W.W.U. GEOLOGY NEWSLETTER #34

FROM THE CHAIR

2008-09

This was definitely an up and down year for WWU Geology. The down was mostly related to the recession and the consequent cuts to our staff and operating budget. But we will deal with that the best way we can, doing our best to maintain the quality of instruction, that is what we are all about.

Helping in a big way to maintain that quality is the remarkable bequest from the estate of Kathy Digges and her husband Robert (see separate memorial to Kathy in this newsletter).

Part of the Digges bequest is a challenge to WWU Geology Alumni to match up to $80,000 to support field trips, which are the heart and soul of what we do here. There are no restrictions on how this funding would be used. We could fulfill a dream of having our own field vehicles. We could provide some remarkable field trips to world class localities for our undergraduate and graduate students. Or we could even do field trips for alumni. For sure, any and all donors will be involved in the decision of how to expend the funding.

The GIS initiative at WWU Geology is now fully underway. Pete Stelling taught the first Geology 213 Intro to GIS course this year and nearly every course we teach now has some element or even a major component of GIS involved. We are convinced that this will give our graduates a major competitive advantage in their professional careers, but we are always interested to know alumni opinions--especially anything else that we can do to enhance the advantage. If you have any comments or ideas, let me know. babcock@wwu.edu

Something else—not so new at WWU—is Economic Geology. We haven't taught this course since we lost Jontek Wodzicki, but again we think that it is really important for our students to have some expertise in this field. Again, Pete Stelling has taken the lead in this initiative along with an effort to develop a program in geothermal resource education

How I got here!

I grew up in a small New England college town. My father was a professor of psychology; one of his areas of interest was educational psychology. My mother taught third and fourth grade at the campus school for a near-by university, and part of her work included supervising student teachers. In my house as a kid, we were always talking about what we could learn and how we could learn it. Growing up as a "faculty brat" in a college town, there was one thing I knew for sure: the world revolved around college students, and I wanted to be one. I don't remember ever pondering what might happen afterwards.

My earliest geology memory is from 3rd grade. It was during the height of the plate tectonics revolution, and I saw a TV program explaining the idea of continental drift, showing the match of the coastlines between Africa and South America. I thought that was pretty interesting, and I tried to explain it to my classmates during show-and-tell. My 3rd grade teacher quashed my story: he knew that continents could not move! Later, I remember loving 9th-grade Earth Science, a class that everyone was supposed to hate. If you were good at science, it was too easy; if you were bad at science, it was still science. But I thought it was great: clouds and oceans and rocks, the whole works. When I got ready for college and had to fill out a form with my intended major, I wrote "oceanography or astronomy," neither of which was offered at the school I was planning to attend. I wasn't ready to be pinned down.

I attended college in another small New England town, at a school fiercely and proudly focused on the liberal arts. There were excellent science departments, but the emphasis was very explicitly on ideas, not application. Someone I knew from high school suggested I take the introductory Geology course, and I enjoyed it. After each term, the department chair invited a handful of students who had just finished the intro course to "TA" the next intro course, and I was invited. We hung around the labs and tried not to really mess up when anyone asked us questions (the professors were always around, too). I now recognize it as a clever ploy to keep us connected to the department, and it worked pretty well. Most of my class of Geology majors was recruited this way.

My sophomore year, I took a second geology course, taught by a brand-new geology professor, Tekla Harms. Tekla was the second woman scientist I had ever met, and she was a very strong role model. (The first woman scientist I met, my 10th grade biology teacher, inspired almost as much scorn as did 9th grade Earth Science.) For the first time, I could see myself not just studying science but actually becoming a scientist. That summer I went to field camp in Montana, and was amazed at the scale of the Rocky Mountains. The following summer, Tekla took me to northern British Columbia, where I watched her map suspect terranes and I collected data for a senior thesis on dike and fracture patterns in granite.

Then, the unimaginable happened: college was over. I did not know what to do, as I had never thought much about where college students went when they were done. Nor had I ever met a geologist other than my professors, and I did not know what geologists did, other than teach. While my college classmates interviewed for jobs at big banks or applied to medical school, I hatched a plan to move across the country to Seattle. I had flown through Seattle on my way to BC and was intrigued by this northern city that did not suffer through icy winters. The following autumn, I drove with a couple of friends in a borrowed car from one end of I-90 to the other.

Faculty Spotlight on Juliet Crider

After a couple of years of slacking, grunge, serving coffee, and working part time at various non-profits in Seattle, I applied to graduate school. At Tekla's suggestion, I applied to Western and was accepted. I remember taking the bus up to Bellingham, and talking with Ned, Dave E., and some of the grad students. It looked like an interesting program, but I had also been admitted to UW, where the stipends were better and I didn't have to move. I chose UW and began graduate work in structural geology.

Part way through a MS project in the Montana thrust belt, I was ready for a change. I got myself a plane ticket to the GSA annual meeting, and cornered Jan Tullis, a professor at Brown University. Where could I go to study brittle deformation? She gave me a few names, one of which was David Pollard at Stanford University. I finished up my MS thesis, and moved to California.

Stanford was a fabulous place to do a Ph.D., and not just because the weather is always perfect. I found myself in a vibrant group of graduate students from five continents. We worked on projects with academic roots and clear applications to industry. I discovered neotectonics and earthquake seismology, and I learned an approach to geologic problems that involves mixing field observations with quantitative modeling, with a focus on physical processes. I worked on trying to understand how extensional faults grow and interact, and when I had enough material for 3 or 4 manuscripts, they let me go.

I started a tenure-track job at Bryn Mawr College, outside of Philadelphia. I enjoyed teaching at the small college and was expecting to stay. But then a job in neotectonics came open at Western. I was drawn by the opportunity to join a larger department with colleagues who had overlapping interests, by the chance to advise MS students who could delve deeper into research topics than undergraduates had time for at Bryn Mawr, by the proximity to field sites, and by the mandate to do research in neotectonics. I have learned lots from students and colleagues in these past nine years, and worked on projects that I could not imagine doing from Philadelphia. It has been a wonderful time.

FACULTY/STAFF NEWS 2008/2009

SCOTT BABCOCK:
Please see the Chair's page.

MYRL BECK:
This year I finally came to grips with the fact that I am a classic dilettante, and that geophysics was merely one of my phases. (A long one – yes.) I really stopped being very interested in geo-science about five years ago, when I got busy studying trees. Now that the WWU "tree tour" is finished, I find that I am no longer particularly interested in trees, either. Linda and I took a wonderful trip to Egypt in February, and now I am spending much of my time studying Egyptology and teaching myself to read hieroglyphs. I think I missed my calling – Egyptian archaeology. However, conventional archaeology probably wouldn't appeal to me – I rather fancy myself as a successful 19th century tomb looter. My hero is Giovanni Belzoni, who not only dug up some fantastic stuff, but in addition was big enough to kick sand in anybody's face, including Thor's.

We spent the winter at our place in Borrego Springs, where I once again gave some lectures and spent time looking for fossils (both with the Paleontology Volunteer Society). In Bellingham since April, I mostly attempt to play golf (my handicap is about 31), potter in the garden, and read Egyptology. Linda's health permitting, we intend to do a river trip on the Danube later in the year. My second grand daughter (Olivia Kelly, of Cordova, Alaska) is about to start college, and I just learned that Bernie's eldest is entering high school. My, how swiftly time does whip away!

CLARK & PATTY (COMBS) BLAKE:
Well, another year has flown by, but it was a productive one. Several badly needed house projects ... new bathroom, new oak floors in the living room, major greenhouse repairs ... got done and, for the first time ever, I think every room is complete!! What am I going to do now????

