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First of all, let me apologize for the long delay since my last communication with you. It has been a time of active change for the department and there is much to report. Change is, after all, unavoidable and I suppose I should be happy when good things happen to good people. But as the current chair I have to say I am a bit conflicted about the first three items I would like to share with you.

First, just when we thought Professor Armstrong would return full-time to the Department of Geographical and Sustainability Sciences (GSS) from his acting chair appointments in what seemed like every other department in the College of Liberal Arts and Sciences (CLAS), they make him Dean of Graduate and Online Education (http://clas.uiowa.edu/deans-office/marc-armstrong). In this position Marc will help guide the development of graduate student programs in CLAS and help build the UI presence in distributed education. Marc will make an outstanding addition to the CLAS Dean’s office! He remains a member of the GSS faculty and we will continue to benefit from his advice, wisdom, and leadership.

Second, Professor Malanson began a 1-2 year “rotator” appointment at the National Science Foundation (NSF), Division of Environmental Biology. Rotators are experts in their field who take a leave of absence from their home institution to help NSF design and implement research funding programs and evaluate research proposals. Through his work at NSF George will help establish the agenda for ecological research over the next several years. George has been invaluable to the department as the Director of Undergraduate Studies and a leader in geographic research. Marc Linderman will assume George’s duties as Director of Undergraduate Studies.

Finally, Cynthia Hernandez who helped run our office and served as the Undergraduate Academic Coordinator for the past four years has accepted a position in the UI College of Engineering Office of Diversity and K-12 Outreach. In this role Cynthia will provide administrative support for the program including event planning. Cynthia oversaw the department’s website, alumni e-newsletter and social content, helped Angie keep the main office running and George coordinate our undergraduate program. Her efforts on behalf of the department have been immensely helpful. The only task she failed at was making sure I get these newsletters out in a timely manner (not for a want of trying however).

We congratulate Marc, George, and Cynthia on their well-deserved appointments, but will miss their daily presence in the department.
It was, however, our pleasure to welcome several new colleagues to the department over the past year. We introduce you to these individuals in the “New Faculty and Staff” Section. Furthermore, we are currently searching for an Assistant Professor this fall as part of The University of Iowa Informatics Initiative (UI3). UI3 is a multidisciplinary initiative designed to “pull together faculty and staff to conduct leading-edge informatics research and discovery.” Central to this effort is a cluster hire of up to 20 new faculty members in core informatics and bridging disciplines that capture and analyze large amounts of digital data. This is an exciting new initiative with lots of upside for GSS. You can read more about it at http://informatics.uiowa.edu. I’ll report back to you on the outcome of this search in the next newsletter.

Our alumni...

We continue to be inspired by our alumni. I encourage you to read about three amazing recent undergraduates who worked in Malawi to promote food security, Professor Shaowen Wang, a 2004 PhD who is enjoying phenomenal success as an international leader and innovator in CyberGIS, and Dr. Wei Wang who recently completed her Ph.D. research on methods to automatically capture spatiotemporal and semantic information from hazard-related web news reports. Their stories are told in the Undergraduate Student Spotlight, Meet an Alum and Graduate Student Spotlight sections.

We are adding two new graduate programs...

Finally, I want to tell you about two exciting new interdisciplinary graduate degrees for which GSS is taking a lead role, a MS and PhD in geoinformatics. These degree programs are part of the Geoinformatics subprogram of the Interdisciplinary Graduate Program in Informatics. GSS partners with Computer Science, Management Sciences, Statistics and Actuarial Science, Urban and Regional Planning, and Earth and Environmental Sciences to offer these degrees, which builds on an existing graduate certificate. Graduate degrees in geoinformatics are considered to be particularly timely given the new University of Iowa Informatics Initiative.
We wish to congratulate our PhD, MA, and undergraduate students who graduated this past year. We wish you all great success in your future endeavors, and keep in touch!

