



DEPARTMENT OF GEOLOGY NEWSLETTER
COLLEGE OF ARTS AND SCIENCES
WESTERN MICHIGAN UNIVERSITY
KALAMAZOO, MI 49008

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Greetings--

For those of you living away from southwestern Michigan, you may be pleased to learn that we have had several inches of "lake effect" snow and that another Michigan winter is on its way. Of course those of you living even closer to the lakes are fully aware of this "effect." We were pleased to hear from many of you during the course of the year and hope that you and many others will correspond with us this year. As you will note from the departmental statistics, we are very busy. Our community now has the largest undergraduate (137) and graduate (81) enrollments since the Department was established as a degree-granting entity. Although much of this activity stems from interest in water and other aspects in the geotechnical area, we are working to maintain a broad base of strength in several areas of the geosciences. Geophysics, sedimentology, tectonics, coastal studies, geochemistry and our water programs are doing very well. The Institute for Water Sciences has developed an outstanding Isotope Ratio Mass Spectrometry Laboratory, and Ground-Penetrating Radar studies of the coastal sand wedge along the southeastern shore of Lake Michigan are pushing the envelop of such studies.

Two of our number, Dr. Alan Kehew and Dr. Christopher Schmidt, are on sabbatical leave this year. As you can imagine, having one-fifth of the faculty away makes quite a difference in our operation. Dr. Kehew is in Kalamazoo working on a variety of projects but focusing on outburst floods associated with the draining of Lake Agassiz and the hydrologic aspects of ground-water pollution in eastern Cass County. Dr. Schmidt is at Cornell University and will be on a Fulbright Fellowship to University de Para in Argentina for six months beginning early in January. We miss their presence and wish them the very best during these opportune months.

The Geology-Earth Science Club is a scintillating presence in our community. They have sponsored several very successful functions and are planning a trip to Big Bend National Park the first week of March. They have developed a monthly newsletter, *The Sediment*, that reports the pulse of their group. The Club executive committee and I meet on a monthly basis. So far, our consultation has resulted in a soft drink machine being placed in the northeast foyer and a bulletin board devoted to Club activities. I appreciate the Club and the opportunity to work with them.

We have an unprecedented percentage of our graduates working in Kalamazoo and Michigan while placing students in Washington, Massachusetts, Wisconsin, Florida, and California. It is especially gratifying to see so many of our students evolving into higher level positions with several firms. Career development is one of the most important aspects of each person's professional life, and we will help in any way possible.

Over the past few months we have been contributing to a proposal for a new science center. The proposal is now in the review process, and it will probably be presented to the Michigan Legislature before the Christmas break. Geology and the Institute for Water Sciences are both slated to be in this facility which will likely be built on the present site of the Wood Hall parking lot. The plan includes overhauling Wood Hall--air conditioning, re-built offices, classrooms and teaching laboratories--with the new facility being dedicated mainly to research laboratories.

We will be hosting an "open house" in May. We will be inviting alumni, faculty, students and businesses to join us in this effort. Please "stay tuned" for further announcements.

I hope that the pride I feel being a part of all of this is evident. If not, then I am failing as a communicator.

Best wishes,

W. Thomas Straw
Professor and Chair

FACULTY NEWS**ESTELLA ATEKWANA
ASSISTANT PROFESSOR**

Yes, this has been a very busy year indeed. During the past year I taught courses in physical geology and a new course in geophysics - Gravity and Magnetic Exploration. I co-authored a paper on the tectonics of the Adamawa Province in Cameroon, which was presented at the Michigan Academy of Science last winter.

I also attended a short course and a symposium on the Application of Geophysics to Engineering and Environmental Problems in Chicago last Spring.

I recently had two new projects funded. One (together with Brenda Earhart of the KAMSC) by the Department of Energy entitled, "Kalamazoo Mathematics and Science Precollege Engineering Program" is designed to provide 5th-9th graders hands-on experience on the sciences in order to increase minority enrollment and interest in the sciences in college. As a result of this, I spent five weeks in the Geology Department during the summer teaching 7th graders Earth Sciences. It was a very trying but rewarding experience. The other, "Mapping Buried Bedrock Topography with Gravity in Schoolcraft Township," was funded by the WMU Faculty Research and Creative Activities Support Fund. The months of July, August and September were spent collecting gravity data in the study area.

