INSIDE

From the Chair 2
2008 / 2009 Graduates 3
Springer Scholarship
Sigma Gamma Epsilon
Stander Symposium
Earth Science Week

GIS Certificate Program 4
New Field Opportunity 5
New Zealand
Undergraduate Research 6
Snapshots from the Field 8

Faculty Spotlight: 10
Umesh Haritashya

Faculty Updates 11
Class Notes 13
Welcome Alumni to this year’s GeoFlyer!

The 2008-09 academic year was indeed an eventful one. We continue to bask in the glow of our first-ever GeoFlyer Alumni Reunion last Fall, at which we announced the new Walter and Esther Baker Field Study Scholarship. In the coming year this fund will support the participation of students in field camp for the first time, and as an endowed fund will continue to do so in perpetuity. Thanks again, Walt and Esther!

Another new landmark for the department was the welcoming of a new faculty member: visiting assistant professor Umesh Haritashya, who we introduce in greater detail in this year’s Faculty Spotlight. Dr. Haritashya is a glacial hydrologist who uses satellite-based remote imaging to study the retreat of glaciers in the Himalayas. Umesh is off to a racing start, winning favorable reviews in the classroom as well as research. This summer one of our students, Todd Longbottom, accompanied Umesh to northern India to conduct field work on tributary glaciers of the Gangotri glacier, the source of the Ganges River.

The addition of Dr. Haritashya’s expertise in satellite remote imaging together with our existing expertise in Geographic Information Systems (Dr. Shuang-ye Wu and Katie Schoenenberger) gave us the critical mass we needed this year to push ahead with our long-planned graduate certificate program in GIS, which is enrolling its first students this Fall. In conjunction with this program we are adding new courses in Environmental Remote Sensing, Advanced Applications of GIS, and a GIS Capstone Project.

Another landmark for us was the participation of faculty member Dan Goldman in UD’s pilot summer study-abroad program in Ecuador. As you will read inside, students visited the headwaters of the Amazon, climbed Cotopaxi, saw Tungurahua volcano in eruption, and visited the Galapagos Islands. Dr. Goldman also took the lead in organizing a high-profile speaker series this Spring to celebrate the 200th anniversary of the publication of the Origin of the Species.

Despite all these firsts, some things remain the same, and we hope they always well. Students continue to work hard, immerse themselves on field trips, pursue research with engaged faculty mentors, and graduate and advance on toward promising futures. This year’s crop of graduates faces the most trying economic conditions in 25 years (hmmm -- since I graduated, in fact). Yet they have not let that faze them as they plan optimistically (and realistically!) for the bright futures that await them.

The other thing that remains a constant is the support we get from our wonderful alumni! Thanks to each of you for the myriad ways that you continue to contribute to your geology department. We look forward to hearing from you in the year ahead.

Over the years alumni have memorialized the impact that George H. Springer had on their lives by giving generously to the scholarship established in his name – so much so, in fact, that we have now been able to expand it to include three different award categories. The George H. Springer Award for Outstanding Academic Performance goes to the graduating senior who has demonstrated superior academic performance as judged by grade point average in geology, cumulative grade point average, and performance in science electives outside geology. This year’s awardee, Dennis Eck, transferred to UD at the beginning of his Junior year and immediately found a place for himself in the Geology Department. Dennis is an Honor Key winner who has excelled in all aspects of the curriculum. He also won the University-wide Nora S. Duffy Award which recognizes a returning student who exhibits dedication and hard work to complete the baccalaureate degree while overcoming significant obstacles. Over the summer Dennis pursued a GeoCorps internship with the Bureau of Land Management in Nevada.

The George H. Springer Award for Outstanding Research Accomplishment goes to the graduating senior who is selected by
Graduates 2008

Left to right: Josh Vance, Allen Sisson, Andrea Ziegler, Mike Hils, Christina Hurley, Andy Gorman, Gary Motz

Springer Scholarship

Mike Hils and Gary Motz

Sigma Gamma Epsilon

SGE Advisor, Andrea Koziol, Andrea Zeigler, Mike Hils, Christina Hurley, Andy Gorman, Gary Motz.

