Down to Earth

Newsletter of the Geology and Geophysics Department
University of Utah, Salt Lake City, Utah

Spring 2003

New Gift Brings Proposed Building Closer to Realization

In January, the College of Mines and Earth Sciences received a pledge of an additional $5 million from Reverend Marta Weeks toward a new facility for the college. With this gift the building fund will contain $13 million, $11 million of it from Reverend Weeks whose father, Frederick Sutton, was a graduate of this college. The university's plan is to design the building to be built at an estimated cost of $14 million. There is an option that the facility could be expanded, depending on other donations, to include other items that would bring the total to $18 million. The architect's drawing shows the proposed building from the north, looking south, with the Browning Building in the background.

An effort to expand and improve the college's facilities is vital in an era when the earth sciences continue to take on more importance. As earth's resources are shared by an ever-larger number of people, the disciplines taught within the college must expand in scope and complexity to meet the world's needs.

The new building will provide modern space and equipment for activities currently housed in the Mines Building, built in 1927. The old building can no longer support faculty or students because it is inadequate in power, ventilation, central heating and cooling, plumbing, and access for the disabled, let alone modern office and laboratory operation. Faculty and graduate students are reluctant to have offices in the building for any number of these reasons, but primarily because of the frustrations inherent in trying to conduct modern research in a facility that was built on nineteenth century designs. As an example, since the windows don't close, the amount of dirt filtering into the rooms precludes use of modern computers and other scientific instrumentation.

The new facility will allow the college to consolidate its activities within two buildings instead of the nine scattered sites where they are now located. This will increase operational efficiency as well as communication among its members. Geology and Geophysics would be the principal tenants of the new space with the Mining, Metallurgy and Meteorology departments housed in the William Browning Building next door.

Proposed New Frederick Sutton Building

If you have any ideas for generating additional funding, please communicate with Dean Frank Brown (fbrown@mines.utah.edu).

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In this Issue

For additional information, suggestions, or comments, contact:
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Department Statistics

Enrollment	2002-2003
Undergraduates	65
M.S. Students	49
Ph.D. Students	29
Post-Doctoral Fellows	3

Message from the Chair

Dr. Marjorie Chan

Greetings from the Deptartment of Geology and Geophysics! What you are seeing is a first for us (Drum roll please!) and we're very excited about our new Newsletter! As our activities expand, so does our readership among alumni and friends. Because not everyone received the informal Fall 2002 newsletter, we are reprinting some articles so that no one will miss out. Please bear with us for a few of the repeats. We hope you'll like the new look and enjoy having more information about the department. We especially acknowledge Susan Fisher, one of our alumni who helped with this newsletter.

We have made a special effort to include more information about our alumni, so continue to send in your news. A lot is happening in our department! We've had changes in the faculty with the 2002 retirements of Bill Parry (clay mineralogy) and Duke Picard (sedimentary petrology). Their replacements, Fulvio Tonon (geological engineering) and Cari Johnson (basin analysis and petroleum geology), will help take us in new, exciting directions. In addition to faculty research milestones, some of our successful programs this year included: the Petroleum Industry Career Path (PICP) program; career days for both undergraduate and graduate students; the Distinguished Lecture Series; reinvigorgation in Geological Engineering, and a number of outreach efforts.

This newsletter also tells you about our accomplishments and goals, which include being in a new building, hopefully by 2006. This is especially good news. The building will help provide the space and technology to lead us into the next decades. We want to continue to attract and maintain good faculty, and to attract and produce good students. Students are our lifeblood and are the reason we are here. We have excited young people who are movers and shakers. Some things change, but the basics and desires to get out in the field are still at our core.

We hope our alumni and friends will stay in touch. We want to know where our students have gone and how the training from our department has helped in career advancement. If you are in town for the AAPG meeting, please plan on attending our Utah alumni private party on May 12, 2003, from 5:30-7:30 PM in the Little America Ballroom A. We will have other Utah alumni events at the annual SEG and GSA meetings, so look for us there. Feel free to drop us an e-mail, give us a call, come to our alumni events or stop in and visit when you are coming through Salt Lake City. We look forward to seeing and hearing from you.

On behalf of the department and with all our best wishes,

Marjorie A. Chan, Department Chair

Our New Petroleum Industry Career Path (PICP)

The Petroleum Industry Career path (PICP) is designed for students who wish to explore opportunities or specifically focus on training for a career in the petroleum industry. PICP started as a grass roots initiative among our faculty.

Dennis Yanchak and Mark Vandergon of BP

Although the department has a long history of placing students with petroleum companies, our motivation for developing the program was to increase student awareness of industry careers and to enhance the marketability of our students with petroleum companies. The key was to develop an introductory program early in their graduate work, providing them with classroom experience related to petroleum geology and geophysics.

The program was developed in consultation with industry alumni and personnel, and is partly supported by industry sponsors. The department was fortunate in being able to engage the expertise and experience of a number of outstanding alumni. Dr. Matt Mikulich, one of our adjunct faculty and an alumnus with extensive industry experience, was instrumental in helping design our program.

PICP Elements

There are four major components to this program:

— *A career seminar* given annually is aimed at raising student career awareness. See the article on "Career Day" in this Newsletter.

— *Four new petroleum industry core classes.* One credit hour each, 7 weeks for 2 to 3 hours per week. These classes are specifically designed to accommodate students with different backgrounds and interests.

- The introduction and the petroleum prospect evaluation modules are taught by Dr. Bob Bereskin, another of our adjunct faculty, who has more than twenty years of experience in Rocky Mountain exploration.
- The petrophysics module is taught by Dr. Rich Jarrard of our faculty. This module covers operations plus principles and interpretation of common well logging tools.
- The seismic interpretation module has been co-taught by faculty member Dr. Jerry Schuster and Utah alumnus Mark Turner, who brings more than seventeen years of industry interpretation experience.

— *Petroleum track curriculum*

- Advanced courses in applied geology and geophysics
- Industry topical seminars and lectures
- Research and thesis projects

— *Practical experience*

- Students are strongly encouraged to obtain job experience by actively seeking an internship in the petroleum industry.
- Cooperative industry research projects

Now in its second year, by all measures the PICP program is successful. Both undergraduate and graduate students have been enthusiastic about the classes. Interviewers routinely comment on the increased interest and enthusiasm of our students when they visit campus, and companies are increasing their support of our program through donations, providing guest lecturers, and inviting our students on field trips

Faculty News

Zhdanov Inducted Into Electromagnetic Academy

In December 2002, Professor Michael Zhdanov became a member of the Electromagnetics Academy, USA. This organization is devoted to academic excellence, the advancement of research and relevant applications of electromagnetic theory, and to promoting educational objectives of the electromagnetics profession. Induction into membership in the Academy is an honor in recognition of scholarly achievements and distinguished educational and professional services.

Dr. Zhdanov with Dr. Erik Banning from Shell

Geological Engineering Gets a New Face

In spring, 2002 we welcomed assistant professor Dr. Fulvio Tonon, the newest addition to the geological engineering faculty. His undergraduate work was at the University of Padua in Italy and his graduate work was completed at the University of Colorado at Boulder.

Dr. Fulvio Tonon

Fulvio has worked for a number of years as a consulting engineer in the Americas, Europe and Africa. He has been involved in projects as diverse as a tunnel for the Seattle Light Rail Line and the foundations for a factory in Costa Rica that was located in chaotic soils as well as in a seismic zone. In Italy, he worked to construct a tunnel while preserving a historically important Italian abbey above it. Closer to home, he has participated in an *in situ* stress measurement program at the Seminoe dam south of Casper, Wyoming.

Dr. Tonon is helping to build our geological engineering program to meet Accreditation Board of Engineering Technology (ABET) criteria. He immediately became involved in the departmental curriculum by designing a project for the geological engineering design class patterned after a real design process, from the preparation of technical reports and drawings to the design of a foundation in unstable ground. He is also putting together other classes which will serve both the geological engineering undergraduates, graduates and industry folks who are interested in reviewing current geological engineering methods or updating their skills.

His research interests are in the area of geomechanics, particularly in rock mechanics and rock engineering, numerical modeling, underground excavations, mechanized tunneling, and uncertainty models. He is also interested in design process and optimization as applied to civil engineering.

Return of the Native

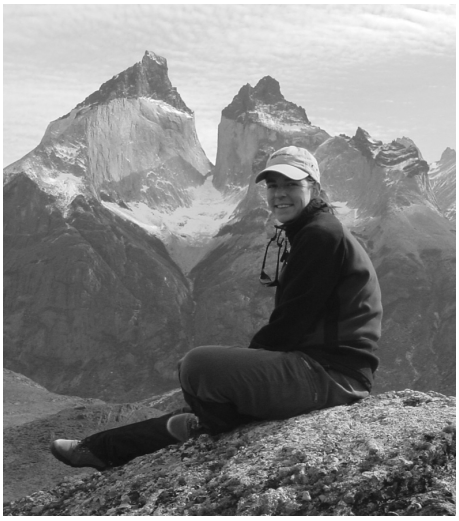
New assistant professor Cari Johnson came to us in the fall of 2002 from Stanford University, where she received her Ph.D. She had gone to high school in Salt Lake City and claims, “I’ve been looking for a way to get back to Utah ever since I left. I can’t think of a better place for a sedimentologist to live – there is so much great geology right here in our own backyard.”

