

Geosciences

Varve

Summer 2003

Paul Spry, Editor
DeAnn Frisk, Production Coordinator

Greetings from the Chair

This was a very productive year for the Department. Things are going well on many fronts, but we are particularly excited about the great progress being made by the four new faculty who joined us in Fall 2001 (**Cinzia Cervato**, **Jiasong Fang**, **German Mora**, and **Donna Surge**). Most have now ramped up to their full teaching load and have that aspect of the job well under control. In addition, all now have several graduate students, a seminal step for new faculty. Particularly impressive is the success of the new people in obtaining external grant funding (see listing of new grant awards later in the *Varve*). Read more about the junior faculty, and all the staff, in their individual write-ups.

Speaking of new faculty, I have one piece of good news that I had no idea I would be able to report at this time last year. That is, we have yet another new faculty member, **Chris Harding**, who will start in August. Chris' hire was the result of a university-wide initiative in the field of human computer interaction. As many of you know, ISU's College of Engineering is a world leader in 3D computer visualization, particularly in the realm of immersive environments ("caves"). This year, the Provost's Office created three new faculty lines to be associated with the Engineering College's Virtual Reality Applications Center (VRAC). These faculty positions were open to any department and attracted a total of 60 applicants. Chris was

one of these, and he was among eight candidates selected for on-campus interviews. The other candidates came from various branches of engineering, computer science, psychology, and communications. We are thus very fortunate that Chris was ultimately chosen by the search committee to be offered one of the positions. Chris is a native of Germany. After obtaining his Diplom Geologe (equivalent to the U.S. master's degree), he spent four years working for Lynx Geosystems of Vancouver, Canada, a company that creates geostatistical, geotechnical, and mine-planning applications. From there, Chris went to the University of Houston for his doctoral work. His degree is from the Geoscience Department, but he also had a co-major professor from Computer Science. While at the University of Houston, he interned at ExxonMobil Upstream, and then spent a year-and-a-half at Shell after finishing the Ph.D. Chris has general expertise in 3D visualization of geoscientific data, but his particular strength is the incorporation of sound and force-feedback (haptics) into the interactive computer environment.

The addition of **Chris Harding** is particularly timely, because it ties to another major geoscientific computing initiative now underway in the Department under the direction of **Cinzia Cervato**. Cinzia was hired to fill a slot in geoscience education (**Fred DeLuca's** position), but also has a background in stratigraphy and paleontology, particularly related to compiling large volumes of stratigraphic information into database format. This expertise led her to become the lead investigator in a large multi-institutional NSF project known as CHRONOS. This is a six year program (with the potential to be continued indefinitely) to compile Earth history data and make it accessible over the web. This project will result in

the hiring of several programmers within our department. Other participants in CHRONOS include the U.S. Geological Survey, the American Geological Institute, the Smithsonian Institution, Harvard, MIT, Purdue, Texas A&M, and other academic institutions.

This was a good year for geology faculty with respect to awards from our college (Liberal Arts & Sciences). **Neal Iverson** received the College's *Mid-Career Award for Excellence in Research/Artistic Creativity*. LAS has many departments with very strong research programs, so it is quite an honor to have one of our faculty members selected for this award. Another major award this year went to **Bill Simpkins**, who was designated one of four LAS *Master Teachers*. Each year, the Master Teacher program has a different theme. This year, it was off-campus teaching. Bill was recognized for his efforts with the hydrogeology field methods course. Bill also received another important honor this year – he was elected a Fellow of the Geological Society of America. Finally, Bill was part of a group of faculty that received a *College of Agriculture Team Award* for work with the Agroecology Issue Team of the Leopold Center for Sustainable Agriculture on restored riparian buffers.

Recognition from the College also came in the form of three *Faculty Development Grants* to **Neal Iverson**, **German Mora**, and **Paul Spry**. These grants are designed to help faculty get started in new research areas. *Faculty Development Grants*, which are provided by the College, are closely related to *University Research Grants*, which come from the central University. About two dozen of these grants are awarded each year to faculty in our college, so it's quite impressive for three of them to come to our department, particularly considering that we are one of the smaller units in the College. In fact, this was a great follow-up to the outstanding showing we had last year, when four of our faculty received either *Faculty Development Grants* or *University Research Grants* (**Cinzia Cervato**, **Jiasong Fang**, **German Mora**, and **Donna Surge**).

In addition to Bill Simpkins' *Master Teacher Award*, several other faculty were honored for their teaching efforts. **Ken Windom** was presented by our undergraduate majors with the *Excellence in Undergraduate Teaching Award*. Also, **Jane Pedrick Dawson** was given a *Faculty Appreciation Award* by the ISU Panhellenic Council for her efforts in Geology 100. She received one of those last year, as well.

As I'm sure most of you know, this summer will be **Carl Vondra's** last as Director of the ISU Field Camp. We owe Carl an enormous debt for making the camp what it is today. It is a pivotal experience for our undergraduates and we are fully committed to continuing this program at the level of excellence established by Carl. To that end, I am pleased to let you know that Carl's former student, **Erik Kvale**, will take over as the new camp Director. Erik is a native of Greybull, Wyoming, and was attracted to ISU as an undergraduate because of his knowledge of the camp. After completing his B.S. in 1978, he went on to M.S. (1982) and Ph.D. (1986) degrees, both involving research in the Bighorn Basin. Erik is currently a geologist for the Indiana Geological Survey, which is graciously allowing him to take a leave of absence every summer in order to

assume the duties at our camp. Although Erik doesn't officially take over until Summer 2004, he is overlapping with Carl this summer in order to ensure as smooth a transition as possible. Erik is highly committed to the camp. He has enormous shoes to fill, but we can think of no one better to take on this obligation.

As has been customary in recent years, the Department sent a contingent to Houston for a spring alumni gathering. It took place in March and included me, **Carl Vondra**, **Erik Kvale**, and Jenni Cushman of the Alumni Foundation. The focal point was a luncheon at the *Marriott West Loop by the Galleria* attended by those of us from ISU and alumni **Brenda Atkins**, **Lee Backsen**, **Dan Hansen**, **Don Henkel**, **Joe Jensen**, **Brian Little**, **John Rielly**, **Ken Russell**, **Tim Ryan**, and **Howard White**. Also during the trip, we visited with **Steve Carlson** at Chroma Energy, **Howard White** at Kerr-McGee, and **Tom Smith** at his company Seismic Micro-Technology, Inc. The latter tour was also attended by many from the luncheon group. Thanks to everyone for their time and hospitality.

I have two sad pieces of news to report. **Bert Nordlie**, former faculty member and Head of the department passed away on June 5, 2003, from complications relating to a fall (see separate statement elsewhere in the *Varve*). This March, **Lillian Hussey**, wife of former faculty member and department Chair **Keith Hussey** passed away (Keith, himself, passed away about five years ago). We extend our deepest sympathies to both the Nordlie and Hussey families.

It's now been a full year since the reunion at field camp. Those of you who were there know what a great time we had. Our next major get-together will be an on-campus *Geology Alumni Days* to be held this September 26-28. In addition to providing an opportunity to reacquaint yourself with campus and visit with friends, the *Alumni Days* are an important resource for our students. For example, as usual, we will ask a number of you from industry, academia, and government to participate in a panel discussion about current trends/opportunities in the Earth sciences. We hope that many of you will be able to attend. See later in the *Varve* for details.

I'd like to close by thanking you all for your support. Please send letters and e-mails letting us know what you are up to. By mail, you can use the enclosed form. For e-mail, contact either me (cejac@iastate.edu) or *Varve* editor **Paul Spry** (pgspry@iastate.edu). In fact, if you have e-mail, we would really appreciate you dropping us a line so we can get your address. Please also let us know if we may post your address on our web page in order to help alumni get in touch with each other. The current list is available at <http://www.ge-at.iastate.edu/alumni/alumni-main.htm>. Also, check out the departmental web page, in general (<http://www.ge-at.iastate.edu/>), to see what's happening on campus.

Take care and have a good year.



Carl E. Jacobson

Financial Report

As is the case for universities across the country, tough financial times continue. For FY01-FY03, combined, the Department saw its budget trimmed by about 7%. For FY04, the University is facing yet another loss in state funding, this one amounting to about 5%. Fortunately, the upcoming cut will probably be absorbed by the central administration, rather than being passed on to academic departments. This is possible because of tuition increases over the last few years that at least partially offset the cuts in funding from the Legislature. In addition, although our department was required to make some contribution to the salary line of Chris Harding, most of this position represents new monies to the department, thus reversing a significant part of the FY01-FY03 losses. Between this, and the excellent success of our faculty in obtaining external grant funding, the Department is doing as well as ever. Nonetheless, there are certain areas of need. For example, remaining obligations to the start-up costs for recently hired faculty total over \$150,000. In addition, over the past decade, we have seen substantial erosion in the departmental budget for support of graduate students. We have neither as many graduate assistant lines as we would like, nor is the amount of the stipend as high as it ought to be. Furthermore, in the next few years we will incur several major expenses at field camp. One relates to the need to tie in to city water. In addition, and I can hear the collective gasp coming, potential environmental regulations aimed at preserving water quality in the Bighorn River may require us to abandon the 5- and 3-holers! Installing more environmentally friendly restroom facilities will not be cheap. Finally, as you may recall from last year, we are trying to build our alumni endowment so that we can use interest rather than principal to take care of discretionary expenses. As always, your contributions to the Department are greatly appreciated. Provided below are descriptions of current alumni funds. Support of graduate students, as was stressed above, can be accomplished through the *John Lemish Memorial Scholarship* or the *Georgia L. and Carl F. Vondra Graduate Fellowship*. Help with start-up cost for new faculty can be provided through either the *O'Brien-Lonsdale Fund* or the *Geology Development Fund* (the latter is an unrestricted fund that provides maximum flexibility). Improvements at Field Camp can be supported through the *Geology Field Camp Fund*.

2002 Contributions

Geology Alumni Development (1900040)

Rodney Gardner Scholarship (1900078)

John Barwin (BS 1956)

Quentin Schmidt Memorial Field Trip Fund (1900138)

Patricia Dickerson (MS 1983)

Ernest Huedepohl (MS 1956)

Carl Jacobson

Paul Spry

Peter R. Johnson Memorial Scholarship (1902832)

Carolyn Jones-Eiler Scholarship (1908641)

James Eiler

John Lemish Memorial Scholarship (1914321)

William Boyd (BS 1956)

John O'Sullivan (MS 1958)

John Spencer (MS 1974)

W. Lynn Watney (MS 1972)

Conoco Phillips Foundation

Geology Field Camp Fund (1948312)

Hoyt Acuff (PhD 1976)

William Boyd (BS 1956)

William Busch (BS 1974)

Steven Condon (BS 1973)

Bob (PhD 1987) & Jane (MS 1983) Dawson

Patricia Dickerson (MS 1983)

Richard Fox (BS 1963)

Larry Garside (BS 1965)

Kenneth Harpole (BS 1973)

Leo Kozimko (MS 1977)

Robert Martin (BS 1984)

Mark Mathisen (PhD 1981)

John Rudisill (BS 1976)

Joesph Shaser (MS 1978)

James Zalesky (BS 1977)

Chevron Texaco

Conoco Phillips Foundation

Yates Petroleum

Geology Development Fund (1949512)

Gary Anderson (MS 1963)
Lee Backsen (MS 1963)
Philip Bigsby (MS 1971)
Greg (MS 1984) Caron & Rachel (BS 1997) Stansbery
Robert Carson (BS 1974)
Robert & Anita Cody
Rodney DeBruin (MS 1975)
Gene DeKoster (MS 1960)
James Dockal (MS 1973)
Mark Finley (MS 1982)
Charles Fudge (BS 1956)
Ronald Garrison (BS 1973)
Chad Gimmestad (BS 1990)
Kent Gorham (BS 1979)
Dave (MS 1979) & Mary Hamilton
Timothy Hansen (BS 1980)
Allen Hanson (BS 1947)
Paul Hardersen (BS 1997)
Thomas Hooyer (PhD 1999)
Gerald Hunt (BS 1959)
Neal Iverson (BS 1983)
Nancy Jensen (BS 1980)
Eric Kvale (PhD 1986)
Michael Madsen (MS 1974)
David Morehouse (MS 1970)
Curtis Peck (MS 1980)
Bruce Peterson (BS 1967)
Sally Petersen (BS 1973)
Dennis Powers (BS 1967)
Frank Reckendorf (MS 1964)
Darvin Rehms (BS 1958)
Dennis Reida (BS 1974)
John Rielly (BS 1951)
George Rosenfeld (BS 1956)
Timothy Ryan (MS 1982)
Timothy Ryherd (BS 1980)
Carl Shaw (MS 1986)
John Spencer (MS 1974)
Jenny Stadler (BS 1981)
Stephen Stouffer (BS 1957)
Kenneth Tindall (MS 1985)
W. Lynn Watney (MS 1972)
Lowell Wille (MS 1984)
Mark Wiseman (BS 1979)

Chevron Texaco
Conoco Phillips Foundation

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

Philip Bigsby (MS 1971)
Richard Fox (BS 1963)
Carl Jacobson

Carl Vondra
Daniel Weed (MS 1988)

Geological Sciences Funds and Endowments

Rodney D. Gardner Memorial Scholarship: Established in 1995 by the children of Rodney D. Gardner (B.S. 1962), this fund furnishes a \$1,500 scholarship to an undergraduate student on the basis of scholarship and financial need.