Graduates 2009

Left to right: Barbara Schnurr, Jessica Osborne, Rachel Hostetler, Kevin Kraft, Anne Kleinhenz, Ann Syrowski, Dennis Eck

Springer Scholarship

2009 marked a change in how the Geology Department awarded the George H. Springer Scholarship. The award has officially been separated into three different awards each based on a different emphasis: Academics, Research, and Service. This year’s recipients were

Dennis Eck - Academics
Anne Kleinhenz - Service
Ann Syrowski - Research

Sigma Gamma Epsilon

This year’s SGE graduates included Dennis Eck, Anne Kleinhenz, and Ann Syrowski, all charter members of SGE in 2007.

Nora Duffy Award

Dennis Eck was also awarded the Nora Duffy Award by UD Special Programs and Continuing Education. This award recognized Dennis’ dedication and hard work to complete his degree as a re-entry student.
The University of Dayton will offer a new graduate certificate program in geographic information systems (GIS) beginning this fall. The geology department has taken the lead in developing this program. The four-course program is open to current students and working professionals and will provide training in the collection, management, analysis and display of all forms of geographically referenced information.

Advancements in GIS technology in recent decades and the explosion of applications in areas ranging from geology and biology to engineering, marketing and politics have created a great demand for people with GIS skills. In addition to being a valuable research tool in both natural and social sciences, GIS knowledge plays a vital role in decision making such as choosing sites, land use planning, targeting market segments, planning distribution networks, responding to emergencies or redrawing political boundaries.

The Geology department has been offering an introduction to GIS course for years by Dr. Shuang-Ye Wu and Katie Schoenenberger. With the addition of a new faculty member, Dr. Umesh Haritashya, and his expertise in remote sensing, we now have the capacity to offer a full range of courses for a GIS certificate program. The program was approved by the Graduate Leadership Council earlier in March, 2009.

GIS Certificate Programs are a great option for professionals, graduate students, and even undergraduate students who are interested in training to become proficient in the fundamental concepts and techniques of GIS. GIS Certificate Programs are offered by many institutions as a complement to their existing degree programs, though the certificate program itself is not a degree program. The UD GIS Certificate Program is offered through the Department of Geology and can be completed in as little as one year (three semesters). Upon completing the program students will be well qualified to begin or advance a career in GIS and geospatial technologies and applications.

The certificate program will consist of four courses: Introduction to GIS, Environmental Remote Sensing, Advanced GIS Applications and a capstone course that relates the academic experience to professional challenges in a student’s specific career setting. The course schedule is arranged to allow completion in one year.
The Geology Department is very excited about the first ever field camp this Spring to New Zealand. Why New Zealand? From the hydrothermal systems and towering volcanoes of the North Island to the famous and deadly Alpine Fault and the ragged, glaciated peaks of the South Island, New Zealand offers unparalleled opportunities to explore the dynamics and geological diversity of an active plate boundary first-hand. Few places on Earth offer such a dazzling array of active geological environments in so small an area. In addition, students will have unique opportunities to explore the diverse environmental opportunities and constraints of life in active geologic environments. They will have opportunities to contrast European land-use patterns and values with those of the Maori, the indigenous people of New Zealand. Students will experience a traditional Maori “hangi” or welcome feast and learn how geological resources such as jade and geothermal hot springs became key elements of Maori culture. They will hike the world-famous Tongariro Crossing through the young volcanic terrain of Ngauruhoe volcano, and have an opportunity to explore the still-youthful earthquake fault scarp produced by the M7.8 Murchison Earthquake of 1929.

New Field Opportunity: New Zealand

GEO 303: Geology Field Course (6 ch):
Students will learn and apply basic geological field methods to describe and interpret the fascinating geologic history, active tectonics, and diverse environments of New Zealand’s North and South Islands. The course will involve three major components: an exploration of the volcanic centers of the Taupo volcanic zone in the North Island, field study of the stratigraphy and structural geology of the Abel-Tasman and Nelson Districts of the South Island, and investigation of the Pleistocene history of New Zealand, including the history of glacial retreat in the Southern Alps of New Zealand and the stratigraphic record of sea-level change on the North Island.
GARY MOTZ
Advisor: Dr. Dan Goldman

A Revised Graptolite Biostratigraphy of the Phi Kappa Formation in the Trail Creek Region of Central Idaho