Our only travels this year have been between Bellingham and the Arizona condo. Clark, along with his friend, Larry Marshall, finally completed their publication, "Land of Black Volcanoes and White Sands: The Pinacate and Gran Desierto de Altar Biosphere Reserve", a natural history guide to the area in northern Sonora. In addition, he is loving having Emma and her family in Tucson ... being a Grandpa is his new hobby! As for me, gardening and the amazing Lola Dog keep me busy and out of trouble. The sun is shining, the gardens are blooming, and the wine is chilled ... life is good!

NED BROWN:
This past year was somewhat the same as the previous one: summer in Bellingham, winter in Tucson, trip to Minnesota to see relatives in June. My mother died this year at age 93 after a long spell of dementia, so now both parents are really gone. On a brighter side, Linda and I have had fun with our grandboys in Tucson hiking in the desert, climbing rocks, and sitting by a campfire under the stars in the back yard. Our daughter, Lynley, has switched out of being an elementary school teacher in a classroom with too many students (~30) to being a nurse and will graduate with her RN this August in Tucson. Nicholas and I have been on a couple of "wilderness" trips camping out of our VW van in the San Juan Islands and North Cascades. He is still diligent about his artwork, and currently has a month-long gallery exhibit of block prints in Seattle.

It was a busy geology year for me. Last winter at the University of Arizona, I analyzed zircons in seven samples from the San Juan Islands and North Cascades to obtain uranium-lead ages. This is a project aimed at documenting the age and detrital zircon signature of mid-Paleozoic terranes and to correlate them with terranes in the northern Cordillera. So far the oldest igneous rocks found are in the Turtleback and Yellow Aster Complexes at 425-450 million years. These island arc plutons intrude metamorphosed quartzose sandstone that has affinity to the North American craton. The rocks now lie well outboard of younger accreted terranes, so a challenging problem arises in unraveling the terrane travel path of these old rocks.

Today, Linda and I picked 18 pounds of raspberries, ate lots, made jam and froze lots for later. Next week it's blueberries. What a great place is Whatcom County!

RUSS BURMESTER:
2008-2009 was eventful, though now I can't remember all of the events. Some highlights are that care of the economic downturn, it looks like WWU will be phasing out of relying on Novell, so

soon there will be no more Novell login or big red N on the task bar. Otherwise, there shouldn't be much to notice in accessing network resources. The Paleomagnetism lab hosted a dynamic Luigi Jovane who put the VSM through more rigorous use than it had had before, and stimulated discussion pursuit of new research topics. Got preliminary results from a small collection of Triassic volcanics northeast of Hells Canyon. The best support clockwise rotation but not translation, but there just are not enough flows to build a solid case. Work continues in the Belt Supergroup and related rocks. The rocks around Salmon, ID, have been thought to be related, and even correlated formation to formation by some folks. We think we're making progress on understanding some of this and should have a poster at the Portland GSA meeting this fall.

JACKIE CAPLAN-AUERBACH:

It's been yet another whirlwind year in which I find myself asking "isn't this supposed to get easier? Aren't things supposed to get calmer?" Thus far, four years into my WWU adventure, the answer is a resounding "no". Easy? No, but challenging is good. Calmer? Heck, no. But I'm not sure I'd know what to do with myself if my life calmed down.

Each year I try to add at least one new class to my repertoire, and 2008-9 was no exception. After years of making fun of people who are passionate about studying Earth's core-mantle boundary, I had to 'fess up that I am fascinated by the deep Earth. Thus I taught a seminar in geodynamics in which students tackled topics such as mantle plumes, mantle convection, the initiation of plate tectonics and the structure and composition of Earth's core-mantle boundary. I learned a ton…I think the students did as well…and I was immensely impressed by the students in that course. I continue to look into methods by which quantitative topics can be taught to students who aren't crazy about math and submitted a manuscript on the topic to the Journal of Geoscience Education.

Research-wise, I continue to dive into local seismology problems while also keeping a hand in data from more distant volcanoes. I now have two summers' worth of seismic data from Mt. Baker and am looking into the possibility of collecting a bit more this summer. Data from the Deming temporary seismic network await analysis, hopefully by a future masters' student. My new masters student, WWU graduate Jesse Hutchinson, has dived into an investigation of an earthquake swarm that occurred near Nazko cone in British Columbia. In other news of Canadian geophysics, my seismometers are currently deployed near the Barrier lava flow on Garibaldi volcano (B.C.). Peter Schoen, a masters student at Simon Fraser University, is using the data to study rockfalls on the Barrier.

A few other projects are coming to completion. The study of seismoacoustics on Augustine volcano that Jennifer Fernandes and Anna Bellesiles did for their 2006 senior thesis has now been submitted to the Journal of Volcanology and Geothermal Research. My work on the seismicity of ice avalanches continues in collaboration with scientists at the University of Zurich; we have combined my seismic analyses with models of avalanche propagation to evaluate the envelope of seismic energy. I spent a very busy week with Demian Schneider, a Ph.D. candidate from Switzerland, examining the nuances of these data and revising our Journal of Geophysical Research manuscript.

The Stelling twins are now 4 ½ and alternate between being the lights of Pete's and my lives, and being demons from the underworld. They attend A Little Darling Preschool and sob hysterically on those rare occasions when they don't get to go to school. Naomi no longer has "fixing

sidewalks" as her career goal, and now thinks she wants to be a firefighter or a doctor. Tucker still wants to be Superdog when he grows up. Pete and I continue to be grateful for our lives here in Bellingham and have fingers crossed that we can stay here for the long haul.

BOB CHRISTMAN:

In writing this, I am reminded of the young girl who complained to a friend that "my family has no Christmas traditions. Every year we do the same old thing". Such goes retirement - my "same old things" are: NAGT (Stout and T.A. awards and back JGE issues), WWU Retirement Association (newsletter editor), WSTA (board as historian), South Hill Neighborhood Association (treasurer), Church (choir and on art show committee) and Firehouse Performance Art Center (owner, manager and accountant). The Firehouse is doing well as a community center – income just slightly exceeds expenses (ignoring the large mortgage payments). On the last payroll I had eleven employees. I still have a large garden and make about 50 gallons of wine each year. Thus, the "same old things" keep me busy.

DOUG CLARK:

Another busy year has come and gone. Hard to believe we're getting close to starting yet another one! I have a great bevy of graduate students working on neat projects, a new course (for me) to teach next year, and the great news that I received two new NSF grants last year! I currently have three and a half grad students working with me. Nigel Davies, my senior grad student, is working to finish up his study of Holocene glaciation in the Wind River Range, WY; Nigel's done a great job in a difficult (but spectacular) field area, working with a grant from the EDMAP program. He's compiling a geomorphic map of the headwaters of the Green River, and analyzing sediment cores from a number of lakes that should help discern the growth and retreat of the Mammoth Glacier in the drainage. Mike Larrabee (he's the half-student, since he's officially Bob's advisee) is finishing up geomorphic mapping and modeling surface and shallow-groundwater runoff at Ebey's Landing National Historical Preserve on Whidbey Island, all with funding from the National Park Service. Melissa Park has a great project studying on the glaciology and potential hazards of the glacier in Sherman Crater on Mt. Baker. Melissa received a truly prestigious award for her project, an NSF Graduate Fellowship! According to Chair Scott Babcock, this is a first for a WWU Geology student, so congrats to Melissa. My fourth student, Joe Goshorn-Maroney, has started an unusual study focused on the dynamics and climatic implications of rock glaciers in the North Cascades. Joe is using a variety of instruments (including the new Geology Dept. terrestrial laser scanner…see below!) to investigate three of these small, poorly understood rock-ice flows and should come up with some neat findings!

