Museum, Delta, Colorado. He is survived by his wife, Thelma Seaman; daughter, Virginia Seburg; step children, Cindy Andrews, Diane Strout and William Dodge; and grandchildren, Kirsten, Kate, Mark, Nicole, Tracy, David, and Jessica.

Claud H. Baker, Jr.
('59 B.A.)

Claud H. Baker, Jr. of Baldwin City, Kansas, died December 20, 1998. Claud received his B.A. from CU in 1959. He began his first position with USGS as a G-4 in the lab of Dr. Ed Mckee sedimentology mapping in the Grand Canyon. Claud held positions with the USGS in Grand Forks, North Dakota and Utah before going to the national headquarters as part of the developmental team for applications for the "new-fangled" computer. The success of this enterprise was Claud's proudest professional accomplishment. He was then moved to the Lawrence, Kansas office of the USGS Water Resources division in 1977. He was "loaned" to the Foreign Service department to adapt his computer program for Saudi Arabia, a country with no permanent body of water. Later he was loaned to the U.N. for a similar project in India where there was water but everybody was downstream from someone else. Claud retired in 1993 and traveled extensively in Scotland and the U.S.A. until his death.

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