

## Faculty recognized by Iowa State

Three faculty members in the Department of Geological and Atmospheric Sciences have been recognized by Iowa State University this fall.

Carl Jacobson, professor and chair, has received the ISU Alumni Association Award for Superior Service to Alumni. This award recognizes an Iowa State faculty or staff member who has demonstrated a commitment to establishing or furthering alumni relationships with the university.

Jacobson received his award at the Sept. 11 ISU fall convocation.

Jane Pedrick Dawson, senior lecturer, was honored by the College of Liberal Arts and Sciences (LAS) at its Sept. 6 fall convocation. She received the LAS Excellence in Undergraduate Introductory Teaching Award, which recognizes outstanding performance in teaching undergraduate introductory (entry-level) classes.

Ken Windom, associate professor, was one of six faculty members named a LAS Master Teacher. The award recognizes teachers who have a reputation for using unique methods to enhance student learning. This year's award recognizes faculty members who have successfully integrated innovative materials and activities into their teaching, which has enhanced the learning of students.  
*Continued on page 29*



## Alumni reunion returns to Wyoming field camp

In July, 2002 the Department hosted its first-ever field camp reunion (pictured).

Attendance was close to 150 between alumni, faculty, staff, and family members. Everyone had such a wonderful time that we have decided to do it again in 2007. It will begin the morning of Saturday, July 7 and go through the morning of Monday, July 9.

Much of the time will be spent mingling with friends, but there will also be organized activities to the Red Gulch dinosaur track-site, marine fossil sites, Shell Falls, and much more.

We will assist you in obtaining reservations at local motels, or you may choose to camp out or stay in the bunks at the field station. Meals will be provided and donations will be accepted. Please check our web site ([www.ge-at.iastate.edu](http://www.ge-at.iastate.edu)) for details or contact DeAnn Frisk (515.294.4477, [dfrisk@iastate.edu](mailto:dfrisk@iastate.edu)) or Jane Dawson (515.294.6302, [jp dawson@iastate.edu](mailto:jp dawson@iastate.edu)) for information.



# Greetings from the chair

It always gives me great pleasure to write this opening letter, as every year there is so much new and exciting to report. In fact, this year was even more eventful than normal. Besides all the usual academic and alumni activities, we hosted the 66<sup>th</sup> Annual Tri-State Geological Field Conference, successfully put forth three faculty members for promotion, conducted a successful faculty search, and underwent an external review. As you will see from the details below, this truly was a banner year.

Before I proceed any further, let me make a plea for you to send us your e-mail addresses. As you will see below, we have a number of alumni events planned for the coming year and e-mail provides us an excellent way to keep you posted about the latest details of these activities. At present, we have addresses for about a quarter of you, but we ought to be able to do better. Please send this information to **Jane Dawson** (jpdawson@iastate.edu). **Paul Spry** sent out several mailings this summer; if you didn't hear from him, it means we don't have your address. Thanks!

Perhaps the most significant event of the past year was our external review. Periodic examination of departments by faculty members from outside the university is a normal part of academia. Administrators take such reviews very seriously and use them as a means of deciding how to allocate resources. The visit took place in March by a team consisting of four members, two each from geology (from Stanford and Syracuse) and the atmospheric sciences (from Cornell and Purdue). I am happy to tell you that the review went exceedingly well; the committee reported to the Dean and Provost that "we regard the Department as one of your premier scientific/technical units." In my meeting with university administrators following the site visit the Provost said that he considered our evaluation to be one of the two strongest he had seen in his four years on the job (about eight to ten programs are reviewed each year). The positive outcome of the review reflects our strength and impact in many areas. We have excellent programs for undergraduate majors, we teach approximately 2,000 non-majors per year in a range of introductory service courses, and we have a per-faculty-member level of grant funding about three times the national average for Earth sciences.

Also keeping us busy this year were three promotion/tenure cases. Two of these were in the meteorology program, where Assistant Professor **Xiaoqing Wu** was promoted to Associate Professor with tenure and tenured Associate Professor **Bill Gallus** was promoted to Full Professor. Within geology, tenured Associate Professor **Igor Beresnev** was promoted to Full Professor. Congratulations to Xiaoqing, Bill, and Igor. You may recall that last year I reported on the promotions of **Cinzia Cervato**, **Neal Iverson**, and **Bill Simpkins**. For a department our size, normal would be to have one "P&T" case per year. Our six in two years reflects

the large number of new faculty members hired over the past decade. These new members of the Department are now successfully working their way through the ranks.

Faculty members are recognized by promotion and tenure, but also by awards. This year, I am pleased to announce that **Jane Dawson** was chosen for the College of Liberal Arts and Sciences *Award for Excellence in Undergraduate Introductory Teaching* and **Ken Windom** has been named a Liberal Art and Sciences Master Teacher. See pages 1 and 29 for details.

In fall of 2005 we also recognized outstanding achievements by two of our alumni, Dick Matzke (B.S., 1959) and Thure Cerling (B.S., 1972; M.S., 1973), both of whom were presented with the *Department of Geological and Atmospheric Sciences Distinguished Alumnus Award* at a college-wide awards ceremony. Dick is a retired Vice Chairman of the Board of Directors for ChevronTexaco and is currently a Board member for LUKoil, the largest petroleum company in Russia. Thure is a Distinguished Professor at the University of Utah and a member of the National Academy of Sciences. He holds appointments in both the Department of Geology and Geophysics and the Department of Biology. Read more about Dick and Thure later in the *Varve*. The awards program in which we recognized Dick and Thure is new and we look forward to honoring many more alumni in future years.

I am delighted to let you know that we have just welcomed a new faculty member, **Kristie Franz**, who completed her dissertation in July at the University of California, Irvine. Kristie's specialty is surface hydrology. Her position is a new one given to us by the College in order to help strengthen ties between geology and meteorology. Kristie received a B.S. in geology from the University of Wisconsin at Eau Claire, following which she worked for a few years in the environmental consulting industry. She then returned to school at the University of Arizona, where she obtained an M.S. in hydrology under the direction of Soroosh Sorooshian. She stayed on at UA with Dr. Sorooshian for her Ph.D., but transferred to Irvine when he moved there to accept an endowed chair. We look forward to filling you in next year on Kristie's progress.

At present, we are lobbying the College for two additional faculty lines. One in remote sensing would be directed to the meteorology program and would likely emphasize radar technology. For the geology program, we see a critical need for a dedicated position in stratigraphy/sedimentology. Significant teaching and research efforts in this area come



from faculty members **Cinzia Cervato** and **Germán Mora**, but both Cinzia and Germán have important obligations in other disciplines, as well. Particularly as we see enrollment starting to climb related to increased hiring in the petroleum industry, it is imperative to make sure we are not understaffed in this area. The external review team agreed with this assessment, and a major part of their report was dedicated to arguing for increased resources to the Department, most notably in the form of the above two faculty lines. Unfortunately, as I have described in previous issues of the *Varve*, funding to the University from the legislature remains soft. The university budget wasn't cut this year, as it was in four of the past five years, but the increase was insufficient to cover raises (2.0%), higher energy costs, etc. This means that the University will continue to lose faculty lines through attrition. Under these circumstances, we feel lucky to have been given the new line that went to Kristie Franz. We will continue to press on for further lines.

Also notable this past year was that our department hosted the 66<sup>th</sup> Annual Tri-State Geological Field Conference (Sat-Sun, Sept. 24-25). "Tri-State," as it is known for short, rotates between various schools and state surveys in Iowa, Wisconsin, and Illinois. Our turn to organize the event comes once every 12 years. I would like to thank current faculty members **Jane Dawson**, **Jiasong Fang**, **Chris Harding**, **Neal Iverson**, and **Bill Simpkins**, emeritus professor **Carl Vondra**, and graduate student Matt Graesch for their outstanding service in preparing and leading the trip. Topics included the hydrogeology of Ames, glacial geology of the Des Moines lobe, and Paleozoic stratigraphy of Dolliver Park near Fort Dodge and Montour Quarry near Marshalltown. I encourage you to visit our web site to check out the on-line version of the very detailed and impressive field guide assembled by the leaders ([www.ge-at.iastate.edu/tristate](http://www.ge-at.iastate.edu/tristate)).

An additional aspect of Tri-State last fall is that it was held back-to-back with our biennial on-campus *Geology Alumni Days* (Sept. 22-23). The latter kicked off with a reception on the evening of the 22<sup>nd</sup> at the home of Carl and Georgia Vondra, who are to be thanked as always for their hospitality. The next day, Friday, included a reception in the Department, State of the Department Report, meeting with the Dean, luncheon, afternoon careers panel discussion for students, and evening banquet. I particularly wish to thank alumni Dale Brunotte, Bob Dawson, Beth Johnson, Lee Potter, and Tim Ryan for serving on the careers panel. Providing this service to our students is certainly one of the most important aspects of *Alumni Days*.

In addition to our on-campus alumni reunion, we had an opportunity to meet with many of you at the All-Alumni Reception at the annual meeting of the Geological Society of America in Salt Lake City. Look for us again this year in Philadelphia. Likewise, we had a great turnout for several

events held in conjunction with the spring meeting of the American Association of Petroleum Geologists in Houston. These included a reception hosted by Carl & Georgia Vondra on Monday evening and a breakfast the next morning. More than 20 of you came to the breakfast! Thank you so much for your support.

As many of you know, in the spring we have typically held a luncheon in Houston at the Marriott West Loop By The Galleria. This past year, because AAPG was in Houston, we did not have a separate "Marriott luncheon." Furthermore, as we have increased our presence at the annual AAPG meeting over the past several years, it seems that spring is becoming a bit crowded with alumni events. Consequently, this coming year, we have decided to hold the Houston luncheon in the fall (October 13; see page 14 for details). We hope to see you there. Also look for us at the AAPG meeting this coming spring in Long Beach.

With respect to alumni activities, let me finish by letting you know that July 7-9, 2007 we will hold a reunion at our field station in Shell, Wyoming (see page 1). We last did this in 2002, and I cannot overemphasize how much everyone enjoyed the event. Between alumni, faculty, staff, and family, we had close to 150 attendees. I know that many of you who came last time are planning to participate this time, as well. For those who weren't able to make it last time, you don't want to miss it again!

Speaking of field camp, there is, as always, much to report. After **Carl Vondra** retired as Director following the 2003 season, **Erik Kvale** of the Indiana Geological Survey stepped in to fill his place. Erik, who is from Greybull, Wyoming, and who is an alumnus of our department (B.S., 1978; M.S., 1982; Ph.D., 1986), has been doing a superb job. Unfortunately for us, Erik has recently decided to leave the Indiana Geological Survey in order to accept a position with Devon Energy Corporation in Oklahoma City. He will no longer be able to maintain his role as camp Director, although Devon will allow him to participate in camp for several weeks every summer. We will miss Erik greatly. Details are yet to be worked out, but we have several options for filling the Director position.

Instruction at camp is conducted by a range of staff members. As has been the case for the past 20 years, part of the load is handled by faculty members from the University of Nebraska at Lincoln, including David Watkins, Mary Anne Holmes, and David Loope. In addition, ISU was represented this summer by two new instructors, **Jane Dawson** and **Martin Helmke**. Jane was out for the first two weeks. For her, this was a bit of a homecoming, as she spent the summer of 1981 at camp as one of our own undergraduates (along with Neal Iverson). Also out for most of the summer was 2003 Ph.D. graduate Martin Helmke. After Martin left ISU he spent a few years in the environmental consulting industry, but this past fall began

a position as an Assistant Professor at West Chester University of Pennsylvania. Martin was joined at camp by his wife Vicky, who has an M.S. in geology from the University of Iowa.

One of Erik Kvale's many contributions to field camp involved the enlistment of alumni to assist with instruction. In this area, we owe special thanks to **Howard White** (B.S., 1973; M.S., 1976; Ph.D., 1981) of Kerr-McGee and **Rick Chamberlain** (B.S., 1977; M.S., 1980) of Strategic Decisions Group, both of whom have now volunteered their time for three years in a row. Howard runs an outcrop-to-subsurface sequence stratigraphic exercise on the Jurassic Sundance Formation as well as a Cretaceous core description and geophysical log exercise. Rick's exercise involves students generating their own oil/gas prospect in the Greybull sandstone, an informal unit in the Lower Cretaceous Cloverly Formation, and evaluating the risk elements associated with drilling and producing the prospect. In teams of three, the students present their results to "management," which this summer was represented by the camp staff and two visiting geologists – **Dave Fishbaugh**, an environmental consultant from Billings, Montana, and **Natasha Kramer** from Anadarko. Erik met Natasha at AAPG and convinced her to visit camp as a recruiting opportunity. She found the visit extremely worthwhile and intends to come back in future years. Natasha also wrote a very strong letter of endorsement of the camp curriculum. At the end of camp two students had received job offers, one from Dave Fishbaugh for employment with his consulting firm (Brown and Caldwell) in Billings and the second from a mud logging firm.

As always, I need to discuss finances with you. Currently, budgets at public institutions, ISU included, are extremely tight, and there is no sign that this will change anytime in the near future. To carry out even our most basic missions, we need your help. In fact, you have been wonderfully generous to us, and geology is in the top handful of programs in the College in terms of percentage of alumni who provide financial support. A complete list of geology alumni funds and endowments is provided on page 18, but let me emphasize a few needs that are particularly pressing right now. First, you may recall from previous letters that we are committed to a complete upgrade of facilities at the field station in Wyoming. We are currently working with an architect and hope to show plans at the reunion next summer. Tentatively, we are looking at three-stages for the project. The first stage, for which we have sufficient funds, is to build a new shower house that will include flush toilets. We hope to have this completed by next summer. Stage 2 is to build a new kitchen/dining room/classroom building. Stage 3 involves replacement of the sleeping quarters, a process that can be done one cabin at a time as dictated by funding. A rough guess is that the new dining/classroom building will cost \$250K. Replacing all the cabins will

ultimately come to that much or more. Clearly, raising sufficient funds for stages 2 and 3 will take some time and will not be possible without major gifts.

A further critical need comes in the area of scholarships and fellowships. At the graduate level, the *Georgia L. and Carl F. Vondra Graduate Fellowship* provides a "bonus" amount on top of our base-level graduate stipend in order to help recruit exceptional new students to the Department. The *John Lemish Memorial Scholarship* provides a monetary reward to outstanding students already in the program. Also at the graduate level, and new this year, is the *Geology Graduate Scholarship Fund*. The goal for this fund is to provide additional graduate assistantship lines.

At the undergraduate level, we have several funds which allow us to recognize four to six outstanding students per year. These funds have various stipulations and purposes, but all require that the recipient already be a geology major. Most of these awards help cover the cost of attending field camp. Recently, we created a new *Geology Undergraduate Scholarship Fund* with the number one priority to recruit new majors to the Department. You may or may not be aware of this, but current enrollments in Earth science and geology at the national level are the lowest they've been in nearly 40 years. In fact, present enrollments in our discipline at the national level are just barely more than a fourth of what they were at the last peak, which was in the early 1980s. These numbers have not escaped the attention of administrators, and are certainly an issue in terms of resources provided to our own department. In recent years, we have attracted an average of three-four incoming freshmen to our department (we also obtain students from among those already at ISU who switch majors). This is not good enough. Beginning this summer, we started offering small (\$250-500) scholarships to incoming freshmen with good high school standing and above-average ACT or SAT scores who indicated the intention to enroll in geology. The good news is that, this fall, we will be welcoming nine new incoming students. Perhaps this reflects a general increase of interest in geology, but it's hard to believe that the scholarships didn't have some impact. The scholarship money we offered this year came from the unrestricted *Geology Development Fund*. Contributions to that fund are always appreciated, but we also know that many of you like to give to a specific cause. What can be more worthy than enlisting new talent into our profession? Thanks so much for your interest and support. We look forward to seeing you throughout the year. Take care.