She received her undergraduate degree from Carleton College in Northfield, Minnesota. While at Carleton she participated in a number of faculty-led research projects, including a study on the Troodos ophiolite in Cyprus that turned into a senior thesis project. Of the experience she says, “Not only did I realize that I wanted to be a geologist, I also learned the importance of involving undergraduates in exciting and important research.”

Her dissertation led her to spend five field seasons in China and Mongolia, working to understand the Jurassic-Cretaceous sedimentary record of intraplate extension in this virtually undocumented field area. She used a variety of techniques including outcrop and core facies analysis, integration of seismic reflection and borehole data, documentation of a metamorphic core complex, basin modeling, molecular organic geochemistry of lacustrine source rocks, and $^{40}Ar/^{39}Ar$ geochronology. She says she also acquired an unofficial degree in “1001 Ways to Eat Goat Meat”.

Her work continues to involve a wide range of basin analysis tools to decipher sedimentary basin evolution, hydrocarbon potential, and petroleum systems development.

Currently, she is working to establish a sequential stratigraphic framework for Cenozoic strata of the San Joaquin basin in California where she finds a remarkable history of local and global sea level fluctuation, as well as the transition from a forearc to transverse-margin basin. She has found that while the geology of central California may be better documented than that of southern Mongolia, there is still no shortage of interesting questions to be answered.



Dr. Cari Johnson

We didn’t have enough room to cover all the faculty research activities in this newsletter issue, but you’ll see more of what we are doing in subsequent issues. Stay tuned!

Professor Bob Smith Named to Chair the New NSF EarthScope Science and Education Committee

Bob Smith was recently named the chairman of the new EarthScope Science and Education Committee (ESEC). Dr. Smith served on Earthscope's organizing committee and will be heading a ten-member panel of prominent earth scientists from across the nation. The panel will oversee the ten-year EarthScope program with its budget of approximately $355 million.

Dr. Robert Smith

The EarthScope project is a scientific initiative using the North American continent as a natural geologic laboratory to advance our understanding of the structure, evolution, and dynamics of earth from the core to the surface. The ESEC will provide leadership and will help to develop the broad array of research opportunities enabled by this first large-scale major research equipment facility in the National Science Foundation's Earth Science Division. EarthScope will encourage participation from all sectors of the earth sciences, offering a centralized forum for earth science education at all levels. In the years to come, it will provide both undergraduate and graduate earth science students with unexcelled access to diverse data sets and information technology.

Geologic objectives include focused research on fault properties and the earthquake process, crustal strain transfer, magmatic and hydrous fluids in the crust and upper mantle, plate boundary processes, large-scale continental deformation, continental structure and evolution, and deep-earth structure.

Over the next decade EarthScope will provide a high-resolution, coherent seismic image of the earth's interior beneath North America and will measure plate deformation at continental scale using GPS and InSAR satellite methods. Current plans are for a 2000-station seismic array, a 1500-station GPS array, a drill hole into the San Andreas fault and a dedicated satellite mission to provide radar images of ground deformation.

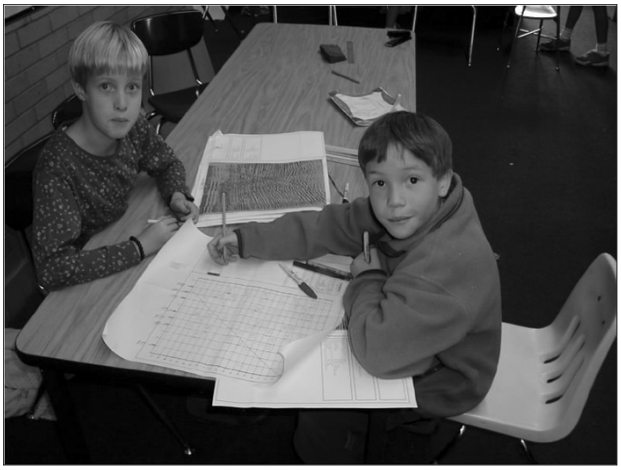
Information about EarthScope can be found on the web at: http://www.earthscope.org/

Schoolyard Seismology

Dr. Gerard Schuster of our department has shown that the principles of seismology aren't beyond fourth graders. As a cooperative teacher in his daughter Sarah's classroom, he introduced Sarah and her classmates to algebra in the third grade, and they learned to solve equations. Their next school year, he decided to show the fourth graders how math works with science and he used his own discipline as an example. "That's what geophysics is," he said. "It uses math and physics to solve problems in earth science. "

With a group of eight students, he began teaching the art of interpreting, processing and collecting seismic data. Dr. Schuster explained seismlology to the students using the analogy of a camera, explaining that a "seismic camera" can make images of the Earth's interior, down to seven miles. With the help of graduate student Travis Crosby, the children made recordings of the schoolyard's underground geology. They set up the apparatus themselves, using a dozen geophones lined up about a yard apart and substituting small sledge hammers for "thumper" trucks. One geophone showed no reactions, just a straight line. When the students were asked why, they came up with various theories and finally one hit on the real cause: it was not connected. Elated, they ran off to correct the problem. Crosby said the data the youngsters gathered in their schoolyard were detailed enough to detect bedrock below.

Schuster was able to provide students with three-dimensional seismic data, donated by ExxonMobil, showing geological structures beneath the Gulf of Mexico. He taught them about rock formations, how their depth can change, and how oil can follow the layer's contours. With help, students chose a horizon to map and estimated where the oil was. They made a pretty accurate guess. "What they learned was that big grids of numbers, matrices, have physical meanings", he said.



Students interpret and color seismic lines

Among the lessons Schuster learned are that we may often underestimate children's abilities, that many of them are ready and able to learn on a much more sophisticated level. He also noted the dedication and hard work on the part of teachers who must cope every day with overloaded classrooms and limited resources. Dr. Schuster published the classroom exercise plan in the SEG journal, *Leading Edge* and also has the plans available at: utam.geophys.utah.edu/sarah.

Geology and Geophysics Loses Former Chairman and Friend

Dr. Stanley H. Ward, Emeritus Professor of Geophysics and chairman of our department for ten years, died July 28, 2002 in Anacortes, Washington. A gifted scholar, teacher, and administrator, his interests included applications of electromagnetics to hydrogeology, mineral exploration, geothermal reservoir description, earth tectonics, and the lunar crust. He also founded the Earth Science Laboratory of the University of Utah Research Institute in 1977. After retirement from the University of Utah, he held appointments at the University of Arizona and the University of British Columbia. Himself equally at home in the field and in the laboratory, he believed in a broad education for geoscientists and tried to ensure that his students understood the geological background for their geophysical endeavors. We will miss hearing his voice from the back of the lecture hall hailing a soft-voiced speaker, " Speak up, we can't hear you". No one had to tell him to speak up and we all benefited from it.

Department Activities

Earth Sciences Hold Career Seminar

Last August the department held its second Earth Science Careers Seminar. This time it was held on two consecutive afternoons, with graduate students participating on the first day and undergraduates on the second. Heading the seminar was Dr. Matt Mikulich, a graduate of this

Craig Nelson of Western GeoLogic speaks on geotechnical careers

department, who was appointed an adjunct professor in 2001 after he retired from Chevron as a chief geophysicist. The sessions began with informal introductions and concluded the second evening with a barbecue dinner for all participants served in the Rock Garden. The dinner, attended by students, faculty members and the dean, provided additional opportunity for the students to continue their discussions informally.

These seminars are intended to make students aware of employment possibilities in the earth sciences, exposing them to specific career options early in their academic careers so that they can prepare for what they want to do after graduation. This year there were discussions of career opportunities and job activities in the six principal career paths for geoscientists: petroleum, mining, geotechnical disciplines, the environment, government, and academia.

Students received some insight into the job market and compensation. Statistical data were presented indicating the number of earth scientists currently employed in each career path, together with starting salaries and long-term compensation. Students also saw data about their competition, that is, how many U.S. graduates there are at the B.S., M.S. and Ph.D. levels each year, and where they have been going to work. The projected demand for new hires in each career path was also discussed.

Exercises gave students tools they can use in their job search. In different sessions, students considered the attributes they valued the most in a job, what companies and employers are looking for in prospective employees, and what the concept of "adding value" means to your employer. An experienced college recruiter gave tips on effective resume and interview tactics. Finally, there was a discussion of how habits such as personal integrity, doing more than expected, getting along with co-workers and being enthusiastic and committed lead to success in any workplace.