The geologic time scale is perhaps the most fundamental tool for studying Earth’s dynamic systems. Modern studies of climate change, plate tectonics, and evolution increasingly rely on precise, time calibrated data. Fossils have special status as the most important source of relative geologic time information. My work focused on refining a small interval of the geologic timescale (the middle part of the Ordovician Period) by reviewing and re-describing an important group of fossils called graptolites, a completely extinct group of planktonic, colonial animals that flourished in Early Paleozoic seas. I collected graptolite fossils from the Ordovician Phi Kappa Formation in the Trail Creek region of Central Idaho using rigorous, systematic sampling methods. Our analysis of these new collections indicates that: 1) the Phi Kappa Formation at these sections can be integrated into a regional composite that spans the Lower to Upper Ordovician with only minor gaps; 2) the graptolite succession is most similar to successions from South China and Australasia; 3) the graptolite succession at Little Fall Creek can be subdivided using the Australasian biozonation, which is a much more finely divided zonation than previously used; and 4) The Phi Kappa composite section now represents one of the longest and most complete exposures of Ordovician rocks in the world.

JOSH VANCE
Advisor: Dr. Al McGrew

Snapshot of Eocene Paleotopography in Northeastern Nevada

The regional paleotopography of northeastern Nevada provides valuable constraints on the lithosphere’s potential energy during the transition from regional contraction to extension at the end of Laramide tectonism (~45 Ma). Chris Henry of the Nevada Bureau of Mines and Geology has suggested that deeply incised eastward-draining paleovalleys acted as distributary channels for major Middle to Late Eocene pyroclastic flows. New mapping of the southern Jarbidge Wilderness Area supports this hypothesis by delineating a deeply incised canyon system filled with a mid-Eocene ignimbrite overlying sedimentary breccia and conglomerate. This distinctive pink plagioclase-biotite tuff forms a discontinuous linear belt that we correlate with a similar sequence dated at 41.6 Ma in Copper Basin 10km to the west. At Copper Basin the plagioclase-biotite tuff is underlain by a conglomerate, an andesitic lava, and a 45-Ma tuff. Above the plagioclase-biotite tuff is a tuffaceous sandstone, the tuff of Big Cottonwood Canyon dated 40.02 ± 0.10 Ma (Henry, 2008), and a dacitic lava. To the east in the Jarbidge Wilderness Area, the plagioclase-biotite tuff is underlain by breccia and conglomerate, but the 45-Ma tuff and the andesite are absent. However, overlying white tuff may correlate with the tuff of Big Cottonwood Canyon, indicating a source terrain to the southwest. The absence of the 45-Ma tuff may be explained by one of two models: either it was deposited and then rapidly eroded or it traveled down a more prominent paleovalley to the north whereas the paleovalley described here was a smaller tributary with a different source terrain. More mapping of the southern Jarbidge Wilderness Area is needed to delineate the source of the plagioclase-biotite tuff. However, regional correlations support Henry’s paleovalley hypothesis, thus providing a valuable snapshot of Eocene paleotopography during the critical transition from contraction to extension at the end of Laramide time.

MIKE HILS
Advisor: Dr. Mike Sandy

New Species of Jurassic Brachiopod Anarhynchia Found in Oregon

Specimens of the rhynchonellide brachiopod genus Anarhynchia from the Jurassic of Central Oregon have been investigated. They were associated with serpentinites and mineralization in the field. This new material, Anarhynchia sp., is considered a new species, distinct from the type species Anarhynchia gabbi originally described from California. Forthcoming geochemical analysis will hopefully establish if the carbonates in which Anarhynchia was found formed in association with serpentinization, and if the brachiopods were part of a chemosynthetic ecosystem. Cold seeps are places in which H2, CH4, and other hydrocarbons form due to serpentinization of mafic and ultramafic rocks. Bacteria use these to obtain energy and form the basis of an ecosystem.
BARB SCHNURR  
Advisor: Dr. Don Pair  
Quantification of suspended sediment load in the Wolf Creek drainage basin: A tool for measuring erosion rates within a watershed  
Sediment loading in a channel can be a tool for analyzing erosion rates in a watershed. This technique was applied at Wolf Creek, Ohio to quantify the erosion along an important stretch of the stream where ongoing erosion problems appear to be contributing to the sediment loading downstream. This research measured the suspended sediment load in the Wolf Creek drainage basin through collection of suspended sediment samples with a US DH-48 depth-integrated sediment sampler integrated with channel profiles at three locations within the drainage basin. These samples were filtered through a one micron filter to determine the amount of sediment in each sample. Initial results indicate that there is an increased sediment loading downstream from a large outcrop of glacial materials and suggest that the glacial outcrop is eroding and contributing sediment to the stream.