Peter R. Johnson Memorial Scholarship: Established in the memory of Peter R. Johnson (B.S. 1977) by his family, this fund provides a \$500 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.

Carolyn Eiler-Jones Scholarship: Established in the memory of Carolyn Eiler-Jones (B.S. 1973) by her family, this fund provides a \$500 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 Wyoming Field Station.

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) in 1989 in honor of John Lemish (Professor Emeritus) and was called the *John Lemish Award for Earth Science*. It provided 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.

Alumni Contributions to Geological Sciences: Iowa State University

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

_____ \$1000 _____ \$200 _____ \$50 Other \$ _____.

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

_____ **Geology Development Fund (1949512)**

_____ **Geology Field Camp Fund (1948312)**

_____ **Quentin Schmidt Memorial Field Trip Fund (1900138)**

_____ **Geology Alumni Development Fund (1900040)**

_____ **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**

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

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
Ames, IA 50011-3212

Alumni Contributions to Geological Sciences: Iowa State University
News about yourself and your family for next year's Varve or send by e-mail
to pgspry@iastate.edu.

NAME: _____



Geol 507 Mineral Resources Field Trip to the Cotopaxi mine, Colorado



Undergraduate Dan Hummer on the Geol 306
Geology Field Trip to the Canadian Rockies

Alumni Notes

Ramon Bisque (Ph.D. 1959) proudly announced that the Department of Chemistry and Geochemistry at Colorado State University just made him their first "OLD FARHTE" entry on the newly established "Wall of Fame". His research involves applying geochemistry to projects involved in retrofitting coal fired power plants to remove fly ash, mercury, etc. An exciting and challenging application that he never anticipated. Ray's e-mail is: ray@bisque.com.

Dale Brunotte (M.S., 1977) is still working for the Air Quality Bureau of the Iowa Department of Natural Resources. He is planning on returning to Sabah, Indonesia, for a month with his wife and two stepdaughters in a week, his first trip back there in ten years. Dale was a teacher there for many years. Dale can be contacted at Dale.Brunotte@dnr.state.ia.us.

Jim Crowther (B.S., 1956) noted that Bill Boyd, Dave Schacht and he attended the ISU Geology Alumni reunion, even though their geology summer camp was at the Colorado Springs location. They were hoping to meet some others of their era for a mini-reunion, but it turned out to be a three-fold reunion. George Rosenfeld was there, an alumnus from the Colorado days, but also a Shell alumnus, Dennis K. Martin, showed up too. While Jim did not know Dennis at ISU, he met him in Tokyo, Japan. He was a G.I. in the 29th Engineer Battalion at Camp Oji, Tokyo, while Jim was there as a civilian geographer working for the U.S. Army Map Service, Far East. Dennis became the navigator for Jim during at least two sports car rallies held by the Tokyo Sports Car Club. So it was at the Shell reunion that Dennis and Jim met again after about 37 years. During conversations, the subject of their Tokyo days and sports car experiences did come up. Jim is not sure Dennis has yet forgiven him for blowing through a rally check point in his 1960 Triumph TR3-A about 5 minutes early, thus losing any chance of winning the Shiga Heights event.

Jim also noted that the Shell event produced just what it was supposed to produce -- the coming together of old friends in a small, small world. Jim's email address is jimcr@juno.com.

Caroline Davis (B.S. 2001) writes to tell us that she finished a Master's degree in geology at Fort Hays State University in Kansas in May 2003. Caroline's e-mail address is geocaroline@hotmail.com.

Sally Casey (nee Gramstad) (M.S. 2000) is officially a stay-at-home mom for the time being after the birth of Frank and Sally's second child, Mary Liv. She was born on November 1, 2002. Sally may do some volunteer work at a nearby wildlife refuge in Minnesota next year. It has been there for about thirty years but no one has done any work on its geology and none of the local geologists besides

Sally have expressed a desire to do so. A river that runs through the wildlife refuge has exposed some beautiful glacial deposits. With Frank teaching at North Dakota State University she mentioned that she is getting to see things from the other side of the advisor-student relationship which has been enlightening. Her e-mail address is: sally@jesusanswers.com.

Todd Fryzek (B.S. 1987) transferred to URS in Salt Lake City at the end of last year after working for URS in Frankfurt, Germany for three years. In Germany, he was the contract manager for all work in Europe for the U.S. Army. In Utah, he is currently managing several O&M projects at Hill AFB. Todd says it is hard to believe that it has been over 15 years since he went to field camp. Todd's e-mail is: Todd.Fryzek@URSCorp.com.

Paul Hardersen (B.S. 1997) informed us that his days of being an official student finally came to an end in April, 2003. Paul completed a Ph.D. at the University of North Dakota and was subsequently hired as an assistant professor at UND in the Space Studies Department. Paul came to Ames last October and gave a departmental seminar on his Ph.D. research concerning the composition of asteroids (particularly M-types) and to relate them to early solar system processes. Paul's e-mail address is: Hardersen@skyview.space.und.nodak.edu.

Matt Graham (B.S. 2001) is working for Hallett Materials and drives around the state of Iowa and down to Texas looking for sand and gravel deposits. His company has leased a few of these properties to add to their reserves in Iowa to remain as the leader in sand and gravel production in the state. In addition to his duties as geologist, he is also the Environmental Liaison Officer to Oldcastle Materials. A picture of Matt is included elsewhere in the Varve. On a personal note, he is getting married on October 25th and is living in West Des Moines. Matt can be contacted at mgraham@oldcastlematerials.com.

Richard (Dick) Handy (B.S., 1951, M.S., 1953, Ph.D. 1956) was the first person to receive a Ph.D. in the Department, and went on to a career as a professor and later Distinguished Professor of Civil Engineering at Iowa State. After two editions of a textbook, too many papers and a couple of awards, and directing some 80 graduate students, he is retired and lives with his wife Kathy and their Golden Retriever in the hills south of the Ledges State Park. He continues his writing and consulting activities, and Handy Geotechnical Instruments is international and uses his name to advantage. The web site is Handygeotech.com.

A book with Handy's trademark humor was reluctantly published by the American Society of Civil Engineers after reviewers said it would never sell. At last count it was in its fourth printing. It is "The Day the House Fell" and is available on Amazon.com. He says the intent was not just to amuse, but to help homeowners and builders recognize potentially devastating soil problems like landslides. It includes some of his novel methods for prevention, like using lime to modify the clay mineralogy.

He says that he tries to show how geology not only can be important, it can be critical. Dick can be reached by e-mail at rlhandy@iowatelecom.net.

Scott Hemingway (B.S. 1988, M.S. 1995) Since losing his fingernail helping his son Jacob build a dam in Shell Creek last summer at the Alumni Days reunion things have been relatively quiet. He is currently living in Issaquah, WA, and doing consulting and training for drinking water utilities. His son Jacob turned five in May and shows a great interest in rocks, throwing them that is. Scott often gets a chance to visit fellow ISU Geology alumni Greg and Rachael Caron on his travels throughout the state of Washington. He notes that "it doesn't rain here as much as everybody says." Scott's e-mail address is shemingway@erwow.org.

Richard "Dick" Iverson (B.S. 1977) continues to work at the Cascades Volcano Observatory of the U.S. Geological Survey, where he was recently promoted to Senior Scientist. His work primarily involves landslides and debris flows. The type of work with which he is involved can be viewed on the U.S.G.S. web-site at <http://vulcan.wr.usgs.gov/Projects/MassMovement>. Later this September he will be attending a workshop in Cambridge, U.K. Dick can be contacted by e-mail at riverson@usgs.gov.

Mike Madsen (M.S. 1974) wrote to tell us that the big news since the ISU Geology Alumni reunion is that he is retiring from his teaching position at Hinsdale South High School in Darien, Illinois. Mike has been there for the last 27 years since he left a teaching position in Sidney, Iowa. He has been teaching both geology and Earth science as well as coaching girls cross country and girls indoor and outdoor track. The track girls sent him off in fine fashion by coming from an underdog position and winning both the indoor and outdoor conference titles. These were their 23rd and 24th titles during his 24 years with the girls (He also coached 3 years with the boys.) - all accomplished at what is by far the smallest school in the conference. Now he is starting to catch up on all the projects that have been getting put off for years and actually doing some travelling during the school year! Mike will have a new e-mail address shortly.

Jonathan Maifield (B.S. 1997) has just finished his sixth year of opening eighth-graders eyes to the wonders of Earth Science. He is currently employed at Northview Middle School in Ankeny, Iowa, and is teaching in the same room in which he did his student teaching back in the spring of '97. Jonathan thanks Dr. Fred DeLuca for placing him in what he considers to be one of the finest school districts in the state. During his first four years out of college, he was employed by the Nashua-Plainfield school district in northeast Iowa and lived in the town of Waverly. Jonathan had coached basketball and track at Nashua-Plainfield, but has since gotten out of coaching while he pursues his Master's degree in Educational Administration. He began taking classes at Drake University this past fall and will be halfway through the program by the end of the

summer. He would like to get into coaching again after the Master's program has been completed. Last summer, Clint Carney (B.S. 1997) and he headed out west for the Geology Alumni Reunion and, afterwards, hiked to the top of Cloud Peak. Amazingly, they completed the entire 23-mile hike in one day. However, Jonathan notes that the view at the top was definitely worth the long, arduous journey. The picture on page 11 was taken near the summit, shortly before their sanity made them take the rest of the day off! Jonathan's e-mail is jmaifield@yahoo.com.

Jill Murray (nee Shackleton) (M.S. 2002) moved to Madison, WI with her husband Les in May, 2002, after finishing up her Master's degree on gold telluride mineralization at Kalgoorlie, Australia. She had temporary jobs as a quality control chemist for a pharmaceutical company through Kelly Scientific and as geologist for the Wisconsin Department of Natural Resources before becoming a technical writer with an environmental firm in Madison. Jill's e-mail address is jillsmurray@yahoo.com

David Pals (B.S. 1999, M.S. 2002) began working for the Groundwater and Stratigraphic Studies group at the Iowa Geological Survey Bureau in Iowa City in November, 2002. He completed a Master's thesis on telluride mineralogy of the Emperor deposit, Fiji, just prior to starting his job. David and his wife, Dianne (B.S. 1995, M.S. 1998), are expecting a baby in August. David's e-mail is dpals@igsb.uiowa.edu.

Tim Ryan (M.S. 1992) worked for Mobil Exploration in the 80's in Dallas, Texas as an exploration geologist. During that time, he was assigned to the Alaska Exploration Team. From the early to mid 90's, he worked in the Environmental Remediation industry as a Senior Geologist and Business Development Manager. He returned to the Oil Industry in the late 90's as Regional Manager for Paradigm Geophysical in Houston. Tim's present position is Vice President of Sales for InnerLogix, a software provider to the Upstream Oil and Gas Industry. He currently lives in The Woodlands, 30 miles north of Houston. Tim appreciates the Department's visits to Houston and hopes to make it back for Geology Alumni Days in September. He can be contacted at timr@innerlogix.com.

Nancy Scherbarth (M.S. 2002) finished up her masters thesis on the Tuvatu gold-telluride deposit in Fiji at the end of 2002 and moved to Western Australia where she is currently employed by Tectonic Resources as an exploration geologist. She is splitting her time between Perth and the small mining community of Ravensthorpe. The area around Ravensthorpe hosts nickel and massive copper-zinc ores. She prefers being outside with the drilling crew rather than at a desk in an office. Nancy can be reached at nlscherbarth@yahoo.com.

Bill Staub (Ph.D, 1969) was a professor of geology at the University of Tennessee, Knoxville from 1969 to 1976 and had a working relationship with the Tennessee Valley Authority and the City of Knoxville during that time.

From 1976 to 1996 he was a geotechnical engineer at Oak Ridge National Laboratory, specializing in uranium mill tailings management, insitu uranium mining's effects on ground water, and waste management in general. Bill retired from Oak Ridge in 1996 but continued to consult with the laboratory on issues related to the Department of Energy's "Clean Coal" program and review of proposed hydroelectric projects in the western states for the Federal Energy Regulatory Commission. From 1998 to 2000 he was a consultant for the Navajo Nation at Crown Point, New Mexico on potential impacts of proposed insitu uranium mining on Navajo land. During the 2000-01 academic year Bill was a visiting professor of geology at Tennessee Technological University, teaching courses in environmental geology, hydrogeology, and structural geology. Bill's e-mail address is: Grmp404@cs.com.