On my own research, my biggest news is the two new NSF grants: one is a 3-year grant to collect several ice-cores to bedrock at Mt. Waddington in the B.C. Coast Ranges (working with Eric Steig at U.W. and Erin Petit at U. Alaska). And a second grant that funded a high-tech terrestrial laser scanner (basically a tripod-mounted LiDAR for those of you who know about that technology), along with Scott Linneman in our department.

The Mt. Waddington is a really exciting project. It's part of a broader effort to understand changes in glaciers across western Canada during the past few thousand years. The goal of the

project is to test the potential for collecting unique climate records from ice cores of small alpine glaciers in the Canadian mountains. After a successful feasibility project, and a second submission, we are now fully funded to collect two 200-m cores to bedrock in Combatant Col, the flat ice divide at 3000 m next to Mt. Waddington. Based on our earlier results, the record may go back as much as 1000 years or more, which would be unprecedented this far south in North America.

The Terrestrial Laser Scanner project with Scott L. focuses on incorporating this cutting-edge technology into our courses about landscapes. The grant allowed us to purchase an OpTech ILRIS 3-D (http://www.optech.ca/i3dprodline-ilris3d.htm) and we are working, along with some local partner institutions – NW Indian College, WCC, to develop course modules that have students using the system to investigate 3-D landscape change through time. Although it's complex technology, we feel the potential for really advancing student understanding of these changes is really profound.

My courses remain largely on the same schedule (different courses ever quarter), with the one exception that I'll be teaching the Paleoclimate course that Juliet Crider developed last year (while she teaches an Honors section of it). I'm sure I'll have a different (and younger!) spin on it than Juliet, but I'm looking forward to the challenge.

On the home front, my two daughters, Jessa (12) and Emma (10) are growing like bean-sprouts, super active in school and sports, and basically living life to the fullest. They're also the apples of their dad's eye, and they keep my life sane.

I hope that any of you who are in the neighborhood next year stop by the department and say hi…seeing how our alumni are doing is one of the great joys for us professors!

JULIET CRIDER:

It has been a busy year, as always. Last fall I experimented with a new intro-level course on climate change, and this fall I'll do it again as an honors seminar, while Doug takes on the big lecture version. I hope the course will become a regular offering. Geomechanics, Structure, Physical Geology, Landslides, and 101 rounded out my year. I'm enjoying working with graduate student Rachel Dunham as she puzzles out the evolution of kink bands in the Darrington Phyllite.

The kids are growing fast. Lucie starts first grade in September and loves ballet. Henry is already three years old and loves dinosaurs. Could it be any more predictable?

VICKI CRITCHLOW:

My annual newsletter contribution is beginning to sound like a broken record but nothing really changes that much, year to year. Still love working in the department even though it is busier than ever with so many new majors on board – keeps us all hopping…..

I am so fortunate to have all three children living in the area, all within minutes of my house. With four grandchildren, 18, 15, 8 and 6, there is never a dull moment in our family. My South Carolina sister visited for three weeks this summer, as usual, and this year, she came out a week ahead of her husband to allow the four Cragin sisters to have a retreat at Birch Bay for a few

days. We also attended an open house at our newly-remodeled high school in Seattle — first time all four sisters appeared at a reunion at our high school together – the four of us were responsible for distributing the welcoming packets to the 300 attendees and had lots of laughs and good times greeting everyone.

Life goes on, as usual, with a good mix of work, family, friends and time to myself. I've added a carport to house the new car I purchased in January, complete with enclosed storage areas for my bike and lawn mower so now the little beach house is pretty well set. Life is good.

SUE DEBARI:

As I reflect on another year at Western, I feel so lucky to be part of such a great department. Even in the hard times of budget cuts, we all worked together to make sure that the students were minimally affected. With all the difficult decisions we had to make, even at the college level, the students and their learning opportunities were the top priority.

And really, the students make all the hard work worthwhile. Field petrology last fall was an inspiring start to the year. I had a larger than normal class (19 students), but they were one of the most motivated groups I'd ever worked with. I so enjoyed seeing the real learning that occurred in the field environment. There is nothing like learning about petrology while standing on an outcrop. Besides their hard work individually, this group of students also worked really well together. They became a very cohesive group, many of whom followed on to my advanced petrology course, and then to field camp with Liz. In the winter, I had fourteen undergraduates in my advanced petrology class, which was much more than the four or five of a more typical year. These students motivated each other in such a positive way that it was a rewarding experience for all, especially me.

On the science education end of things, I got back into teaching science methods for future elementary teachers after a hiatus of five years. It was in teaching that class that I realized how much we all have learned in the five years of our NSF Math Science Partnership grant. Susan Kagel, a teacher on leave from 4th grade, and I worked collaboratively on revising and teaching the class. We both felt that by the time those students left that class, no matter how science phobic they were at the beginning, they were well prepared to go out into an elementary school and teach science. That was very satisfying, both for the students and for us. Our research group is also moving forward on getting our general education earth science curriculum readied for publication.

Geology research is moving along also. I am part of a collaborative proposal for scientific drilling into the center of the Izu Bonin arc in the western Pacific, and that proposal is slowly moving upwards through the decision-making process. It has been positively received at all levels, and so we are looking forward to a drilling cruise in the next few years. Graduate student Troy Baggerman finished his MS degree this past year on andesitic lavas on Mt. Baker, and he is just about to submit the manuscript for publication. Nikki Moore is at the writing stage on her thesis on basalts from Baker, as is Ben Paulson on his research on volcanic rocks from Vancouver Island. Christina Stout is analyzing her data from Mt. Lassen, and Steve Shaw (one of those inspired undergraduates I described earlier) will join us as a graduate student in the fall. I am fortunate to have such a great group of students to work with.

On the home front, my family survived a house remodel that lasted a whole year. We didn't add much square footage except for a kitchen bump-out and a new master bedroom, but we reorganized a lot of space inside the house. Now that we are finished, it feels fabulous. I feel like I am finally really home, and I'm never going to move again. I look forward to growing old in this house. Nina and Grace are 9 and 7 now, still growing way too fast!

DON EASTERBROOK:

The year has flown by once again with lots of travel and plenty of interesting things going on. I spent a month in Norway and Sweden and gave two papers at the International Geological Congress in Oslo. Also spent some time in Sun Valley and Hawaii and gave a paper on global cooling in New York at the International Conference of Climate Change.

Work continues on the Whatcom County lidar geologic mapping project with Dori Kovanen and Ralph Haugerud. With lidar, we're seeing things that no one even knew existed. Lidar has revealed post-Everson shorelines at elevations up to 540 ft east of Blaine, which are cut by latest Pleistocene Sumas moraines. This was a significant discovery because it proves that all of the Sumas moraines were deposited *after* sea level had dropped to within 100 ft of present sea level and that all of the Sumas moraines are younger than the Everson glaciomarine drift. The lidar geomorphic map of the county is due to be completed by the end of the year, along with new geologic maps of the Lynden, Bellingham South, and Lake Whatcom 7½ minute quads. Work will begin this summer on geologic mapping of the Bellingham North and Lawrence 7½ minute quads.

DAVE ENGEBRETSON:

It was another year of studying the science of sound and applying it to the sound of science. Solid-Earth tides and resonance in the solar system
top the list of new interests. I'm still trying to understand why the planets orbit in F-sharp minor. We had our second annual "It's Your Arboretum" day organized by students in my Spring "Outdoor Science"
seminar.