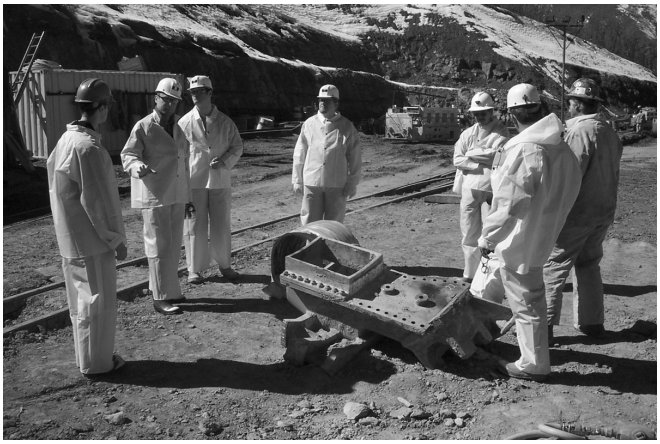
Judging by the attendance, attention and participation during the sessions as well as the written and verbal feedback gathered afterward, the seminar was successful. In terms of personal value, participants scored it from "very good" to "excellent". Comments such as, "It opened my eyes to possible employment in earth science", and "It took the idea of having a geologically related job out of the abstract and put some reality into it", to "It gave me a good view of where I need to head", indicate some of the insights that attendees gained. Members of the faculty report that they have received many positive comments from students who attended the seminar and have noticed an increased interest in taking part in on-campus interviews. As a result, the department plans to present the seminar again, working to make it of even greater value to the students in the future.

Uniting Geology and Engineering

Geological engineering integrates two disciplines: geology and engineering. Geologists study the earth, its composition and structure, its history and its past plant and animal life. Engineers apply scientific knowledge and experience to design and analyze systems for the benefit of mankind.

Geological engineers solve engineering problems and design engineering systems with, on, and in geological materials, while at the same time considering the environment. Fields of study include:

- Designing structures in soil and rock for foundations, dams, tunnels and caverns.
- Characterizing and managing water resources.
- Mitigating geologic hazards such as earthquakes, landslides, debris flows and volcanoes.
- Protecting the environment through remediation of polluted sites, proper waste disposal and erosion control.



Tanner Ridge Tunnel portal at Diamond Fork, UT

The undergraduate program in geological engineering is reviewed and accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology, Inc. (ABET). This degree program is designed for students who have the aptitude to master engineering fundamentals but who also have the curiosity to apply their engineering training in the context of the physical earth.

Design experiences aimed at incorporating real-world constraints into solutions to engineering problems are introduced early in the curriculum and culminate in two capstone engineering design experiences taught within the context of groundwater remediation and geological hazards. Students must pass the Fundamentals of Engineering Examination in order to graduate, thereby allowing them to begin training for professional engineering licensure immediately upon graduation.

The mission of the geological engineering program is to educate and train through teaching, research and service the critical thinking and communication skills necessary to help solve engineering problems and design engineering systems within the context of the natural earth.

If you want to know more about the Geological Engineering program, please visit our web site at: http://www.inscc.utah.edu/~tonon/Geological_Engineering/Index.htm

Department Reaches Out to the Community

With a long-term goal of increasing enrollments in Geology and Geophysics courses and also the number of departmental majors, we kicked off a season of enhanced educational outreach activity with a major effort at the Society of Exploration Geophysicists (SEG) annual meeting at the Salt Palace last October.

Middle school students from throughout Salt Lake City attended a keynote speech by renowned explorer and oceanographer Robert Ballard on his discovery of the Titanic and his more recent work documenting aspects of the biblical Noah's flood in the Black Sea area. At an SEG-financed lunch afterwards for more than two hundred students, Dr. Margie Chan introduced earth science careers and Geology and Geophysics programs and research at the University of Utah. Faculty and graduate student volunteers staffed a display of fossils and minerals, fielded questions from students and distributed department brochures.

The ad-hoc faculty committee for educational outreach, including Drs. David Dinter, Erich Petersen and Barbara Nash, also coordinated displays on campus at Plazafest and Science Day, and provided curriculum material to local secondary school science teachers. Generous volunteer support from Geology and Geophysics graduate and undergraduate students, particularly Brenda Beitler, Lori Chadwell, Travis Crosby, Alisa Felton and Courtney Neuffer, was key to the success of these efforts.

Additional outreach activities have included docent training and a half-day geologic field exercise from middle school students in Red Butte Garden, service judging at the Utah Engineering Experiment Station's entry at the Salt Lake

Potential students check out Science Day

Regional Valley Science and Engineering fair, introduction of geology courses and major and minor programs to the University College advising staff, athletic program recruitment, and an earth science presentation to at-risk high school students. A new EarthScope program, directed by Dr. Bob Smith will provide a host of new outreach opportunities beginning next year.

Departmental Field Trips

Students still go on a number of field trips and we highlight several that occurred this year associated with courses. However, the spotlight was really the Kenya field trip led by Dr. Frank Brown and Kenyan native Patrick Gathogo (M.S. student).

East African Geo Systems

Fall, 2001 graduates of the Reviews of Earth Science class spent two weeks of August, 2002 in Kenya. The field trip was the culmination of a student-organized seminar, "East African Geo Systems." Students of all disciplines

Patrick Gathogo, M.S. student

had an opportunity to share expertise and observe first hand a wide range of geologic processes. Saline-alkaline lakes sitting in the flat bottom of the rift valley flanked by escarpments thousands of meters high provided a general backdrop for the excursion. Vertebrate taphonomy, grassland ecology, and hours of fantastic bird watching supplemented the standard geologic agenda. Among the non-geologic highlights were boiled flamingos, a warthog with a hole chewed in its hind leg and a male lion chasing vultures off a wildebeest kill.

The trip was made possible with support from the Geology Department, the College of Mines and Earth Sciences, ASUU, and several private donors, including a substantial donation from a friend of the department. Enough funding was secured so that each graduate student had to contribute only $500 to the travel fund, a veritable bargain and the trip of a lifetime.

Seismic and Sequence Stratigraphy

Dr. Cari Johnson led a field trip held jointly with representatives from the University of Minnesota and BYU. The purpose of the trip was to look at some classic para-sequence sets from both wave-dominated and fluvial/deltaic-dominated shorelines, particularly in the Ferron and Blackhawk Formations.

Geological Engineering and Engineering Design

Dr. Fulvio Tonon and the Introduction to Geological Engineering and the Geological Engineering Design students spent a day in March, 2003 in a tunnel in the Diamond Fork Canyon area in Spanish Fork Canyon. They observed how it diverts water and prevents stream bed erosion. The students were able to see the inside of the tunnel and learned how engineers have solved unexpected problems.

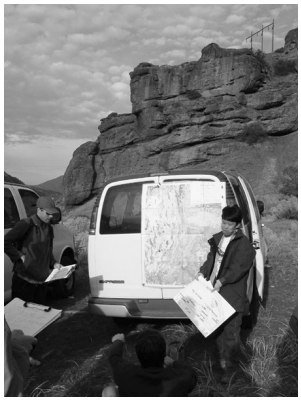
Fossils and Their Environments

Dr. Tony Ekdale's Introduction to Paleobiology class took two spring trips in Utah to collect invertebrate fossils. The first trip focused on Paleozoic marine life in the House and Confusion Ranges, the second on Mesozoic and Cenozoic forms in the San Rafael Swell.

During September of 2003 Dr. Ekdale will take his Paleoecology class to the Gulf of California in northern Mexico to study the ecology, paleoecology and sedimentology of the intertidal zone in that region, comparing the Pleistocene with the present.

Stratigraphy and Sedimentology

In late September, 2002 Dr. Margie Chan's stratigraphy and sedimentology class took a field trip from Salt Lake City to Price, Utah. They examined the Cretaceous beach sandstones and took in a little sun.



Dr. Margie Chan

Ore Genesis

In March, 2003, SEG student chapter members and students of ore deposits, led by Dr. Erich Petersen went to Goldfield, Nevada, to look at the on-going exploration for a possible gold mine. They visited Round Mountain, Nevada, to get a glimpse of an operating gold mine.

Cassidy McCalister, Anthony Lowe, Xiewen Sun, Jenny Szabo, Bob Benett, Hector Suaez, Erich Petersen, Jason Babcock in Goldfield, NV

Student News

Activities of the University of Utah Student Chapter of the AAPG

Talks:

Dr. Bob Bereskin

About fifty students, most of whom are members of our student chapter, attended and enjoyed the pizza provided by the chapter. They heard Bob Bereskin's talk, "Shale Gas of the Western Interior: Unconventional Reservoir of the Future," that focused on a case study of the petroleum potential of the abundant Cretaceous interior shales that have been traditionally overlooked in the past.

Bob Bereskin and students discuss shale gas

Dr. Bereskin teaches "Introduction to Petroleum Systems" and "Prospect Evaluation" in our new Petroleum Systems Career Path (PICP) course series. He has worked in academia and in the petroleum industry and is an often-published expert in unconventional reservoirs in the Uinta Basin. His experience in the petroleum industry here in Utah and his unique charisma and speaking skills made for an excellent talk.

