

THE BUFFALO ROCK

The newsletter of the
Department of Geosciences,
North Dakota State University
Volume 14, January 2013

NOTES FROM THE CHAIR: SOME CHANGES AT NDSU GEOSCIENCES

Greetings GeoAlums and Friends!

After several years of being across campus, directing NDSU's Center for Science & Mathematics Education (CSME), I've returned to Geosciences to serve as interim Chair until a new individual is appointed. I'll retain the CSME role, as well, until a new director is named.

In May, 2011, Elaine Hatzenbuehler retired from NDSU. Elaine's appointment at NDSU began in 1982, and thousands of students were to become the beneficiaries of her dedicated instruction. Elaine and her husband Jim are now snowbirds, maintaining their residence in Moorhead while wintering in Sun Lakes, Arizona. Rest assured, GeoAlums, that the 1968 Camaro is still in Elaine's possession!

In July, 2012, Bernhardt Saini-Eidukat left the position of Chair after two, notable four-year terms of service. Included in Bernie's administrative legacy are: [1] the restoration of the *Geology* major (replacing that insufferable *Soils-Earth Sciences* diploma title); [2] the designation of the old Dairy Building as

"Geosciences Hall" and Bernie's helping to secure National Science Foundation funding to launch initial renovations of the building; [3] the department's hosting of graduate students with a geology research interest through the NDSU Environmental & Conservation Sciences interdisciplinary program; and [4] overseeing growth in the department's faculty, students, and curricula. Bernie is relishing using his freed-up time to concentrate on his research.

The oil boom in western North Dakota is, of course, spurring student interest in the program. Ken Lepper reports an enrollment of 569 students in Geology 105 (now taught in multiple sections); Ken notes that this is one less than allowed by the fire marshal. Over 60 undergraduates have currently declared "Geology" majors. The proportion of women majors has markedly increased, now up to 34%.

Since our last newsletter, three new faculty/instructional staff have joined the department. Jessie Rock has replaced Elaine Hatzenbuehler and has been doing great work in teaching, outreach, and revamping the hallway

displays. Stephanie Day, a fluvial geomorphologist, is expanding our course opportunities in the geospatial sciences and our research expertise in Quaternary geology. Scott Wood arrived from the University of Idaho, to both be dean of the College of Science & Mathematics and a member of our faculty.

More changes are forthcoming. In December, 2013, Allan Ashworth plans to complete his last semester of teaching; Allan expects to fully retire from NDSU in May, 2014.

Sometime around July, 2014, I'll too likely retire.

Thanks to the continued generosity of our GeoAlums and friends, the GeoAlumni Endowment continues to grow, with 100% of the proceeds dedicated toward support of our

undergraduates' scholarship and field training opportunities.

What hasn't changed is that we continue to produce *great* students, who continue on to become *great* professionals.

We always enjoy hearing from GeoAlums and hope you will drop a line, become a fan of the department's Facebook page, or stop by for a visit! On behalf of the students and faculty, thank you for your support – and best wishes for the New Year from all of us at NDSU Geosciences!

Don Schwert



Geosciences faculty (Fall, 2012). Left-to-right: Allan Ashworth, Donald Schwert, Peter Oduor, Bernhardt Saini-Eidukat, Kenneth Lepper, Stephanie Day, Adam Lewis, Jessie Rock, and Scott Wood.

FISCHER RECIPIENT OF DISTINGUISHED ALUMNUS AWARD

On October 17th, David Fischer (NDSU Geology, Class of '77) received the 2012 College of Science & Mathematics Distinguished Alumnus Award.

A native of north Fargo, Dave has been actively involved in the petroleum industry as a Williston Basin geologist and explorationist.

Dave has considerable work experience, including working for Gulf Oil Corporation in Casper, Wyoming as an exploration geologist, Supron Energy in Denver as a staff geologist, and



then the North Dakota Geological Survey as a subsurface geologist.

In November, 1989, Dave left the Geological Survey to work as an independent subsurface geologist and consultant – concentrating in the Williston Basin. In addition to his oil industry activities, Dave taught in both the Geosciences and Petroleum Engineering Departments at NDSU. He has also been a consultant in the field of CO₂ sequestration, identifying and helping characterize reservoirs as potential geological storage sites. Recently, Dave's focus has been on exploration and research into the occurrence of shallow Cretaceous biogenic natural gas in central North Dakota.