**Carl Jacobson**  
Professor and Chair  
Department of Geological & Atmospheric Sciences

# Student News

## Geology Student Awards

Presented at the 2006 Spring Banquet

## Undergraduate Awards

Huedepohl Field Camp Award

Mark Sudweeks

Carolyn Jones-Eiler Summer Field Camp Scholarship

Robert White

Peter Johnson Memorial Scholarship

Corey Strauss  
Ben Schroeder

Rodney Gardner Memorial Scholarship

Joseph Baumann  
Robert White

Outstanding Senior

Robert White

## Graduate Awards

Pick-of-the-Year  
Adriana Heimann

Outstanding Teaching Assistant

Paul Ebert

John Lemish Award

Peter Moore

Ames Rock & Mineral Club Award

Peter Moore

Graduate Student Seminar Top Papers

Peter Moore

Graduate Student Seminar Runner-up

Adriana Heimann

## Outstanding

Contributions

Cammy Bright

Lucie Macalister

## Graduating Students

Summer 2005

Craig Beyer (BS: Geology)

Fall 2004

George Moser (BS:

Geology)

Cheng Cheng (MS:

Geology/Water Resources

Pavel Iassonov (PhD:

Geology)

Spring 2005

Elisha Evers (BS: Geology)

Nathan Forsythe (BS:

Geology)

Samantha Owens (BS:

Geology)

Mike Chen (MS: Geology/

Water Resources)

Jason Thomason (PhD:

Geology)

## Other Graduate Student Awards

**Bonsall, Todd** Geology and geochemistry of the

Lavrion carbonate-hosted

silver district, Attica,

Greece, Society of

Economic Geology Student

Research Grant, \$3,000.

**Carvajal-Ortiz, Humberto**

- Carbon isotopic

composition of plant-

derived organic matter

from a tropical sedimentary

sequence as a recorder of

Late Cretaceous Early

Paleogene changes in the

carbon cycle. Geological

Society of America

Research Grant, \$2,000.



Ph.D. students Jin Zhang, Adriana Heimann and Cammy Bright at the spring banquet.

## Christianson, Evan

Hydrogeology and nutrient

balance of a gravel pit lake

at Ada Hayden Heritage

Park. Geological Society of

America Research Grant,

\$1,800.

## Graduate Students and their Research Projects

**Abrahamson, Jennifer** -

Hydrogeological and

Geophysical Investigation

of the Upper Bear Creek

Watershed (Simpkins);

M.S.

**Bonsall, Todd** - Fluid

Inclusion and Stable

Isotope Geochemistry of

the Lavrion Silver-Lead-

Zinc District, Greece

(Spry); M.S.

**Bright, Cammy** - Faunal

and Stable Isotope Study of

Late Glacial and Holocene

Abrupt Climate Changes in

the Mediterranean Sea

(Cervato); Ph.D.

**Brooks, Bjorn** - CHRONOS

and the Cambrian

Explosion:

Chronostratigraphy and

Paleontology of the

Globally Distributed Soft

Bodied Fauna in the

Cambrian (Cervato); Ph.D.

**Buyck, Melinda** -

Quantifying Potential for

Perennial Vegetation to

Remove Nitrate in Riparian

Zones (Simpkins); Ph.D.

**Carvajal-Ortiz, Humberto**

- Carbon Isotopic

Composition of Plant-

derived Organic Matter

from a Tropical

Sedimentary Sequence as a

Recorder of Late

Cretaceous Early Paleogene

Changes in the Carbon

Cycle (Mora); M.S.

**Christianson, Evan** -

Hydrogeology and Nutrient

Balance of a Gravel Pit

Lake at Ada Hayden

Heritage Park. (Simpkins);

M.S.

**Das Gupta, Shamik** -

Linking Microbial

Diversity, Biogeochemistry,

and Stromatolitic

Structures of Eukaryote-

Dominated Microbial Mats

in an Acid Mine Drainage

System, Indiana (Fang);

M.S.

**Dvorak, Matt** - The Effects

of Land-Use Changes on



## Wyoming field camp

Erik Kvale again led the department's field camp at Wyoming

the Health of Coastal Environments (Mora); M.S. **Ebert, Paul** - Partitioning Nutrient Inputs to Lake Macbride from Overland Flow, Vadose Zone, and Groundwater Sources (Simpkins); M.S. **Giesleman, Heath** - An Experimental Study of Frost Heave (Iverson/Horton); M.S. **Graesch, Matt** - Interpreting the Origin of the Madison Drumlin Field using the Magnetic Properties of Till (Iverson); M.S. **Heimann, Adriana** - The Origin and Exploration Significance of Garnet and Gahnite to Broken Hill-Type Lead-Zinc-Silver Deposits in the Curnamona Province, Australia (Spry);

Ph.D. **Huang, Xianyi** - Using WEPP, an Erosion Computer-Model, and VR to Visualize the Effect of Long-Term (10+ year) what-if Scenarios for Erosion in Iowa (Harding); M.S. **Macalister, Lucie** - Evaluation of Conservative Practices using conjunctive Groundwater. Surface Water Modeling in Two Agricultural Water Sheds (Simpkins); M.S. **Mann, Janet** - Experimental Study of Debris Flow Mobilization (Iverson); M.S. **Moore, Peter** - Dynamics of Ice Flow and Sediment Transport in the Lower Ablation Area of Storglaciaren, Sweden

## Colorado bound

Paul Spry, professor of geological and atmospheric sciences, and Carl Jacobson, professor and chair of the Department of Geological and Atmospheric Sciences, led a field trip for the Geology 507 field trip to Colorado last year including a stop at the Cripple Creek gold mine (pictured above).

(Iverson); Ph.D. **Newcomb, Matthew** - A Multimodal Interface for Road Planning Tasks using Vision, Haptics and Sound (Harding); M.S. **Ojeda, Anastasiya** - An Experiment for Determining P-Wave Velocity in Engabreen, Norway (Iverson); M.S. **Reed, Joshua** - Designing IT Applications for Antarctic Drilling (Cervato); M.S. **Shumway, Jacqueline** - Microstructural

Characteristics of the Douglas Till of the Lake Superior Lobe: Implications for Bed Deformation (Iverson); M.S. **Zhang, Jin** - Microbial Soil Community and Structure in Grass Monocultures of Iowa as Determined by Organic Molecular Analyses and Incubation Experiments (Mora); Ph.D.

# Alumni Notes

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## **Lynn Bachellor**

B.A. 1995; labachellor@academicplanet.com

Lynn graduated this May with her Master of Education - Curriculum and Instruction in Science Education from the University of Houston. She attended evening classes and summer school over two years to complete the degree. She noted that going back to school was really fun and that she enjoyed herself greatly! This year will mark her 12th year of teaching science in the Aldine school system in Houston, Texas.

## **Ramon Bisque**

Ph.D. 1959, M.S. 1956; ramon@bisque.com

Ray recently stepped down as Chairman of the Board of ADA-ES and will Chair a newly chartered advisory committee on science and technology for that company. Ray is a co-founder and has been Chairman of Earth Sciences, Inc. (ESI) since 1964. ESI acquired ADA-ES in 1998 and the company was spun-off as a separate entity. ADA-ES serves the coal industry in reducing environmentally harmful emissions.

Ray is Professor Emeritus at the Colorado School of Mines (CSM) where he served on the faculty for thirty years and was head of the department of chemistry. In the eighties he served two four-year terms as Secretary of The Geology Section of the American Association for the Advancement of Science (AAAS) and is a Fellow of that organization. On sabbatical from CSM, he directed the Earth Science Curriculum Project (ESCP) that was sponsored by the American Geological Institute. ESCP introduced earth sciences to thousands of secondary schools and was translated into Japanese and Spanish. Ray served as a trustee for his alma mater, St. Norbert College for ten years and on advisory committees for the Department of Geological and Atmospheric Sciences at ISU and the Department of Earth Sciences at the University of Venezuela. He received Honorary Alumnus status from the CSM Alumni in 1990 and the Native Son award from his home county in Upper Michigan in 1991. In 2000 he published *Iron*, an historic novel about his great grandfather and mining in the Upper Peninsula of Michigan and more recently *Lions of the Lyons*, a book about cougars in the foothills north of Golden where his family has established a conservation easement. In 1959 Ray was the first PhD geochemist to graduate Iowa State University, with a combined degree. He states that "I didn't take a course in geology until after I had earned an M.S. in chemistry. It made me realize that I could apply my chemistry outside of the laboratory. It changed my life."

## **Steve Carlson**

B.S. 1981; jgsmc2@pdq.net

## **Jenny Stadler**

B.S. 1981

Steve and Jenny are still living in Sugar Land, TX with their 4 kids aged 8 to 18. Steve is a senior geophysical advisor for Occidental Petroleum and is working the Permian Basin in Texas. They just returned from a 3-week vacation with the kids in Bali and Singapore.

## **Greg Caron**

M.S. 1994; GRCA461@ecy.wa.gov

## **Rachel Caron (nee Stansbery)**

B.S. 1995

Greg and Rachel had a baby girl, their second, in February. This has led to some additional changes on the home front. Rachel left her job with the Washington Dept. of Ecology and has become Chief of Homeland Operations (i.e. the full time responsibility of raising the girls at home). In addition they recently sold their acreage in the cherry orchards outside Yakima and are moving 35 miles north to Ellensburg. Beginning in September their new address will be: 306 S. Pearl St. Ellensburg, WA 98926. Greg is still with the Department of Ecology in the Hazardous Waste program doing site cleanup and permitting under the RCRA program. Just to keep things interesting, he is also doing some additional work with the hazardous spills emergency response program.

## **Brett Fishwild**

M.S. 1998, B.S. 1995; fishwild@yahoo.com

Brett completed a hiking trip through the Himalayas with **Jill Rosenberg** (M.S. 1998) in August 2005. That was a month in India and was absolutely spectacular. Brett is still happily employed at CH2M HILL in Dayton, Ohio as a project manager. This is one of the top environmental firms in the world and he is quite happy to not move around any more!! His company has been interviewing candidates for hydrogeological and especially ecological positions. Graduating students apply therein!!

## **Deborah Bryant**

M.S. 1987; DBRYANT@kvcc.edu

## **Gary Bryant**

B.S. 1982, M.S. 1986

Deb has been teaching at Kalamazoo Valley Community College – Geo Science Faculty, since 2000, and is the only full time tenure faculty in the department. She currently teaches physical geology, physical geography, and Earth

science for the elementary teacher, and was recently awarded a three-year grant to start an elementary education best practice workshop series for freshmen and sophomores who think they would like to teach. Her students create and implement lessons in a third grade class early in their academic career so they can evaluate whether teaching is right for them. This allows students to make a career change (if necessary) before spending several years and thousands of dollars in a teaching degree program only to find this isn't a right fit for them. Through the grant she was able to take (and pay for!) 36 students and 6 faculty to Chicago last fall to attend the National Science Teachers Association (NSTA) convention. They will attend the Teachers Teaching with Technology Conference this spring. She is in the process of starting a student chapter of the NSTA. When approved it will be the first student chapter at a community college.

During the summer of 2006 Deb taught geology at the Burren College of Art in Ballyvaughn, County Clare, Ireland. This opportunity was supported through the Midwest Institute of International and Intercultural Education. The course met in the morning with field trips in the afternoon. They looked primarily at post-glacial topography and geomorphology in the Burren. In the western part of Ireland the limestone has been scraped bare by the glaciers and has been eroded into clints and grikes, large limestone blocks separated by deep solution channels. The area is riddled with caves and she got to visit the area of Poll na Gollum (the cave of JRR Tolkien's Gollum) and tour Ailwee cave. Because of the karst topography the lakes can fill from the bottom up after rain. The cottage where she stayed had a turlough (fairy lake) in the front. She went to bed one evening to a dry front yard but woke up to cattle swimming in the newly formed turlough. There was no surface drainage, just subsurface. The lake stayed for several days then disappeared overnight.



Sally Casey family

### **Sally Casey (nee Gramstad)**

M.S. 2000; [sdcasey@ideaone.net](mailto:sdcasey@ideaone.net)

Sally informs us at that she and her husband Frank (also a graduate from ISU) had a baby girl, Lucy Chafia (pronounced "Sha-fee-ah") on July 14 at 5:25 a.m. She was 9 lbs 3 oz and 19.5 inches long. Mother, daughter and the rest of the family are doing well.



### **Olivia Chan**

B.S. 2002; [chanolivia@gmail.com](mailto:chanolivia@gmail.com)

Olivia went back to Hong Kong last year to continue her studies at the University of Hong Kong. In May, Olivia (as an "ecologist") joined geologists from the University of Hong Kong on a month-long field trip to Tibet.

### **Richard (Dick) Handy**

B.S. 51, M.S. 53, Ph.D. 56; [RLHandy@iowatelecom.net](mailto:RLHandy@iowatelecom.net)

Dick just completed the 5th edition of a textbook on geotechnical engineering. It will be published by McGraw-Hill in 2007 and still contains a healthy dose of geology, as should be expected. Dick's *Day the House Fell*, for non-professionals, is available online from Amazon, and now is in its 5th printing. He is working on another book called *FORE* that he says has nothing whatsoever to do with golf, but it does address recent improvements in pole vaulting. We never know quite what to expect. Dick is a Distinguished Professor Emeritus in the Dept. of Civil and Construction Engineering at Iowa State. His company makes soil and rock testing instruments, [handygeotech.com](http://handygeotech.com).

### **Dan Hansen**

B.S. 76, M.S. 78; [DHDL@chevron.com](mailto:DHDL@chevron.com)

Dan is currently working for Chevron concentrating on Angola Block 0 development geology. This summer Chevron drilled a long reach dual lateral well into a pressure depleted 40-year-old oil reservoir in order to test the viability for redevelopment with laterals and water-flood. If successful this redevelopment would be a major capital project for the corporation with 100 million barrels of secondary recovery potential. In the recent past

Dan spent about six years working exploitation opportunities concentrating on 3D seismic interpretation and drilling gas wells in South Texas, with a short related assignment in the Burgos basin in northern Mexico. During the '90s, Dan did business development, acquisitions and divestitures for Chevron North America, which was totally a commercial assignment with coordination and negotiation of transactions and economic analysis being principal responsibilities. In his wild and woolly days he was in Casper, Wyoming and Oklahoma City with various exploration and development geology assignments in the Rockies and Oklahoma basins for Kerr McGee, Gulf Oil and then Chevron



#### **Dan Hummer**

B.S. 2004; dhummer@geosc.psu.edu

Since graduating with a strong interest in mineralogy and crystallography, Dan moved to Penn State University to undertake doctoral studies. He is currently working on time-resolved diffraction experiments that seek to track structural changes in minerals as they precipitate from solution. Although busy with research, he occasionally make it back to Ames to visit family and friends. Dan says he would be happy to hear from any faculty, students, or alumni who would like to keep in touch.