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New Faculty & Staff

**Tina Lavalley** joined the Geographical & Sustainability Sciences Department at the end of October 2014. She is replacing Cynthia Hernandez as the Undergraduate Academic Coordinator. She is a graduate of Northern Michigan University (2009) in Marquette, MI and has relocated to Iowa City. Tina graduated with a degree in Public Relations and Marketing, she has worked in the field for the past three years in many capacities. She will provide undergraduate support in the department and lead outreach activities. We look forward to the upcoming events and activities she brings to the table for our students.

**Nick Carino-Marek** joined the College of Liberal Arts & Sciences Technology Services Group as an IT Support Consultant and has earned a degree in Informatics from The University of Iowa. He assumed responsibility for the IT needs of the department in June 2013. Nick provides desktop computer support to faculty, staff and graduate students, administrates six departmental servers and maintains software installed on all GISIL computers. Prior to receiving his degree, he served as a Systems Administrator in the U.S. Air Force’s 612th Air Communications Squadron, where he provided communications support to the Combined Air Operations Center.

**Professor Elizabeth Ridder** joined us in August as a Visiting Assistant Professor. Liz received her PhD from Arizona State University in 2013. As a Fulbright Scholar in Cyprus, Liz studied historical land cover change, modeled present-day species distributions, and projected future distributions given alternative climate change scenarios. She will be responsible for many of George’s classes while he is at NSF. We look forward to working with Liz over the next two years.

**Adam Skibbe** joined the department as the GIS Administrator. He is a graduate of the University of Iowa (2002) and happily returns to Iowa City to help manage the GISIL computer lab, where he took his first GIS course. Adam earned his master’s in Landscape Architecture, with a GIS certificate, from Iowa State University in 2005. He has been working in the GIS field ever since. Most recently Adam worked as an Information Manager for the Konza Prairie Long-Term Ecological Research (LTER) project at Kansas State University. He will provide GIS support for the department and be the lead in community outreach activities. It is his intent to help steer the ship of GIS on campus and help ensure that GSS is a leader in the field.

**Professor James Tamerius** joined our faculty in the fall of 2013. More is written about James in the “Faculty Spotlight” section. James is off to a great start as a researcher/educator and is a great fit to our department. He received his PhD from the University of Arizona and completed a post-doctoral fellowship at the Earth Institute Postdoctoral Fellow, Columbia University.
Faculty Spotlight

Professor James Tamerius is a recent addition to our faculty and is a climatologist who is interested in modeling and the interaction between climate change and infectious disease. He investigates environmental determinants of disease by employing statistical and mathematical modeling techniques. He is also developing novel field measurement techniques to understand how small scale disease processes generate global patterns of disease. He is primarily interested in infectious disease dynamics of major pathogens such as influenza and rotavirus, and the effect of heat waves on human disease. James has authored and co-authored studies published recently in journals such as Environmental Health Perspectives, Nature Communications, Science of the Total Environment, PLoS Medicine, and Weather, Climate and Society.

In a recent paper in PLoS Pathogens, James and colleagues developed a climate based model that predicts the timing of seasonal influenza epidemics worldwide. The findings could be used to improve influenza transmission models and optimize the timing of seasonal vaccine delivery.

The figure above from Tamerius et al. (2013) illustrates the predicted association between seasonal climate and influenza epidemics. The results of the study indicated that influenza occurred both in the coldest and driest times of the year in temperate regions, but primarily occurred in the most humid and rainy months in tropical regions.

A huge thank you to all who contributed to one of the department’s foundation funds. These tax deductible contributions make an immense difference. Your contributions have, for example, helped:

1) Send graduate students to the annual meeting of the Association of American Geographers
2) Undergraduates experience India as part of the “Winterim” study abroad program
3) Fund awards for outstanding Geography undergraduates
4) Bring in noted geographers for presentations
5) Provide equipment for a physical geography teaching lab

Once again I ask that you seriously consider contributing to the Department of Geographical and Sustainability Sciences. Public funding for higher education continues to be very tight. I hope that you see your contributions add a breadth and depth to our students’ education that cannot be replicated using standard resources.