I have recently been appointed as the co-chair of the International Committee, Environmental and Engineering Geophysical Society.

We recently moved into our new home and we (Kyle, Eliot and I) love it!!!!

Kyle is growing to be a big boy and is learning how to talk. He absolutely loves baseball (p-ball as he calls it), but I guess he is too young to be enrolled in one of Chris Schmidt's baseball teams.

**DAVID A. BARNES
ASSOCIATE PROFESSOR**

I have had a full and rewarding year tarnished only by back surgery in the spring of 1992. Teresa and the children are well. All the children are talking and only one remains in diapers (phew!, or P-U?). The year has been interesting due to the culmination of much research work over the last few years in the form of several publications. AAPG Bulletin and Clay Mineral Society Special Publication #47 papers on the sedimentology and clay diagenesis in the Michigan basin St. Peter Sandstone were published this year. Also, the results of Ocean Drilling Program (ODP) research on Miocene volcanics in the Japan Sea are now published in the ODP Scientific Results volume. I was very pleased that one of my graduate students, Rusli Adam, graduated and has taken a job with Esso production, Malaysia, LTD.

This has also been an unusual year in that I have undertaken a "career change" and am now focussing on coastal processes studies and coastal geomorphology. Several proposals (for the creation of a series of videos on the Great Lakes including coastal

processes and erosion; and an extensive program of coastal processes field measurements and coastal change numerical modeling) have been issued with limited success although our department is involved in State and Federal funded contract work doing coastal change monitoring. We hope to squeeze some first class research out of these field data measurement programs. We are in the equipment acquisition mode and now have no less than five boats and one 2.5 ton research (army surplus) truck. Several students (Richie Laton, Mike Kovacich, Dave Seng) are involved in the coastal geomorphology research program. We expect to spend a lot of time along the coast in the Big Sable Point area near Ludington. I am eyeing with relish my likely sabbatical starting about 9 AM April 24, 1993! (or thereabouts) to dig into this new area of interest.

Best wishes to all old friends this holiday season!

**RONALD B. CHASE
PROFESSOR**

The past year has generally been quite good for me. I taught the customary optical mineralogy/petrology sequence during the academic year and some interesting courses during the summer. The Upper Peninsula field course is now popular enough to require two separate sections. I have also traditionally taught summer workshops in the SEMS (Science Education in Michigan Schools) program directed by Western's Center for Science Education. This past summer, I instructed 49 local primary and secondary school teachers on the evolution of the Lake Michigan shoreline and its associated erosional problems.

The Geological Society of America Special Paper 280 which I contributed to and co-edited (along with Chris Schmidt and Eric Erslev) is becoming a reality: It is now in the hands of the GSA. My research attention is currently being directed toward macroscopic, basement deformation in the southern Colorado region and toward magma evolution in western Montana. NSF grants are now being prepared.

On the home front, Chris and the boys are doing fine. Chris is up to her eyeballs with her own teaching job, getting boys applied to colleges, and being the usual wonderful domestic engineer (I need much domestic engineering).

Karl is now a hydrogeology major in our Department, having transferred from Central Michigan University this past fall. Andy is a junior at Northwestern University majoring in journalism. He has been home this fall serving as an intern with the *Kalamazoo Gazette*. His bylines in the Features Department have been quite frequent. Scott is a freshman at Washington University (St. Louis) where he is a biology major and a defensive end on their varsity football team. Jamie is now a senior at Hackett High School and the Kalamazoo Area Math and Science Center. He is now applying to various colleges with intentions of majoring in mathematics.

"Hi" to all former students!!

DEPARTMENT OF GEOLOGY NEWSLETTER

FACULTY NEWS (CONT.)

JOHN D. GRACE PROFESSOR

This last year has been busy and interesting but a rather typical year. Student advising tends to take an inordinate amount of time these days with over 125 undergraduate majors -- an all time high for the department. I sometimes wonder where all these people are going to find jobs!