James Sturm (B.S. 1996) has returned to the U.S. after a 2 year assignment to Korea. He is now serving as the Executive Officer to the Commander of the South Pacific Division of the Army Corps of Engineer and holds the rank of 1st Lieutenant. His area of responsibility includes Flood Control, Environmental Restoration, and Construction for California, Nevada, Utah, Arizona, New Mexico, and Colorado. James will be returning to the Midwest in October to attend the Captain's course, and with a little luck pursue a Master's at the University of Missouri at Rolla. James' e-mail address is: james.sturm@sbcglobal.net.



Alumnus Jamie Sturm (B.S. 1996)

Mike Sweat (B.S. 1980, M.S. 1985) after 17 years in Michigan, moved to Wyoming in January with his wife, Kathy, where Mike accepted the position of supervisory hydrologist in the Cheyenne office of the USGS. He oversees a staff of 14 professional hydrologists and

geologists, and continues his own research on wetlands restoration and ground water/surface water relations. Kathy continues working as an RN in the emergency department. By the time you read this, they will have celebrated their 25th wedding anniversary. Their children, Jennifer and Joel, remain in Michigan, where Jenny graduated in May with undergraduate degrees in international business and human resources from Michigan State University. They are happy to report that she has a "real" adult job - her words - with Enterprise. They now are looking forward to her upcoming marriage in October. Joel continues to work as an assistant manager with Valvoline Instant Oil Change, and is working toward earning certification as a mechanic. With skiing, camping, hiking, and mountain vistas nearby, both Kathy and Mike are looking forward to living in the West, and invite anyone to stop in and visit. Mike can be contacted at: mjsweat@attbi.com or mjsweat@usgs.gov.

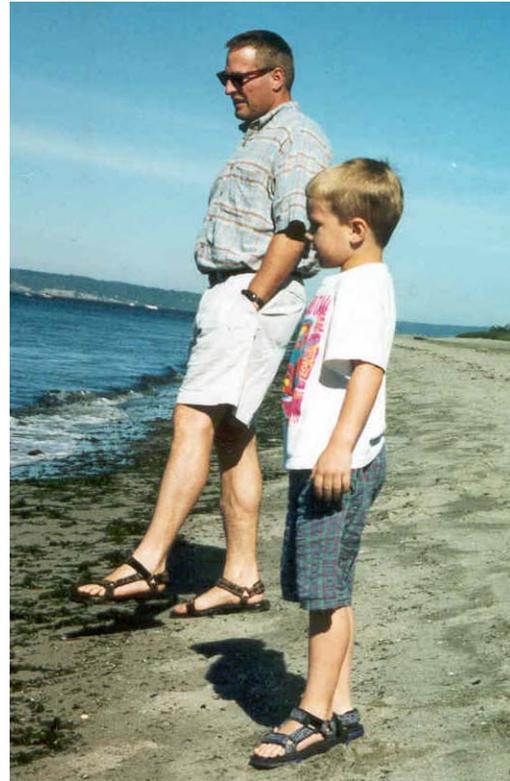
Elizabeth Wagar (B.S., 2001) just completed an M.S. thesis entitled "Petrology of mineralization and alteration associated with carbonatites, central Bear Lodge Mountains, northeastern Wyoming," and graduated from South Dakota School of Mines and Technology. She just started working for the City of Rapid City, as a consulting geologist and under contract for the Forest Service in the Black Hills National Forest. Liz will be surveying streams and creating a GIS database and baseline map for future projects in the Black Hills. She can be contacted by e-mail at Elizabeth.Wagar@gold.sdsmt.edu.

David Wonder (B.S. 1983, M.S. 1987) has been working in environmental consulting and contracting for almost 16 years, most recently with Arrowhead Contracting, Inc., a Native American owned clean construction and environmental contracting firm. His most recent "brush with geology" came last year when he took the ASBOG exams and passed both on the first try. He currently lives in a forest in Warren County, Iowa. His wife, Vickie, and he have two daughters, Erin and Emily. Erin was born while he was a grad student in the Geology Department and attended his thesis defense. Erin is heavily into percussion music and researching private liberal arts colleges. She plans to study some aspect of language and literature. Emily is in middle school, is active in music, and seems to have an aptitude for science and math. David is trying to steer her to engineering, where she can get a "real job." Vickie works for MidAmerican Energy in Des Moines, where she has worked for 19 years. David's e-mail address is: wonder@netins.net.

Xiaomao "Kenneth" Zhang (Ph.D.1992) is a software engineer at Intel, in Portland, Oregon. He is busy working on a new generation network adapter with storage capability, based on a new protocol called iSCSI. Xiaomao says it is very tough working in the high tech industry these days because of the layoffs but he has been exempted because he is working on a strategic product. His son Andy is a sophomore at the University of Washington. Xiaomao's e-mail address is: kenneth.zhang@intel.com.



Mike (B.S. 1980, M.S. 1985) and Kathy Sweat in Wyoming



Scott Hemingway (M.S. 1995) and son Jacob at the beach in Washington



Jon Maifield (B.S. 1997) at Cloud Peak, Wyoming, during the Geology Alumni Reunion



Alumnus Matt Graham (B.S., 2001) short-handed and apparently "short legged" at work

Department

GEOLOGY STUDENT AWARDS

(Presented at the 2003 Spring Banquet)

UNDERGRADUATE AWARDS

Carolyn Jones-Eiler Summer Field Camp Scholarship

Craig Byer
Megan Herring

Peter Johnson Memorial Scholarship

Andrew Storjohann
Sarah White

Outstanding Undergraduate Award

Dan Hummer

Rodney Gardner Memorial Scholarship

Josh Rohret
Andrew Storjohann

Outstanding Senior

Matt Graesch

Laura Vernon Scholarship

Andrew Storjohann

GRADUATE AWARDS

Pick-of-the-Year

Bjorn Brooks

Outstanding Teaching Assistant

Adriana Heimann

John Lemish Award

Pavel Iassonov

Ames Rock & Mineral Club Award

Jason Thomason

Graduate Student Seminar

Top Paper

Meaghan McLoughlin

Graduate Student Seminar

Runners-up

Colleen Fowle
Adriana Heimann
Pavel Iassonov

Outstanding Contributions

Cammy Bright
Joan Jach

Geological Sciences Graduates

Fall 2002

Olivia Chan – BS (Geology)
Leslie Nagel – BS (Geology)
Christopher Sindt – BA (Earth Science)

John Baldwin – MS (Geology)
Adriana Heimann – MS (Geology)
David Pals – MS (Geology)
Nancy Scherbarth – MS (Geology)
Ana Vucic – MS (Geology)
Timothy Wineland – MS (Geology/Water Resources)

Spring 2003

Matthew Graesch – BS (Geology)
Michael Kadolph – BS (Geology)
William Lenarz – BS (Geology)
Nicole Sondgeroth – BS (Geology)

Martin Helmke – PhD (Geology/Water Resources)
John Thomas – MS (Geology/Water Resources)

Graduate Students and their Research Projects

Agarkar, Netra - Piezophilic Bacteria in the Deep-Sea: Taxonomy, Diversity, and Biotechnological Potential (Fang); Ph.D.

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.

Chan, Olivia - Membrane Fatty Acids of Deep-Sea Piezophilic Bacteria (Fang); M.S.

Dudding, Allan - The Use of Ground Penetrating Radar to Evaluate Concrete Deterioration in Iowa Highway Concretes (Beresnev); M.S.

Fowle, Colleen - An Analytic Element Model of Groundwater Flow and Nitrogen Transport in the Bear Creek Watershed (Simpkins); M.S.

Goewert, Ann - Sclerochronology of Endangered Fresh Water Mussels of Iowa (Surge); 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.

Hook, Patrick - Reduction of Concrete Deterioration by Ettringite Using Crystal Growth Inhibition Techniques (Spry); M.S.

Iassonov, Pavel - Enhancing Fluid Flow in Porous Media by Applications of Sonic Vibrations (Beresnev); Ph.D.

Jach, Joan - Using the Lexis-Nexis Database to Identify Relevant Topics for Introductory Geology Classes (Cervato); M.S.

Kutz, Brenda - The Geology and Geochemistry of Barite Vein Deposits, Northern Ontario, Canada (Spry); M.S.

Loving, Theresa - Teaching the Relationship between Land-Use and Flooding (Windom); M.S.

Mann, Janet - Experimental Study of Debris Flow Mobilization (Iverson); M.S.

McLoughlin, Meaghan - Determination of the Microfabric of Sheared Till using X-Ray Goniometry (Iverson); M.S.

Pereira, Tanya - Isotope Paleoecology of Southwestern Florida Clams and Fish (Surge); M.S.

Spear, Beth - Fate and Transport of Nitrate in Groundwater through a Riparian Buffer Strip in Central Iowa (Simpkins); M.S.

Thimmesch, Carrie - Spatial and Temporal Variability in Groundwater Quality at Riparian Buffers on Bear Creek, 1996 to 2002 (Simpkins); M.S.

Thomason, Jason - Experimental and Field Studies of Clast Plowing and Till Deformation Beneath Past Ice Sheets (Iverson); Ph.D.

Twedt, Trent - Water Movement in the Unsaturated Zone of a Multi-Species Riparian Buffer Strip in Central Iowa (Simpkins); M.S.

Wang Weihong - Using Stable Isotopes to Distinguish Root Respiration from Microbial Soil Respiration (Mora), M.S.

Zanazzi, Alessandro - Assessment of Weather Patterns in the Great Lakes Region for the Last 400 Years (Mora), M.S.

Faculty and Student Publications

Refereed Journal Articles/Chapters in Books

Atkinson, G. M. and **Beresnev, I.A.**, 2002, Ground motions at Memphis and St. Louis from M 7.5-8.0 earthquakes in the New Madrid seismic zone. *Bulletin of the Seismological Society of America*, 92, 1015-1024.

Beresnev, I. A., 2002, Nonlinearity at California generic soil sites from modeling recent strong-motion data. *Bulletin of the Seismological Society of America*, 92, 863-870.

Beresnev, I. A., 2002, Source parameters observable from the corner frequency of earthquake spectra. *Bulletin of the Seismological Society of America*, 92, 2047-2048.

Beresnev, I. A. and Atkinson G.M., 2002, Source parameters of earthquakes in eastern and western North America based on finite-fault modeling. *Bulletin of the Seismological Society of America*, 92,

695-710.

Beresnev, I. A., Hruby, C.E., and Davis, C.A., 2002, The use of multi-electrode resistivity imaging in gravel prospecting. *Journal of Applied Geophysics*, 49, 245-254.

Fang, J., and Kato, C., 2003, Piezophilic bacteria: taxonomy, diversity, adaptation, and potential biotechnological applications. In: Fingerma M. (Ed.), *Recent Advances in Marine Biotechnology*, vol. 8, Science Publishers, Inc. Enfield. Pp. 47-80.

Fang, J., Barcelona, M. J., Abrajano, T. A., Jr., Kato, C. and Nogi, Y., 2002, Isotopic composition of fatty acids isolated from the extremely piezophilic bacteria from the Mariana Trench at 11,000 meters. *Marine Chemistry*, 80, 1-9.

Fang, J., Kawamura, K., Ishimura, Y., and Matsumoto, K., 2002, Carbon isotopic composition of fatty acids in the marine aerosols from the western North Pacific: Implication for the source and atmospheric transport. *Journal of Environmental Science and Technology*, 36, 2584-2604.

Haxel, G. B., **Jacobson, C. E.**, Richard, S. M., Tosdal, R. M., and Grubensky, M. J., 2002, The Orocopia Schist in southwest Arizona: Early Tertiary oceanic rocks trapped or transported far inland, in Barth, A., ed., *Contributions to crustal evolution of the southwestern United States: Boulder, Colorado*, Geological Society of America Special Paper 365, 99-128.

Hooyer, T.S. and **Iverson, N.R.**, 2002, Flow mechanism of the Des Moines lobe of the Laurentide ice sheet, *Journal of Glaciology*, 48, 575-586.

Iverson, N.R. and Hooyer, T.S., 2002, Clast-fabric development in a shearing granular material: implications for subglacial till and fault gouge: Reply to discussion of D. I. Benn. *Geological Society of America Bulletin*, 114, 383-384.

Iverson, N.R., 2002 Processes of glacial erosion, in Menzies, J., ed., *Modern and Past Glacial Environments: Revised Student Edition*, Butterworth/Heinemann, Oxford, 131-146.

Jacobson, C. E., Grove, M., Stamp, M. M., Vucic, A., Oyarzabal, F. R., Haxel, G. B., Tosdal, R. M., and Sherrod, D. R., 2002, Exhumation history of the Orocopia Schist and related rocks in the Gavilan Hills area of southeasternmost California, in Barth, A., ed., *Contributions to crustal evolution of the southwestern United States: Boulder, Colorado*, Geological Society of America Special Paper 365, 129-154.