Deb, Fritz and I often go for walks and use our boat when the weather agrees. Deb spends lots of hours with grandson Solomon. She looks forward to retiring very soon.

THOR HANSEN:

It's been a busy year. I taught my classes and gave some presentations, including one in the UniverCity Lecture series called the "Secret Lives of Dinosaurs", which was broadcast on the local t.v. station so now I am a celebrity. I also got married and spent my honeymoon in the Mexican Riviera while having the house remodeled. Somehow I couldn't quite fit myself and my dog into a 700 square foot house already occupied by my then fiance, now wife, and her two cats. So we got married and made the house a lot bigger. The timing was good on the house remodel because all the contractors were idle due to the economy, but it was not so good on the refinancing because all the refi rules are changing...because of the economy. I also committed to creating an online text for my dinosaurs class (and for possible adoption elsewhere) which is a

project which should occupy my time for quite a while.

DAVE HIRSCH:
This past year has been one of the best yet for Heather & me, with exciting developments particularly on the research front. I recently had an NSF project funded to develop a new method for measuring crystallization kinetics through the use of Sm-Nd dating of small garnet volumes together with chemical zoning maps and high-resolution X-ray computed tomography data. This project is collaborative with geologists at Boston University and the University of Alabama.

In addition, over the course of the year I have been working with teams of computer science undergraduates to develop a pilot version of a petrography database system I have envisioned for years now. I just submitted a proposal to NSF to fund this effort, in collaboration with Perry Fizzano of the Computer Science department. This work is particularly exciting because geologists from around the world are enthusiastic about the project and eager to help out. Once created, this will be a tool used by students and professionals around the world.

I have some fantastic plans for the coming year, during which I will be on sabbatical. I will mostly be staying in Bellingham, with two one-month trips to UCLA to work on experimental petrology with Craig Manning. This work is the main focus of my sabbatical leave; it will be an effort to synthesize metamorphic nucleation experimentally in order to constrain some of the driving forces involved.

My graduate students continue to move forward with their projects. Rob graduated in the Fall producing some interesting observations about the P-T history of the Cascades Core. Jen Wright has finished her groundbreaking research on metamorphic crystallization kinetics and will graduate next Fall, and Aaron should complete his data collection shortly for his project working on Cascades P-T-t paths for the rocks near Hidden Lake Peak. Perry is in the midst of petrography as he works to characterize the metamorphism of some calc-silicate bodies near Lake Wenatchee.

Teaching has been great again this year, while the high enrollments have presented new challenges. I doubled the size of my Science Literacy course to 100 students, which made class discussions a bit challenging to keep under control, similar to the way an angry bull with its tail on fire is a bit challenging to keep under control. The past two quarters of Mineralogy have been some of the best yet, though.

On the home front, we are enjoying watching the kids grow up and become more fully-formed persons. Sawyer is nearly two and Laurel is three, and both are very happy but headstrong. Both got to visit my classes occasionally during the past year when they were under the weather. Heather continues to impress the folks at her environmental consulting job in Fairhaven, and we love our still-new-to-us house.

I hope you have had a great year as well.

BERNIE HOUSEN:
This year has been busy as usual, and is marked by a lot of ups and downs. On the up side, NSF funding for the next phase of work in the Salton Trough was awarded, and I had a nice field

season during Spring Break collecting 86 new sites in the Canyon sin Nombre area of the Anza-Borrego Desert State Park. New student Ben Baugh and I have started a project looking at block rotation and orogenic remagnetization of carbonate rocks in the Helena Salient, and received a small grant from the GDL Foundation to support this work. Undergraduate students Brendan Miller and Sarah Polster completed senior thesis projects; Sarah presented a talk on her study of Mars Regolith Simulant magnetic and mineralogical properties at the GSA Cordilleran Section meeting in May 2009, and Brendan will put together an abstract for his work on the paleomagnetism of the Beckler Peak Stock for the Portland GSA meeting. We have a new post-doc, Luigi Jovane, working in the lab this year. Luigi's main effort is to look at Eocene-Paleocene climatic variations recorded in marine sediments collected from beneath ice shelves in the Antarctic (the ANDRILL program), but we are also working on a new project to characterize particulate matter pollution via magnetic measurements of tree leaves. As part of the new faculty contract, there was a provision to set up a Special Merit competition to award a nice raise to especially meritorious faculty, and I am happy to report that I was among those awardees. I also applied for, and was appointed to, an editorship to GSA Today, for a 4 year term beginning in July, 2010. On the downside, the budget situation has produced some negative impacts. The aforementioned Special Merit Award was put off until Sept 2010. Budget cuts in the department focused on the activities of the paleomagnetism lab, with Russ' position being singled out for the lion's share of the cuts; if these cuts persist, I am sorry to report that the paleomagnetic research program in our department is in serious danger of being phased out.

SCOTT LINNEMAN:

In 2008-2009 I returned to a regular teaching schedule following a stimulating year of professional leave during which I: (1) partnered with a middle school science teacher to provide some ‘ground truth’ for my teaching about teaching science; (2) worked with a professional movie-maker to improve our time-lapse movies of the Swift Creek landslide; (3) worked with a language school in Mexico to improve how we teach science to speakers of other languages; and researched; and (4) wrote a proposal to NSF to acquire a ground-based LiDAR instrument (more about the laser scanner below). Returning to teaching full time was both exciting (trying new instructional activities) and sobering. This year I re-learned how hard the faculty of the Geology Department work to teach well, advise students, be university leaders AND carry on meaningful research.

My sabbatical marked a number of important transitions: I wrapped up work with two major science education projects: the North Cascades and Olympic Science Partnership (NCOSP) and the Catalysts for Reform GK-12 Project. Both of these NSF projects were about improving science learning and teaching in NW Washington. My grad student, Dennis Feeney, defended his thesis on the stratigraphy, sedimentology and paleomagnetism of the sediments of the 1 m.y. old Kulshan Caldera near Mt. Baker. Dennis has moved on to an interesting job in marine geophysics in Montana. New grad student Ben Ferreira has started a project that is an important component of our long term study of the large Swift Creek slump-earthflow. Kinematic measurements on large, deep-seated landslides are relatively rare and usually diffuse in time and space. By applying terrestrial laser scanning (TLS, a.k.a. ground-based LiDAR) to study both the unvegetated toe and headscarp areas, he will provide constraints for predictive models of slide movement. His attempt to use the scan data to conduct a mass balance on this complex system may be the first of its kind. It will allow him to quantify the flux of sediment through and

beyond the alluvial fan and provide necessary constraints for on-going mitigation planning. Ben's plan of monitoring over a full year should allow him to capture seasonal (and even single storm event) variations in landslide velocity and stream erosion.

Doug Clark and I acquired the Optech Ilris terrestrial laser scanner (TLS) through a NSF grant to the Course, Curriculum and Laboratory Improvement Program. This project investigates the value of incorporating chronotopographic analysis across a range of undergraduate geology courses using TLS to improve student understanding of the rates and styles of geomorphic processes. Repeat high-resolution, TLS surveys have begun to track, in detail, the evolution of active landscapes, including investigations of active faulting, glaciation, landslides, fluvial systems and coastal dynamics. We hypothesize that undergraduate geology students who collect and analyze positional data for locally-important, active landscapes will develop a better sense of the critical (and non-steady) geomorphic processes affecting landscape change. A collaborative faculty team from WWU, Whatcom Community College (alumni Doug McKeever and Bernie Dougan) and Northwest Indian College (alumnus Terri Plake) will collect baseline scans of actively evolving landscapes identified in cooperation with local land-use agencies, including Coastal Geoscience Services (alumnus Jim Johannessen), Whatcom County River and Flood Division (alumnus Paul Pittman) and Stratum Group (alumnus Dan McShane). The team will then develop inquiry activities for each site and for classes at each institution, and assess their impact on student learning.