I've had the pleasure of attending several interesting conferences this year including the American Crystallographic Association meeting, a Science Education Conference and an EPA meeting in Chicago.

Because of the emphasis on hydrogeology these days, I find my research is being directed more toward clay mineralogy, particularly clay mineralogy of glacial materials. I would be delighted to hear from any alumni that might be working in this area.

On the home front, I find that two young grandchildren keep my wife and me busy with various babysitting duties. Sure keeps you on your toes!

DUANE R. HAMPTON ASSISTANT PROFESSOR

A few noteworthy things occurred in my professional life last year. First, I received tenure, so I guess I'll be around for a while. Second, I made progress on my EPA-supported research. Third, I got a new office on the third floor of Rood Hall, so I can neglect cleaning up my office on the first floor for a little longer.

In last year's newsletter I wrote about my EPA research. I am working on ways to improve monitoring and recovery of free product (e.g. spilled fuel) in the subsurface. One of the projects underway is to field test hydrophobic gravel packs for free product wells. One alert reader last year contacted me with a potential field site. We installed two wells there in April, one with a 50-50 mixture of Teflon chips and sand, the other with the standard gravel pack. Gasoline showed up in the Teflon-packed well within 3 weeks, and recovery began. Around September, gasoline began showing up in the standard-packed well, which is 3 feet away from the Teflon well; then there was 1 inch in the standard well and 12 to 13 inches in the Teflon well. In late August we installed 6 wells at a refinery in Carson City, Michigan. So far we have seen notable differences in how fast product has entered those wells. We are looking forward to testing their product recovery rates. We are also developing sets of petroleum-soluble chemicals to use as conservative tracers in the free product. We hope to field test this technology this year, since it is the third year of our 3-year EPA agreement. One family of tracers should be especially environmentally benign since the basic compound is under FDA scrutiny for use as a blood substitute during surgery for people who object to transfusions.

I am currently advising many hydrogeology students, both graduate and undergraduate, since Dr. Kehew is on sabbatical. There is an overwhelming interest in our graduate programs. I

suspect we will have to implement an admissions process for some of these programs and perhaps reformulate them to make them more rigorous. I do not want to see a rapid influx of people into hydrogeology who have read about job opportunities in a newspaper or magazine. I would rather see people entering the major because they took and enjoyed and did well in several geology classes.

R. V. KRISHNAMURTHY SENIOR RESEARCH ASSOCIATE

I joined Western Michigan University in 1991 after spending several years at the California Institute of Technology. During the past year, I set up the stable isotope mass-spectrometry laboratory and all its intricate glass vacuum extraction lines, published several papers during this period, and also presented a paper at the American Geophysical Union's fall meeting that was based on the isotope ratio in Kalamazoo rain, measured in the isotope laboratory here. I was on the working group panel on the role of atmospheric methane workshop in Portland, organized by NATO and two seminars. In addition to sharing the graduate course in hydrogeochemistry, I started a new graduate course in stable isotope geochemistry. I served as a reviewer for prestigious journals including *Geochimica Cosmochimica Acta* and for proposals submitted to the National Science Foundation. I was awarded a two year grant by the NSF, totalling about \$180,000, for the investigation of D/H ratios in organic compounds of biologic and biogeologic interest. My research collaborators include, among many national agencies, Professor Magaritz of the Weizmann Institute of Science in Israel.

RICHARD N. PASSERO PROFESSOR

I was on sabbatical leave last year working on a new research project in Cass County, Michigan. I am continuing research on aquifer vulnerability and am completing the final year of a Kellogg Foundation grant for the WMU Groundwater Education in Michigan (GEM) Regional Center. The Cass County project, being done cooperatively with Al Kehew and Michigan State University, concerns the ground water in a small agricultural watershed (Donnell Lake) rapidly being converted to pig farming. Several graduate students and faculty are involved in the project. My research on aquifer vulnerability has grown from industrial to agricultural contaminants. The GEM Regional Center produced several publications and educational aids during its first three years. The Center is applying for a second grant to continue many of its activities. I also recently completed an invited paper with Tom Straw and Al Kehew synthesizing the work of many years on the hydrogeology of Kalamazoo County and the surrounding area. My daughter is still an editor for Gralla Publications in New York City, and my wife, Ginny, is still teaching at the Bronson School of Nursing. Retirement is just a few semesters away.