Lee, H., **Cody, R.D.**, **Spry, P.G.**, and Cody, A.M., 2002, Observations on brucite formation and the role of brucite in the deterioration of Iowa highway concrete. *Environmental and Engineering Geoscience*, 8, 137-145.

Moore, P.L., and **Iverson, N.R.**, 2002, Slow episodic shear of granular materials regulated by dilatant strengthening. *Geology*, 30, 843-846.

Mora, G., 2002, Carbonate and organic carbon accumulation at Sites 1150 and 1151, Leg 186. *in* Sacks, S. et al. (Eds). *Proceedings of Ocean Drilling Program. Scientific Results*. 186.

Mora, G., and Pratt, L.M., 2002, Mixed C₃/C₄ vegetation in the alpine neotropics during the last glacial stage:

stable-carbon isotope evidence from paleosols of the Bogota basin, Colombia. *Quaternary Science Reviews*, 21, 985-995.

Mora, G., Boom, A., and Pratt, L.M., (2002), Biogeochemical characteristics of lacustrine sediments reflecting a changing alpine neotropical ecosystem during the Pleistocene. *Quaternary Research*, 58, 189-196.

Simpkins, W.W., Burkart, M.R., Helmke, M.F., Twedt, T.N., James, D.E., Jaquis, R.J., and Cole, K.J., 2002, Potential impact of earthen waste storage structures on water resources in Iowa. *Journal of the American Water Resources Association*, 38, 1-13.

Simpkins, W.W., Wineland, T.R., Andress, R.J., Johnston, D.A., Caron, G. C., Isenhardt, T.M., and Schultz, R.C., 2002, Hydrogeological constraints on riparian buffers for reduction of diffuse pollution: examples from the Bear Creek Watershed in Iowa, USA. *Water Science and Technology*, 45, 61-68.

Surge, D., and Lohmann, K.C., 2002, Temporal and spatial differences in salinity and water chemistry in SW Florida estuaries: effects of human-impacted watersheds. *Estuaries*, 75, 393-408.

Technical Reports

Simpkins, W.W., Drenner, K.B., and Ewoldt, T., 2002, Estimation of the Groundwater Nutrient Input to Clear Lake. Annual Progress Reports-2001, Northeast Research and Demonstration Farm, Nashua, Iowa. 28-29.

Spry, P.G., 2002, A mineralogical study of five high-grade gold-bearing samples from recent deep drill holes, Golden Sunlight deposit. Confidential report to Golden Sunlight Mines, Inc. (Place Dome, U.S.A.), 25 p.

Invited Talks (Universities, Research Centers, Non-conference, etc.)

Cervato, C., Initiation of Mediterranean agriculture: relationship to the Younger Dryas climate? University of Iowa, March, 2002.

Cervato, C., Why is the sky blue? Why is it hot in summer and cold in winter? ITV lecture for elementary school teachers in rural Iowa, Co-op project, Department of Curriculum and Instruction, ISU, February, 2002.

Fang, J., Lipid biochemistry of piezophilic bacteria and global carbon cycle, Japan Marine Science and Technology Center, Yokosuka, Japan.

Fang, J., The use of stable C isotopes and lipid biomarkers to demonstrate biodegradation. Japan Marine Science and Technology Center, Yokosuka, Japan.

Fang, J., Efficacy of bioremediation: Demonstration of Complete Incorporation of Toluene carbon into

Bacterial Membrane Lipids. Department of Microbiology, Iowa State University, Ames, IA.

Iverson, N.R., Bed-deformation experiments beneath the Svartisen Ice Cap, Norway. Laboratory of Glaciology and Geophysics, University of Grenoble, Grenoble, France, November, 2002.

Iverson, N.R., Till deformation beneath Engabreen, Norway. Laboratory of Hydraulics, Swiss Federal Institute of Technology (ETH), Zurich, November, 2002.

Iverson, N.R., Bed-deformation experiments beneath the Svartisen Ice Cap, Norway. Cascades Volcano Observatory, U.S. Geological Survey, October 2002.

Mora, G., Geochemical and isotopic evidence for Quaternary climate change in the tropical Andes of Colombia. Department of Geological Sciences, Seminar Series, University of Iowa, April, 2002.

Spry, P.G., Geology and geography of central Australia. Department of Botany. ISU, February, 2002.

Spry, P.G., Unusual rock types as guides to metamorphosed massive sulfide deposits. Department of Earth and Atmospheric Sciences, University of Alberta, Canada, March, 2002.

Spry, P.G., The origin of alkaline igneous rock related gold-silver telluride deposits. Department of Earth and Atmospheric Sciences, University of Alberta, Canada, March, 2002.

Spry, P.G., The origin of alkaline igneous rock related gold-silver telluride deposits. Anglogold Corporation, Cripple Creek & Victor Company, Cripple Creek, Colorado, September, 2002.

Spry, P.G., The effects of deicing salts and anti-icing agents on the deterioration of Iowa highway concretes. Deicing Salt Technical Panel of State Departments of Transportation, Sioux Falls, South Dakota, April, 2002.

Surge, D., Diaries of clams: unlocking their secrets through geochemical analysis, Drake University, IA.

Paper, Panel, or Poster Invitations (Conference-Abstracts)

Beresnev, I. A., 2002, Effects of sediment nonlinearity on earthquake ground motions. Abstracts and Program of the 16th International Symposium on Nonlinear Acoustics, Moscow, Russia.

Beresnev, I. A., Nightengale, A. M., and Silva, W. J., 2002, Properties of vertical ground motions. EOS, Transactions of the American Geophysical Union 83, F1033-F1034.

Cervato, C., 2002, Getting help from course management

- software to teach a large-enrollment introductory geology class. Geological Society of America Abstracts with Programs, 34 (6), 300-301.
- Fang, J.**, Chan, O., Bilden, L., Peeples, T., and Niggemeyer, K., 2002, Biochemistry and biophysics of piezophilic bacteria. The 15th Annual Meeting of Iowa Space Grant Consortium.
- Fang, J.**, and Kato, C., 2002, Stable carbon isotopic composition of fatty acids of piezophilic bacteria from the deep-sea. Geological Society of America Annual Meeting Abstracts with Programs, 34 (6), 118-119.
- Fang, J.**, Kato, C., and Nogi, Y., 2002, Isotopic composition of piezophilic bacteria from the Mariana Trench at 11,000 m. Extremophiles 2002, Naples, Italy.
- Fang, J.**, Kawamura, K., Yutaka Ishimura, and Matsumoto, K., 2002, Carbon isotopic ratios of fatty acids in marine aerosols from Chichijima Island, western North Pacific: Implications for source and atmospheric transport. 2002 Goldschmidt Conference, Davos, Switzerland.
- Fischer, U.H., **Iverson, N.R.**, Hooyer, T.S., Cohen, D., Jackson, M., Moore, P.L., Lappegard, G., and Kohler, J., 2002, Subglacial sediment deformation: an experiment beneath Engabreen, Norway. Geophysical Research Abstracts, 4. (27th General Assembly of the European Geophysical Society, Nice, France).
- Gradstein, F.M., Hammer, Ø., Brenner, K., **Cervato, C.**, Smelror, M., Williams, R. & Finnestad, S., 2002, The Stratabank™ concept - WWW-based stratigraphy with large fossil databases. Norsk Geologisk Forening, Annual Meeting.
- Heimann, A., and **Spry, P.G.**, 2002, Mineralogical study of zincian spinel-bearing rocks associated with Proterozoic metamorphosed massive sulfide deposits, Colorado. Society of Economic Geologists Newsletter /SEG Website.
- Heimann, A., **Spry, P.G.**, and Teale, G.S., 2002, Corona textures involving hercynite and hoegbomite in gedrite-cordierite gneisses from Evergreen, Colorado. Geological Society of America Abstracts with Programs, 32 (5), A-22.
- Heimann, A., **Spry, P.G.**, and Teale, G.S., 2002, The composition of zinc-rich spinels associated with metamorphosed massive sulfide deposits: a reexamination. Geological Society of America Abstracts with Programs, 34 (6), 339.
- Hooyer, T.S., **Iverson, N.R.**, Cohen, D., Fischer, U.H., Jackson, M., Moore, P.L., Lappegard, G., and Kohler, J., 2002, Motion of a temperate glacier over hard and soft beds: subglacial; experiments at Engabreen, Norway. EOS, Transactions of the American Geophysical Union, 83 (47), F309.
- Hruby, C. E., and **Beresnev, I. A.**, 2002, Empirical corrections for basin effects in stochastic ground-motion prediction. EOS, Transactions of the American Geophysical Union 83, F1061.
- Iverson, N.R.**, P.L. Moore, T.S. Hooyer, J. Thomason, and M. McLoughlin, submitted. Laboratory studies of till mechanical behavior and fabric evolution during shear. Meeting of the 16th Congress of the International Union for Quaternary Research (INQUA), Reno, Nevada.
- Iverson, N.R.**, Hooyer, T.S., Fischer, U.H., Cohen, D., Jackson, M., Moore, P.L., Lappegard, G., and Kohler, J., 2002, Bed-deformation experiments beneath a temperate glacier. EOS, Transactions of the American Geophysical Union, 83 (47), F560.
- Jacobson, C.E.**, Grove, M., Barth, A.P., Pedrick, J.N., and Vucic, A., 2002, "Salmon tectonics" as a possible explanation for Laramide sedimentation and underplating of schist in southern California and southwestern Arizona. Geological Society of America Abstracts with Programs. 34 (6), 510.
- Mora, G.**, and Hinnov, L., 2002, Can sulfur in lacustrine sediments be used as a proxy for rainfall? Geological Society of America, Abstracts with Programs, 34 (6), 313.
- Mora, G.**, and Hinnov, L., 2002, Sedimentary sulfur variability in lake sediments of the Bogota Basin as evidence for orbital forcing of rainfall patterns in the tropical Andes. EOS, American Geophysical Union. 83 (47).
- Nelson, J.L., Haake, D.M., Schultz, R.C., Isenhardt, T.M., and **Simpkins, W.W.**, 2002. Soil denitrification and microbial biomass under riparian pastures, forests, and cropland in NE Missouri, Annual Meetings SSSA, Indianapolis.
- Roumelioti, Z., and **Beresnev, I.A.**, 2002, Stochastic finite fault modeling of strong ground motions from the 1999 Chi-chi, Taiwan, earthquake. EOS, Transactions of the American Geophysical Union 83 (47), F1013.
- Shackleton, J.M., and **Spry, P.G.**, 2002, The composition and formula of the rare gold telluride, montbrayite. Geological Society of America Abstracts with Programs, 32 (5), A-4.
- Simpkins, W.W.**, 2002. Using analytic element models to construct nutrient budgets and identify nutrient sources areas for lakes in Iowa. Geological Society of America Abstracts with Programs, 34 (6), 99.
- Spry, P.G.**, and Scherbarth, N.L., 2002, The vanadium-tellurium-gold association at the epithermal Tuvatu gold deposit, Fiji: Implications for ore deposition. 16th Australian Geological Convention, Adelaide, Australia, Abstracts, 51, 342.
- Surge, D.**, and Walker, K., 2002, From LPs to CDs to clam shells: subtropical climate recordings from the last 2000 years. Geological Society of America Abstracts with Program, 34 (2), A9.
- Surge, D.**, and Walker, K., 2002, Geochemical records within an archaeological context: an interdisciplinary approach to reconstructing Late Holocene climate, SW Florida. Geological Society of America Abstracts with Program, 34 (6), 314.
- Thimmesch, C.A., **Simpkins, W.W.**, Schultz, R.C., and Isenhardt, T.M., 2002, Groundwater quality trends in three riparian buffers in the Bear Creek watershed (1996-2002). Abstracts of the Iowa Academy of Science, p. 29.
- VanDorpe, P., Cook, D.J., Reichard, T.J., and **Simpkins, W.W.**, 2002, Arsenic investigation of a "problem" area in Cerro Gordo County, Iowa. Abstracts of the

Midwest Ground Water Conference. Fargo, North Dakota.

Vucic, A., Grove, M., **Jacobson, C.E.**, and Pedrick, J.N., 2002, Multi-stage exhumation history of the Orocopia Schist in the Orocopia Mountains of southeast California: Geological Society of America Abstracts with Programs, 34 (6), 83.

Wineland, T. R., **Simpkins, W. W.**, **Beresnev, I. A.**, Schultz, R. C., and Isenhardt, T. M., 2002, Hydrogeologic controls on the efficiency of nitrate removal beneath multi-species riparian buffers in the Bear Creek watershed, central Iowa. Abstracts and Program of the 2002 Annual Meeting of the Geological Society of America, 34 (6) 57.