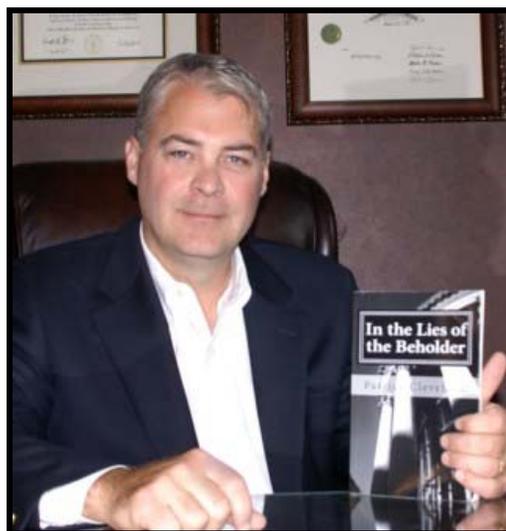
Since his graduation from NDSU, Dave has maintained a fondness for the Department of Geosciences and its students. In 1983, along with NDSU graduate Ralph Specht, Dave established at NDSU a “field camp” fund to provide support to our undergraduate students in Geology. That fund became the seed for what today is the GeoAlumni Endowment. Every recent Geology undergraduate has been touched in some way by the generosity of Dave and of his fellow GeoAlums in assuring the fund's growth.

GEO-ALUM IS AUTHOR OF MURDER MYSTERY NOVEL

Patrick Cleveland (NDSU Geology, Class of '92), is author of a murder mystery novel, *In the Lies of the Beholder*, now available through Amazon.com and major bookstores.

Pat grew up on a large cattle ranch in western North Dakota (now the Cross Ranch State Park) and worked for several years as a contractor at Dakota Gasification Company near Beulah before attending NDSU, where he initially majored in English.

“It was a dark and stormy day when my advisor informed me that I was required to take a science elective, a subject I had avoided all of my scholastic life,” Pat recalls. *“After reviewing the courses, I settled on Geology 105-Schwert. After all, what could be easier than studying rocks?”*



Pat did very well in that initial course. But it was the geology field trip to the North Shore of Lake Superior, co-led by Schwert, Ashworth, McCarthy and Hatzenbuhler, that dissolved his apprehension about science and peaked his interest in geology. Shortly thereafter, Pat switched his major to Earth Science and immersed himself in a variety of math and science courses. As an Earth Science student, Pat received the Outstanding Sophomore Award, the Outstanding Junior Award, and he was a Ronald E. McNair Scholarship recipient. He was also given an opportunity to conduct undergraduate research with Greg McCarthy, where he helped develop X-ray Powder Diffraction “fingerprints” for thirteen sulfide minerals. *“I will always be grateful to all of the faculty in the Geosciences Department for changing my life,”* Cleveland reflects. *“As a*

result of my experience, I learned that I could define my own success and achieve any goal.”

After working several years for an environmental consulting company in Denver, Colorado, Pat obtained a Juris Doctor from Pace University in New York. He was employed at the law firm of Levy, Phillips & Konigsberg in New York City before moving to Virginia in 2001, where he was a criminal defense attorney for the Virginia Public Defender Commission. As a Public Defender, Pat was involved in hundreds of trials, representing clients on charges ranging from minor infractions to murder.

Pat lives in New Jersey with his wife, Joan, and his children, Brittany, Garrett, and Weston. He teaches undergraduate law classes at Penn State University and Kaplan University while writing novels in his spare time.

DEPARTMENTAL HISTORY: OF “GRAVE” CONCERNS . . .

Part 1. The grave of geologist Charles M. Hall

Don Schwert and NDSU archivist Mike Robinson have been researching and assembling the history of the Geology program at NDSU. One of the first geologists to serve here was Charles Monroe Hall: a remarkably productive individual who taught here from 1895 to 1903 and, among other achievements, authored the first geologic map of North Dakota. Hall, we know, died at the early age of 32. But where was he interred?