DEPARTMENT OF GEOLOGY NEWSLETTER

FACULTY NEWS (CONT.)

WILLIAM A. SAUCK **SENIOR RESEARCH ASSOCIATE**

This past year, I co-authored a paper which I presented at the 5th Annual Symposium on the Application of Geophysics to Engineering and Environmental Problems. The paper was published in the proceedings volume. I also served as a member of the steering committee which organized the SAGEEP meeting at Oakbrook, IL, April 26-29.

Grant work continues on the "Geophysical Investigations of Sand-Wedge Thickness, S.E. Lake Michigan; Nearshore and Beach." We are beginning a second year of investigation in two areas: nine offshore Ground Penetrating Radar lines between the MI-IN border and Gary, IN, and more detailed GPR work in the St. Joseph beach nourishment area. Students involved are Richie Laton, Dave Seng and Mike Kovacich.

I organize the "Ground Water Professionals' Forum" gatherings held approximately once per semester to bring together company people, those with State and Federal agencies, and University professionals.

I traveled to Brazil during the first three weeks of August. At Manaus I initiated a joint project for ground water research and education for the metropolitan area of Manaus, together with staff of INPE, the National Institute for Amazon Research. While there I presented a seminar entitled, "Avaliação dos Recursos Hídricos da Região Metropolitana de Manaus." In Belém I renewed contacts with the Departments of Geology and Geophysics at the Federal University of Para and am formalizing an agreement for joint research with that University and WMU/IWS.

I am on the Editorial Board for the journal, *Ground Water*, reviewing manuscripts which deal with geophysical applications to ground water studies. I also review occasional articles for the journal, *Geophysics*.

I continue to be members of SEG, EAEG, NGWA, EEGS, and Brazilian Geophysical Society.

DR. MARIAN M. SMITH **ADJUNCT ASSISTANT PROFESSOR**

I am enjoying my third year here in the department teaching Earth History and doing some image analysis research with Duane Hampton and Richie Laton. We are in the process of setting up a system to do Fourier grain-shape analysis.

I have developed my Science Education Outreach Volunteers to new heights. In April we had a very successful Math Teach-In for Parents at Chime Elementary School. We really caught the attention of the media, especially the line about how two university professors, who use high order math in their research, could not understand their son's first grade math. Have you heard of a "doubles-plus-one equation"?

I was successful in acquiring a grant from Michigan Campus Compact to do a "Science Literacy and Community Outreach Project" in Cassopolis, Michigan. I am doing this outreach as part of the class that I teach in the Lee Honors College. We do a lot of reading of science in the news and I use so much of

the material to update my earth history lectures! It's really an exciting combination of classes.

I am still a Michigan representative for the Geological Society of America's Scientific Awareness through Geological Education (SAGE) program. I gave a paper on modern teaching methods (as I use them in Earth History) at the North Central GSA in Iowa City last May. In late May I gave a paper at the Geological Association of Canada/Mineralogical Association of Canada meeting in Wolfville, Nova Scotia, entitled, "The Geoscientists' Guide to the Classroom: Setting out to Improve Science Literacy." In June I taught "Fossil Fun for Elementary School Teachers"; this was like a dream come true! I have always wanted to work with enthusiastic teachers. I am giving a paper on the course at the National GSA meeting in Cincinnati in late October.

As a family, we spent the most ideal summer in Montana. We are also immersed in scouting! I am a Wolf Den Leader and Bill is our Pack Committee Chairman. Austin really loves the scouting life, which is a good thing seeing that his dad was an Eagle Scout. I have trained Webelo Scout leaders on how to lead their boys through the tasks of earning their geology badges.

If you have any geology materials that you wish to donate, please send them to me. We have teachers in Michigan whose classroom texts describe plate tectonics as a "new theory." I will distribute your materials to grateful hands.