DENNIS ECK  
Advisor: Dr. Shuang-Ye Wu  
Planning for flood risk under the changing climate  
Historically, the city of Dayton, Ohio has been particularly vulnerable to flooding due to its location at the confluence of four major rivers. Such exposure to flood risk will only increase with future climate change, as the IPCC’s most recent assessment reports a projected 10-20% increase in precipitation for this region. This study aims to assess how flood risk changes under different climate scenarios as well as land use change scenarios through the following steps. (1) Develop statistical models to down-scaled results of major climate models and to relate precipitation with annual peak flow. These models show that the peak flow for the future 100-year flood will increase 20-30%. (2) Map present and future floodplain by statistical correlation based on the increased flood magnitude, and model in GIS how such extent will change with future climate change for the Dayton area. (3) Assess the social vulnerability of people who are exposed to flood risk to examine whether the socio-economically disadvantaged are disproportionately affected by the increase in flood risk due to climate change; (4) Assess how flood risk will differ under different land use planning scenarios.

ANN SYROWSKI  
Advisor: Dr. Shuang-Ye Wu  
Projecting Future Trends in Extreme Precipitation For the Great Miami River Watershed, Ohio.  
Located at the confluence of four major rivers, the city of Dayton, Ohio, is particularly vulnerable to flooding. The frequency and magnitude of flooding is closely related to extreme precipitation events. With the potential of a warming climate, extreme precipitation events may become more frequent. This study aims to project future trends in extreme precipitation events in the Great Miami River watershed which drains at the city of Dayton. First, using daily precipitation data from the stations within the watershed, we established the historical trends for extreme precipitation events in the past 100 years. Results indicated an increase in extreme precipitation events in the north-northwest region of Ohio and a decrease extreme precipitation to the southwest. Seasonal variations in precipitation were also examined. Second, we compared the daily precipitation data output from 4 major general circulation models (GCMs) 20th century runs with the historical observations to evaluate the accuracy of the models and correct the biases. Finally, we apply the bias correction to the 21st century runs of the GCMs to make projections on future extreme precipitation trends for the study area.

JESSICA OSBORNE  
Advisor: Rich Bendula  
Arsenic in Groundwater  
A ground water study was conducted in Preble County located in the southwestern part of Ohio directly west of Montgomery County. Twenty wells in an evenly distributed area were selected for sampling. Based on the results of the study, 70% of wells in the study area detected arsenic while 40% exceed the drinking water standard of 10 ppb. The targeted area of study is dominated by 3 main aquifer types. Thick clays with lenses of sand and gravel, interbedded shales and thin limestone, and permeable sand and gravel deposits. The water samples were analyzed for both field and lab parameters. The field parameters include: pH, Salinity, Temperature, specific conductance, ORP, Resistivity, TDS, ammonia, and total hardness. Lab parameters include: Arsenic, Iron, and Nitrate. These parameters were used to determine if the presence of arsenic correlates with iron, ammonia and negative ORP. This correlation held true for roughly 80% of the wells that tested positive for arsenic. Soluble arsenic occurs in groundwater as As(+5) and As(+3). Under mildly reducing conditions As(+3) occurs and iron is reduced to ferrous hydroxide. As(+3) is the most toxic form of Arsenic. Fifty percent of the arsenic detected occurs as As(+3) while 75% of the wells tested had a negative value for ORP. This data demonstrates a strong correlation between a reducing environment and the presence of arsenic.
FIELD CAMP

Snapshots from the Field
AMERICAN SOUTHWEST

Photo credits: Mike Hils

SUMMER RESEARCH

Dan Goldman: Mongolia
**RICH BENDULA**

Last year, I had the wonderful opportunity to teach 2 classes for the Geology Department at UD. In the spring of ’08, I taught Surface and Ground Water Hydrology to a mixture of graduate and undergraduate students. It was very challenging to condense so much material into one semester, but we were able to explore a great deal of the course material, while evaluating the water resources of the Silver Lake Wetland area and the ground water contamination problems near the Behr plant in Dayton. With the aid of the MODFLOW program, the class was able to design a chemical transport model for the Behr plant that closely predicted the extent of contamination. We were then able to evaluate various remediation scenarios to prevent the spread of the contamination.

In the fall, I had the honor to teach the Geology for Engineers class. The course material covers a great mix of physical geology, soil and rock mechanics, and hydrology. The engineering students seemed to really appreciate the complexities in our geologic environment and the challenges that these complexities present in the design and construction of engineering structures. The course concluded with the students presenting their research on a wide variety of topics, from earthquakes and volcanoes to the analysis of dam failures and landslides.