Robinson and Schwert, upon righting the headstone of geologist Charles M. Hall

Schwert and Robinson's quest took them to Riverside Cemetery in south Fargo, only to learn that the locations of graves of such early vintage have never been indexed. After extensive trekking through the older parts of the cemetery, they located in Section 8 a “Hall” monument but no associated gravestones. Probing the surrounding lawn with a rod, Schwert and Robinson detected a smaller, long-buried headstone. Uncovering the sod over this sunken headstone, they saw the engravings: *“Charles M. Hall, 1870-1903.”*

With some grunting, sweat, and lots of fill, Hall's headstone was righted and cleaned. It again stands in honor of an individual who made great contributions to our knowledge of the geology of North Dakota.

Part 2. The grave of Noble's Golden Marguerite

In front of Geosciences Hall (formerly the Dairy Building) is said to lie the grave of *“Noble's Golden Marguerite”*: a Jersey cow owned by farmer Samuel F. Crabbe which at 977.69 lbs of butterfat set what was then the production record for North Dakota. Noble's died on August 12, 1932, and she reportedly was interred in front of the Dairy Building. A marker was placed over her grave, but in later years this marker was moved



Hole in front of the Dairy Building (now Geosciences Hall). Photo dated: August 12, 1932. (Courtesy: NDSU Archives)

off to another site as the mission of the building kept changing.

There has since been some debate as to whether Noble's is actually interred in front of Geosciences Hall, with the naysayers asserting that no photographs have ever been produced of what should have been a notable interment event. Other than digging Noble's up, there is no way of confirming with confidence that her bones are still there.

However, the recent discovery by NDSU archivist Mike Robinson of a photograph dated "August 12, 1932" showing a large, open hole at this site lends credence to Noble's indeed lying in rest at this spot. We conjecture that sometime during the dark of night on August 12th an elderly Noble's may have been walked over to this site and dispatched there, out of public view. Hence, out of obvious sensitivities, no photographs were taken of her demise and subsequent interment.

GEOSCIENCES HALL

Through a \$659,000 grant award from the National Science Foundation, spearheaded by Bernhardt Saini-Eidukat, renovations have been completed of portions of the first floor of Geosciences Hall (formerly the Dairy Building). The renovations include laboratory research spaces for Peter Oduor, Adam Lewis, and other faculty – plus office spaces for graduate students.

Architects' plans have been developed to complete the remainder of the building's renovations, including construction of an addition. This phase is on hold until the necessary \$4-5 million can be raised. Once this phase is completed, it is anticipated that the department could completely move out of its Stevens Hall spaces.



Renovated laboratory spaces in 1st floor, Geosciences Hall. (Left) Scott Wood and Adam Lewis view lab facilities for the processing of sediment and rock samples from field studies in Antarctica. (Right) Peter Oduor gives a tour of his laboratory facilities for the study of contaminant remediation.

LUKUDU RECIPIENT OF SUBARU NATIONAL STUDENT SCHOLARSHIP



David Lukudu considered a pencil an amazing gift when he was growing up in what is now known as South Sudan. A pencil meant he could take notes at school and get an education. And being educated meant anything was possible.

Lukudu, a senior majoring in Geology at NDSU, felt like a kid getting a pencil when he learned he was selected for a 2012 Subaru Minority Student Scholarship. The program is for undergraduate minority students considering a degree in the geosciences. Lukudu was one of six U.S. students awarded a scholarship.

Bernhardt Saini-Eidukat told Lukudu the good news when he came to a final exam spring semester. Lukudu jumped. He whooped. He gave Saini-Eidukat a big hug.

“David works 40-plus hours per week at a local manufacturing company to support his family while carrying a full load to complete his geology degree at NDSU,” Saini-Eidukat said. “He has a vision of working in petroleum exploration back in his home country of South Sudan if political conditions there improve. I was very pleased to nominate him for the Subaru Minority Student Scholarship Program, and he very much deserves the award.”

Lukudu was born in a mountainous area in South Sudan where his interest in geology developed. He collected rocks. He played with rocks. He was captivated by rocks that emanated light during nighttime hunts with his father.

At a young age, he knew he wanted an education and that it would not be handed to him. He would have to pursue it. Claim it.

Lukudu remembers getting one pencil a year for school. He sharpened it just a little, just enough to write. He didn’t want to break the lead. That would be a waste when he needed to copy an entire book from the chalkboard. Only the teacher had a book.

Lukudu left his village to attend high school in the city. Instead of continuing his education after high school, he left his country to escape political unrest and violence. He lived in Egypt for 13 years, delivering flyers to make a living.