#### **Jennifer Humphrey**

B.S. 1988; nkblot200@aol.com

Since leaving ISU with a B.S. in Earth science and an M.A. in English, Jennifer has made a living primarily in business writing. Since 1998, she has been an independent writer, editor, researcher, and business communications consultant for clients in various industries. Recent projects have included press releases,

company newsletters, pamphlets, feature articles, company profiles, personality profiles, advertisements, and Web content, among others. Previously, she was executive editor of a regional business journal serving multiple counties in central Pennsylvania.

Recently she celebrated her 17th wedding anniversary with her husband, David Hulce, a molecular biologist working for a software company. They met and married while they both were students at ISU. Jennifer greatly enjoyed her studies in Earth science. Her love of the outdoors was enriched, and she sometimes has the opportunity to use her geology background in her business writing.

#### **Tom Hooyer**

Ph.D. 1999; tshooyer@facstaff.wisc.edu

Tom is still living in Madison, WI, and working for the Wisconsin Geological Survey where he recently received tenure. He splits his time between making geologic maps and conducting independent research on glacial processes (in collaboration with Neal Iverson). On the personal front, he has been doing a lot of bike racing (without the use of performance enhancing drugs!!) and teaching triathlon classes at a local health club. He also continues his desire to be a geochemist since he manages to consume his share of microbrews - especially those made in Wisconsin.

#### **Richard "Dick" Iverson**

B.S. 1977; riverson@usgs.gov

Dick continues to work at the U.S. Geological Survey's Cascades Volcano Observatory (see page 16). Over the past year his work has focused mostly on modeling the dynamics of the ongoing eruption of Mount St. Helens. During the past year he also served as the Richard H. Jahns Distinguished Lecturer in Engineering Geology for the Geological Society of America, and he was elected a Fellow of the American Geophysical Union. Dick's professional activities can be viewed at <http://vulcan.wr.usgs.gov/Projects/MassMovement>.

#### **Joe Jensen**

B.S 1977, M.S. 1981; J.M.JENSEN@att.net

Joe was the Production Geology Manager for PetroKazakhstan (Kyzylorda, Kazakhstan) until April of this year. He resigned when the Chinese National Petroleum Corp (CNPC) bought the company and privatized it. CNPC is not a publicly traded company but is a part of the Chinese government and Communist Party of the PRC. He worked through two rotations when he decided he wasn't going to fit in with the new management. He has since joined Chevron North America E&P. He and his family will be moving to Midland, Texas this summer. Joe previously worked in

Midland from 1985 to 1995 with Mobil. For him and his wife, Victoria, it is like a homecoming, since they met and married in Midland and their daughters Marta (age 13) and Emma (age 11) were born there. On a more personal note, Joe had a small heart attack last year that was corrected with a cardiac stent. He informed us that "It's not necessarily bad living on my part just bad family genes. Other than that, things are going well for me and my family." They are going to try to make it to the Alumni Reunion in 2007.

#### **Erik Kvale**

B.S. 1978, M.S. 1982, Ph.D. 1986

Erik recently decided to change career directions and leave the Indiana Geological Survey. He just accepted a position as senior geologist with Devon Energy in Oklahoma City. He spent nearly 20 years in Indiana and very much enjoyed his research projects and the friends he made. He looks forward to the challenge this new position brings and is ready for the change. He will miss the field work but is excited about the new technology to which he will be exposed. His new contact information is: Erik Kvale, Exploration Dept., Ofc. #6.005, Devon Energy Corporation, 20 N. Broadway, Oklahoma City, OK 73102 [(405) 228-8920 (Office)]

#### **Moses Langley**

B.S. 2004; mlangley@iastate.edu

Moses defended his thesis this summer in psychology at ISU and will be continuing on in the PhD program. His advisor will be Doug Bonett, who is now the chair of the department. Moses will also be doing some Event Related Potential (ERP) research, which measures the electrical activity in the brain. Interestingly, ERP research got its start when some psychophysicist stole the concept of triangulation from geophysicists! Moses guesses the original idea was that the skull (crust) and brain (mantle) could be viewed analogously to the Earth.

#### **Randy Luwe**

B.S. 1980, M.S. 1983; luwecrew@cox.net

Randy moved his family in 1991 from Des Moines to New Orleans to head up the Industrial Office of Montgomery Watson Harza. He was promoted to a Vice-President in 1993 and served in the office manager capacity until he left MWH in 1997 to start his own company, Lagniappe Environmental, LLC. The term "lagniappe" means a little something extra. In August 2005, the company moved into its own building and continued to provide services to local and regional clients. Then Katrina hit on August 29, 2005. The company building came out fine with no damage but their home received a foot of water. After months of fighting with the insurance company and then three months of remodeling, his family finally moved back into



their house on May 26, 2006, almost 9 months after Katrina hit. Randy said it was an unbelievable experience that he never wants to live through again. His company restarted business by September 12, 2005, only 15 days after Katrina hit. Business has been brisk since the hurricane and 2006 looks like a very good year. The website for his company is [www.lagniappeenvironmental.com](http://www.lagniappeenvironmental.com). Randy's wife Pam enters her 15th year as a NICU nurse at East Jefferson Hospital. Their three boys are doing well; Alan is 21 and a junior at Nicholls State University; Matt is 20 and is a sophomore at ULL; while Tim is 10 and just finished fourth grade at John Curtis Christian School. Randy swung through Iowa in July 2006 to celebrate his father's 80th birthday at Clear Lake.

#### **Amber Nightengale**

M.S. 2002; Amber.m.Nightengale@nga.mil

Amber is working in Washington, D.C. with the National Geospatial Intelligence Agency. Previously, she had worked with Shell in New Orleans. Last year she also had the opportunity to go on vacation in Sydney and Cairns (Australia) and to get back to Ames.

#### **John O'Sullivan**

M.S. 1958; jbosullivan@aol.com

John has done many things since leaving ISU in the late 1950s. He first went to work at Allis-Chalmers in Milwaukee (1962-1969). This was followed by a stint with the U.S. Army at the research and development center in Fort Belvoir, VA (1969-1980). After the army, John moved to Chicago, where he was employed by the

Institute for Gas Technology (1980-1992), and then to Palo Alto where he joined the Electric Power Research Institute (1992-2000). In the latter job, he worked on fuel cells and other distributed generation technologies. During that period of time, John was appointed to the Department of Energy to serve on its Hydrogen Technical Advisory Panel (HTAP). He not only subsequently chaired that panel but he also chaired the National Fuel Cell seminar in Portland in 2000. John retired from his position in Palo Alto in 2000 and consulted on fuel cells and hydrogen related technologies until 2004. Over the last 8 years, John has been on a variety of trips to China (1998), Australia/New Zealand (2000), Alaska (2004), and South America/Antarctica (2005-2006). John's current address is 950 Eichler Drive, Mountain View, CA 94040 (ph. 650-967-6824) but he will be moving to the east in mid September to HG - Apt. # 17, 3154 Gracefield Road, Silver Spring, MD 20904. As of September 1, John's new phone will be: 301-890-1695.

#### **David Pals**

B.S. 1998, M.S. 2002; dpals@igsb.uiowa.edu

#### **Diane Pals**

B.S. 1995, M.S. 1998, Diane.A.Pals@us.mwhglobal.com  
David and Diane are still alive and well and living in Iowa City where David works for the Iowa Geological Survey Bureau and Diane works for Montgomery Watson Global. However, the "alive and well" part may not have been the case for David after the 200 mile Mountain Bike Race he did this summer in Kansas. David made the 20 hour cutoff with time to spare but was the last to actually finish. Given below is an excerpt from the official race report (**Editor's Note:** David's survival skills should be of no surprise given his hair-raising underground adventures at the Emperor gold mine, Fiji, where he did his master's research project!)..... "Congrats to all who finished. But a special "Job Well Done" goes out to David Pals from Iowa. This guy had spent 18 hours on his bike. Then, with just a few miles to go, a massive electrical storm comes through the area, lighting up the sky in every direction. Just as David pulls into the city limits, the rain starts coming down in sheets. David makes the final turn toward the finish line at the Emporia Travelodge... he's got to be thinking things can't possibly get any worse... and he gets center-punched by a car making a left-hand turn. Thankfully, David did not get hurt. He valiantly got up and finished the remaining three blocks to the finish line, welcomed by the cheers and admiration of all who were still gathered in the parking lot. Way to go David!!!"

#### **Millie Parades**

M.S. 1994; milipa@yahoo.com

Millie worked for BHP in South America until 2000, at which point she decided to switch gears and move more into managerial positions. To do this she went to Cornell

University in New York and obtained an MBA. During that time she had a lot of interaction with folks from the high-tech world. It was through that experience she decided to completely change directions again and accepted a position as a financial analyst with Hewlett Packard. Not long after that, she met her husband, had a baby, and then took a break from the working force until 2006. They subsequently moved from California to her new position in Portland as a Strategic Financial Analyst at Intel. (**Editors Note:** I am not sure what it is about doing geochemical and mineralogical studies of gold deposits in Montana but Millie and another former graduate student, Xiaomao Zhang (Ph.D. 1992), both fortuitously work for Intel at the same office in Portland).

#### **Lori Parrott**

B.S. 1983; lkparro@comcast.net

Lori is at Sandia National Laboratories in Albuquerque, New Mexico, where she is part of a small internal technical think tank that works on potential issues and problems for the national laboratories to consider in the future.



#### **Jill Rosenberg**

M.S. 1998; jrsnberg@hotmail.com

Jill continues to work at the Department of Natural Resources in Madison, Wisconsin, developing web-based, database-driven applications, doing GIS work, and whatever other assorted and sundry computer-type things people throw her way. However, whenever she gets the chance she is off and hiking on some exotic location. Last year it was India, this summer it was a month-long trip to Peru. In Peru, she trekked around a couple of different massifs in the Cordillera Vilcabamba (Salkantay) and Cordillera Vilcanota (Ausangate). In between times, she spent a couple of days visiting the Inca ruins of the Cusco area, the Sacred Valley of the Incas, and of course, Machu Picchu. As she was plodding along up the mountain passes, she was amazed at all of the beautiful examples of andesite porphyry there were to be found in the area. And, in Jill's words "...it occurred to my oxygen-starved brain that that was, after all, where

the name comes from.”

### **Bob Powell**

B.S. 1982; [Bob.Powell@questar.com](mailto:Bob.Powell@questar.com)

Bob is beginning his 24th year as a Petroleum Geologist with Questar Exploration and Production Company. He works in the Mid Continent Division out of Oklahoma City. His division drills oil and gas wells in Oklahoma, Texas, Kansas, Louisiana, and Arkansas. Questar also has operations in Utah, Wyoming, Colorado, California and New Mexico. In 25 years his company has gone from doing its exploration work mostly by hand, with 2D seismic data and paper copies of well logs, to working with 3D seismic and digital well data from computer work stations today. With the development of the internet, GPS and e-mail he seldom ventures to the field anymore except for the occasional field trip sponsored by local Geological Surveys and Universities. He misses his days in Shell, Wyoming.

Recently Questar has been trying to attract more young people into the business. He recommends that any seniors or graduate students who are interested in petroleum geology contact energy company's about summer internships. It is a great way to get experience in the industry and find out if they really like the job.

He and his wife, Kim, will celebrate their 25th wedding anniversary in May 2007. Bob's oldest son, Danny, is a senior in Civil Engineering at Oklahoma University, while his son Anthony is a sophomore at Rose State College (RSC). Anthony is majoring in radiation therapy and plays on the RSC baseball team. His youngest son, Chris, is a junior in high school and is an elite gymnast and a varsity cheerleader. Bob and Kim also have a grandson, Damian, age 3.

### **Mike Rich**

M.S. 1975; [mrich@psisidell.com](mailto:mrich@psisidell.com)

Mike is not doing any geology these days, but is alive and well. He worked in the oil and gas industry for 13 years, and then went on to a completely new career. Now, as Assistant Vice President of Planning Systems, Inc., an information technology, engineering services, and scientific R&D consulting firm, he has spent the past 17 years managing people, facilities, and budgets, and making sure enough work comes through the door to keep everyone gainfully employed. PSI was sold last year to Foster-Miller, Inc., which is a wholly-owned subsidiary of QinetiQ, a British defense company.

Mike, who has three grown children and a six-month old grandson, lives and works in Slidell, Louisiana, where Hurricane Katrina turned life inside out for him and much of the community in August 2005. After living in

their brand new home for only nine months, Mike and wife Mary had to contend with 13 inches of muddy flood water in their house, not much by Katrina standards, but enough to ruin just about everything. However, they had plenty of flood insurance, got an early start on repairs, and were pretty much back to where they started by Christmas. During that time, Mike also served as president of the Rotary Club of Slidell Northshore, which established a committee to raise money for restoration of Slidell's social service agencies. The two Slidell Rotary clubs have raised \$1.4 million to date and are working on nine restoration projects.

### **Josh Rohret**

B.S. 2003; [jjrohret@utep.edu](mailto:jjrohret@utep.edu)

After graduating in December 2003 from ISU Josh went to the University of Texas at El Paso to get his M.S. in geology (Josh graduated May 2006) on a project entitled, "Structural Geology of the Bishop Cap Hills in South-central New Mexico." He just moved to Midland, Texas, and will begin working full-time for Chevron. He is still interested in going back to school to do a Ph. D. at some point.



### **Tom Smith**

M.S. 1971; [tsmith@seismicmicro.com](mailto:tsmith@seismicmicro.com)

Tom reports that his company, Seismic Microtechnology, has grown in size with four offices and the software is being used in over 70 countries. With recent heavy demand for oil and gas, exploration and reservoir evaluation activities are way up. New licenses are being sold at a faster clip than at any time in the past. Let's all hope they find something!

### **Cindy Sporrer**

B.A. 1999; [cynthia.sporrer@dmps.k12.ia.us](mailto:cynthia.sporrer@dmps.k12.ia.us)

Cindy spent some time in the US Peace Corps in Gambia, West Africa. Upon returning to Iowa, she worked with underprivileged kids at the Boys and Girls Club on the Eastside of Des Moines. Later, she decided it was time to start using her science background in the same neighborhood, and she is finishing her 3<sup>rd</sup> year teaching for the Des Moines Public School District as a 6<sup>th</sup> grade

Science Teacher at Hiatt Middle School. She bought her first home two summers ago in Des Moines and recently became engaged to Freddie Windsor. They were selected by Earthwatch Expedition to work alongside scientists this summer in Salmon-Challis National Forest in Idaho. They will be assisting Earthwatch scientists who are tracking wildlife and designing efficient wildlife corridors as a result of human expansion and development that is threatening their survival. She is excited and anxious about this opportunity to learn about something new and to be able to come back and share it with her 6<sup>th</sup> graders in the upcoming school year! “Cindy says “Life is good!”