W. THOMAS STRAW **PROFESSOR AND CHAIR**

The past year has been a very interesting and exciting time. We continue to increase our presence in Great Lakes coastal studies, and wetland studies have taken on a new dimension. We, really Richie Laton, have continued to add to our equipment holdings for coastal studies with addition of two boats, a van, a complex of sophisticated surveying equipment and much more, including a 2 and 1/2 ton truck that will become a mobile laboratory. I am pleased to report that Dr. David Barnes will be leading this effort with Richie's able assistance. I hope to continue in the effort, but I am planning to focus on coastal wetlands with special emphasis on the large wetland near the mouth of the Kalamazoo River.

General research in wetlands is proceeding with studies of tree rings, and a series of studies designed to determine the role that wetlands can play in the renovation of leachate from a landfill, and study of flow-through wetlands in the Prairie Ronde aquifer. In addition to these activities, we are working to develop an educational program with secondary schools and nature centers that focuses on wetlands.

In the past year, I have worked on wetlands projects and taught short courses in California, Georgia, Michigan, New York, Pennsylvania, and North Carolina. Uncertainties in the way wetlands are delineated have produced some very interesting times for researchers involved in this area.

DEPARTMENT OF GEOLOGY NEWSLETTER

ALUMNI / FRIENDS / FORMER FACULTY NOTES

Ibrahim A. Al-Jallal is a Petroleum Geologist at Saudi Aramco in Saudi Arabia.

Sailful Baharom has finished his master's thesis and has just had his first child. Sailful is teaching in Sarawak, Malaysia.

Daniel Bannon is a geologist with IT Corporation in California. He reports that interested grads should concentrate job search efforts in the San Francisco bay or Los Angeles areas.

Rick Batt is an assistant professor at Buffalo State College, Buffalo, New York. He teaches paleontology, stratigraphy, hydrogeology, geology of North America, and several other courses. He and his wife have a two-year old daughter. He enjoys roller skating, ballroom dancing, and drawing.

Rumor has it that **Mike Colvin** has moved from Detroit and now works for an environmental firm in the Grand Rapids area.

Christopher Dick is working at GeoQuest Technology Corporation in the Houston area. He received his MBA from the University of Houston in December, 1990.

John Duwelius is employed by WW Engineering and Science, Bloomington, Indiana, as a hydrogeologist. One area of work currently includes the development of ground water flow paths in carbonate terrains.

Andy Erich reports that his first year in grad school at Colorado School of Mines was a busy one but well worthwhile.

Joe Ford is now working for the EPA in Washington, D.C.

Mike Gallagher and wife Rosalie recently honeymooned in Hawaii. When he explained to her what "aa" lava is, she responded that it looked like Oreo cookie crumbs.

Dennis Graveldinger is teaching earth science in the Granville, Michigan, school system.

Scott Green has been made manager of the Chicago office of EnecoTech. **Jim Finetti** and **Wendy Manial** work for EnecoTech in their Farmington Hills office.

Brad Jordan spent time teaching at the University of Rhode Island; then worked as a science technician at Norwich. He is now director of laboratories at Bucknell University's Geology Department.

Dick Mead works for Union Pacific as an oil explorationist in Fort Worth, Texas -- one of the few still in the oil patch.

Ted Powell visited the department this past summer. He and his wife (Jody Johnston) are now living in the Milwaukee, Wisconsin, area.

Brian Roth presented a seminar to the department in December. He received his M.S. from Wright State University and is now working for Amoco in Houston.

Yet more rumors have it that **John Sarin** is working on a master's degree at Baylor University.

William Schroen is a senior petroleum geophysicist at Exxon Company, International. He is responsible for seismic data processing at ECI with his main areas of responsibility including Thailand, Trinidad, Colombia, Bolivia, and Angola.

John Shamo, President of Hopper Exploration, Inc., reports that his company was nominated for the Wild Catter of the Year Award in competition with over 400 other active companies. They are also one of the five finalists in the Illinois Basin.

The department had a visit from **Mark Stewart** who is a partner with Superior Environmental in Grand Rapids.

Doug Thompson visited the department this fall. He has his own business management consulting firm in Dallas, Texas.