In 2000, the United Nations resettled Lukudu and his wife in Fargo. He secured a job at a local manufacturing company and settled into life in a new country.

He remembered hunting with his dad and the glowing rocks. He thought about what his illiterate uncle said when he visited a city: “If I had eyes, I would see stuff.”

His uncle was referring to signs he couldn’t read. “If you have an education, you have eyes,” Lukudu explained. “You can see through mountains. You can see anything.”

Lukudu started researching colleges and geology programs. He ultimately chose to pursue his geology degree at NDSU. He remembers Saini-Eidukat showing him the labs and introducing him to professors. The next day he applied to NDSU.

After graduation, Lukudu plans to work for a petroleum company, perhaps in South Sudan.

Story and photo courtesy of NDSU University Relations.

DONATING TO NDSU GEOSCIENCES

Q: When I receive a mailing or that phone call from NDSU asking for a donation, can I target it to specifically support the educational and outreach programs in the Department of Geosciences?

A: Yes! Simply specify that your gift go to one of our three funds. All contributions to the fund are tax-deductible. Many employers will match the donations of employees; for information on how to provide a match, see: www.ndsufoundation.com/annualfund

Q: What is the purpose for each of the funds?

A: The *GeoAlumni Endowment* supports field courses and student scholarships. Even a one-time contribution can generate income for years to come through interest accrued to the account. The *Geosciences Fund* supports our outside speakers and outreach programs. The *Mayflower Fund* (established by the late Dr. Warren D. Kress) provides scholarship and travel support for our students in Geography.

<p>Please detach, and mail with your gift to: NDSU Development Foundation 1241 N University Drive PO Box 5144 Fargo, ND 58105-5144</p> <p>Name(s): _____</p> <p>Enclosed is my gift of \$ _____ .</p> <p>My gift is in honor of: _____</p> <p>Please allocate my gift, as follows: _____ % GeoAlumni Endowment (Fund #40092) _____ % Geosciences Fund (Fund #33238) _____ % Mayflower Fund (Fund #25762)</p> <p>Please make your check payable to: NDSU Development Foundation</p> <p>Thank you!</p>	<p>Payment options:</p> <p><input type="checkbox"/> Payment enclosed</p> <p><input type="checkbox"/> Please charge my credit/debit card</p> <p><input type="checkbox"/> AMEX <input type="checkbox"/> Visa <input type="checkbox"/> MasterCard <input type="checkbox"/> Discover</p> <p>Name on Card: _____</p> <p>Card No. _____</p> <p>Expiration Date: _____</p> <p>Security Code: _____</p> <p>Billing Address: _____</p> <p>_____</p> <p>Phone: _____</p> <p>Signature: _____</p>
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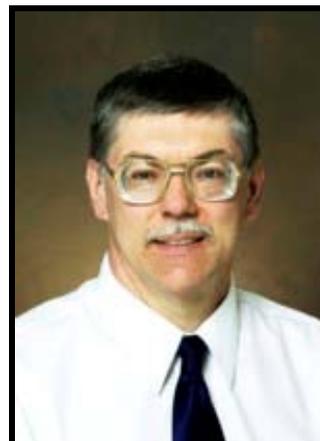
TAX CREDIT OPPORTUNITY FOR DONATIONS TO THE GEOALUMNI ENDOWMENT

North Dakota residents and businesses that make gifts to qualified endowments (such as the NDSU GeoAlumni Endowment) may qualify for a state income tax credit, which amounts to 40 percent of the value of the gift, up to a maximum credit of \$10,000 per year. Planned gifts by individuals qualify for an income tax credit of 40 percent for gifts up to a maximum credit of \$10,000 per person, \$20,000 for a married couple with any excess unused credit to carry forward 3 years. This credit is on top of your federal tax deduction for charitable donations. If a donor is in the 35 percent federal tax bracket, the tax benefit may look like this:

Gift amount	\$5,000	\$25,000	\$50,000
Federal tax deduction	-\$1,750	-\$8,750	-\$17,500
N.D. state income tax credit	-\$2,000	-\$10,000	-\$20,000
Net cost	\$1,250	\$6,250	\$12,500

Please be sure to consult your own attorney, accountant, or financial advisor for advice on your situation.