### **Matt Stamp**

B.S. 1993, M.S. 1996; matthewmstamp@yahoo.com  
Matt works for Kiewit Attorney as an environmental attorney. He is currently serving as a contract administrator for a runway project (\$160 million). He still keeps in contact with the faculty and misses the geology program and ISU a great deal.

### **Bill Staub**

Ph.D., 1969; Grmp404@cs.com  
Bill, as many of you know, did a number of things during his career. These included serving as a professor of geology at the University of Tennessee, Knoxville from 1969 to 1976 and working as a geotechnical engineer at Oak Ridge National Laboratory from 1976 to 1996. Bill wanted to do something a little different for this year's *Varve* contribution and sent us a couple of war stories about some ISU people who are very dear to him and who affected his life in very significant ways. One of these stories is included here. ...read on...

“My doctoral dissertation had its beginnings on the Liard Plateau of northeastern British Columbia. I was a party chief on a seismograph crew that was operating in that area in the winter of 63-64. One day, I was called to Edmonton to discuss a project with a geologist in Cal Stans' (a Canadian subsidiary of Standard Oil Company of California) division office. I walked into his office and there he was puffing on a big cigar. “Bill,” he said, “I want you to put together a team to gather seismic refraction data so we can get a better idea how thick the glacial till is. I don't want to tie up the reflection crew as that would be too expensive.” At that point, he pulled out a portable seismic refraction recorder that was no bigger than a medium-sized suitcase. I said, “What do you think we should use as an energy source?” He reached into his desk drawer and pulled out a four inch stick of dynamite. For a moment, I was speechless. Then I said, “That should work!” I took possession of the “suitcase,” procured a hand auger, and a couple of field hands and off we went.

In the winter of 65-66 I was in Lyle Sendlein's office at

Iowa State University. He said, “Bill, what do you think of this?” Well, *deja vous!* There on his desk stood a Geospace portable seismic refraction recorder. At this point, I began looking around for high explosives (there were none). The rest is history. We embarked on mapping the configuration of the Ames Anticline and pre-glacial drainage systems of central and western Iowa. Richard Handy (B.S. 1951, M.S. 1953, Ph.D. 1956) provided a programmable calculator from the soils engineering lab. This was indispensable for calculating depths to bedrock and the high-speed Gilmore City formation from seismic refraction data. The mapping of the Ames Anticline might have been a bust had it not been for Gene Moores and Richard Handy. My first attempt was a dismal failure. First Moores, and then Handy suggested I take a course called statistics for research workers. We eventually used the method of least-squares to determine precise seismic velocities through glacial till, bedrock, and the high-speed layer. Then, correlation analysis was used to determine the quality of the data. If a poor correlation was apparent between time and distance on a seismogram, the data were excluded from consideration because of the likelihood of unacceptable experimental error. We went on to map the configuration of the Ames Anticline successfully. None of this would have happened without my Canadian colleague in Edmonton and Sendlein, Handy, and Moores at Iowa State University. Thanks guys. It really takes a village.”

### **James Sturm**

B.S. 1996; jasturm@yahoo.com  
James has been deployed in central Iraq since last November as the commander of an engineer company in the 4<sup>th</sup> Infantry Division. He is engaged in construction projects and assessing infrastructure of the local province. His unit also conducts combat operations and engineer missions. He will be returning to Fort Hood, Texas in November. Jamie was recently married to CPT Audrey Terry, who is also an engineer and a graduate of West Point.

### **David Svingen**

B.S., 1979; dmsvingen@terracon.com  
David is a regional manager for Terracon Consultants, Inc., a geotechnical, environmental, and materials engineering firm in Omaha. He and his wife, Julianne, are the parents of three teenagers. David also serves as a co-leader of an Earth Sciences Explorer Post and will become President of the Nebraska Geological Society (AAPG affiliate society) this fall. David greatly enjoyed visiting with faculty, alumni, and friends at the 2002 reunion at the Carl F. Vondra Field Camp. He was at first disappointed at the large amount of geological information he had forgotten about the Big Horn Basin but after reflecting, he realized that the process of

analyzing problems, developing solutions, and working in a team, were the most valuable skills taught at field camp; and these skills he uses every day.



**Joan Jach**

M.S. 2004

**Jason Thomason**

Ph.D. 2006; thomason@isgs.uiuc.edu

Joan and Jason currently live in Champaign, IL. After completing her M.S. degree, Joan earned a Masters of Art in Teaching at ISU in 2005. She is substitute teaching in the Champaign/Urbana school district and is a part-time employee with the Illinois State Geological Survey (ISGS). Joan is actively involved with ISGS outreach programs. Jason is employed as a Quaternary Geologist with the ISGS. His research includes the glacial geology of Lake County, IL, and he continues to work at Wedron, IL, where the type section for deposits of the last glaciation is located. Joan and Jason recently joined current Ph.D. student Pete Moore (M.S. 2002) for a grueling portaging trip in the Boundary Waters Canoe Wilderness Area (picture). Most recently, Joan has taken up Italian while Jason has begun fiddle lessons, both long overdue.

**Lynn Watney**

M.S. 1972; lwatney@kgs.ku.edu

Lynn will be visiting Ames in October to receive the John V. Atanasoff Research and Discovery Award from the College of Liberal Arts and Sciences at ISU. Lynn continues to work at his joint appointment at the Kansas Geological Survey and the KU Energy Research Center. He celebrated his 30th year at KU last February. He sprinkled last year with a few long weekends to Colorado or Iowa to see family. Also during this past year, Lynn has been hosting a visiting scholar from China Geosciences University in Wuhan PRC and is gearing up to prepare a volume on the Geologic History of Kansas.

## Carls to again host October Houston alumni luncheon

On Oct. 13, Carl Vondra and Carl Jacobson will be in Houston to host a luncheon at the Marriott West Loop By The Galleria. This is the same event that has been held in the spring in past years.

We are experimenting with a shift to the fall because the AAPG annual meeting, which draws much the same crowd, is also in the spring.

We will meet at noon in the hotel restaurant. Lunch will be followed by a brief update on the state of the Department.

Please contact **Carl Jacobson** (515 294-1837; cejac@iastate.edu) if you plan to attend or if you have questions. We will be e-mailing or calling those of you who have attended in the past.



2006 AAPG Breakfast. Top – Erik Kvale addressing the alumni about field camp. Middle (L-R) – Erik Kvale, Dave Hamilton, and Rick Chamberlin. Bottom (L-R) – Brian Little, Dan Hansen, Howard White, Mike Kozimko, and Don Henkel

# International oil



Even after retirement, Richard Matzke stays active in the international oil business.

For 40 years Richard Matzke was a Chevron man. The 1959 Iowa State geology graduate joined Chevron right out of college.

“This was my first job out of school,” he said. “I was a well site geologist in Louisiana.”

Matzke didn’t stay a well site geologist for long. He advanced through a number of leadership positions in Chevron (now ChevronTexaco) in exploration, economics, research and corporate planning.

But it was after serving as vice president of Chevron Chemical Company that Matzke’s career took a different turn. While he was still working for Chevron, his interests changed.

“Midway through my career I got involved in Chevron’s international activities,” he said. “The last 20 years at Chevron I spent acquiring new projects for the company outside U.S.”

That role saw Matzke serve in executive positions as director of Caltex Pacific Indonesia, president of Chevron Canada Resources Ltd., and president of Chevron Overseas Petroleum where he was responsible for directing Chevron’s oil exploration and production activities outside of North America.

One of those locations was the former Soviet Union.

After the collapse of that country in the 1990s, Matzke continued working with Chevron’s business interests in the new country of Kazakhstan.

“The oil reserves there are amazing,” he said. “There are billions of barrels of oil there but Kazakhstan is landlocked from the world. It’s easy to get to the oil, you just can’t get it out real easily.”

Working closely with the various governments in these foreign countries can be tricky. But Matzke says he became adept at that.

“I think my most significant contribution in the international arena was that I seemed to get along with the government officials,” he said. “It wasn’t geology by a long shot.

“International work is very challenging,” Matzke continued. “There is no cookbook for success. I had to be creative but I felt comfortable listening to others and trying to figure out what they were after.

“It’s an evolutionary process. Being a geologist had some contributions to whatever I did with Chevron. The international work was a learning experience and it’s all rewarding. There’s no reason to stop doing it just because you left the company.”

When Matzke left Chevron in 2002 (he retired as the company’s vice chairman of the board of directors) he continued his international activities. He has been active

on a number of leadership positions including chairman of the board of directors of the United States-Kazakhstan Business Association, a member of the United States-Russia Business Council and the Business Council for International Understanding.

He served on the board of the American-Iranian Council, the National Committee on United States-China Relations, and was chairman of the United States-Azerbaijan Chamber of Commerce.

And he is a member of the Board of Directors of OAO LUKoil, Russia’s largest oil company. He is currently president of NESW Solutions.

In 2004 he was a Council on Foreign Relations task force member that produced a report “Iran: Time for a New Approach.” That task force was headed by Zbigniew Brzezinski, former national security adviser, and Robert Gates, former CIA director.

“As you get older the contributions you make are different from other times of your life,” Matzke said. “The image of your country and what you represent replaces your own personal efforts.”

The Department of Geological and Atmospheric Sciences honored Matzke last October with its “Outstanding Alumni Award.” ♦



Richard Matzke receives his alumni award from LAS Dean Michael Whiteford (right) and department chair Carl Jacobson.



Alumnus Richard Iverson has become one of the world's foremost experts in debris flow.

## Debris field

**R**ichard Iverson owes a lot to Mount St. Helens. After leaving Iowa State with a B.S. degree in geology in 1977, Iverson went to graduate school at Stanford and was still on the West Coast when the nation's most famous volcano erupted in May 1980.

That eruption, in part, helped Iverson get his first job after completing his graduate work.

"In the early 1980s I was one of a large number of graduate students working part-time for the USGS (U.S. Geological Survey) in California," he said. "But the USGS wasn't hiring too many people permanently when I finished my doctoral work in 1984."

The exception was the Vancouver station where geologists continued to monitor Mount St. Helens and the rest of the Cascade Mountain Range.

"In 1984, Mount St. Helens was still erupting and the USGS had a special exemption to hire scientists for the offices in Vancouver," Iverson said. "They offered me a permanent job up here even though I knew nothing about volcanoes."

Iverson's expertise is landslides and debris flows. His research looks at better understanding the mudflows and landslides that come off volcanoes, triggered by eruptions, earthquakes or a spontaneous collapse.

Such a case was the May 1980 eruption of Mount St. Helens.

"This job turned out to be a really good fit between my interests and volcano hazards," he said.

While many USGS colleagues are concerned with the activities that occur within a volcano, Iverson's research looks at activities that happen above ground.

But that doesn't necessarily make the research all that much easier to conduct.

"There's a long record of frustration with data collection in the field," Iverson said. "Landslides in the field don't always cooperate with you."

With that in mind, Iverson went about devising a way that he could observe debris flows firsthand. He has created a debris flow flume on a plot of land 50 miles east of Eugene, Ore., on a facility administered jointly by Oregon State University and the U.S. Forest Service.

He and other USGS researchers now utilize this giant slide for mud – a 100-meter long, 2-meter wide cement flume bolted to a mountainside at a 30-degree angle. Iverson got the idea while on a trip to Japan in the late 1980s where he went to do some landslide experiments.

"It opened my eyes to the possibility of doing experiments in a controlled environment instead of in the field, which would give us a huge advantage," he said.

Iverson had a rough idea of how he wanted the flume to work and designed it based on the 30-degree slope because that was "typical of where landslides occur in the field." He worked with structure engineers to come up with the finished design.

Funding and location were a problem because the researchers needed to build a structure as big as possible to mimic natural events. The site where the flume was eventually located was ideal because it contained an existing road to the top of the slope.

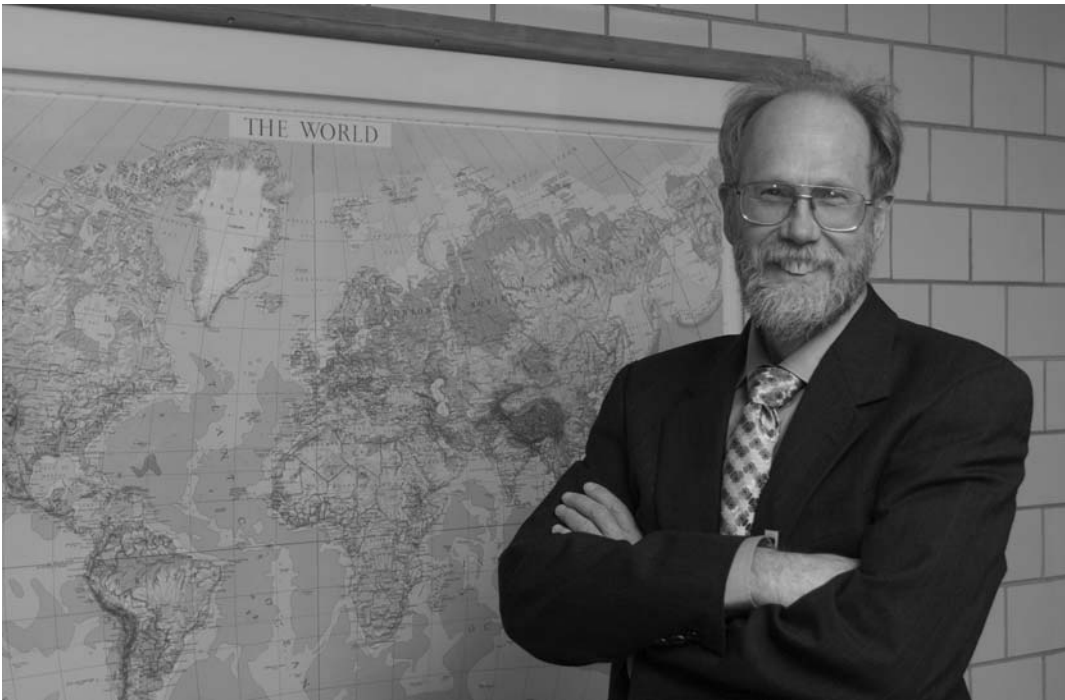
The first few years of experiments at the flume site proved to provide a steep learning curve for Iverson and his colleagues. They put a combination of sediment and water at the top of the flume and then release it.

"In the very first experiment we wanted to have a spectacular show," Iverson said, "so we put 12 cubic meters of wet sediment in the flume, which amounted to roughly 30 tons of material. The material came out so slowly that it simply coated the bed of the flume, and it took nearly a week to get all the sediment out."

Now Iverson and his colleagues are pretty efficient with their experiments. He is able to collect data on flow depth and velocity, which has been used to improve computer models for predicting the behavior of mudflows and to verify theories about previous flows.

The facility gets use not only by his research group but others throughout the world. Each summer Iverson tries to conduct experiments on a couple of different occasions.

But that is becoming more and more difficult. For that Iverson can thank Mount St. Helens, which has again begun to rumble. The Vancouver USGS office maintains a 24-7 watch on the mountain. And with a reduction of staff at the facility, everyone gets into the act – even a landslide expert like Richard Iverson. ♦



National Academy of Science member recognized by Department of Geological and Atmospheric Sciences.

# Pure scientist

**N**ame a science and there's not only a good chance that Thure Cerling is interested in it, but has also conducted some sort of research in that area.