I am also working with the county to better monitor a couple of threatening landslides using time-lapse photography (at Jones Creek near Acme) and remote video (Swift Creek near Nooksack). And finally, a group of WWU geologists (George Mustoe, Doug Clark, Juliet Crider, Dave Tucker and I) have been investigating the large landslide that occurred near Racehorse Creek during the January 2009 storm event.

BOB MITCHELL:

I turned 50 this year.

In 2008/2009 I taught 214, 314, 372, 473, 474, and team taught SCED202 with Sue DeBari. SCED 202 is a hands on, inquiry-based introductory geology course designed for education majors. I had fun learning more about teaching science and how people learn. I also taught elements of the 202 curriculum to an enthusiastic group of K-12 teachers during a week-long workshop sponsored by the Olympic Mathematics and Science Partnership (OMSP). The OMSP workshop was held at the Olympic Park Institute on Crescent Lake on the Olympic Peninsula in July, which was enjoyable for me because I haven't spent much time on the Peninsula. I continue to lobby for an engineering geology concentration to diversify our program and address the industrial demand. I would be happy to hear input on this prospect.

I didn't accept any new graduate students this year (a first), mainly because I currently have seven. Our focus has been surface-water modeling with DHSVM (e.g., the influence of climate change on streamflow), but a couple of students are getting involved with ground-water topics and plan on modeling with GMS. You can always visit my Graduate Research web site to read more about our projects. WWU had a good showing at the 7th Washington Hydrogeology Symposium in Tacoma in April. It was very rewarding for me to see so many alumni and hear about their career successes. I am on the Planning Board for the 8th Symposium in 2011; hopefully we can sustain the level of success of the past symposiums.

I try to stay in shape by biking and running. I rode the bicycle leg for the 6th time in the Ski-to-Sea race this year for a Huxley team and had my personal best time. My biggest chest-pounding feat was summiting Mount Rainier in June with geology alumni Lee Krancus, Anne (Buckley) Krancus, and Torrey Fox. We had some challenging climbing along the Emmons Glacier route, but clear skies and a lot of fun. Summiting with three former undergraduates was especially gratifying for me.

Kathryn and the kids (Frances, 9 and Liam, 7) are doing great. It sounds as though Alcoa-Intalco will get a new power contract and remain open for a while and allow Kathryn to stay employed. In between work and school we manage to weave in soccer, swimming, basketball, day hikes, bike riding, piano, reading, and movies. Another summer achievement if you wish was a trip back to Wisconsin and Michigan to visit family and friends.

GEORGE MUSTOE:

During the twenty years or more that I've been composing entries for the newsletter, the only consistent theme is that I never write about my work here in the Geology Department, and seldom about geology at all. I've never found those subjects to be much of a personal barometer. Faced with a looming deadline for submitting this year's entry, I'm composing this note on a warm sunny morning in late July. I'm working on a couple of interesting research projects, and I've just finished sanding and painting the window trim on my little house. I continue to enjoy a life story whose narrative can be written in small letters in a plain font. I once wrote a description of my mom: "She never cared about fame or wealth, but she always knew where birds nested and what wildflowers were in bloom". It's also a pretty good description of me.

LIZ SCHERMER:

This year was another one full of adventures in the field. Field camp this spring saw an extra-large group (22 students) challenged by some new map areas and lots of cold and windy weather in the Mojave Desert. That is, until we reached Death Valley and it was 109°! But it was an enthusiastic and hard-working group that persevered cheerfully through the challenges, and we had a great time. The severe budget cuts this year (and probably next) will unfortunately result in higher fees for students on field trips and courses. Fortunately, field trips are such an important part of our mission, we are at least allowed to travel despite travel restrictions imposed by the state. I look forward to teaching the field structure class again this September, and we'll have another big class! It seems like the number of majors is way up.

On the research front, Elizabeth Siedlecki defended her thesis in the fall and now is a junior field engineer with Schlumberger in Texas. Julia Labadie has been patiently waiting for radiometric dates while writing the rest of her thesis; now that we've finally received some numbers, she can finish the writing of her study in the Mt. Formidable area and will graduate this fall. New student Orion George is hard at work on possible fault scarps east of Maple Falls that may be connected to the Boulder Creek fault system. I'm also co-advising a Colorado College undergraduate student who is working in the San Juan Islands. She'll be obtaining some detrital zircon ages to constrain the age and provenance of the Obstruction formation on Orcas Island. My work on the Wairarapa fault in New Zealand is finally getting published, and we have two new papers out this year, one in Lithosphere and one yet to come in Tectonics. I led a field trip to this fault zone in November, and it was great to have many scientists there to critique and appreciate our new findings.

I'm still managing to play hockey and get out skiing for as much of the year as I can. I celebrated my 50th this spring/summer with some peak-bagging, as I climbed up and skied down Shuksan, Baker, Rainier, and Adams. My goal to ski all the volcanos will have to wait until it snows again. In the meantime, lots of backpacking and climbing await!

MAURY SCHWARTZ:

Maury Schwartz - Having spent my career here at Western studying coasts around the world, I thought it was time to turn inland and see the Grand Canyon; and the easiest way to do that appeared to be by helicopter. So, in April I joined four British tourists at the Las Vegas airport for a flight over Mead Lake and Hoover Dam and on to a landing in the canyon on the south bank of the Colorado River along the Hualapai Indian Reservation. We had a short boat ride up and down the river, the highlight of which, for me, was a view of the Precambrian exposed above the water line on the north side of the river. Then it was back up 4,000 feet to a landing pad on the plateau near a reception center. Moving on through the souvenir shop we put cotton footlets over our shoes and ventured out on the glass-floored Skywalk. It was so steady that it was almost anti-climatic, but I found it fun to spread my feet and look down between them through the glass. Back on terra firma we had lunch with a view out over the canyon, and then a flight back to relatively dull Las Vegas. ----- All of this was done at Grand Canyon West, in the fall I plan to go to Flagstaff where I can get a flight over Grand Canyon East, the national park.

On the academic side I contributed two entries, Barrier Islands and Submarine Canyons, to the coastal chapter in The History of the Study of Landforms, vol. 4, T. P. Burt et al , eds., published by The Geological Society of London.

PETE STELLING:

This year has been full of anxiety and fear over the financial crisis, and despite the budgetary axe falling again and again, my position and the rest of the department has so far remained intact. Jackie and I are doing everything in our powers to ensure a long tenure here at Western and we're looking forward to another year of teaching, research and play in the Pacific Northwest.

In an effort to make myself invaluable to the department, I've expanded some of my fields of interest to include economic geology and geothermal energy. There is a significant overlap between these fields, and surface mapping of epithermal vein deposits is very similar to mapping alteration and mineralization along hydrothermal pathways. The learning curve continues to be steep in both disciplines, but I've received a lot of help from colleagues and I'm continuing to plug away at both of them. It seems that the timing is perfect for WWU geology to focus attention on both geothermal energy and economic geology. The new stimulus plan contains a substantial amount of money for renewable energy development and exploration, and we are gradually making new bridges between Western and the geothermal industry. As far as economic geology is concerned, the bright side is not coming from the government but rather from the retiring workforce (and record profit margins for petroleum and gold don't hurt, either). The lull in economic geologist hires in the 90's and 00's is beginning to fade, and the students are realizing that we'll always need the resources, which means there will be at least some jobs out there, even if the competition for them is rather stiff. There are very few places for students interested in economic geology to go these days, and they seem to be getting desperate; despite

only having taught a single economic geology class, I have had four different prospective students approach me about getting a M.S. degree in the discipline. Dave Hirsch is going to join me in teaching economic, so perhaps someday soon we won't have to turn these students away. In the meantime, if any of you have economic geology backgrounds and are willing to lend your expertise or donate some time, money or rock and literature collections to your alma mater, I'd be more than happy to receive it!