Also, Dr. Goldman and I have been having fun playing in the mud while exploring the shallow geology at the Silver Lake Wetland site. We are looking for some students to help characterize and understand this important resource. In addition, I worked with Jessica Osborne in the study of arsenic in ground water for her senior thesis.

Working with the Geology Department this past year has been incredibly challenging and rewarding. I really appreciate everyone’s help in making this a great year!

**DAN GOLDMAN**

I have been busy working on a variety of projects this past year. I spent my Fall sabbatical in China working with my colleagues at the Nanjing Institute of Geology and Paleontology on a monograph of Middle Ordovician graptolites from China. This work included a great trip to Inner Mongolia and a visit to an ancient, original (not rebuilt) section of the Great Wall. I am also continuing my work on a co-authored Petroleum Research Fund grant (with Dr. Stephen A. Leslie of James Madison University) that involves finding and collecting two different groups of fossils that don’t usually occur together. These unusual assemblages are helping refine the geological timescale. Last summer, Dr. Leslie and I discovered a complete, natural assemblage of tooth-like fossils called conodonts. This was a very rare find that will help us reconstruct the original skeletal apparatus of the conodont animal.

In May of 2009, I taught a study abroad class in Ecuador with Dr. Kelly Williams of the Biology Department. The class, entitled “Amazonia, Galapagos, and the Andes: Environment, Evolution, and Culture in Ecuador”, was a study of the richly diverse environments of Ecuador. Our students studied rainforest ecology in the Amazon, volcanic geohazards in the Andes, and an integrated examination of ecology and evolution in the Galapagos Islands. It was an incredible experience for all.

**UMESH HARITASHYA**

Greetings to all! It was with great enthusiasm that I joined in Fall 2008 as the newest member of the Geology Department faculty. I came here from the Department of Geography and Geology at University of Nebraska-Omaha where I spent the last three years working as a postdoc on a NASA sponsored project analyzing climate change impact on glaciers using satellite images. It’s been a busy period since my arrival with loads of time spent in preparing new classes, supervising students, trying to continue my ‘cool’ Himalayan glaciological research, editing a book, developing a new course on ‘Environmental Remote Sensing’, and participating in a number of new initiatives. All these efforts resulted in a published research article, a couple presentations at the American Geophysical Union meeting in December 2008...
and American Association of Geographers meeting in March 2009, winning a seed grant from UD’s Sustainability, Energy and the Environment (SEE) program, submission of another grant proposal, and working closely with an undergraduate student to solve an unique research problem. I am also excited about my summer field work in the Himalaya where one of our students, Todd Longbottom accompanied me. Having been involved in so many things, I feel sorry for my wife, Namrata, who is trying to settle at this new location, taking full care of our 21 month old daughter, continuing her studies, and gracefully accepting my busy schedule.

Overall, It’s a thrill to be at UD where there is such great access to a wide variety of geological environments. I hope to bring myself up to speed on the local geology and develop some local projects applying new tools to outstanding problems.

I look forward to the coming years here, getting undergraduate students involved in research, and also opportunities to meet alumni and friends of the department!

**Stacey Hundley**

I have been enjoying teaching the pre-service teachers again this year in “Geology for Teachers” (Geo 204). Community outreach has become a integral part of the course in the last year. The Geo 204 students have had the opportunity to teach earth science lessons to K-8 graders at Kiser Elementary in Dayton. The UD students love working with the children and the classroom teachers enjoy the break! On a personal level my family and I have taken a few hiking trips around Hocking Hills- Nicholas (7yrs.) and Allison (2 yrs.) are becoming nature lovers! We especially enjoyed Rock House.

**Andrea Koziol**

It’s been another busy academic year. I have taught several sections of general geology (GEO 109), introductory mineralogy (GEO 201), and a new course in igneous, metamorphic, and sedimentary petrology. My field work in Massachusetts continues and I hope to get quite a bit done this summer and fall, as I am on sabbatical. A colleague and I presented some aspects of our research at the fall 2008 American Geophysical Union meeting in San Francisco.