That diversity and excellence of his work has been the hallmark of Cerling's academic and professional careers.

"Maybe I just have a short attention span," joked Cerling, a 1972 and 1973 (master's) graduate in geology.

He also holds a bachelor's degree from Iowa State in chemistry.

Cerling was honored this past Homecoming with the Department of Geological and Atmospheric Science's Geology Distinguished Alumnus Award.

"I've continued to learn things in one area that can be applied to other things," he added. "Everything you learn has a potential to be useful in other areas. You can find a different technique and see if you can use it on something else."

That's what Cerling has done for the past 30 years at the University of Utah where he is a Distinguished Professor of geology, geophysics and biology. His research involves the application of geochemistry to a wide variety of processes in ecology and near-surface geology.

He has conducted fieldwork on all seven continents with studies ranging from the diets of modern and ancient mammals, to early man sites in east Africa, to groundwater contamination.

"I've gotten involved with many different aspects of science," Cerling admits.

"The one theme that has continued, however, if you

find what you're interested in when you are young, you are always interested in that area."

In that regard, land forms and landscapes have always interested the geologist in Cerling. He pioneered a method used by scientists around the world to study the evolution of Earth's ancient climate, atmosphere and ecosystems.

He has shown how atmospheric carbon dioxide levels dwindled, prompting the spread of warm season grasslands 7 million years ago, and the later extinction of some animals that could not survive on grasslands and the evolution of other species such as early humans.

He has studied isotopes produced when cosmic rays hit rock, allowing him to date the flood-causing collapse of ancient lava dams in the Grand Canyon and to measure erosion rates on the Colorado Plateau.

Several of his studies are related to nuclear waste disposal. He currently serves on the Nuclear Waste Technical Review Board, appointed in 2002 by President George W. Bush.

Some of his more recent work involves analyzing isotopes in the teeth and hair of modern animals to understand their diets.

Cerling's research activities led to his election to the National Academy of Sciences in 2001.

Despite his scientific accomplishments Cerling was surprised by his selection.

"It was a total surprise," he said, "but I knew they couldn't have made a mistake – not with a name like mine." ♦

# Contributions

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(January 1, 2005 to August 1, 2006)

## Geology Alumni Development

David Hurd (BS 1984)

## Rodney Gardner Scholarship

John Barwin (BS 1956)

## Quentin Schmidt Memorial Field Trip Fund

Patricia Dickerson (MS 1983)  
David (MS 2002) and Diane (MS 1998) Pals  
Paul Spry

## Carolyn Jones-Eiler Scholarship

James Eiler

## John Lemish Memorial Scholarship

William Boyd (BS 1956)  
Gene DeKoster (MS 1960)  
Ronald Genter (BS 1958)  
Gerald Hunt (BS 1959)  
Carl & Carol Jacobson  
John O'Sullivan (MS 1958)  
Frank Reckendorf (MS 1964)  
Arthur Soregaroli (BS 1959)  
Stephen Stouffer (BS 1957)  
W. Lynn Watney (MS 1972)

Chevron Corporation  
Conoco Phillips Foundation

## Geology Field Camp Fund

Richard Adams  
Ben Barnes (MS 1985)  
James Beck (BS 1968)  
William Boyd (BS 1956)  
Richard Brown (BS 1953)  
Steven Condon (BA 1973)  
James Englehorn (BS 1955)  
Sarah Fortin (BS 2001)  
Richard Fox (BS 1963)  
Larry Garside (BS 1957)  
Jerry Glenn (BS 1957)  
Kenneth Harpole (BS 1973)  
Gary Hauser (BS 1961)  
Leo Kozimko (MS 1977)  
Roger Larson (BS 1965) (deceased)  
Craig Lyon (BS 1953)  
Jonathan Maifield (BS 1997)  
Robert Martin (BS 1984)  
Mark Mathisen (PhD 1981)  
Jon Peckenpaugh (BS 1970)  
John Rudisill (BS 1976)  
James Sallee (BS 1966)  
Leroy Shaser (MS 1978)

Tom Smith (Seismic Micro-Technology) (MS 1971)  
David Svingen (BS 1979)  
Robert Weeks (BS 1940)  
James Zalesky (BS 1977)  
Richard Zingula (BS 1951)

Chevron Corporation  
Conoco Phillips Foundation  
Quantum Earth Corporation  
Yates Petroleum Corporation

## Geology Development Fund

Gary Anderson (MS 1963)  
Lee Backsen (MS 1963)  
Richard Brown (BS 1953)  
Michael Burkart  
Keith Carlson (MS 1962)  
Steven Carlson (BS 1981)  
Clint Carney (BS 1997)  
Robert Carson (BS 1974)  
Robert & Anita Cody  
Jane (MS 1986) & Robert (PhD 1987) Dawson  
Charles Fudge (BS 1956)  
Ronald Genter (BS 1958)  
Kent Gorham (BS 1979)  
Allen Hanson (BS 1947)  
Tom Hooyer (PhD 1999)  
Eric (BS 1980) & Nancy (BS 1980) Jensen  
Dwight Johnson (BS 1973)  
Douglas Klein (BS 1963)  
Robert Ladd (MS 1979)  
Carol Minix (BS 1976)  
David Morehouse (MS 1970)  
Dale Nyman (BS 1953)  
Curtis Peck (MS 1980)  
Clay Postlethwaite (PhD 1988)  
Lee Potter (MS 1988)  
Robert Powell (BS 1982)  
Dennis Powers (BS 1967)  
Darvin Rehms (BS 1958)  
Dennis Reida (BS 1974)  
George Rosenfeld (BS 1956)  
John Rudisill (BS 1976)  
Carl Shaw (MS 1986)  
Hugo Sindelar (BS 1952)  
Tom Smith (Seismic Micro-Technology) (MS 1971)  
John Spencer (BS 1971)  
Jenny Stadler (BS 1981)  
Richard Stump (BS 1954)  
David Svingen (MS 1981)  
Georgia Vondra (MS 1993)  
W. Lynn Watney (MS 1972)  
Lowell Wille (MS 1984)  
Mark Wiseman (BS 1974)  
Richard Zingula (BS 1951)

Chevron Corporation  
Tyco International Ltd

## Georgia L. and Carl F. Vondra Graduate Fellowship

Hoyt Acuff (PhD 1976)  
Igor Beresnev  
Carl & Carol Jacobson  
Erik Kvale (PhD 1986)  
Mark Mathison (MS 2000)  
Lee Potter (MS 1988)  
Karl & Carole Seifert  
Tom Smith (Seismic Micro-Technology) (MS 1971)  
Ken Tindall (MS 1985)  
Carl & Georgia Vondra

Kerr-McGee Foundation

## Huedepohl Geology Field Camp Scholarship (2701147)

Bradley Huedepohl (MS 1956) (deceased)  
Carl & Carol Jacobson

## Geological Sciences Funds & Endowments

**Huedepohl Geology Field Camp Scholarship:** Established in 2004 by Bradley Huedepohl (M.S., 1956) to provide a scholarship for an undergraduate to attend the summer field camp.

## Carolyn Eiler-Jones Scholarship:

Established in the memory of Carolyn Eiler-Jones (B.S. 1973) by her family, this fund provides a scholarship for an undergraduate student to attend the summer field camp.

## Geology Alumni Development Fund:

Established by Geology alumni, this fund provides support for travel and other expenses associated with development activities.

## Geology Development Fund:

This fund is unrestricted. Generally, it has been used to support purchase and maintenance of equipment used in research and teaching, and to cover start-up funds for new professors.

**Geology Field Camp Fund:** This fund allows improvements in the facilities at the ISU Field Station.

## Geology Graduate Scholarship Fund:

Established in 2005 to increase the number of graduate assistantships beyond those available from teaching and grant funds.

**Geology Undergraduate Scholarship Fund:** Established in 2005 to recruit new majors to the Department and to reward excellent performance by undergraduate students.

## Georgia L. and Carl F. Vondra Graduate Fellowship:

Established in 2000 in honor of the distinguished contributions of Carl Vondra to the Department of Geological and Atmospheric Sciences. This fellowship is to attract an outstanding incoming graduate student by providing a fellowship above and beyond the stipend the student will already receive from a research or teaching assistantship.

## John Lemish Memorial Scholarship:

Established by Dr. Ramon Bisque (Ph.D. 1959. This fund provides an award of \$250 to an outstanding graduate student with demonstrated research ability.

## O'Brien-Lonsdale Endowment Fund:

This fund will establish an endowed chair in geology.

## Peter R. Johnson Memorial Scholarship:

Established in the memory of Peter R. Johnson (B.S. 1977) by his family, this fund provides a scholarship for an undergraduate student to attend the summer field camp.

## Quentin Schmidt Memorial Field Trip Fund:

This fund furnishes financial support for class and departmental field trips.

## Rodney D. Gardner Memorial Scholarship:

Established in 1995 by the children of Rodney D. Gardner (B.S. 1962), this fund furnishes a scholarship to an undergraduate student on the basis of scholarship and financial need.

# Faculty

## Subglacial equipment

**T**hree weeks out of a year, Neal Iverson spends his days (and nights) living beneath a glacier 700 feet thick. The temperature is a constant 35 degrees Fahrenheit. Not your ideal working conditions.

The professor of geological and atmospheric sciences' research on glaciers has taken him all over the world, including Norway's Svartisen Glaciological Observatory, a tunnel cut underneath the Svartisen Ice Cap.

There he conducts field experiments aimed at better understanding glacier flow, erosion and sedimentation.

But now thanks to a National Science Foundation (NSF) grant Iverson will be able to conduct his research just down the hall from his Science I office.

The NSF has awarded Iverson a \$530,000 grant for the development of a laboratory "ring-shear" device for the study of subglacial processes. The device will be designed and built by Iverson and mechanical engineers in the Department of Energy's Ames Laboratory.

Iverson said the one-of-a-kind device will allow conditions at the bottom of a glacier to be replicated and studied far better than in past experiments.

"We hope to study processes that occur at glacier beds where the ice meets rock or sediment," he said. "These processes, like glacier sliding and deformation of basal sediments, help determine how fast glaciers move and how they've built the landscape, including Iowa."

An international expert in glaciers, Iverson says this device will be the first of its kind in the world. While field research has provided vast information on glaciers, he says the new device can help answer questions about the speed of glacier sliding, mechanisms of glacial erosion and sedimentation, and the meaning of structures preserved in the geologic record of glaciation.

"There is only so much you can learn looking at sediments in Iowa, inserting instruments into bore holes in glaciers or even doing the subglacial work we do in Norway," Iverson said. "Geologists have been doing laboratory flume experiments for about 100 years to study the flow and sediment dynamics of rivers. An analogous approach like this to the study of glaciers is long overdue."

Features of the ring-shear device will include the use of a rock or sediment bed, unlimited sliding displacement, control of either stresses or sliding rates, control of basal water pressure, temperature control to 0.01 degrees C, and continuous observation of sliding, sediment movement and flow separation between ice and the bed. It will be housed and operated in an existing Science I cold room.



Neal Iverson receives NSF funding to develop laboratory device to study subglacial processes.

Iverson said attempting to simulate conditions will be difficult. One of the biggest challenges will be keeping a large volume of ice exactly at its melting temperature – true of ice at the bases of many of the world's glaciers – without melting the ice too fast.

The NSF has funded Iverson and his team for three years. The initial timeline is to design and build the machine in the first two years and then begin tests in year three. Other glacier experts have already contacted Iverson about conducting experiments including researchers at ETH-Zurich, the University of Aberystwyth-Wales, the University of California-Berkeley and the University of California-Santa Cruz.

Iverson says he expects to use the new device for the rest of his academic career.

"We'll have a piece of equipment that can be used to study a broad range of processes that happen at the bottom of a glacier and that we've only been able to speculate on in the past," he said. "This will provide hypothesis-testing opportunities we've only dreamed about." ♦

# Water quality

**E**ven with the popularity of bottled water, the City of Ames is concerned with the quality of the city's drinking water.

And they have turned to Bill Simpkins, professor of geological and atmospheric sciences, for the answer.

For the next three years, Simpkins will be conducting a study of the quantity and quality of the groundwater available to Ames for drinking water.

"We went to the city with a plan to reexamine the water supply," Simpkins said. "It's been more than 10 years since the last study and one of my concerns is that while the city has a great water supply from the Ames aquifer, it's only a matter of time before others will want to use that water source."

One potential user is an ethanol-producing plant, many of which are springing up throughout the Midwest. Estimates vary, but it can take as little as four to as much as 37 gallons of water to produce one gallon of ethanol.

"That's a lot of water and companies will be looking to locate such plants in locations with a good aquifer, such as Ames," Simpkins said.

The Ames City Council agreed that a study was needed and is funding Simpkins' study to the tune of \$125,000. He is seeking almost \$100,000 more in research grants to complete the project.

The study has begun with the investigation of the hydrogeology of the Ames aquifer and includes an examination of groundwater flow and nutrient transport to the lakes in Ada Hayden Heritage Park. The lakes currently serve as the backup water supply for the city.

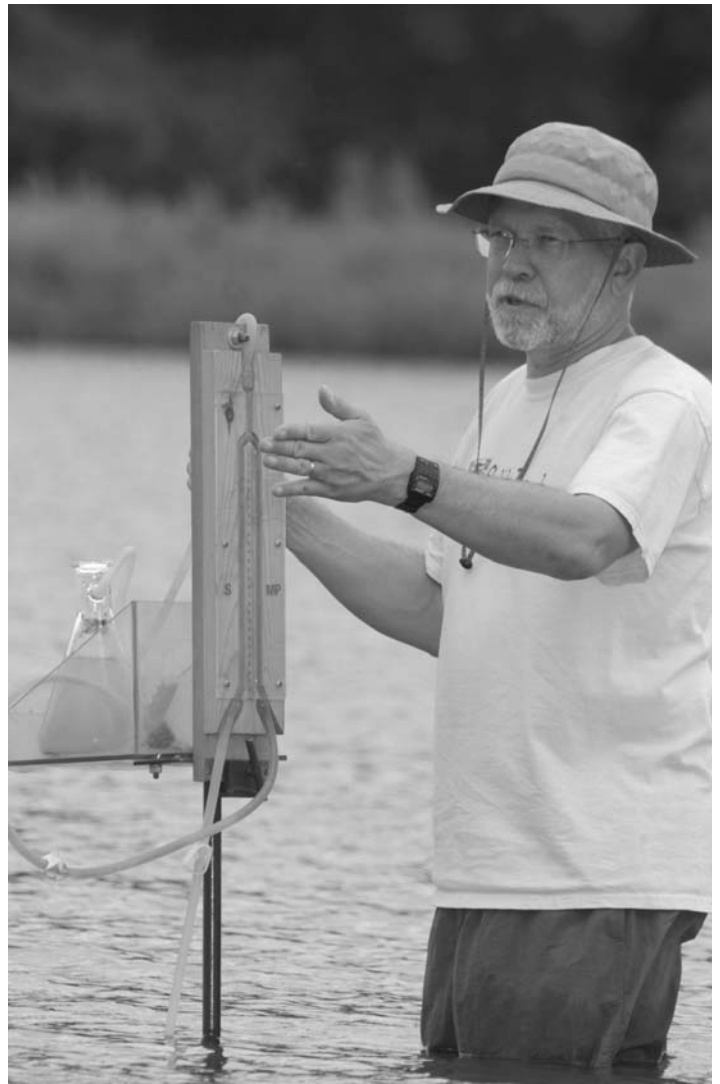
Last April, 16 monitoring wells were installed at Ada Hayden in five different locations as a result of Simpkins' project.