In addition to teaching classes, I've helped develop the Faculty GUR group, a small collection of WWU faculty who teach GUR classes and are interested in sitting in on other GUR classes. Rather than commit to an entire quarter of classes, each member teaches a "mini-course" about some topic in their GUR class to the rest of the group. The other faculty then get back into the classroom again and learn (or re-learn) new material. They also get a chance to see how others teach GUR courses and experience the spectrum of content we're asking our students to learn. We've done this for one year now (six mini-courses total), and it has been a great success. The faculty members involved have not only become friends but have had meaningful discussions about what general education is all about and what role each of us plays in it. I'll be leading another year of the Faculty GUR this year and I'm really looking forward to learning new concepts and making general education more helpful and less dreadful. Wish me luck!

CHRIS SUCZEK:
I just got back from teaching the first two weeks of field camp; I enjoyed being back at Camp Creek and Williams Lake with a new group of students - and with cooler than usual weather at Camp Creek. Rain every day at Williams Lake I could have done without. It's been a busy year, and I've been gearing up to teach petrography, Geology 407, next winter while Dave Hirsch is on sabbatical leave. Part of getting ready was auditing mineralogy and relearning some of what I learned and forgot over 30 years ago. If any of you have suggestions for teaching 407, please pass on your tips.

Thank you to the people have contributed wonderful samples to the sediment and sedimentary rock collections this year. Special mention for distance of transport go to Kevin for bringing a huge slab with ripples from Idaho to Camp Creek and to Steve for sand from Mongolia. Now I'm off to vacation in Scotland and pick up some more samples.
CHRIS SUTTON: Made it through another year. This has been, and continues to be, an extremely challenging year for me personally. Vacation plans are to go to Washington, DC and be a tourist seeing all the sites and museums.

GUEST LECTURES - 2008/2009

FALL QUARTER

MARIA LUIS CRAWFORD, Bryn Mawr College
"THE ROLE OF MAGMA EMPLACEMENT IN OROGENESIS"

ALLAN KRILL, Norwegian University of Science and Technology
"WHY PLATE TECTONICS CAME AS A REVOLUTION"

RICHARD MITTERER, University of Texas at Dallas
"THE DEEP MARINE BIOSPHERE: RECENT ODP RESULTS"

WINTER QUARTER

JONATHAN HUGHES, University of the Fraser Valley
"HOLOCENE SLIP ALONG THE SADDLE MOUNTAIN FAULT, OLYMPIC PENINSULA, WASHINGTON, AND ITS POSSIBLE KINEMATIC CONNECTION WITH THE SEATTLE FAULT"

LUIGI JOVANE, WWU Post Doc
"CLIMATE CHANGES DURING THE CENOZOIC: CLUES FROM ANTARCTICA AND NEO-TETHYS REALM"

ERIC STEIG, University of Washington
"CLIMATE IN THE RECENT PAST: AN ANTARCTIC PERSPECTIVE"

DAVE TUCKER, WWU Research Associate
"SUBAQUEOUS EMPLACEMENT OF THE 8800 BP SULPHUR CREEK LAVA FLOW, MOUNT BAKER VOLCANIC FIELD"

SPRING QUARTER

CHRIS MATTINSON, Central Washington Unversity
"RATES OF ULTRA HIGH-PRESSURE METAMORPHIC PROCESSES FROM GEOCHRNOLOGY AND TRACE ELEMENTS ANALYSIS, WESTERN CHINA"

PHIL MOTE, University of Washington
"FIVE THINGS I WISH WERE TRUE ABOUT GLOBAL WARMING"

ROB REVES-SOHN, Woods Hole Oceanographic Institute
"THE ARCTIC GAKKEL VENTS (AGAVE) EXPEDITION: A HIGH-STAKES TECHNOLOGY GAMBLE PAYS BIG DIVIDENDS BENEATH THE ARCTIC ICE CAP" & "THE IMPORTANCE OF BEING DETACHED: TOWARD A NEW PARADIGM FOR HYDROTHERMAL CIRCULATION ON OCEANIC DETACHMENT FAULTS"

DEREK THORKELSON, Simon Fraser University
"RIDGE SUBDUCTION AND SLAB WINDOW FORMATION: SECRETS KEPT FROM THE UNIVERSITY STUDENT"

PETER WILLING, WWU Research Associate
"TWO HYDROELECTRIC DAM SITES IN CHILEAN PATAGONIA: THE GEOLOGICAL CONTEXT"

MASTERS PROGRAM -- 2008/09

AS ALWAYS, OUR COLLECTION OF COMPLETED THESES GREW THIS PAST YEAR, BRINGING THE TOTAL TO 284 ON THE SHELF! THOSE FINISHING WERE:

TROY BAGGERMAN finished his work with Sue DeBari on The generation of a diverse suite of Late Pleistocene and Holocene basaltic-andesite through dacite lavas from the northern Cascade arc at Mt Baker, Washington.

ELIZABETH SIEDLECKI finished her work with Liz Schermer on The Geometry and Earthquake History of the Kendall Fault: A Paleoseismic, Seismic Refraction and Ground Penetrating Radar Study, Whatcom County, Washington. Lizzie is currently working as a Junior Field Engineer at Schlumberger in the Victoria, Texas vicinity.

DEPARTMENTAL GRANTS

Several current students applied for and received funding from the Western Foundation Geology Unrestricted Fund to assist them with their summer field projects:

Ben Baugh - Origin and Timing of Orogenic Curvature and Carbonate Remagnetizations of the Helena Salient, Southwest Montana

Curtis Clement - Prediction of sediment yield from Swift Creek Landslide using the Distributed-Hydrology-Vegetation-Model

Rachel Dunham - 3-D modeling of kink band development in the Darrington phyllite, Northwestern Washington

Ben Ferreira - TLS study of the Swift Creek Landslide

Orion George - Investigation into the origin of unstudied scarps, western Whatcom County, Washington

Joe Goshorn-Maroney - Investigation of distribution, thermal regimes, and climate controls in active Rock Glaciers in the North Cascades, Washington

Jesse Hutchinson - 2007-2008 seismic swarm at Nazko Cone

Devin O'Reilly - Saltwater intrusion modeling on Guemes Island, Washington

Perry Ponshock - The North Cascades Crystalline Core

Christina Stout - Petrogenesis of adakite-like magmas in the forearc of the Southernmost Cascades, California

Niki Thane - Defining and modeling seasonal rates of groundwater discharge to Silver Beach Creek

GRADUATE SCHOOL GRADUATE RESEARCH FUNDS

Ben Baugh, Rachel Dunham, Ben Ferreira, Orion George and ***Perry Ponshock*** received graduate research funds in a program instituted by the Dean of the Graduate School, Moheb Ghali.

Congratulations !!!!

Jason Gaber was voted our **OUTSTANDING GRADUATING SENIOR.**

SCHOLARSHIPS

Geology's **UNDERGRADUATE TUITION/FEE WAIVER SCHOLARSHIP** for 09/10 was awarded to ***Siri Wuotila*** and ***Greg Horning.***

The 2009/2010 **JAMES L. TALBOT SCHOLARSHIP** was awarded to ***Artur Gamirov.***

The 2009/2010 **KURT SCHMIERER SCHOLARSHIP** was awarded to ***Niki Thane.***

The **DAVID A. RAHM SCHOLARSHIP** was awarded to ***Artur Gamirov***

AWARDS/PRESENTATIONS/GRANTS

This was a very successful year for grants/awards/presentations for our students. Congratulations to all of them!