You can help by contributing to the:

**Gerard Rushton Academic Excellence Fund**

This year we have a new fund to which you can contribute -- the *Gerard Rushton Academic Excellence Fund*, which was established through very generous donations by three UI Alumni in honor of Gerry’s innumerable contributions to the department. The objective of this fund is to support visiting scholars for lectures, scholarly interactions among faculty and students in methods and applications of spatial analysis in the geographical sciences, and graduate students who qualify to attend specialized workshops in spatial analysis. The goal of the department and those who started this fund is for it to reach the *endowment level*, which helps ensure its long term sustainability. To reach this goal we will need the cumulative effort of our alumni.

**Development fund**

- Undergraduate and graduate student travel to conferences
- Undergraduate and graduate student research
- Undergraduate and graduate awards for excellence
- Special events (e.g., receptions for visiting scholars)
Give to the Program

**Rex Honey Fund**

An annual event that brings in speakers to present on topics central to Rex Honey’s research interests in political geography, governance and public administration, and human rights.

**Harold H. McCarty fund**

The fund supports the academic and research endeavors of our very best undergraduate and graduate students.

**The gift that keeps on giving...experience**

Please note that there is another important way to contribute to our mission. If you are in a position to do so, please consider providing GSS students with real-world experience as interns or, better yet, fulltime employees. As you know, getting that initial opportunity can be difficult, so help a fellow Hawkeye out if you can. Please contact Dave Bennett (david-bennett@uiowa.edu) or Angela Bellew (angela-bellew@uiowa.edu) if you have internship or employment opportunities we can share with our students.

**Your contribution will mean so much to us and to the students you help support!**

Please support the Geographical and Sustainability Sciences Department by visiting this link to [Make a Gift](#).
Meet an Alumni

Shaowen Wang, Professor of Geography and Geographic Information Science, Computer Science, and Urbana and Regional Planning; Centennial Scholar of Liberal Arts and Sciences; Associate Director for CyberGIS, National Center for Supercomputing Applications (NCSA), and University of Illinois at Urbana-Champaign (UIUC).

He came to the University of Iowa in 1998 shortly after he graduated with his M.S. in geography from Peking University. Shaowen received his PhD in 2004, and his thesis advisor was Marc Armstrong. He specializes in advanced cyberinfrastructure, geographic information science and systems, and computing- and data-intensive geospatial problem solving. He is an internationally recognized pioneer and leader for CyberGIS -- geographic information science and systems based on advanced cyberinfrastructure. In 2002, Wang started his independent researcher career as a computational scientist within the Academic Technologies unit of the Information Technology Services at the University of Iowa. Within three years, he successfully established a leading research group with more than a dozen members focusing on computationally intensive geographical sciences, and distributed and high-performance computing; and consequently he was promoted from Assistant Research Scientist to Research Scientist. In 2007, he joined the University of Illinois at Urbana-Champaign (UIUC) as an Assistant Professor in the Department of Geography and Senior Research Scientist in NCSA; and founded the CyberInfrastructure and Geospatial Information Laboratory.

Professor Wang was named NCSA Fellow in 2007, received a highly competitive NSF CAREER Award in 2009, and was named the Helen Corley Petit Scholar for 2011-12 by UIUC’s College of Liberal Arts and Sciences. Professor Wang was promoted to Associate Professor with tenure in the Department of Geography and appointed Associate Director for CyberGIS in NCSA in 2010. In 2013 he was promoted to Full Professor. Since 2013, he has been serving as the founding director of the UIUC’s CyberGIS Center for Advanced Digital and Spatial Studies (http://www.cigi.illinois.edu/shaowen/, http://cybergis.illinois.edu/). The mission of the CyberGIS Center is to empower advanced digital and spatial studies through innovations in CyberGIS technologies and applications. Needles to say, Professor Wang has quickly become a leader in GIScience and CyberGIS.
Wei Wang just completed her PhD in the department of Geographical and Sustainability Science. Her research interests involve geographic information retrieval, geographic information science, and natural language processing. Wei worked with her advisor, Dr. Kathleen Stewart, on methods for automatically capturing spatiotemporal and semantic information from hazard-related web news reports (e.g., reports about severe storms including tornadoes and blizzards) and representing the extracted information using GIS. This approach not only transfers text content to a visual representation that preserves informational characteristics from the hazard news reports, but also offers individuals insights into the spatial, temporal, and semantic characteristics of events that are otherwise buried in web documents. Detecting patterns of hazard events from tweets is another topic of Wei’s research. The results of Wei’s research show how information from online news sources and tweets can be processed automatically to provide information about the kinds of events that occur, patterns of change, and spatiotemporal trends of different events, such as hazard events. Wei also received the 2013-2014 Ballard and Seashore Dissertation Fellowship.