Not only will the wells and computer models help Simpkins and graduate student Evan Christianson determine the source and direction of groundwater flow but the groundwater quality as well.

"We should be able to get an idea of what the concentration of the nitrogen and phosphorus is in the groundwater entering and exiting the lake," Simpkins said. "This is critical to understanding whether groundwater can contribute nutrients that might degrade water quality."

Less than 12 months into the three-year study, Simpkins says the study at the Ada Hayden well sites is already producing results.

"It's early but our preliminary data seems to indicate that the groundwater in the Ada Hayden lakes comes from the northwest and southwest sides and flows out of them from the east and southeast sides," Simpkins said.



Bill Simpkins leads three-year study to determine just how good Ames' water is.

"The shape of the underlying bedrock valley is also a bit different than has been assumed for the past 30 years.

"There's a ton more work still to do however. This study should provide great insights into the water supply potential of these systems and into the interaction of bedrock and alluvial aquifers in Iowa."

Those include regular monitoring of the groundwater levels and trying to better visualize configuration of the buried valley underneath the park.

"We have to get the configuration of underlying bedrock surface just right in order for Evan's groundwater model to simulate realistically the groundwater interaction with the lake."

There are benefits as well for hydrogeology students.

"I used this in our Field Methods in Hydrogeology course in the summer," Simpkins said. "In the long term I would like to develop the Ada Hayden site as an educational site for that and my other classes." ♦

# Faculty & staff notes

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## Igor Beresnev, Professor

Last summer, I finished a three-year project with the Land Acquisition Systems of WesternGeco. They funded us to look into some inadequately understood issues of performance of Vibroseis sources, the principal sources of seismic energy in land exploration. Such issues, for example, arise from nonlinear deformations under the vibrating plate or from plate flexing, which both may lead to unknown distortions of the depth images. The project employed a research scientist Andrey Lebedev, who came from the Institute of Applied Physics of the Russian Academy of Sciences. Andrey and I tackled these difficult problems together, from a mathematical and physical standpoint, until the adequate description was found. Our studies resulted in three articles that were published in *Geophysics* (2004 and 2006) and *Geophysical Prospecting* (2005). I believe our sponsors were satisfied with the usefulness of this analysis, as ways were found to better characterize realistic Vibroseis dynamics.

Another research avenue that has kept me busy since approximately 2003 is the physical and theoretical underpinnings for the possibility of vibratory recovery of residual oil. The same technology can be used to recover entrapped organic contaminants from shallow subsurface. This subject was funded by an NSF grant in 2002-2004, and we have just learned that a three-year grant will be provided by the Petroleum Research Fund (PRF). The issue is that, although elastic waves have been known to improve petroleum recovery, little understanding has existed until very recently of the mechanism underlying the fluid mobilization by seismic waves. In other words, how could mechanical vibrations help overcome capillary forces that keep the non-wetting fluids firmly in place? We have made significant progress in the last two years in rationalizing, describing, and experimentally verifying such a mechanism, in which vibrations, by means of inertia of fluids, provide that extra push needed to force the oil over the capillary barrier. The team I have been working with comprises my partners Dennis Vigil, Associate Professor at the Department of Chemical Engineering, and Robert Ewing, Scientist at the Department of Agronomy, as well as Ph. D. student Pavel Iassonov (our department) and Wenqing Li (Chemical Engineering). Pavel, who mostly addressed the theoretical and numerical aspects of the problem, successfully defended his dissertation in December 2005, and Wenqing, who worked on the experiments and numerical simulations, is scheduled to defend this coming July. We have already jointly published an article in the *Journal of Colloid and Interface Science* and one in

*Geophysical Research Letters*. Over the winter break, I worked on the development of a quantitative theory of vibratory fluid mobilization, which was described in a paper now scheduled for publication in *Geophysics*. Our current task, which I plan to address in the PRF project, is to implement the quantitative knowledge we now possess about the governing mechanism of oil liberation in a model of enhanced recovery that could predict the results of field applications. I will soon start recruiting a new Ph. D. student, funded by the PRF grant, and familiarity with fluid dynamics and numerical simulations would be a great plus. Suggestions for great candidates are welcome.

I continue to teach applied geophysics, exploration seismology, and meteorological instrumentation in the department. This is my traditional teaching program that I developed since I came to ISU in 1998.

Of course, a great personal achievement for me and a source of professional satisfaction was my recent promotion to full professor in spring 2006.

## Cinzia Cervato, Associate Professor

It is hard to believe that I have been at ISU for 5 years already! Last fall I reorganized my Geology 100 class following what I learned at the Wakonse retreat and the whole experience was very rewarding both for me and (I hope!) for the students. Jane taught one of the two sections of Geology 100, allowing me to spend time writing proposals for NSF. Three were submitted in January and February and two of them, both in education, have been funded. One project, to develop a 'virtual volcano' building on the success of the 'virtual tornado' application, is in collaboration with severe weather expert Bill Gallus and Carolina Cruz-Neira, the professor of Virtual Reality applications that recently left ISU for the University of Louisiana. The second one is to develop short stories on the history of fundamental scientific discoveries together with colleagues in science education, biology, and history.

This summer Paul Rider, professor of Physics at Grandview College in Des Moines, worked on samples from the Mediterranean in my lab with the goal to extract organic compounds to determine paleo-sea surface temperatures. He spent one week at Brown University in Tim Herbert's lab. Dr. Herbert is professor of Earth Systems Science and has been working with paleoclimate proxies for many years. The results of Paul's project will complement Cammy Bright's thesis work. Cammy is

planning to defend her PhD in the fall and so is Bjorn Brooks, my other PhD student. In the fall, Rachel Banasiak, a graduate from the University of South Florida, Tampa, will join the team to continue the work in the Mediterranean for her MS thesis. MS candidate in Human Computer Interactions Josh Reed has worked hard on PSICAT, his core-logging application, and is getting ready to spend more than two months in Antarctica for ANDRILL's first drilling expedition. To download the current version of PSICAT, please visit CHRONOS's Portal ([portal.chronos.org](http://portal.chronos.org)) and go to Tools. For more information on ANDRILL, please check their web site [www.andrill.org](http://www.andrill.org).

CHRONOS made a lot of progress last year and continues to involve a large number of students and faculty. In January, Brice Lambi, one of the undergraduates in the IT team, graduated from ISU and was immediately hired by the Integrated Ocean Drilling Program in College Station, Texas. This summer a group of 6 interns spent up to 4 weeks working with the CHRONOS developer team. They were advanced undergraduate and graduate students from universities and colleges in New Jersey, Texas, Ohio, Pennsylvania, Florida, and Iowa. They worked on both science and IT projects.

After a trip to Europe at Christmas, I was grounded because of the advanced pregnancy and could not fly. Ian Ruggero Alan Spry was born on March 17 (St. Patrick's Day) at 10:16 AM, weighing in at 9 pounds 5 ounces and a length of 22 inches. He is a healthy, happy boy and big sister Francesca is extraordinarily happy and proud. She is also a great babysitter. Francesca had a good year at St. Cecilia School and was promoted to 3<sup>rd</sup> grade. She continues to take swimming lessons with SwimAmerica and piano lessons with Mrs. Sibbel. She loved skiing in the Dolomites at Christmas and was known on the slopes as the fearless American girl that had trouble stopping. In June, we went to Italy for a beach vacation with my family. It coincided with the World Cup in Germany and we cheered Italy to the victory – even if I became a US citizen a few months ago, the oath of allegiance did not mention the soccer team!

#### **Jane Pedrick Dawson, Senior Lecturer**

Greetings to all! I returned recently from spending two weeks at our field camp in Wyoming, where I was a student 25 years ago (it doesn't seem possible). We had a good group of students this year from Iowa State, Nebraska, and several other universities. There have been a few changes made to field camp, but some things like skiing the Mowry, roasting in Devil's Kitchen, and picking up fossils in the Sundance never change. It was a great learning experience and I hope to spend time at camp again next summer.

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My teaching responsibilities this past year included one section of Geology 100 in the fall, and two sections of Geology 100 and the structural geology lab in the spring. The large enrollments in Geology 100 certainly create some interesting teaching challenges!

In December, Carl Jacobson and I spent a week in the Sierra Pelona Mountains in southern California, collecting samples in support of our continuing work on understanding the timing of underplating and exhumation of the Pelona-Orocopia-Rand Schists. Separating minerals from these samples for geochronology kept me and two student helpers occupied this spring.

My husband Bob enjoys his work as a geologist with the Iowa Department of Transportation, and spends about a quarter of his time visiting quarries and mines throughout Iowa and the surrounding states. Last summer he entered some of his home brewed beer in the Iowa State Fair, and to our great amazement, won Best of Show. This has only encouraged him to brew more.

Shortly after I returned home from California last December, my father passed away suddenly at age 87. Although he had been in declining health, it was still a shock. His loss was followed by the tragic death of Amy Rodgers, a horticulture student who worked as a student employee in the geology department for several years. Both are greatly missed by their families and friends.

#### **Jiasong Fang, Assistant Professor**

This past year, I have been busy in teaching. I taught the Introduction to Oceanography course for the first time. There were 71 students in the class from many disciplines across the campus. I was very encouraged to find so many students were interested in oceanography and in learning how to use, not misuse our ocean resources. The other courses I taught were Contaminant Hydrogeology and Environmental Biogeochemistry, as before. For both courses, I added computer modeling as an essential component.

On the research side, we are pretty productive. Our research on piezophilic bacteria and deep-sea geomicrobiology is recognized more at home and abroad. As many know, we can grow piezophilic bacteria in our bioreactors in Science I at pressures up to 1,000 atmospheric pressure (which means we can grow bacteria from anywhere in the ocean). We performed experiments to investigate carbon isotope fractionation in biosynthesis of lipids by *Moritella japonica* DSK1, a moderately piezophilic bacteria isolated from the Japan Trench. For the first time, we demonstrated that carbon isotope fractionation is pressure-dependent. This finding

corroborates our hypothesis that has been put forward repeatedly in the past. Furthermore, our results showed that the lipid and carbon isotope signatures preserved in deep-sea sediments are probably derived mostly from piezophilic bacteria, not from surface ocean primary producers, as lipids from the former are nearly two orders of magnitude higher than from the latter. Our results were published in *Geochimica et Cosmochimica Acta*. Our work using lipid biomarkers and molecular microbiological technique (16S rDNA) to characterize microbial diversity in deep-sea cold seep environment is in press in *FEMS Microbiology Ecology*. A paper on microbial community and biogeochemical processes in a saline groundwater seep of Salt Basin, Nebraska, is in press in *Organic Geochemistry*. A book chapter on deep-sea geomicrobiology will be published by American Society for Microbiology late this year. I am also writing a book chapter on deep-sea microbial diversity and biotechnology. Geomicrobiology is a new and rapidly-developing field that has led in the past decade or so to a radically-revised view and discoveries of the diversity and activity of microbial life on earth in the past and the present. Some of these discoveries have reinvigorated research in related fields such as astrobiology and exobiology. I am planning to offer the Geomicrobiology course next fall.

Our work on ecotoxicity of nanomaterials on microorganisms has produced exciting results. We used two complementary techniques – lipids and Fourier transform infrared spectroscopy to study the membrane dynamics of Gram-positive and Gram-negative bacteria grown with and without  $nC_{60}$  fullerene. We demonstrated that fullerene is more toxic to microbes than many organic solvents that have been tested in the past (e.g., toluene, benzene). It is generally believed that Gram-negative bacteria tolerate organic solvents better than Gram-positive bacteria because of the protective role of the outer membrane. This is not true in the case of bacteria exposed to nanomaterials. A manuscript based on these results is in preparation. Best wishes to all of you!

#### **DeAnn Frisk, Secretary**

As usual it's been another busy year. Between work, home, and family I don't seem to have a lot of free time. That's really OK because I prefer to stay active and busy. September was exceptionally busy with Tri-State and Alumni Days. It was great to see those of you that made it to Ames for Alumni Days. As usual, there is never enough time to truly visit with everyone during the short time people are here.

This past year seems to be the year that I attended training sessions on a regular basis. It seems that every

group or office on campus has decided to update their electronic process and the only way to get the information is to attend their training sessions. I admit I do learn new information when I attend these sessions but I tend to find they are way too long. So many of the training sessions assume you don't know anything and they start at the very beginning of the process which wastes too much time for me. Anyway, I am now proficient in many new electronic procedures used on campus!

In late October Steve had a procedure to insert a pacemaker/defibrillator. This came as a result of many months of tests and follow-up visits with a new cardiologist. The procedure went well but the healing took longer than anticipated. He's doing fine now. Visits to the cardiologist are now a regular part of our life!

In early February Steve and I managed to squeeze in a short trip to Las Vegas. We've been there several times and really enjoy the warmer weather there during winter. We took a couple of drives, one along the Joshua Tree Highway and the other to the Valley of Fire State Park. I'm always amazed at the difference between Las Vegas and the area that surrounds it. What an area of contrasts! We seem to be exceptionally busy with the grandkid's activities as they get older. Between school and church events, sports and 4-H all the grandkids are very active. We are expecting our 5<sup>th</sup> grandchild in September. It's been a while since we've had a baby in the family so this should be fun for everyone!

Stop by the office if you are in Ames during the work week. I enjoy visiting with those of you that I know and those that I only know by name. It's always a pleasant interruption to visit with our alumni.

#### **Chris Harding, Assistant Professor**

This is my third year as part of the department which means I've passed the halfway mark towards getting tenure. As you may know, I am also affiliated with the Human-Computer-Interaction (HCI) program, which aims to rethink and reinvent the ways that humans interact with computers using technologies such as 3D computer graphics and Virtual Reality (VR). Our flagship system, the famous ISU C6 CAVE turned 6 years old (making it a technological dinosaur) and a multi-million dollar upgrade is currently underway that will make it the worlds highest-resolution CAVE (100+ million pixels). My specific HCI interests are in improving the way that geoscientists use computers to better work with 3D geoscience data. The technologies I use in my research are: stereoscopic 3D graphics displays, haptics (touch) and sound-streams to transmit scientific data (sonification). Late last year, I was fortunate enough

to receive (together with **Carl Jacobson**) a 3-year NSF research grant to build and compare the effectiveness of several next-generation VR systems for modeling the geometry of subsurface rock formation. My two graduate students, Xianyi (Henry) Huang and Matt Newcomb, who both work on MS degrees in HCI, are busy finishing their thesis research. Henry's topic is the creation of a 3D computer graphics program that help beginning geology students understand several fundamental principles of relative geologic time. This application will be tested in several large service courses this fall and will be made available to the general public. Henry is expected to finish his degree in December, Matt is finishing up his degree this summer. His work deals with creating a 3D geographic information system (GIS) for interactive road planning that use combinations of vision, touch and sound. He tested the road planning system on 13 ISU students of a road planning course and will publish the results together with his thesis. On the teaching side I have created a new experimental course that offers an introduction to 3D scientific visualization and I have added a more advanced GIS course (GIS for Geoscientists II), which will complement my 3 year running basic GIS course and will be help in Spring 07.