Don Walsh is project coordinator/hydrogeologist with ABB Environmental Services, Inc., in Farmington Hills, Michigan.

NEW ALUMNI

The following people received their degrees from WMU's Geology Department between December, 1991, and August, 1992. Congratulations!

Bachelor Degree Recipients

Earth Science - Shari Barnes, Matthew Brewer, John Constan, Martha Gregory, John Hahn, Rosel Hall, Dawn Hoenes, Nancy Horvath, Audrey Johnson, Mark Nederveld, Vance Price, Melissa Reed, Kimberly Sparks

Geology - Michele Adams, Martha Kupka, Jodie McNeil, Jonathan Meier, Robert Webster

Master Degree Recipients

Earth Science - Kurt Koella, W. Richard Laton, Joseph Smiegel, David Wardwell, Wei-Shyuan Peng, Scott Zabik

Geology - Mark Caldwell, Linda Jones, Amy LaChance, Robert Tolliver

AWARDS AND SCHOLARSHIPS

Undergraduate

Kalamazoo Geological & Mineral Society Summer Field Trip Scholarship - Robbie Zenero

Mineralogical Society of America Award - Martha Kupka

Presidential Scholar in Geology - Martha Kupka

Senior Honor Award - Earth Science-Scott Riley; Geology-Kelly Keighley, Martha Kupka, Lesta Johnson; Geophysics-Tim Tomlinson; Hydrogeology-Kristin Callahan

Graduate

Graduate College Student Research Grant - University Research Fellowship - Steve Kougiass

IEEE Oceans 1992 International Student Poster Competition - W. Richard Laton

Michigan Basin Geological Society Grant - Steve Kougiass and Mitch Gutaj



Back Row: Bill Norman, Paul Ciaramitaro, Hall Taylor, Jeff Mann, Bill French, Jim Staebler, Terry McWilliams, Bill Phillips, Bill Harrison, John Klauke, Bill Johnston, Rick Henderson, Kevin Kincaid
 Bob Heimsath, Mark Buddy, Barb Jones, Tom Silverman, Steve Vieter, Rich Young, Mary Brouillette, Brad Jordan, John Grace, Jim Horacek
 _____, Cam Streid, Tim Marier, Jeff Martin, Russ Perigo, Chris Dick, Jeff Spruit, Doug Davey, Bill Schroeger, Brad Tiller, Steve Silver
 4th Row: John Fowler, Norm Lovan, Brian Meagher, Sue Travis, Jeff Rinehart, Mike Colvin, Tom Straw, Jim Hinnenberg, Tom Laux, Leslie Linchbloom, Cornellus VanLeeuwen, Dave Neas
 3rd Row: Sue Kaschner, Mark Wagner, Lloyd Schmaltz, Ray Kizer, Pat Cross, Chris Reister, Carol Gilbert, Donna Solce, Mike Sciorlino, Dawn Adams, Len Reid, Julie Garrett, Gary Komwiniski, Ibrahim Al-Jallal
 2nd Row: Dave Young, Dave Kuenzi, Ron Chase, Keith Vaughn, Mike Dault, Roger Kennett, Luke Heffernan, Stuart Ellsworth, Bob Choate, Mike Wilfret, Greg Yund, Valerie Naeve, Mary Krull
 1st Row:

DEPARTMENT OF GEOLOGY NEWSLETTER

GEOLOGY DEVELOPMENT AND SCHOLARSHIP DONATIONS

Your generous contributions to the Department support a wide array of activities and we appreciate your help. We try to thank each donor, but as with all bureaucracies we do miss someone occasionally. If we missed you, please know that we rely on your support and will continue to make every effort to acknowledge your gifts. Please accept our sincere thanks for your generous support.