Figure 1. Shows Wei’s research on extracted events relating to Hurricane Sandy from web news reports for the period Oct 24-Nov 04, 2012.
Austin Dunn, Julia Reynolds, and Asa Strong are recent graduates from our program who used GIS and participatory mapping to conduct research on the benefits of permaculture in Malawi. Below is Julia Reynolds’ amazing report on their work in Malawi.

Though we arrived in Malawi in October of 2013, our research project “Participatory Mapping for Permaculture: Expressing and Sharing Knowledge through Geographic Visualization in Malawi” had been over a year in the making. The seeds of the project were planted in the summer of 2012, when Austin first travelled to Malawi to conduct an independent undergraduate research project on subsistence agriculture and food security.

During his two-month stay, he learned about the country’s dependence on maize as its staple food and export, and about the economic, environmental, and nutritional problems that this monocrop-dependence creates. At the Kusamala Institute of Agriculture and Ecology, a local NGO promoting agroecology systems, Austin was also exposed to permaculture, a design system for agriculture and human settlements that use local knowledge and resources to mimic natural ecosystems.

When Austin returned to The University of Iowa for his senior year, he shared his stories of research and agriculture in Malawi. Asa had spent a summer researching Participatory GIS in Atlanta, GA and another in Redlands, CA as an intern with ESRI, and I had completed an undergraduate research project on food systems in the Dominican Republic, so we were both interested in the potential of permaculture and using GIS to mobilize communities around such systems.

Our research project emphasized a mixed-methods approach to researching and evaluating the benefits of alternative agriculture in Malawi. We used GPS technology and mobile apps, including ESRI’s ArcGIS Online app, to create detailed land-use maps of rural farming communities. We also conducted participatory mapping exercises with a core group of farmers in nearby Khundi village to capture local knowledge and perceptions of agriculture. The GPS and participatory maps were used to evaluate farm design, understand differences between permaculture and conventional agriculture, and assess the limitations of agricultural outreach at the village level.
With the support of Kusamala, ESRI, and a Young Explorer’s Grant from National Geographic, Austin, Asa, and I were able to conduct fieldwork in Khundi village and throughout central Malawi over the course of nine months. We used GIS to create a detailed map of Kusamala’s permaculture demonstration farm to be used as an education and outreach tool by the organization. We completed multiple participatory mapping workshops, which brought a variety of stakeholders (including farmers) together to discuss, and practice, how maps can be used to record spatial knowledge and design better land/resource management systems. Through extensive interviews and the participatory maps made by the farmers of Khundi village, we facilitated the creation of a “Best Practices” agricultural handbook (written in ChiChewa and illustrated by farmers’ maps), which was distributed to farmers throughout the community.

After concluding our fieldwork, we can reflect on the ups and downs of research in Malawi. We used an iPad connected to the local cellular network to enable GPS and collect data with apps, and were thrilled that this technology consistently worked in the rural villages. However, working in ArcGIS for Desktop was constantly threatened by power outages, especially during the rainy season when daily storms brought a few hours without electricity—this was never a concern in Jessup Hall’s GIS lab! One of the highlights of our research experience was working with our two translators: Vincent, a Malawian with a degree in irrigated agriculture and a sincere interest in GIS, and Dikalani, a student in a Khundi village with a passion for learning and teaching. When they weren’t assisting our fieldwork with farmers, they both patiently taught us the names of different crops and animals in Chichewa. Although the fieldwork has ended, we still have a lot planned: final reports, more maps, continued communication with our group of farmers and with National Geographic and Esri. We are grateful we have such a positive experience to draw upon and are looking forward to sharing our project in the coming months. Many thanks to the UI Geography department, without which we would not have had the opportunity to undertake this project.