#### **Neal Iverson, Professor**

Much of my research effort during the past year focused on writing proposals to the National Science Foundation. Two of these were submitted with the goal of funding a project for Ph.D. candidate Peter Moore. I withdrew one of these proposals in February when I learned that the other - a field and modeling study of ice dynamics and moraine formation near the subfreezing margin of a glacier in northern Sweden - would be funded. A third proposal was resubmitted twice, to different divisions of NSF, as part of a tortuous process aimed at securing funds to build a new experimental apparatus. With this device, ice at its melting temperature will be dragged over a rock or sediment bed, allowing glacier sliding and associated erosion and deposition to be studied more directly than is possible in field studies. I just learned that this proposal will finally be funded. Also, Denis Cohen, an ISU affiliate faculty member, Tom Hooyer (Ph.D., 1999) of the Wisconsin Geological Survey, and I received a supplemental grant to extend our work on glacial erosion at Engabreen, a valley glacier in Norway.

Although I've spent most of my time selling research rather than doing it, most of my students have been very productive. Jason Thomason completed his Ph.D. this spring. His project focused on developing criteria for estimating strain magnitude in basal tills using their microstructural properties, as studied in ring-shear experiments. He applied the results of this work to a

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basal till of the Lake Michigan Lobe to refute a popular model for its motion. Jackie Shumway, who started at ISU last fall, made excellent progress studying the microstructural properties of a basal till of the Superior Lobe in northwestern Wisconsin. She hopes to be finished with her field work by the end of this summer. Pete Moore used our ring-shear device to determine the frictional properties of gouge bounding the dacite plug that is being steadily extruded from the crater of Mount St. Helens. This work, in collaboration with Richard Iverson (B.S. 1977) of the USGS, helped provide an explanation for the seismicity associated with the extrusion of the plug, which started late in 2004 when the volcano renewed its eruptive activity.

Other enjoyable activities this year included teaching geomorphology and a new introductory course in geologic disasters. Talks at ETH-Zurich, Penn State, the University of Iowa, and St Olaf College also provided relief from less inspiring duties associated with departmental and professional service.

Kathy, Joe (14), Ellen (11) and I just returned from a two-week vacation camping and hiking in the canyon country of southern Utah. A bonus for my family of going to this area was that it's unglaciated, so they were spared discussion of glacial processes.

#### **Carl Jacobson, Professor and Chair**

As you can see from my opening letter, this was an especially busy year on the administrative front, so I do not have quite so much to report in terms of teaching and research. Most disappointing was that I was not able to get out in the field very much. Traditionally, I've spent a month every year during winter break working in southern California/southwestern Arizona. For about the past five years, I've been accompanied in this work by Jane Dawson. Last year we were able to get out for just a week, and since the time was so short we flew rather than drove. We spent the entire time in the Sierra Pelona, located about 40 minutes north of Los Angeles. This range is the type locality of the Pelona Schist and we were collecting samples for Ar/Ar dating.

Probably my most memorable experience from last year was attending the Backbone of the Americas Meeting in Mendoza, Argentina sponsored by the Geological Society of America and Geological Society of Argentina. This meeting, which was held in mid-April, had three focus areas: ridge collision, shallow subduction, and plateau uplift. I was most interested in the shallow subduction part. Much of the Nazca plate is descending beneath South America at a fairly gentle angle and this modern setting has long been called upon as an analog for the Late Cretaceous to Eocene Laramide orogeny of North

America. My former Ph.D. student, Felix Oyarzabal, who works in Argentina for oil company Petrobras, was able to attend the meeting. It was great to see Felix and I can't thank him enough for all the ways he helped me out during the meeting. The meeting itself was six days and there were a number of optional pre- and post-meeting trips. I went on one led by Victor Ramos of the University of Buenos Aires involving a transect across the entire width of the Andes. It started in Mendoza, which is located right at the foot of the Precordillera, and ended up along the coast at Viña del Mar, Chile. Both the geology and the exposure are incredible.

For the first time in several years I have taken on a new graduate student – Jon Reis, who just received his B.S. from our own department. Jon will likely be working on the structure of the northern Dome Rock Mountains near Quartzsite, Arizona. The Dome Rocks lie within the Maria fold and thrust belt, which is probably related to the Cretaceous Sevier thrust belt of the Great Basin. Unlike the classic Sevier belt, however, the Maria belt is situated cheek-by-jowl with the magmatic arc and is characterized by ductile thrusts rather than by shallow “sled-runner” faults. Hopefully we will have some interesting results to report on next year.

#### **Mark Mathison, Teaching Laboratory Coordinator**

I am writing this note to you from the ISU Field Camp. Martin (Ph.D., 2003) and Vicky Helmke, and Bill (B.S., 1993) and Ann McCrackin came out early to help with camp setup and to remodel the kitchen. A special thanks go to them for all the hard work they did to get camp ready this year! At next year's Alumni Reunion you will all get the opportunity to see the new kitchen!! We have also been given the go ahead to start construction on a new shower house. We hope to have the septic and foundation put in this year. We may be looking for help with framing and finishing work next year.

Martin and Vicky stayed on to help with the operations of the camp for the rest of the summer. Martin led the students in a special unit related to water prospecting in the Madison limestone, while Howard White (Ph.D., 1981) and Rick Chamberlain (B.S. 1977) continued their projects on well log interpretation and paleocurrent mapping.

I returned to Egypt this past year for my fifth season. Joan Jach (M.S., 2004) also participated in this past season and gained valuable international field experience that she is passing on to her students. My collaboration with Duke University on Eocene primates in Egypt resulted in the following publication in Science: Basal Anthropoids from Egypt and the Antiquity of Africa's

Higher Primate Radiation. I hope to see you all at the Alumni Reunion next July.

#### **Germán Mora, Assistant Professor**

As I am writing this summary, I am also working on putting together my dossier package for promotion and tenure. It has already been five years since my arrival at ISU. Time really goes by quickly. It seems like a short time ago that I was building my lab. In retrospect, it has been a challenging, exciting, and rewarding five years. The last one of which I am calling “the transition year.” Besides teaching “Stratigraphy and Sedimentology,” “History of the Earth” with Ken Windom, and “Stable Isotopes in the Environment,” I was finishing up some research projects and starting new ones. A project that evaluates changes in rainfall patterns in northern South America for the last half million years is coming to a successful completion. Three manuscripts resulted from this study, and my collaborators and I are working on a proposal to continue this project. In another project, we are separating the contributions of root respiration from those of microbial degradation in carbon dioxide emissions from soils of grass monocultures. We have completed most of the data collection after three continuous years, and we are currently working on writing a couple of manuscripts to report our findings.

While these two large projects are being completed, we are initiating new ones that are mostly being carried out by two new graduate students. These two students are Humberto Carvajal and Jin Zhang, who joined my research group this year. Humberto is pursuing a M.S. degree, and for his research, he is evaluating the possibility of using carbon isotopes of terrestrial organic matter as a stratigraphic tool. For that evaluation, he is studying a lower Tertiary sequence from Colombia, which has a superb and continuous pollen record. His preliminary results do indicate a good correspondence between the carbon isotope record of the terrestrial sequence of Colombia and the marine carbon isotope record. He will be presenting these results at the upcoming GSA meeting this Fall.

Jin is a Ph.D. student with a biology background. She is working on the same grass monocultures that we have been studying for the past three years. She is concentrating her efforts on the microbial component, conducting incubation experiments in the lab to establish the response of microbial respiration to changes in temperature and quality of organic matter. Later, she will characterize the microbial population and structure using molecular techniques. This area of research is gaining more prominence lately, and I am excited that Jin wants to pursue it.

Finally, I would like to report that my former students are

doing well. Alessandro Zanazzi (M.S., 2005) and Weihong Wang (M.S., 2005) are happy with their new baby, Martin, and they are progressing in their Ph.D. research at the University of South Carolina. Shikha Sharma, who was a postdoctoral associate in my lab, is currently the director of the stable isotope mass-spectrometry facility at the University of Wyoming. She, her daughter, and her husband are doing well in Laramie. As for me, I am excited about the new challenges ahead of me. Expect some more good news next year!!!

#### **Karl Seifert, Emeritus Professor**

Another year has passed and I am still working on a long manuscript on the Adirondack anorthosite with coauthors from Washington University in St. Louis. We have thousands of geochemical data on hundreds of samples and even the classification of samples is sometimes moot, depending on which coauthor is questioned. Nevertheless, progress is being made and hopefully I can report the manuscript is in press or published in the next *Varve*. In addition to working on the manuscript I am still reviewing manuscripts for geologic journals. In short, I have yet to fully retire. One of the reasons work on the manuscript is moving slowly is the large amount of traveling we are doing these days. In February we cruised through the Panama Canal on a Celebrity Ship, the Summit. The trip took two weeks, departing from LA, stopping in Cabo San Lucas, Mexico, Acapulco, Mexico, Huatulco, Mexico, and Puntarenas, Costa Rica, on the way to the canal, and at Aruba after passing through the canal. Passing through the canal took 12 hours, much longer than I expected. After docking in Fort Lauderdale we drove to Key Largo to visit Lyle and Luise Sendlein, a former faculty member at ISU, who are doing really well. Lyle still looks that same after all these years.

Both Carole and I are doing well although I have been forced to give up racquetball because of a bum right knee. Hard to believe after playing that game for almost 40 years! Most of the time I now work in my home office in the basement although I am still fortunate to maintain my office in the Science Building where I occasionally work and keep most of my reprints and books. I still attend Lake Superior and GSA meetings when they are of interest and the departmental alumni meetings and hope to have an opportunity to visit with some of you at one or more of these events.

#### **Bill Simpkins, Professor**

Last year, I reported a decrease in my stress level that coincided with attaining the rank of Full Professor. This year brought a further reduction. I yielded my spot as Associate Editor of the journal *Ground Water* – a spot that I held for 10 years – to younger and more energetic

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individuals. I am also in my final year as Chair of the Nominating Committee for the Hydrogeology Division of GSA and with it will end about 15 years of service to the Division and the Management Board. I also relinquished the title of the department's curriculum czar – a post that I had held since about 1993 – to Igor Beresnev. Lest you think I am into full-time web surfing, the year was still very busy due to hosting of the Tri-State Field Conference, the job search for a surface hydrologist, and the external review of the department. We host the Tri-State Field Conference in Ames every 12 years. This year was our turn and I was fortunate to lead two stops on the field trip – one on fractured till at Whatoff's Pit and the other on the Ames aquifer at Ada Hayden Heritage Park (formerly Hallett's Quarry). The former stop highlighted some of the work of former Ph.D. student Martin Helmke. The latter highlighted the work of current M.S. student Evan Christianson at the park. The trip was a great success and we received lots of great questions from interested participants. I then participated in the search for our surface hydrologist and we ultimately chose **Kristie Franz** for the position. Although her Ph.D. is in Civil Engineering, Kristie has an undergraduate degree in Geology from the University of Wisconsin-Eau Claire and took groundwater courses there. We have already discussed some common interest areas, so I look forward to her arrival in the department. The final task, preparation of a review document for the external review, required work by all of us in the department. In my case, I was charged with pulling together all the information on curriculum, both past and present. Although this was a lot of work, the reviewers seem to get a good sense of where we had been and where we were going. I think this helped in the end to produce the positive review that we received from the review team.

My teaching load was heavier this year. I taught Hydrogeology (15 students) and Watershed Hydrology and Surficial Processes (25 students; co-taught with Dr. Lee Burras) in the fall. We tried "The Civil Action" case again ([www.las.iastate.edu/newnews/civilaction05.shtml](http://www.las.iastate.edu/newnews/civilaction05.shtml)) in Hydrogeology and the defense actually won this year. In the spring, I co-taught the Energy and the Environment course with Paul Spry and the enrollment has ballooned to 100 students (it was closer to 70 last year). Although we would like to believe that this has everything to do with our teaching ability, it is due more likely to the price of oil and interest in ethanol production in Iowa. The field trip to the Ames Power Plant, Resource Recovery Plant, and the Wind Turbine field near Blairsburg was a big hit this year. Concurrent with that class, I also taught Applied Groundwater Modeling to 8 graduate students. In that class, we run models with spreadsheets, MODFLOW (with Vistas 4.0), and an analytic element model (GFLOW). It was a good

class and, in addition to running models, we also read a published journal article each week dealing with modeling. Finally, I taught the Field Methods in Hydrogeology course to 10 students. The course started after Memorial Day and was lengthened to 2.5 weeks in order to include a trip to NE Iowa to see karst hydrology. Among the interesting things that happened this year included: 1) having to shut down a pumping test early in the Downtown well field in order to get more water to meet peak demand; 2) seeing water from Roberts Creek in NE Iowa flow into an open sinkhole in the streambed; and 3) seeing a few brave students eat a 16-ounce pork tenderloin at the St. Olaf tap on the NE Iowa field trip. Speaking of students, Cheng Cheng finished his M.S. thesis in December and moved on to the University of Nebraska to work at the Conservation and Survey Division. Mike Cheng finished up his M.S. degree in April and is applying to graduate school and seeking full-time employment. Lucie Macalister (B.S., Colorado School of Mines) helped install about 24 wells in the South Fork of the Iowa River watershed last summer and fall and continues her analytic element modeling work on the conservation effects assessment project (CEAP). She presented a poster at the USDA-CEAP meeting in San Antonio in February. My 4 new students have been making great progress. Evan Christianson (B.A., Gustavus Adolphus College) supervised the installation of 16 new monitoring wells this spring around the perimeter of the lake at Ada Hayden Heritage Park and has been instrumental in revising and updating the 3-D geology of the Ames aquifer. Jenny Abrahamson (B.A., Beloit College) is busy using geophysics to understand gaining and losing stream relationships in the headwaters of Bear Creek. Mindy Buyck (M.S., Illinois State University) is working on her Ph.D. prospectus dealing with nitrate removal processes in riparian buffers. Paul Ebert (B.S., Winona State University) is investigating groundwater flow and transport of nutrients into Lake Macbride, which discharges into the Coralville Reservoir north of Iowa City. My former undergraduate research assistant, Jonathon Carter, who received the Lester Earls Undergraduate Research Award from Sigma Xi in 2005, is a graduate student in hydrogeology at the University of Wisconsin-Madison.

On the home front, Scott graduated from Ames High School and will be attending Gustavus Adolphus College in St. Peter, Minnesota, to study biochemistry, play bass trombone in the band, sing in a choir, and maybe play some tennis and Ultimate Frisbee. He returned to the All-State Music Festival last fall where he was 1<sup>st</sup> chair bass trombone in the orchestra. He had a near-lead role of Rueben in the musical production of "Joseph and the Amazing Technicolor Dreamcoat" and had a perfect record playing #5 on the varsity tennis team. Kelsey will

be a junior at Ames High School and also enjoyed being in all the band and choir activities this year. She is driving by herself, although she has yet to master the fine art of manual shifting. Vacation in 2005 took us to the great Southwest U.S., where we visited the Garden of the Gods, Buena Vista (rafting), Aspen (Maroon Bells), Grand Canyon, Arches N.P., Canyonlands N.P., Rainbow Bridge, Lake Powell, Santa Fe, Canyon de Chelly, and Dodge City, Kansas. Our vacation this year consisted of a 2-day stay during the long 4<sup>th</sup> of July weekend in a small resort on the north shore of Lake Superior just south of Grand Marais. It was a great time and we did lots of hiking. With college expenses, Scott's full-time job, and high gasoline prices, it didn't seem like the year for a big vacation. If you are in Ames, please stop in and tell us what you are doing!