Wineland, T.R., W.W. **Simpkins**, **I.A. Beresnev**, T.M. Isenhardt, and R.C. Schultz, 2002. Hydrogeology and water quality beneath multi-species riparian buffers in the Bear Creek watershed, central Iowa, Annual Meetings SSSA, Indianapolis.

New Research Grants in 2002

Beresnev, I.A., Mechanisms of acoustic stimulations of fluid flow in porous media: Integration of laboratory pore-scale studies and theoretical model development. National Science Foundation, \$200,000

Beresnev, I.A., Nonlinear interaction between land vibrator baseplate and ground surface. Western GECO, \$75,875.

Cervato, C., **Gallus, W.**, and Cruz-Neira, C., A virtual tornadic thunderstorm to enable student-centered learning about complex storm-scale atmospheric dynamics. National Science Foundation, \$74,949.

Cervato, C., Mechanisms of acoustic stimulations of fluid flow in porous media: Integration of laboratory pore-scale studies and theoretical model development. Academy of Applied Sciences, \$2,000.

Cervato, C., A pilot project to adapt and evaluate the Calibrated and Peer Review for the Earth Sciences. National Science Foundation, \$13,835.

Cervato, C., Introducing a web-based writing and peer-review component into introductory-level earth science classes: adaptation of the Calibrated Peer Review tool successfully used in chemistry. National Science Foundation, \$39,500.

Fang, J.S. Lipid biomarkers as indicators of extant or extinct life on Mars. NASA, \$18,250.

Fang, J.S., US-Japan Cooperative Science" A biochemical and molecular investigation of piezophilic bacterial adaptation to the deep-sea high pressure environment. NSF, \$30,665.

Iverson, N.R. Collaborative research on till deformation linking microstructural characteristics to strain. NSF, \$142,906.

Iverson, N.R. Collaborative research toward an erosion rule for glacial quarrying: modeling and measurements. NSF, \$240,000.

Mora G.M. Reconstructing late Pleistocene water balance in northern South America from a marine record, Ocean Drilling Program (ODP) Site 999 of the Columbia Basin, Caribbean Sea. NSF, \$154,534.

Mora, G.M. Assessment of carbon-isotope ratios of n-alkanes as a stratigraphic tool for Aptian deposits. Petroleum Research Fund, \$35,000.

Simpkins, W.W., Assessment and prediction of the fate of Nitrate in re-established riparian buffers. U.S. Department of Agriculture. \$323,538.

Simpkins, W.W., et al., Effectiveness of riparian forest buffers in head-water watersheds of the Western Corn Belt - part of the Univ. Missouri Project - A floodplain analysis of agroforestry's physical, biological, ecological, economic and social benefits U.S. Department of Agriculture. \$219,763

Spry, P.G. and Cody, R.D. Reduction of concrete deterioration by ettringite using crystal growth inhibition techniques. \$142,000

Spry, P.G., Mineralogy of high-grade gold mineralization in the Golden Sunlight deposit, Montana. Golden Sunlight Mines, Inc. \$3,180.

Spry, P.G. The origin and exploration significance of gahnite- and garnet-rich rocks in the Willyama and Olary Domains of the Curnamona Province (New South Wales and South Australia). Primary Industries and Resources South Australia. \$25,200.

Surge, D. Controls on $\delta^{18}\text{O}$ and Mg/Ca ratios of the European oyster, *Ostrea edulis*: Archaeological and paleoclimate implications. American Philosophical Society, \$5,000.

Surge, D. Geochemical proxies of the southern quahog (*Mercenaria campechiensis*): Implications for Late Holocene subtropical seasonality and climate variability, SW Florida, \$35,000.

2002-2003 Geological Sciences Seminar Series

Greg Ludvigson, Iowa Geological Survey
Continental Isotopic Records of Global Change in the Cretaceous Greenhouse World

William Jury Pierre Soil Science Distinguished Lecturer
University of California, Riverside
The Emerging Global Water Crisis

Daniel F. Stockli, University of Kansas
Exhumation History Of The Central Alborz Mountains, Iran, And Implications For South Caspian Subsidence

Reed Scherer, Northern Illinois University
Diatom Fossils as Tracers of Glacial History and Ice Sheet Processes

Andrey Lebedev, Institute of Applied Physics of the Russian Academy of Sciences
Nonlinear Distortion of Signals Radiated by Vibroseis Sources/Resonant Acoustic Spectroscopy of Micro-fracture in the Westerly Granite Sample

Matthew Hill, Iowa State University, Anthropology
The Clary Ranch Paleoindian Project: Investigating Hunter-Gatherer Behavioral Responses to Changing

Resource Structure at the Pleistocene/Holocene Transition on the NW Great Plains

Paul Harderson, University of North Dakota
Main-Belt Asteroids: Geological Markers for the Conditions in the Early Solar System

Philip Carpenter, Northern Illinois University
Geophysical and Geochemical Characterization of Groundwater Contamination Surrounding an Oil Shale Tailings Landfill, Maoming, Southern China

Christopher A. Brochu, Paleontological Society
Distinguished Lecturer, University of Iowa
Simultaneous Illumination: Phylogenetic Approaches toward Crocodylian History

Roula Roumelioti, Aristotle University of Thessaloniki
Stochastic Simulation of Strong Ground Motion from the 1999 Chi-Chi, Taiwan, Earthquake

Pedro Alvarez, University of Iowa
Effect of Ethanol on BTEX Natural Attenuation Microscopic and Macroscopic Implications

Bruce W. Fouke, University of Illinois, Urbana-Champaign
Geobiology: New Perspectives on Planet Earth

Andy Barth, Indiana University-Purdue University at Indianapolis
The McCoy Mountains Formation, Southeastern California: A Cretaceous Retro-Arc Foreland Basin

Kevin L. Shelton, University of Missouri
Gold Systems: Examples From The Yellowknife And Abitibi Greenstone Belts

Richelle Allen-King, Darcy Distinguished Lecturer
Washington State University
Ground and Surface Water Contributions to Chemical Mass Discharge Considering the Problem at Field and Basin Scales

Kacey Lohmann, University of Michigan
Resolution Analysis of Molluscan Carbonates: High-Resolution Reconstruction of Continental and Marine Paleotemperatures

David Harwood, University of Nebraska, Lincoln
Cenozoic Antarctic Climate and Ice Sheet Evolution Current Questions and Future Projects

Nita Sahai, University of Wisconsin, Madison
Silicon-Organic Interactions in the Environment and in the Human Body

Lee Penn, University of Minnesota
Nanoparticle Growth Mechanisms: Geochemical Implications

Kirsten Nicolaysen, Kansas State University
Yunaska Volcano and the Importance of Caldera Eruptions in the Central Aleutian Arc

Nik Christensen, University of Wisconsin, Madison
The Nature of the Continental Mohorovicic Discontinuity: Constraints from Rock Physics Observations



The "Fab Four" on a glacier during the Geol 306 Geology Field Trip to Alberta, Canada

In Memoriam

Bert E. Nordlie (1935-2003)

Former faculty member and department Chair Bert Nordlie passed away on June 5, 2003 of complications from a previous spinal cord injury. Bert was born in Denver, Colorado, the son of Gordon E. and Madeline B. Nordlie. He graduated from South High School in Denver in 1953, where he was an all-state athlete. He went on to the University of Colorado on an athletic scholarship for football and graduated in 1960 with a B.S. degree in geology. In 1957, while at Colorado, Bert married Margaret "Peggy" Jane Brummett in Steamboat Springs.

Upon graduation from Colorado, Bert attended the University of Chicago, where he earned an M.S. degree in geology in 1962 and a Ph.D. in geochemistry in 1967. After finishing the Ph.D., Bert spent the summer as a Visiting Scientist in the laboratory of renowned experimental petrologist George Kennedy at UCLA, studying the origin of diamond. In the fall of 1967, Bert joined the faculty of the University of Arizona as an Assistant Professor. In 1970, he became the Chief Scientist of the Laboratory of Experimental Petrology at the University, and in 1971 was promoted to Associate Professor. During this time, he gained prominence for his theoretical and experimental research on phase relations in magmatic gases and for his integrative studies of the morphology, structure, and petrology of volcanoes of the Galapagos Islands. While on the faculty at Arizona, Bert spent the summer of 1969 as a Visiting Scientist in the laboratory of Bill Luth at Stanford University.

In 1974, Bert joined Iowa State University as Professor and Chair of the Department of Earth Sciences. He continued in that position until 1988. Bert oversaw the hiring of six faculty in geology and played a major role in leading the Department to its current form. His research at Iowa State focused on volcanoes in Iceland and Kenya. His teaching included undergraduate and graduate courses in mineralogy and petrology and the large geology service course for civil engineers.

Bert retired from Iowa State in 1999 after Peggy passed away from cancer, and shortly thereafter moved to Conifer, Colorado. This is the land that he loved, and it is very sad that after only a few years back in Colorado he injured his spine in a fall outside his home. The accident left him confined to a wheelchair. At the time of death, he was living in St. Cloud, Minnesota near his son Curt and family. Bert was an extremely talented individual. His premature death is a tragic loss.

Faculty and Staff Notes

Igor Beresnev, Associate Professor

First of all, it was such a great time last July when we got to see some of you at the Wyoming reunion!

News-wise, probably the most significant change in my teaching program over the past academic year was my taking the full teaching load of the Meteor 432 "Instrumentation and Measurements," to help out our meteorology group. This class turned out to actually be fun to teach, as it is essentially a physics course introducing the principles of sensors and sensing, with elements of signal processing. I did not have to walk too far from my mainstream geophysics.

My principal funded research directions have continued to be in seismic stimulation of petroleum production, earthquake seismology, and radiation from Vibroseis sources. A two-year NSF grant allowed us to put together a team attacking the elusive issue of why seismic waves could stimulate petroleum recovery. To address the challenge, we needed to form a real multidisciplinary team: Dennis Vigil and Ph.D. student Wenqing Li at ISU Chemical Engineering, Robert Ewing at ISU Agronomy, and Ph.D. student **Pavel Iassonov** and I at our department. The Chemical Engineering group is busy with implementing the project's experimental program; a flow apparatus has been created in which we can visualize trapped-ganglia displacement in a cell subjected to vibrations. We hope this experiment will provide the crucial information on pore-scale mechanisms of vibratory stimulation and confirm our theoretical conjectures. Robert, Pavel, and I are building a pore-network numerical model of residual-oil mobilization, based on our current understanding of what the vibratory mechanisms are. Folks in industry are desperate for this kind of quantitative predictor, which could help them guide their field testing. Our NSF project complements a major three-year DOE sponsored effort, led by Wayne Pennington at Michigan Tech, aiming at calibration and comparison of borehole energy sources proposed for stimulation, in which I am a sub-contractor, responsible, again, for those elusive mechanisms.

For the second year, I am supported by WesternGeco to provide theoretical solutions for some topical issues in Vibroseis exploration. The funds mostly come to support Andrey Lebedev, a research scientist on leave from the Institute of Applied Physics in Russia, an expert in theoretical elastodynamics. The first problem that we tackled was the theoretical description of the nonlinear generation of higher harmonics in the vibrator's near field, a pesky problem that many of you, dealing with Vibroseis data, might be familiar with (a paper on the subject was been submitted to *Geophysics* in late 2002). The second problem is the effect of baseplate flexure on the quality of seismic data; we are currently working on it.

I have also completed a NEHRP (National Earthquake Hazards Reduction Program) - sponsored project on studying nonlinearity in ground deformation

during the destructive 1999 Taiwan earthquake. This project supported a second postdoctoral fellow, Zafeiria Roumelioti, who came from Greece and worked with me throughout the year.

Most of the above research has resulted in publications. I published seven refereed articles in 2002 and three in 2003; two more are pending. It has been a productive and satisfying year!

Cinzia Cervato, Assistant Professor

My second year at Iowa State University has been very eventful and positive. It started with the wonderful Alumni reunion in Wyoming where I came with Francesca. In case you don't remember her, she spent most of the time with her feet in the creek and running around the camp following Paul Spry! We then traveled to Italy where we visited my family in Venice.

In the fall I taught again two sections of Geology 100 to about 480 students and experimented with 'diagnostic testing' and 'Calibrated Peer Review' assignments, part of two research projects funded by the Division of Undergraduate Education of the National Science Foundation. The results were quite interesting and I have summarized them in two manuscripts that should appear next year in the *Journal of Geoscience Education*. In essence, I have shown that we can use diagnostic testing, a simple multiple-choice test with high-school level science questions administered at the beginning of the semester to statistically predict the success of students in my introductory geology class. This can be a powerful tool to advise students on the best approach to improve their performance in the class and a means to determine quantitatively the level of knowledge that they have reached after the class. Calibrated Peer Review (CPR) is a computerized writing and peer-review tool that allows students to learn by writing. Developed by chemistry departments in California and used by more than 150 chemistry departments countrywide, CPR was introduced to Iowa State students for the first time in my Geology 100 class. As with all new approaches, the response of the students was varied but the learning outcomes are substantially positive and encouraging. **Joan Jach**, who continues to work on her MS thesis on geoscience education, has obtained very interesting results on the attitude of students towards science in these large introductory classes and on the occurrence of Earth science topics in the Lexis-Nexis news database. She is planning to defend in the fall 2003.