**Al McGrew**

For the first time in years I spent most of the summer of 2008 in Dayton, but still managed a brief research excursion to the Pioneer Mountains of Idaho with Dr. Dan Goldman and a brief stint on Mount Evans at field camp in Colorado. This past Spring my research returned to some old, unfinished business as I have been working toward completion and publication of the Humboldt Peak and Welcome Quadrangles in the East Humboldt Range of northeastern Nevada. This work has proven timely as there is renewed interest in what may be the only Archean rocks in the state of Nevada in part of the area. I had one student, Joshua Vance, complete a thesis in the Spring of 2008 on ignimbrite-filled paleovalleys in the Jarbidge Wilderness area of northeastern Nevada, and I enjoyed having two new students, Jarred Stoffel and Anthony Asher, accompany me in further field work in northeastern Nevada this summer.

**Heidi McGrew**

I have kept busy teaching SCI 210, one of our non-majors courses. In addition, in 2008, I was elected to the Academic Senate as the representative for the part-time faculty. I’ve been very active in that role and have been working with the associate provost on improving the conditions for part-time faculty at UD. Last month, I had the opportunity to be the camp manager/cook for the 2009 field camp at Mt. Evans. While there I climbed Mt. Evans with Al and our son Will and (accidentally) scared off a bear that was around the cabin!

**Don Pair**

My efforts at working on multiple things at once continue. Initiatives in the college deans office have kept me busy with things including learning living communities for all of our UD students, a language requirement for BA students in the college, and most recently my work with a group of very talented River Stewards (sophomores to seniors) and associated staff and faculty in UD’s Rivers Institute has resulted in a successful proposal to the McGregor Foundation to continued on page 15...
Faculty Spotlight: Umesh Haritashya

‘Cool Research’: A visiting geology professor’s study of growing and melting glaciers illustrates the dramatic effects of climate change.

Article reprinted from the February 12, 2009 issue of the University of Dayton Campus Report. http://campusreport.udayton.edu/

Visiting assistant professor Umesh Haritashya’s research agenda is booked for the next five years. He’s watching snow and ice melt.

If that brings to mind other riveting activities such as watching grass grow or watching paint dry, think again. It’s happening a lot faster than it used to in some areas of the world, said Haritashya, who before coming to UD spent three years on a NASA post-doctoral project at the University of Nebraska at Omaha, tracking Himalayan glacier dynamics using satellite images.

It’s “cool research,” said Haritashya, who as a quantitative geologist creates computer models and computational analyses of glacial melting due to climate change. Such changes, he said, call for interdisciplinary research.

“The effects of climate change vary from one region to another,” said Haritashya, who gets most of his data from remote sensing but also does field work in treacherous mountainous terrain. “I look at the images by decades, and it’s clear that the eastern part of the Himalayas is melting a lot faster than the western part. In general, the temperatures are rising, but temperatures in the higher-altitude region of the Himalayas are rising faster than the lower level.”

The result: “Some of the glaciers in the eastern part are indicating melting at an alarming rate,” he said, using year-by-year images to illustrate. “In some places, it’s losing about 19 meters a year. It’s increased dramatically.”

In some areas of Pakistan, climate change is having an opposite effect: Glaciers are actually advancing in size. Stronger monsoons over the Bay of Bengal, arguably brought about by warmer temperatures, meet cold air from the West, and the result is more precipitation — namely snow. With greater seasonal melting and larger avalanches, that means greater erosion and more debris. Though a thin layer of debris in a glacier will conduct heat and speed melting, a thick and dense enough layer can create an insulating effect, slowing the melting. The larger quantity of snowfall adds more bulk.

It’s important to understand these changes and their causal mechanism, Haritashya said, because they affect not just the environment and ecosystems, but also cultures and lives, from drinking water resources and farming to the formation and expansion of glacial lakes — sometimes to the point of destruction of entire villages and cities.

This semester, Haritashya is teaching introductory geology and an upper-level course on problems and decisions in environmental geology. He’s published in the journal Climatic Change, Hydrological Sciences Journal, Remote Sensing Environment, Hydrological Processes and the Journal of Hydrology.

A native of India, Haritashya lives in Dayton with his wife, Namrata, and daughter, Vanshika, 1.
Jon Major (1980)
Jon reports that all is well with him and his family. His twin girls are becoming adept little skiers and eagerly await the mountain snow so they can hit the slopes. Life at USGS is as hectic as ever, but rewarding. He was able to attend some interesting conferences recently. One was in south-central China, focusing on debris flows. Another was in southern Japan regarding cities on volcanoes. Projects at Mt. St. Helens and a new one relating to removal of a dam on an Oregon river draining Mt. Hood are keeping him extremely busy. Jon was also awarded the 2008 Kirk Bryan Award by the QG&G Division of GSA. Congratulations Jon!