### **Paul Spry, Professor**

Last year was a fun and eventful year. I continued my collaborative projects with colleagues in Italy and Greece. Luca Bindi, a mineralogy professor from the University of Florence, Italy, and I have been working on the crystallography of the rare mineral lenaite, a mineral both he and my former Ph.D. student Xiaomao Zhang found at the Gies mine, Montana. The results of this study were recently published. A larger project with Luca has involved revising the nomenclature of silver sulfosalts, pearceite and polybasite. The first step in this massive effort has received approval from the International Mineralogical Association and we have completed a manuscript on our results that was sent to *American Mineralogist*. My work in Greece involves a collaborative effort between Stellios Tombros and Karen St. Seymour from the University of Patras and Panos Voudouris at the University of Athens. Master's student Todd Bonsall and I visited Greece this summer to collect samples for his project at the famous Lavrion silver district. Panos, Todd, and I also went to Milos Island to visit mineral occurrences including a new gold telluride location, on which Panos and I will be working. This will complement an on-going project with Stellios and Karen on the geology, mineralogy, and geochemistry of gold telluride mineralization at Panormos Bay, Tinos Island, Greece and elsewhere in the Aegean Sea. My Ph.D. student, Adriana Heimann, and I have been working hard on our research project involving the geology and geochemistry of meta-exhalites in the Proterozoic Curnamona Province, Australia, and their genetic relationship to Broken Hill-type deposits. We have already submitted one paper to *Economic Geology* and plan to submit several more papers in the fall, when Adriana plans to graduate.

I continue to teach "Igneous and Metamorphic Petrology" and "Mineralogy and Earth Materials" with

Ken Windom, and “Energy and the Environment” with Bill Simpkins. With the concerns over energy prices and fossil fuel concerns, enrollment in this class has steadily increased over the last three years. Last year I taught an exciting new course (exciting for me at least!!) on “Gems and Gemstones,” for non-science majors. I had an enrollment of 110 for the course and hope to have a similar number this year. As part of Geol 507 Midwestern Geology Field Trip, graduate and undergraduate students as well as Carl Jacobson and I went to Colorado and visited the Cripple Creek gold deposit, the Salida copper-zinc deposit, the Garden of the Gods, and the Denver Mineral show.

My duties on the editorial boards of *Economic Geology*, *Mineralogy* and *Petrology*, and *Canadian Mineralogist*, as well as serving as guest editor for a special issue on “Selenide- and telluride-bearing precious metal deposits,” which just appeared in *Mineralogy and Petrology*, took up a considerable amount of my time. I am seeing the light at the end of the tunnel as my duties with these journals ends over the next two years. I have enjoyed talking and corresponding with several of you by phone or by e-mail over the last year. Please keep in touch by phone at (515) 294-1837 or by e-mail (pgspry@iastate.edu).

#### **Carl Vondra, Distinguished Professor Emeritus**

Georgia and I joined our daughter, Gigi, a hydrogeologist with Parsons Engineering in Cincinnati, Ohio, and her family for a safari to Kenya and Tanzania in July of 2005. We saw a great variety of savannah wildlife, enjoyed the beautiful scenery and the pleasant weather. I returned to Tanzania and the Serengeti again in August, this time to continue the Middle Stone Age research that I have been involved with since my retirement.

During the fall and winter, we enjoyed the victories and near victories of our football team, the so-so exploits of our men’s and women’s basketball teams, and many outstanding concerts at C Y Stephens and plays at the University Theatre.

In the spring, I taught another course for the College for Seniors. The topic was, “The Geology of Iowa.” I received valuable help from Jane Pedrick Dawson and Neal Iverson, each of whom presented a lecture. I am now planning a course focusing on the “Geology of the Colorado Plateau” followed by a two-week excursion to the parks of Utah.

I returned to the field station at Shell, Wyoming for a couple of weeks this June to think about a possible geology field course for anthropology/archeology students. I was impressed with the progress Mark

Mathison is making in modernizing the field station and the teaching done by Erik Kvale, Jane Pedrick Dawson and Martin Helmke, and particularly by Howard White (PhD, 1981) of Kerr-McGee, who donated a week of his time to the field course. The two weeks in Wyoming brought back many memories of past good times and great geologic experiences.

This July, Georgia and I traveled to Europe to participate in the Neanderthal Conference marking the 150<sup>th</sup> anniversary of the discovery of the Neanderthal skeleton in the Dussel Valley of northern Germany. The conference was held at the University of Bonn. We stayed with the Wurster family while at the conference.

Unfortunately, Professor Wurster passed away a few years ago, but his family is well and all are prospering. (Many of you may remember the Wursters. They spent the spring and summer months of 1985 at ISU and the field station.) Following the conference, we drove to Salzburg for a few days to enjoy the music of Mozart at several different venues and the beautiful lakes and mountain scenery of the Salzkammergut region of Austria.

Just a few words concerning our family: Carla, our oldest, has accepted a new position as Director of Clinical Operations for the Florida and Puerto Rico District of the Veterans Hospital. She and her family moved to Largo, Florida last August. Cindy and her husband continue to live near Fergus Falls, Minnesota where they own a small acreage along the Fox River. Charles sold his business in Denver last August and moved to Livingston, Montana where he and his wife purchased a pharmacy (Western Drug). As I mentioned above, Gigi works in Cincinnati, but she and her family live near Batesville, Indiana.

I look forward to seeing you in Houston at our annual alumni luncheon and the spring 2007 annual AAPG meeting.

#### **Ken Windom, Associate Professor**

Wow! Another year has come and gone. It is really difficult for me to believe that I will be starting my 30<sup>th</sup> year this next fall semester. If time truly does fly when you are having fun, I must be having a ball because it doesn’t seem like very long ago that I taught my first course at ISU. A lot has changed since then. I no longer teach graduate courses since there aren’t any majors in the field of high-temperature geochemistry/igneous petrology. My contributions continue to be undergraduate education, both large enrollment service courses (Geol 101: Environmental Geology – Earth in Crisis and Geo 201: Geology for Engineers and Environmental Scientists) and team-teaching courses for geology majors (Geol 102: History of the Earth, with German Mora; Geol

311: Mineralogy and Earth Materials and Geol 365: Petrology, both with Paul Spry). Collectively, I taught close to 700 students last year. I also continue to oversee the Earth Science Education program and serve as the advising coordinator for the Geology program.

All is well on the home front, also. Jane and I continue to enjoy our home in the country, along with our dogs and horses. We especially enjoy the ground-source geothermal heat pump these days, with all petroleum-based products being so high. We made an addition to our "family" last year as a result of fuel prices: the Taurus died and was replaced by a Toyota Prius. The commute to work and back is a little easier at 47 mpg than at 25. Bill Simpkins was so impressed with the car that he included it as a stop on one of his field trips last spring!

Hope all of you are well and prosperous. I look forward to seeing those of you who make it back to campus on occasion.

## New Faculty Member

### Kristie Franz

Assistant Professor  
PhD, University of  
California-Irvine, 2006

**Areas of Specialization:**  
Surface Water Hydrology;  
Snow and Rainfall-runoff  
Modeling; Steamflow  
Prediction



## Faculty and Student Publications

### Journal Articles/Chapters in Books

Bindi, L., Rossell, M.D., Van Tendeloo, G., Spry, P.G. and Cipriani, C., 2005, Inferred phase relations in part of the system Au-Ag-Te: an integrated analytical study of gold ore from the Golden Mile, Kalgoorlie, Australia. *Mineralogy and Petrology*, 83, 283-293.

Harding, C., 2005, Multi-Modal Interfaces - Challenges and Opportunities. 9th International Conference on Information Visualisation - IV 2005, pp. 51, London, UK.

Harding, C., 2005, Multi-Modal Virtual Environments – A Geoscience Perspective. Proc. 11th International Conference on Human-Computer Interaction, Volume 9 - Advances in Virtual Environments Technology Musings on Design, Evaluation & Applications, Las Vegas, NV, (Mira Digital Publishing, ISBN 0-8058-5807-5).

Heimann, A., Spry, P.G., and Teale, G.S., 2005, Zinc-rich spinels associated with Proterozoic base metal sulfide

# Iowa State recognizes geology faculty

*Continued from page 1*

Dawson's effectiveness as a classroom instructor is best exemplified by her outstanding course evaluations in introductory geology where most of the students are non-scientists. Her evaluations from the students are well above the departmental average for introductory courses, probably due to the fact that she continually finds new ways to excite and inspire students about geology.



Jacobson heads one of ISU's most successful academic department alumni relations programs. Activities include campus reunions for department alumni every two years, alumni meetings in major cities, meetings for meteorology alumni in conjunction with an annual National Weather



Service conference in Des Moines, and alumni involvement in the department's geology field camp in Shell, Wyo., each summer. In 2002, he, along with Carl Vondra, Paul Spry and DeAnn Frisk organized a special reunion at the camp and more than 100 alumni participated. He also arranges for alumni to return to campus as guest speakers in class.

Throughout his teaching career, Windom has relentlessly been on the leading edge in using technology, incorporating computer assignments into his classes as early as the late 1970s. He uses "real world" examples in which students obtain data from literature to incorporate into the assignments. He was instrumental in establishing the Department of Geological and Atmospheric Sciences' first student computer lab and has created interactive computer exercises for introductory geoscience courses.



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Helmke, M.F., **Simpkins, W.W.**, and Horton, R., 2005, Simulating conservative tracers in fractured till under realistic timescales. *Ground Water* 43(6):877-889.

Jahren, A.H., Conrad, C.P., Arens, N.C., **Mora, G.**, Lithgow-Bertelloni, C., 2005, A plate tectonic mechanism for methane hydrate release along subduction zones. *Earth and Planetary Science Review*, 236, 691-704.

Klump, J., Huber, R., Cervato, C., and Snyder, W.S., 2005. iGEOINFO.org – International Collaboration in GeoInformatics. *EOS*, 86, 27.

Lebedev, A. V. and **Beresnev, I.A.**, 2005, Radiation from flexural vibrations of the baseplate and their effect on the accuracy of travelttime measurements. *Geophysical Prospecting* 53, 543-555.

Lee, H., **Cody, R.D.**, **Cody, A.M.**, and **Spry, P.G.**, 2005, The formation and role of ettringite in Iowa highway concrete deterioration. *Journal of Cement and Concrete*, 35, 332-343.

Li, W., Vigil, R.D., **Beresnev, I.A.**, Iassonov, P., and Ewing, R., 2005, Vibration-induced mobilization of trapped oil ganglia in porous media: Experimental validation of a capillary-physics mechanism, *Journal of Colloid and Interface Science*, 289, 193-199.

**Mora, G.**, 2005, Isotope-tracking of pore water freshening in the fore-arc basin of the Japan Trench. *Marine Geology*, 219, 71-79.

**Mora, G.**, and Hinnov, L., 2005, Orbital forcing of tropical water balance inferred from sulfur speciation in lake sediments. *In: G. Mora and D. Surge (Eds). Isotopic and Elemental Proxies of Cenozoic Climate Change. Geological Society of America Special Paper*, 395, 33-42.

**Mora, G.**, and Martinez, J.I., 2005, Sedimentary metal ratios in the Colombia Basin as indicators for changes in water balance in northern South America during the past 400,000 years. *Paleoceanography*, 20, PA4013, doi:10.1029/2005PA001132.

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Scherer, R.P., Sjunneskog, C.M., **Iverson, N.R.**, and Hooyer, T.S., 2005, Frustules to fragments, diatoms to dust: how degradation of microfossil shape and microstructures can teach us how ice sheets work. *Journal of Nanoscience and Nanotechnology*, 5, 96-99.

Sharma, S., **Mora, G.**, Johnson, J.W., and Thompson, T.A.,

2005, Stable isotope ratios in swale sequences of Lake Superior as indicators of climate and lake fluctuations during the late Holocene. *Quaternary Science Review*, 24, 1941-1951.

Tombros, S., Seymour, K., and **Spry, P.G.**, 2005, Description and conditions of formation of zincian greenockite in epithermal polymetallic Ag-Au-Te mineralization, Tinos Island, Greece. *Neues Jahrbuch fur Mineralogie Abhandlungen*, 182, 1-9.

Zanazzi, A., and **Mora, G.**, 2005, Paleoclimatic implications for the relationship between oxygen isotope ratios of moss cellulose and source water in wetlands of Lake Superior. *Chemical Geology*, 222, 281-291.



## Alumni Reunion

A reunion of geology alumni was held in conjunction with the 66th Annual Tri-State Geological Field Conference Sept. 24-25. The Department of Geological and Atmospheric Sciences hosted the conference (participants pictured in top photo) for two days throughout central Iowa. Details on the conference, including a digital version of the guidebook, are available on-line at [www.ge-at.iastate.edu/tristate.shtml](http://www.ge-at.iastate.edu/tristate.shtml).

# Alumni Contributions to Geological Sciences: Iowa State University

I wish to support programs in Geological Sciences at ISU. Enclosed is my gift of:

\_\_\_\_\_ \$1000 \_\_\_\_\_ \$250 \_\_\_\_\_ \$100 \_\_\_\_\_ \$50 Other \$\_\_\_\_\_.

Please specify the Geological Sciences fund that should receive your gift:

\_\_\_\_\_ Geology Alumni Development Fund (1900040)

\_\_\_\_\_ Geology Development Fund (1949512)

\_\_\_\_\_ Geology Field Camp Fund (1948312)

\_\_\_\_\_ Geology Graduate Scholarship Fund (2701743)

\_\_\_\_\_ Geology Undergraduate Scholarship Fund (2701742)

\_\_\_\_\_ Quentin Schmidt Memorial Field Trip Fund (1900138)

\_\_\_\_\_ Carolyn Jones-Eiler Scholarship (1908641)

\_\_\_\_\_ Peter R. Johnson Memorial Scholarship (1902832)

\_\_\_\_\_ Rodney D. Gardner Memorial Scholarship (1900078)

\_\_\_\_\_ John Lemish Memorial Scholarship (1914321)

\_\_\_\_\_ O'Brien-Lonsdale Endowment Fund (1936212)

\_\_\_\_\_ Georgia L. and Carl F. Vondra Graduate Fellowship (2700426)

\_\_\_\_\_ Huedepohl Geology Field Camp Scholarship (2701147)

\_\_\_\_\_ I will request that my employer match my gift (if appropriate) to the same fund noted above. My employer is

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Your check, which may be made payable to the **ISU Foundation**, is tax deductible. Please include the fund number on your check, and return it with this form to:

Dr. Carl E. Jacobson, Chair  
Dept. of Geological & Atmospheric Sciences  
253 Science I  
Iowa State University  
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