In the spring I taught for the second time Meteorology 206 to 360 students. I really enjoyed teaching about weather and climate to a motivated audience - everybody cares about daily weather (especially when it is severe) but sometimes it is hard to get students in Iowa excited about earthquakes and volcanoes. **Bill Gallus** gave a successful guest lecture about tornadoes and severe thunderstorms and showed some frightening video footage that had the students riveted to their chairs!

I am continuing my research in the eastern Mediterranean on the origin of agriculture with Dr. Bar-Yosef (Harvard) and Dr. Ryan (Columbia). **Cammy**

Bright, a graduate from University Missouri Columbia, started her PhD under my supervision last fall. She is going to work on the use of planktonic foraminifer assemblages and clay minerals in deep-sea cores across the Mediterranean to obtain information on sea-surface temperature, moisture fluctuations, and rates of environmental changes. Dr. Bar-Yosef came to Ames at the end of March and gave a talk on the first hominids out of Africa, skulls found in Georgia (former USSR) dated to 1.7 million years, and the Neolithic revolution in the Near East.

A veritable break-through in my research occurred almost by accident in November 2001 when I attended a workshop on chronostratigraphy and was elected to the steering committee of the **CHRONOS** project. I was invited to the workshop because I had been working on relational databases for biostratigraphic data for the last 13 years and the National Science Foundation was looking for potential projects to fund as part of their new GeoInformatics initiative. The aim of **CHRONOS** is to establish a dynamic international network of data and databases that pertain to Earth Systems History. The common link that all of these data have is time, and data include fossils, geochemical markers, various paleoclimate indicators (tree rings, ice cores etc.), magnetic reversal, and radiometric dates. A big emphasis is given to education and community involvement: everybody (e.g., students, children, teachers, general public, scientists, industry, and policy makers) will have access to the data and have the possibility to share data. The breadth and scope of the project are huge and push hard the limits of the most advanced Information Technology and scientific research to gain a global, more accurate view of the Earth as a whole that will have tremendous societal impact.

The IT framework of interfaced databases will allow everybody to pull together large amounts of data to test hypotheses that cannot be addressed at present because of limited accessibility and lack of appropriate software. We proposed to test the data system with four time slice projects, selected among the most controversial and relevant time intervals where increased time resolution and varied data sets can help us achieve a better understanding of the way the Earth works. The first is the Permian-Triassic boundary, the largest mass extinction in the Phanerozoic, that can currently be explained by at least half a dozen contrasting scenarios - extensive volcanic activity, sudden sea-level rise, asteroid impact? The mid-Cretaceous represents a possible future for an Earth with high concentrations of carbon dioxide in the atmosphere and extreme warm temperatures, while the middle Miocene was characterized by abrupt shifts from warm to cold climate similar to what the Earth has been experiencing in the last few hundred thousand years and might experience in the future. Finally the "Cambrian explosion" that saw an unprecedented and sudden (or apparently sudden) increase in life forms and diversification. **Bjorn Brooks**, my new PhD student who joined ISU this spring after a MS at Bristol (England) and a BS in biology from ISU, is going to work on this project.

The **CHRONOS** steering committee convened at Salt Lake City in August and there it was suggested that I

could attempt to come up with a plan to host the Central Hub of the **CHRONOS** project at ISU. With the support of **Carl Jacobson** and various people that I contacted at ISU, I came up with an IT plan that would support the science effort and partly coordinate it using open source (free) software and a vision of newly developed technology. One more meeting (this time in Washington DC, with representative of the National Science Foundation as observers) and six months later the six-year proposal was submitted. It included 15 coPIs from 15 institutions, led by Iowa State, for a total budget close to 11 million dollars. My CoPIs are faculty at MIT, Harvard, Purdue, UMass Amherst, University Southern Florida, and researchers at the Smithsonian, Univ. Utah, and UCSD. We have just heard that we have been funded for the first two years of the project, the first project at the starting blocks of the NSF GeoInformatics initiative. The first **CHRONOS** retreat will take place in Ames at the end of August.

This summer I plan to complete three manuscripts, travel around the country for **CHRONOS** as well as visit my family twice. This coming year is going to be a particularly challenging one with my usual teaching load, on-going research projects, graduate students to advise, and my growing responsibilities as Associate Director for IT and Central Hub for **CHRONOS**. My daughter Francesca, who turned 5 last April, is going to begin Kindergarten in the fall at Roosevelt Elementary and will attend the after-school program at ISU Child Care at Vet Med. We will be both facing a lot of new challenges next year!

Jane Pedrick Dawson, Lecturer

Another year has flown by in a blur! I now have an official title of "Lecturer", a new employee classification here at ISU for us temporary teaching folk. The university has reevaluated the role temporary instructors serve at ISU and new policies have been developed that promote stability and accountability among the temporary teaching corp. As such, I have received a contract to teach Geology 100 and the structural geology lab each spring semester for three years, which is a big improvement over the yearly appointments I was used to receiving in the past. I just finished the first spring semester on this new contract. The Geology 100 students seem to be getting younger and younger, or maybe I'm just getting older. This is a challenging class to teach, due to its very large size and the wide background of students enrolled in the class. Classes of this size (470 between two sections this spring) really require their own web site to distribute necessary information, and thankfully, TA **Bjorn Brooks** cheerfully took on this task for me. Graduate student **Olivia Chan** helped out with grading and graduating senior **Bill Lenarz** sawed and prepared hundreds and hundreds of rock samples to distribute in class, as well as provided assistance with lectures and grading. It was quite a contrast to go back and forth between the large crowds in Geology 100 and the six people in the structural geology lab!

I am continuing to work with **Carl Jacobson** on the Late Cretaceous-early Tertiary subduction zone

complex exposed in the Orocopia Mountains in southeast California. We are using $^{40}\text{Ar}/^{39}\text{Ar}$ and U-Pb geochronology to determine the exhumation history of both the Orocopia schist (subducted greywacke) and the overlying North American crust, as well as constrain the age of the major structure (Orocopia Mountain detachment fault) along which these two plates are now juxtaposed. Our data indicate periods of exhumation in both the early and middle Tertiary with juxtaposition of the two plates occurring at less than 20 Ma. We are hoping to begin using U-Th/He geochronology this year on apatite from both the schist and upper plate to determine the low temperature portion of the exhumation history. We are fortunate in that Carl's former M.S. student, **Ana Vucic**, is now the Argon Lab manager and operator of the He line at UCLA. Ana analyzes all of our samples for us and is a collaborator on this project, which is a continuation of her Masters thesis. Working with Carl on this project has been great and I've learned a tremendous amount. The field work, although demanding, is really interesting because these rocks are so messed up, and the lab work (painstakingly tedious at times) has taught me patience and humility!

My husband Bob is enjoying his work as a geologist with the Iowa Department of Transportation. His work is mainly concerned with the geochemical analysis of carbonate aggregates, and he is also serving on a technical committee (a consortium of twelve states) that oversees research on the effect of deicing salts on cement and aggregate. Bob also conducts fieldwork, mostly in the Mississippian in southeast Iowa, although he occasionally gets a chance to work on the Devonian and Silurian in eastern Iowa.

We are still avid gardeners and canners. Last fall, we introduced **Donna Surge** to the art and bacteriology of making sauerkraut. Together, we made and canned about 50 pounds of kraut in what can only be described as a kraut extravaganza. Please stop by and see us if you're in the neighborhood and we'll fix you a reuben.

Jiasong Fang, Assistant Professor

This is my second year in the department. It was fun, challenging and rewarding. On the teaching side, my first year was a tremendous challenge. I had to develop two new courses: Environmental Biogeochemistry, and Contaminant Hydrogeology. The second year was by no means relaxing. Environmental Geochemistry was another new course for me (really "aqueous geochemistry" in the broad sense of "environmental," as opposed to a course specifically devoted to contamination *per se*). Perhaps we should have such a course that deals with the chemistry and geochemistry of contaminants in the environment. Contaminant Hydrogeology was continually improving. I have tried to utilize the internet for my teaching. Now almost every aspect of my courses is on the course home page, including syllabus, lecture notes, problem sets, exams, and feedback/communication.

In April, I attended an NSF-sponsored workshop on "Teaching Biocomplexity in the Geosciences" at

Montana State University in Bozeman. That was truly great. Now I am in a preparation stage of establishing a new course on biocomplexity. The tentative title of the course is: Geobiology: The interactions between microbes and the planet Earth. Biocomplexity is a new term that is not in any dictionaries or spell checkers. The National Science Foundation has funded the program since 1999. Funding for this program has been steadily increasing. Attendees of the workshop unanimously requested that NSF establish the teaching part of this program.

My research is still on the bio-geochemistry of piezophilic bacteria of the deep sea. I am delighted to have **Olivia Chan** and **Netra Agarkar** to join me on these exciting projects. Olivia is working on the lipid biochemistry of these extremophiles and carbon cycle. Netra will look at the molecular mechanisms (enzymology and gene expression of lipid biosynthesis) and biotechnological potential of “extremozyme”. With the help of our mechanical wizard, **Mark Mathison**, we built a high pressure cultivation system. We now can grow these extremophiles at hydrostatic pressures of up to 100 MPa (1,000 atm) at various temperatures. The culture chamber (600 mL) is equipped with an external cooling circuit that can maintain temperatures from -20°C to +200°C.

My family is doing great. Yanhui likes her job at Pioneer very much. We finally moved into our new home in Northridge Heights. Mark participated in the 2003 National Science Olympiad in Columbus, Ohio in May. He won a gold medal in “Experimental Design,” that was one of the four gold medals won by Ames Middle School team. Mark will be in Ames High and James will be Ames Middle School in the fall. Mark and James took the talent search test early this year and both have been chosen in the top 1% and will be recognized in a ceremony this fall at the Berlin Blank Center. We will be at Yellowstone National Park for a two-week vacation in August.

DeAnn Frisk, Secretary

It seems like yesterday I was sitting down to write last year’s contribution to the Varve. It’s hard to imagine that another year has gone by.

As usual, life in the department keeps me pretty busy. All the new faculty (Can you still call them new if they’ve been here almost 2 years?) are still spending their startup funds along with grants they have received. The accounting part of my job does keep me pretty busy along with all the day to day functions. One of the best parts of my job is never knowing exactly what might need to be done in any particular day. I never run out of things needing to be done so the only thing I really have to worry about is what needs to be done next!

Steve and I took a vacation to Las Vegas in February. It’s the first time I’ve taken a whole week off during the regular semester. We really enjoyed the time away and the warmer weather in Las Vegas. We had a rental car that allowed us to explore the Red Rock Canyon area along with other parts of town away from the strip.

The grandkids are keeping us busy with all the activities they are now participating in. Seems like the

older they get, the more involved they get. I’m glad we are close enough to get to see them often.

I enjoy visiting with those of you who stop by the department or call. Please continue to stop by whenever you are in Ames.

Neal Iverson, Associate Professor

The past year has been exciting and rejuvenating. In July, I led a group of 16 students to the Canadian Rockies for a 12-day field trip that included Precambrian-to-Holocene stratigraphy and outstanding examples of rock deformation, Karst canyons, landslides, and glaciers. The weather was warm and dry, and the camping and hiking were fantastic. After the field trip was over, my family met me there, and we camped and explored the mountains for two more weeks. In the fall, I was on a sabbatical leave and spent several weeks at ETH in Switzerland processing data and writing. In the spring, I traveled to Norway where our team continued research beneath the Svartisen Ice Cap.

My research continues to focus on how glaciers move and sculpt landscapes. Subglacial experiments at Svartisen, with **Denis Cohen**, a new affiliate faculty member in our department, and **Tom Hooyer** (Ph.D., 1999) of the Wisconsin Geological Survey, yielded unexpected results. We learned that friction between debris in ice and the rock bed was much larger than expected and may keep glaciers slipping slowly rather than catastrophically. We received a NSF grant this year to continue our work there, which will focus on how glaciers erode rock and thereby shape alpine landscapes. We will measure slow crack growth in rock beneath the ice cap using acoustic emission technology and relate crack growth rates to subglacial stresses. This work will be complemented by numerical modeling of crack growth and field mapping of crack patterns in bedrock adjacent to the Columbia Icefield in Alberta. Also this year, graduate students **Jason Thomason** and **Meaghan McLoughlin** (B.S., 2002), together with Tom Hooyer, began a study of microstructure development in till sheared with our ring-shear device. Results demonstrate systematic changes in till microstructure with deformation that can be used to determine if basal tills in the geologic record sheared beneath past ice sheets. While on sabbatical, I designed a new ring-shear device that will operate in our walk-in freezer and allow controlled study of glacier slip over rock and sediment beds. I’ll seek funding for construction of the device with a NSF proposal to be submitted this summer.