FACULTY NEWS



The newest members of the faculty/instructional staff at NDSU Geosciences. *Left-to-right:* Stephanie Day, PhD, Jessie Rock, MS, and Scott Wood, PhD

Allan Ashworth is in the middle of a three-year phased retirement. He continues to teach but only in the Fall semester. During the remainder of the year he continues with lab research on Antarctic fossils and is involved in preparing several publications. Allan has just returned from presenting a paper, coauthored with Adam Lewis, at the American Geophysical Union (AGU) meeting in San Francisco. He is also continuing long-term interest in studying fossil beetles and this past summer started a new project on last glacial maximum age sediments from the Hoh River on the Olympic Peninsula in Washington State. Allan also continues work on a paleoecological database “NeotomaDB” (www.neotomadb.org) with an Environmental & Conservation Sciences graduate student Ms. Sangita Shrestha. Allan stepped down as vice-president for the International Union for Quaternary Research (INQUA) but still continues to represent the organization as a delegate at the Scientific Committee on Antarctic Research (SCAR) meetings. The more relaxed schedule Allan now has allows for more personal travel time and during last winter he and his wife Hazel visited India and Bhutan. In Bangalore he arranged to meet former NDSU Geosciences professor Chandra Balachandran, who founded and is the director for the Indian Institute for Geographical Studies (tiigs.org/about/the-dharani-trust). The Institute is privately funded and promotes geographic education in schools.



Allan and Hazel Ashworth, with Chandra Balachandran in Bangalore, India, 2012.

Stephanie Day began her appointment as Assistant Professor in August, 2012. Stephanie is a native of Hobe Sound, Florida. She received a BS from the University of Nebraska-Lincoln and her PhD from the University of Minnesota. Stephanie is a fluvial geomorphologist, whose research interests center on how agricultural land use practices affect riverine systems. In her work, she uses terrestrial laser scanning to measure topography and change. At NDSU, Stephanie is teaching GIS, Remote Sensing, and a couple of Geography courses. She is married to Ryan Niemann, who is employed by the North Dakota Governor’s Schools and has his office in the NDSU Center for Science & Mathematics Education. Stephanie and Ryan are parents to

“Mae” (a golden retriever-Australian shepherd mix) and “Mimi” (a harlequin rabbit).

Ken Lepper continues to research the interaction between large lakes and the global climate system conducting research on shores of Lake Superior, Lake Huron, Lake Michigan as well as here at home on the strandlines and beaches of Glacial Lake Agassiz. A group paper presenting a paleohydrologic record for Lake Superior from the mid-Holocene to the present day, on which Ken is a co-author and provided crucial geochronological controls, was selected as “Editor’s Choice” for the November issue of the *Canadian Journal of Earth Sciences*. In addition to large lakes research Ken has begun a collaboration with Adam Lewis researching high elevation fan deposits in the Dry Valleys region of Antarctica. Ken is currently supervising two graduate students and mentoring two undergraduate projects.



Ken Lepper and undergraduate Chad Crotty collect Lake Agassiz shoreline samples near Campbell, MN.

Adam Lewis is continuing his research program in Antarctica but with a new project. For the past eleven seasons Adam has focused on understanding the role that Antarctica and its ice sheets have played in Earth’s climate evolution over million-year timescales. But in 2011, he jumped forward millions of years to study evidence for brief but intense warming events that appear to have caused melting along ice sheet margins as recently as 10,000 years ago. The work came about in collaboration with Ken Lepper. After some preliminary OSL dating in Lepper’s lab the two wrote a successful NSF grant that provided funding for Adam to take an MS student, Felix Zamora, and an undergraduate assistant, Ashley Steffen, to Antarctica for the 2011-12 southern summer. Felix, Ashley, and a second

MS student, Meridith Ramsey, are now hard at work processing dozens of samples that will lead to a history of melting events along ice sheet margins. The work is important because the contribution of Antarctic to sea-level rise is at the least-well constrained input to global models.