Angela Diefenbach's thesis was selected as Western's nomination for the 2009 WAGS (Western Association of Graduate Schools) Innovations in Technology Thesis Award.

Nigel Davies received an EDMAP grant from USGS for his research in the Wind River Range.

Mike Larrabee received a fellowship from the National Park Services for his research at Ebey's Prairie.

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vicinity.

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*****ALUMNI NEWS*****

Nick Acklam (BA'06) is working for Conestoga-Rovers & Associates

Drew Bale (BS'08) is working as a Processing Geophysicist for Kelman Technologies in Houston Texas.

Jessica Brown (BS'07) is working as a Staff Geologist at Sound Environmental Strategies.

Steve Bubnick (BS'83, MS'86) says: After 25 years of Federal Service, I am retiring from the U.S. Environmental Protection Agency on May 29, 2009. Cathy and I will become snowbirds by maintaining a residence in Denver, but becoming more full-time in Phoenix.

Andy Buddington (MS'90) is the Earth Sciences Instructor at Spokane Community College. Andy reports: Life as a community college instructor continues to be rewarding and enjoyable!

Jeff Cary (MS'90) says: I have started a new job with Montezuma Copper. I will continue living and working in Durango, Colorado. My oldest daughter Jaime (18) just graduated from high school and spent the summer as a raft guide on the Animas River and my youngest daughter Carli (13) will start 8th grade this fall. Life is good; 50 days of skiing and still climbing the high peaks of Colorado.

Ben Cooper (BA'06) says: I'm currently employed with Canyonlands National Park as a river ranger. Every now and then I even get to use my geology degree, mainly with educating visitors on the sedimentary geology of the area. Soon, I'll be going back to school to become a nurse.

Audra Degg (BAE'05) is a High School Science Teacher, physics and physical science, at the R.A. Long High School. She says she is currently working while in grad school at Mississippi State University for a Master's in Geosciences.

Tim Dobson (BS'08) got a job working at Ecology & Environment, Inc in Lancaster, New York.

Leora Doody (BS'08) got a job as Staff Geologist for PES Environmental, Inc. She said it is a great place to work.

Scott Dobner (BA'97) says: I am currently living in Snoqualmie and have been married now for almost 4 years to my wife Jenni who also is a WWU alumni. We welcomed our first child (Logan) on July 1st of last year. He is a very active little guy and we are looking forward to getting him into the mountains and out to the coast this Summer. I stay in touch with **Joe George** who got his BS in Geology, I believe, in 1996...sorry if I got that wrong Joe! He is currently working in the mineral industry. I visit friends in Bellingham frequently and stop by the department from time to time. I am currently working as a Senior Staff Geologist for Terracon Consultants, Inc. I work on a variety of projects that take me to construction/development sites. I recently completed a cause of loss landslide evaluation for a deep seated landslide following the January 09 storm event which was an enjoyable education process.

Ric & Jeanne Frasse (MS'81) Ric is Executive VP for Chevron's affiliate in Korea responsible for importing LNG. Jeanne is a part time photographer and full time Mom. Jeanne says: We are still living in Seoul, S. Korea, beginning our 5th year in August. Lisa just graduated from CU Boulder with degrees in Theater and Psychology. Alex just finished his first year of college at Penn State, studying film production. Philip is 15 and loves high school here in Seoul, where he was on the cross country team. played bass clarinet in the band and performed in the HS production of "Little Shop of Horrors". We managed trips to the West Coast (Bellingham included), New Zealand and Cambodia this past year, and spend our 'down time' at our vacation house in the beautiful mountains of Colorado. Hummingbirds, foxes, deer and squirrels in our yard keep us entertained as do numerous excursions in our 4WD for hiking and photography.

Zan Frederick (BS'01) completed a Masters degree in the Geography department of the University of Colorado, Boulder this past August, with a thesis investigating solute transport in the Yukon River watershed. Zan and wife Sarah welcomed a little boy (Atlin) into the family in December of 2008. Zan is currently employed by the Boulder Creek Critical Zone Observatory (http://czo.colorado.edu) as a field instrumentation specialist. Say hello via zan@colorado.edu.

Brian Fuller (BS'80) says: I'm a partner in two related companies that specialize in oil and gas reservoir analysis using seismic and engineering methods. Our youngest child just graduated from High School but the empty nest is delayed as he is attending college a 20-minute train ride away from the house next year. That's OK, we like having him around. Our eldest is 21 and studying physics and art history (really?) at U of Colorado. He's planning for grad school starting 2011 to study esoteric quantum wavefield something or other.

Bryan Graham (BA'87) says: As a geo graduate from the class of '87, I often think back on my days at WWU with joy. I still remember walking away from my last final thinking "I made it" not knowing that my life of learning had just begun. I am starting mhy 19th year with the same company (now Tetra Tech EC) as the Geosciences Resource Manager and Discipline Lead for the Seattle office. No new publications yet though I have several waiting for acceptance for some upcoming conferences. I am more involved in sediment characterization and remediation as we see the market in the Northwest start to change a bit. I am also still involved teaching Project Management for my company. It's a great way to meet people and gets me to NYC once a year. With any luck I will be heading to Italy soon to do a sediment investigation. I hear that WWU is finally offering a geophysics degree. That is exciting! We do a lot of geophysics for UXO detection in our marine mapping group. One of the problems we have is finding qualified graduates that understand geophysics and its commercial application. Marine mapping/bathymetry is another issue all together as there are few schools and most head to the deep water to search for fuel resources where the money is better. Intern programs might be possible.

Daryl Gusey (MS'79) is a Regional Geologist with the U.S. Forest Service out of Portland, Oregon.

Zach Guy (BS'07) was offered a T.A. and a scholarship to attend the University of Montana, Bozeman.

Alison (Hepburn) Hart (BS'01) works as a Staff Scientist at Skillings Connolly, Inc. in Lacey. She helps public agencies and private clients with environmental needs such as permitting, environmental site assessments and other environmental documentation. She married Brian on March 29, 2008 and they spent a couple of weeks honeymooning in Hawaii (Big Island and Kauai).

Cori Hoag (BS'83) says: I was promoted as a Principal of SRK Consulting in 2007 and continue to work in environmental and resource geology consulting for the mining industry. My extracurricular activities focus on participating as a board member for the Syrova Geological Society and the Mining Foundation of the Southwest.

Sam Hotchkiss (BS'70) retired, March 2007, after nearly 30 years with the USDA Forest Service in Minerals and Geology. He is getting some much needed renovations done on his house and enjoying the slower paced life style.

Bob Hall (BAE'64) is retired from teaching. He still teaches skiing at Stevens Pass and escorts ski trips to Zermatt-Matterhorn. He and wife Lynn enjoy their Lopez Island firshermans-farmhouse and their four grandchildren. Bob says: Thank you to Geology Instructors Bob Christman and Don Easterbrook.

Mike & Kristin Johnsen (MS'07) had a baby boy in May. Lucian (Luc) Stone Johnsen.

Thomas Keatts (BS'09) got a job with Northwest Geophysical Associates in Corvallis, Oregon. His first project will be doing subsurface exploration with Electromagnetics to assist in cleaning up a retired military training facility in Vancouver, WA.