Alumni - Mr. Michael Baranoski, Mr. James Bartel, Mr. Robert Crabb, Mrs. Maryann Crawford, Mr. Timothy Crawford, Mr. Douglas Daniels, Mr. LeRoy DeNooyer, Mr. Stanley DeRight, Mr. Richard Dickerson, Mr. Ronald Erickson, Mrs. Pamela Evans, Mr. Kurt Ewoldt, Mr. William B. French, Mr. Michael Gallagher, Mr. Harold Hoelzle, Mrs. Sherry Hoelzle, Mr. Thomas Hylland, Mrs. Debra Lefler, Mrs. Gayle Lopiccio, Dr. Robert Lopiccio, Dr. Philip McLaren, Mrs. Lynne McLaren, Mr. Bruce McLeod, Mr. James Meinke, Mr. Victor Melbardis, Mrs. Suzanne Merrill, Mr. James Nidy, Mr. James Peterson, Mr. Kevin Serrin, Mr. Charles Soule, Dr. Roger Steininger, Ms. Katharine Whitley

Friends - Mrs. Deborah Baranoski, Ms. Beverly Britt, Mr. Richard Dietrich, Mr. James Duncan, Sr., Dr. Oscar Horst, Mr. James Lefler, Dr. Lloyd Schmaltz, Mrs. Marilyn Schmaltz, Dr. W. Thomas Straw, Ms. Carol Tucker

Company Donors - Alpha Geosciences, Inc., Union Pacific Corporation, The Wisor Oil Co.

Matching Gifts - Conoco, Inc., Dresser Foundation, Exxon Education Foundation, Kellogg Company, Union Texas Petroleum

THANK YOU FOR YOUR DONATIONS

During the past year we have been able to accomplish many things because of your generosity. We have hosted several speakers, helped pay the way of undergraduate and graduate student researchers to conferences, purchased maps, photos, and small equipment to support student and faculty research, and a wide array of additional items. Although we have been enjoying unprecedented support by the University administration, our program and needs are simply developing faster than they can follow adequately. Your help is sincerely appreciated.

We hope that you will consider making a contribution to the Geology Community. You may do this by sending a check payable to: WMU Foundation - Department of Geology.

You may specify that your donation go to the Department of Geology Development Fund or the W. David Kuenzi Scholarship Fund. The Development Fund is used to support a wide array of activities, including undergraduate scholarships, student travel, supplemental support for equipment purchases, student activities and a variety of projects for improvement of teaching and research in the Department. The Kuenzi Fund is used to support graduate student research with emphasis on students studying sedimentology.

GRAND CANYON RAFT ADVENTURE

The Geology Department is sponsoring a "Grand Canyon Raft Adventure" June 23-26, 1993. The trip involves whitewater rafting down the Colorado River through the upper Grand Canyon, culminating with a hike out along the Bright Angel Trail. Participants will spend three nights and four days experiencing geology at its finest. The outfitter is Diamond River Adventures and the cost is \$535 (plus 6.1% tax). This cost covers food, beverages, and sleeping gear. It does not cover transportation to and from the Canyon. Students interested in receiving course credit can opt for 1-2 hours of Geology 539. Contact Dane Alexander, (616) 668-2259, for more information. Hope to see you there!

HYDROGEOLOGIC ATLAS NOW AVAILABLE

This year the Department of Geology is doing a limited reprinting of 44 copies of the Hydrogeologic Atlas of Michigan. If you are interested in purchasing a copy of the Atlas and the text, send a check for \$332.50 (made out to The Department of Geology, Western Michigan University) and a note requesting the Atlas, and we will mail a copy to you. The Atlas should be ready for shipment about the second week of December.

SERVICE STAFF NEWS

We welcome Mrs. Kori Rafferty to the secretarial staff in our Department. Kori joined us in January of 1992. She is an accounting major at WMU and expects to receive her degree in 1994. She and her husband, Mike, have been married for seven months and live in Tekonsha.

Kori is working 20 hours per week for the academic year. Both Joyce and Bev are glad she is working with us. She's a great asset to the Department.



Mrs. Kori Rafferty

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DEPARTMENT OF GEOLOGY NEWSLETTER

MAILING LIST

We are anxious to keep your current address on our mailing list and, therefore, ask for your cooperation in advising us if you move. Also, if you know of other alumni who do not receive this newsletter, please send their names and addresses; we would like to add them to our file.

Name _____

Major _____ Degree _____ Year _____

Address & Phone _____

Current Employment _____

Professional Interests _____

News Items _____

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