Dr. Cari Johnson

In January, 2003, Dr. Cari Johnson, our new sedimentology professor and newly appointed AAPG student chapter faculty advisor, gave a talk light-heartedly titled, "1001 Ways to Eat Goat Meat: Trials and Tribulations of a Petroleum Geologist in Southern Mongolia." On the professional side, she spoke about the sedimentary record and tectonic implications of Mesozoic rifting in the East Gobi basin in southern Mongolia. She also talked about the evolution of petroleum systems in the region and the types of tools used to analyze the petroleum history of a region. She showed a great video that focused on the unique cultural differences in Mongolia that make field work both challenging and exciting.

Michael Abrams

In February, 2003, Michael A. Abrams from the Energy and Geoscience Institute talked about "Understanding the Distribution of Petroleum (Oil and Gas) in the South Caspian Basin Using Geochemistry."

He pointed out that the South Caspian Basin petroleum accumulations are due to a unique set of paleogeographic and tectonic events resulting in one of the most dynamic petroleum systems in the world. Rapid subsidence resulted in thermal non-equilibrium, extensive secondary and tertiary migration pathways, development of pressure cells, entrapment of early biogenic gas, multiple hydrocarbon charges and differential hydrocarbon entrapment/loss.

AAPG Student Chapter upcoming events

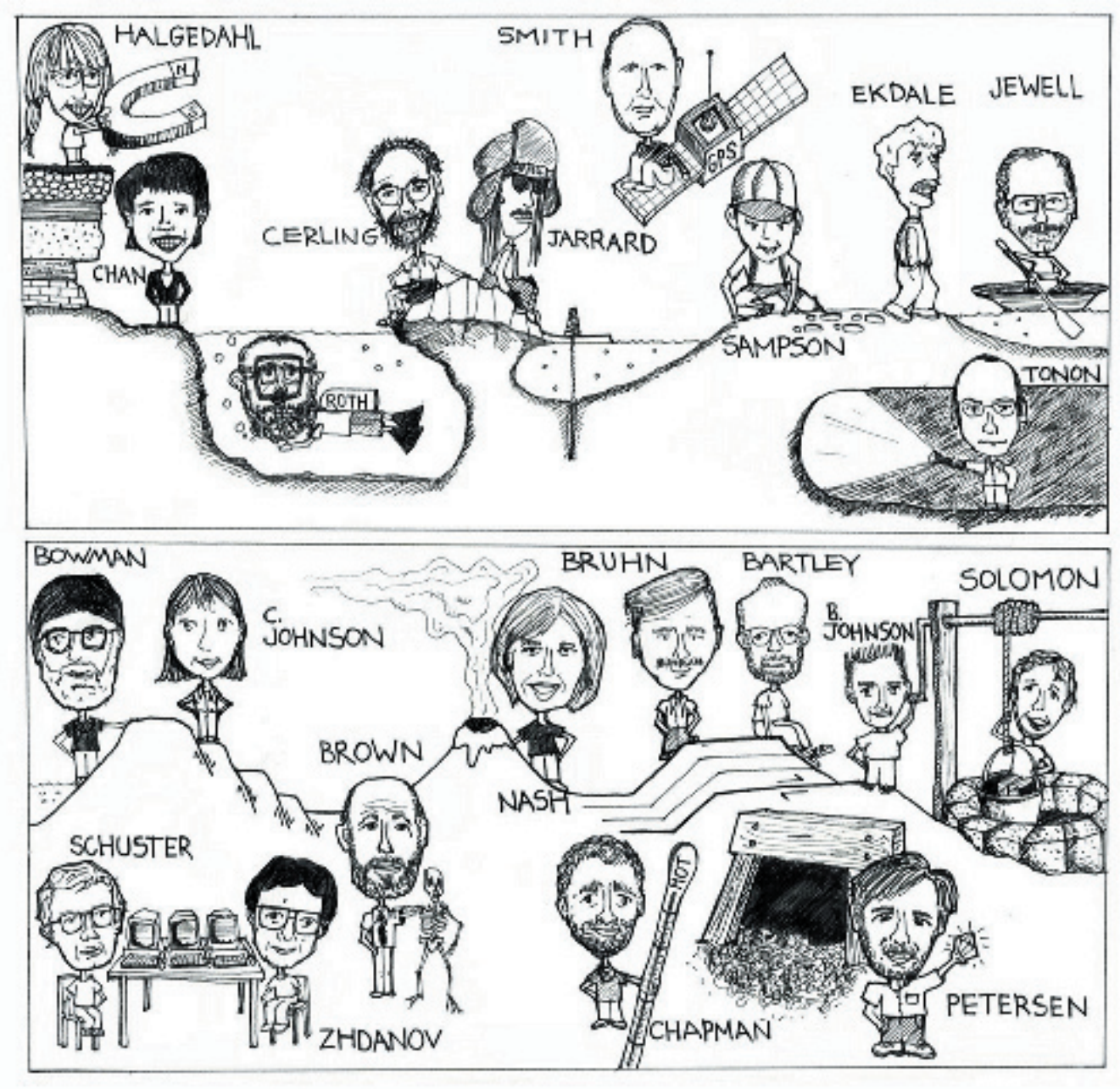
The chapter is looking forward to an active season.

- In **April**, the chapter will host a silent auction at the Geology & Geophysics spring picnic. Look for the AAPG student chapter T-shirts to go on sale. In addition, there will be student chapter officer elections.
- During the AAPG convention (**May 11-14**) here in Salt Lake City, the AAPG student chapter will sponsor a booth.
- In **August 2003**, the new student chapter officers will take over their responsibilities.
- Next year, students will continue outreach efforts, visiting local middle school classrooms to talk about why they enjoy the earth sciences.

AAPG Student Chapter Field Trip to the San Rafael Swell

A few students braved the forecasts of inclement weather for the March, 2003 field trip through the Sanpete Valley and San Rafael Swell of Utah. Armed with Dr. Bill Parry's (Emeritus faculty) trip guidance, they examined the effects of evaporite movement in the Jurassic Arapien Shale and hiked through magnificent exposures of Permian to Late Jurassic rocks. In limey shales of the Black Dragon Member of the Moenkopi Formation, they cracked open geodes to find strong-smelling black hydrocarbons.

Our Geology and Geophysics Faculty at Work



T-Shirts Immortalize Faculty

As their fund-raising project, our AAPG Student Chapter is marketing a T-shirt that's sure to immortalize our faculty and delight everyone who knows them. It was designed by Doug Schmitt, one of our former undergraduate majors who is now in the graduate program. Can you decode each faculty member's specialty from the picture?

If you're stumped by any of them, the answers are on page 11. If you'd like to have a shirt, send in the order form at the end of this newsletter and we'll be happy to mail it to you.

Third Annual Geo-Winter Adventure

This year's Geology and Geophysics winter event, held at the Wasatch Mountain Club, provided a terrific opportunity for graduate students from the geology and biology departments to get to know each other. It was sponsored by the student chapters of the American Association of Petroleum Geologists (AAPG), the Association of Economic Geologists (AEG), and the Society of Mining Engineers (SME) as well as the Mining, Geology and Geophysics student advisory committees. The chili was delicious! We hope to encourage more participation next year with these observations from some of those who attended the snowy event:

"It was great to get out into the snow and share good food with the folks we normally only see in the computer lab." *–Brenda Beitler*

"A small group of intrepid individuals rode their shovels off the roof! —*Scott Hynek*

"There was plenty of cameraderie, and fireside conversation lasted late into the night""—*Eric Cline*

"Old tele-skiers can still ski the trees! While it's snowing! In the dark!! Drop knees, not bombs!" —*Sue Lutz*

Students enjoying themselves at the Wasatch Mountain Club

Answers to "Faculty at Work"

Regular Faculty

John Bartley	*Structural geology*
John Bowman	*Isotope geology*
Frank Brown	*Geochronology*
Ronald Bruhn	*Structural geology*
Thure Cerling	*Geochemistry*
Marjorie Chan	*Sedimentology*
David Chapman	*Heat flow*
Tony Ekdale	*Invertebrate Paleontology*
Susan Halgedahl	*Rock magnetism*
Richard Jarrard	*Well logging*
Paul Jewell	*Hydrology*
Cari Johnson	*Sedimentology*
William Johnson	*Geological engineering*
Barbara Nash	*Igneous petrology*
Erich Petersen	*Economic geology*
Peter Roth	*Micropaleontology*
Scott Sampson	*Vertebrate Paleontology*
Gerard Schuster	*Exploration seismology*
Robert Smith	*Earthquake seismology*
Kip Solomon	*Groundwater hydrology*
Fulvio Tonon	*Geotechnical engineering*
Michael Zhdanov	*Electromagnetics*

Additional faculty not pictured on page 10, but still important to our mission:

Lecturers
David Dinter
Robert Harris

Research Faculty
Walter Arabasz
Linda Ayliffe
Craig Forster
Nikolay Golubev
Desmond Moser
James Pechmann
Alan Tripp

Adjunct Faculty
Richard Allis
Lukas Baumgartner
Harley Benz
Stephan Brown
John Harris
James Kirkland
Bruce MacFadden
Chuck Meertens
Matthew Mikulich
William Pariseau
Michael Perkins
Gregory Roselle
Virginia Sisson
Philip Wannamaker

Scholarships 2002-2003

Undergraduate Departmental Scholarship

Frischknecht Scholarship
Laurel Wright

Chevron Exploration and Production Services Scholarship
Kevin Sullenberger

Undergraduate Scholarship in Geophysics
Kevin Sullenberger
Laurel Wright

Matthew Mikulich Undergraduate Scholarship in Geophysics
Laura Russon
Daniel Smith

Ken & Nedra Bullock Keller Scholarship
Robert Hernandez
Courtney Neuffer
Andrew Burr

Mineralogical Society of Utah Memorial Society
Ammon McDonald

Dorothy Rice Goode Scholarship
Melissa Masbruch
Stephanie Earls

Gerald W. Hohmann Memorial Scholarship
Justin Keener

Chair's Communication Scholarship
Jennifer Swift

University of Utah Special Departmental Scholarship
Andrew Hayes
Bradley Murray
Adam Williams

Kennecott Scholarships
Eric Sahm
Laura Gee
Melissa Masbruch

Dean's Office Scholarships

Dean's Office Alumni Scholarship
James Pearce

Thomas Parry Billings Scholarship
Anjanette Marx

Etta Keith Eskridge Scholarship
Sara Baldwin
Theresa Hilbert

Kennecott Meritorious Scholarship
Elizabeth Siebeneck

Cooper-Hansen Undergraduate Scholarship
Michael Fillnow
Douglas Wesemann
Wayne Crowther
Benjamin Davis
Dallas Rippy
Brian Baziak
Bradley Didericksen
Paul Kuehne
Lizel Allen
Anthony Pollington
Jeanne Richter
Brian Sparks
Andrew Haynes
Stephanie Earls
James Pearce
Emily Yeager
Theresa Hilbert

Graduate Fellowships

Geophysics Fellowship
Derrick Hasterok

Chevron Graduate Fellowship in Geophysics
Marcie Kerneklian

Eardley Graduate Fellowship
Alisa Felton
Philip Gardner

Cooper-Hansen Graduate Fellowship
Andrew Castor

David Petersen, Aaron Norton, and Dr. Frank Brown at an Awards Ceremony

Degrees Awarded in 2002-2003

Graduate Degrees

Ph.D. Geophysics

David Handwerger, 2003, "Core- and Log- Based Geophysical Methods for Investigating Neogene Deposition on Continental Margins of the Southern Ocean"

Weidong Li, 2002, "Modeling and Inversion of Time Domain Electromagnetic Data"

Salah Mehanee, 2003, "Multidimensional Finite Difference Electromagnetic Modeling and Inversion Based on the Balance Method"
Scott Putnam, 2003, "Analysis of Air and Ground Temperatures for Detecting Climate Change"

Ph.D. Geology

Cassandra Fenton, 2002, "Pleistocene Lava-Dam Outburst Floods, Western Grand Canyon Arizona"
Victor Heilweil, 2003, "Recharge to the Navajo Sandstone Aquifer of Southwestern Utah"
Andrew Manning, 2002, "Using Noble Gas Tracers to Investigate Mountain-Block Recharge to an Intermountain Basin"
Ann Mattson, 2002, "
Amy Sheldon, 2002, "Diffusion of Radiogenic Helium in Shallow Groundwater: Implications for Crustal Degassing"

M.S. Geophysics

Jill Krukoski, 2002, "A Geologic Database (GEOGIS) and Three-Dimensional Inversion for the Density Structure of the Yellowstone Volcanic System"
Imam Raharjo, 2003, "Magnetotelluric Interpretation of the Karaha Telaga Bodas Geothermal System, Indonesia"

M.S. Geology

Alison Alcott, 2002, "The Structural and Hydrologic Features of the Emigration Canyon Syncline"
Jacob Benner, 2002, "Ichnology and Cyclic Stratigraphy of the Lower Ordovician Fillmore Formation at Skull Rock Pass, Millard County, Western Utah"
Scott Hynek, 2003, "Middle Eocene Depositional Systems of Western Wyoming"
Rebecca Kessler Cardoso, 2002, "Timing and Mechanics of the White Pine Rockslide in Little Cottonwood Canyon, Salt Lake City, Utah"
Jesus Noel Carreon-Pallares, 2002, "Structure and Tectonic History of the Milpillas Porphyry Copper District, Sonora, Mexico"
Wesley Christensen, 2002, "Development of High Temperature Fracture Permeability in the Alta Stock, Utah: Constraints from Thermal and Isotopic Evidence Preserved in the Contact Aureole"
Rose Difley, 2002, "Biostratigraphy and Paleoenvironments of the Cretaceous-Tertiary (K-T) North Horn Formation in the Wasatch Plateau, Central Utah"
Patrick Gathogo, 2003, "Stratigraphy and Paleoenvironments of the Koobi Fora Formation of the Ilert Area, Northern Kenya"
Matthew Gregory, 2002, "Nearshore Lithofacies and Landform Development in the Late Pleistocene Bonneville Basin, Traverse Mountain and Hogup Areas, Utah"
Niall Henshaw, 2002, "Temperature of Silicic Magmas from the Yellowstone Hotspot"
David Marchetti, 2002, "Cosmogenic 3-Helium Exposure Age Dating of Pleistocene Deposits in the Capitol Reef Area, Utah"
Margarett McIntosh, 2002, "Assessment of Aerosol MA-801/Trichloroeothylene Microemulsion Stability during Transport through Quartz Sediment"
William McIntosh, 2002, "Field Investigations of Bacterial Transport through Aquifer Media"
C. Shaun Peterson, 2002, "4-helium Diffusion Analysis of Glacial Tills Surrounding Fremont Lake, Wyoming"
William Phelps, 2002, "Comparative Ichnology of Pleistocene Eolianites and Modern Coastal Dunes, Puerto Penasco, Sonora, Mexico"
Ian Schofield, 2002, "Longshore Transport and Surface Wave Modeling Associated with Spit Formation in Pleistocene Lake Bonneville"
Michael Vanden Berg, 2002, "The Use of Light Absorption Spectroscopy as a Mineral Identification Tool: Implications for the Study of Cenozoic Paleoclimate"

M.S. Geological Engineering

James Weigel, 2003, "Fault and Fracture Control on Fluid Flow: Implications for Interbasin Flow"

Undergraduate Degrees

B.S. Environmental Earth Science

Heidi Ellefson

B.S. Geological Engineering

Trent Bay
Andrew Burr
Christopher DeKorver
Andrew Johnston
Bradley Murray

B.S. Geology

Bradley Didericksen
Stephanie Earls
Robyn Kurz
Jeaneane Maestas
Melissa Masbruch
Douglas Schmitt
Jennifer Swift

B.S. Geophysics

Elizabeth Berg
Chelsea Christensen
Melissa Masbruch

Guy F. Atkinson Distinguished Lecture Series

This long-standing and popular series of lectures continues to attract students, faculty and interested people from the community. We are extremely fortunate to be able to present speakers who can provide everything from cutting-edge technical information to current assessments of the state of earth science-related industries. This series, offered Thursday afternoons, is preceded by an informal gathering that gives everyone a chance to meet the speaker. If you are interested in the current schedule, you can send an e-mail query to the department.

Fall 2002

Bernard Steinberger, Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado at Boulder, "Models of Global Mantle Flow and their Implications on the Shape and Motion of Mantle Plumes"

John Shervais, Utah State University, "Multi-stage Origin and age of the Coast Range Ophiolite, California: Implications for the Nevadan Orogeny"

Art Sylvester, University of California, Santa Barbara, "The Attempted Kidnap of Alta California by the Pacific Plate."