Peter Oduor is still working on his Forest Service project, where his research team are trying to compile tree species data for the entire state of North Dakota. This will involve field work and spatial modeling. Peter’s graduate student, Buddhika Madurapperuma, was selected to receive a prestigious award, only given to fewer than 10 graduate researchers in the world. The student will receive a \$90K instrument for a 2-month field study through the Alexander Goetz instrument program. His team also received the best poster and best research paper entitled “*Analysis of Spatio-Temporal Land Use/Cover Change of Devils Lake Watershed using NDVI (Normalized Difference Vegetation Index) and NDWI (Normalized Difference Water Index) Data*” at the 4th International Conference on Geoinformation Technology for Natural Disaster Management in Colombo, Sri Lanka. The paper was a “leap-of-faith” in addressing how high water uptaking, high saline tolerant agroforests may mitigate flooding within Devils Lake basin and in turn improve water quality while providing a natural flood-wall preventing bank erosion or collapse. Peter is also conducting research using immobilized bacteria in water treatment at the new lab facilities in Geosciences Hall.

Jessie Rock is our new instructor of Geology, responsible for all of the introductory-level labs. She also curates the mineral, rock, and fossil collections. Jessie is a Minnesota native, who received her B.S. degree in Geosciences (Geology emphasis) in 2006 from Minnesota State University-Moorhead (MSUM). Jessie then completed an M.S. degree at NDSU, with Allan Ashworth as her major advisor. Prior to arriving into her NDSU appointment in Fall, 2011, Jessie taught Geology at both Concordia College and MSUM. Jessie is married to Michael Armstrong, who is a security analyst at Sanford Health. They have one son, Oscar. Jessie and Mike are also parents “Lulu” (a black cat), and to guppies, a loach, and a snail.

Jessie has been active in departmental outreach. In October, as part of National Earth

Science Week events, Jessie held a “Fossil Night” for kids at the Fargo Public Library. The response was overwhelming, with 89 children and parents filling the room.



Bernhardt Saini-Eidukat's research interests include the source of economic metals such as germanium and environmental topics such as water quality and mineral hazards. Current research is on the potentially hazardous mineral fiber, erionite, which is present in the western Great Plains area. He is also involved in collaborative research on the geological sources of metals in the environment, specifically cadmium in eastern North Dakota soils. Bernie was the lead scientist on the NSF grant “Renovation for Climate Change & Environmental Quality Laboratory at North Dakota State University” which funded renovation of laboratory spaces in Geosciences Hall.

Donald Schwert is serving as Chair on an interim basis, until a new Chair is named. In 2012, he

joined NDSU archaeologist Jeff Clark and students for five weeks of field work on the tiny island of Ofu in the Manu’a Group of American Samoa. The team is researching the sedimentological record of tension between landscape change versus human occupation: how humans transform their landscape upon settlement, and how this landscape change induces challenges for the human settlers.

Scott Wood arrived at NDSU in July to serve as the Dean of the College of Science & Mathematics, as well as Professor of Geology. Scott is a geochemist, specializing in theoretical and experimental studies of the thermodynamics, kinetics, and molecular mechanisms of aqueous processes and water-rock interactions. A native of Utica, NY, Scott completed his PhD at Princeton and entered into his first academic position at McGill University in Montréal. In 1992, he relocated to the University of Idaho in Moscow, where he continued his rise through teaching and research scholarship. After an interim appointment as Dean of Science at UI, Scott assumed the long-term position therein 2008.

Scott is recipient of numerous fellowships and honors. Included is the Distinguished Service Award from the Geochemistry Division of the American Chemical Society.

Not only is Scott an outstanding scientist, but he is an American history buff and is an accomplished musician – specializing in guitar. Scott sings, as well, and is often asked to perform at geological conferences. Especially beloved is his, “*Mamas, Don’t Let Your Babies Grow Up to be Mineralogists.*”

Lori Wood has teaching and research interests in the field of human nutrition. Lori and Scott have two grown children, Michael and Erika. They are also parents to three cats: “Topaz,” “Tsuki,” and “Coco Mao.”

WHERE ARE THEY NOW?

GREGORY J. MCCARTHY (NDSU Geosciences, 1979-1993)

Greg McCarthy was a Geosciences faculty member from 1979-93, before moving full-time to the chemistry department and various research

administration positions. McCarthy retired in 2011, and moved with his wife Denise to Milwaukee. Denise taught science in Fargo schools and participated in department courses and summer field trips. In Milwaukee they enjoy

interacting with daughter Bryna and granddaughters Meaghan (8) and Kacey (5) through school pickup, sports, Irish dance and family events. Greg and Denise have traveled extensively in Europe (6 trips/11 countries) and North America in recent years, and include classic geology sites in their itineraries whenever possible.