This year I also finished and initiated work on mass-wasting processes. **John Thomas** completed his M.S., which involved measurements of mass wasting and groundwater flow along the perimeter of a large gully in the Iowa loess hills. In addition, I received a grant to install instruments on Turtle Mountain, Alberta, where in 1903 a debris avalanche killed 70 people in the town of Frank. Since that landslide, a rock wedge of five million cubic meters has become separated from the mountain’s summit by fissures and is thought to be unstable. This summer, we will install displacement meters to measure creep of the rock wedge that could signal another catastrophic failure.

Finally, this year I taught glacial geology to 17 students. The course culminated in a weekend field trip to central Wisconsin, where Tom Hooyer led us through the classic glacial geomorphology of the Green Bay lobe.

I'll look forward to seeing you at our Alumni Days celebration in late September.

Carl Jacobson, Professor and Chair

I've just finished my second year as Chair. It's certainly kept me busy, but it's also amazing how fast it seems to have gone by. Of course, it's also hard to believe that I've now been at ISU 23 years.

I did the usual winter break field season in California. I was accompanied by **Jane Dawson**, who began working with me on California geology just about the time I started as Chair. As was the case last year, our main focus was the Orocopia Mountains. This is a homecoming for me, because I spent quite a bit of time in the early to mid 1980s working in that range, much of it with Jane's husband, **Bob Dawson**, who did his doctoral research there (Bob now works for the Iowa Department of Transportation in Ames). I also spent a week during spring break in the Rand Mountains of the north-central Mojave. This is another range that I worked in during the early to mid 1980s, in this case with Clay Postlethwaite. The reason for returning to these areas is that we're now performing a lot of U-Pb and $^{40}\text{Ar}/^{39}\text{Ar}$ dating. This work is being done in collaboration with Andy Barth of Indiana/Purdue University and Marty Grove of UCLA. The dating allows us to tackle questions that we weren't able to deal with in our earlier studies.

Normally, I don't get out to California during the summer, because the desert areas where I do most of my work are too hot at that time. However, this summer I'll spend a few days working on Franciscan rocks around San Simeon (along the coast between LA and San Francisco) with Mark Cloos of UT Austin. Mark and I have known each other since we were graduate students together at UCLA, but this will be the first time we've collaborated on a project. We'll be dating detrital zircons in the Franciscan to try to get a handle on both the age of the protolith and the time of subduction. Actually, since becoming Chair, I think I've managed to get in as much, or perhaps even more, field work than I normally do. What I've not been very good at is writing up all my recent work. Hopefully, I can make progress on that during this summer.

Carol is still working with her company in the ISU Research Park. They produce interactive computer graphics and web sites for the pharmaceutical industry and life science/medical publishers. Our older son Mark just finished his second year at Iowa State. Like a lot of students, it took him a while to settle on a major, but he's now in zoology and seems to be enjoying that. David just graduated from Ames High, and he, too, will be attending ISU. He'll be in engineering, although he's not certain which type. In fact, he was wavering between engineering and physics, so we'll see how it turns out.

Mark Mathison, Teaching Lab Coordinator

I have just started working for the department as a lab/computer technician and field camp manager. So far the work has been anything but monotonous. Current projects for the department have ranged from rebuilding the computers in the lab to building a pressure vessel to grow bacteria from the Marianas Trench.

Current field research projects that I am involved with are in Egypt and Ethiopia. I am currently working with Elwin Simons (Duke University) on Eocene Primates in Egypt. In Ethiopia I am working with John Fliegel on early hominids. Please stay tuned to Nature for the exciting results from these two projects.

Germán Mora, Assistant Professor

It was a very productive year for me. I was able to secure funds from the National Science Foundation to support the research efforts of a postdoctoral associate. After a couple of months of searching, I extended an offer to **Dr. Shikha Sharma**, who accepted the offer to work in my lab. Shikha and her family came from Germany to join us in November. She has been instrumental in evaluating the performance of the mass-spectrometer and in adapting existing protocols to our facilities. I am happy to report that I now have a research group because two other people besides Shikha are currently working with us. **Alessandro Zanazzi** and **Weihong Wang** are two Master's degree students who arrived in January of this year. They were busy taking classes in the Spring semester and defining their research projects. Alessandro is working on quantitatively assessing the potential of obtaining environmental information from the isotopic composition of cellulose in mosses living in peat-bogs. He and I just returned from Michigan's Upper Peninsula where we were collecting samples for his thesis project. Results from Alessandro's research will allow us to reconstruct changes in climate from peat deposits accumulated along the shoreline of Lake Superior. Alessandro is currently busy in the lab, extracting cellulose from the mosses and comparing their isotopic composition with that of rainwater.

Weihong is working on a collaborative project involving researchers of the Botany department. We are investigating the role of environmental and physiological factors in controlling soil respiration rates. We are collecting soil gas samples every month from an experimental farm managed by Iowa State University. The goal of our study is to partition the two main components of soil fluxes: root and microbial respiration. In addition, temperature and soil moisture conditions are being monitored to establish a quantitative relationship between environmental conditions and soil respiration rates. This project is funded by the Center for Global and Regional Environmental Research.

This summer, I will be studying some mid-Cretaceous localities in Maryland and northern Virginia. The goal is to obtain samples of fossil plants and to

determine their carbon-isotope composition to evaluate changes in atmospheric carbon dioxide composition. Because diagenetic processes could alter the isotopic signal of fossil plants, we will concentrate our efforts on lacustrine sequences showing relatively high sedimentation rates and moderately anoxic conditions. With funds from the Petroleum Research Fund, Dr. William Elliott (U. Southern Oregon) and I will be looking for suitable localities this summer. If everything works for us, we will have an excellent set of samples to analyze in the fall.

In terms of teaching, I taught "Stable Isotopes in the Environment" in the Fall. This class is tailored to upper-level undergraduate and graduate students. I am glad that besides students from our program, students from Ecology and Evolutionary Biology, Agronomy, and Environmental Sciences were also enrolled in the class. In the Spring semester, **Donna Surge** and I co-taught a new class: "Paleoclimatology." This class is also tailored to upper-level undergraduate and graduate students. In the class, we explained the different methods that are employed to reconstruct past climate, including their assumptions, limitations, and future prospects.

Donna Surge and I are collaborating on a new research project in Florida. The goal of our study is to assess the level of anthropogenic effect on the carbon cycle in four estuaries. Because these estuaries are targeted for restoration, our study will provide information about their "health." We will be collecting samples four times a year to capture the seasonal variability in the carbon cycle of these coastal environments.

As you can see, our research group is growing and our projects are diverse and significant. This combination is greatly advancing our research program in stable isotopes at Iowa State University. Expect some good new developments next year!!!

Karl Seifert, Professor Emeritus

Although I am retired, the department has been kind enough to let me keep my office and phone so I still have a quiet place to work, so I still go to work every day in an effort to finish publishing some data collected in recent years. So not much has changed except that I no longer have to attend meetings, teach classes, or advise students. Also I now have time to play racquetball almost every day instead of just a few times a week. The other advantage of being retired is the ability to travel at any time of the year.

In fact, since I retired at the end of the academic year in 2002, Carole and I have traveled quite a bit. In late July we rented a lodge near Estes Park, Colorado, and invited all my kids (3), their spouses (3), and grandkids (5) for a few days of hiking, horseback riding, swimming, and fishing. Horseback riding turned out to be the favorite activity for most of the family. From Estes Park we drove north to Glacier National Park for a few days before heading west to the Pacific Ocean. We ended up at Bellingham, Washington, where we drove and hiked around the area. We finally got up to drive up Baker Mountain on August 8th, one day after they shoveled the snow off the road of this, the US's most snowy mountain.

From Bellingham we crossed by ferry to the Olympic Peninsula and visited with our friend Suzie in Bremerton before driving south to the beautiful Oregon coast. After a few days in Pacific City, Oregon, walking the coast and looking at aquariums, we headed east toward home along the Columbia River gorge. In Idaho we visited the Craters of the Moon area and hiked through the rough lava flows before continuing. We skipped Yellowstone and stayed in Jackson, Wyoming, to look around and visit the Grand Tetons. From there we headed south and east toward Iowa, stopping in Sydney, Nebraska, only long enough to shop at Cabelas. Total time for the trip was about 4 weeks and total mileage for the trip was well over 6,000 miles!! Glad I had not calculated that distance before I left on the trip.

We also traveled to Cincinnati for my brother's son's wedding and to Indianapolis for my first high school class reunion since graduation. I missed the school's 50 year reunion for my class near Cleveland, Ohio, in August, so the old gang, five guys, got together in Indianapolis. I would not have known two of the guys, but the other two still look the same. Then I attended a field trip in the Adirondack Mountains to look at some anorthosites and renew some ties to favorite collecting localities. Of course I collected some more samples!

In late January and early February Carole, her son Jamie, and I, flew to New Zealand and Australia for a month's tour. We drove across most of New Zealand, saw the Rotorua thermal springs, and boated along Milford Sound. Beautiful country. Australia is much larger and we flew from place to place. We got out to see the outback, Ayers Rock and Alice Springs, and the tropical rainforest near Darwin. And, of course, we went to the Great Barrier Reef for a few days where we took a helicopter ride over a small portion of the huge reef. Sydney was our last stop. Also a beautiful country.

This summer I am working on a manuscript describing and modeling the origin of some Keweenaw dikes and sills from the shore of Lake Superior in Minnesota. Jen Wolbers did her M.S. thesis on one of the more interesting dikes and Jim Olmsted and I have mapped several more. Within the next week I will send Jim a preliminary manuscript for his improvements so we can get this work published. We both have tons of data collected over the past few years.

Eventually I will finish writing up my data and actually retire. We plan to stay in Ames but maybe travel when the weather gets bad, like winter and summer. But meanwhile I am having a good time and see no reason to totally quit geology.

Bill Simpkins, Associate Professor

Another exciting year has passed – a year in which I received two surprise awards. I received a Master Teacher Award from the College of Liberal Arts and Sciences (LAS), primarily for my teaching effort in "Field Methods in Hydrogeology" – the 2 to 3 week course that I teach in alternate summers. I received a very nice engraved plaque, a handshake from the Dean, and \$1000 that was promptly spent on a short-course on "Parameter Estimation

and Optimization in Groundwater Modeling” offered by Environmental Simulations, Inc. in April. In addition, the Agroecology Issue Team of the Leopold Center for Sustainable Agriculture received a Team Award from ISU’s College of Agriculture for our work on re-establishing riparian buffers in Iowa. In contrast to the LAS award, I received a computer printed certificate, a handshake from the College of Agriculture Dean, and no money. Sign of the times, perhaps. In November 2002, I ended a busy year as Chair of the Hydrogeology Division of GSA after conducting two Management Board meetings and a business meeting for all Division members at the Annual GSA Meeting in Denver. The business meeting included enough humor and went so smoothly that many said I should be doing that full-time instead of my present job. I’ll think about it.

Fall teaching included Hydrogeology (19 students) and Watershed Hydrology and Surficial Processes (28 students). We tried “The Civil Action” case in Hydrogeology and it was again successful (<http://www.las.iastate.edu/newnews/geologytrial02.shtml>). Both courses went more smoothly this year with many of the PowerPoint slides carried over and revised from last year. Students like this format and being able to access class notes and assignments on the web using our campus-wide, course management system (WebCT). Next year at this time I will be teaching a new course in Applied Groundwater Modeling and co-teaching a revised version of Energy and the Environment with **Paul Spry**.

Martin Helmke finally finished his Ph.D. in April, so I can say that the Helmke era has officially ended at Iowa State after almost 10 years. He returned for the graduation ceremony and I had the honor of presenting him to President Geoffrey and adorning Martin with his Ph.D. hood. His dissertation consisted of 5 separate papers on solute transport in fractured till and these are being readied by his advisor for submittal to 5 different journals. Martin is a highly paid consultant for Versar, Inc., an environmental consulting firm in Springfield, VA. Graduate student **Tim Wineland** finished his M.S. in November and is working for MWH Americas in Des Moines. Graduate student **Carrie Thimmesch** is still synthesizing our 7-year database for the Bear Creek buffer. My first Water Resources degree student, **Colleen Fowle**, finished her M.S. in early June 2003. She used an analytic element model (GFLOW) and parameter estimation (UCODE) to understand groundwater flow in the Bear Creek watershed. She will move to Phoenix with her husband, Mike, a meteorologist who will start work for the National Weather Service. Alumni Greg Caron (Washington Dept. of Ecology), Jim Eidem (Geomatrix), and Beth Johnson (Geomatrix) all visited me this year to tell me about their work in the consulting and regulatory world.