Richard Allen, University of Wisconsin, "Tracing Melt Pathways Beneath Iceland"

William Dinklage, Utah Valley State College, "Geodynamics of Orogenic Extenstion"

Haakon Fossen, University of Bergen, Norway, "Faults and Deformation Bands in Porous Sandstones with Examples from Utah"

David Applegate, American Geological Institute, "From Education to Energy Supply: Building the Role of the Geosciences in Public Policy"

Rick O'Connell, Harvard University, "Lithospheric Stresses Caused by Mantle Convection: The Role of Plate Rheology"

Richard Kyle, University of Texas, Austin, "The Economic Geology of Microbes: Relation between Mineral Resources and Bacterial Processes"

Spring 2003

John H. McBride, Brigham Young University, "Unearthing the Midwest with Exploration Geophysics"

Devin Castendyk, University of Auckland, New Zealand, "Quantification of Wall Rock Mineralogy, and its Application to Water-Rock Reactions in a Future Pit Lake, Waihi, New Zealand"

Brian J. McPherson, New Mexico Institute of Mining & Technology, "Modeling Studies of Diagenesis and Regional Scale Hydrogeology in Sedimentary Basins"

John E. Warme, Colorado School of Mines, "Anatomy of an Anomaly: The Devonian Alamo Impact Breccia of Nevada"

Jill McCarthy & Harley Benz, U.S. Geological Survey, "Beyond Earthquake Location and Magnitude: Developments at the USGS National Earthquake information Center and the Regional Seismic Networks for Improved Monitoring, Response and Mitigation"

Lloyd Cluff, Pacific Gas and Electric, "Earthquake Hazard Analysis: Experiences from the Aswan High Dam (Egypt) and the November 2002 Denali Earthquake (Alaska)"

Richard Jarrard, University of Utah, "Antarctic Drilling for Tectonic and Paleoclimatic Objectives"

Chuck Williamson, Unocal, "Going Deep: An Exploration and Production Technology Frontier"

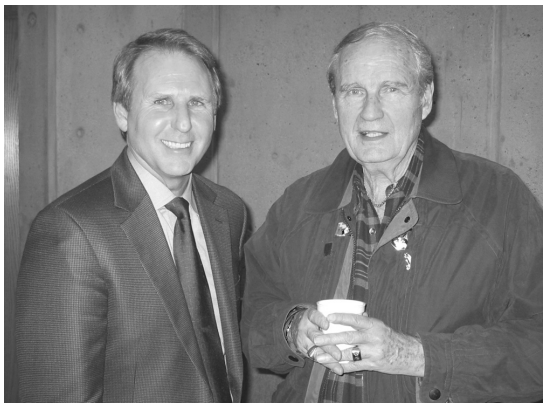
Kevin Furlong, Pennsylvania State University, "Localized Subduction in Fiordland, New Zealand: Who or What is Ripping Australia?"

Virginia Sisson, "Olmec-blue jade and other high-pressure, metasomatic rocks along the Motagua Fault Zone, Guatemala: Their Geologic and Cultural History"

William Johnson, University of Utah, "Critters in the water supply: the interaction and hydrodynamic forces that influence the distances over which microbes and other colloids are transported in groundwater"

Briant A. Kimball, U.S. Geological Survey, "Use of Field-Scale Experiments and Reactive Transport Modeling to Evaluate Remediation Alternatives in Streams Affected by Acid Mine Drainage"

John Foster, Museum of Western Colorado, "Vertebrate Desperadoes (Not Just Dinosaurs!) in the Jurassic Morrison Formation"



Dr. Chuck Williamson (M.S. '73) – CEO of Unocal, and his former M.S. advisor Duke Picard, during Chuck's visit to give a spring 2003 lecture.

Blast From the Past

You're on Your Own, Kids

Memories from Margaret Best, B.A. '39

In 1939, when Margaret Herrick Best received a B.A. in geology from the University of Utah, it had an enrollment of about 8,000 and the Department of Geology was part of the School of Arts and Sciences. Margaret remembers "about a dozen geology majors."

There were only three geology faculty members when Margaret entered – Professor Frederick J. Pack who was chairman and also bore the mantle of Deseret Professor of Geology, Associate Professor Ferdinand F. Hintze, and Assistant Professor Ray E. Marsell. Though the first two held doctorates from Columbia University, the last was listed in the university bulletin as a graduate student at Stanford. By the time Margaret received her degree, Professor Pack had retired, Professor Hintze had become chairman and Associate Professor Hyrum Schneider had come to the department from Wisconsin. There were two Instructors. One of them was Bronson Stringham, then listed as a graduate student at Columbia, who later became a long-standing member of the faculty. Margaret remembers that there were no teaching assistants; all teaching was done by the faculty.

During the four years Margaret spent at the University only six professional publications emerged from the department. Most voluminous was the Deseret Professor of Geology's monograph entitled "Lake Bonneville: A Popular Treatise Dealing with the History and Physical Aspects of Lake Bonneville." The other five, all relatively terse, were from Hyrum Schneider and dealt with aspects of physical geology in the southern Wasatch.

The Geology Department was housed along with the Biology Department in what is now the James E. Talmage building on President's Circle. At that time it contained besides offices and classrooms the Geological and Mineralogical Museum, the Biology Museum and finally the Mineralogical Laboratory wherein were taught crystallography and goniometry. The last was enough of a source of institutional pride to rate a place in the listing of the University's special resources.

Margaret had no idea at all that she'd become a geology major. Almost at random she chose to take a non-major's introduction to geology class. It was taught by Marsell, whom she still remembers as "an inspired teacher." And so she was hooked. For majors the department required physics, chemistry, trigonometry and mineralogy. She was also required to take another 35 quarter hours of geology that must include structural geology, economic geology, topographical and geological mapping and a six-week summer field camp. Margaret is quite sure she took neither trigonometry nor field camp but doesn't remember why not. Structural geology involved short field trips along the Wasatch Front. In the mapping class, students had to work independently to survey and map the foothills above campus. She chose as her assistant the young man whom she married a few years later. Margaret's other lower division choices were limited to geomorphology and historical geology. She remembers the latter especially because it introduced her to evolution and the stratigraphic record, thus drawing her attention to the amazing improbabilities of creationism. There were only four upper division classes available – petrography, petroleum geology, micropaleontology and guide fossils – and no graduate level classes at all are listed in the bulletins of that era. Margaret remembers that there were "a few" graduate students. One can only suppose that all their work was by special direction.

Margaret can't remember all the classes she took, but one of them had to be petroleum geology because it was taught by Hintze and occasioned the following story: Hintze took seven students on the only out-of-town, overnight field trip she participated in. It was to last three days and was not a camping trip. The group took off early one morning in Hintze's own car plus a university station wagon. Margaret and the only other girl in the class went with Hintze; the boys followed in the station wagon. He drove at a ferocious rate across what were then gravel and dirt roads into central Wyoming, so fast the other vehicle couldn't keep pace. He stopped often, ostensibly to let them catch up, and while waiting he always hustled to a phone. Then they'd be on their way again. Late in the first afternoon he emerged from a phone booth to announce, "You're on your own, kids. My oil well is coming in." The girls and their luggage were peremptorily dumped into the station wagon and their leader was off and gone. Rudderless and baffled, the class went back to Rock Springs where they found a motel and the next day returned home.

Sedimentary Geology Field Trip

Alumni News

Here in the Department we open our mail and e-mail from alumni and friends with pleasure and curiosity. Our graduates we find to be active and productive in diverse activities all around the world. We've done a lot of catching up lately, so this issue covers what we've learned has happened over the last several years. We hope these brief notes, listed chronologically, will bring you up to date on many of the people you know. If you haven't sent us any updated news about yourself, please do! While we don't publish addresses, we keep as many as possible on file. Perhaps we can help you get in touch with old friends from the department, and perhaps you can help us locate those we've not heard from in a long while.

Pre-1970's

Margaret Best (B.A. 1939) lives in Salt Lake City, close to children, grandchildren and great-grandchildren. She enjoys reminiscing about life in the geology department sixty-some years ago.

Charles D. Foss (B.S. in the late 1930s or early 1940s) Now resides is Fresno, California. He had an illustrious career with Getty Oil (now part of ChevronTexaco) and some of his geologic work is still used and cited.

John D. Welsh (Ph.D. 1959), adjunct faculty and good fried of the department, died in 2001, but his legacy lives on in many of the carbonate samples he left for the next generation of students to study.

1970's Grads

Robert Bucher (Ph.D. 1971) is a consultant in a petrochemicals brokerage in Houston, Texas.

Matt J. Mikulich (Ph.D. 1971) recently retired as chief geophysicist at ChevronTexaco and is now building his dream home in Buena Vista Colorado. He remains active as an adjunct professor here in the Geology and Geophysics Department at the University of Utah, at Virginia Tech, and at SAGE, the geophysical summer field camp in Santa Fe. In his spare time he builds custom acoustic guitars.

W. D. Stanley (Ph.D. 1971) recently retired as a senior geophysicist with the U.S. Geological Survey and is now living in Bermuda.

L. Braile (Ph.D. 1972) is a professor of geophysics at Purdue University and an active member of the Incorporated Research Institutions for Seismology (IRIS).

P. L. Winkler (M.S. 1972) has retired from a position as an oil company geophysicist.

A. B. Trimble (M.S. 1973), the last we've heard, was a consultant geophysicist, Denver, Colorado.

Chuck Williamson (M.S. 1973) became CEO of Unocal in 2001 and returned to visit our department as a distinguished lecture guest in February of 2003.

R. A. Freidline (M.S. 1974) is an oil geophysicist in Midland, Texas.

W. Dan Hausel (B.S. 1972, M.S. 1974) is currently senior economic geologist with the Wyoming State Geological Survey. His duties include investigations related to precious and base metals, gemstones, mineralogy, mining districts, Archean greenstone belts and diamondiferous host rocks. His publication list now exceeds 400! He takes his relaxation seriously. pursuing hobbies in sketching and martial arts.