**CHARLES (“CHUCK”) METZGER
(NDSU Geology, 1965 – 1975)**

Chuck and Mary Metzger spent a lot of time this summer at their cabin in the Indian Peaks Wilderness area of Colorado. They built a new room on back and enjoyed wonderful hikes. They are on their way to Turkey this Fall.



**CHANDRA BALACHANDRAN
(NDSU Geosciences, 1991 – 1998)**

Chandra continues his work with TIIGS (The Indian Institute of Geographical Studies), headquartered in Bangalore, India (tiigs.org). TIIGS is involved in a wide-range of activities. In November, seven students (grades 7, 8, and 9) from the Army Public School went on a field trip to study the southern Indian river Kaveri as more than just a body of flowing water. This project took the team from the source of the river (Talakaveri) to the distributary (also called



Kaveri) that joins the Bay of Bengal in the ancient historic town of Poompuhar (Tamil Nadu). The November trip covered important points along the river in Karnataka. In January, they will continue the study in Tamil Nadu.

Chandra encourages your interest in TIIGS. They are now trying to raise funds to develop and deliver innovative geography education programs that will include exciting field work and geospatial technologies (GIS, GPS, remote sensing, etc.). Donations to TIIGS made in the USA are tax-exempt under IRS rules. If you would like to make a donation, please visit tiigs.org where you can donate using PayPal, or you may contact Dr. Heidi J. Nast (hnast@depaul.edu), Managing Trustee of Dharani USA, the non-profit that supports TIIGS.

**ELAINE HATZENBUHLER
(NDSU Geosciences, 1982 – 2011)**

Elaine writes: My news is that I retired last year after 29 years at NDSU! The Department hosted a wonderful reception at the Alumni Center to celebrate. It was wonderful to see so many of you there. Thanks to you who sent messages as well. I really appreciated it all.

Retirement is much like graduating. Lots of adjustments including finding a new routine (that is a work in progress!!), and doing what you want to do now that you have the time for it. Jim retired at the same time after teaching math at MSUM for 38 years. It was hard for us to leave jobs we both really enjoyed but it seemed the time was right. What I miss is not the work, but the people I worked with, the students, and of course my TA's!

We spent last winter in Arizona. Of course it would be one of the mildest winters on record in Fargo-Moorhead. It was great to be outdoors and have so many sunny days. Later this Fall, we'll be heading back to the Phoenix area. It is great to escape winter but Moorhead really is home.



I went along on the Black Hills Trip last Fall and recently spent time with the Field Geology class in South Heart, ND. I may have retired from NDSU but I have not retired from being a geologist. I still enjoy the field experiences. As a bonus I also got to see some of our Alums. I am happy to still have this connection with the Department, students, and Alums.

Now for the important question you may have, how about the 1968 Camaro? Well, it has retired only in the sense that it doesn't make daily trips to NDSU now. It is in Moorhead, and I drive

it as often as possible. Stop by sometime, and we'll take it to the Dairy Queen for treats!

**JOHN A. BROPHY
(NDSU Geology, 1959 – 1982)**

John and Peggy are still actively enjoying Oregon and basking in fond memories of their time in Fargo. They own some new "wheels" (John notes that they still use their car if the distance is too far or the hills are too steep!).



**NORTH DAKOTA ASSOCIATION OF WOMEN
GEOSCIENTISTS (AWG) CHAPTER LAUNCHED**

The North Dakota chapter of the Association of Women Geoscientists (AWG) was launched this Fall. The goals of AWG are to: [1] encourage the participation of women in the geosciences; [2] exchange educational, technical, and professional information; and [3] enhance the professional growth and advancement of women in the

geosciences. Individual membership is open to anyone (regardless of gender) who supports AWG's goals. For further information about the AWG-North Dakota Chapter, email *NorthDakotaAWG@gmail.com*, or contact Stephanie Day (701.231.8837) or Jessie Rock (701.231.7951) at NDSU Geosciences.



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www.facebook.com/#!/NDSUGeosciences



NDSU
Department of Geosciences
Stevens Hall
Dept. 2745
North Dakota State University
Fargo, ND 58108-6050

Tel: 701.231.7087
E-mail: nds.geosciences@nds.edu
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Black Hills Field Course, Fall, 2011.