John Lamanna (BS'77) is a self-employed consulting geologist specializing in engineering and environmental geology. John says: I'm still healthy and enjoying my work as a geologist!

Marisa Lee (BS'08) is working at Anchor Environmental LLC.

Jim (Niski) Lowe (BS'72) is working as a consulting petroleum geologist after retiring from Unocal in 1996, along with **Erich Thomas**. Jim says: I, like all of you, seem to like working as a geologist, as opposed to full retirement. I tried it once, my wife kicked me out of the house! I am in good health and enjoy the out of doors as a volunteer sportscar race official for the American Lemans and Indy Car series.

Sharon (Sam) Montgomery (BS'78) says: I continue to work at the Boeing Company as an Embedded Software Engineer. Its hard to believe, but I have been at Boeing Company for 30 years. My husband (James Hamilton) and I continue to travel for pleasure and are looking forward to retirement.

Tom Nanevicz (BS'01) is working as a geologist at Tetra Tech. He is living with his wife and dog in Bothell. Tom got to travel to Nepal in March 2008.

Bill Rauch (MS'85) is Vice President/Environmental Analyst at Wells Fargo Bank, he has been with Wells Fargo for 14 years. Bill says: I continue my love of travel, learning foreign languages, and honing my culinary skills.

Lori Roberts (MS'99) adopted another baby - Melia Belle was born 7/7/08. *Lori sends pictures to the department - both Alex and Melia are the cutest girls!*

John Skalbeck (MS86) says: I am an Associate Professor in Geosciences and Director of Environmental Studies at the University of Wisconsin-Parkside. I am enjoying the 2008/2009 scholastic year on sabbatical leave at home in Pleasant Prairie, WI. My sabbatical projects include: writing grants to fund the operation of two newly established environmental education community centers in Kenosha and Racine; developing a collaborative online degree in Sustainable Management (combination of business, science, environmental studies) with 4 other US campuses; and developing a new major at Parkside in environmental studies. I am also serving as the Technical Program Chair for the American Water Resources Association-Wisconsin Section 2009 annual meeting in March titled "Wisconsin's Changing Water Resources". I was happy to publish a wetlands research paper this summer in Hydrogeology Journal (https://dx.doi.org/10.1007s10040-008-0345-7) with a classmate from Gustavus Adophus College. On the home front, my life Lucy has graciously shared her basement office domain with me so I can work at home and with our youngest son Carson entering 1st grade this year, he is able to join Tiger Cub Scouts and follow the footsteps of his brothers Casey (junior) and Sam (freshman). I continue to play hockey in the old geezers league and I am beginning as an assistant coach of the Kenosha Thunder JV hockey team.

Kelsay (Davis) Stanton (MS07) reports: I currently am a geologist for the Washington State Geological Survey. I do a lot of work evaluating the liquefaction and landslide susceptibility of tsunami evacuation routes, as well as documenting landslides and participating in seismic/earthquake projects with the USGS. On a personal note, I got married, to another WWU-Geo Dept alum, **Ben Stanton** (BS'02). We spend a lot of time outdoors, rock climbing and skiing.

Karel Tracey (MS'01) reports: I have been working at the same company (Contech Construction Products). For the last 10 months, I have been working on phosphorus removal from stormwater. Outside of work, I have done some traveling to Coos Bay and plan to go to Arches or Canyonlands.

Meg (Palevich) Varhalmi (BS'96) says: I presented at the joint section meeting of GSA in Las Vegas, in March 2008 and have been working on Irvingtonian aged fossils with Robert Dundas. We now have two daughters and are living happily in Las Vegas. Sun in the wintertime! Woohoo!

Steve Veitch (BS’09) was accepted to the University of Alaska and Columbia University for grad school. He chose Columbia University’s Earth and Environmental Sciences Ph.D. program for seismology.

Lee Whitford (BS01) continues her work with the North Cascades Institute working on special projects like the Kulshan Creek Neighborhood Kids Program. They take kids from a low income, predominately Hispanic neighborhood from Mt Vernon out into nature. They partner with the Forest Service, Mt Vernon Police Department and the Park Service.

H E L P ! ! ! !

I can't write the Newsletter without news from you! There are 1,467 names on the mailing list so there should be plenty of you to provide information about yourselves for next year's newsletter. Please return the form at the back or email me (geology@geol.wwu.edu) with what is going on with you. Make sure to include your current snail-mail address. An informative, quality Newsletter is more about what you send in than my putting it together. Even if you don't send news, return the page with your updated address, email, and current employment status so that I know you still wish to receive the newsletter. Please also let me know if you don't wish to receive the newsletter. Thank you, I can't do the job without your help!

Chris

In Memoriam

Dr. Kathy Grega Digges (Kathy Mitchell at WWU) passed away on December 26th, 2009. Kathy received her BS degree in Geology from Western Washington State College in March, 1971. This was preceded by a BS degree in Zoology at the University of Washington in December, 1970. After Western, Kathy moved on to Georgetown University where she completed her MD in 1975. She had a very successful career in General Surgery and Obstetrics Gynecology.

In recognition of her learning experience at Western, she and her husband Robert Digges have made a major contribution to the Geology Department at Western. Robert's ancestors settled in Jamestown, Williamsburg and Yorktown in 1620, beginning a legacy of community leadership and philanthropy that continues with their latest gift to WWU Geology. This includes an endowed professorship in engineering geology, two endowed graduate student fellowships and the Ross Ellis Memorial Geology Field Trip Endowment. The latter is funded with a gift of $20,000 with an additional $80,000 available to match funds beyond the initial $20,000 raised by Geology Alumni to support field trips at WWU. The total Digges bequest with matching funds from the State Legislature is $700,000. Clearly this gift will have a major impact on the future of geology at WWU.

Donations to the Geology Department
July 1, 2008, through June 30, 2009

Many of our alumni and friends provided generous donations to Geology Department programs and scholarships during the 2008/09 academic year. We greatly appreciate the continued support and interest of all our alumni and friends, especially during the current economic times. Following is a list of all our contributors, with thanks:

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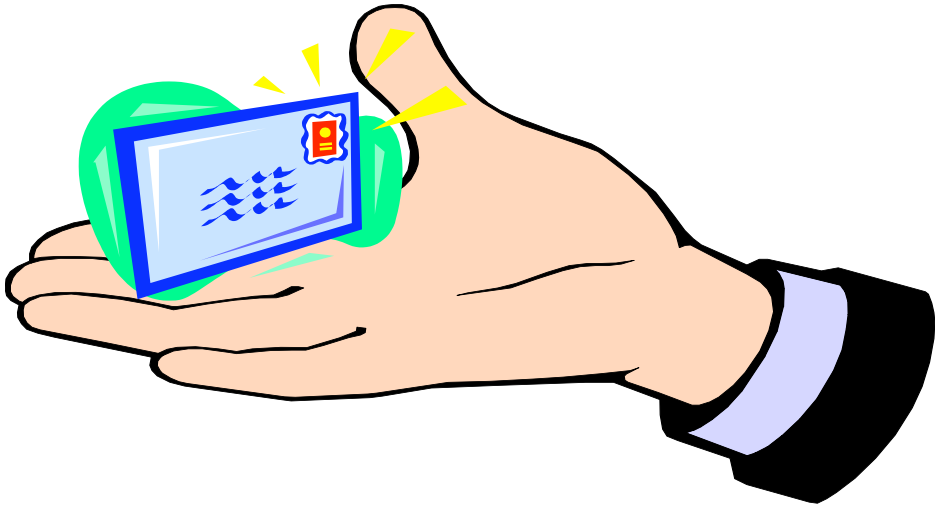

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