Bob Brown (M.S. 1975) ihas recently retired from ChevronTexaco.

L. Hendrajaya (M.S. 1975) is a senior geophysicist with ChevronTexaco in California.

R. M. Otis (Ph.D. 1975) is a senior geophysicist with ChevronTexaco in California.

J. P. Bailey (M.S. 1976) is chief geophysicist for the Nance Oil Company in Billings, Montana.

T. L Olsen (M.S. 1976) is a professor of mathematics and physics at Snow College in Ephraim, Utah.

I. G. Wong (M.S. 1976) is a consultant in earthquake hazard studies and manager of the Seismic Hazards Group for URS Blume in Oakland, California, and remains a Ph.D. student at the University of Utah.

Peter Bryant (M.S. 1977) is a science teacher at Alfred Almond High School and an adjunct professor at Houghton College in Scio, New York.

Alumni Dinner in Houson, Texas. Front: Jenny Joyce, Margie Chan, Yonghe Sun, Back: Roice Nelson, Bill Powell, David Lemons, Ron Bruhn

J. Pelton (Ph.D. 1978) is professor of geophysics and now dean of the Graduate School at Boise State University. He is the founder of the research group at the Center for Geophysical Investigation of the Shallow Subsurface.

B. W. Hawley (M.S. 1979) is a consultant in Salt Lake City.
Douglas Hollett (M.S. 1979) is presently in Casper, Wyoming, working as a manager for Marathon Oil. Over the years he's seen experience in the Overthrust Belt, Alaska, Nova Scotia, and Latin America.
M. M. Schilly (M.S. 1979), the last we heard, was a senior geophysicist with Amoco in Cairo, Egypt.

Fuhao Qin, Wenying Cai, Dr. Schuster, Changxi Zhou

Arthur Trevena (Ph.D. 1979) lives in Sugar Land, Texas, and continues to do petroleum-related geological research for Unocal Oil Company.
D. J. Wechsler (M.S. 1979) is a senior geophysicist with ChevronTexaco in Bakersfield, CA.

1980's Grads

Mark Novak (M.S. 1980) lives and works as a geologist in Salt Lake City.
T. J. Owens (M.S. 1980) is a professor of geophysics at the University of South Carolina and an active member of the Incorporated Research Institutions for Seismology (IRIS).
S. Clawson (M.S. 1981) is a geophysical exploration consultant in Denver, Colorado.
Monica Clement (M.S. 1981) is presently working as an instructor in the Geology Department at Kansas State University, where she is also a doctoral candidate in curriculum and instruction in science education. Ever since her first view of a solar eclipse in 1979, she and husband Kip have traveled the world to experience the beauty of eclipses. Monica links up with her sisters every summer for hiking in the West, from Glacier to Canyonlands National Parks.
Kevin Furlong (Ph.D. 1981) normally resides as a geophysics professor at Pennsylvania State University but is on sabbatical leave at Victoria University, Wellington, New Zealand. In one week last fall, he received news that he was awarded a Fulbright Fellowship to spend his year in New Zealand and also that he was to receive the Milton S. Eisenhower Award for Distinguished Teaching at Pennsylvania State.
W. M. Bashore (M.S. 1982) owns an oil company reservoir engineering and geophysics consulting company in Denver, Colorado.
Deb Hopkins (M.S. 1982) is currently an associate professor of Physical Science at Alice Lloyd College, Pippa Passes, KY, where she teaches courses in geology, physical science, and mathematics. Formerly, she was vice principal on the math and science faculty at a local college preparatory high school, where she taught everything from biology and chemistry to physics and calculus. A chance introduction on the golf course ended with the offer to teach at the college, so she started there last fall.
D. I. Doser (M.S. 1980, Ph. D. 1984) is a professor of geophysics at the University of Texas at El Paso. Her research interests include studies of historical (pre-1960's) earthquakes in the Caribbean, New Zealand and southern Alaska, seismic tomography, crustal structure of the southwest U.S. and northern Africa, and shallow geophysics applied to environmental problems. In 1999, her research earned her the prestigious "Distinguished Achievement Award in Research" at her university.
Priscilla Buettner Fitzmaurice lives in Loveland, Colorado.
Susan Richards Fisher (M.S. 1984) is a retired science writer living in Salt Lake City and currently writing about her graduate school adventures.
John Isby (M.S. 1984) started working with Sohio in Houston back in the 80's, was transferred to Alaska and then to London. Now he is working in Kuwait with British Petroleum, though he may eventually return to Houston. He enjoys the traveling.
K.A. Smith (M.S. 1984) has retired from ChevronTexaco.
William Anyonge (B.S. 1985) is an assistant professor of biology at Xavier College, Cincinnati, Ohio, where he teaches courses in evolution, anatomy and physiology, and general biology.
M. Brokaw (M.S. 1985) is a geophysicist with ChevronTexaco in Texas.
Jackie Huntoon (M.S. 1985), now at Michigan Tech., still makes it west to do research and programs for teachers.
Steve Newman (M.S. 1985) teaches Earth Science in Denver and still runs a lot.
Bruce Pfaff (M.S. 1985) also got an M.B.A. and has been doing marketing for biopharmaceuticals.
J. DeSisto (M.S. 1985) was a geophysicist with ChevronTexaco and is now an attorney in Denver, Colorado.
H. M. Benz (M.S. 1982, Ph.D. 1986) is scientist in charge of the U.S. Geological. Survey National Earthquake Information Center and director of the new Advanced National Seismic Network in Golden, Colorado.
Karl Bromley (M.S. 1986) got an M.B.A. and went on to utility industry management consulting in Southern California.
P. K. Eddington (M.S. 1986), the last we heard, was a geophysicist with Amoco in Chicago, Illinois.

Dan Gallagher (M.S. 1986) and Dawn have two kids and at last report he was doing environmental work in California.

L. L. Leu (M.S. 1986) is a housewife in Salt Lake City, Utah.

J. J. Viveiros (M.S. 1986), the last we heard, was a geophysicist ChevronTexaco in Midland, Texas.

Matt Mikulich, Wanda Taylor and Ricardo Presnell

S. Planke (M.S. 1987) is CEO of Volcanic Basin Petroleum Research AS in Oslo, Norway.

Brad Boschetto (M.S. 1988) is a senior hydrogeologist at Shell Oil Products in Huntington Beach, California. He is married to Nancy Butterworth (M.S. 1988).

Nancy Butterworth (M.S. 1988) is a hydrogeologist at Geomatrix, a consulting company in Huntington Beach, California. She and Brad have a daughter, Britta who is four years old.

G. J. Chen (M.S. 1988) is owner of a private software company in Salt Lake City, Utah.

David Deming (Ph. D. 1988) is an associate professor at the University of Oklahoma, is author of the book "Introduction to Hydrogeology", and offers an online course in hydrogeology through the Institute for Exploration and Development Geoscience (EDGE). He also keeps busy as associate editor for the journals *Ground Water*, *Petroleum Geoscience*, and *Geothermics*.

Craig Feibel (Ph.D. 1988) is associate professor of Geology and Anthropology at Rutgers University, New Brunswick, NJ. He has recently co-authored a book concerned with the site of Gesher Benot Ya'aqov, Israel, and is working on papers for a monograph on the Kanapoi area of northern Kenya from which fossils of *Australopithecus anamensis* were discovered in the 1990s.

Karl Newman has been in the consulting business and keeps busy with soccer.

Richard Lanford (Ph.D. 1988) was promoted to associate professor with tenure at University of texas-El Paso right about the same time he and Robin welcomed twins into their family.

Thom Little (M.S. 1988) is an operations manager for Intel, but likes to rock out with his band in his spare time.

M. R. M. Matulevich (M.S. 1988) is a housewife in Marion, Montana.

Steffen Ochs (M.S. 1988) is still crisscrossing the globe. Last year it was New Zealand, Canberra, Sri Lanka (where he spent two weeks on an Earthwatch project studying temple monkeys), Germany, Seattle, San Francisco, Oman, and – oh yes – wonderful Houston, too.

Ralph Stearley (M.S. 1988) is a professor at Calvin College in Grand Rapids, Michigan, where he teaches introductory geology, historical geology, paleontology and oceanography. He spends as much time as he can in the field, frequently taking students on various field trips. He is currently reconstructing a mastodon skeleton from a local fossil site.

Peter Riemersma (M.S. 1989) inamed his newborn son Dakota after one of the Utah sandstones Peter traipsed over. Peter teaches hydrology, sedimentology and environmental classes at Grand Valley State University, Michigan.

Alison Harlick Oakley (M.S. 1989) lives in Reno, Nevada.