In terms of research, we are increasingly interested in the fate and transport of phosphorus in groundwater. **Mike Burkart** and I are awaiting final adjudication of a manuscript entitled “Total dissolved Phosphorus in Shallow Ground Water Beneath Intensive Agriculture”. In March, I was invited to submit a manuscript to *Ground Water* on my modeling work at

Clear Lake. The paper, entitled “A Multi-Scale Investigation of Ground Water Flow at Clear Lake, Iowa,” compares estimates of groundwater inflow and outflow to the lake using seepage meter measurements, Darcy’s Law calculations, and analytic element modeling. It was submitted to the journal in April 2003 and I will work on the phosphorus sequel for submittal this summer. The analytic element model was very useful and I am increasingly impressed with this new approach to groundwater modeling. I presented parts of this paper at the Annual GSA, our departmental brownbag seminar, the Iowa Groundwater Association, and the Agriculture and the Environment Conference here at ISU. I presented a paper on the efficiency of nitrate removal in buffers, based on **Tim Wineland’s** work, at GSA and at an AWRA Agricultural Hydrology conference in Kansas City in May 2003. As previously mentioned, I am in the process of editing **Martin Helmke’s** manuscripts for publication and these will probably appear in print in 2004.

Scott and Kelsey have done well with the transition to Ames High School and Ames Middle School, respectively. Scott started the fall by being selected as an All-State trombone player as a freshman. He followed that up by getting the bass player spot for the no. 1 Jazz Band and a singing and dancing part in the musical “Guys and Dolls.” He also made the tennis team and has his driving permit. Kelsey was selected for the SCIBA Honor Band Festival on French horn and the SATB choir. Although she is not playing tennis at the moment, she has started a homemade greeting card business and cards are selling at a brisk pace. Both kids are still playing piano as well. Vacation last year took us to the Tetons and Yellowstone National Park for 2 weeks. The weather and scenery were great until the smoke blew in from the Oregon fires. After camping for several nights, we had a great breakfast overlooking the Teton Range courtesy of friends with the S.S. Papadopolous and Associates consulting firm in Jackson. For those interested, I have hit some tennis balls recently and there is hope that I will play again after back surgery in 2002.

There appear to be fewer students interested in hydrogeology as a career, so there is intense competition for graduate students. So, please advertise our hydrogeology program to prospective students and your colleagues. And, if you are in the area, please stop in and tell us about your work.

Paul Spry, Professor

Research related activities over the last year were numerous and included the completion of some long standing projects and the initiation of new ones. I went to Australia twice last year and will be going again this summer to continue on with two projects in the Proterozoic Curnamona Province (South Australian and New South Wales) concerning the origin of extensive garnet and zinc spinel horizons. I, along with new Ph.D. student, **Adriana Heimann**, and Graham Teale, a geological consultant from Adelaide, Australia, will be trying to determine the origin of these enigmatic horizons and how they can be used as

exploration guides to lead-zinc-silver mineralization. The Curnamona province hosts the largest massive sulfide deposit in the world at Broken Hill. Part of the project involves determining the composition of garnet and gahnite. This required three trips to the University of Minnesota to use an electron microprobe as well as collaborations with Sam Houk and his Ph.D student, Josh Messerly, in the Department of Chemistry at ISU to obtain data with their laser ablation-inductively coupled plasma-mass spectrometer.

Much of last year was spent working on manuscripts with four of my former Masters students **Adriana Heimann, David Pals, Nancy Scherbarth, and Jill Shackleton**. Two papers were published, two papers were accepted, and one other is in review. Three other manuscripts are almost ready for submission. Papers were presented on aspects of David's and Nancy's research at the North-Central meeting of the Geological Society of America (GSA) in Kansas City in April while Adriana gave a poster paper on her research on zinc spinels spatially associated with Proterozoic massive sulfide deposits in Colorado at the national meeting of the Geological Society of America in Denver in November.

Earlier this year I completed collecting geochemical and mineralogical data for a project with Zeki Billor, Assistant Professor of Geology at Cukurova University, Turkey, to evaluate the geology and geochemistry of the Kisecek orogenic gold deposit, Turkey. We presented the results of our study at the North-Central GSA meeting and they will be written up for publication sometime this year. As a result of this collaboration, I will be visiting Turkey in late September-early October to give some talks to the Turkish Geological Survey (Ankara) and at the University of Cukurova. In addition, Zeki and I will be visiting several gold deposits in western and southern Turkey to possibly generate some new research projects. The trip is sponsored by the Turkish Science Foundation. Carrying on with the Mediterranean theme, I have been working with two colleagues, Stellios Tomros and Karen St. Seymour at the University of Patras on the origin of gold mineralization on Tinos Island, Greece. We submitted one manuscript this year and we are working on an additional paper.

Bob Cody, Patrick Hook (M.S. student) and I continue to work on our Iowa Department of Transportation (IDOT) supported project to evaluate "The reduction of concrete deterioration by ettringite using crystal growth inhibition techniques." This is a field- and lab-based project. Based on the field work we did with former Ph.D. student, **Hyomin Lee**, and **Anita Cody**, we have submitted several manuscripts over the last year on our concrete deterioration studies. One paper was published, one is in press, and two others are in review.

Please drop by when you are in Ames or keep in touch by e-mail (pgspry@iastate.edu). I would like to include information about you and your family in next year's Varve. Best of luck over the next year!

Donna Surge, Assistant Professor

This past year has been very rewarding scientifically. Projects that were just ideas a year ago are now underway. A few weeks ago, I was notified by NSF that my proposal submitted to the Earth System History program has been funded. Partial support for this project has also been funded through the Petroleum Research Fund of the American Chemical Society. The project is in collaboration with my friend and colleague, Dr. Karen Walker, an environmental archaeologist at the Florida Museum of Natural History, University of Florida. Our goals are to develop stable isotope compositions and elemental ratios as proxies of salinity and temperature in the southern quahog clam and then to test these proxies against the archaeological record using quahog clam shells from middens and mounds (trash heaps) that were constructed in southwest Florida by the Calusa Indians over the last 2000 years. **Samantha Owen**, an undergraduate honors student in geology, is working on an aspect of this project towards an undergraduate research thesis. The long-term goal of the project will ultimately provide us with a reconstruction of preindustrial climate change and the associated human response to such change. **Mike Chen** will join the research effort to provide insights into mechanisms driving climate change in southwest Florida.

In last year's *Varve*, I mentioned a new collaboration with another archaeologist, Dr. Nicky Milner from the University of Newcastle, UK. I just returned from my first meeting with Nicky in Newcastle (yes, the home of Newcastle Brown Ale) and with David Coward-Talbot of the Essex Oyster & Seafood Company to get our project started. This project involves development of geochemical proxies for temperature and salinity using the European oyster, a dominant component in Danish kitchenmiddens. These kitchenmiddens span the transition from Mesolithic hunter/gatherers to Neolithic farmers (~8-9 ky BP) and occur along the coasts of fjords in Denmark. The proxy development phase of the study will take place at a commercial oyster farm in southeastern England. David has eagerly agreed to oversee the water sampling effort, and to set aside and tend to a section of oysters from his commercial oyster beds. The long-term goal of this research is to evaluate whether changes in molluscan diversity observed in the Danish kitchenmiddens are due to environmental change or overexploitation. Nicky and I recently submitted a short paper ("Oyster shells as history books of environmental change and harvesting strategies of ancient peoples") describing the details of our project to *Shellfish News* (www.cefas.co.uk/publications/shellfish_news.htm), a journal that is published as a service to the British shellfish farming and harvesting industry.

I am collaborating with yet another archaeologist, Dr. Matt Hill, a new assistant professor in the Anthropology Department at ISU. This project is still in the developmental stages, but will focus on reconstructing continental climate across the Pleistocene-Holocene boundary. We will combine geochemical and zooarchaeological information associated with the Paleoindian Clary Ranch site in western Nebraska to understand both climate change and the associated human response.

My collaborations at ISU extend to the life sciences. Dr. John Downing from EEOB (Ecology, Evolution, and Organismal Biology) and I are co-supervising **Ann Goewert**, our graduate student through EEB (Ecology and Evolutionary Biology, a multi-departmental graduate program and not to be confused with EEOB, a new life sciences department). Ann's masters project utilizes geochemical tools to understand the life history of endangered freshwater mussels. She has spent her first year marking mussels for later recapture, measuring water quality, and learning how to analyze her water samples on the mass spectrometer in **Germán Mora's** new stable isotope lab. This coming year, Ann will begin sampling her recaptured shells for isotopic analysis. I am also working with Dr. Scott Carpenter from the University of Iowa on a project involving freshwater mussels. The goal of our project, funded through CGRER (Center for Global and Regional Environmental Research) at Iowa, is to understand the effects of historical and present-day agricultural practices on the decline of freshwater mussels in Iowa using a geochemical approach.

Last, but certainly not least, the project I spoke of last year in collaboration with my good buddy, **Germán Mora**, is just getting started. The goal of this research is to evaluate the effects of different land-use practices on carbon-cycling in estuaries of southwest Florida. In July 2003, I will act as field assistant to **Matt Dvorak**, a new masters student who we are co-advising, helping to sample waters from four estuaries in the 10 Thousand Islands just west of the Everglades. Three estuaries have different degrees and styles of watershed alteration and one is a control. Matt will earn his degree through the multi-departmental graduate program, Water Resources.

Teaching has been both fun and challenging this past year. I taught Introduction to Oceanography for the second time. Because it's difficult to arrange field trips for this course, much to the students' disappointment, I bring the ocean and the coasts to the students as best I can. One of my hobbies is collecting unconsolidated sediment from around the world. I use my collections to transport students to a green sandy beach in Hawaii (my personal favorite and, you guessed it, made of olivine), to the black beaches near the mid-Atlantic Ridge in Iceland, to carbonate sandy beaches in the Caribbean and Australia. My hope is that if any of them should have the good fortune to visit a beach, they will take notice of the sand beneath their feet. I also co-taught an upper-level undergraduate and graduate course in paleoclimatology with **Germán**. It was really fun team-teaching with Germán because we both approach the subject from different perspectives and so, we complement each other. Next spring I will add to my teaching repertoire a paleobiology course. This course has recently been added to the curriculum of approved courses in EEB, so I hope to attract students from the life sciences as well as from our geology program.

As far as departmental service, one of my duties is organizing the Friday Geology lecture series. We have a really exciting lineup for next Fall, which you can check out at www.ge-at.iastate.edu.

Well, that's all I have to report. Until next year.....Donna

Carl F. Vondra, Distinguished Professor Emeritus

This is my last summer managing the geology field station and teaching the field course. Next year **Erik Kvale** will take over. Erik is currently at the field station becoming familiar with the details of its operation.

I again volunteered to do some teaching during the past year. I taught Stratigraphy and Sedimentation in the fall and the History of the Earth in the spring. This also was my last teaching involvement in the Department as these courses will be taught by our younger faculty in the future. Although I was committed to teaching during the spring semester, Georgia and I were able to squeeze in a 3 week cruise around South America from Valparaiso, Chile to Rio de Janeiro, Brazil in March. It was a great cruise and we enjoyed ourselves immensely.

I am still involved in a little research. Our monograph concerning the geology of the Hadar region in the central Afar, Ethiopia should finally go to press in the early fall. In mid July, following the field course, I will join a team of anthropologists in Tanzania. We will be working at a Middle Stone Age site in the middle of the Serengeti National Park. It will be exciting. In late August I will meet Georgia in Europe. We are planning two weeks of relaxation at a chateaux in the Loire Valley in France. Best wishes to all.

Ken Windom, Associate Professor

It is hard to believe another year has gone by. I have come to believe that time is not linear, else why does it go by so much faster as we use up more of it?

I passed a milestone last year when I was inducted into the 25-Year Club. Of course, the only requirement for belonging to that club is not to quit and not to get fired for at least 25 years. On a more somber note, I am writing this a week or so after learning of the death of former Chairman **Bert Nordlie**. **Bert** hired me, so his passing is of considerable significance to me. The department has changed considerably since then. We have many new faculty members working on exciting projects. It is a good time to be in the department.

I continue to contribute more to the department's teaching functions than to research, given the changes in the emphasis of the department. I took over the Environmental Geology course from **Karl Seifert** and **Bob Cody** upon their retirements about 2 years ago. The first year I taught the course, I had to rely pretty heavily on their teaching materials, but now I have developed my own materials that fit my teaching style a bit better. I continue to teach Geology for Engineers and Environmental Scientists, as well as sharing the teaching responsibilities for Mineralogy and Petrology with Paul Spry. I will attend an NSF-sponsored workshop on teaching petrology this summer in Montana. I am looking forward to that. I feel quite good about my new duties in the department because I am able to interact with many more students than when I taught only courses for our majors.

On a personal note, Jane and I are building a new home on a small acreage we bought in southern Story

County. We plan to consolidate all our critters into one location (dogs and horses) and are looking forward to being able to enjoy the Iowa countryside.