Lisa (Marlay) Shorb (1980)
Lisa stopped by the UD last summer. Chuck Ritter was kind enough to show her around the Geology Department. She was surprised to see how much the Department has grown and was impressed by all the state of the art technology that is now available. Lisa was glad to see Dr. Ritter and enjoyed her personal tour.

Kathy (Hurlburt) Likos (1998)
Kathy stopped by UD for a visit last summer with her husband and their two daughters. It was their first time back in ten years. Her cousin Emi who has taken our SCI 210 course from Dan Goldman gave them the grand tour of the University. Kathy and her husband Dan moved from Arizona in 2007 and now are both teachers in the St. Louis area.

Ryan Pollyea (1999)
Ryan has recently decided to continue graduate school and has started a PhD with his Master’s degree advisor (Dr. Jerry Fairley). His research is funded by Idaho National Labs for the next couple of years. The project is a collaborative effort among UI, ISU, & BSU to investigate the suitability of pahoehoe basalts in southeast Idaho for geologic carbon sequestration. He says that he really enjoys the computational approach to hydrology, so this is a good project for him. Ryan finds it interesting that Fortran is the reason he left engineering and came to the Geology Department, now he is using Fortran in a Unix environment every day!

Darlene (Magold) Scott (1999)
As some of you have already heard, Darlene’s company Fuller, Mossbarger, Scott, and May Engineers, Inc. (FMSM) has recently been acquired by the consulting firm Stantec. As of January 1, 2008, FMSM is officially a part of the Stantec organization. Darlene’s new email address is Darlene.Scott@stantec.com.

Katherine Dinovo (2000)
Kat received her MS in Allied Medicine (medical dietetics) in June of 2007. She also recently moved to Cincinnati (from?). While Kat continues to look for full-time employment and works multiple part-time jobs, she is looking into various volunteer opportunities in the areas of biology, geology, and nutrition.

Julie Engel (2001)
Julie has taken the opportunity to work on a sheep dairy farm in upstate New York. In return for room and board, Julie specifically works with rabbits and bees at the Northland Sheep Dairy Farm. Julie says that this is a great way for her to start working towards farming on her own. Julie is grateful that Northland has given her this chance and believes that she’ll be ready to try it on her own in 2-4 years. She would also love to hear from fellow majors. Julie can be reached at 3501 Hoxie Gorge-Freetown Rd., Marathon, NY 13803. Email: julieengel@moose-mail.com
Melissa (Oberhaus) Hudley (2002)
Melissa and her husband Joel recently purchased their first home in Durham, NC, where Joel is working towards his doctorate at UNC-Chapel Hill. Melissa, who taught Earth & Environmental Science at a local high school, began teaching geology 101 lectures at UNC-Chapel Hill this fall, and will start a full-time lecturer position at UNC this winter.

Hillary Sletten (2004)
Hillary is now living and working in Athens, Georgia. She has begun her graduate studies in geology-geoarchaeology and started work as a TA. Hillary reports that she enjoyed the move down to GA from Syracuse, NY, making a family trip out of it and enjoying the Blue Ridge Mountains and other snippets of the Appalachians. She is now settled in her new house with her cat, roommate, and roommate's dog. Good luck Hillary!

Anthony Jasper (2005)
Tony is a contractor for the USEPA and Shaw Environmental Inc. He is also working on his thesis, which will focus on the environmental implications of engineered non-particles and their impact on water treatment. He recently presented his work at the EWRI conference in Hauaun, Maine.

Heather Stewart (2007)
Heather has recently completed her master's degree at the University of Buffalo. Her thesis is entitled: “Climate vs. Dynamic Forcing of Greenland's Largest Glacier: A Study of Jakobshavn Isbrae's Response to the Little Ice Age” Congratulations Heather! The Geology Department is also pleased to welcome Heather back to UD where she will be teaching an introductory Geology for Teachers course.

Mike Hils (2008)
Mike recently began working with a friend for Pheasants Forever, completing bird and plant population studies for the State of Mississippi. He is now in the process of applying to graduate school. Good luck, Mike!