Scott Starratt (Ph.D. candidate) is still doing global change work at the U.S. Geological Survey in Menlo Park, California. His research includes studying the Holocene climate history of northern and central California. He also teaches physical geography at a local community college and is currently on the organizing committee for the 2003 Pacific Climate Workshop. His wife Elmira, who was a staff member in our department, works in the Tephrochronology Laboratory at the USGS and occasionally gets to work on planktonic foraminifers.

Wanda Taylor (Ph.D. 1989) continues to study extensional tectonics in the Great Basin as an associate professor at UNLV. Her long-time four-footed field assistant, Lex, passed away a couple of years ago but now Taz, another Australian shepherd, has taken over the vital tasks of watching out for rattlesnakes and reducing the weight of water in her pack.

1990's Grads

Meriden Wood Bennett (M.S. 1991) Med and wife Helen live in Colorado and have a youngster in the family.

Uk Han (Ph.D. 1991) is dean of Earth Sciences at the Korea Military Academy. He was recently elected president of the Geological Society of Korea and the Korean Association of Geosciences Societies. He is currently doing research in permafrost temperature records and indicators of climate changes at the Ny-Alesund, Svalbard and Sejong scientific stations in Antarctica.

B. R. McNeil (M.S. 1991) is a senior geophysicist with Spinnaker Exploration Company in Houston, Texas.

S. L. Peyton (M.S. 1991) is a consulting geophysicist in Denver, Colorado.

Craig Sanders (M.S. 1991) who was our curator for over a decade moved to Oregon where he took a job with

Hewlett-Packard so he and his wife could live in the same state!

W. J. Stephenson (M.S. 1991) is a geophysicist with the U. S. Geological Survey's branch of Earthquake Hazard Studies in Golden, Colorado.

D. B. Mason (M.S. 1992) is a geophysicist at the Center for Seismic Studies at Science Applications International Corporation (SAIC) in Reston, Virginia.

Askel Quintus-Bosz (M.S. 1992) is Exploration Advisor for ChevronTexaco North America upstream. He is also the ChevronTexaco recruiter now at Utah, replacing **Bob Brown** (see 1975) who recently retired.

Anke Friedrich (M.S. 1993) returned last year to her native Germany. After receiving a Ph.D. from the Massachusetts Institute of Technology and a post-doctoral position at California Institute of Technology doing GPS and neotectonics in the Great Basin, she accepted a faculty position at the University of Potsdam. She continues to be engaged in neotectonics in the western United State and in southern Turkey – and, of course, goes skiing whenever she can!

P. M. Michaels (Ph.D. 1993) is a professor of geophysical engineering at Boise State University, a professional engineer and member of the Center for Geophysical Investigation of the Shallow Subsurface research group.

Fulbert Namwamba (M.S. 1993) is assistant professor of Urban Forestry in the College of Agricultural, Family and Consumer Sciences, the essential land-grant arm of Southern University and A&M College, in Baton Rouge, Louisiana.

Steve Williams (M.S. 1993) is involved in fault trenching and liquefaction studies as a senior engineering geologist for Southland Geotechnical Co. in El Centro, California.

Jennifer Helm Guillory (M.S. 1994) had a baby boy and loves being a mother.

Robert Kamau (M.S. 1994) works as a geophysical engineer for Montgomery-Watson in Salt Lake City, Utah.

Anthony L. Lowry (Ph.D. 1994) is a professional research associate in the Center for Environmental International Law and in the Department of Physics at the University of Colorado in Boulder, Colorado.

D. S. Miller (M.S. 1994) is a senior geophysicist with Exxon Mobil in Houston, Texas.

John O. D. Byrd (Ph.D. 1995) works for Anadarko Petroleum Corporation in Houston, Texas, as exploration supervisor for the western U.S. overthrust belt.

Bereket Haileab (Ph.D. 1995) is assistant professor of Geology at Carleton College, Northfield, Minnesota, where he lives with his wife, Freweyni and daughter, Delina, two and a half years old.

Sarah Hanson (Ph.D. 1995) has been teaching geology and astronomy at Adrian College in Adrian, Michigan for five years. She is also the department chair and director of the planetarium. She is currently working in conjunction with the National Park Service on the Quaternary volcanics at Sunset Crater Volcano National Monument in Arizona. She is also still working on several projects involving Nb-Ta-Ti oxides and has two new minerals in the works from that research. Spare moments are usually spent in her kayak.

AAPG Student Chapter Silent Auction

Mark Milligan (M.S. 1995) is at the Utah Geological Survey and is still working on renovating their house near Capitol Hill.

Kristina Leavitt Watabe (B.S. 1995) received her M.S. degree in paleontology from the University of Kansas and now is teaching geology courses at Rochester Community and Technical College in Rochester, Minnesota.

Jenny Joyce (M.S. 1996) is at Exxon Mobil in Houston and enjoys her work and travel.

D. W. Kikkert (M.S. 1996) is a professional engineer with the State of Nevada in Carson City, Nevada.

James P. A. Magwood (Ph.D. 1996) is a high school science teacher in Ottawa, Canada, and an advisor to a space simulation program, complete with a mock-up spacecraft and mission control computer network.

L. J. Martinez (M.S. 1996) is a hydrologist with the State of Nevada in Carson City, Nevada.

David P. Braxton (M.S. 1997) is pursuing a Ph.D. program in geology at the University of Tasmania with a field project in the Philippines. The family is moving to Hobart, Tasmania in February 2003.

David Lemons (Ph.D. 1997) is working for Exxon Mobil and has a busy household since he and Diane had twins last year.

Jonathan Wynn (M.S. 1998) is a research fellow in the Research School of Earth Sciences of the Australian National University, Canberra, Australia. He continues his work on Neogene paleosols related to fossil sites in East Africa, and their importance to paleoenvironmental reconstruction.

J. Braun (M.S. 1999) is a geotechnical engineer with Williams Companies (the pipeline people) in Salt Lake City, Utah.

Damian Lynch (M.S. 1999) is a senior geophysicist with ChevronTexaco in Houston, Texas.

Peter Steen (M.S. 1999) lives in Salt Lake City where he works as an industrial chemist.

2000's Grads

Suzanne Nguyen (B.S. 2001) is presently in Washington DC for a two-year internship in the Environmental Management's Office of Basic and Applied Research in the Department of Energy. She wants to continue in environmental economics to examine global sustainability and hopes to return to graduate school in the fall.

Spring Picnic 2002

Jake Benner (M.S. 2002) is a geology lab instructor at Tufts University in Boston, Massachusetts.

Noel Carreon (M.S. 2002) and his family have settled in Arequipa, Peru, where he is becoming intimately familiar with Andean geology in porphyry copper country.

Teresa Cockayne. (B.S. 2002) is currently the president of the Salt Lake Chapter of the Association for Women Geoscientists.

Lee Ann (Peretto) Diamond (B.S. 2002) loves working at Kleinfelder here in Salt Lake City and has been active in the Salt Lake Chapter of the Association for Women Geoscientists, along with other recent graduates.

Rose Difley (M.S. 2002) lives in Sandy, Utah, and is working independently on various paleontology projects. She maintains ties with the department as an adjunct curatorial associate.

Jill (Krukowski) Gregory (M.S. 2002) is working at ExxonMobil.

Matt Gregory (M.S. 2002) is working at ExxonMobil and enjoying the high-tech world.

Jody Gisseman (B.S. 2002) is excited about her new job working for CH2Mhill and the studies she'll be doing near Hill Air Force Base.

Scott Grasse (M.S. 2002) is working at ExxonMobil.

Sam Hudson (B.S. 2002) has been working on his M.S. at the University of Nevada – Las Vegas, learning a lot about salt tectonics.

J. C. Krukoski (M.S. 2002) is a geophysicist with ExxonMobil in Houston, Texas.

William Phelps (M.S. 2002) is a Ph.D. candidate in paleontology at the University of California at Riverside.

Gosia Skowrow (B.S. 2002) is active in the Salt Lake Chapter of the Association for Women Geoscientists.

A Lion takes a bite out of Thure Cerling

Gifts to the Department January 2002-March 2003

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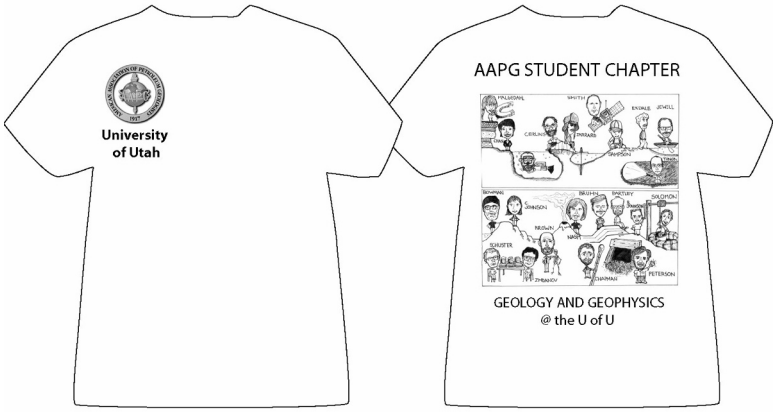

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