Josh Vance (2008)
Via a Hawaii Volcanoes National Park postcard: “As you’ve probably guessed I’m sending word from Hawaii. I’m here taking part in UH’s Center for the Study of Active Volcanoes program. This three week course, in which only about 18 people are selected each year, trains participants in field methods that volcanologists use to monitor active volcanoes. Today was the beginning of the second week and already I have learned to set up a seismophone, read and interpret a seismograph recording, and I have scooped lava from an active flow. Aside from all the new things I have been learning, the weather has been great, the beaches are beautiful, and the sights are unforgettable. Hope all is well in the department and hope to see everyone soon! Aloha, Josh”

Dennis Eck (2009)
Dennis sent word from Winnemucca, Nevada where he recently completed a GeoCorps position with the Bureau of Land Management. Dennis is now looking for employment in the earth and environmental science fields while he searches for a graduate program.

Rachel Hostettler (2009)
Rachel is excited to be starting as a graduate assistant in the University of Akron's Geography Department this fall. Good luck with your studies, Rachel!

Anne Kleinhenz (2009)
Over this past summer Anne accepted a Physical Science teaching position in Lake Havasu City, AZ. Lake Havasu is on the border of Arizona and California and sits next to the Colorado River. Anne is excited to be only a few hours from Las Vegas, Phoenix, The Grand Canyon, Los Angeles... and in the heart of a ton of mountains and National Parks. She thanks everybody for their support. Good luck Anne!

Alumni:
Go to the Geology Department website and send us an update using our new online form.

http://artssciences.udayton.edu/geology/
the faculty awards committee based on his or her research performance. This year’s awardee was Ann Syrowski, who worked with Assistant Professor Shuang-ye Wu to complete a quantitatively rigorous and innovative senior research and thesis project entitled, “Projecting Trends in Extreme Precipitation for the Great Miami River Watershed, Ohio.” Annie is now beginning graduate studies in the prestigious University of Illinois meteorology program.

The George H. Springer Award for Outstanding Service goes to the graduating senior who is selected by the faculty awards committee based on any form of service that advances the mission of the Geology Department and its students, such as advancing awareness of geology and/or environmental science in society, or applying geological or environmental principles to meet human needs. This year’s awardee, Anne Kleinhenz, amply demonstrated her spirit of service as a leader of our chapter of Sigma Gamma Epsilon and by coordinating our annual on-campus celebration of Environmental Science Week for two year’s running. Many of you met Anne last Fall as she also played a key role in helping us plan for the GeoFlyer Reunion. Anne completed a challenging dual-degree program in geology and education this Spring and is now a teacher herself in Lake Havasu City, Arizona.

Sincerely,

[Signature]

---

**FACULTY UPDATES continued from page 11**

Develop a River Leadership Curriculum that all of our undergraduates could enroll in. Research-wise, mapping in central NY continues and this summer continued the march towards completing all the surficial geology maps for Onondaga County. The many possible projects that pop-up in any regional mapping effort will keep me busy for a long time. Meanwhile, Tracy continues to excel teaching 8th grade math at West Milton, Morgan (age 15) has now discovered tennis in a big way and has made the high school team, and Taylor, after considering lots of small liberal arts colleges, is thrilled to be starting at UD this fall as a declared Chemistry major and maybe Math and maybe English etc.....Go Flyers!

**SHUANG-YE WU**

I have had a very busy and productive year. First of all, we now have a GIS certificate program at UD. You can find more details about it in the previous article in the newsletter. We have been working very hard on this, so it is satisfying to see it finally come through. I continue to work on modeling the impacts of climate change on extreme precipitation and flooding in the Great Miami Watershed. Ann Syrowski, a geology senior, worked with me and completed a thesis on her work in this area. Both she and Dennis Eck, another geology senior working with me, presented their work at the annual meeting of American Association of Geographers. I am also working on another research project funded by Wright-Patterson Air Force Base to assess their carbon emission and sequestration using GIS. The objective is to come up with a plan to help them achieve a zero carbon footprint. My next big research project is to assess the impacts of combined climate and land use change on water quality in the Great Miami River. I have worked with colleagues from geology and biology at UD and a fellow geographer from Central State University on an NSF proposal for this project. Hopefully, we will get funded!

As for the summer, we went back to China to visit our parents, relatives and friends! My two girls, Coco and Lulu were excited to see China!
Calling All Alumni...

We are assessing our programs, and our product is YOU! Whether you built a career based on your geological training or went a different direction, we would like to invite you, starting in January, 2010, to complete our alumni survey at http://artssciences.udayton.edu/geology/

The survey should take 20 – 30 minutes to complete. We greatly appreciate your assistance and value your input as we work to make UD Geology best meet the needs of our current and future Geology and Environmental Geology majors.

Thank You!